

No. 860,216.

PATENTED JULY 16, 1907.

S. O. HUSETH.
SELF LOCKING CANNON PINION.

APPLICATION FILED NOV. 30, 1906.

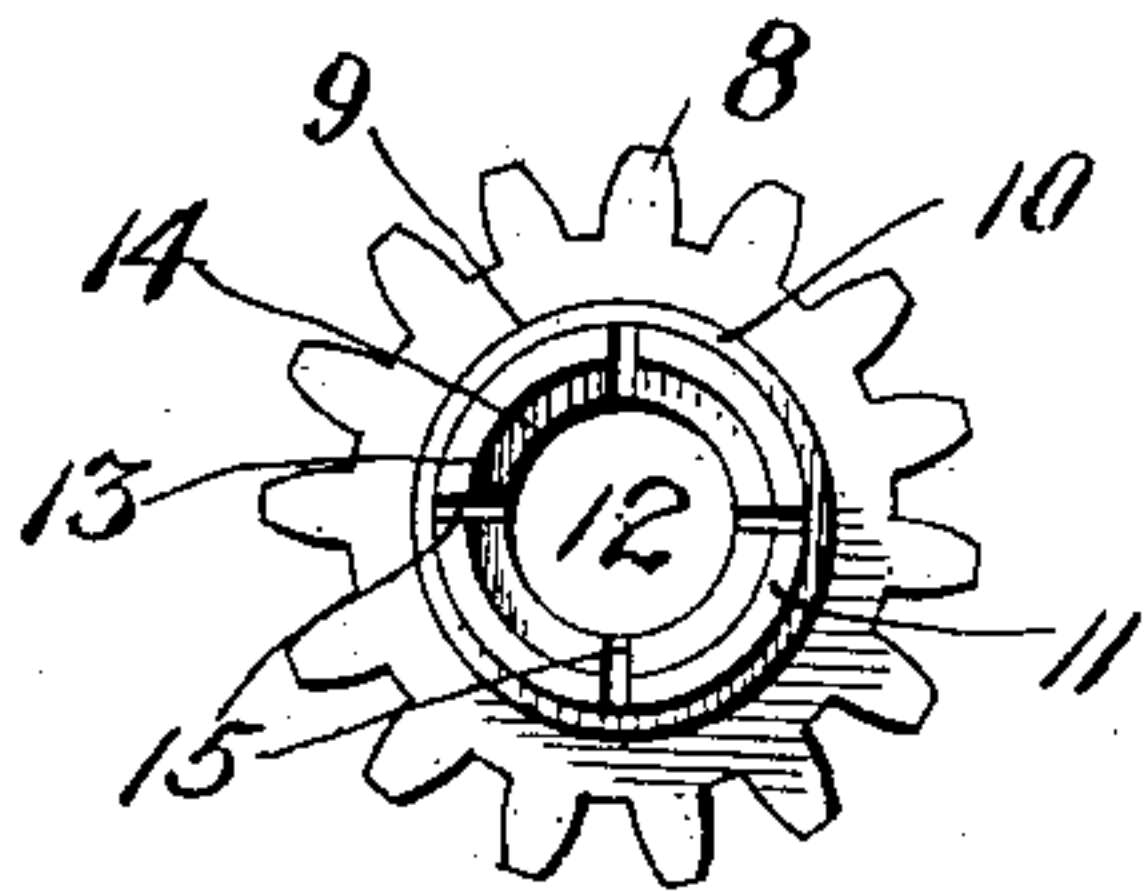
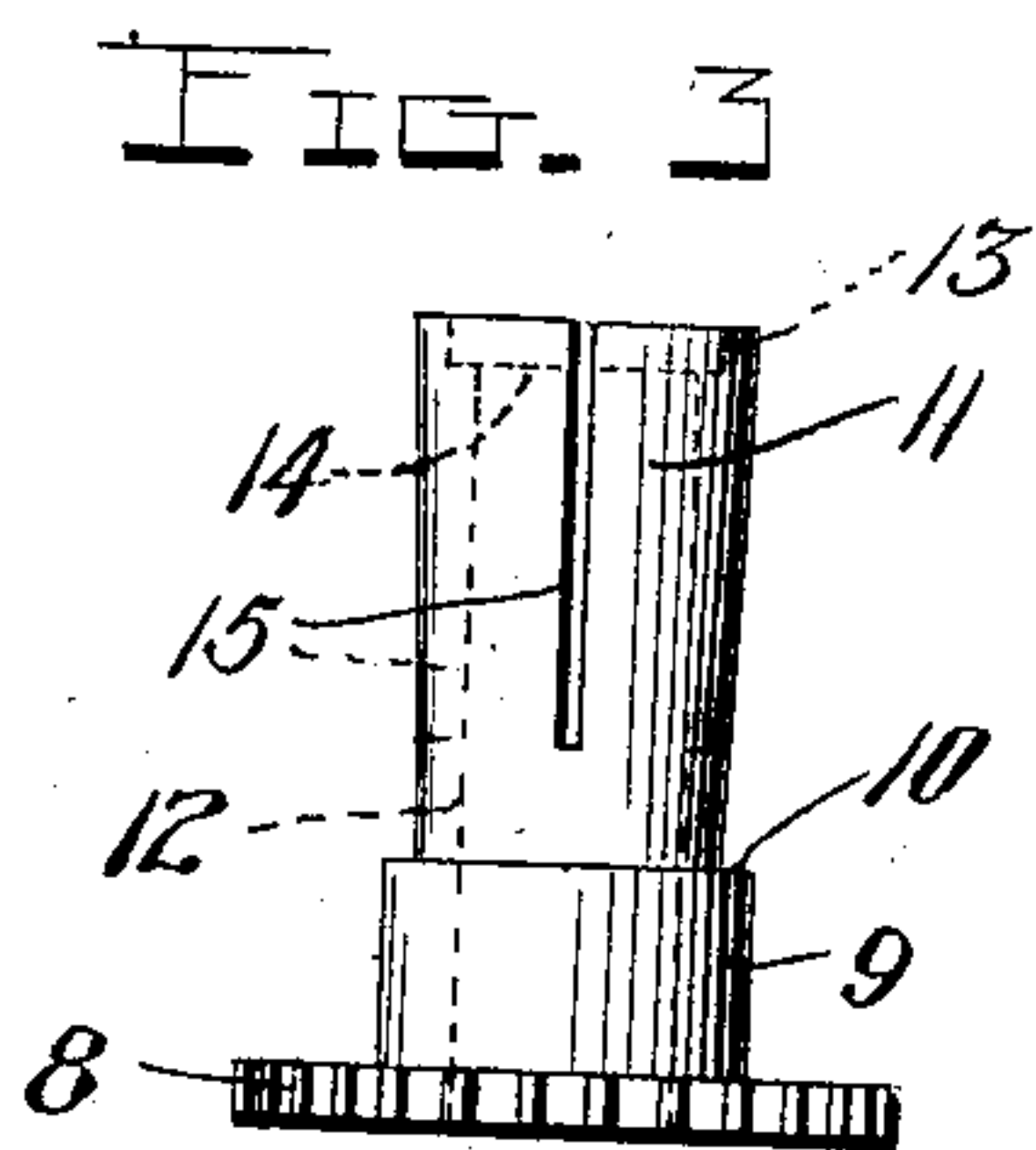
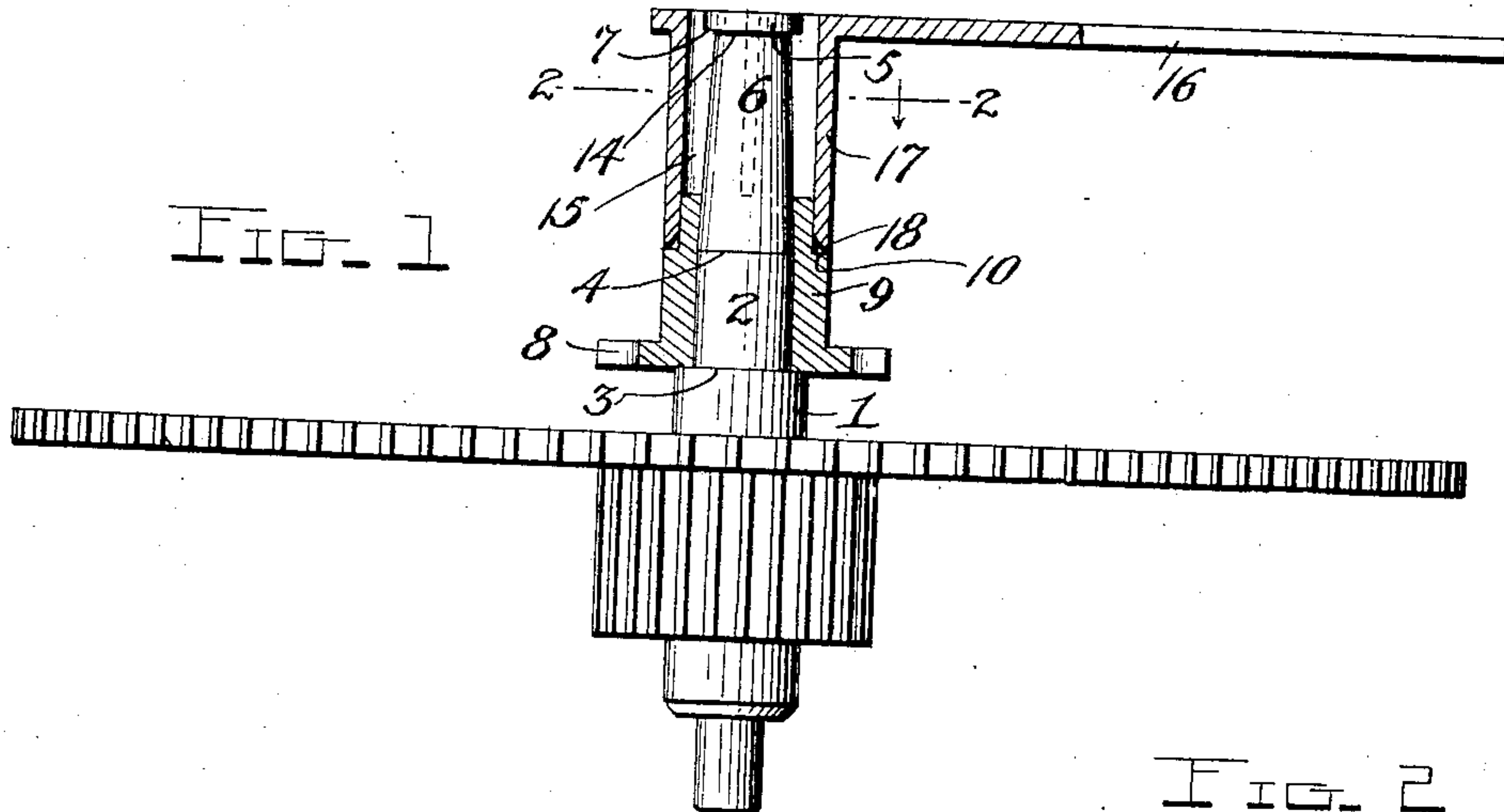


