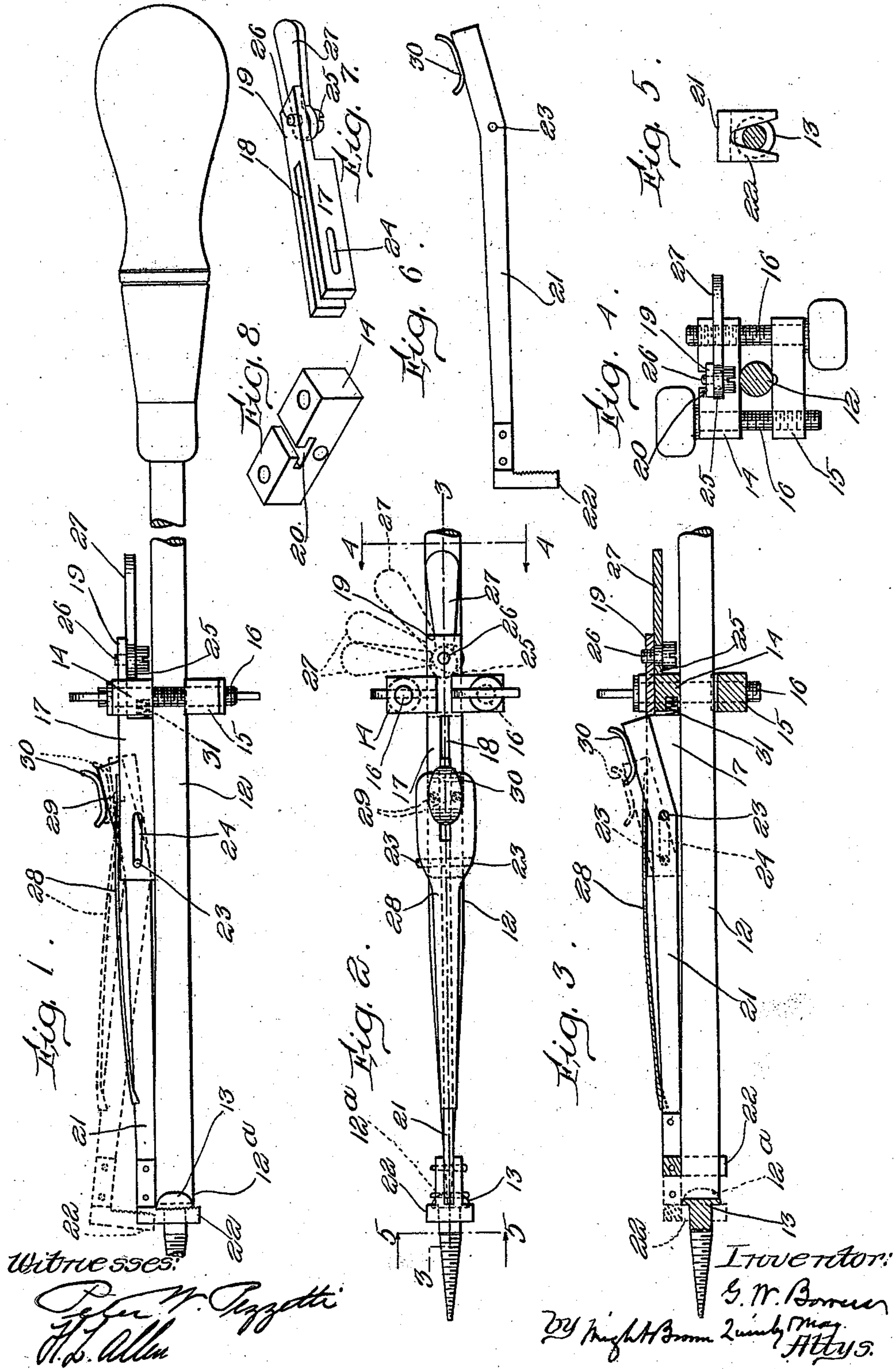


G. W. BOWERS.
 SCREW HOLDING ATTACHMENT FOR SCREW DRIVERS.
 APPLICATION FILED AUG. 17, 1910.

989,758.

Patented Apr. 18, 1911.



UNITED STATES PATENT OFFICE.

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SCREW-HOLDING ATTACHMENT FOR SCREW-DRIVERS.

989,758.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed August 17, 1910. Serial No. 577,586.

To all whom it may concern:

Be it known that I, GEORGE W. BOWERS, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Screw-Holding Attachments for Screw-Drivers, of which the following is a specification.

