

CATALOG
OF
RADIUM APPLICATORS
SCREENS AND ACCESSORIES



THE RADIUM COMPANY OF COLORADO
DENVER, COLORADO, U. S. A.
1921

Copyright, 1921
By
The Radium Company of Colorado

FOREWORD

THE radium applicators, screens and other accessories listed in this catalog are constructed according to the most approved designs and combine the best features of all such instruments heretofore manufactured. During the past three years we have given considerable attention to the refinement of existing designs, and have attempted to incorporate in our new screens and accessories all suggestions for improvement offered by physicians and surgeons using our product. The resulting designs appear to have met with almost unqualified approval by the medical profession. It is inevitable, however, that some special forms of instruments will not be found in this catalog, but the services of our mechanical department will always be available for the manufacture of such articles according to specifications submitted. We will gladly co-operate with our clients in developing the mechanical details and will supply the required equipment at a reasonable charge. Suggestions regarding possible modifications of our applicators and accessories will be greatly appreciated.

THE RADIUM COMPANY OF COLORADO.

CONTENTS.

Foreword	3
Standard Radium Applicators	7
Tubes	7
Plaques	8
Needles	12
Accessories for Tubular Applicators	13
Tube Screens	13
Capsule Screens	15
Tandem Screens	18
Twin Screens	21
Oesophageal Applicators	23
Rectal Applicators	25
Sounds	27
Schmitz Uterine Applicator	29
Corbus Cystoscope	32
Jefferson Cervical Applicator	32
Forceps	33
Trocars	51
Tube Screen Holder	34
Lead-Lined Container	35
Carrying Case	35
Accessories for Needle Applicators	36
Capsule Screens	36
Dermatological Screens	40
Prostatic Applicators	42
Trocars and Cannula	43
Holder	43
Forceps	44
Bowen Holder for Sterilizing	45
Antrum Applicator	52
Lead-Lined Containers	46
Sounds	27
Carrying Case	46
Accessories for Flat Applicators	47
Metal Screens	47
Handles	48
Carrying Case	49
Millimeter Gauge	50
Special Equipment	51
Electroscope	51
Lead-Lined Box	52
Wall Cabinet	53
Spinthariscopes	54

STANDARD RADIUM APPLICATORS**Tubes**

This form of radium applicator consists of a small hermetically sealed tube in which the radium salt, preferably the sulphate, is firmly packed. Each tube is sealed as closely as possible to the radium salt, leaving a minimum of space. Our stock glass

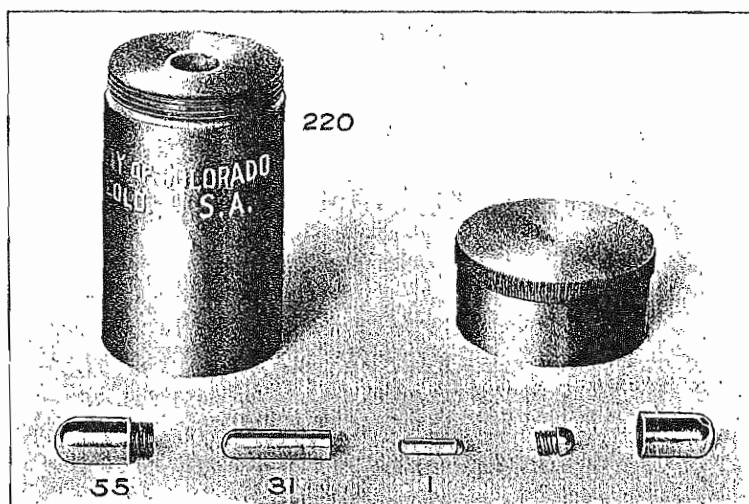


Fig. 1.

tubes are approximately 2.4 millimeters in external diameter and in length no greater than is necessary to hold the firmly packed sulphate. The standard sizes are as follows:

- No. 1. Glass tube containing 25 milligrams of Radium Element; external diameter 2 mm., average length 8 mm.
- No. 2. Glass tube containing 50 milligrams of Radium Element; external diameter 2.4 mm., average length 15 mm.
- No. 3. Glass tube containing 100 milligrams of Radium Element; external diameter 2.4 mm., average length 20 mm.
- No. 4. Extra thin glass tube containing 25 milligrams of Radium Element; external diameter 1.5 mm., length 25 mm.



Fig. 2.

Plaques

The flat applicators or plaques designed for dermatological application of radium are supplied in three standard sizes for each of three standard quantities of radium element. They are called half, full and double strength applicators, on the basis of a certain concentration which has been more or less universally adopted as constituting a full strength surface. This concentration is secured by uniformly distributing 5 milligrams of radium element over an area of 1 sq. cm. Our new type of flat applicator is an improvement over the other forms of varnish or enamel applicators now on the market. The compound which we employ is of a very low density, similar to that of varnish, but is very resistant to physical injury and is guaranteed not to chip off. The very low density is a great advantage in dermatological applications, permitting the passage of the softer beta rays which are so essential in superficial treatments. Each plaque is

square, with very slightly rounded corners. The radium is applied to the 1mm. brass gold-plated plaque and covered with the special composition plate. Plaques may be obtained with or without handles, in the following sizes:

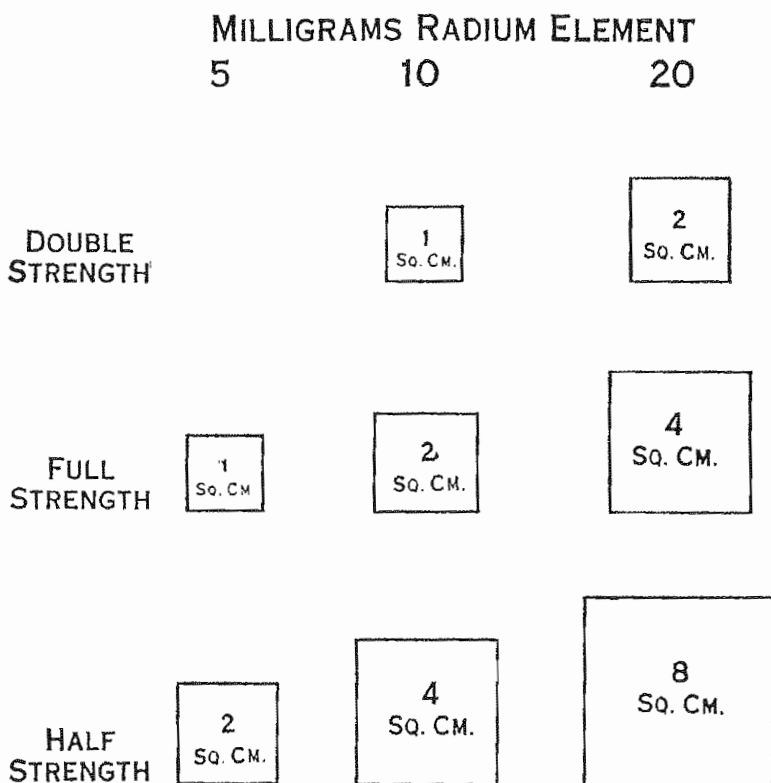


Figure 3

(A) Full Strength Plaques with Handles

- No. 5. Containing 5 milligrams Radium Element; treated area 1 sq. cm. (10 mm. x 10 mm.).
- No. 6. Containing 10 milligrams Radium Element; treated area 2 sq. cm. (14.1 mm. x 14.1 mm.).
- No. 7. Containing 20 milligrams Radium Element; treated area 4 sq. cm. (20 mm. x 20 mm.).

(B) Half Strength Plaques with Handles

- No. 8. Containing 5 milligrams Radium Element; treated area 2 sq. cm. (14.1 mm. x 14.1 mm.).
- No. 9. Containing 10 milligrams Radium Element; treated area 4 sq. cm. (20 mm. x 20 mm.).
- No. 10. Containing 20 milligrams Radium Element; treated area 8 sq. cm. (28.3 mm. x 28.3 mm.).

(C) Double Strength Plaques with Handles

- No. 11. Containing 10 milligrams Radium Element; treated area 1 sq. cm. (10 mm. x 10 mm.).
- No. 12. Containing 20 milligrams Radium Element; treated area 2 sq. cm. (14.1 mm. x 14.1 mm.).

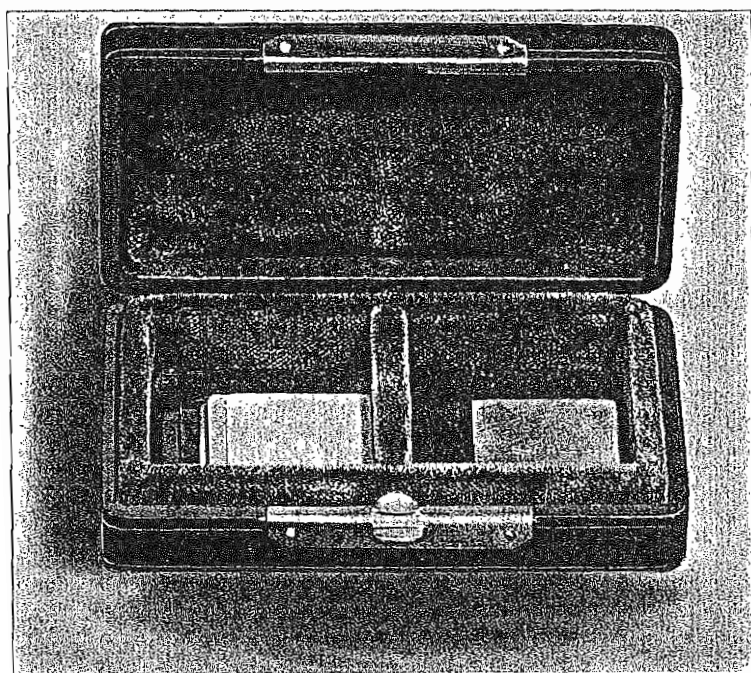
(D) Full Strength Plaques without Handles

Fig. 4

- No. 13. Containing 5 milligrams Radium Element; treated area 1 sq. cm. (10 mm. x 10 mm.).
- No. 14. Containing 10 milligrams Radium Element; treated area 2 sq. cm. (14.1 mm. x 14.1 mm.).

- No. 15. Containing 20 milligrams Radium Element; treated area 4 sq. cm. (20 mm. x 20 mm.).

(E) Half Strength Plaques without Handles

- No. 16. Containing 5 milligrams Radium Element; treated area 2 sq. cm. (14.1 mm. x 14.1 mm.).
No. 17. Containing 10 milligrams Radium Element; treated area 4 sq. cm. (20 mm. x 20 mm.).
No. 18. Containing 20 milligrams Radium Element; treated area 8 sq. cm. (28.3 mm. x 28.3 mm.).

(F) Double Strength Plaques without Handles

- No. 19. Containing 10 milligrams Radium Element; treated area 1 sq. cm. (10 mm. x 10 mm.).
No. 20. Containing 20 milligrams Radium Element; treated area 2 sq. cm. (14.1 mm. x 14.1 mm.).

(G) Simpson Oval Plaques.

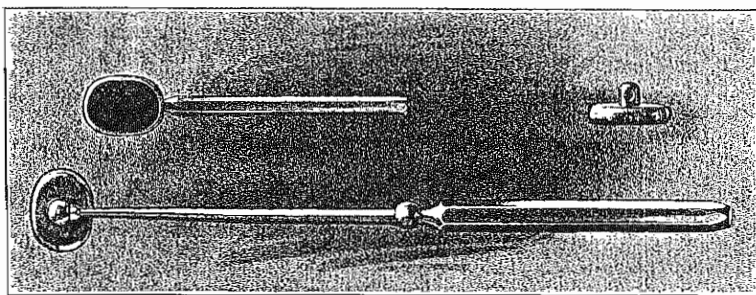


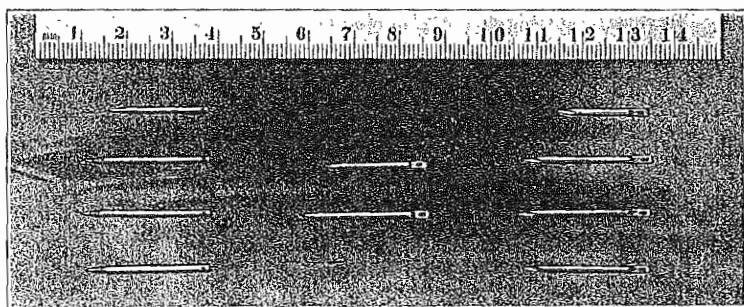
Fig. 5. No. 21

Dr. C. A. Simpson of Washington, D. C., has designed an oval plaque for tonsil treatment which appears to meet the requirements of this work particularly well. We are offering this oval applicator in two strengths. The oval radioactive area measures 11 mm. x 16 mm.

