H. KINCKINER & W. SCOTT.

SCREW DRIVER.

APPLICATION FILED JUNE 7, 1910.

984,932. Patented Feb. 21, 1911.

Fig. 1.

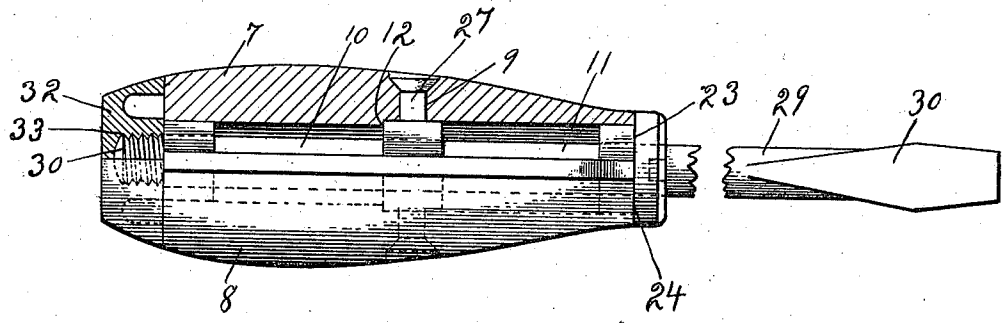


Fig. 3.

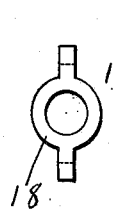


Fig. 2.

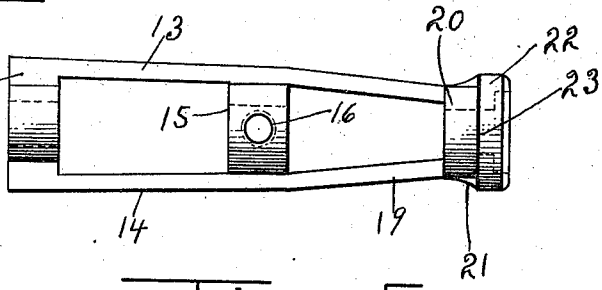


Fig. 4.

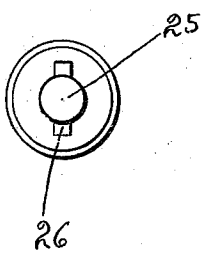


Fig. 6.

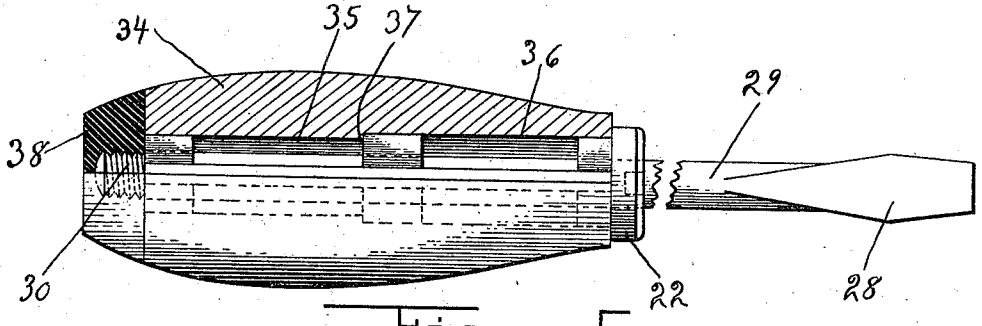
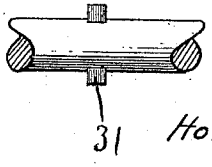


Fig. 5.



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UNITED STATES PATENT OFFICE.

HORACE KINCKINER, OF NORRISTOWN, AND WALTER SCOTT, OF PHILADELPHIA, PENNSYLVANIA.

SCREW-DRIVER.

984,932. Specification of Letters Patent. Patented Feb. 21, 1911.

Application filed June 7, 1910. Serial No. 565,551.

To all whom it may concern:

Be it known that we, HORACE KINCKINER and WALTER SCOTT, citizens of the United States, residing, respectively, at (1) Norristown, county of Montgomery, and State of Pennsylvania, and (2) Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Screw-Drivers, of which the following is a specification.

This invention relates to screw drivers and has for its object to provide a tool of such class in a manner as hereinafter set forth whereby when occasion so requires the blade can be conveniently detached from the handle of the tool and another blade fixedly secured to the handle, thereby providing what may be termed a changeable blade screw driver so that one handle can be employed for blades of various sizes.

Further objects of the invention are to provide a changeable blade screw driver adapted for use for machinists, carpenters and electricians and which shall be simple in its construction and arrangement, strong, durable, efficient in its use, permitting of one conveniently substituting one blade for another, and inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiments of the invention but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views: Figure 1 is an elevation partly in section and with the shank of the blade broken away of a screw driver in accordance with this invention. Fig. 2 is an elevation of a frame forming an element of the screw driver. Fig. 3 is a view looking toward one end of the frame. Fig. 4 is a view looking toward the other end of the frame. Fig. 5 is an elevation of a portion of the shank of the blade, and, Fig. 6 is a view similar to Fig. 1 of a modification.

