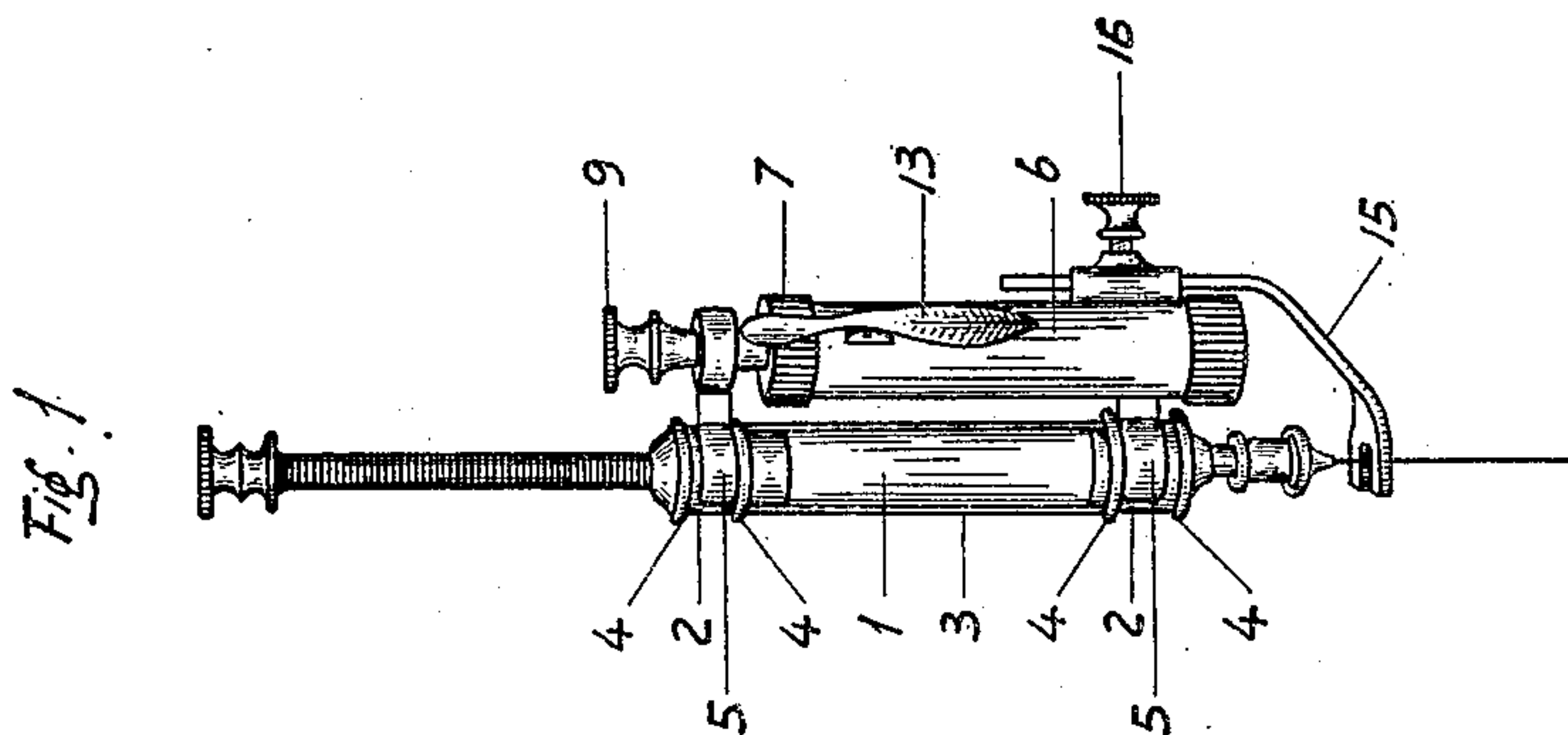
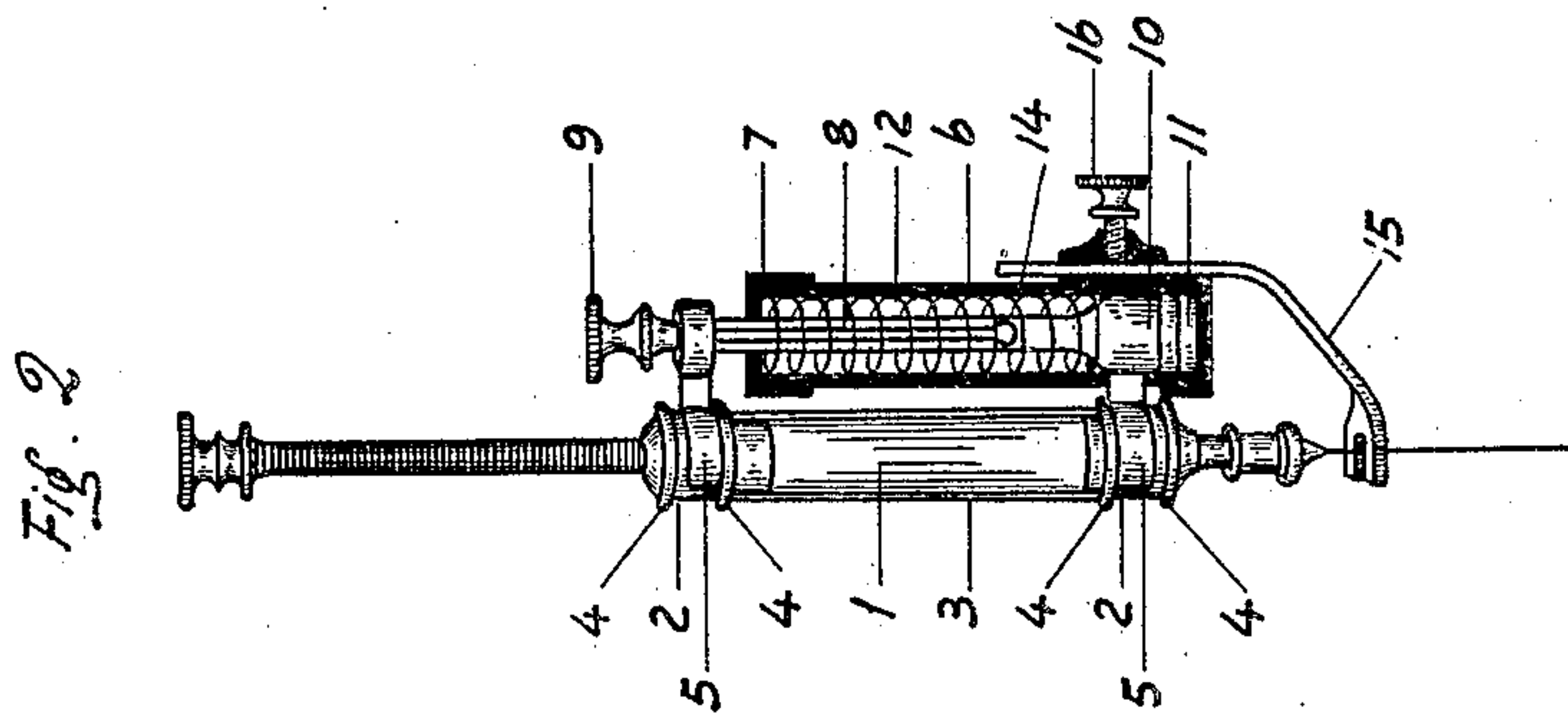