- No. 21. Simpson Oval Plaque containing 20 milligrams Radium Element.
No. 22. Simpson Oval Plaque containing 30 milligrams Radium Element.

Needles

In order to provide a convenient source of radiation for embedding in the tissues, applicators have been devised in the form of needles.



Gold Needles

Fig. 6

Non-Corrosive Steel Needles

(A) Gold Needles

Our gold needles are constructed of 10 carat gold which combines to the greatest advantage, strength and resistance to corrosion. A point of platinum containing 10% iridium is provided, thereby eliminating the possibility of the needle becoming dull and difficult to introduce into the tissues. The wall thickness is 0.2 mm, which provides only a very light screen. The standard size which may contain any amount of Radium up to 25 milligrams measures 1.45 mm. in external diameter and 29 mm. in length.

A shorter needle of the same diameter 22 mm. in length is supplied as a more suitable container for five milligrams. Each needle is provided with a 10 carat head of the same diameter as the body of the needle and a round eyelet is provided for securing the applicator in place. Needle applicators may be obtained in the following sizes:

- No. 23. Gold needle containing 12.5 milligrams Radium Element.
- No. 24. Gold needle containing 10 milligrams Radium Element.
- No. 25. Gold needle containing 25 milligrams Radium Element.
- No. 26. Short gold needle containing 5 milligrams Radium Element.

(B) Non-corrosive Steel Needles

We also manufacture needles of a non-corrosive alloy, which is a hard white metal of unusual luster. It possesses many properties which are most desirable in radium needle applicators.

as, for example, extreme hardness, resistance to acids, rust and tarnishing. Since this needle will not corrode and possesses such great strength, it cannot be too highly recommended. The stock design is 1.5 mm. in external diameter by 29 mm. in length over all, which dimensions are practically identical with those of our gold needle. The wall thickness is greater than that of the gold needle, consequently the internal diameter is less and the steel needle of this size will not hold more than 12.5 milligrams of Radium element. We can furnish however, a 25 milligram non-corrosive steel needle measuring 1.8 mm. x 29 mm. All non-corrosive steel needles are regularly made with a long loop eyelet and trocar or triangular point. We are prepared however to furnish these needles with a plain point if so desired. The following sizes are regularly supplied:

- No. 27. Non-corrosive steel needle containing 12.5 milligrams Radium Element.
- No. 28. Non-corrosive steel needle containing 10 milligrams Radium Element.
- No. 29. Non-corrosive steel needle containing 25 milligrams Radium Element.
- No. 30. Short non-corrosive steel needle containing 5 milligrams Radium Element; length over all, 22 mm.

ACCESSORIES FOR TUBULAR APPLICATORS

Silver Tube Screens, Type A

This type of silver screen is made in three standard sizes to hold 25, 50 and 100 milligram stock tubes. The material is Ster-

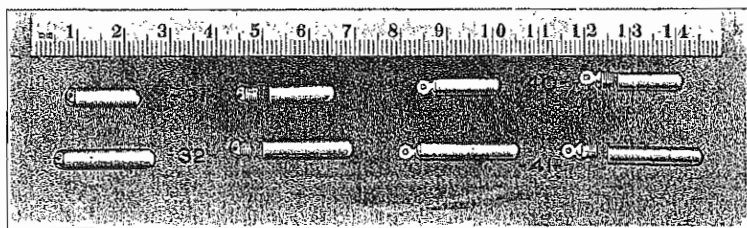


Fig. 7

ling silver and the wall thickness in each case is 0.5 mm. The screw cap is of the Bull Dog type with a small eyelet. The dimensions of the stock sizes are as follows:

- No. 31. To contain 25 milligram No. 1 glass tube. External diameter 3.5 mm. Length over all 16 mm.
- No. 32. To contain 50 milligram No. 2 glass tube. External diameter 4 mm. Length over all 22 mm.
- No. 33. To contain 100 milligram No. 3 glass tube. External diameter 4 mm. Length over all 27 mm.

Gold Tube Screens, Type A

This screen is identical with screens Nos. 31, 32 and 33, with the exception that it is made of 14 carat gold.

No. 34. To contain 25 mg. No. 1 glass tube.

No. 35. To contain 50 mg. No. 2 glass tube.

No. 36. To contain 100 mg. No. 3 glass tube.

Platinum Tube Screens, Type A

This screen is identical with screens Nos. 31, 32 and 33, with the exception that it is made of platinum.

No. 37. To contain 25 mg. No. 1 glass tube.

No. 38. To contain 50 mg. No. 2 glass tube.

No. 39. To contain 100 mg. No. 3 glass tube.

Silver Tube Screens, Type B

This screen is identical with screen Type A., with the exception that it is provided with a loop-eyellet cap instead of the Bull Dog cap. The dimensions of the stock sizes are as follows:

No. 40. To contain 25 mg. No. 1 glass tube. External diameter 3.5 mm. Length over all 19 mm.

No. 41. To contain 50 mg. No. 2 glass tube. External diameter 4 mm. Length over all 25 mm.

No. 42. To contain 100 mg. No. 3 glass tube. External diameter 4 mm. Length over all 30 mm.

Gold Tube Screens, Type B

This screen is identical with screens Nos. 40, 41 and 42, with the exception that it is made of 14 carat gold.

No. 43. To contain 25 mg. No. 1 glass tube.

No. 44. To contain 50 mg. No. 2 glass tube.

No. 45. To contain 100 mg. No. 3 glass tube.

Platinum Tube Screens, Type B

This screen is identical with screens Nos. 40, 41 and 42, with the exception that it is made of platinum.

No. 46. To contain 25 mg. No. 1 glass tube.

No. 47. To contain 50 mg. No. 2 glass tube.

No. 48. To contain 100 mg. No. 3 glass tube.

Silver Tube Screen, Type C

This type of screen is made for specially long and extra thin 25 milligram tubes. It does not fit the stock tubes. The material is Sterling silver and the wall thickness is 0.5 mm. It is provided with a screw cap of the Bull Dog Type with an eyellet.

No. 49. To contain 25 mg. No. 4 extra thin glass tube.
External diameter 3 mm. Length over all 31 mm.

Gold Tube Screen, Type C.

No. 50. This screen is identical with screen No. 49, with the exception that it is made of 14 carat gold.

Platinum Tube Screen, Type C

- No. 51. This screen is identical with screen No. 49, with the exception that it is made of platinum.

Silver Tube Screen, Type D

This screen is identical with screen Type C, with the exception that it is provided with a loop-eyelet instead of a Bull Dog cap. The dimensions of this screen are as follows:

- No. 52. To contain 25 mg. No. 4 extra thin glass tube. External diameter 3 mm. Length over all 34 mm.

Gold Tube Screen, Type D

- No. 53. This screen is identical with screen No. 52, with the exception that it is made of 14 carat gold.

Platinum Tube Screen, Type D

- No. 54. This screen is identical with screen No. 52, with the exception that it is made of platinum.

Capsules to Contain Above Tube Screens**Brass Capsule Screens**

This screen is designed to contain the standard silver, gold or platinum Type A screens for the 25, 50 and 100 milligram tubes. It is constructed in two parts, threaded near the middle, thus

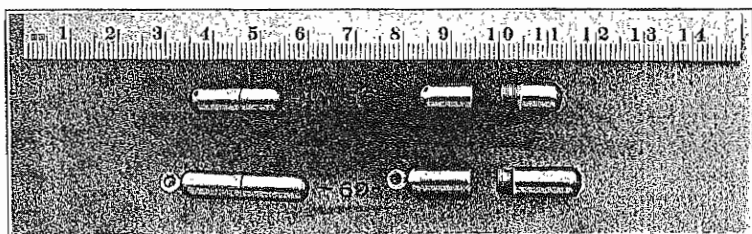


Fig. 8

providing a capsule with round ends and without any excess metal. One end is provided with a 1 mm. eyelet. Each brass screen is gold-plated and has a wall thickness of 1mm. The dimensions are as follows:

- No. 55. To contain 25 mg. Type A metal tube screen. External diameter 6 mm. Length over all 20 mm.
 No. 56. To contain 50 mg. Type A metal tube screen. External diameter 6 mm. Length over all 26 mm.
 No. 57. To contain 100 mg. Type A metal tube screen. External diameter 6 mm. Length over all 31 mm.

Silver Capsule Screens

These screens are identical with the screens described under Nos. 55, 56 and 57, with the exception that they are made of Sterling silver.

- No. 58. To contain 25 mg. Type A metal tube screen.
- No. 59. To contain 50 mg. Type A metal tube screen.
- No. 60. To contain 100 mg. Type A metal tube screen.

Gold Capsule Screens

These screens are identical with the screens described under Nos. 55, 56 and 57, with the exception that they are made of 14 carat gold.

- No. 61. To contain 25 mg. Type A metal tube screen.
- No. 62. To contain 50 mg. Type A metal tube screen.
- No. 63. To contain 100 mg. Type A metal tube screen.

Platinum Capsule Screens

These screens are identical with the screens described under Nos. 55, 56 and 57, with the exception that they are made of 0.5 mm. platinum.

- No. 64. To contain 25 mg. Type A metal tube screen.
- No. 65. To contain 50 mg. Type A metal tube screen.
- No. 66. To contain 100 mg. Type A metal tube screen.

Capsules with Loop Eyelet to Contain Tube Screens**Brass Capsule Screens with Loop Eyelet**

These screens are provided with a large loop eyelet which increases the length 4 mm. The inside diameter of the eyelet is 2 mm. They are made in sizes to contain Type A and Type B metal screens.

- No. 67. To contain 25 mg. Type A metal tube screen.
External diameter 6 mm. Length over all 24 mm.
- No. 68. To contain 25 mg. Type B metal tube screen.
External diameter 6 mm. Length over all 27 mm.
- No. 69. To contain 50 mg. Type A metal tube screen.
External diameter 6 mm. Length over all 30 mm.
- No. 70. To contain 50 mg. Type B metal tube screen.
External diameter 6 mm. Length over all 33 mm.
- No. 71. To contain 100 mg. Type A metal tube screen.
External diameter 6 mm. Length over all 35 mm.
- No. 72. To contain 100 mg. Type B metal tube screen.
External diameter 6 mm. Length over all 38 mm.

Silver Capsule Screens with Loop Eyelet

These screens are identical with the screens described under Nos. 67 to 72, with the exception that they are made of Sterling silver.

No. 73.	To contain	25 mg.	Type A	metal tube screen.
No. 74.	To contain	25 mg.	Type B	metal tube screen.
No. 75.	To contain	50 mg.	Type A	metal tube screen.
No. 76.	To contain	50 mg.	Type B	metal tube screen.
No. 77.	To contain	100 mg.	Type A	metal tube screen.
No. 78.	To contain	100 mg.	Type B	metal tube screen.

Gold Capsule Screens with Loop Eyelets

These screens are identical with the screens described under Nos. 67 to 72, with the exception that they are made of 14 carat gold.

No. 79.	To contain	25 mg.	Type A	metal tube screen.
No. 80.	To contain	25 mg.	Type B	metal tube screen.
No. 81.	To contain	50 mg.	Type A	metal tube screen.
No. 82.	To contain	50 mg.	Type B	metal tube screen.
No. 83.	To contain	100 mg.	Type A	metal tube screen.
No. 84.	To contain	100 mg.	Type B	metal tube screen.

Platinum Capsule Screens with Loop Eyelet

These screens are identical with those described under Nos. 67 to 72, with the exception that they are made of 0.5 mm. platinum.

No. 85.	To contain	25 mg.	Type A	metal tube screen.
No. 86.	To contain	25 mg.	Type B	metal tube screen.
No. 87.	To contain	50 mg.	Type A	metal tube screen.
No. 88.	To contain	50 mg.	Type B	metal tube screen.
No. 89.	To contain	100 mg.	Type A	metal tube screen.
No. 90.	To contain	100 mg.	Type B	metal tube screen.