A screw driver in accordance with this invention includes a handle, a body-portion in the form of a frame, a blade, and a coupling cap.

The handle as shown in Fig. 1 consists of two sections 7 and 8, constructed of any suitable material, preferably wood. Each handle section is provided with a transversely-extending opening 9, the opening in one section opposing the opening in the other section and each of the handle sections has its inner face cut-away to provide a pair of semi-cylindrical grooves 10, 11, the latter being of greater depth than the former whereby a shoulder 12 is provided. The handle sections 7, 8, when in position are arranged opposite each other and have interposed therebetween the body-portion which is in the form of a cage and when in position has its side edges flush with the longitudinal edges of the handle sections 7 and 8, and has one end thereof flush with one end of the sections 7 and 8.

As before stated the body-portion is in the form of a frame which consists of a pair of longitudinally-extending bars or members 13, 14 connected together intermediate their ends by a transversely-extending hollow cylindrical bearing member 15 formed with a pair of diametrically opposed openings 16 having the walls thereof screw-threaded. The openings 16 when the handle sections 7 and 8 are in position register with the openings 9 in the handle sections. The members 13, 14 at one end are connected together by a transversely-extending member 17 having the central portion thereof enlarged to provide a hollow cylindrical bearing portion 18 which is in alinement with the bearing member 15. The members 13, 14 converge toward each other as at 19 and terminate in a collar 20 formed with a pair of off-sets 21. The collar 20 and off-sets 21 terminate in a head 22 of larger diameter than the collar 20, thereby forming the shoulders 23, 24. The head 22 is formed with an opening 25 which registers with the opening of the collar 20 and is also in alinement with the opening through the member 15 and the opening through the portion 18. The wall of the opening 25 of the head is formed with a pair of diametrically-opposed pockets 26. The handle sections 7 and 8 are secured in position with respect to the frame through the medium of a pair of screws or other suitable hold-fast devices 27 which extend through the openings 9 and engage in

the screw-threaded openings 16 of the member 15 as clearly shown in Fig. 1.

The reference character 28 denotes the blade having an elongated cylindrical shank 29 which when the blade is in position, extends through the head 22, collar 20, bearing member 15 and cylindrical portion 18 of the member 17. The shank 29 is of such length as to project from the member 17 and the said projecting end of the shank 29 is screw-threaded as at 30. To limit the movement of the shank 29 when positioning the same in the frame and to also prevent the turning of the shank 29 within the handle, the shank is provided with a pair of laterally-extending lugs 31 which are adapted to be seated in the pockets 26 of the head 22. To couple the shank 29 with the frame a coupling cap 32 is employed and which is formed with a screw-threaded recess 33 for the reception of the threaded end 30 of the shank 29 whereby when the cap 32 is in the position as shown in Fig. 1 the shank will be fixedly secured to the frame.

When the handle sections 7, 8, are mounted in position with respect to the frame, the bearing member 15 abuts against the shoulder 12 as clearly shown in Fig. 1 and when the cap 32 is screwed home, the frame is clamped so that the members 15 will snugly engage the handle sections and the lugs 31 will be clamped against the inner wall of the pockets 26 whereby the elements of the driver will be fixedly coupled together to prevent any looseness when the tool is employed.

The modification as illustrated in Fig. 6 is designed for the use of electricians and the handle is formed of one piece, preferably wood, and is indicated by the reference character 34. The handle 34 is provided with a longitudinally-extending bore of two different diameters, the smaller indicated by the reference character 35 and the larger by the reference character 36. By providing the bore of two different diameters, a shoulder 37 is formed against which abuts the member 15 of the frame. The wall of the bore of the handle is formed with grooves for the reception of the members 13, 14 of the frame. The handle 34 when in position incloses the frame and abuts against the collar 22. The cap which engages the screw-threaded end 30 of the shank 29 of the blade is formed of suitable insulating material and the cap is indicated by the reference character 38. Otherwise than that as stated, the construction disclosed in Fig. 6 is the same as that shown in Fig. 1.

It will be assumed that the tool is set up in a manner as shown in Figs. 1 and 6 and that it is desired to remove the blade and substitute another one of different size. The cap 32 or 38 is unscrewed from the shank 29 of the blade and the latter can then be withdrawn from the frame. The blade which is to be used is then connected in position by passing the shank through the frame, and seating the lugs 31 in the pockets 26, the screw-threaded cap is then mounted upon the screw-threaded projecting end of the shank and the blade is then fixedly secured in position. The cap when in position abuts against one end of the frame and one end of the handle, as clearly shown in Figs. 1 and 6.

