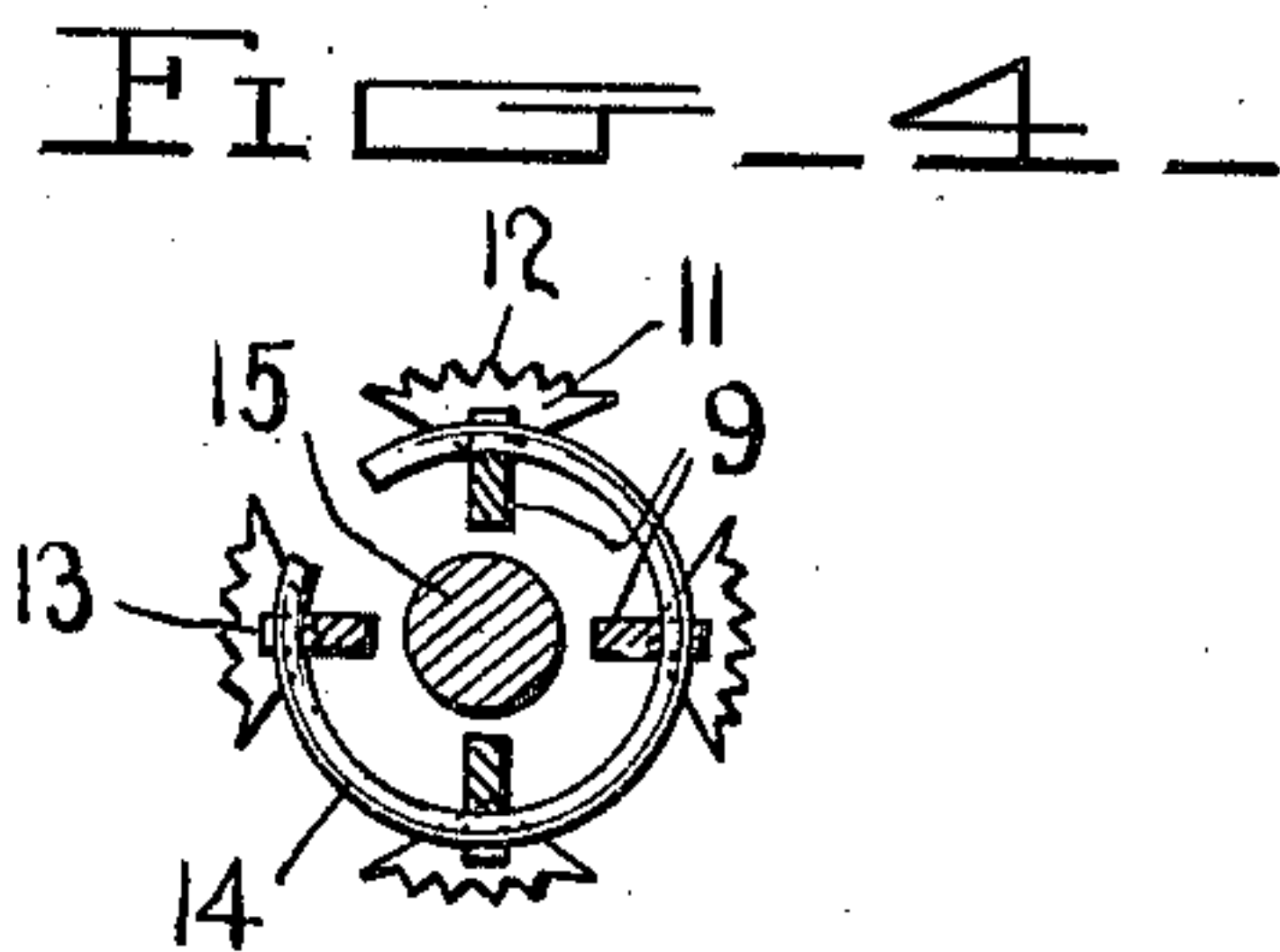