FIG. 4

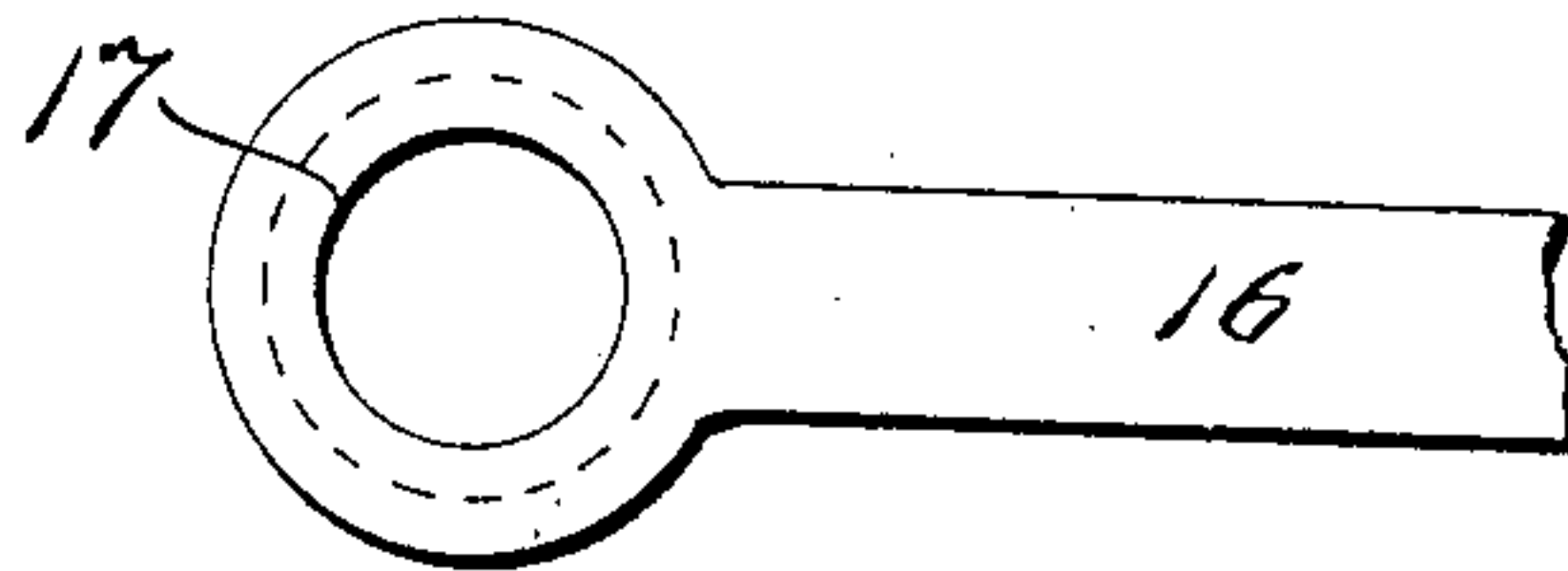