This invention has for its object to provide an attachment for a screw-driver adapted to positively clamp and hold a screw head in engagement with the screw-engaging portion of the screw-driver so that the screw may be forced partially into the work by pressure exerted on the screw-driver by the operator without requiring the operator to hold and guide the screw by applying his hand thereto, the screw-engaging portion of the attachment being readily displaceable so that it may be retracted and stand back of the screw-engaging portion of the screw-driver when its use is not required.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings which form a part of this specification—Figure 1 represents a side view showing an attachment embodying my invention applied to a screw-driver. Fig. 2 represents another view of the same. Fig. 3 represents a section on line 3—3 of Fig. 2. Fig. 4 represents a section on line 4—4 of Fig. 2. Fig. 5 represents a section on line 5—5 of Fig. 2. Fig. 6 represents a side view of the screw clamping lever disconnected from the other portions of the attachment. Fig. 7 represents a perspective view of the part hereinafter termed the "fulcrum piece." Fig. 8 represents a perspective view of the part hereinafter termed the "head."

Similar reference characters refer to the same or similar parts in all the figures.

In the drawings, 12 represents the shank of a screw-driver, the screw-engaging portion of which, as here shown, is a thin edged bit 12^a adapted to enter the slot in a screw-head 13.

My improved attachment comprises a head 14 adapted to bear on one side of the shank and to extend across the same, and provided with means whereby it may be firmly attached to the shank. As here

shown, the head 14 constitutes a clamping member with which coöperates a complementary clamping member 15 adapted to bear on the opposite side of the shank 12, the members 14 and 15 being connected by clamping screws 16. When said screws are tightened, the members 14 and 15 are caused to firmly grasp a shank 12, the head 14 being thus rigidly attached to the shank.

17 represents what I term a fulcrum piece, the same being an elongated block or bar having a longitudinal slot 18 and a reduced shank or extension 19, which is fitted to slide in a guide 20, formed in the head 14.

21 represents a clamping lever which is a relatively thin elongated bar having a forked arm 22 attached to its outer end, said arm being formed to bestride the shank of the screw, as shown by Fig. 5, and the inner sides of its branches being preferably serrated, as shown by Fig. 1, to firmly engage the screw-head.

The lever 21 and fulcrum piece 17 are provided with complementary means whereby a pivotal connection is established between said parts, enabling the lever to swing on the fulcrum piece and occupy either of the positions shown by full and dotted lines by Fig. 1, the preferred means comprising trunnions 23, attached to and projecting from opposite sides of the lever, and bearings for said trunnions formed in the portions of the fulcrum piece forming the sides of the slot 18. Said bearings are preferably the forward ends of elongated slots 24 formed in the fulcrum piece, the slots permitting an independent endwise movement of the clamping lever for the purpose of retracting the same to an inoperative position with its arm 22 back of the acting portion of the screw-driver, as shown by full lines in Fig. 3. When the clamping lever is in position to engage the under side of a screw-head applied to the screw-driver, the trunnions 23 bear on the outer ends of the slots 24, so that a retraction or backward movement of the fulcrum piece also retracts the clamping lever and causes its arm 22 to clamp the screw-head against the screw-engaging portion of the driver.

Means are provided for retracting the fulcrum piece and clamping lever for the purpose above stated, said means as here shown

comprising a cam 25 pivoted at 26 to the extension 19 of the fulcrum piece, and adapted to bear on the rear side of the head 14, and a lever 27 attached to the said cam and adapted to partially rotate the same. When the lever 27 is turned to the extreme dotted line position, shown by Fig. 2, the cam exerts no material pressure on the head 14, and the fulcrum piece and lever are free to be moved forward to engage the lever arm 22 with the screw-head. A movement of the lever 27 to the full line position shown by Fig. 2 or to an intermediate position causes the cam to bear operatively on the head 14 and exert a backward pull on the fulcrum piece, thus retracting the same and causing it to retract the clamping lever and press the arm 22 thereof firmly against the under side of the screw-head, thus clamping the head firmly against the screw-engaging portion of the driver. The bearing of the cam 25 on the head 14 is such that the fulcrum piece and lever are positively held in their retracted position, so that the screw is firmly engaged with the driver and does not require to be held and guided by the operator's hand when the screw is being inserted in the work, the screw being so firmly engaged with the driver that any desired pressure may be exerted by the operator on the driver to force the screw partially into the work without displacing the screw.

The portion of the lever 21 between the trunnions 23 and the rear end of the lever is inclined outwardly from the line of the main portion of the lever, as shown by Fig. 6, so that the rear end of the lever is sufficiently separated from the shank of the screw-driver to permit the body portion of the lever to be swung outwardly from the shank, as indicated by dotted lines in Fig. 1. When the lever is in this position the acting end of the screw-driver is exposed to permit the application of the screw thereto. When the screw has been applied, the lever 21 is swung inwardly to the full line position and caused to clamp the screw as above described. A spring 28 is attached to the fulcrum piece at 29, and, bearing on the back of the outer end portion of the lever 21, yieldingly holds the lever against the shank 12, the lever being in sliding contact with the spring.

