No. 774,112. PATENTED NOV. 1, 1904.

W. RUNDQUIST.

SCREW DRIVER.

APPLICATION FILED JAN. 2, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

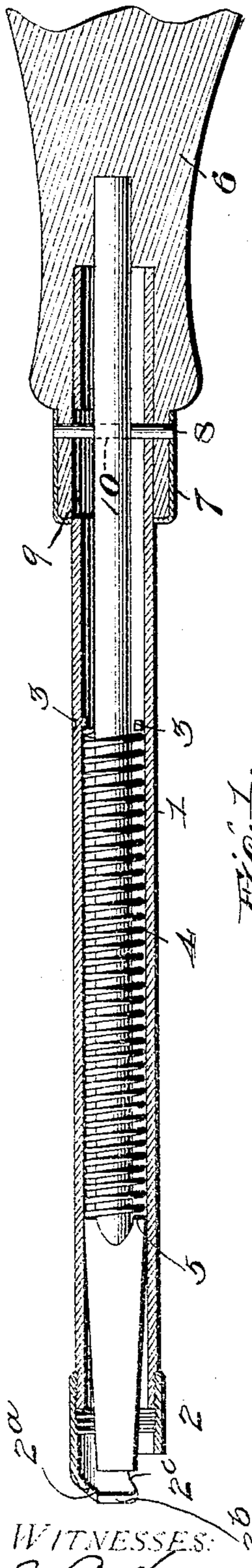

Fig. 1.

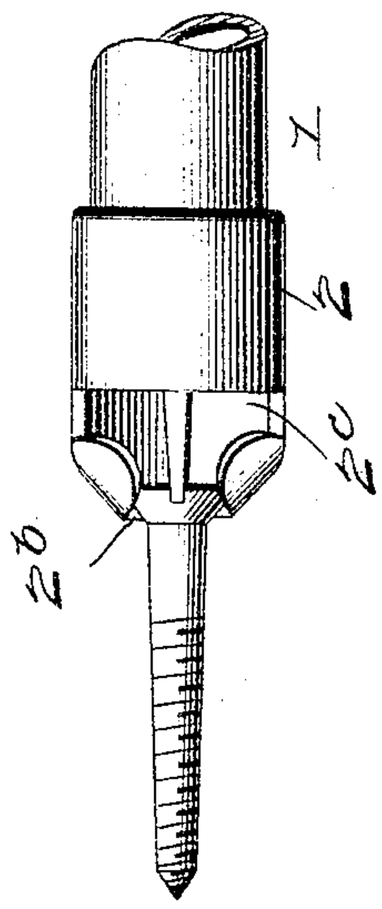

Fig. 4.

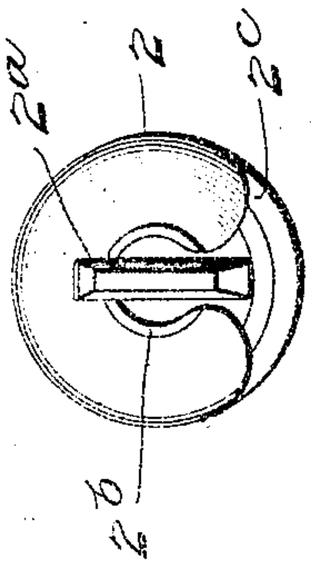

Fig. 5.

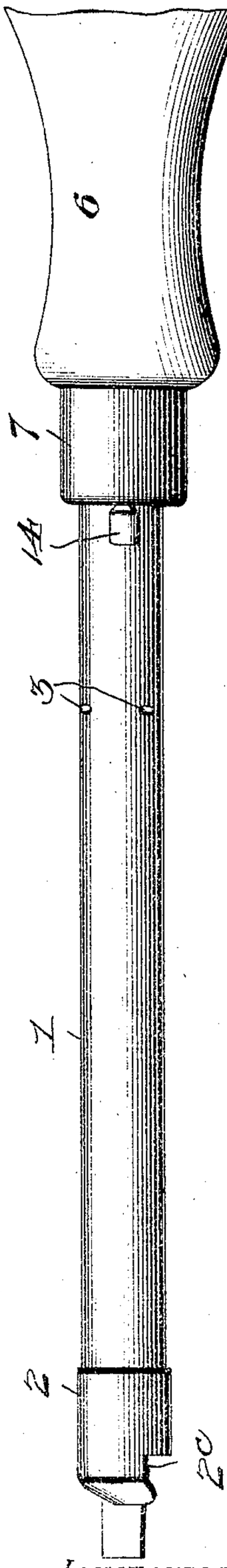

Fig. 2.