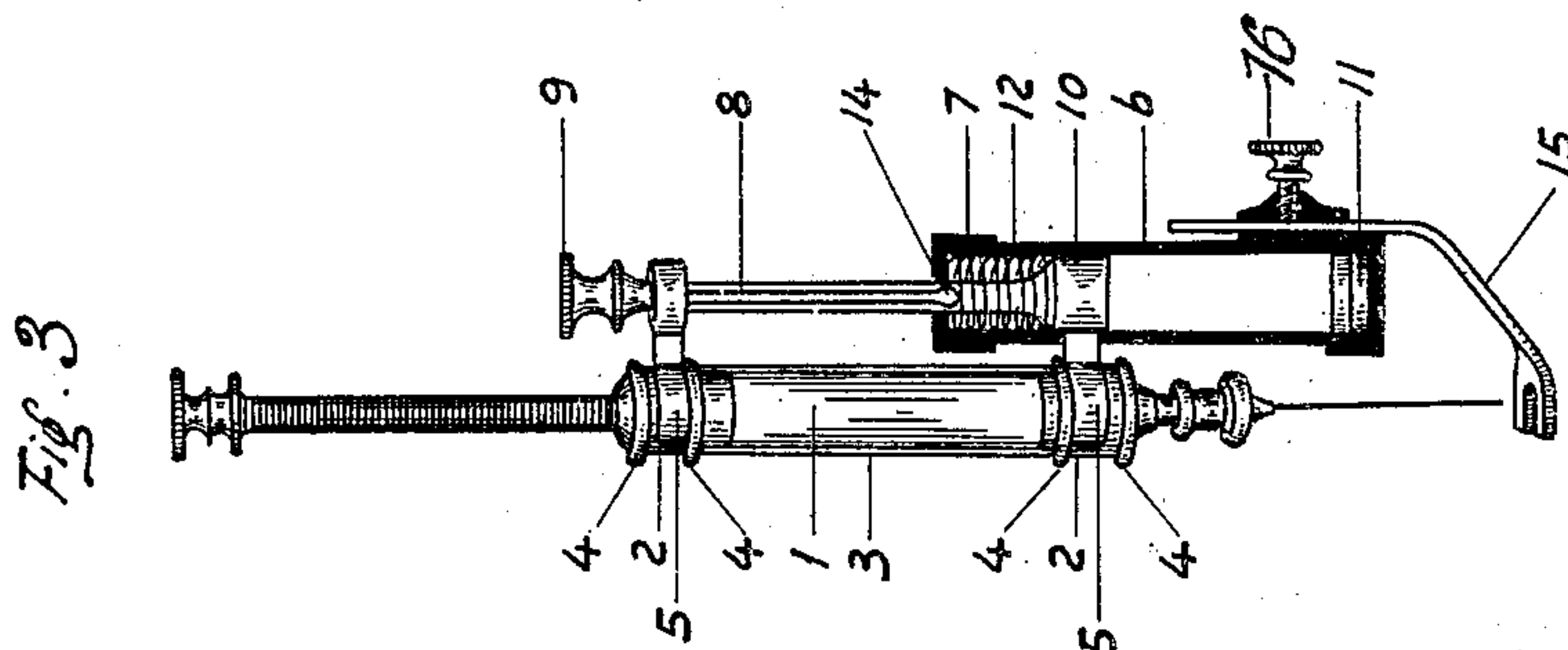


