

(No Model.)

O. H. J. KRAG & E. JÖRGENSEN.
STRAIGHT PULL BREECH BOLT FOR FIREARMS.

No. 502,727.

Patented Aug. 8, 1893.

Fig. 1.

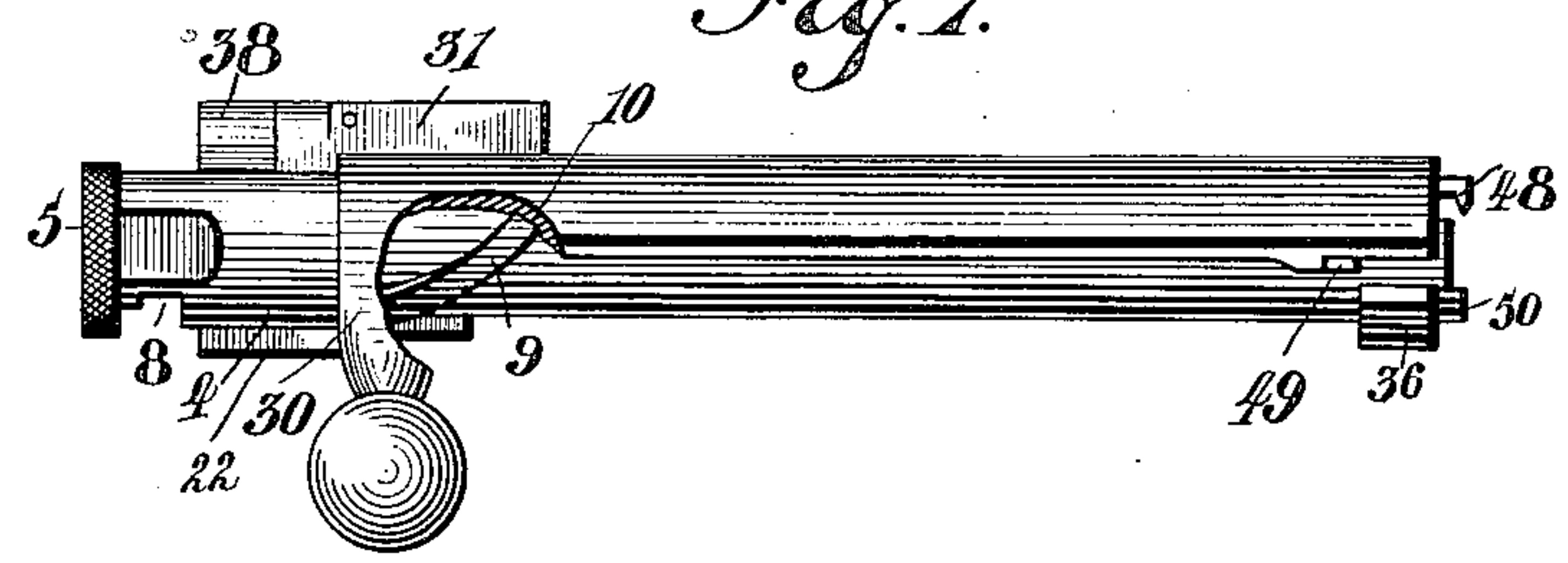


Fig. 2.