WITNESSES:

L. L. Woodward

C. E. Schnell.

INVENTOR

William Rundquist,

BY Edson Bros,

Attorneys,

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W. RUNDQUIST.

SCREW DRIVER.

APPLICATION FILED JAN. 2, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

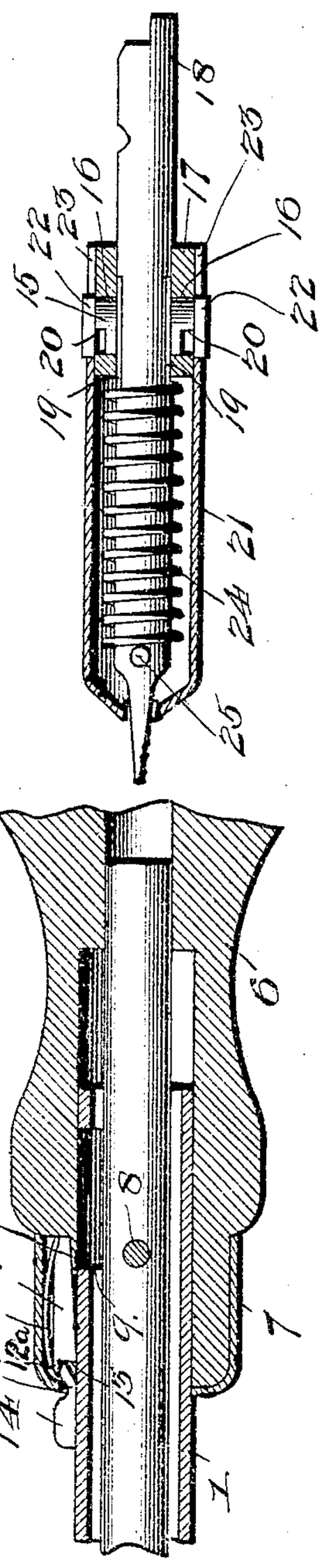

Fig. 6.

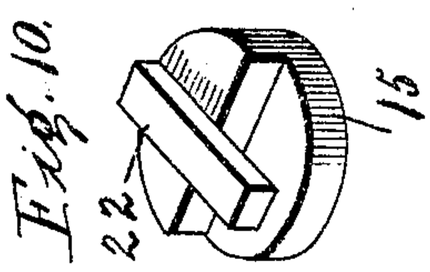

Fig. 10.

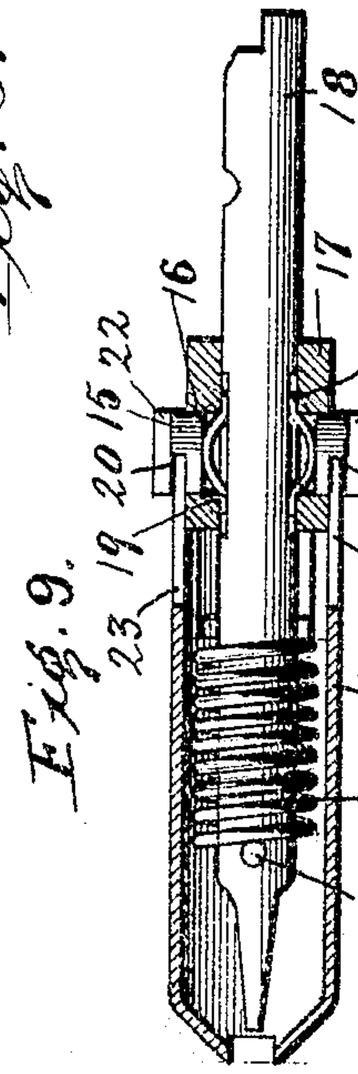

Fig. 9.

