G. H. & E. S. GROSS.

SOCKET AND DRIFTING KEY FOR TANG DRIVEN TOOLS.

APPLICATION FILED NOV. 11, 1909.

975,522. Patented Nov. 15, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

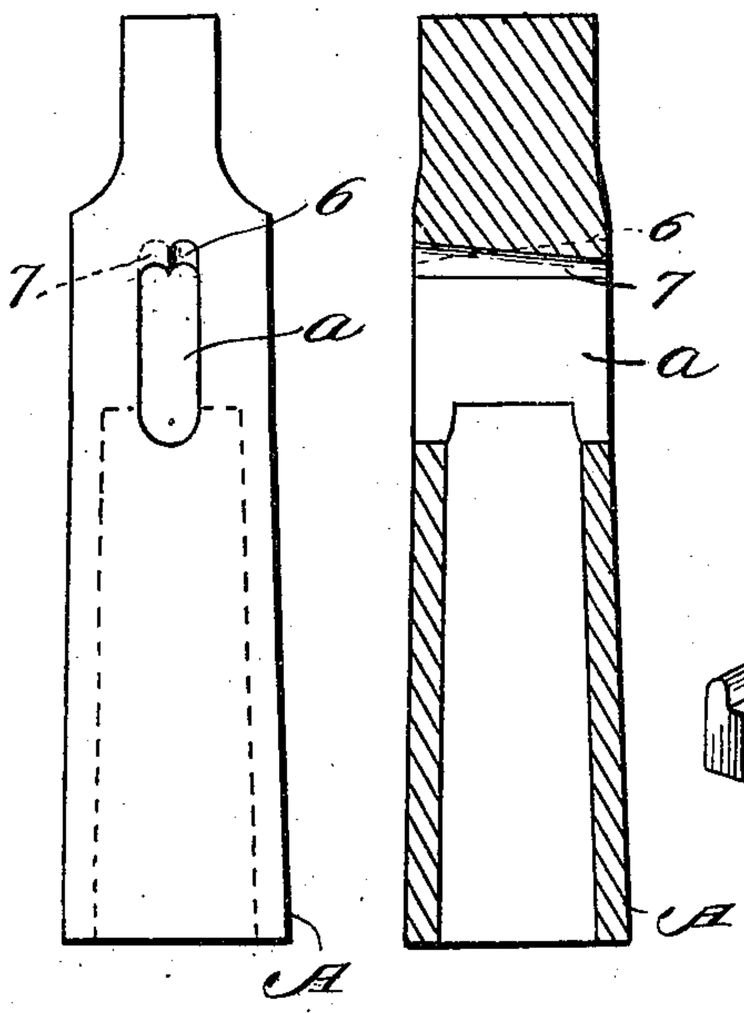



Fig. 2.




Fig. 3.