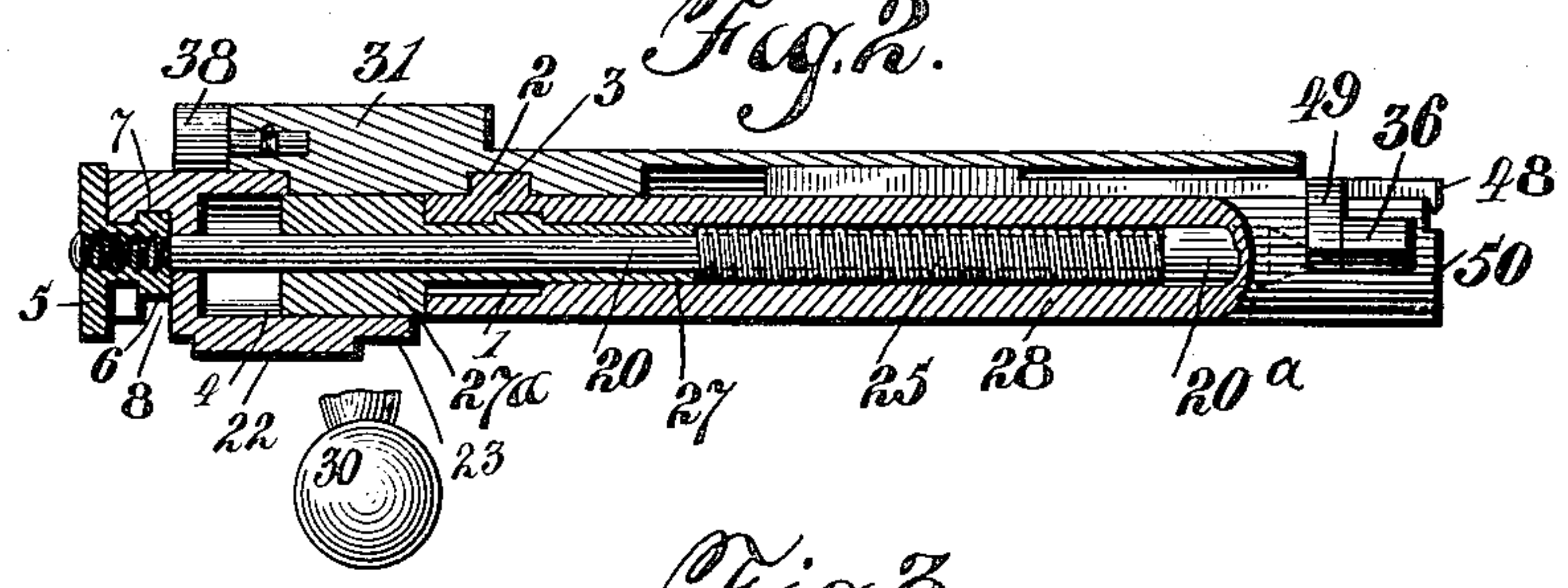


Fig. 3.



Fig. 6.