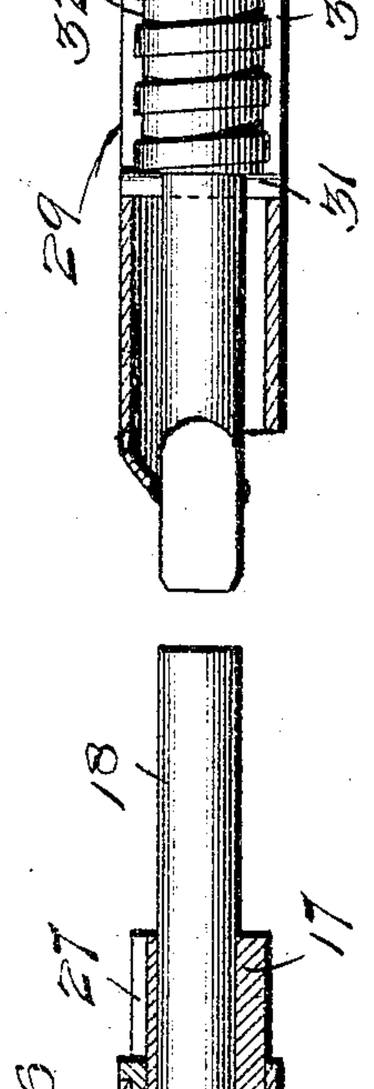

Fig. 8.

Fig. 5.

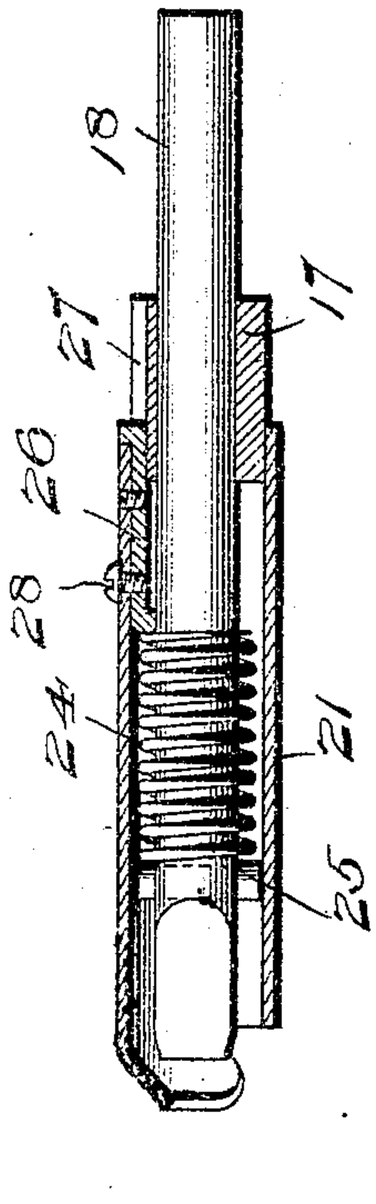

Fig. 7.

WITNESSES:

J. L. Mackaye

C. E. Schnell.

INVENTOR

William Rundquist,

BY Edson Bros

Attorneys.

PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHG. & PTG. CO. NEW YORK.

No. 774,112. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM RUNDQUIST, OF ELGIN, ILLINOIS, ASSIGNOR OF ONE-HALF TO HENRY G. WEATHERILL, OF ELGIN, ILLINOIS.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 774,112, dated November 1, 1904.

Application filed January 2, 1904. Serial No. 187,573. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RUNDQUIST, a citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Screw-Drivers; and I 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.

My invention relates to screw-drivers.

It has for its object to provide a screw-driver by which the screw can be securely held by its head while starting to drive the same and subsequently disengaged from the head and used in the ordinary manner to complete the driving operation.

The invention consists in providing a shell or tube around the bit provided with a hollow tip tapered at its end to fit the under side of the screw-head, means for retaining the bit in forceful contact with the slot in said screw-head while said head is in contact with said tip, and means for projecting the bit from said tip, so that the driving operation may be completed in the ordinary manner.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a longitudinal sectional view of my preferred form of tool with the handle broken away, showing the barrel or shell extended. Figs. 2 and 3 are side and end views, respectively, of the outer end of the barrel with the bit extended or the barrel or shell withdrawn. Fig. 4 is a broken view of the extremity of the barrel and bit, showing them in engagement with a screw. Fig. 5 is a broken enlarged sectional view through the lock mechanism with the lock disengaged from the slot in the barrel. Fig. 6 is an enlarged sectional view of a detachable bit provided with my invention. Fig. 7 is a broken sectional view taken at right angles with that in Fig. 6 with the shell extended. Fig. 8 is a sectional view of a modified form of attachment for a detachable bit. Fig. 9 is a sectional view of the attachment shown in Figs. 6 and 7, taken on the same line as Fig. 6, showing the shell withdrawn and the catches engaging the edge of said shell. Fig. 10 is a perspective view of one of the catches.