Brass Capsule Screens for Extra Thin 25 mg. Tube

This capsule is constructed of gold-plated brass similar to those described under Nos. 67 to 72. It will not fit the stock tube, however, and is made only for the special thin 25 mg. Type C and D metal screens. The dimensions are as follows:

No. 91.	To contain	25 mg.	Type C	metal screen. External diameter 4 mm. Length over all 41 mm.
No. 92.	To contain	25 mg.	Type D	metal screen. External diameter 4 mm. Length over all 44 mm.

Silver Capsule Screens for Extra Thin 25 mg. Tube

These screens are identical with the screens described under Nos. 91 and 92, with the exception that they are made of Sterling silver.

No. 93.	To contain	25 mg.	Type C	metal screen.
No. 94.	To contain	25 mg.	Type D	metal screen.

Gold Capsule Screens for Extra Thin 25 mg. Tube

These screens are identical with those described under Nos. 91 and 92, with the exception that they are made of 14 carat gold.

No. 95. To contain 25 mg. Type C metal screen.

No. 96. To contain 25 mg. Type D metal screen.

Platinum Capsule Screens for Extra Thin 25 mg. Tube

These capsules are identical with those described under Nos. 91 and 92, with the exception that they are made of 0.5 mm. platinum.

No. 97. To contain 25 mg. Type C metal screen.

No. 98. To contain 25 mg. Type D metal screen.

Lead Screens

Single screens of lead 1.5 mm. thick are provided for use when very heavy screening is desired. On account of the softness of the metal all lead screens are constructed in an open end de-

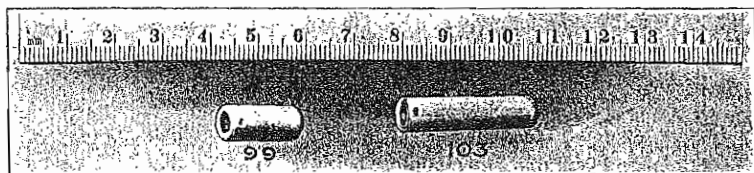


Fig. 9

sign. Screw caps cannot be readily made. The metal screen of Type A, B, C or D may be secured in the lead screen by passing a thread through the eyelets of both.

No. 99. To contain one 25 mg. Type A metal screen.

No. 100. To contain one 25 mg. Type B metal screen.

No. 101. To contain one 25 mg. Type C metal screen.

No. 102. To contain one 25 mg. Type D metal screen.

No. 103. To contain one 50 mg. Type A metal screen.

No. 104. To contain one 50 mg. Type B metal screen.

No. 105. To contain one 100 mg. Type A metal screen.

No. 106. To contain one 100 mg. Type B metal screen.

Brass Tandem Capsule Screens

Brass tandem capsule screens are made to contain either Type A or B metal tubes end to end. We recommend, however, the use of Type A or "Bull Dog" design when two tubes are placed in tandem since the Type B screens with loop eyelets are several

millimeters longer and require an exceptionally long container. These tandem screens are constructed of one millimeter brass, threaded near the middle, one end being provided with a 1 mm. eyelet as illustrated in Figure 10.

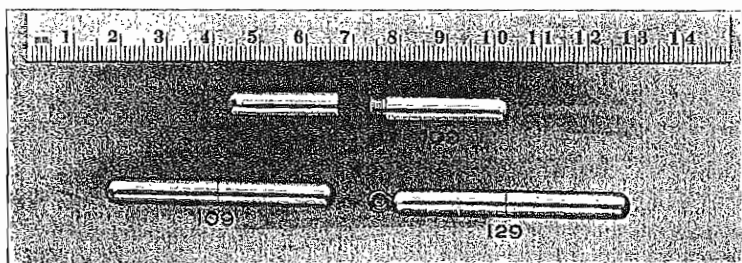


Fig. 10

Dimensions are as follows:

- No. 107. To contain two 25 mg. Type A metal screens.
External diameter 6 mm. Length over all 36 mm.
- No. 108. To contain two 25 mg. Type B metal screens.
External diameter 6 mm. Length over all 42 mm.
- No. 109. To contain two 50 mg. Type A metal screens.
External diameter 6 mm. Length over all 48 mm.
- No. 110. To contain two 50 mg. Type B metal screens.
External diameter 6 mm. Length over all 54 mm.

Silver Tandem Capsule Screens

These capsules are identical with those described under Nos. 107 to 110, with the exception that they are made of Sterling silver.

- No. 111. To contain two 25 mg. Type A metal screens.
- No. 112. To contain two 25 mg. Type B metal screens.
- No. 113. To contain two 50 mg. Type A metal screens.
- No. 114. To contain two 50 mg. Type B metal screens.

Gold Tandem Capsule Screens

These capsules are identical with those described under Nos. 107 to 110, with the exception that they are made of 14 carat gold.

- No. 115. To contain two 25 mg. Type A metal screens.
- No. 116. To contain two 25 mg. Type B metal screens.
- No. 117. To contain two 50 mg. Type A metal screens.
- No. 118. To contain two 50 mg. Type B metal screens.

Platinum Tandem Capsule Screens

These capsules are identical with those described under Nos. 107 to 110, with the exception that they are made of 0.5 mm. platinum.

- No. 119. To contain two 25 mg. Type A metal screens.
- No. 120. To contain two 25 mg. Type B metal screens.
- No. 121. To contain two 50 mg. Type A metal screens.
- No. 122. To contain two 50 mg. Type B metal screens.

Lead Tandem Screens

These screens are of the open end design as described under Nos. 99 to 106, inclusive, except that the length is sufficient to hold two 25 or two 50 milligram Type A or B metal screens end to end.

- No. 123. To contain two 25 mg. Type A metal screens.
- No. 124. To contain two 25 mg. Type B metal screens.
- No. 125. To contain two 50 mg. Type A metal screens.
- No. 126. To contain two 50 mg. Type B metal screens.

Brass Tandem Capsule Screens with Loop Eyelet

Tandem screens similar to those listed under Nos. 107 to 110 are also made with the 2 mm. loop eyelet. The length is sufficient to hold two 25 milligram or two 50 milligram Type A or Type B metal tubes. They may be obtained in the following sizes:

- No. 127. To contain two 25 mg. Type A metal screens.
External diameter 6 mm. Length over all 40. mm.
- No. 128. To contain two 25 mg. Type B metal screens.
External diameter 6 mm. Length over all 46 mm.
- No. 129. To contain two 50 mg. Type A metal screens.
External diameter 6 mm. Length over all 52 mm.
- No. 130. To contain two 50 mg. Type B metal screens.
External diameter 6 mm. Length over all 58 mm.

Silver Tandem Capsule Screens with Loop Eyelet

These capsules are identical with those described under Nos. 127 to 130, with the exception of material, which is Sterling silver.

- No. 131. To contain two 25 mg. Type A metal screens.
- No. 132. To contain two 25 mg. Type B metal screens.
- No. 133. To contain two 50 mg. Type A metal screens.
- No. 134. To contain two 50 mg. Type B metal screens.

Gold Tandem Capsule Screens with Loop Eyelet

These screens are identical with the screens described under Nos. 127 to 130, with the exception of material, which is 14 carat gold.

- No. 135. To contain two 25 mg. Type A metal screens.
- No. 136. To contain two 25 mg. Type B metal screens.
- No. 137. To contain two 50 mg. Type A metal screens.
- No. 138. To contain two 50 mg. Type B metal screens.

Platinum Tandem Capsule Screens with Loop Eyelet

These screens are identical with those described under Nos. 127 to 130, with the exception of material, which is platinum of 0.5 mm. wall thickness.

- No. 139. To contain two 25 mg. Type A metal screens.
- No. 140. To contain two 25 mg. Type B metal screens.
- No. 141. To contain two 50 mg. Type A metal screens.
- No. 142. To contain two 50 mg. Type B metal screens.

Brass Twin Screens

This type of screen is designed to facilitate application of two radium tubes side by side, each in its corresponding metal screen. Such twin applicators are regularly supplied as stock

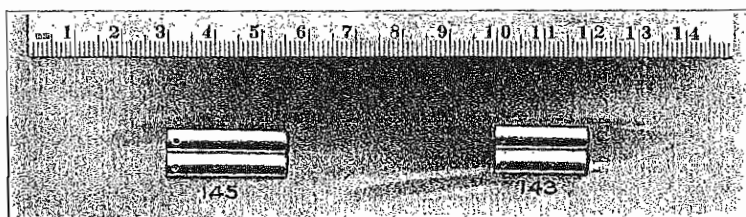


Fig. 11

equipment to hold either two 25, or two 50, or two 100 milligram metal tubes of Types A and B. They are closed at one end and the open ends, in which the single tubes are inserted, are provided with eyelets, arranged in such a position that a silk thread or suture may be passed through both the outer brass and the single screens, thus securing each tube in place. They are supplied in four sizes, each constructed of 1 mm. brass, heavily gold-plated.

- No. 143. To contain two 25 mg. Type A or B metal screens. External diameter of each section 6 mm. Total width 11 mm. Length over all 20 mm.
- No. 144. To contain two 25 milligram extra thin Type C or D metal screens. External diameter of each section 6 mm. Total width 9 mm. Length over all 33 mm.
- No. 145. To contain two 50 mg. Type A or B metal screens. External diameter of each section 6 mm. Total width 11 mm. Length over all 26 mm.
- No. 146. To contain two 100 mg. Type A or B metal screens. External diameter of each section 6 mm. Total width 11 mm. Length over all 30 mm.

Silver Twin Screens

These screens are identical with those described under Nos. 143 to 146, with the exception that they are made of Sterling silver. They may be obtained in the following sizes:

- No. 147. To contain two 25 mg. Type A or B metal screens.
- No. 148. To contain two 25 mg. Type C or D metal screens.
- No. 149. To contain two 50 mg. Type A or B metal screens.
- No. 150. To contain two 100 mg. Type A or B metal screens.

Gold Twin Screens

These screens are identical with those described under Nos. 143 to 146, with the exception that they are made of 14 carat gold. They may be obtained in the following sizes:

- No. 151. To contain two 25 mg. Type A or B metal screens.
- No. 152. To contain two 25 mg. Type C or D metal screens.
- No. 153. To contain two 50 mg. Type A or B metal screens.
- No. 154. To contain two 100 mg. Type A or B metal screens.

Platinum Twin Screens.

These screens are identical with the brass screens described under Nos. 143 to 146, with the exception that they are made of platinum of 0.5 mm. wall thickness. The following sizes may be obtained:

- No. 155. To contain two 25 mg. Type A or B metal screens.
- No. 156. To contain two 25 mg. Type C or D metal screens.
- No. 157. To contain two 50 mg. Type A or B metal screens.
- No. 158. To contain two 100 mg. Type A or B metal screens.

Lead Twin Screens

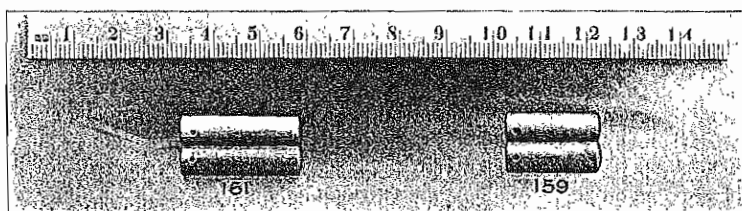


Fig. 12

The lead twin screen is similar to the brass twin, except in wall thickness, which is 1.5 mm. We supply the following sizes:

- No. 159. To contain two 25 mg. Type A or B metal screens.
- No. 160. To contain two 25 mg. Type C or D metal screens.
- No. 161. To contain two 50 mg. Type A or B metal screens.
- No. 162. To contain two 100 mg. Type A or B metal screens.