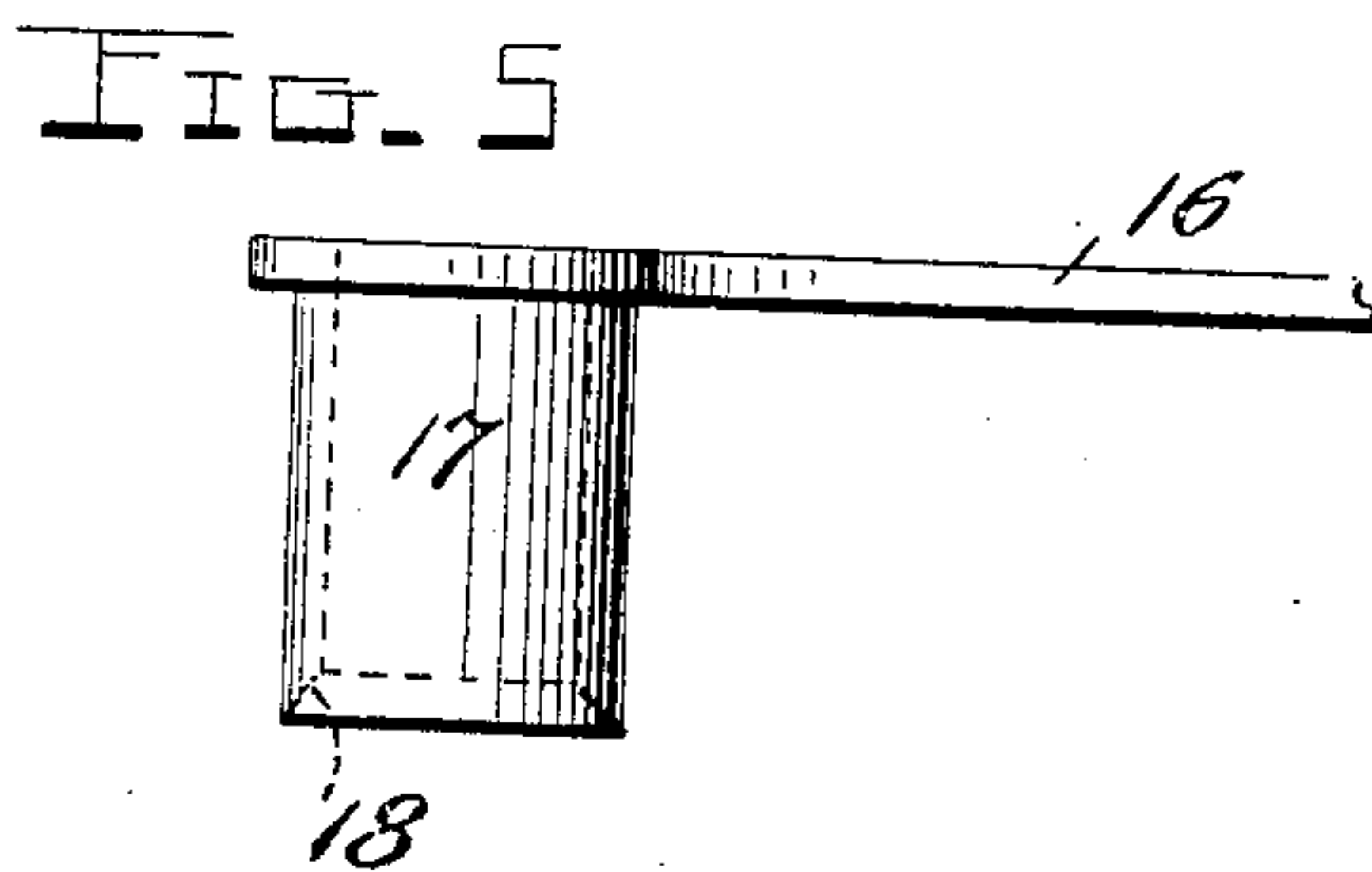
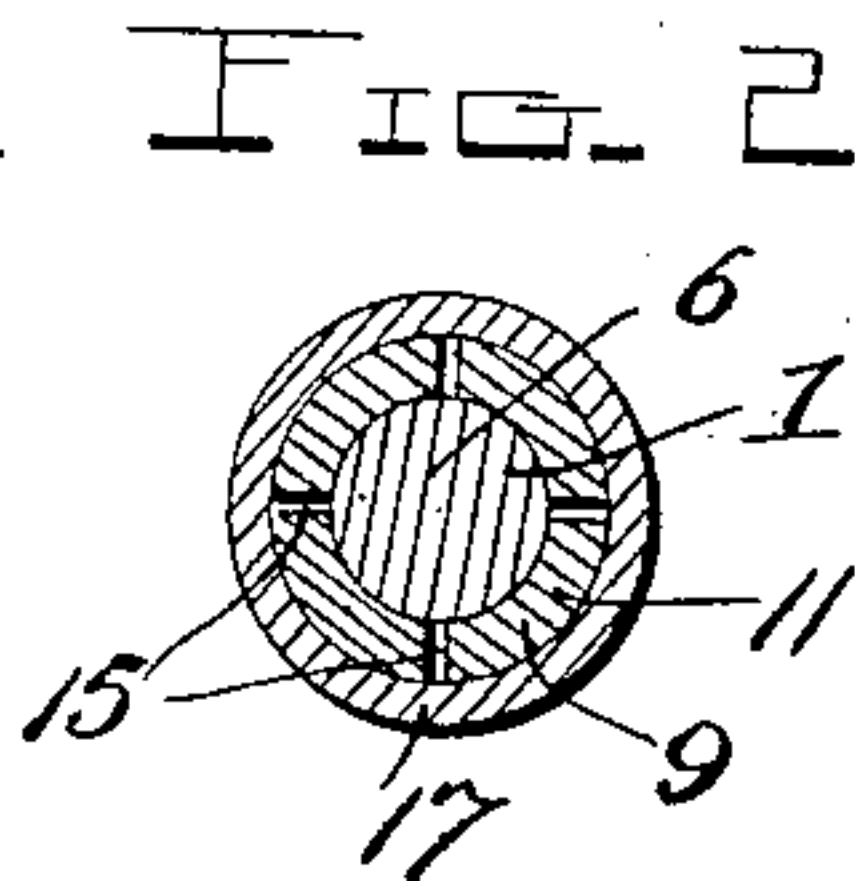