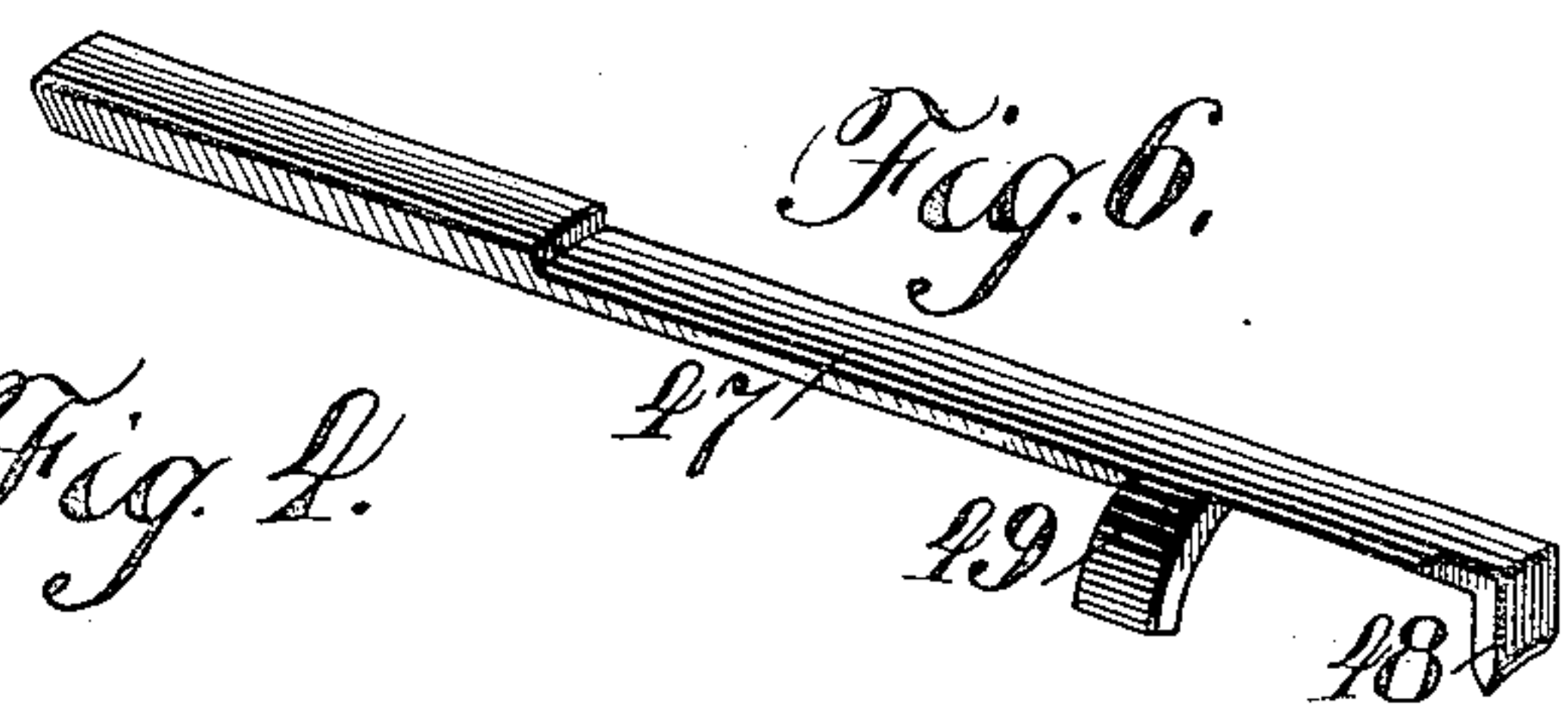


Fig. 4.

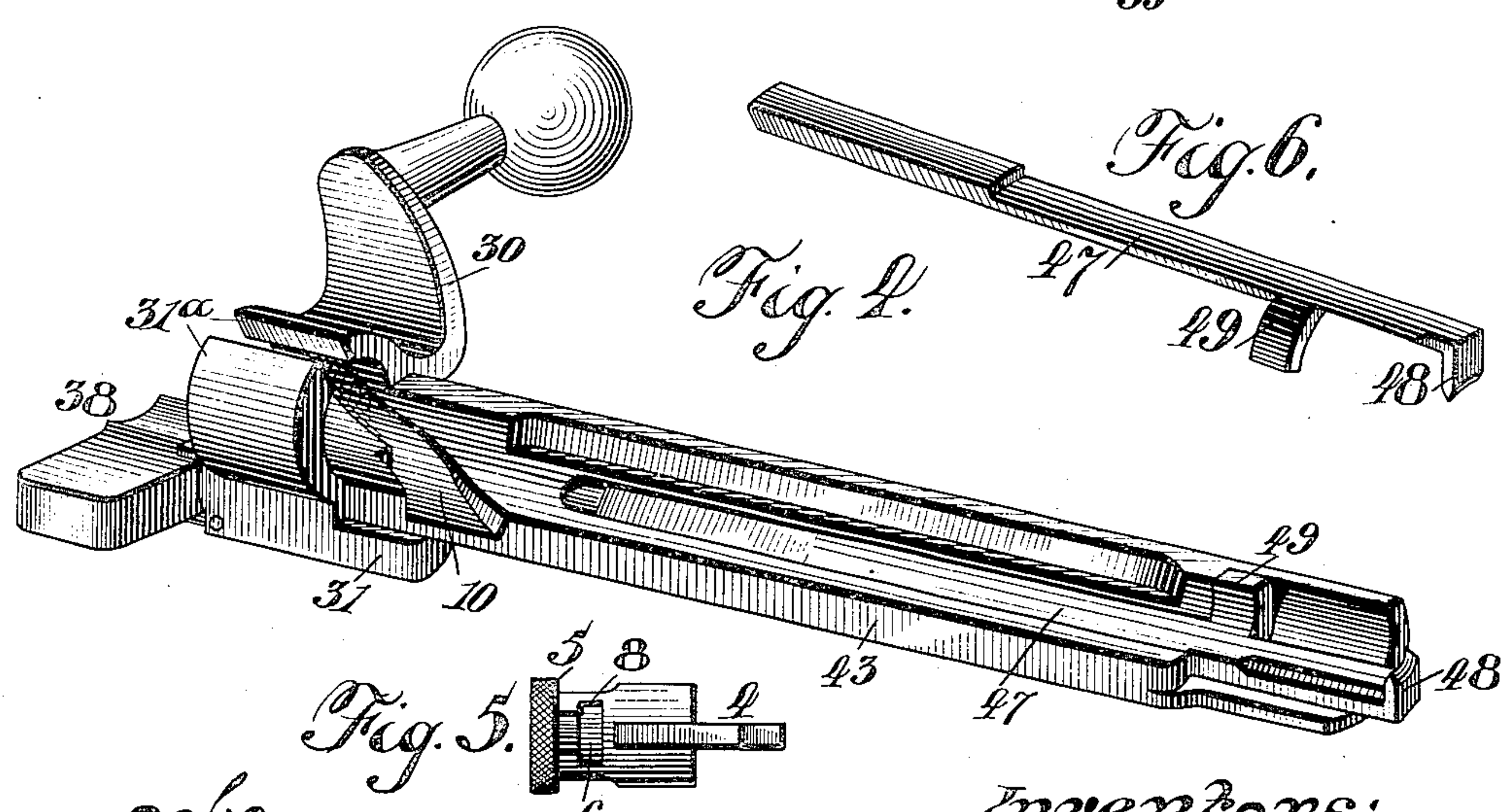
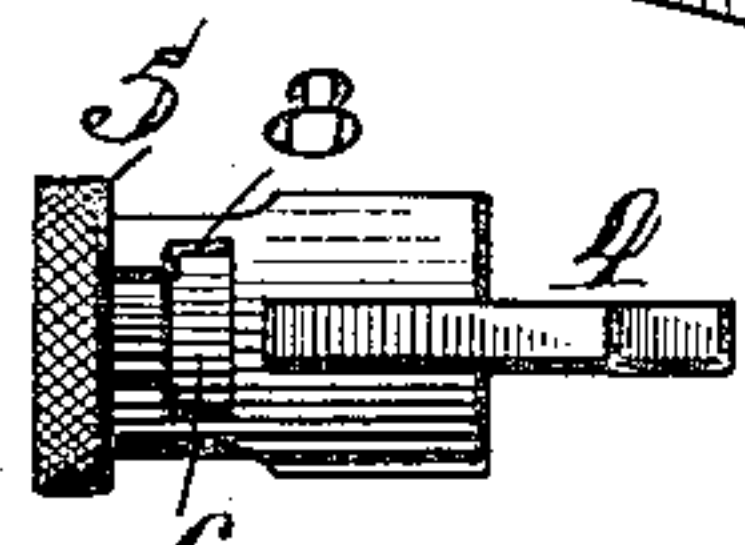