Oesophageal Applicators

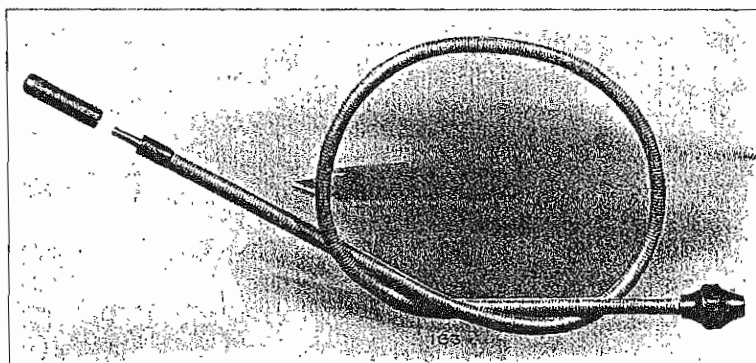


Fig. 13

This applicator consists of a 0.5 mm. silver tube screen coated with 1 mm. hard rubber attached to the end of a flexible wire surrounded by pure gum tubing. The outside diameter of the hard rubber attachment is 6 mm.

- No. 163. Oesophageal applicator to hold one 25 mg. glass tube.
- No. 164. Oesophageal applicator to hold one 50 mg. glass tube.

- No. 165. Oesophageal applicator to hold two No. 23, 24, 25 gold needles, or No. 27, 28 non-corrosive steel needles.
- No. 166. Oesophageal applicator to hold three No. 23, 24, 25 gold needles, or No. 27, 28 non-corrosive steel needles.
- No. 167. Oesophageal applicator to hold four No. 23, 24, 25 gold needles, or No. 27, 28 non-corrosive steel needles.
- No. 168. Oesophageal applicator to hold two No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 169. Oesophageal applicator to hold three No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 170. Oesophageal applicator to hold four No. 26 short gold needles or No. 30 short non-corrosive steel needles.

Mayo Oesophageal Applicator

An instrument has been developed at the Mayo Clinic for applying radium in cases of oesophageal cancer. The method of application follows the technique of H. S. Plummer, (Surg.

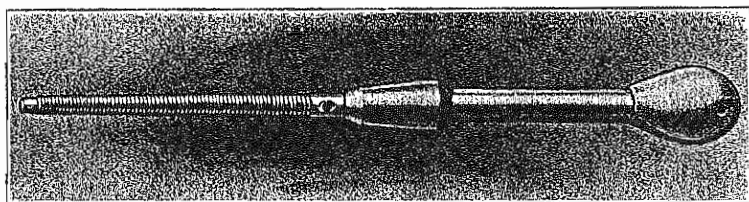


Fig. 14. No. 172

Gynec. and Obst. 1910, X, 519-523) who recommended the use of a silk thread as a guide for dilators in examining oesophageal lesions. The new radium applicator was designed by Dr. P. P. Vinson of the Mayo Foundation and Mayo Clinic. (Surg. Gynec. and Obst. Sept. 1920, Vol. XXXI p. 300.) A radium tube or several needles may be placed in the 1 mm. wall brass cylinder between the dilating olive and the larger brass knob at the opposite end.

- No. 171. To contain one 25 or one 50 mg. Type A or B metal screens.
- No. 172. To contain two 25 mg. Type A metal screens or four needles.

Rectal Applicators

This applicator is constructed essentially as follows: A strip of 1 mm. lead, designed for use as a handle and for securing the applicator in place, is attached to a short length of coiled wire, which provides a flexible connection between the lead handle and the first radium container. This container is made in capsule

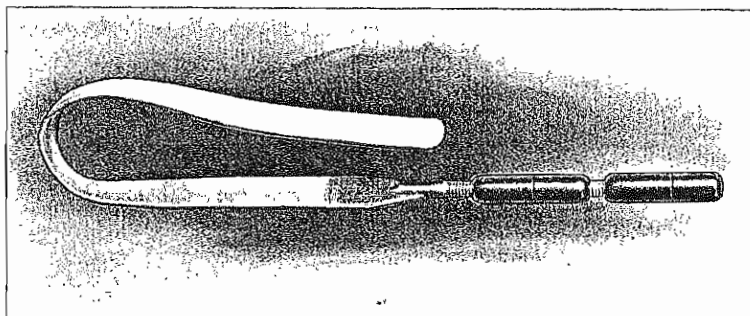


Fig. 15. No. 175

form of 1 mm. brass covered with 1 mm. of hard rubber. A second length of flexible coiled wire is threaded to the end of the capsule, and to this is attached a second container identical with that just described. Each capsule is designed to hold one Type A or B tube screen and the second capsule may be entirely removed from the applicator if but one tube is required. The rectal applicator is supplied in the following sizes:

- No. 173. Rectal applicator to hold one 25 mg. Type A or B tube screen.
- No. 174. Rectal applicator to hold one 25 mg. Type C or D tube screen.
- No. 175. Rectal applicator to hold two 25 mg. Type A or B tube screens.
- No. 176. Rectal applicator to hold two 25 mg. Type C or D tube screens.
- No. 177. Rectal applicator to hold one 25 mg. and one 50 mg. Type A or B tube screens.
- No. 178. Rectal applicator to hold two 50 mg. Type A or B tube screens.
- No. 179. Rectal applicator to hold two No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 180. Rectal applicator to hold four or five No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.

- No. 181. Rectal applicator to hold two No. 26 short gold needles, or No. 30 short non-corrosive steel needles.
- No. 182. Rectal applicator to hold four or five No. 26 short gold needles or No. 30 short non-corrosive steel needles.

The Mayo Combination Rectal and Vaginal Applicator

This applicator has been developed from suggestions received from the Mayo Clinic. A brass tube approximately 10 mm. in diameter with 1 mm. walls is provided with a threaded cap. Both tube and cap are filled with lead and the lead filling in the tube is drilled to receive either two 25 mg. glass tubes in their silver screens or four radium needles. The radium occupies a position eccentric with respect to the brass, that is, close to the brass so that on one side the screening is relatively light (1 mm.

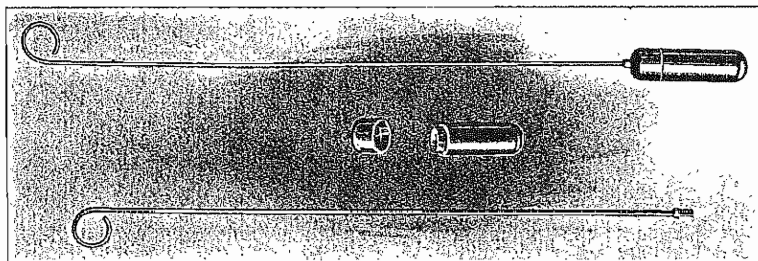


Fig. 16. No. 183

brass) while on the opposite side it is very heavy (1 mm. brass and 5 mm. lead). The entire container is covered with a hard rubber shell 2 mm. in thickness. Either a nickel plated loop eyelet or a ten-inch nickel plated copper wire may be attached to the cap which is threaded for that purpose. A groove on the outside of the hard rubber indicates the position of the radium and this is further indicated to the operator during application by the loop at the end of the copper wire which is bent toward the side containing the radium. A small screw at the side opposite the radium may be removed and the long handle screwed into place at right angles for vaginal treatments. For this work also the long handle may be entirely removed and replaced with a small loop eyelet.

- No. 183. To contain four needles or two 25 mg. Type A metal screens.
- No. 184. To contain one 25 mg. or one 50 mg. Type A or B metal screens.

Sounds with Radium Tube Attachments.**Type A**

These sounds are approximately 14 inches in length and one end is provided with a screw thread to which a brass tube screen of 1 mm. wall thickness may be attached. The screens are of various sizes suitable for holding any one standard size Type A or B metal tube screen or two tubes in tandem. Attachments are also provided to hold two or more needle applicators.

- No. 185. Silver-plated, flexible brass sound with threaded end without attachments.
- No. 186. Attachment to hold one 25 mg. Type A or B tube screen.
- No. 187. Attachment to hold one 25 mg. Type C or D tube screen.
- No. 188. Attachment to hold two 25 mg. Type A tube screens.
- No. 189. Attachment to hold two 25 mg. Type C tube screens.
- No. 190. Attachment to hold one 50 mg. Type A or B tube screen.
- No. 191. Attachment to hold one 100 mg. Type A or B tube screen.
- No. 192. Attachment to hold two No. 23, 24, 25 gold needles, or No. 27, 28 non-corrosive steel needles.
- No. 193. Attachment to hold three No. 23, 24, 25 gold needles, or No. 27, 28 non-corrosive steel needles.
- No. 194. Attachment to hold four No. 23, 24, 25 gold needles, or No. 27, 28 non-corrosive steel needles.
- No. 195. Attachment to hold two No. 26, short gold needles or No. 30 short non-corrosive steel needles.
- No. 196. Attachment to hold three No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 197. Attachment to hold four or five No. 26 short gold needles or No. 30 short non-corrosive steel needles.

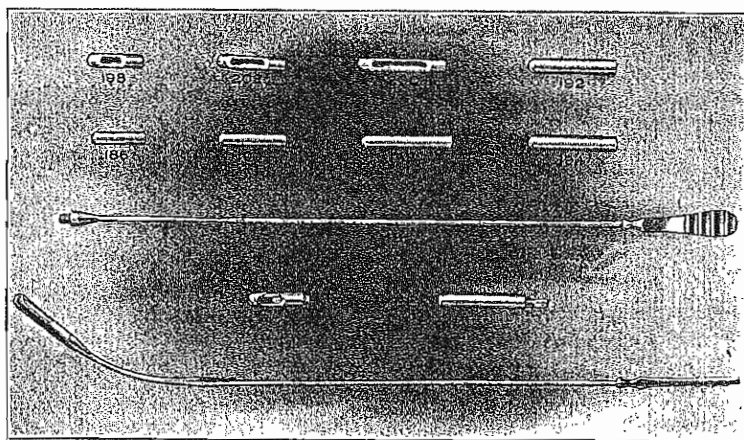


Fig. 18

Type B

This instrument is identical with the sound described under Type A, with the exception that a portion of the metal wall of the hollow tube attachment is cut away, thus provided an aperture or window. In ordering specify one No. 185 silver plated, flexible sound, with any of the following attachments:

- No. 198. Window attachment to hold one 25 mg. Type A or B tube screen.
- No. 199. Window attachment to hold one 25 mg. Type C or D tube screen.
- No. 200. Window attachment to hold two 25 mg. Type A tube screens.
- No. 201. Window attachment to hold two 25 mg. Type C tube screens.
- No. 202. Window attachment to hold one 50 mg. Type A or B tube screen.
- No. 203. Window attachment to hold one 100 mg. Type A or B tube screen.
- No. 204. Window attachment to hold two No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles, in silver capsule.