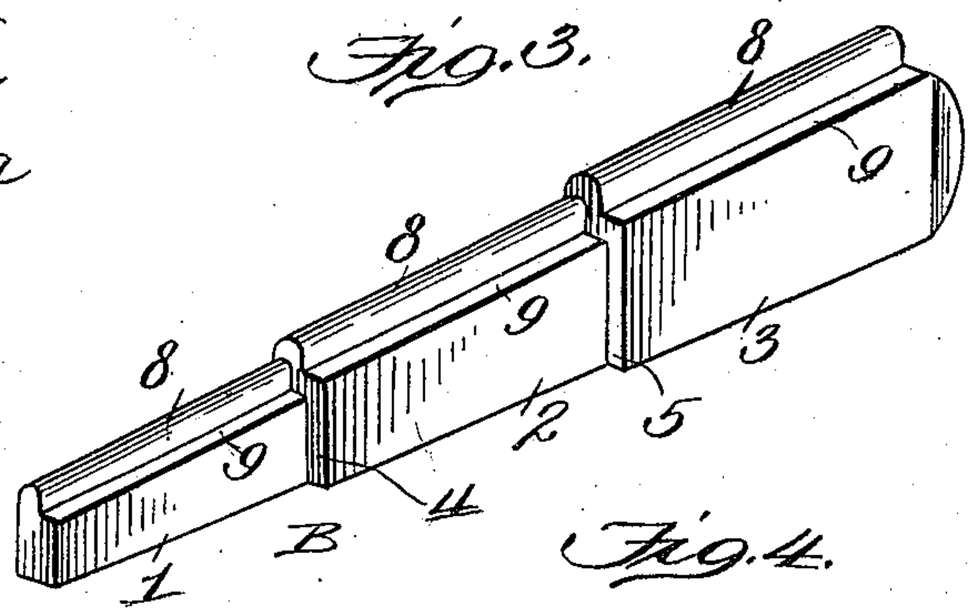



Fig. 4.

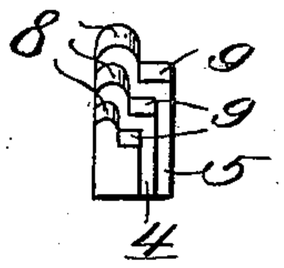
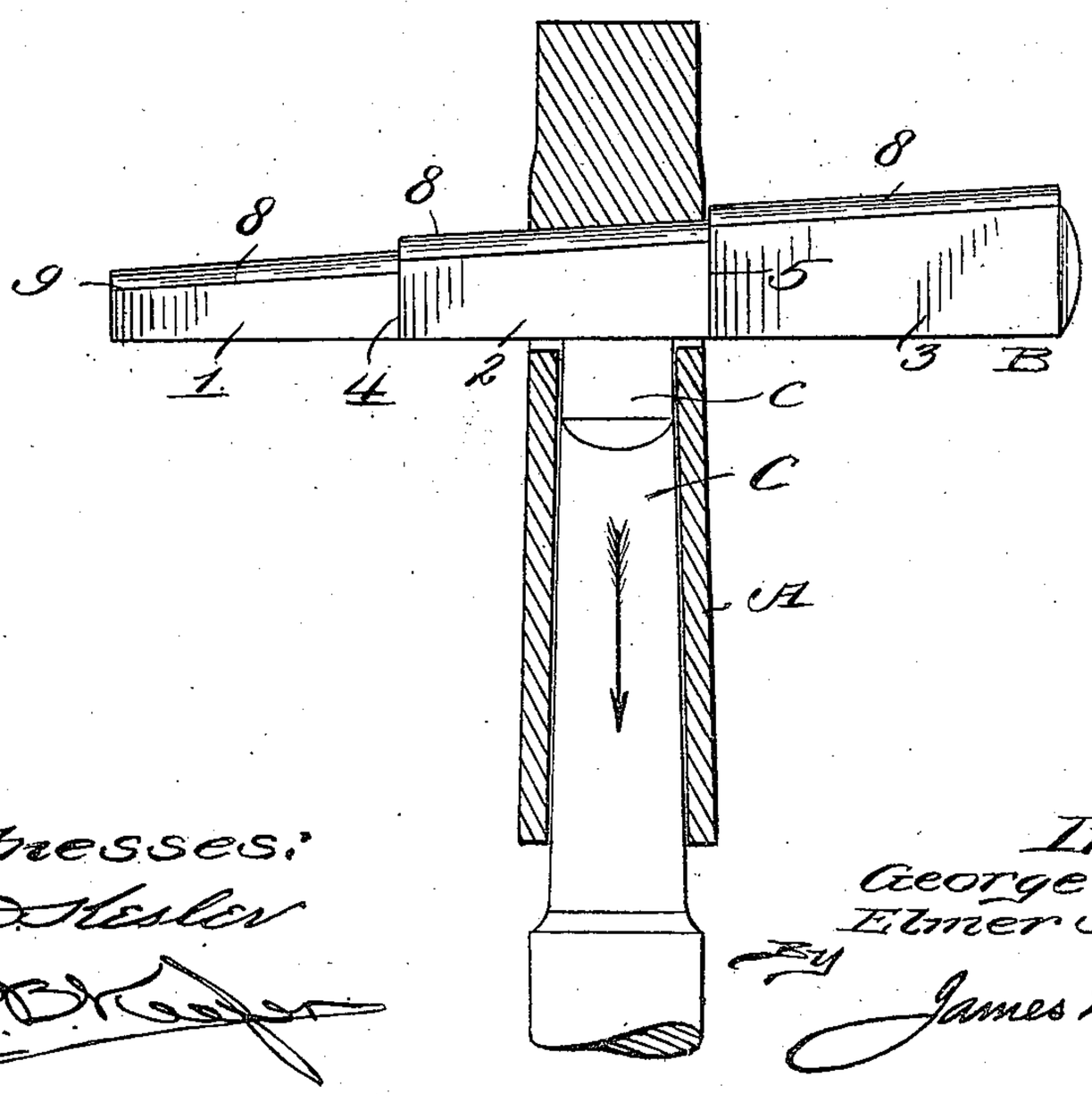