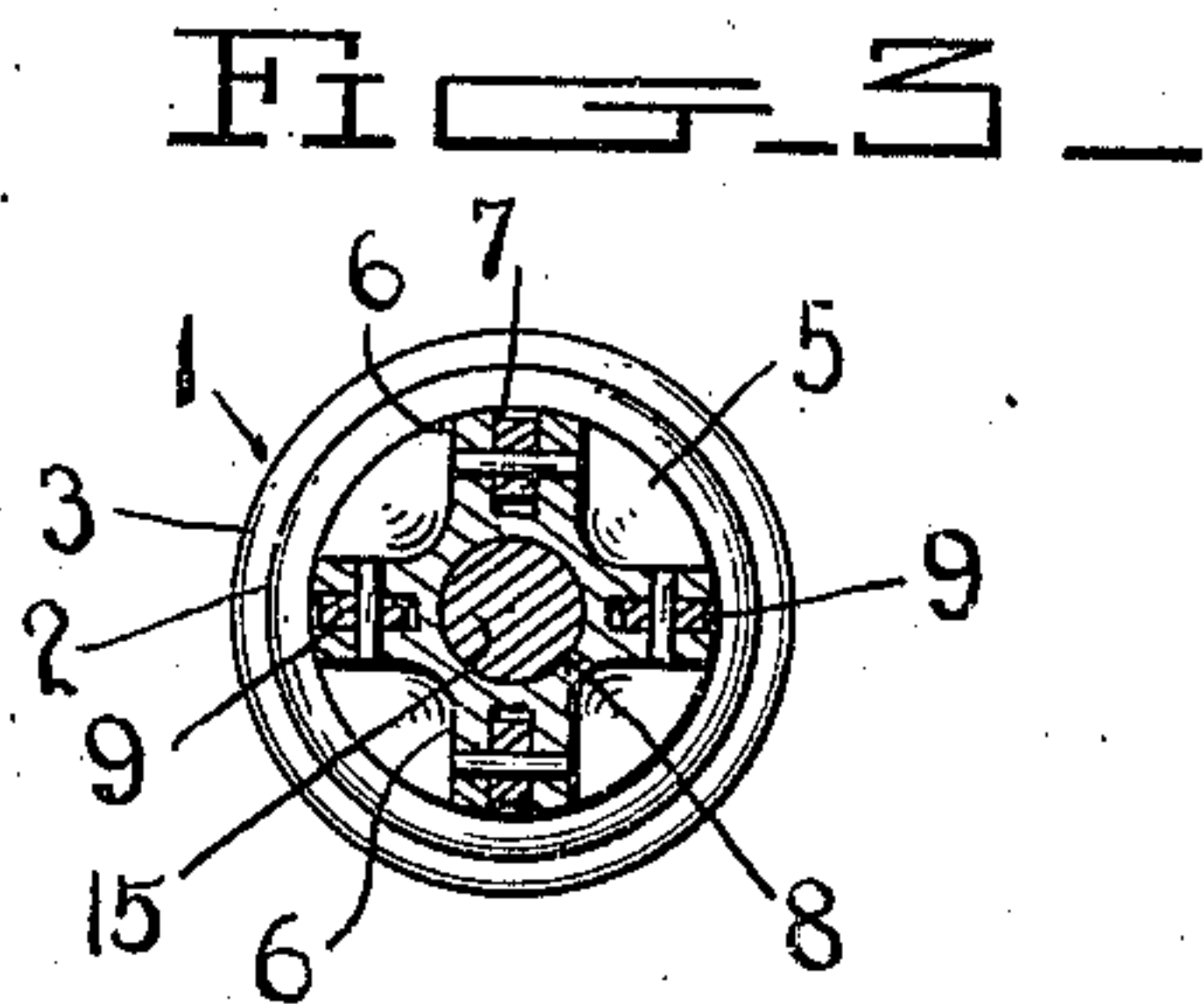