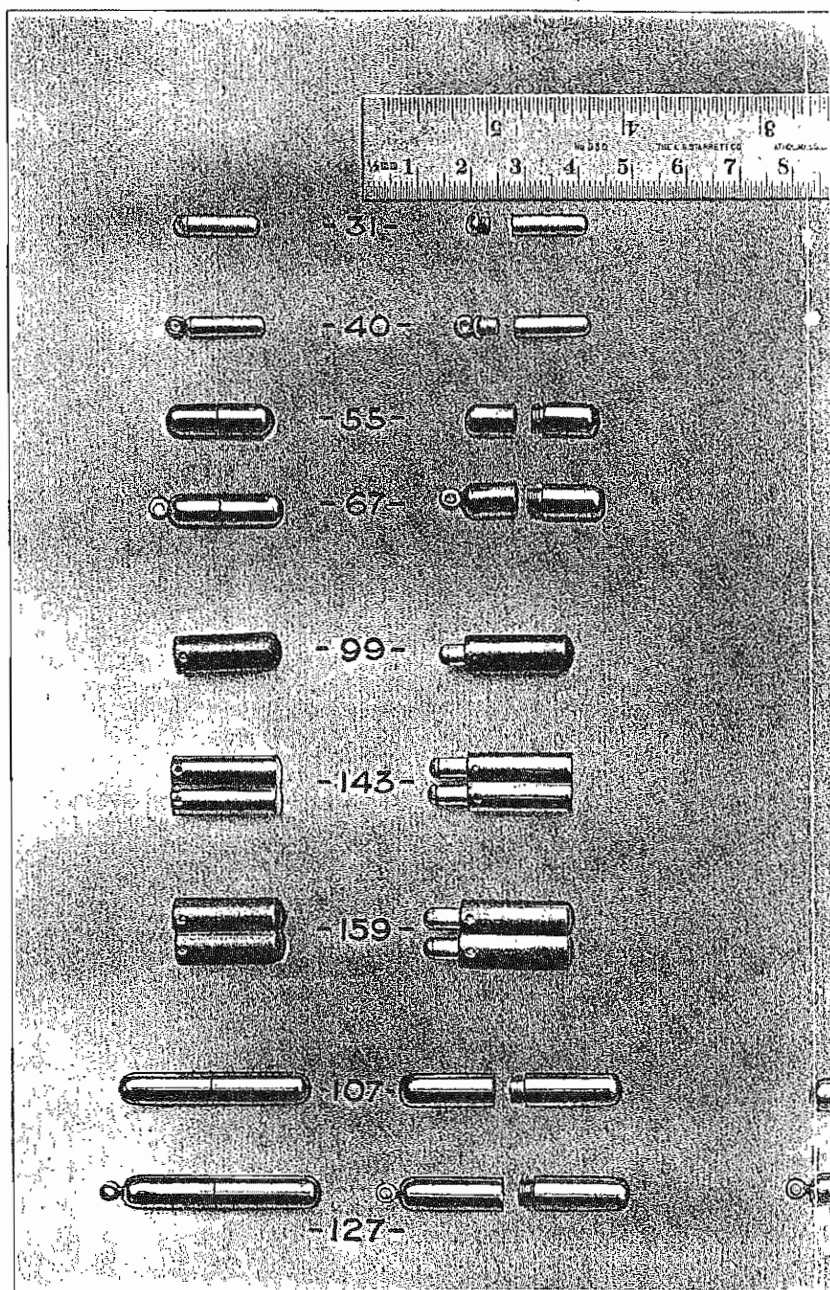
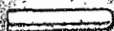


Fig 17



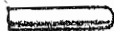
-32-

34



-41-

44



-56-



-69-



-103-



-145-



-161-



-109-



-129-



- No. 205. Window attachment to hold three No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles, in silver capsule.
- No. 206. Window attachment to hold two No. 26 short gold needles or No. 30 short non-corrosive steel needles, in silver capsule.
- No. 207. Window attachment to hold three No. 26 short gold needles or No. 30 short non-corrosive steel needles, in silver capsule.

Schmitz Uterine Applicator and Forceps

A hard rubber-covered brass container of 1 mm. wall thickness is provided with a screw-cap, grooved in such a manner that it may be securely gripped by long forceps. A twelve-inch chain

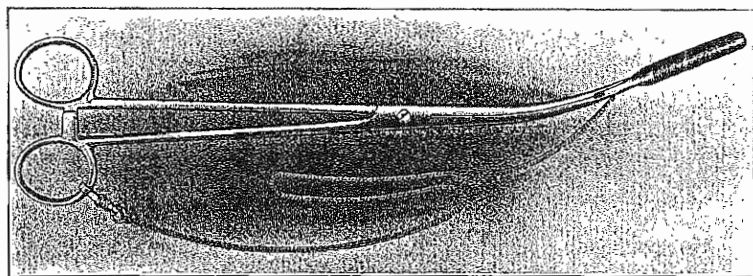


Fig. 19. No. 211

is attached to the radium container for control purposes. The Radium Company of Colorado is indebted to Dr. Henry Schmitz of Chicago for the design of this instrument.

- No. 208. To contain one 25 mg. Type A or B tube screen.
- No. 209. To contain one 50 mg. Type A or B tube screen.
- No. 210. To contain one 100 mg. Type A or B tube screen.
- No. 211. To contain two 25 mg. Type A tube screens or four needles.

Corbus Cystoscope

This instrument is the Corbus modification of the Young cystoscope. (See article by W. C. Danforth, M. D., and B. C. Corbus, M. D., in *Surg. Gyn. and Obs.*, Vol. 31, No. 3, Sept., 1920, page 219). It consists of a metal tube screen designed to hold a

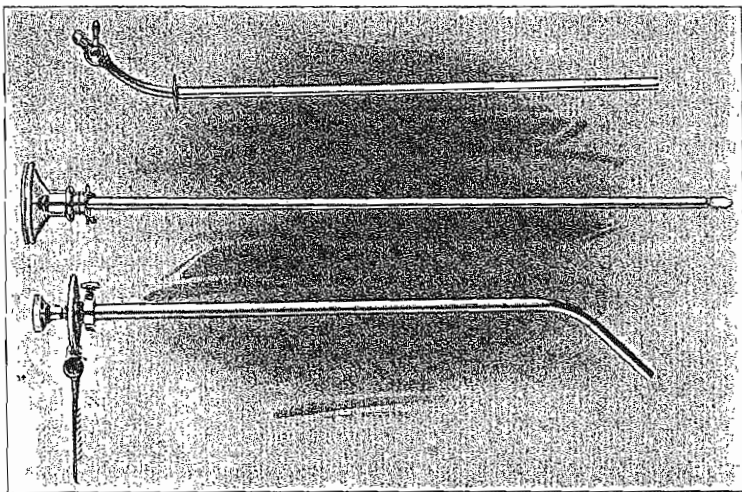


Fig. 20. No. 213

radium tube applicator at the beak of a sheath through which passes a straight cystoscopic lens system. By means of this device the radium may be accurately placed in contact with the bladder area requiring treatment.

No. 212. To contain one 25 mg. Type A or B tube screen.

No. 213. To contain two 25 mg. Type A tube screens.

No. 214. To contain one 50 mg. Type A or B tube screen.

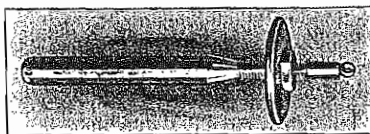
Jefferson Cervical Applicator

Fig. 21. No. 215

The applicator illustrated above has been developed from suggestions received from the Jefferson Clinic of Detroit, Mich.

The distance between the end of the radium container and the disc may be varied by moving the disc over the threaded spindle. A lock-nut is provided to maintain the desired adjustment. We carry only the following size in stock, but will furnish other sizes to order:

No. 215. To contain either two Type A metal screens or four needles.

Long Straight Tube Forceps

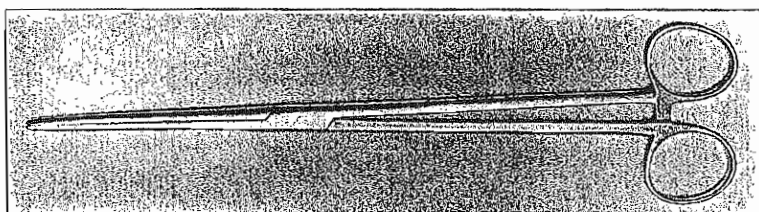


Fig. 22. No. 216

These instruments are designed to hold any 'Type A or B metal tube screen lengthwise.

No. 216. Long straight tube forceps. Length over all 22.5 cm.

Long Curved Tube Forceps

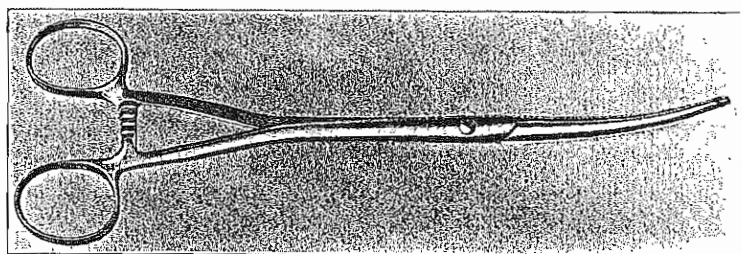


Fig. 23. No. 217

These forceps are intended for picking up metal tube screens holding them crosswise in the grooved tips.

No. 217. Long curved tube forceps. Length over all 22 cm.

Thumb Forceps

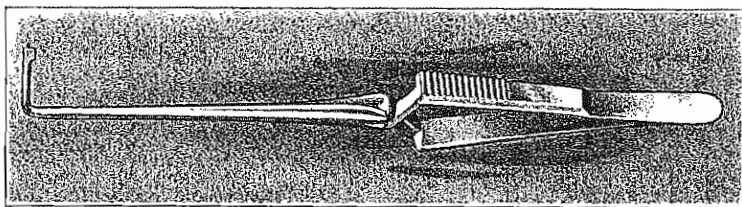


Fig. 24. No. 218

These instruments are designed to pick up small glass tubes. The tension is just enough to hold the tube securely without danger of breaking the glass.

No. 218. Thumb forceps. Length over all 14 cm.

Tube Screen Holder

Dr. G. E. Pfahler of Philadelphia has recommended a pin-vise for holding capsule screens. (*American Journal of Roentgenology*, Vol. 8, p. 30 Jan. 1921.) This instrument is capable of holding screens varying in diameter from 2.0 to 4.5 mm. The tube is held securely in the clamping device thereby enabling

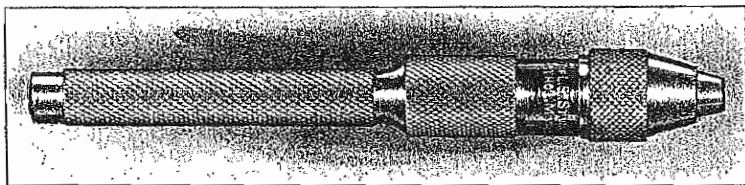


Fig. 25. No. 219

the operator to remove the screw cap by means of a suitable pair of forceps without subjecting his fingers to injury from the radiation. It has the advantage over forceps in that any pair of forceps tends to exert a crushing effect from opposite sides, whereas this special holder has four segments which are gradually tightened upon the thin-walled tube from all sides. The holder is 10 cm. long.

No. 219. Tube screen holder.

Lead-Lined Container for Tubes

The container is made of 1 mm. brass with a 8 mm. lead lining and fitted with a screw cap also heavily lead-lined. The purpose of this accessory is to afford protection from the radium radiation while carrying the tube. All of our radium tubes are regularly delivered in a container of this type. The dimensions are 25 mm. external diameter by 55 mm. in length. It is nickel-plated and plainly marked with the name of the Company and the number of the preparation contained.

No. 220. Nickel-plated lead-lined container for radium tubes.

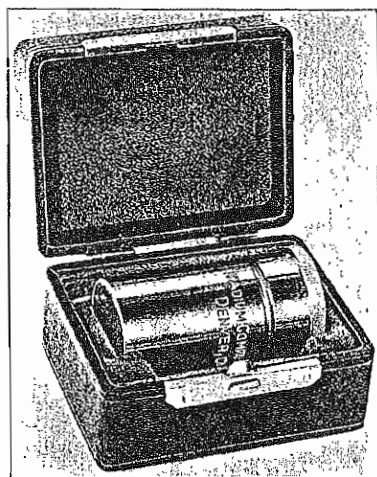


Fig. 26. No. 220-221

Leather-Covered Case for Tubes

For convenience and protection in shipping, the above lead-lined containers are placed in a wooden box with hinged cover, all suitably covered with black leather and lined with purple velvet. The cover bears the imprint, "The Radium Company of Colorado, Denver, Colorado, U. S. A."

The case measures 7.5 mm. in length by 4.5 cm. in height by 5.5 cm. in width.

No. 221. Leather-covered, velvet-lined case for radium tubes.

ACCESSORIES FOR NEEDLE APPLICATORS**Silver Capsule Screens**

In order to utilize the radiation from one or more needles in applications made in the same manner as when a tube of radium is applied, we have added to our stock equipment, silver capsules to hold either one, two, three, four or five needles. These screens

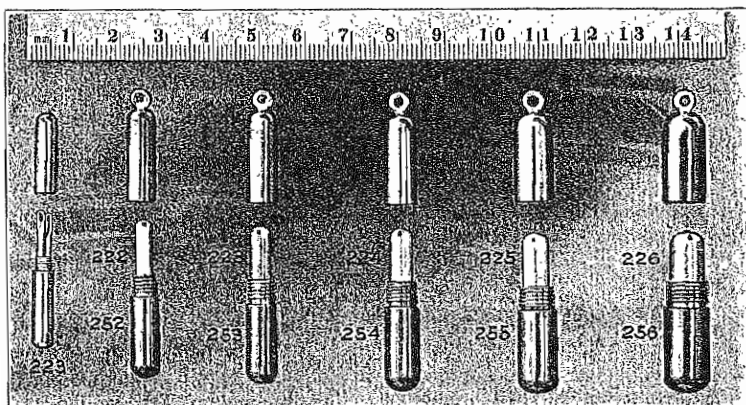


Fig. 27

are constructed of 1 mm. Sterling silver in capsule form threaded near the middle, one end carrying a 1 mm. hole for suturing. The dimensions of the stock sizes are as follows:

- No. 222. To contain one No. 23, 24, 25 gold needle or No. 27, 28 non-corrosive steel needle. External diameter 4.0 mm. Length over all 34 mm.
- No. 223. To contain two No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles. External diameter 5.0 mm. Length over all 34 mm.
- No. 224. To contain three No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles. External diameter 5.5 mm. Length over all 34 mm.
- No. 225. To contain four No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles. External diameter 6.0 mm. Length over all 34 mm.
- No. 226. To contain five No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles. External diameter 6.4 mm. Length over all 34 mm.