As above stated the slots 24 in the fulcrum piece permit an independent retraction of the lever 21 to a limited extent, the object of this independent retraction being to locate the arm 22 of the clamping lever in an inoperative position back of the screw-engaging portion of the driver, as shown by full lines in Fig. 3. The rear end portion of the lever is provided with means for conveniently engaging the operator's thumb or finger to facilitate the operation of independently retracting and projecting the

lever, said means being preferably a curved finger rest 30, attached to the inclined portion of the lever 21.

The described attachment may be applied to any ordinary screw-driver, the clamping members 14 and 15 being adapted to grasp any shank of ordinary shape.

The acting portion of the screw-driver, instead of being a thin edged bit adapted to enter a slot in a screw-head, may be a socket adapted to receive the polygonal head of a screw or bolt.

31 represents a spring which is interposed between the head 14 and the rear end of the fulcrum piece 17 and acts to hold the cam 25 yieldingly against the rear side of the head so that the arm 22 of the clamping member is adapted to conform to the thickness of the screw-head. The spring 31 also acts to force the arm 22 outwardly from the screw head when the cam is turned to its released position.

I claim—

1. A screw holding attachment comprising a head provided with means for attachment to the shank of a screw-driver, a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to project over the screw-engaging portion of the screw-driver and engage the under side of a screw head applied thereto, and means for retracting the fulcrum piece and lever and positively holding said parts retracted to clamp the screw head upon the driver.

2. A screw holding attachment comprising a head provided with means for attachment to the shank of a screw-driver, a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to project over the screw-engaging portion of the screw-driver and engage the under side of a screw head applied thereto, and a cam lever pivoted to the fulcrum piece and bearing upon the head, whereby the fulcrum piece and clamping lever may be retracted to clamp the screw head upon the driver.

3. A screw holding attachment comprising a head formed to extend across one side of the shank of a screw-driver and forming a clamp member, a complementary clamp member formed to extend across the opposite side of said shank, clamping screws connecting said members, a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to engage a screw head applied to the screw-driver, and means for retracting and positively holding the fulcrum piece and lever to clamp the screw head upon the driver.

4. A screw holding attachment comprising a head provided with means for attachment to the shank of a screw-driver, a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to project over the screw-engaging portion of the screw-driver and engage the under side of a screw head applied thereto, and means for retracting the fulcrum piece and lever and positively holding said parts retracted to clamp the screw head upon the driver, the clamping lever and fulcrum piece being provided with means whereby the lever may be retracted to a limited extent independently of the fulcrum piece, and held in an inoperative position back of the screw-engaging portion of the screw-driver.

5. A screw holding attachment comprising a head provided with means for attachment to the shank of a screw-driver, a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to project over the screw-engaging portion of the screw-driver and engage the under side of a screw head applied thereto, and means for retracting the fulcrum piece and lever and positively holding said parts retracted to clamp the screw head upon the driver, the fulcrum piece being provided with longitudinal slots and the clamping lever with trunnions projecting into and movable in said slots, whereby the lever may be retracted to a limited extent independently of the fulcrum piece.

6. A screw holding attachment comprising a head provided with means for attachment to the shank of a screw-driver a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to project over the screw-engaging portion of the screw-driver and engage the under side of a screw head applied thereto, the fulcrum piece and lever being provided with means whereby the lever may be retracted to a limited extent independently of the fulcrum piece, a spring attached to the fulcrum piece and

bearing on the lever to press the latter inwardly toward the shank, and means for simultaneously retracting and positively holding the fulcrum piece and lever to clamp the screw head upon the driver.

7. A screw holding attachment comprising a head provided with means for attachment to the shank of a screw-driver, a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to project over the screw-engaging portion of the screw-driver and engage the under side of a screw head applied thereto, the lever being provided with trunnions near its rear end, and the portion of the lever between said trunnions and the rear end being inclined relatively to the main portion of the lever to permit a swinging movement of the lever, and provided with finger-engaging means whereby the lever may be independently retracted, while the fulcrum piece is provided with slots which receive said trunnions and permit an independent retraction of the lever, the forward ends of the slots being adapted to bear on the trunnions, and means for retracting the fulcrum piece and through it the clamping lever.

8. A screw holding attachment comprising a head provided with means for attachment to the shank of a screw-driver, a fulcrum piece slidably engaged with the head and movable lengthwise of the shank, a clamping lever pivotally engaged with the fulcrum piece and formed to project over the screw-engaging portion of the screw-driver and engage the under side of a screw head applied thereto, a cam lever pivoted to the fulcrum piece and bearing upon the head, whereby the fulcrum piece and clamping lever may be retracted to clamp the screw head upon the driver, and a spring interposed between the head and fulcrum piece and adapted to press the latter away from the head.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GEORGE W. BOWERS.

Witnesses:

C. F. BROWN,
P. W. PEZZETTI.