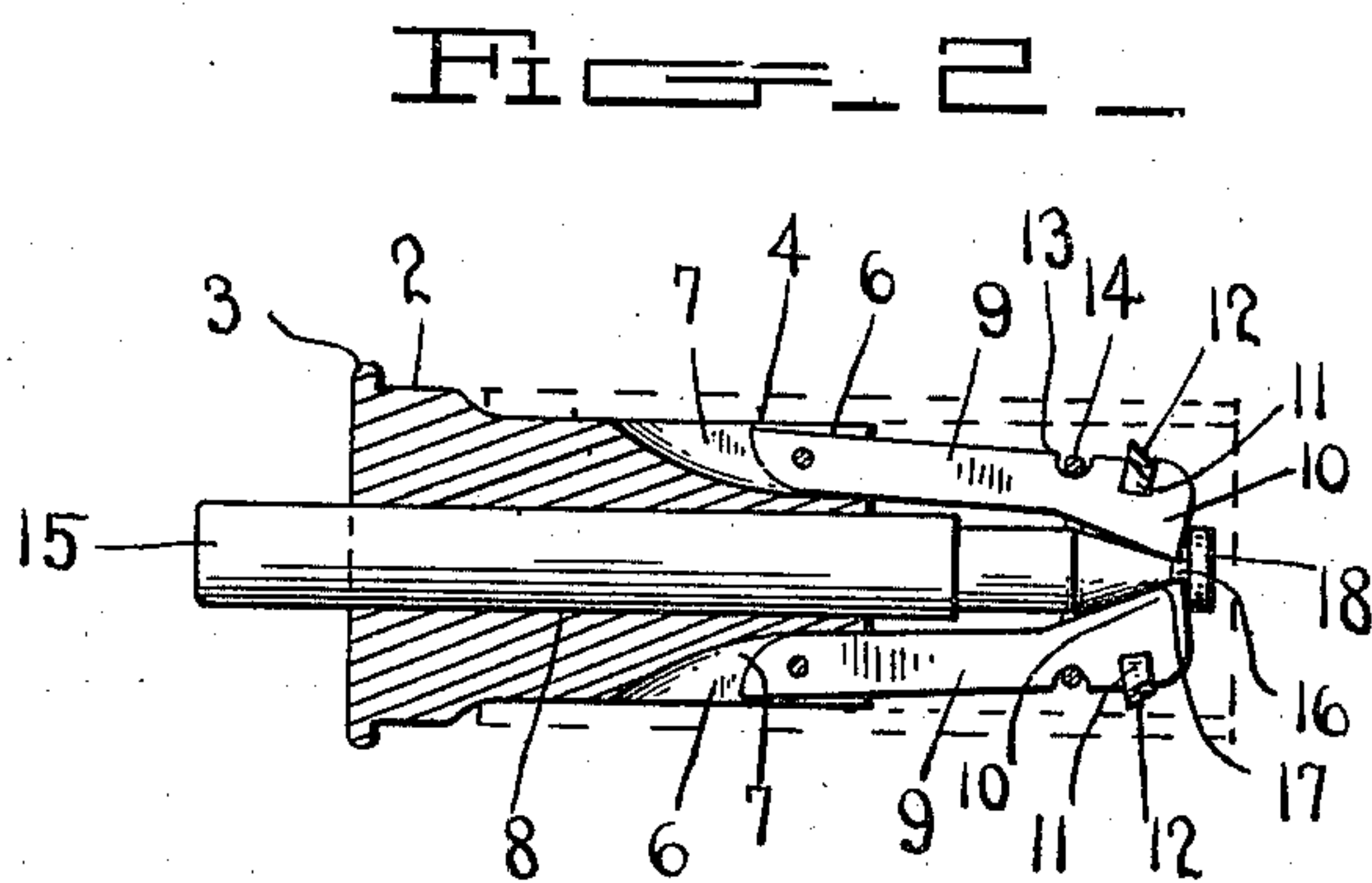
