F. A. TIBBALS.

SCREW DRIVER.

APPLICATION FILED MAY 3, 1912.

1,036,379.

Patented Aug. 20, 1912.

Fig. 4.

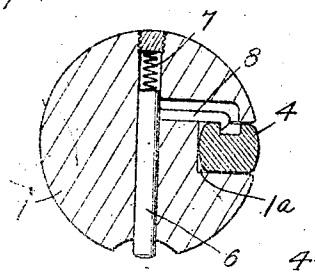


Fig. 5.

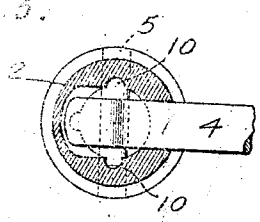


Fig. 6.

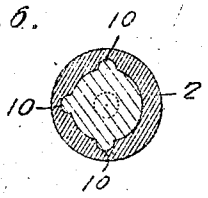


Fig. 7.

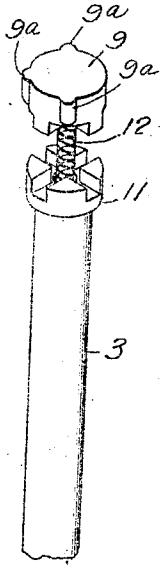


Fig. 1.

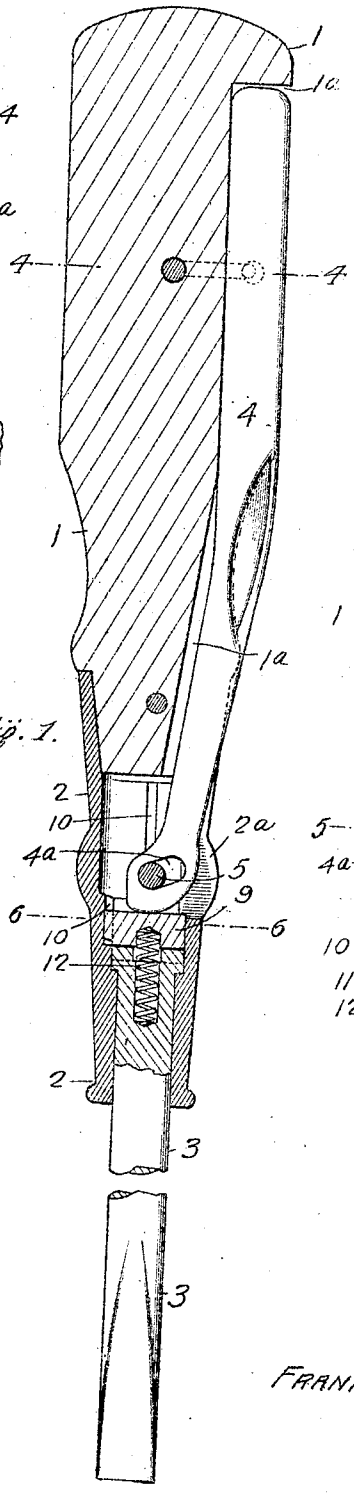


Fig. 3.

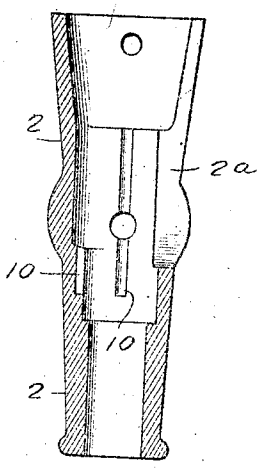
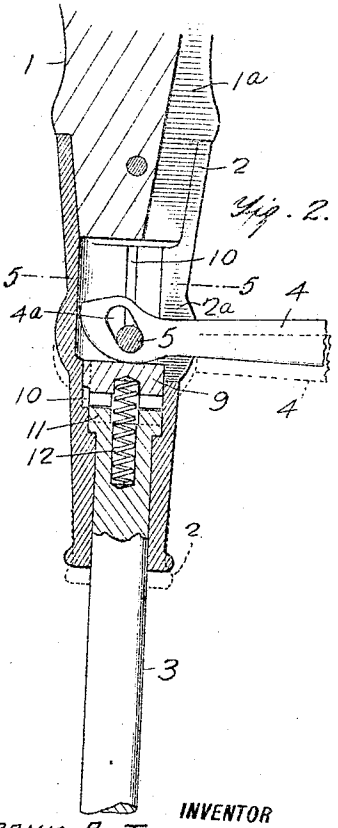


Fig. 2.



WITNESSES

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FRANK ARTHUR TIBBALS, OF MONMOUTH, ILLINOIS.

SCREW-DRIVER.

1,036,379. Specification of Letters Patent. Patented Aug. 20, 1912.

Application filed May 3, 1912. Serial No. 694,841.

To all whom it may concern:

Be it known that I, FRANK ARTHUR TIBBALS, a citizen of the United States, and a resident of Monmouth, in the county of Warren and State of Illinois, have invented an Improvement in Screw-Drivers, of which the following is a specification.

My invention is an improvement in that class of ratchet screwdrivers which are provided with a lever attachment adapting them for very heavy work and for use in angles or places where it is difficult to operate an ordinary screwdriver.