Fig. 5.

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2 SHEETS—SHEET 2.

Fig. 6.

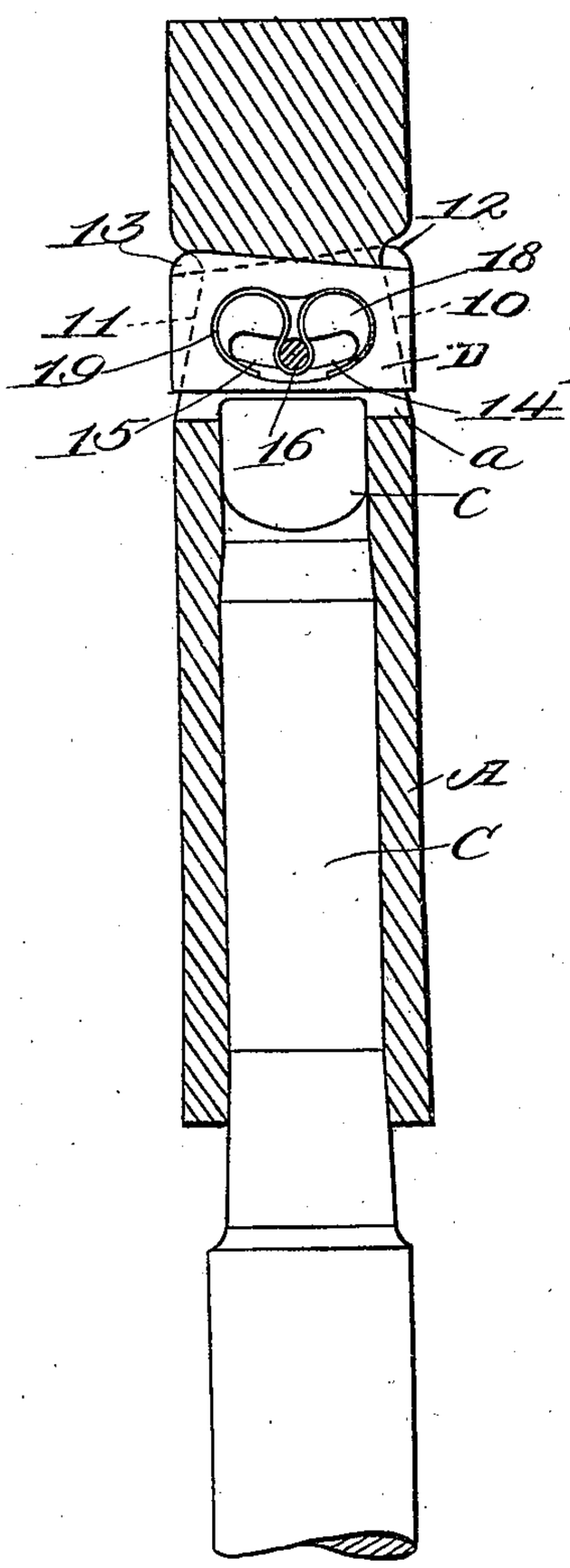



Fig. 7.

