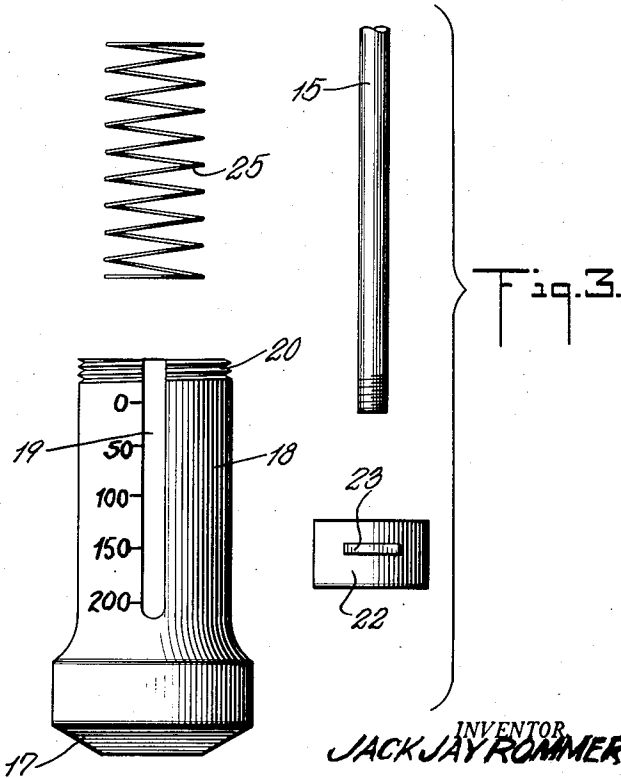
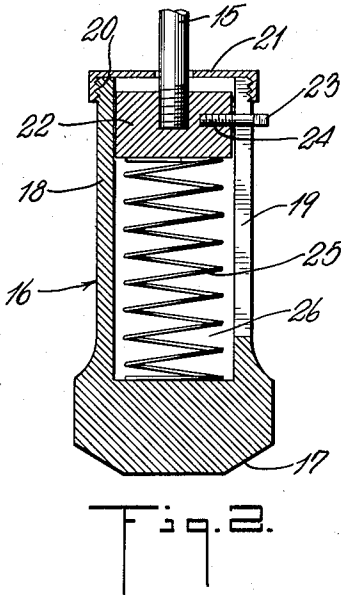
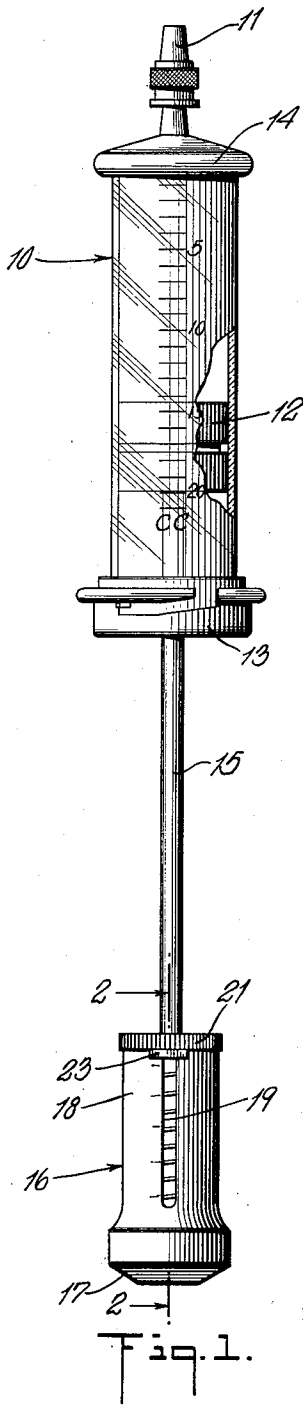


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DEVICE FOR EJECTING AN OPAQUE MEDIUM IN THE SOFT
PARTS OF THE BODY FOR X-RAYING PURPOSES
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DEVICE FOR EJECTING AN OPAQUE MEDIUM
IN THE SOFT PARTS OF THE BODY FOR
X-RAYING PURPOSES

Jack Jay Rommer, Newark, N. J.

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1 Claim. (Cl. 128—234)

1

This invention relates to a device for ejecting an opaque medium in the soft parts of the body for X-raying purposes.

In X-raying the soft parts of the body, it has been the practice to inject an opaque medium. In the case of the uterus, an iodized oil or medium has been used which can be injected safely under pressure up to, but not exceeding, 200 millimeters of mercury. Heretofore, a uterine cannula fitted at one end with a syringe has been used and has proved unsatisfactory since it is difficult to gauge the pressure and requires a separate and special test to determine whether or not the Fallopian tubes are blocked.