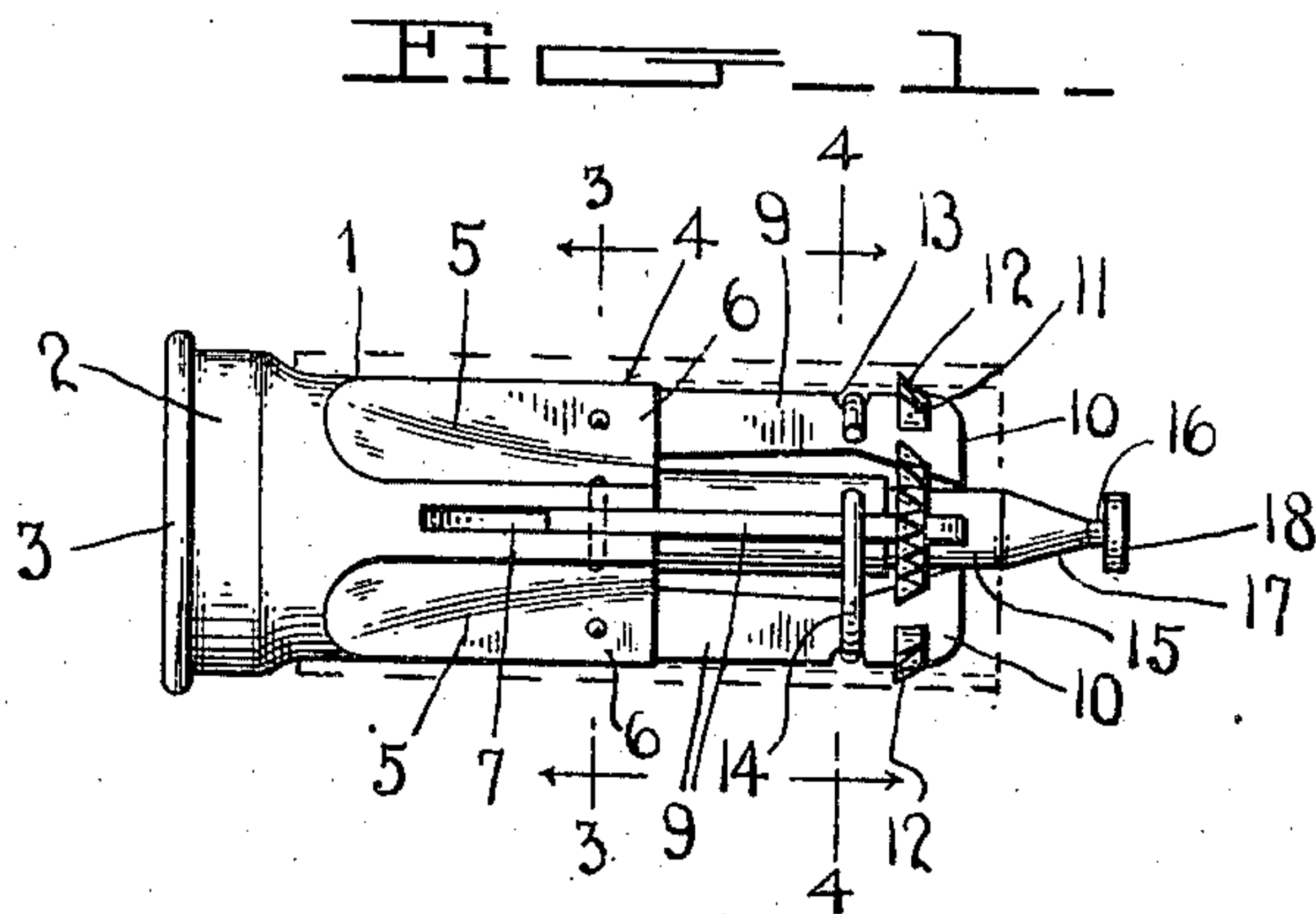