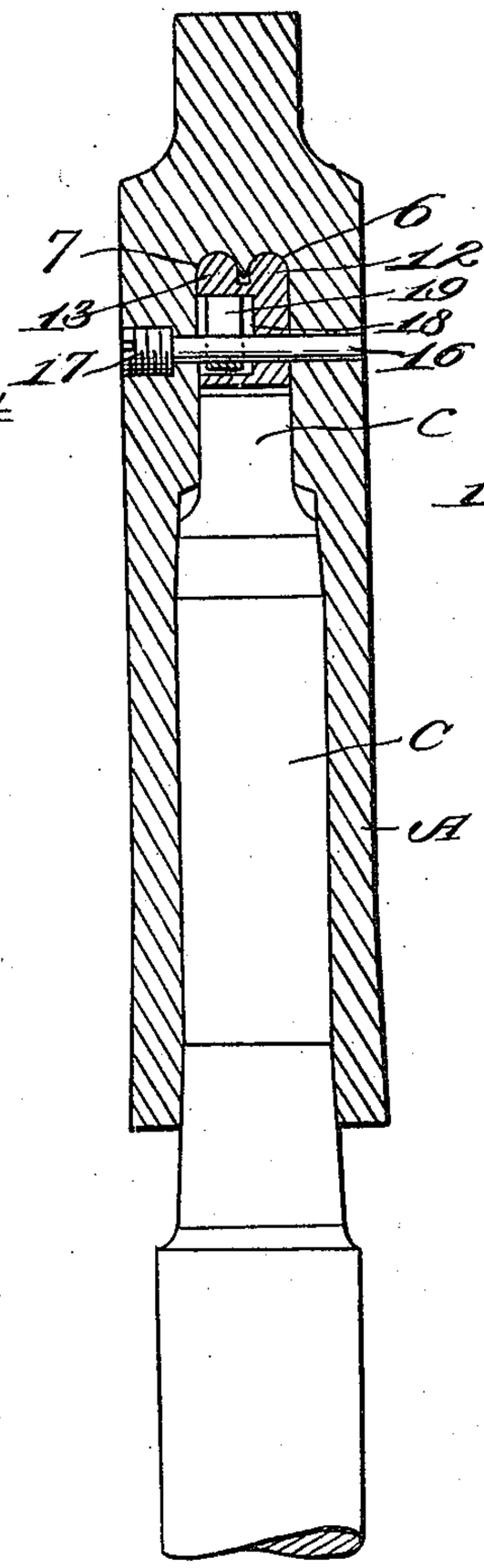



Fig. 8.

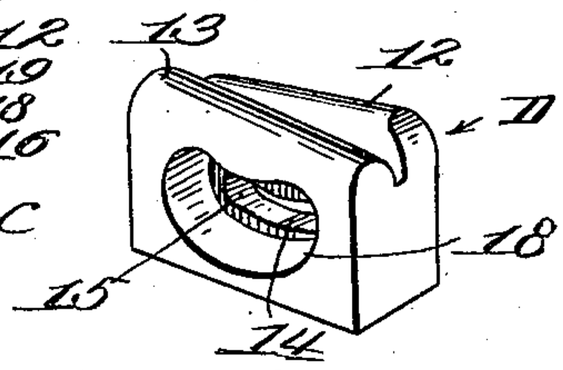



Fig. 9.

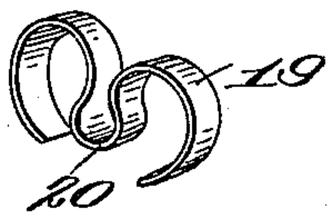
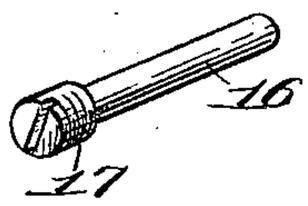



Fig. 10.

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# UNITED STATES PATENT OFFICE.

GEORGE H. GROSS AND ELMER S. GROSS, OF HARRISBURG, PENNSYLVANIA.

## SOCKET AND DRIFTING-KEY FOR TANG-DRIVEN TOOLS.

975,522. Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed November 11, 1909. Serial No. 527,490.

*To all whom it may concern:*

Be it known that we, GEORGE H. GROSS and ELMER S. GROSS, citizens of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented new and useful Improvements in Sockets and Drifting-Keys for Tang-Driven Tools, of which the following is a specification.