What we claim is:

1. In combination in a screw-driver, a frame including a pair of longitudinally-extending bars, a pair of transversely-extending hollow bearing members and a collar carrying a head formed with an opening in alinement with the openings in the bearing members and collar, said collar formed integral with one end of said bars and one of said members formed integral with the bars intermediate their ends and the other of said members formed integral with the bars at the other end thereof, said head of greater diameter than said collar, a removable blade provided with a shank extending through and projecting from one end of the frame and having the projecting end screw-threaded, means whereby said shank is prevented from turning within the frame, a handle mounted upon the frame and abutting against the head, and a cap engaging the screw-threaded end of the shank and abutting against the handle whereby the blade is coupled to the frame.

2. In combination in a screw-driver, a frame including a pair of longitudinally-extending bars, a pair of transversely-extending hollow bearing members and a collar carrying a head formed with an opening in alinement with the openings in the bearing members and collar, said collar formed integral with one end of said bars and one of said members formed integral with the bars intermediate their ends and the other of said members formed integral with the bars at the other end thereof, said head of greater diameter than said collar, a removable blade provided with a shank extending through and projecting from one end of the frame and having the projecting end screw-threaded, means whereby said shank is prevented from turning within the frame, said intermediate bearing member provided with a pair of threaded openings, a handle formed of two sections mounted against said frame and abutting against said head, holdfast devices extending through the sections of the handle and engaging in said threaded openings for securing the handle to the

frame, and a cap mounted upon the screw-threaded end of the shank and abutting against the handle and one of said bearing members for coupling the blade to the frame.

3. In combination in a screw-driver, a frame comprising a pair of longitudinally-extending bars and a pair of transversely-extending members having centrally-disposed hollow cylindrical portions constituting bearings, said frame further including a collar and a head integral with and of greater diameter than the collar, said collar formed integral with one end of said bars, one of said members formed integral with the other end of said bars and the other of said members formed integral with the bars intermediate the ends thereof, a removable blade provided with a shank extending through the head, collar and bearings and projecting from one end of the frame, the projecting end of said shank being threaded, a cap mounted upon the projecting end of the shank for coupling the blade to the frame, a handle mounted against the frame and interposed between the cap and the head, and means whereby said shank is prevented from turning within the frame.

4. In combination in a screw-driver, a frame comprising a pair of longitudinally-extending bars and a pair of transversely-extending members having centrally-disposed hollow cylindrical portions constituting bearings, said frame further including a collar and a head integral with and of greater diameter than the collar, said collar formed integral with one end of said bars, one of said members formed integral with the other end of said bars and the other of said members formed integral with the bars intermediate the ends thereof, a removable blade provided with a shank extending through the head, collar and bearings and projecting from one end of the frame, the projecting end of said shank being threaded, a cap mounted upon the projected end of the shank for coupling the blade to the frame, said intermediate member provided with a pair of screw-threaded openings, a handle formed of two sections mounted against said frame and interposed between the cap and the head, each of said handle sections provided with an opening, hold-fast devices extending through the openings of the handle sections and engaging in the threaded openings of said member whereby the handle sections are coupled to the frame, and means whereby said shank is prevented from turning in the frame.

5. In combination in a screw-driver, a frame comprising a pair of longitudinally-extending bars, and a pair of transversely-extending members having centrally-disposed hollow cylindrical portions constituting bearings, said frame further including a collar and a head integral with and of greater diameter than the collar, said collar formed integral with one end of said bars, one of said members formed integral with the other end of said bars and the other of said members formed integral with the bars intermediate the ends thereof, a removable blade provided with a shank extending through the head, collar and bearings and projecting from one end of the frame, the projecting end of said shank being threaded, a cap mounted upon the projected end of the shank for coupling the blade to the frame, a handle mounted against the frame and interposed between the cap and the head, said head provided with a pair of pockets, and a pair of lugs carried by the shank and adapted to engage in the pockets to prevent turning of the shank in the frame.

6. In combination in a screw-driver, a frame comprising a pair of longitudinally-extending bars, and a pair of transversely-extending members having centrally-disposed hollow cylindrical portions constituting bearings, said frame further including a collar and a head integral with and of greater diameter than the collar, said collar formed integral with one end of said bars, one of said members formed integral with the other end of said bars and the other of said members formed integral with the bars intermediate the ends thereof, a removable blade provided with a shank extending through the head, collar and bearings and projecting from one end of the frame, the projecting end of said shank being threaded, a cap mounted upon the projected end of the shank for coupling the frame to the blade, said intermediate member provided with a pair of screw-threaded openings, a handle formed of two sections mounted against said frame and interposed between the cap and the head, each of said handle sections provided with an opening, hold-fast devices extending through the openings of the handle sections and engaging in the threaded openings of said member whereby the handle sections are coupled to the frame, said head provided with a pair of pockets, and a pair of lugs carried by the shank and adapted to engage in the pockets to prevent turning of the shank in the frame.

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

HORACE KINCKINER.
WALTER SCOTT.

Witnesses:
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