No. 891,022. PATENTED JUNE 16, 1908.

I. A. WEAVER.

AUTOMATIC DRILL DRIFT.

APPLICATION FILED DEC. 30, 1907.

Fig. 1.

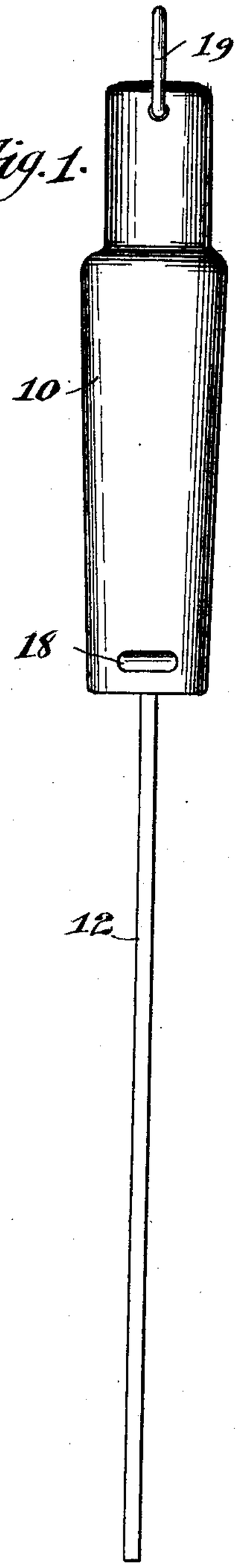


Fig. 2.

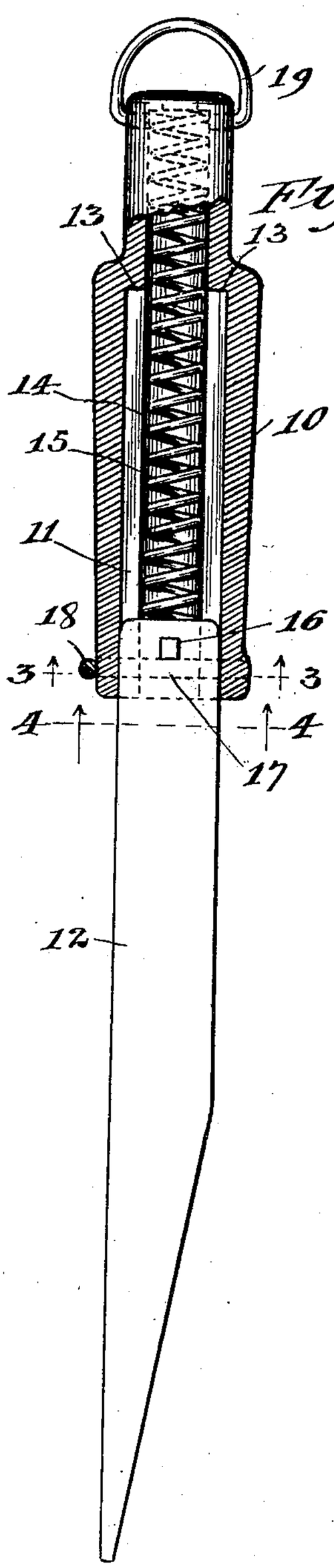


Fig. 3.

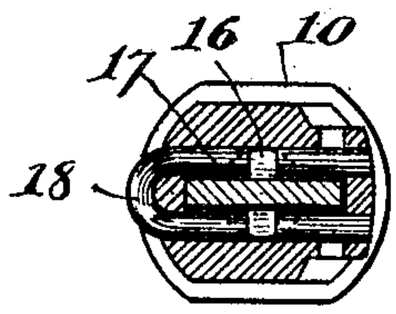
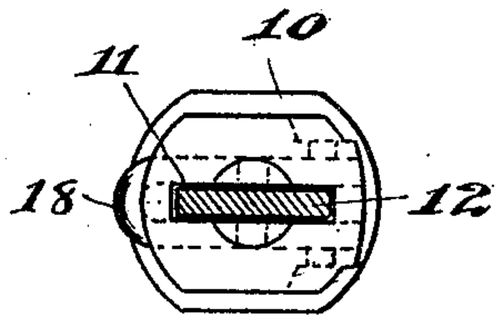


Fig. 4.



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UNITED STATES PATENT OFFICE.

IRA A. WEAVER, OF SPRINGFIELD, ILLINOIS, ASSIGNOR OF ONE-HALF TO FREDERICK J. MARSHALL, OF SPRINGFIELD, ILLINOIS.

AUTOMATIC DRILL-DRIFT.

No. 891,022. Specification of Letters Patent. Patented June 16, 1908.

Application filed December 30, 1907. Serial No. 408,610.

To all whom it may concern:

Be it known that I, IRA A. WEAVER, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Automatic Drill-Drifts, of which the following is a specification.

My invention aims to provide a simple and effective device for readily and quickly removing drills, reamers, and the like from the hollow spindles of lathes, drills, chucks, etc. It is customary to provide such spindles with a transverse aperture at the inner end of a drill or reamer shank inserted therein whereby a tapered drift or blade may be driven in in contact with the end of the tool shank to loosen it and permit its withdrawal from the hollow spindle. It has been usual, heretofore, to use a separate drift or wedge and hammer or body of lead to loosen the tool and effect its removal, and not infrequently is the tapered drift or blade driven completely through the spindle, dropping upon the floor or elsewhere, necessitating delay or waste of time and inconvenience in picking it up. It is my plan to make a compact combined hammer and drift which may be conveniently hung, which will be of small cost to manufacture, which will be effective in operation and prevent the tapered drift from falling on the floor.