This invention relates to new and useful improvements in sockets and drifting keys for tang driven tools, and it has for its primary object the provision of a drifting key of novel construction toward the end of overcoming the jamming incident to the use of an ordinary tapered key in the drifting operation.

The invention has for its further object the provision of a drifting slot of novel form in combination with a drifting key of novel form in order that such coöperation may be had between these parts in the drifting operation as will insure an easy, straight movement of the drifting key, and the consequent quicker and more efficient operation of dislodging the tool and without liability of distorting or mutilating either the key, the walls of the slot or the tang of the tool.

A preferred and advantageous embodiment of the invention is illustrated, by way of example, in the accompanying drawings, in which:

Figure 1 is an end elevation of a well-known form of socket for tang driven tools, showing the novel construction of the drifting slot. Fig. 2 is a longitudinal sectional view thereof. Fig. 3 is a detail perspective view of one novel form of drifting key. Fig. 4 is an end elevation of the key. Fig. 5 is a sectional view showing the operative relation of the drifting key in the drifting slot. Figs. 6 and 7 are detail sectional views of a socket and an alternative novel form of drifting key therein. Fig. 8 is a detail perspective view of the alternative form of key *per se*. Fig. 9 is a similar view of a spring which is an adjunct of the key shown in Fig. 8, and Fig. 10 is a similar view of a retaining pin which is a further adjunct of the key shown in Fig. 8.

Similar characters of reference designate corresponding parts throughout the several views.

Referring generally to Figs. 1 to 5 of the accompanying drawings, the socket is designated by the letter A, the drifting key by the latter B, and the shank of the tool by the letter C. The socket A has at its upper end a transverse drifting slot, as *a*, arranged in the usual manner, and the shank C has at its upper end a driving tang, as *c*, which may be of any conventional or preferred construction, and which projects for some distance into the slot *a*.

The drifting key B is designed for use in connection with sockets of various standard gages. As shown, it is of stepped construction, embodying three progressively larger working portions 1, 2 and 3, and at the junctions of the portions 1 and 2, and 2 and 3, abrupt shoulders 4 and 5, respectively, are formed. The working portion 1 may, for example, be proportioned for use in connection with a No. 1 socket, the portion 2 may be proportioned for use in connection with a No. 2 socket, and the portion 3 may be proportioned for use in connection with a No. 3 socket. As shown in Fig. 5 of the drawings, the shank C is fitted in a No. 2 socket, and the portion 2 is used to effect the drifting operation. To a successful drifting operation, it is only essential that the tool be given a slight outward movement axially and with relation to the socket, and when thus started, the tool, by virtue of its acquired momentum, is self-dislodging. In the example shown in Fig. 5, it will be seen, as above intimated, that the working portion 2 is employed, and it will be noted that said portion is driven transversely through the slot, and, by virtue of an inclined face, to be hereinafter referred to, produces the axial starting movement of the tool. The portion 2 is moved through the slot *a* only for a sufficient distance to produce the necessary starting movement of the tool and for the purpose of preventing any further unnecessary movement of the working portion 2 through the slot, which would promote the jamming that is incident to an ordinary tapered key, the shoulder 5 previously described is employed, said shoulder striking against the outer face of the socket and positively limiting the transverse movement of the key, as shown more particularly in Fig. 5. Obviously, with a No. 1 socket, using the working portion 1, shoulder 4 accomplishes this function. It will, of course, be apparent that the drifting key may be constructed with any number of steps to afford any desired number of progressively larger working portions with corresponding stop

shoulders, the disclosure of the drifting key herein contained being merely by way of example.

To insure easy, straight and regular movement of the drifting key, the parts are preferably constructed as follows: The slot *a*, instead of having the usual straight, *i. e.*, perfectly horizontal, upper face, has an inclined upper face, and in consideration of the particular form of key herein disclosed, to enable the insertion of such key into either end of the slot, the upper face thereof is provided with parallel, inclined guides 6 and 7. The guides 6 and 7 are inclined in opposite directions, the guide 6 starting at the right hand side of the slot, when the drawings only are considered, and being inclined downwardly toward the left hand side of the slot, and the guide 7 similarly starting at the left hand side of the slot and being inclined downwardly to the right hand side of the slot. For convenience, and preferably, the guides 6 and 7 are in the nature of concaved channels or grooves, and are so shown, but the invention obviously is not limited to the formation of the guides in this manner.