- No. 227. To contain one No. 26 short gold needle or No. 30 short non-corrosive steel needle. External diameter 4.0 mm. Length over all 27 mm.
- No. 228. To contain two No. 26 short gold needles or No. 30 short non-corrosive steel needles. External diameter 5.0 mm. Length over all 27 mm.
- No. 229. To contain three No. 26 short gold needles or No. 30 short non-corrosive steel needles. External diameter 5.5 mm. Length over all 27 mm.
- No. 230. To contain four No. 26 short gold needles or No. 30 short non-corrosive steel needles. External diameter 6.0 mm. Length over all 27 mm.
- No. 231. To contain five No. 26 short gold needles or No. 30 short non-corrosive steel needles. External diameter 6.4 mm. Length over all 27 mm.

Gold Capsule Screens

These screens are identical with the silver capsule screens above described under Nos. 222 to 231, with the exception that they are made of 14 carat gold.

- No. 232. To contain one No. 23, 24, 25 gold needle or No. 27, 28 non-corrosive steel needle.
- No. 233. To contain two No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 234. To contain three No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 235. To contain four No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 236. To contain five No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 237. To contain one No. 26 short gold needle or No. 30 short non-corrosive steel needle
- No. 238. To contain two No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 239. To contain three No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 240. To contain four No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 241. To contain five No. 26 short gold needles or No. 30 short non-corrosive steel needles.

Platinum Capsule Screens

These screens are identical with the silver capsules described under Nos. 222 to 231, with the exception that they are made of 0.5 mm. platinum.

- No. 242. To contain one No. 23, 24, 25 gold needle or No. 27, 28 non-corrosive steel needle.
- No. 243. To contain two No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 244. To contain three No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 245. To contain four No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 246. To contain five No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 247. To contain one No. 26 short gold needle or No. 30 short non-corrosive steel needle.
- No. 248. To contain two No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 249. To contain three No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 250. To contain four No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 251. To contain five No. 26 short gold needles or No. 30 short non-corrosive steel needles.

Brass Capsule Screens

These screens are constructed of 1 mm. brass, with a loop eyelet. Each capsule is gold plated. They are intended for holding the above capsules for needles when additional screening is required.

- No. 252. To contain No. 222, 232 or 242 one-needle capsule. External diameter 6.2 mm. Length over all 42 mm.
- No. 253. To contain No. 223, 233 or 243 two-needle capsule. External diameter 7.2 mm. Length over all 42 mm.
- No. 254. To contain No. 224, 234 or 244 three-needle capsule. External diameter 7.7 mm. Length over all 42 mm.
- No. 255. To contain No. 225, 235, 245 four-needle capsule. External diameter 8.2 mm. Length over all 42 mm.
- No. 256. To contain No. 226, 236 or 246 five-needle capsule. External diameter 8.6 mm. Length over all 42 mm.
- No. 257. To contain No. 227, 237 or 247 short one-needle capsule. External diameter 6.2 mm. Length over all 35 mm.
- No. 258. To contain No. 228, 238 or 248 short two-needle capsule. External diameter 7.2 mm. Length over all 35 mm.

- No. 259. To contain No. 229, 239 or 249 short three-needle capsule. External diameter 7.7 mm. Length over all 35 mm.
- No. 260. To contain No. 230, 240 or 250 short four-needle capsule. External diameter 8.2 mm. Length over all 35 mm.
- No. 261. To contain No. 231, 241 or 251 short five-needle capsule. External diameter 8.6 mm. Length over all 35 mm.

Silver Capsule Screens

These screens are identical with those described under Nos. 252 to 261, with the exception that they are made of Sterling silver.

- No. 262. To contain No. 222, 232 or 242 one-needle capsule.
- No. 263. To contain No. 223, 233 or 243 two-needle capsule.
- No. 264. To contain No. 224, 234 or 244 three-needle capsule.
- No. 265. To contain No. 225, 235 or 245 four-needle capsule.
- No. 266. To contain No. 226, 236 or 246 five-needle capsule.
- No. 267. To contain No. 227, 237 or 247 short one-needle capsule.
- No. 268. To contain No. 228, 238 or 248 short two-needle capsule.
- No. 269. To contain No. 229, 239 or 249 short three-needle capsule.
- No. 270. To contain No. 230, 240 or 250 short four-needle capsule.
- No. 271. To contain No. 231, 241 or 251 short five-needle capsule.

Gold Capsule Screens

These screens are identical with those described under Nos. 252 to 261, with the exception that they are made of 14 carat gold.

- No. 272. To contain No. 222, 232, or 242 one-needle capsule.
- No. 273. To contain No. 223, 233, or 243 two-needle capsule.
- No. 274. To contain No. 224, 234, or 244 three-needle capsule.
- No. 275. To contain No. 225, 235, or 245 four-needle capsule.
- No. 276. To contain No. 226, 236, or 246 five-needle capsule.
- No. 277. To contain No. 227, 237, or 247 short one-needle capsule.
- No. 278. To contain No. 228, 238, or 248 short two-needle capsule.
- No. 279. To contain No. 229, 239, or 249 short three-needle capsule.

- No. 280. To contain No. 230, 240, or 250 short four-needle capsule.
 No. 281. To contain No. 231, 241, or 251 short five-needle capsule.

Platinum Capsule Screens

These screens are identical with those described under Nos. 252 to 261, with the exception that they are made of 0.5 mm. platinum.

- No. 282. To contain No. 222, 232, or 242 one-needle capsule.
 No. 283. To contain No. 223, 233, or 243 two-needle capsule.
 No. 284. To contain No. 224, 234, or 244 three-needle capsule.
 No. 285. To contain No. 225, 235, or 245 four-needle capsule.
 No. 286. To contain No. 226, 236, or 246 five-needle capsule.
 No. 287. To contain No. 227, 237, or 247 short one-needle capsule.
 No. 288. To contain No. 228, 238, or 248 short two-needle capsule.
 No. 289. To contain No. 229, 239, or 249 short three-needle capsule.
 No. 290. To contain No. 230, 240, or 250 short four-needle capsule.
 No. 291. To contain No. 231, 241, or 251 short five-needle capsule.

Dermatological Screens for Needle Applicators

It is often desirable to utilize the combined radiation of two or more needles in dermatological applications. Although the

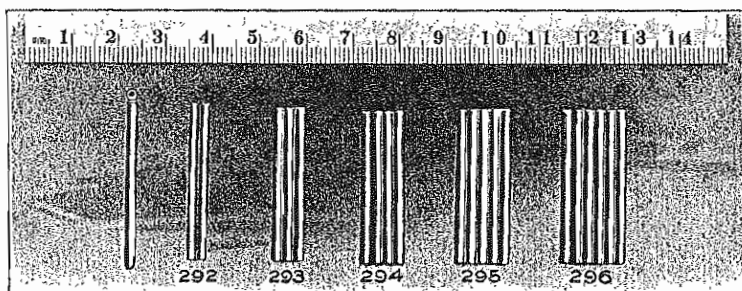


Fig. 28

needle is not designed for this type of treatment, it can be so used and for convenience we furnish a thin-walled brass screen design-

ed to hold two or more needles side by side. The wall thickness is 0.5 mm. and owing to the construction, which consists essentially of hollow tubes fastened side by side, the wall thickness is absolutely uniform. The diameter of each section is 2.4 mm. and the length over all in each case is 32 mm. These screens are supplied in the following sizes:

- No. 292. To contain two No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 293. To contain three No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 294. To contain four No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 295. To contain five No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 296. To contain six No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.

A shorter screen similar to those listed above is supplied for use with our short gold needle No. 26. It is identical with those described above, with the exception of length which is 24 mm.

- No. 297. To contain two No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 298. To contain three No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 299. To contain four No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 300. To contain five No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 301. To contain six No. 26 short gold needles or No. 30 short non-corrosive steel needles.

Fenestrated Dermatological Screens.

Upon the suggestion of Drs. D. Y. Keith and J. P. Keith of Louisville, Kentucky, we are listing a fenestrated dermatological screen for needles. This screen is very similar to those described above, with the exception that one side is open. This enables the operator to employ a filter of 0.5 mm. brass, or by simply reversing the screen, to eliminate all filtration except that due to the metal walls of the needles. These screens are supplied in the following sizes:

- No. 302. To contain two No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.

- No. 303. To contain three No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 304. To contain four No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 305. To contain five No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.
- No. 306. To contain six No. 23, 24, 25 gold needles or No. 27, 28 non-corrosive steel needles.

A shorter fenestrated screen similar to that listed above is supplied for use with our short gold needles or our short non-corrosive steel needles. These screens are supplied in the following sizes:

- No. 307. To contain two No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 308. To contain three No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 309. To contain four No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 310. To contain five No. 26 short gold needles or No. 30 short non-corrosive steel needles.
- No. 311. To contain six No. 26 short gold needles or No. 30 short non-corrosive steel needles.

Prostatic Applicators

In order to facilitate application of the radium needle to the prostate gland a special needle of 0.5 mm. wall thickness has been provided to hold our stock needle applicators. The hollow portion

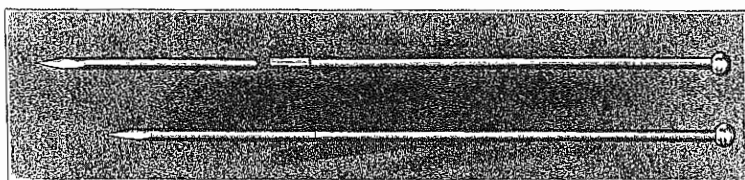


Fig. 29. No. 312

of the applicator is constructed of non-corrosive alloy and equipped with a trocar point. A screw thread at the open end is made to receive a shaft. The instrument is approximately 15 cm. in length over all and the outside diameter is 2.7 mm. The prostatic applicator may be ordered as follows:

- No. 312. To contain one No. 23, 24, 25, 26 gold needle, or one No. 27, 28, 30 non-corrosive steel needle.

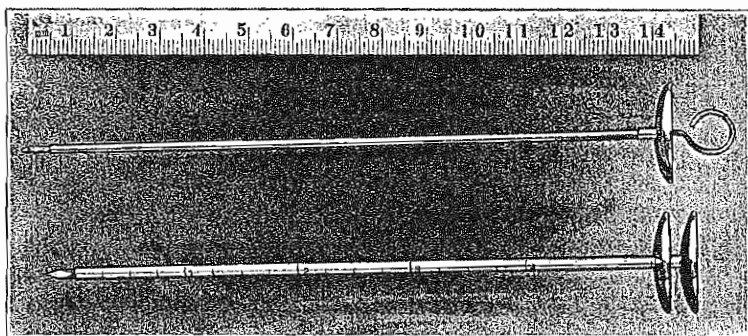
Trocar and Cannula

Fig. 30. No. 313

The instrument illustrated above is designed for embedding radium needles. In ordering, specify the following number:

No. 313. Trocar and Cannula.