Fig. 5.



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UNITED STATES PATENT OFFICE.

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STRAIGHT-PULL BREECH-BOLT FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 502,727, dated August 8, 1893.

Application filed December 31, 1892. Serial No. 456,938. (No model.) Patented in Norway February 24, 1892, No. 2,553, and in Italy October 8, 1892, No. 32,722.

To all whom it may concern:

Be it known that we, OLE HERMAN JOHANNES KRAG and ERIK JÖRGENSEN, subjects of the King of Sweden and Norway, residing at Kongsberg, Kingdom of Norway, have invented certain new and useful Improvements in Magazine-Firearms, (for which Letters Patent have been obtained in Norway, No. 2,553, dated February 24, 1892, and in Italy, No. 32,722, dated October 8, 1892;) and we do hereby 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

Our invention has relation to breech loading guns, and more especially to that class of guns in which a straight pull breech bolt is employed, and it has for its object certain improvements in the construction of the breech bolt as will now be fully described reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the breech bolt and the combined dust cap, extractor carrier and lever handle. Fig. 2 is a longitudinal sectional view of the parts shown in Fig. 1. Fig. 3 is a view of the breech bolt detached. Fig. 4 is a perspective view of the combined extractor carrier, dust cap and lever handle. Fig. 5 is a detail view of the retaining sleeve for the firing pin spring and the retaining nut for said pin, and Fig. 6 is a perspective view of the extractor, detached.

In our patent of the United States for "improvements in breech-loading magazine firearms," of February 21, 1893, No. 492,212, we have described and shown a breech bolt operating lever that is so connected with the breech bolt as to revolve therewith, in order to impart a partial rotation to said bolt in locking the same to or unlocking the same from the receiver and breech chamber, and the purpose of our present invention is to provide a straight pull breech bolt for use with the gun described in said patent.