R. LOMBARDO.
 SYRINGE FOR HYPODERMIC AND INTRAMUSCULAR INJECTIONS.
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938,597.

Patented Nov. 2, 1909.



Witnesses:-
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UNITED STATES PATENT OFFICE.

RODOLFO LOMBARDO, OF GENOA, ITALY.

SYRINGE FOR HYPODERMIC AND INTRAMUSCULAR INJECTIONS.

938,597.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed November 16, 1908. Serial No. 462,881.

To all whom it may concern:

Be it known that I, RODOLFO LOMBARDO, physician, a subject of the King of Italy, residing at Genoa, Italy, have invented new and useful Improvements in Syringes for Hypodermic and Intramuscular Injections, of which the following is a specification.

The present invention relates to a syringe for hypodermic and intramuscular injections in which the needle is automatically inserted into the flesh of the patient.

With the syringes usually employed the needle is made to penetrate the flesh by the hand pressure of the operator, so that the patient experiences a more or less painful sensation depending upon the skill of the operator, and when the latter is lacking in skill, or is weak or old, the patient sometimes experiences a very sharp pain. It sometimes happened that owing to the pain caused by the penetration of the needle, the resulting sudden muscular contraction of the patient causes the needle to be broken off in the muscular tissue.

The invention avoids these inconveniences inasmuch as the needle penetrates instantaneously and automatically into the flesh. The penetration is so rapid that it is hardly perceived thereby avoiding any danger of breaking the needle.

Another advantage of the improved syringe consists in that its manipulation is so simple that the patient himself can make the injection without any danger.

One of the forms of the invention is shown in the annexed drawings where—

Figure 1 is a perspective total view of the various elements forming the apparatus, Fig. 2 a longitudinal section showing the apparatus in position of rest, Fig. 3 another longitudinal section showing the apparatus in active position.

In the said drawings 1 is the body of the syringe proper, differing from those usually known in commerce by certain particular features giving it a special resistance indispensable for the function to which it is designed, the caps 2 of closure of the ends not being directly screwed on the glass but on a tube 3 of metal or other suitable material open along the glass body of the syringe receiving the shock of the release instead of the glass. The upper and lower ends of caps 2 are provided with circular rims 4. The caps are detachably engaged by clamping springs 5.

A shaft 8 having a stud 9 and foot 10 is mounted on the main body 1 of the syringe by means of extensions to collars 5, and parallel with the main tube. A sleeve 6 is carried on the shaft 8, by means of a perforation in the head 7. This sleeve 6 having its lower end closed is movable on the parallel shaft 8 and is operated by means of the coiled spring 12 which engaging with the foot of the shaft 8 and the head of the sleeve 6 is adapted to give the main body carrying the needle a forward thrust when the spring is released. A circular notch 14 in the shaft 8 engages a stop lever 13 to lock the spring and sleeve 6 in position for operation.

A movable foot 15 attached to the sleeve 6 by a thumb screw 16 may be set to gage the forward thrust of the syringe and needle and also guides and controls the extent of its movement into the flesh.

In operation it is readily understood that by moving the sleeve 6 downward to permit the stop lever 13 to engage the notch 14 in the shaft 8 the syringe is ready for the operation. The movable foot 15 is then by means of the thumb screw 16 set to gage the movement of the syringe proper, carrying the needle. The spring being released the shaft 8 is thrust forward carrying with it the syringe and needle the latter penetrating the flesh by this automatic forward thrust, which renders it possible to perform the operation, in a mechanical and more positive movement than the same can be done by hand, at the same time gaging the depth of penetration which is otherwise difficult to control by the hand of the operator.

I claim:

In a hypodermic and intramuscular syringe, the combination with a tubular glass body, of a tubular member surrounding said body, closing means for said body, said means being attached to said member, a body parallel with said first named body and detachably secured thereto, and means in co-action with said last named body for propelling automatically said first named body substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

RODOLFO LOMBARDO.

Witnesses:

PIO RINALDINI,
C. A. VERRARI.