The key B has the upper faces of its working portions shaped conformably to the guides for coöperation therewith, and in consideration of the specific form of guides disclosed, said key has its working portions formed at one and corresponding sides thereof with ribs, as 8, and at opposite and corresponding sides thereof with flat faces, as 9, which adjoin the ribs and extend parallel thereto. The ribs 8 correspond in their degree of inclination and in their degree of convexity to the degree of inclination and concavity of the channels 6 and 7, and as a result of this construction thereof, said channels 6 and 7 constitute a continuous guiding and bearing surface for the working portion of the key coöperating with the rib 8 thereof, as shown more particularly in Fig. 5. By virtue of this relation of the parts, the key is positively guided in its transverse movement in a straight and regular manner, and the drifting operation may be thereby quickly and efficiently performed. This relation of the parts, coupled with the operation of positively limiting the movement of the key, assures that the removal of the key may be as readily and quickly effected as its insertion, since there is absolutely no possibility of jamming. It follows that when the shank of the tool leaves the socket, the key is loose in the slot, and may be withdrawn manually with the utmost facility. It will be noted that the working portions throughout their length are of materially less depth than the slot, and in fact, are only sufficiently deep to accomplish the initial starting movement of the tool in the manner previously explained, and it is for this reason that the key is free and loose in the slot when the shank of the tool is withdrawn.

Referring to the construction shown in Figs. 6 to 10, the socket therein shown is generally similar to the one shown in Figs. 1 and 2 and previously described, differing specifically in that it is formed with recesses as 10 and 11 at the ends of the slot *a*. In this example, the drifting key, designated generally by the letter D, is fitted permanently into the slot *a* and has on its upper face oppositely inclined longitudinally beads 12 and 13, the former fitting conformably in the channel 6 and the latter fitting conformably in the channel 7. The key D is provided with a bow-shaped or arcuate slot having oppositely inclined legs 14 and 15 which extend inwardly and downwardly toward one another. A retaining pin, as 16, is passed through the upper portion of the socket and through the slot. For convenience of removal and assemblage, the pin 16 has preferably a head as 17 which is threaded into the socket. The key D is formed at one side thereof with a recess, as 18, in which is conformably fitted a bow spring as 19 of special design, which bears with equal pressure against the opposite walls of the recess and has a loop-shaped central portion 20 through which the aforesaid pin 16 extends. The key D is of wedge shape, its under face being straight and bearing upon the upper face of the tang *c* and its upper faces, (*i. e.*, the faces of the beads), being inclined and shaped conformably to the respective channels 6 and 7. The key may be moved in either direction by a blow with a hammer or other instrument, thereby starting the shank from the socket in the manner explained. The spring 19, being itself permanently retained by the pin 16, will restore the key to normal position.

In using this form of drifting key, it is unnecessary to insert or withdraw the same from the slot and a material saving of time is thus effected.

Having fully described our invention, we claim:

1. The combination, with a tool socket having a drifting slot, the upper face of which is formed with oppositely inclined axially parallel guides, of a drifting key having the upper face of its working portion formed at one side thereof of corresponding inclination to and for conformable engagement with the guides.

2. The combination, with a tool socket having a drifting slot, the upper face of which is formed with oppositely inclined axially parallel channels, of a drifting key having the upper face of its working portion formed of corresponding inclination and cross section to the channels.

3. The combination with a tool socket hav-

ing a drifting slot of a wedge-shaped drifting key normally fitted in the slot for relative lateral movement and a spring for restoring the key to a normal position after each movement therein.

4. The combination with a tool socket having a drifting slot of a wedge-shaped drifting key fitted in the slot for relative lateral movement, the key having a slot therein, a pin passed through the slot in the key and fitted in the socket and a spring associated with the pin and bearing upon the key.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

GEORGE H. GROSS.
ELMER S. GROSS.

Witnesses:
ISAAC STROCK,
MINNIE B. MEISENHELTER.