It is an object of the instant invention to provide a device that will indicate with accuracy the pressure at which the opaque medium is being injected.

Other objects of the instant invention will become apparent in the course of the following specification.

In the accomplishment of these objectives, the device comprises a hollow cylindrical container for the opaque medium and in which a reciprocable piston is inserted. At one end of the container is an opening for inserting the opaque medium on the up stroke of the piston and which serves also as an ejecting opening on the down stroke. At the opposite end of the container is another opening through which the piston rod is slidably inserted. On the free end of the piston rod is a hollow handle member in which a spiral spring is so disposed that by pushing downwardly on the handle member the spiral spring is compressed in accordance with the pressure being exerted by the piston head against the opaque medium. An indicator adapted to move with the compression of the spring and correlated with indicia on the handle member permits the direct reading of the pressure in millimeters of mercury at which the opaque medium is being injected.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawing showing by way of example a preferred embodiment of the inventive idea.

In the drawings:

Figure 1 is a plan view of the opaque medium injecting device with a portion of the container broken away to show the piston head and constructed in accordance with the principles of this invention.

Figure 2 is a sectional view along the line 2—2 of Figure 1, enlarged.

2

Figure 3 is a plan view of the handle member and components prior to assembly, also enlarged.

Referring now in greater detail to the drawings in which like reference numerals indicate like parts, reference numeral 10 indicates a hollow cylindrical container for the opaque medium and 15 the hollow handle member.

The hollow cylindrical container 10 is of the usual form with the top member 13, base 14, and the common inlet and outlet connector 11. The container 10 may be transparent and longitudinally calibrated to indicate the cubical contents of the opaque medium inserted. Reciprocable in the container 10 is a piston head 12 actuated by the piston rod 15, the latter being slidably inserted through the top member 13.

Over the free end of the piston rod 15 is a housing or hollow handle member 16 formed with the hollow body portion 18 having an open base and over the top of which is disposed a cap 17. A slot 19 is longitudinally formed along the body portion 18 and extends upwardly from the open base toward the cap 17 as shown. Over the open base of the body portion 18, a base member 21 is removably attached by the coacting threaded portion 20. An opening through the center of the base member 21 is provided for the slidable insertion of the free end of the piston rod 15. A spiral spring 25 of suitable diameter is inserted in the hollow handle member 16 and against the base of the said spring is a slidably disposed keeper 22 which may be threaded on the free end of the piston rod 15 after the latter has been passed through the opening in the base member 21. In the keeper 22 is inserted by any suitable means an indicator 23 which passes through the slot 19. At the side of the slot 19 are indicia indicative of the pressure being exerted by the piston head 12 against the opaque medium in accordance with the magnitude of the compression of the spring member 25 by the keeper 22 actuated by the piston rod 15.

The operation is as follows: The hollow cylindrical container 10 is filled with the opaque material in the usual manner on the up stroke of the piston head 12. One end of a uterine cannula (not shown) is then inserted over the common inlet-outlet opening 11 with the opposite end positioned with the positioning device and clamping means (not shown) to determine the depth to which the cannula is to be inserted. The handle member 16 is then pushed forward to eject the opaque medium, the amount of the pressure being exerted by the piston head 12 being at all times visible by the position of the in-

indicator 23 on the pressure scale indicia at the side of the slot 19 as shown in Figure 3.

Obviously the opaque medium injector could be readily adapted for use with other soft parts of the body such as the lungs and it is apparent that the specific example shown above has been given by way of illustration and not by way of limitation and that the structures above described are subject to wide variation and modification without departing from the scope or intent of the invention, all of which variations and modifications are to be included within the scope of the present invention as defined in the claim of this case.

What is claimed is:

A liquid injector adapted to inject an opaque medium in the soft parts of the body for X-ray-ing purposes, said injector comprising a hollow cylindrical container with closed top and base for the opaque medium, a piston reciprocable in the container, said piston comprising a piston head, a piston rod connected with said piston, said container having an opening in the closed base and adapted for the insertion and ejection of the opaque medium, the container further having an opening in the closed top and adapted for the slidable insertion of the piston rod; the injector further comprising a substantially hollow cylindrical handle member, a top member disposed over the top of the handle member, and an open base, a base member removably disposed

over the open base, the base member having an opening at the center and adapted for the slidable insertion of the piston rod, a longitudinal slot in the handle member extending upwardly from the open base, a spiral spring member disposed in the hollow cylindrical handle member, a keeper disposed on the free end of the piston rod after being passed through the opening in the base member and adapted to compress the spiral spring in the handle member when forced there-against, an indicator disposed on the keeper, the indicator extending through the longitudinal slot, and indicia on the handle member correlated with the indicator and adapted to indicate the pressure of the cylinder head on the opaque medium in the container by the extent of the compression of the spiral spring.

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