Straight Needle Holder

This instrument, illustrated above, is manufactured of brass and is designed to grip the needle without exerting a crushing pressure which occurs whenever forceps are used. With forceps the pressure is exerted from two opposite directions, tending to flatten the needle, while with the special holder the pressure is exerted from four opposite directions and therefore, the tendency

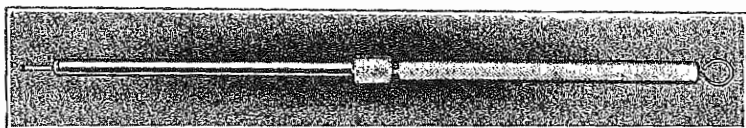


Fig. 31. No. 314

to crush is practically eliminated. The instrument measures 21 centimeters in length over all and from the end gripping the needle back toward the handle, there is a smooth portion measuring 96 millimeters, with a diameter approximately 7 millimeters. Adjustment is secured by means of a knurled nut. The handle is also knurled in order to provide a more satisfactory grip. The shaft of the instrument is hollow and a special wire attachment is provided for drawing the thread of the needle through the instrument before the needle applicator is clamped in place.

No. 314. To hold No. 23, 24, 25, 26 gold needle or No. 27, 28 or 30 non-corrosive steel needle.

Needle Forceps

This instrument consists of needle forceps of the usual design, with the exception that the jaws are lined with lead thus

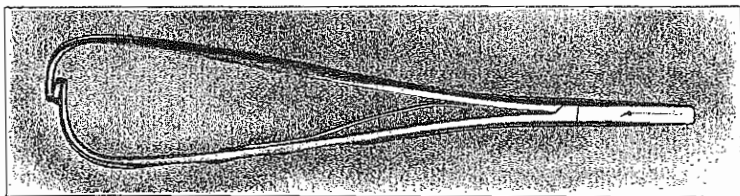


Fig. 32. No. 315

providing a softer medium than the needle itself for contact with the applicator. These forceps are intended particularly for use with gold needles.

No. 315. Needle forceps with lead-lined jaws.

Needle Forceps

This instrument is identical with the forceps described above except that the jaws are lined with copper and suitably grooved to hold needles at different angles. We recommend the copper-lined jaws for handling steel needles.

No. 316. Needle forceps with copper-lined jaws.

Hegar Needle Forceps

We recommend these forceps for applying needles in all cases where the particularly slender handles may be more convenient than the larger grips of the needle forceps previously des-

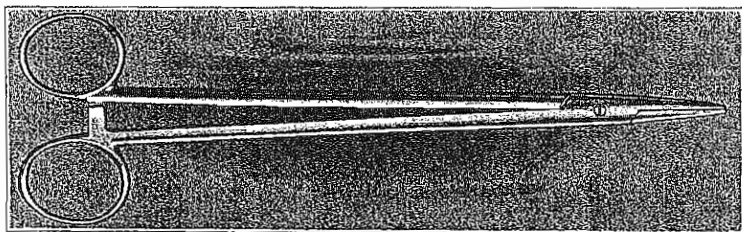


Fig. 33. No. 317

cribed. The jaws are lined with copper which is grooved to hold the needle at different angles. The instrument measures approximately 8 inches in length.

No. 317. Hegar needle forceps.

Thumb Forceps for Needles

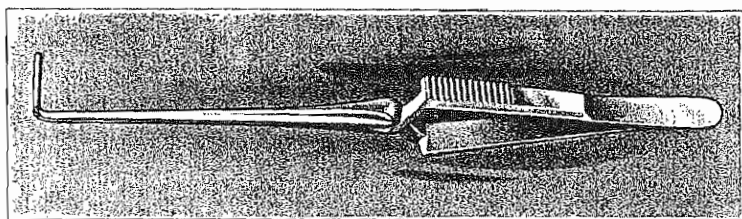


Fig. 34. No. 318

This instrument is designed for picking up needle applicators. It measures about 14 centimeters in length.

No. 318. Thumb forceps for needles.

Bowen Needle Holder for Sterilizing

This device has been made according to suggestions received from Dr. Chas. D. Bowen of Columbus, Ohio. It is intended to hold the needles and keep the threads from becoming entangled

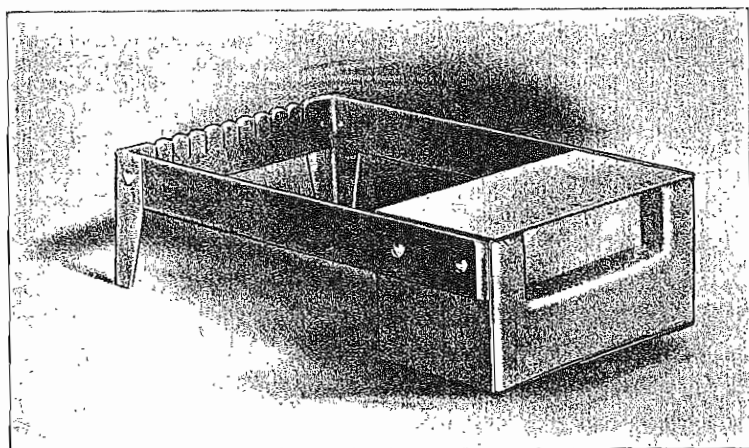


Fig. 35. No. 319

during the sterilizing process. A heavy, lead screen is provided for the protection of the operator. The dimensions are, width $4\frac{1}{4}$ inches, height 2 inches, length 7 inches.

No. 319. Bowen Needle Holder.

Lead-lined Containers for Needles

A nickel-plated, lead-lined cylindrical container, similar to No. 220, is supplied for protection in transporting needle applicators. Each container is 57 mm. high by 19 mm. in diameter. It is designed to hold any one of our needle applicators, when enclosed in its silver capsule. The stock container may be used for carrying several needles without their capsule screens.

No. 320. To contain one needle with silver capsule screen.

Leather-Covered Case

Each needle is regularly equipped with a wooden carrying case, lined with purple velvet and covered with black leather, similar to cases supplied with radium tubes. On the hinged cover, the Company name is neatly stamped in small gold letters. The case is fitted to receive the above described lead-lined container.

No. 321. Leather-covered case for needle applicator.

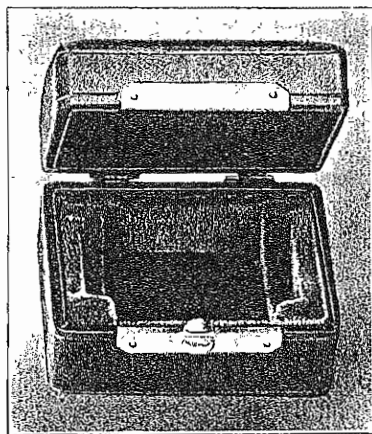


Fig. 36. No. 321

Sounds With Attachments to Hold Needle Applicators

Instruments of this type are listed with similar accessories for tubular applicators on pages 27, 28 and 29.

Oesophageal Applicators to Hold Needles

These instruments are listed with similar accessories for tubular applicators on pages 23 and 24.

ACCESSORIES FOR FLAT APPLICATORS**Screens**

The screens regularly supplied with our flat applicators are accurately cut from carefully rolled sheet metal. Thickness of the metal is maintained as closely as possible to the exact figures stated. Aluminum, brass and lead are the metals employed on account of the difference in their densities, which increase in the order named. We furnish three thicknesses of each metal, thereby providing a wide range of filtration, as follows:

No. 322.	0.5 mm. aluminum	1 sq. cm.
No. 323.	0.5 mm. aluminum	2 sq. cm.
No. 324.	0.5 mm. aluminum	3 sq. cm.
No. 325.	0.5 mm. aluminum	4 sq. cm.
No. 326.	0.5 mm. aluminum	8 sq. cm.
No. 327.	1.0 mm. aluminum	1 sq. cm.
No. 328.	1.0 mm. aluminum	2 sq. cm.
No. 329.	1.0 mm. aluminum	3 sq. cm.
No. 330.	1.0 mm. aluminum	4 sq. cm.
No. 331.	1.0 mm. aluminum	8 sq. cm.
No. 332.	2.0 mm. aluminum	1 sq. cm.
No. 333.	2.0 mm. aluminum	2 sq. cm.
No. 334.	2.0 mm. aluminum	3 sq. cm.
No. 335.	2.0 mm. aluminum	4 sq. cm.
No. 336.	2.0 mm. aluminum	8 sq. cm.
No. 337.	0.5 mm. brass	1 sq. cm.
No. 338.	0.5 mm. brass	2 sq. cm.
No. 339.	0.5 mm. brass	3 sq. cm.
No. 340.	0.5 mm. brass	4 sq. cm.
No. 341.	0.5 mm. brass	8 sq. cm.
No. 342.	1.0 mm. brass	1 sq. cm.
No. 343.	1.0 mm. brass	2 sq. cm.
No. 344.	1.0 mm. brass	3 sq. cm.
No. 345.	1.0 mm. brass	4 sq. cm.
No. 346.	1.0 mm. brass	8 sq. cm.
No. 347.	2.0 mm. brass	1 sq. cm.
No. 348.	2.0 mm. brass	2 sq. cm.
No. 349.	2.0 mm. brass	3 sq. cm.
No. 350.	2.0 mm. brass	4 sq. cm.
No. 351.	2.0 mm. brass	8 sq. cm.
No. 352.	0.5 mm. lead	1 sq. cm.
No. 353.	0.5 mm. lead	2 sq. cm.
No. 354.	0.5 mm. lead	3 sq. cm.
No. 355.	0.5 mm. lead	4 sq. cm.
No. 356.	0.5 mm. lead	8 sq. cm.

No. 357.	1.0 mm. lead	1 sq. cm.
No. 358.	1.0 mm. lead	2 sq. cm.
No. 359.	1.0 mm. lead	3 sq. cm.
No. 360.	1.0 mm. lead	4 sq. cm.
No. 361.	1.0 mm. lead	8 sq. cm.
No. 362.	2.0 mm. lead	1 sq. cm.
No. 363.	2.0 mm. lead	2 sq. cm.
No. 364.	2.0 mm. lead	3 sq. cm.
No. 365.	2.0 mm. lead	4 sq. cm.
No. 366.	2.0 mm. lead	8 sq. cm.

Handles for Flat Applicators

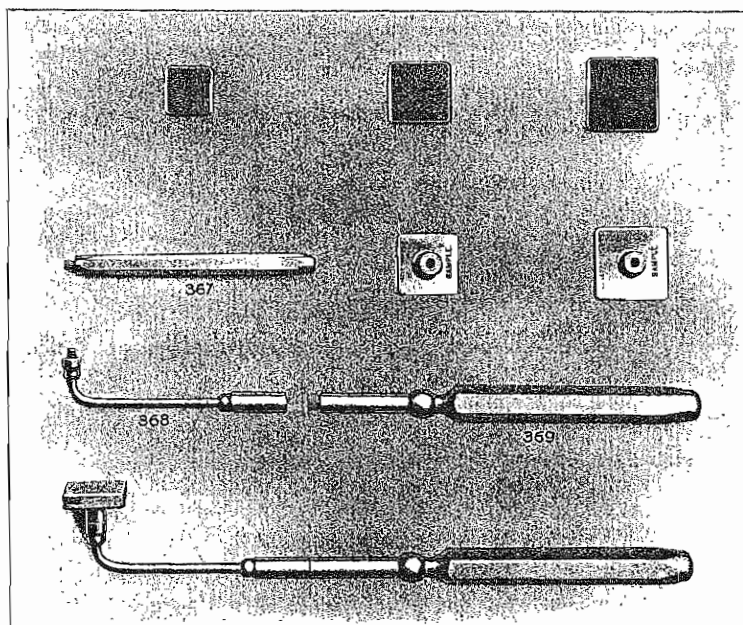


Fig. 37

The following handles are listed for convenience in ordering if such accessories supplied with our regular plaques should become damaged or lost:

- No. 367. Straight handle, brass, gold-plated.
- No. 368. Curved, right-angle, extension, brass, gold-plated.
- No. 369. Hexagonal handle for use with above extension, brass, gold-plated.