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SHELL EXTRACTOR.
APPLICATION FILED SEPT. 15, 1910.

976,325.

Patented Nov. 22, 1910.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN H. WHEELER AND WILLIAM D. ALLEN, OF NEW HAVEN, CONNECTICUT.

SHELL-EXTRACTOR.

976,325.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed September 15, 1910. Serial No. 582,226.

To all whom it may concern:

Be it known that we, JOHN H. WHEELER and WILLIAM D. ALLEN, citizens of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Shell-Extractors; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in shell extractors.

One object of the invention is to provide a shell extractor designed particularly for use in connection with shot guns and having an improved gripping mechanism and means for forcing the same into engagement with the broken end of the shell left in the barrel of the gun whereby said end of the shell may be readily drawn out by the shell extracting mechanism of the gun.

Another object is to provide a device of this character which will be efficient and reliable in operation, and which may be readily carried in the pocket when not in use.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side view of a shell extractor constructed in accordance with the invention and illustrating the parts in expanded position to grip a shell, the latter being shown in dotted lines. Fig. 2 is a central longitudinal sectional view illustrating the parts in retracted position; Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1; Fig. 4 is a similar view on the line 4—4 of Fig. 1.

Referring more particularly to the drawings, 1 denotes the body portion of the extractor said body portion being of cylindrical form and having its rear end 2 provided with an annular flange 3 whereby said end corresponds with the metal end of a shot cartridge shell. The forward portion of the body is reduced as at 4 and is notched or grooved radially as at 5 to form a series of radially disposed lugs 6 in each of which is formed a notch or recess 7. In the body 1 of the extractor is formed a centrally disposed passage 8. Pivotally connected at their inner

ends in the notches 7 are a series of gripping arms or levers 9, the outer ends of which increase in width at an angle as shown at 10 said angular edges forming expanding surfaces. Formed on or rigidly secured in the outer edges of the arms 9 are segmental gripping lugs 11 the outer edges of which are beveled and provided with a series of sharp teeth 12. In the outer edges of the arms adjacent to the teeth 12 are formed notches 13 with which is engaged a circular spring 14, by means of which the arms 9 and gripping lugs 11 are held in a retracted position. Slidably mounted in the passage 8 of the extractor is a plunger rod 15 the front end of which is reduced as at 16 and the portion of which in rear of the reduced portion 16 is tapered or conical shaped as shown at 17. At the end of the tapered or conical portion is formed a flat circular retaining head 18.

In the operation of the extractor the same is inserted in the barrel of the gun with the reduced portion 4 engaging the broken off end of the shell remaining in the chamber of the gun. The flanged outer end of the extractor when thus arranged fits into the end of the barrel in the same manner as the metal end of a shell. When the extractor has been thus engaged the end of the expanding plunger which projects from the rear end of the extractor is pushed inwardly thereby bringing the tapered or conical portion 17 into engagement with the angular inner edges of the widened front ends of the gripping arms 9 thereby expanding said arms and the gripping lugs 11 against the pressure of the spring 14 and thus forcing the toothed gripping lugs into tight engagement with the broken off portion of the shell whereupon said portion may be readily extracted by manipulating the extracting mechanism of the gun in the usual manner, said mechanism engaging the flanged rear end of the extractor in the same manner as it engages the metal end of a shell.

It will be noted that the plunger rod is prevented from slipping out of the body of the extractor rearwardly by engagement of the head 18 with the outer ends of the arms which are held in close engagement with the tapered end of the plunger by the spring 14 when the plunger is in a retracted position. The plunger is limited in its outward movement and held against slipping out of the body of the extractor in a forward direction by the engagement of the inner edges

of the outer ends of the arms 9 with the shoulder formed by the reduced portion 16 of the rod.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

Having thus described our invention what we claim is:

1. In a shell extractor a body portion having a longitudinal passage extending there-through, a plurality of expansible gripping arms pivotally connected to said body portion, shell gripping lugs carried by said arms, an expanding plunger slidably mounted in the passage of said body whereby said arms and lugs are expanded to operative positions and a spring to retract and hold said arms in a retracted position.

2. In a shell extractor, a body portion having a longitudinal passage and a flanged rear end adapted to be acted on by the extracting mechanism of a gun, a plurality of expansible spring retracted gripping arms pivotally mounted on the forward end of

said body portion, toothed gripping lugs carried by said arms, an expanding plunger slidably mounted in the passage of said body portion and means to prevent the casual removal of said expanding plunger.

3. In a shell extractor, a body portion, having a longitudinal passage, said body portion comprising a flanged rear end and a reduced forward portion, a series of notched lugs formed in said reduced forward portion, a series of gripping arms pivotally mounted in said lugs, toothed segmental gripping lugs carried by said arms angular expanding surfaces on the inner surfaces of said arms, a spring arranged around the latter to retract and to hold the same in retracted position, an expanding plunger slidably mounted in the passage of the extractor, said plunger having a reduced portion and tapered end adapted to engage the angular expanding surface of said arms whereby the latter are expanded, and a retaining head on the tapered end of the plunger.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN H. WHEELER.
WILLIAM D. ALLEN.

Witnesses:

FRED. H. STAHL,
JOHN CANLAY.