Before driving a screw with a common screw-driver it must be started with a hammer. It often happens that when the driver is applied the screw is dislodged and must be started over again. In starting screws, especially small ones, with a hammer one is apt to strike and bruise the fingers or otherwise injure the hands. Screws must often be placed at angles or in such close quarters that it is impossible to start them with a hammer without great inconvenience. By the use of my invention all these hardships and disadvantages are obviated.

Referring more particularly to Figs. 1, 2, 3, 4, and 5 of the drawings, 1 is a shell, preferably of brass, mounted around the bit, provided with a tip 2, having, preferably, screw-threaded connection therewith. Said tip has its outer extremity in the form of a truncated cone with a transverse slot 2^a, through which the bit is adapted to project. This slot 2^a is rounded out at its center, as at 2^b, to fit around the screw just below its head, and a lateral slot 2^c leads into said slot 2^a for the insertion of the screw-head. Said shell or barrel has indentations 3, against which bears a coiled spring 4, wound around the bit. The other extremity of said spring abuts against a shoulder 5 on the bit, so that the normal position of the bit is extended from the barrel, as in Fig. 2. The barrel is connected to the handle 6 by a collar 7, provided with a pin 8, passing through said handle, through slots 9 in the barrel, and a transverse aperture 10 in the bit-shank. It will therefore be seen that the bit is fixed to the handle, while the shell or barrel may be partially withdrawn from the handle against the resistance of the coiled spring. The collar 7 is preferably of greater diameter than the barrel, and between these two is mounted a lock or catch 11, pressed by a spring 12, adapted to seat, as at 13, in one of the slots in said barrel when it has been withdrawn so as to extend beyond the bit. The lock is operated by a knob 14, extending from the collar and adapted to rock upon the surface of the shell. Said knob engages the catch and is

adapted to raise the same from the slot in the barrel by pressing thereon. As clearly shown in Fig. 5, the inner end of said catch rests, preferably, upon a tongue of wood 11^a, integral with the handle 6, and the outer end of said catch is stepped, as at 12^a, where it is engaged by the inwardly and upwardly extending tongue 14^a of the knob 14. When the shell or barrel is withdrawn until the slot 9 is below the catch, said catch, impelled by the spring 12, arranged above it, will drop into said slot, at the same time raising the outer portion of said knob. Pressure upon said outer portion of said knob when in a raised position will raise and disengage said catch from the slot in the shell, allowing said shell to be partially withdrawn into the handle, leaving the bit projecting from its end. The portion 14^a of the knob is thicker at its extremity to confine it below the collar 7.

In operating the screw-driver to place the screw in position the handle is grasped with one hand and the other hand is placed around the barrel, when the two are pulled in opposite directions until the lock drops into the slot in the shell. In that position the tip of the shell extends beyond the end of the bit, so that the screw can be placed in position. The knob is then pressed, raising the catch and allowing the shell to retract, thereby forcibly engaging the screw below its head with the bit in its slot. With the screw thus secured to the driver said screw can be readily driven without holding the screw with the fingers or without having been first started with a hammer. When the screw has been partially driven sufficiently far so that it is firmly lodged in the wood, by again drawing out the shell the screw may be released, and when said shell is retracted by pressing the knob, so that the bit projects beyond the shell, the driving operation can be completed in the ordinary manner.