Leather-Covered Case for Flat Applicator with Handles

A suitable carrying case is provided to hold each flat applicator with handles, as illustrated below. The case is constructed of wood with hinged cover, lined with purple velvet and covered with black leather. The Company name appears on the outside of the cover in small, gold letters. The case measures 14.5

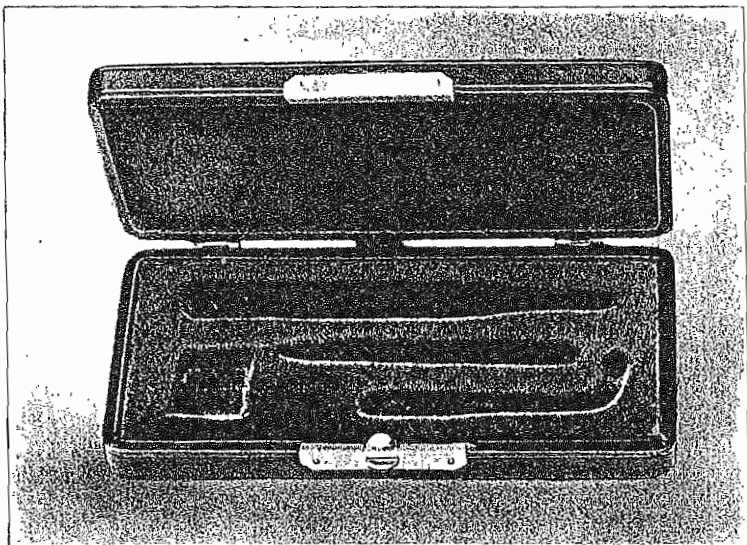


Fig. 38. No. 371

cm. long, 8.0 cm. wide, 3.0 cm. deep. The following cases listed differ only in size of the plaque to be accommodated:

- No. 370. Leather-covered, velvet-lined case to contain one 1 sq. cm. plaque with handles.
- No. 371. Leather-covered, velvet-lined case to contain one 2 sq. cm. plaque with handles.
- No. 372. Leather-covered, velvet-lined case to contain one 3 sq. cm. plaque with handles.
- No. 373. Leather-covered, velvet-lined case to contain one 4 sq. cm. plaque with handles.
- No. 374. Leather-covered, velvet-lined case to contain one 8 sq. cm. plaque with handles.

Leather-Covered Case for Flat Applicators Without Handles

A leather-covered, velvet-lined case with two compartments is supplied with flat applicators of the flat-backtype. The case measures 9 cm. long, 5 cm. wide, and 3 cm. deep. Only one size is manufactured, since the most convenient form of box accommodates our largest stock plaque. This case is illustrated above.

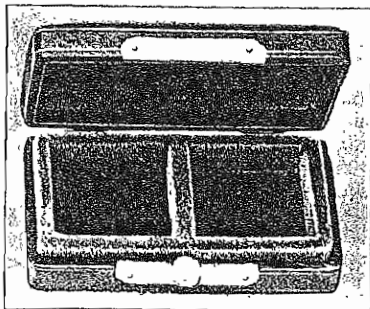


Fig. 39. No. 375

No. 375. Leather-covered, velvet-lined case to contain plaques without handles.

Millimeter Gauge

This instrument is very useful in determining the thickness of various metal screens. It is constructed somewhat along the

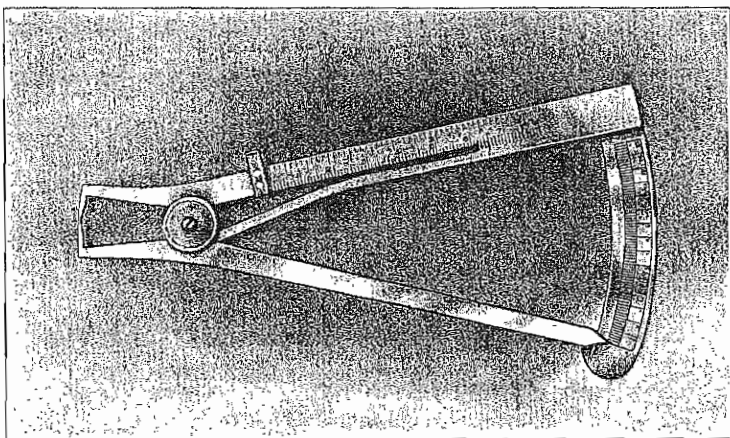


Fig. 40. No. 376

lines of an ordinary pair of calipers, with an extension pointer which moves over a graduated scale reading in tenths of a millimeter.

No. 376. Millimeter gauge.

SPECIAL EQUIPMENT**Electroscope**

For approximate measurements of radium, a convenient type of small electroscope has been developed in our laboratories, as illustrated in Figure 41. In principle it is identical with the usual single aluminum-leaf electroscope, with the exception of special arrangements to hold the radium applicators under test. The leaf is charged by means of an ebonite rod furnished with each

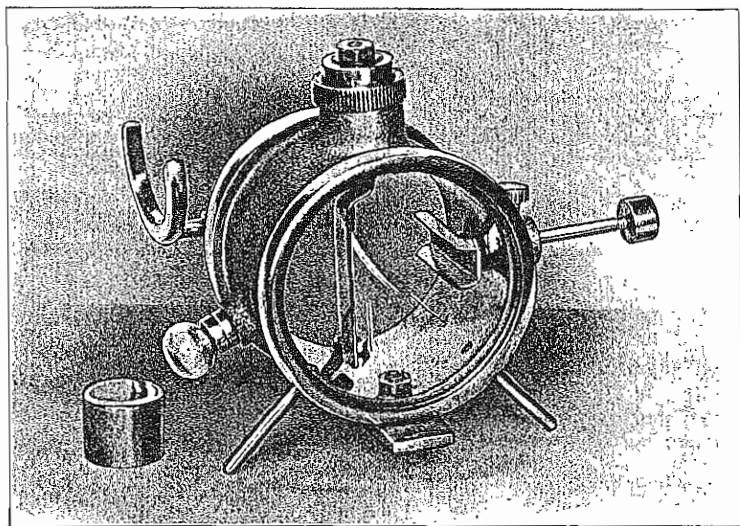


Fig. 41. No. 377

instrument. A radium tube in its usual lead-lined container may be placed in the attached bracket support and the effect of the gamma radiation on the electrically-charged leaf may be observed through the glass window. The heavy lead lining of our stock, nickel-plated containers is sufficient to reduce the ionization effect and discharge the leaf at a rate convenient for timing without the aid of a stop-watch.

No. 377. Electroscope.

Trocar for Tubes

The instrument illustrated above is designed for applying radium tubes. The bare glass container is placed directly within the barrel of the metal needle with trocar point and is held securely in place by the 5 inch shaft attachment. The metal is

identical with the non-corrosive alloy employed in the manufacture of our radium needle applicators.

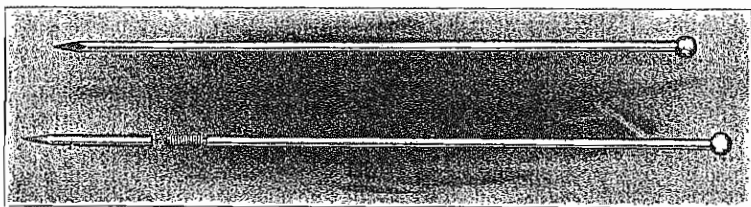


Fig. 42. No. 378

No. 378. To contain one No. 1 25 mg. glass tube.

No. 379. To contain one No. 2 50 mg. glass tube.

No. 380. To contain two No. 1 25 mg. glass tube.

Antrum Applicator

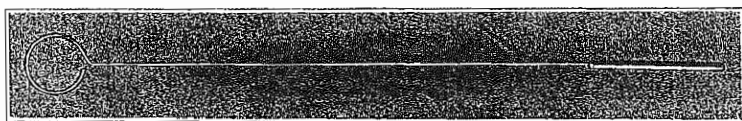


Fig. 43. No. 381

This instrument consists of a slender brass tube of 0.5 mm. wall thickness to contain one radium needle applicator. The thin brass tube is threaded to receive a cap carrying a 6 inch German silver wire.

No. 381. To contain one No. 23, 24, 25 gold needle or No. 27, 28 non-corrosive steel needle.

Lead-lined Box

It is often a convenience to carry several radium applicators, either tubes or needles, in one container. We provide for this purpose, nickel-plated brass boxes with hinged cover and heavy lead lining. The interior may be grooved to receive a certain size of radium tube in its capsule screens, or to receive needles, each in its corresponding silver capsule. The identity of preparations may be preserved by numbering each compartment. A similar box may be obtained without subdivisions but lined on all sides with a 1 cm. layer of lead. Owing to differences in

radium equipment, we prefer to make up these cases according to specifications submitted by the purchaser.

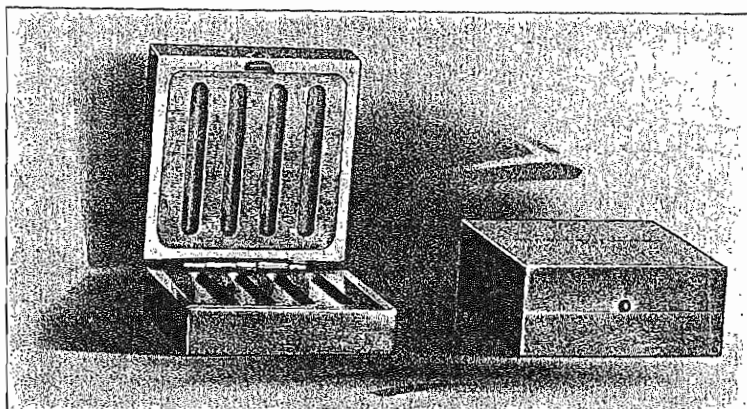


Fig. 44. No. 382

No. 382. Lead-Lined box with hinged cover.

Cabinet

This cabinet is designed to provide a convenient receptacle for all instruments and other accessories required in the ap-

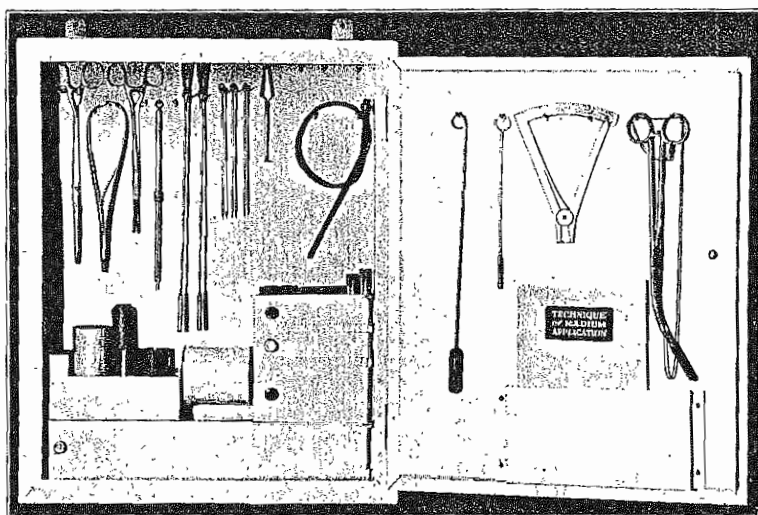


Fig. 45

plication of radium. It is constructed of metal with white enamel

finish. The interior arrangement includes hooks for hanging up forceps, one drawer for a cystoscope or other instruments of similar dimensions, a roller to hold adhesive tape, several compartments for rolls of rubber and lead foil, and a pocket on the inside of the door to contain charts concerning dosage and technique of application. It is also equipped with a lock and key.

No. 383. White-enameled wall cabinet, $21\frac{1}{2}$ in. high, $17\frac{5}{8}$ in. wide, $4\frac{1}{4}$ in. deep.

Spinthariscopes

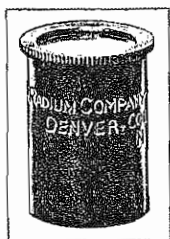


Fig. 46. No. 318

This instrument is made in a very compact design intended for conveniently carrying in the pocket. It consists of a cylinder 1 inch in height by $\frac{3}{4}$ inch in diameter, containing a radium luminous compound and a suitable lens for viewing the scintillations produced by the impact of the alpha particles from the radium on the phosphorescent zinc sulphide. This effect of the alpha rays on a zinc sulphide screen was discovered by Sir William Crookes and independently by Elster and Geitel. The spinthariscopes is most satisfactory when used in a dark room after the eye of the observer has become thoroughly accommodated to the darkness. In fact the scintillations are more readily observed at night. The phosphorescent zinc sulphide screen within the instrument should be well protected from both natural and artificial light, which tend to excite a phosphorescence independent of that produced by the bombardment of alpha particles, thereby obscuring the effect. The best results are obtained when the screen appears as a dark background.

No. 384. Spinthariscopes.