Referring now to the drawings, the breech bolt proper with the exception of certain spe-

cial features is constructed substantially as described in the patent above referred to.

It consists of a tube, 28, closed at its forward end, said closed end being apertured centrally for the passage of the firing pin 20, contained in said tube, which has at its forward end two locking lugs, 35, and 36, respectively, that take into suitable recesses at the forward end of the receiver to lock the bolt thereto, and to the breech of the gun. At its forward or outer end the said bolt is further provided with the annular partially cut away peripheral flange or shoulder, 50, for purposes described in said patent. The firing pin, 20, carries a coiled spring, 25, the forward end of which has bearing on an annular shoulder formed by an enlarged forward end, 20^a, of said firing pin, and the rear end of said coiled spring 25 bears against a sleeve, 27, whose rear end, 27^a, is of increased diameter.

In order that the sleeve, 27, may be readily removed from the breech bolt, 28, and securely locked thereto, said breech bolt has an interior longitudinal groove, 1, extending forwardly from its rear end the proper distance, the forward end merging into a corresponding circular groove, 2, extending partly around the inner periphery of the bolt, the sleeve, 27, being provided with a lug, 3, so that when said sleeve is inserted into the rear end of the breech bolt with its lug, 3, in the longitudinal portion of the locking groove, 1, until said lug reaches the forward end thereof in line with the circular portion, 2, of said groove, and the sleeve is revolved, said lug will enter the circular portion of the groove and lock the sleeve securely to the bolt.

On the enlarged rear portion, 27^a, of the locking sleeve, 27, is mounted a sleeve, 4, provided with a longitudinal rib, 22, in which is formed the full cock notch, 23, with which the sear engages. As shown in Fig. 2, the firing pin, 20, extends through the sleeves 27, and 4, its rear end being screw-threaded and locked to said sleeve, 4, by means of a lock-nut, 5, that screws onto the threaded end of the firing pin, 20.

In order that the lock nut, 5, may be more safely connected with the sleeve, yet readily removed therefrom when this is desired or

becomes necessary, said lock nut is provided with a collar, 6, that fits into an annular recess, 7, formed in the sleeve, and with a peripheral slot or passage, 8, of such dimension 5 that the collar, 6, on nut, 5, can be introduced sidewise into said sleeve, as shown in Figs. 3 and 5.

By means of the construction described the parts can be readily assembled or taken 10 apart without the use of a tool, as it is obvious that if the nut, 5, is unscrewed from the firing pin, 20, the sleeve, 4, can be slipped off the sleeve 27, and said nut detached from sleeve 4, by pushing it out laterally through 15 the slot, 8; if the sleeve, 27, is now revolved until its lug, 3, is in register with the longitudinal portion, 1, of the locking pin in the breech bolt, the said sleeve, 27, can be readily slipped out of the bolt, in fact, it will be 20 forced out by the coiled spring, 25.

In the afore mentioned patent we have described a combined dust cap and extractor carrier detachably connected with the handle lever. According to our present invention 25 we form these parts integral, as shown in Fig. 4. The combined dust cap and extractor carrier, 43, the locking rib, 31, the lever handle sleeve, 31^a, and the lever handle, 30, are formed integral, said dust cap, 43, having a 30 longitudinal, preferably dovetail, groove, for the extractor, 47. In the locking rib, 31, is pivoted a locking latch, 38, by means of which the firing pin when at full cock may be locked against forward movement, and thereby prevent the accidental discharge of the gun when 35 not in actual use; this locking latch is constructed and arranged for operation substantially as described in our said patent.

The extractor, 47, is provided at its forward 40 end with a hook, 48, and at a suitable distance in rear of said hook with a radial arm, 49, the forward portion of the shank of the extractor being attenuated to give it the necessary spring or elasticity, (as shown in Fig. 45 6) to ride over and engage the flange or rim of a cartridge.