FIG. 6

Witnesses
J. H. Griesbauer, Jr.
A. M. Rawlings.

Inventor
S. O. Huseth
by Watson E. Coleman
Attorney

UNITED STATES PATENT OFFICE.

SEVER O. HUSETH, OF GREAT FALLS, MONTANA.

SELF-LOCKING CANNON-PINION.

No. 860,216.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed November 30, 1906. Serial No. 345,821.

To all whom it may concern:

Be it known that I, SEVER O. HUSETH, a citizen of the United States, residing at Great Falls, in the county of Cascade and State of Montana, have invented certain new and useful Improvements in Self-Locking Cannon-Pinions, of which the following in a specification, reference being had therein to the accompanying drawing.

This invention is an improved self-locking cannon pinion for use in watches and other time pieces in which the hands are set by stem winding.

One object of my invention is to make the cannon pinion absolutely secure on the center arbor and still leave it friction tight so that the hands of the watch may be set by revolving on the center arbor; also to better secure the minute hand and keep it flat and parallel with the hour hand.

Another object of the invention is to enable the hands and cannon pinion to be readily taken apart and put together again, thus saving the frequent breaking of jewels.

Other objects and advantages of my invention as well as the structural features by means of which these objects are attained will be readily understood upon reference to the following specification taken in connection with the accompanying drawings, in which;

Figure 1 is a view partly in elevation and partly in section of the preferred embodiment of my invention; Fig. 2 is a detail horizontal section taken on the plane indicated by the line 2—2 in Fig. 1; Figs. 3, 4 are side and end views of the cannon pinion, and Figs. 5, 6 are similar views of the inner end of the minute hand.