It is my object to make the parts of such simple construction that they may be easily assembled and the device readily taken apart if found to be necessary. On the tapered bar or drift I slidingly mount a handle of sufficient weight to enable it to be used as a hammer to drive the drift by striking on its end. To bring the hammer handle back to operative position again ready for another blow, or to project the tapered blade constituting the drift from the handle, I house within the handle and interpose between the latter and the drift an expansion coil spring. Suitable means are provided for preventing the separation of the tapered blade and handle, and the latter is recessed in such a manner as to house the spring in its compressed condition, at the same time permitting the handle to strike directly on the end of the blade.

On the accompanying drawing, forming a part of this specification, I have illustrated a preferred and desirable embodiment of my invention, and on this drawing—Figure 1 is an edge view of my improved automatic drill drift; Fig. 2 is a side view of the same, the handle being partly broken away; Fig. 3 is a section on line 3—3 of Fig. 2; and Fig. 4 is a section on line 4—4 of Fig. 2.

The device comprises a handle 10 of substantial size and weight and with flattened sides, the handle having a centrally-located recess 11 rectangular in cross-section adapted to receive the end of a comparatively long tapered blade or drift 12. As is clearly indicated in Fig. 2, the recess 11 terminates in a pair of shoulders 13 which are adapted to strike against the end of blade 12 when the handle is actuated. This hammer handle has a centrally-disposed cylindrical aperture 14 which houses an expansion coil spring 15 and extends some distance beyond the shoulders 13, whereby when the blade is struck by the handle the entire spring may be accommodated in that portion of recess 14 at the outer end of the handle. Extended transversely through the inner end of blade 12 is a pin 16 accommodated by the recess 14 and by coaction with the legs 17 of a staple 18 prevents the withdrawal of the blade from the handle; that is, prevents the separation of the two parts.

As is clearly indicated in Fig. 3, there are two parallel transverse apertures through the handle adjacent to its inner end intersecting the side portions of the recess 14 and adapted to accommodate and receive the legs of the staple 18, which are so located that the pin 16 may contact with their rear surfaces when the blade is projected by the spring or the handle slid longitudinally of the blade by the spring, as shown in Fig. 2. A loop or wire strap 19 fastened in any approved manner to the end of the handle affords a convenient means for hanging up the implement or tool near a drill or lathe so that it may be quickly and easily reached by the operator.

In order to remove a drill, reamer, or the like, from a chuck or hollow spindle, the tapered end of the blade 12 is inserted in the opening in the spindle or chuck provided for that purpose, and a single blow or series of blows is applied to the end of the blade 12 by reciprocating the comparatively heavy handle 10 which when it moves inwardly causes the shoulders 13 to strike the end of the blade and deliver a blow to the same. The handle is immediately brought back to its original extended position or retracted by the in-

ternal coil spring 15 which, as is obvious, is compressed during the striking operation. It should be noticed that the blow imparted by the handle to the blade does not take place through the spring, but occurs directly between the shoulders 13 and the end of the blade. The transverse or cross pin 16 by engagement with the parallel legs of the staple 18 limits the relative separation of the blade and handle and prevents the parts of the device from becoming disassociated. If it becomes necessary, however, to take the blade out of the handle, this is readily done by withdrawing the staple 18, whereupon the blade with its transverse pin 16 and the spring 15 may be easily removed and as readily reassembled when desired.

To those skilled in the art it will be apparent that many minor mechanical changes may be made in the drill drift shown and described, but it should be noticed that such changes fall within the scope and spirit of my invention as defined by the appended claims.

I claim:

1. In a device of the character described, the combination of a tapered drift or blade, a hammer handle slidable thereon and adapted to deliver blows thereto, a spring housed within said handle and acting to slide said handle on said blade, a transverse pin through the inner end of said drift or blade, and means with which said pin coöperates to prevent separation of said blade and handle, substantially as described.

2. In a device of the character described, the combination of a tapered drift or blade, a hammer handle slidable thereon and adapted to deliver blows directly to said drift or blade, a spring housed within said handle and acting to slide said handle on said blade, a transverse pin through the inner end of said drift or blade, and a staple passed through said handle with which said pin coöperates to prevent separation of said drift or blade and said handle, substantially as described.

3. In a device of the character described, the combination of a flat, tapered blade, a hammer handle longitudinally recessed to receive a portion of said blade, the cross-section of said recess corresponding substantially to the cross-section of the portion of the blade received therein, whereby turning of the blade in the handle is prevented, a longitudinal recess in said handle longer than and intersecting said blade recess, a coil blade-projecting spring housed in said longer recess and abutting at its opposite ends against the end wall of its recess and against the end of said blade, the portion of said spring recess beyond said blade recess being of such capacity as to enable it to accommodate the whole spring when in compressed condition, and means to prevent separation of said blade and handle, substantially as described.

4. In a device of the character described, the combination of a flat tapered blade, a hammer handle longitudinally recessed to receive a portion of said blade, the cross-section of said recess corresponding substantially to that of the portion of the blade received therein, whereby turning of the blade in the handle is prevented, a cylindrical longitudinal recess in said handle longer than and intersecting said blade recess, and a coil blade-projecting spring housed in said longer recess and abutting at its opposite ends against the end wall of its recess and against the end of said blade, the portion of said spring recess beyond said blade recess being of such capacity as to enable it to accommodate the whole spring when in compressed condition, the end wall of said blade recess in the handle being adapted to strike the end of said blade during the actuation of said handle, substantially as described.

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