In Fig. 1 we have shown the breech bolt, 20, in the position it assumes when it is locked to the receiver, and in Fig. 2 we have shown 50 said bolt in the position it assumes after the combined dust cap and the extractor carrier, 43, have been partially moved back by means of the lever handle, 30, whose sleeve is movably mounted on the breech bolt. This partial backward movement of the carrier imparts a corresponding partial rotation to the breech bolt, whereby the lugs, 35 and 36 are disengaged from the locking recesses in the receiver. Inasmuch as the extractor, 47, is 60 not rigidly connected to the carrier, said extractor will not be moved back with its carrier during this first backward movement, but the partial rotation of the breech bolt will bring its lug, 36, in front of the radial arm, 49, on the extractor, 47, whereby the latter is connected with the breech bolt and caused to move with it during the completion

of its rearward motion to uncover the receiver and breech, the operation being substantially the same as that described in reference to corresponding parts shown in our said patent. 70 The partial rotation required to lock the breech bolt to and unlock the same from the receiver without a corresponding partial rotation of the lever handle, is obtained by a 75 spiral rib, 9, (Figs. 1 and 3) of the necessary pitch, that fits into a corresponding groove, 10, in the combined extractor carrier, dust cap and lever handle.

As shown in Fig. 4, the groove, 10, is made 80 wider at its inner end, so as to admit of a ready removal of the breech bolt from, or connection with the carrier, 47.

In order to prevent the accidental rotation of the sleeve, 27, within the sleeve, 31^a, of the 85 lever handle, 30, we form thereon a rib, 12, in continuation of the rib, 9, on the breech bolt, whereby said sleeve is securely held against accidental rotation by the spiral groove, 10, in the carrier sleeve, 30. A straight pull or push 90 on the lever handle will therefore impart a partial rotation to the breech bolt whenever the forward or rearward movement of the latter is antagonized, that is to say, a partial rotation is imparted to the breech bolt when 95 said bolt is locked to the receiver and its rearward motion antagonized by the locking lugs or when said breech bolt lugs abut against the breech chamber and its further forward movement is antagonized. 100

Although our improved breech bolt is more particularly designed for use in conjunction with a gun constructed as described in our pending application, it can be used with guns of different construction without material 105 changes.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination with the breech bolt, 110 the firing pin screw-threaded at its rear end, the actuating spring for said firing pin, and an abutment within the bolt for the rear end of said spring; of the sleeve, 4, provided with a rib having a full cock notch formed therein, 115 said sleeve having at its rear end an interior annular recess and a peripheral slot merging into said recess and the lock nut, 5, screwing onto the threaded end of the firing pin and provided with a collar fitting into the annular 120 recess of the sleeve, for the purpose set forth.

2. A straight pull breech bolt provided with a spiral rib, as 9, the locking sleeve, 27, fitting into the bolt and provided on its enlarged rear projection with a rib, 12, forming a continuation of said rib, 9, and a lever handle provided with a sleeve encompassing the breech bolt and having an interior spiral groove into which fit the ribs, 9 and 12, for the purpose set forth. 125

3. In a breech loading gun, an extractor carrier constructed to form a dust cap for the receiver, said carrier provided with a sleeve bearing for the breech bolt, and a lever han- 130

dle projecting from said sleeve bearing, said parts being formed integral.

4. The combination with the breech bolt provided with a spiral rib near its rear end, 5 of means for imparting a partial rotation to the bolt and for extracting the empty shell from the breech, comprising a sleeve having an interior spiral groove into which fits the spiral rib on the bolt, said sleeve having an arm 10 projecting forwardly, and a lever handle projecting radially therefrom, said forwardly projecting arm provided on its under side with a longitudinal groove and an extractor movably seated in said groove, for the purpose 15 set forth.

5. The combination with the breech bolt provided at its outer end with a radial lug, 26, and near its rear end with a peripheral spiral rib; of means for imparting a partial 20 rotation to the bolt and for extracting the empty shell from the breech, comprising a

sleeve bearing for the bolt provided interiorly with a spiral groove into which fits the spiral rib on the bolt, said sleeve having an arm projecting forwardly and a lever handle projecting radially therefrom, said forwardly projecting arm having a longitudinal groove in its under side, and an extractor movably seated in the said groove and provided near its forward end with a radial arm, 49, for the purpose set forth. 25 30 35

6. The combined extractor carrier and dust cap, the bearing sleeve, 31^a, provided with a longitudinal locking rib, 31 and a radial lever, 30, said parts being formed integral. 35

In testimony whereof we affix our signatures in presence of two witnesses.

OLE HERMAN JOHANNES KRAG.
ERIK JÖRGENSEN.

Witnesses:

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GABRIEL KÜLLAND.