Referring to the drawings by numeral 1 denotes the center arbor which has one of its ends reduced to form an annular shoulder 2. This reduced end has an inner portion 2 of uniform diameter from the shoulder 3 to a point 4 from which it tapers to a head 5 which latter is of the same diameter as the portion 2; in other words, the portion of the end of the arbor between the point 4 and the circular head 5 is reduced to form a tapered outer portion 6 which provides an annular shoulder 7 at the inner edge of the head 5.

The numeral 8 denotes the minute hand pinion or gear which is formed upon or secured to the cannon 9. The latter is of cylindrical form and is adapted to have its lower or inner end engage the shoulder 3, as clearly shown in Fig. 1. The opposite end of the cannon 9 is reduced to provide an annular shoulder 10. The reduced end 11 of the cannon 9 is of slightly greater diameter at its outer end than at its inner end or at the shoulder 10; in other words, it is flared or bulged outwardly, as clearly shown in Fig. 3. The diameter of the opening or bore 12 through the cannon 9 corresponds to that of the portion 2 and the head 5 of the center arbor; and in the outer end of the flared portion 11 of the cannon is formed an annular channel or groove

13 arranged concentric with the bore 12. This groove 13 is adapted to receive the head 5 of the center arbor and provides an annular shoulder 14 adapted to be engaged by the shoulder 7 on said head. The tapered end 11 of the cannon 9 is sawed or split at one or more points, as shown at 15, so that said portion 11 is divided into a plurality of spring jaws adapted to engage the tapered portion 6 and the head 5 of the center arbor.

The minute hand 16 has formed upon or secured to its inner end a cylindrical sleeve 17 which is adapted to fit over the tapered end 11 of the cannon 9 and force its spring jaws into frictional engagement with the center arbor, as shown in Fig. 1. In order to facilitate the engagement of the sleeve 17 with the outer ends of the jaws of the cannon, the inner end of the sleeve is beveled inwardly, as shown at 18.

The hour hand is constructed and mounted in the usual manner and is not illustrated in the drawings.

In applying the minute hand to the center arbor the cannon pinion is slipped over the reduced end of the center arbor and engaged with the shoulder 3, as shown in Fig. 1, the length of the cannon 9 corresponding to the length of the reduced end of the center arbor. The sleeve 17 of the minute hand is then slipped over the outer ends of the spring jaws formed by slitting the reduced end 11 of the cannon 9 longitudinally; and as the sleeve 17 is forced downwardly these spring jaws will be forced into frictional engagement with the tapered portion 6 of the center arbor, the groove 13 receiving the head 5 and the shoulder 14 engaging the shoulder 7 so that the cannon pinion will be effectively locked upon the center arbor. The cannon 9 is preferably made of steel or other metal that may be tempered so that the jaws will be sufficiently resilient to accomplish the purpose intended. While the cannon on the minute hand serves to press in the top of the cannon pinion thus making it friction tight, it also strengthens the position of the minute hand by reason of the increased length of its cannon or sleeve. This construction serves to maintain the minute hand parallel with the hour hand and the dial without the necessity of increasing the length of the center arbor or the thickness of the watch. It will be noted that the cannon pinion is frictionally engaged with the center arbor throughout its entire length and at the same time it cannot possibly work loose or come off owing to the engagement of the shoulders on the ends of the spring jaws with the shoulder on the head.

Having thus described my said invention, what I claim as new, and desire to secure by Letters Patent of the United States, is

The combination with the center arbor having the reduced portion 2 forming the shoulder 3 and the outwardly tapered portion 6 terminating in the circular head or flange 5 forming the angular shoulder 7, the cannon 9 having the pinion 8 at its lower end to engage the shoulder 3, the outer end of the cannon 9 being reduced to form the

annular shoulder 10 and said reduced outer end of the cannon being flared outwardly and slit longitudinally to provide spring jaws to engage the tapered portion 6 of the arbor, the inner faces of the outer ends of said spring jaws 5 being formed with the grooves or seats 13 to receive the head or flange 5 at the end of the arbor, and the minute hand 16 rigidly connected to the outer end of the sleeve 17, the inner end of which latter having its inner edge 18 beveled to permit the sleeve to be readily passed over the 10 outer ends of the spring jaws, said end 18 of the sleeve be-

ing adapted to engage the shoulder 10 on the cannon and said sleeve being comparatively long to retain the minute hand in its proper position, substantially as shown and described.

In testimony whereof I hereunto affix my signature in 15 presence of two witnesses.

SEVER O. HUSETH.

Witnesses:

WILLIAM F. JOST,
GERTRUDE BUCK.