The invention is embodied in the improved construction, arrangement, and combination of parts hereinafter described, and illustrated in the accompanying drawing, in which—

Figure 1 is a longitudinal section of my improved screwdriver, showing the blade locked with the handle, so that it may be used like an ordinary screwdriver. Fig. 2 is a longitudinal section showing the lever in working position and the clutch mechanism disengaged. Fig. 3 is a longitudinal section of the metal ferrule connecting the handle proper with the blade. Fig. 4 is a cross section on the line 4—4 of Fig. 1. Fig. 5 is a cross section on the line 5—5 of Fig. 2. Fig. 6 is a cross section on the line 6—6 of Fig. 1. Fig. 7 is a perspective view illustrating the clutch mechanism.

Referring in the first instance to Fig. 1, the numeral 1 indicates an enlarged wooden handle, 2, an iron or other metal ferrule which is rigidly connected therewith, and 3, the blade, or screwdriver proper. A cam lever 4 is pivoted at 5 in the ferrule 2 and its shank or handle portion is adapted to close into a longitudinal recess or groove 1^a in the handle, as shown in Figs. 1 and 4; and it is locked detachably in said groove by means of a spring catch 6—see Fig. 4. The catch consists of a pin adapted to slide in the transverse bore of the handle against the tension of a spiral spring 7 and is provided with a lateral claw 8 which is adapted to take into a groove or recess formed in the lever 4.

The outer end of the catch is accessible, and, by pressing thereon, the claw 8 may be disengaged from the lever, so that the latter will be left free to be turned down out of the groove 1^a. The ferrule 2 is provided in one side with a longitudinal slot 2^a which registers with the groove 1^a of the handle, this being obviously necessary to enable the lever to be moved from the vertical to the horizontal position indicated in Fig. 2, and vice versa.

The inner or lower end of the lever 4 is provided with an inclined slot 4^a to receive the pivot-pin 5, and the extreme end of the lever is constructed to act as the cam proper, the same pressing upon a movable clutch 9, as shown in Fig. 1. This clutch 9 is provided, as shown in Fig. 7, with lateral lugs or projections 9^a that are adapted to fit and slide in corresponding longitudinal grooves 10—see Figs. 1, 3 and 6—which are formed in the middle portion of the ferrule 2. The clutch 11 formed on the slightly enlarged head of the blade 3 is adapted to receive and engage with corresponding projections on the slidable clutch 9, and the latter is held normally separated from the clutch 11 by means of a spiral spring 12.

It will now be understood that when the lever is raised and locked in the groove of the handle, as shown in Fig. 1, which is its normal position, its cam end pressing upon the movable clutch 9 forces it down into engagement with the clutch 11 on the blade 3, and thus the latter is locked with the ferrule and may be rotated with the handle the same as in the case of an ordinary screwdriver; but when it is desirable to use the lever for turning the screwdriver, it is released from the catch 6 and thrown down to the horizontal position shown in Fig. 2. In such case, the diagonal arrangement of the slot 4^a permits the cam to slide upward, so to speak, far enough to allow the spring 12 to force the movable clutch 9 upward out of engagement with the blade clutch 11. Then, before pulling on the lever to turn the screwdriver, pressure is applied to the handle 1 sufficient to compress the spring 12 and bring the clutches again into engagement. In such case, it is obvious that the ferrule will slide down on the blade shank far enough, as indicated by dotted lines in Fig. 2, to permit the clutches to engage. The pull on the lever is given when such engagement has been effected, and consequently the blade is rotated a distance corresponding to the lateral horizontal swing of the lever. Then downward pressure on the handle 1 being relieved, the clutches again disengage, so that the lever may be turned back to its original horizontal position, whereupon pressure being again ap-

plied downward to the handle, the clutches are again forced into contact and pull on the lever being given, the blade is rotated as before. Thus by alternate downward pressure upon the handle and pull on the lever laterally, the blade is rotated with powerful effect.

What I claim is:—

1. The combination of a handle, ferrule, and blade, the latter being provided with a half clutch, a corresponding half clutch which is slidable in the ferrule toward and from the blade and locked rotatably with the ferrule, a spring which normally holds the clutches separated, and a cam lever pivoted in the ferrule and adapted, when in normal closed position, to hold the clutches engaged, substantially as described.

2. The combination of a handle, ferrule, and blade, the latter being provided with a half clutch, a corresponding half clutch which is slidable in the ferrule toward and from the blade and locked rotatably with the ferrule, a spring which normally holds the clutches separated, and a cam lever having a diagonal slot in its working end, a pivot pin passing transversely through it, and the ferrule, the cam portion being thus adapted, when the lever is in normal closed position, to press upon the movable clutch and hold it engaged with the blade and when the lever is thrown down to horizontal position, the cam relieves pressure on the movable clutch and thus permits its disengagement from the blade, substantially as described.

3. The combination with a blade having its head provided with a half clutch, a ferrule which is slidable longitudinally on the blade, a movable clutch arranged in the ferrule and slidable toward and from the blade clutch, a spring holding the clutches normally separated, and a cam lever pivoted in the ferrule and adapted, when in horizontal position, to relieve pressure on the movable clutch, as described.

FRANK ARTHUR TIBBALS.

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