In the tool, Figs. 6 and 7, which show my invention attached to a short bit such as adapted to be used in a brace or the like, there are two catches 15, arranged, preferably, oppositely in recesses 16 in a sleeve 17, fixedly mounted around the bit-shank 18. The catches are seated on springs 19, which normally press said catches outwardly, so that their shoulders 20 will engage the edge of the shell 21, said catches having portions 22 which run in slots 23 in the shell and which when said catches engage the edge of the shell project sufficiently above said shell so that they may be pressed to effect the disengagement of the catch from the edge of the shell. A coiled spring 24 abuts against a cross-pin 25 in the bit, and its other end engages a plate 26, mounted in a slot 27 in the surface of the sleeve 17. Said plate is secured, as at 28, to the shell, so that when the shell is extended similarly as above described in connection with the long-bit driver it carries the plate with it, compressing the spring, so that when the catches are in engagement with the edge of the shell the spring is compressed. When the catches are pressed, the shell is retracted. In this tool the shell is preferably made in one piece without the separable tip, but having its end shaped similarly thereto. This device is operated in the same manner as the first-described driver.

In the modification shown in Fig. 8 in place of a spring the shell or barrel is operated by a screw-threaded sleeve 29 engaging internal screw-threads on the barrel. Said sleeve has, preferably, at one end a milled enlargement 30 for readily manipulating the same, and its other end engages a cross-pin 31 in the bit, the ends of which engage slots 32 in the shell. Said shell is adjusted on said bit by turning the sleeve, which is loosely mounted on said bit, said sleeve being held in contact with the cross-pin 31 during the turning operation.

It is obvious that the tool can be made of any size and the size of the opening in the end of the tip varied, so that it may be used for any-gage screw. An assortment of tips to fit various-sized screws may be made to fit the barrel in my preferred form, and they can be easily substituted one for another. It is therefore understood that I do not limit myself as to details herein shown and described, as they may be changed at will and the spirit of my invention remain intact and be protected.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a screw-driver, the combination of a handle, a bit fixed to said handle and having a coiled spring mounted therearound, an extensible tubular shell housing said bit and spring and having a slot therein, said shell having means for holding the screw in engagement therewith, a catch adapted to engage said slot when the shell is extended and adapted to hold it in its extended position to permit the insertion of a screw, and a knob, attached to a fixture, engaging said catch and adapted to operate the same.

2. In a screw-driver, the combination of a handle, a bit fixed to said handle and having a coiled spring mounted therearound, an extensible tubular shell housing said bit and spring and having a slot therein, said shell having means for holding the screw in engagement therewith, a catch adapted to engage said slot when the shell is extended and adapted to hold it in its extended position to permit the insertion of a screw, and a knob, attached to a fixture, engaging said catch and adapted to operate the same, said spring abutting at one end against a shoulder on said bit and at the other end against an interior shoulder on the shell and adapted to hold said shell in its contracted position.

3. In a screw-driver, the combination of a

handle, a bit fixed to said handle and having a coiled spring mounted therearound, an extensible tubular shell housing said bit and spring and having a slot therein, said shell having means for holding a screw in engagement therewith, a collar mounted on said handle and extending over one end of said shell, a spring-pressed catch arranged below said collar adapted to seat in the slot of said shell to secure the latter in its extended position to permit the insertion of a screw and a knob pivoted in said collar and adapted to raise said catch.

4. In a screw-driver, the combination of a handle, a bit fixed to said handle and having a coiled spring mounted therearound, an extensible tubular shell housing said bit and spring and having a slot therein, said shell having means for holding a screw in engagement therewith, a collar mounted on said handle and extending over one end of said shell, a spring-pressed catch, arranged below said collar, adapted to seat in the slot of said shell to secure the latter in its extended position to permit the insertion of a screw, and a knob pivoted in said collar and adapted to raise said catch, said spring abutting at one end against a shoulder on said bit and at the other end against an interior shoulder on the shell and adapted to withdraw said shell when said catch is raised.

5. In a screw-driver, the combination of a handle, a bit fixed to said handle and having a coiled spring mounted therearound, an extensible tubular shell housing said bit and spring and having a slot therein, said shell provided with converging walls forming a seat for the head of a screw, a collar mounted on said handle and extending over one end of said shell, a spring-pressed catch arranged below said collar adapted to seat in the slot in said shell to secure the latter in its extended position to permit the insertion of a screw, and a knob pivoted to said collar and adapted to raise said catch.

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

WILLIAM RUNDQUIST.

Witnesses:
CHARLES J. MCDOWELL,
GEO. E. ALLEN.