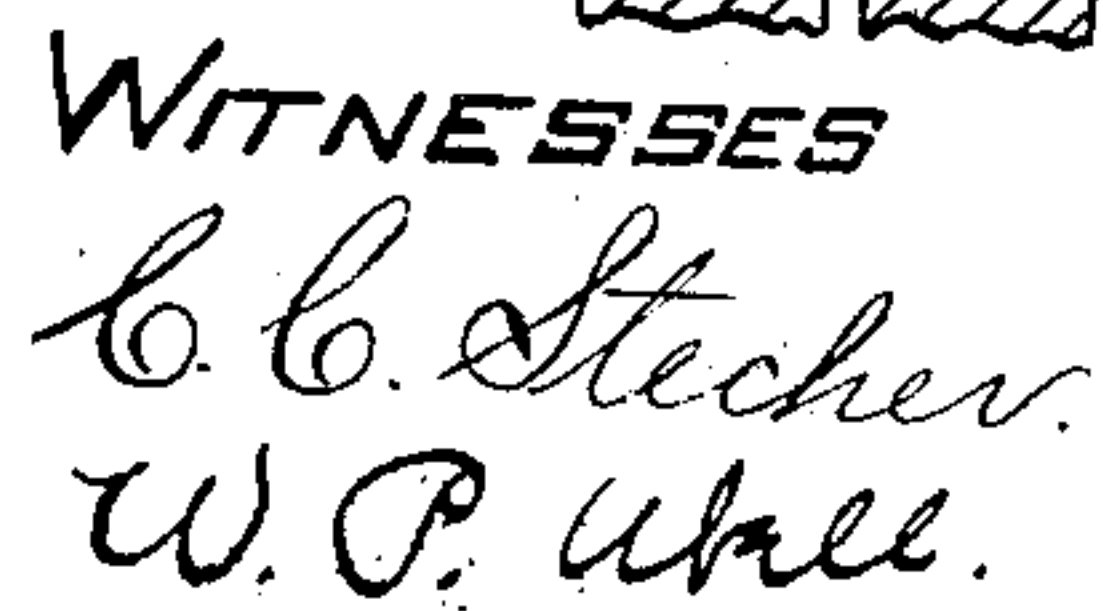


914,846.

Patented Mar. 9, 1909.



INVENTOR
Henry V. Jones
by
Wingfield Brown Sumby - May
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY V. JONES, OF NEWTONVILLE, MASSACHUSETTS.

HANDLE-FASTENING.

No. 914,846.

Specification of Letters Patent.

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To all whom it may concern.

Be it known that I, HENRY V. JONES, of Newtonville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Handle-Fastenings, of which the following is a specification.

This invention has relation to fastening devices for attaching to a handle the head of a hammer or ax, of the general character of those illustrated in Letters Patent Nos. 406,899 and 441,402 to Hiram Hall, Jr.

The primary object of the present invention is to provide a simple and convenient device of the character referred to, in which the parts are all connected so that they may not be separated or lost.

More or less trouble has been caused, in the employment of devices as heretofore constructed, by the fact that the various parts were separate and unattached, and consequently, in removing a hammer or ax head from one handle and placing it upon another, the parts often became lost or mislaid. This difficulty has been overcome by the present invention by so constructing the parts that they are loosely connected, in consequence whereof, while said parts may be moved relatively to each other to secure the head in place, nevertheless they may not be entirely separated, but are removed as a unit.

On the accompanying drawing:—Figure 1 represents the invention as employed for securing the head of a hammer upon its handle, the handle and head being illustrated in section. Fig. 2 represents a section through the hammer head and illustrates the fastener in section. Fig. 3 represents a section on the line 3—3. Fig. 4 represents a section on the line 4—4. Fig. 5 represents the fastener detached. Fig. 6 represents the various parts of the fastener detached from one another. Fig. 7 represents in section another form of fastener embodying the invention. Fig. 8 represents a similar section of still another form. Fig. 9 represents an inside view of one of the wedge-plates to show how its upper corners are inwardly bent after being assembled with the wedge.

It will be understood that the invention is adapted for securing any metal head upon a handle and consequently it may be used for pick-axes, sledges, hoes, rakes, or the like. I have illustrated it as applied to a

hammer, as that is a convenient form of tool to illustrate.

The handle of the hammer is indicated at *a* and it is longitudinally slotted as at *a'*, being provided at its end with a chamber *a²* having outwardly converging walls. This chamber may be formed by boring transversely through the handle with a bit and then by the aid of a saw making two inwardly diverging cuts to provide the two side walls *a³*.

The fastener for securing the head *b* upon the handle comprises a wedge *c* which is constructed in the form of a nut, a screw *d*, and what may be termed wedge-plates *e*. Herebefore the wedge-plates and the wedge have been detached, but according to the present invention, I connect them loosely together as a unit. To this end the wedge *c* is provided on its sides with dove-tailed tongues or guides *c'* *c'*. These may be formed by grooving the corners of the wedge, as at *c²*, (see Fig. 6). The wedge-plates *e* are preferably formed of sheet metal and their side walls *e³* are bent transversely inward so that in cross-section each wedge-plate has a dove-tailed groove or guideway, as shown in Fig. 3, so as to receive the dove-tailed tongues *c'* *c'* of the wedge *e*. In this way the wedge is adapted to slide longitudinally of the wedge-plates for the purpose of wedging the plates away from each other.

After the plates are placed upon the wedge, I bend their upper corners *e'* slightly inward so as to form stops to limit the movement of the wedge and plates in one direction, as shown in Fig. 9. At their opposite ends the plates are provided with stops *e²* which are bent inward, as shown in Figs. 1 and 2. Thus at each end of each of the wedge-plates there is one or more stops so that after the parts have been assembled, they are radially movable relatively to each other but are non-detachable.

For the purpose of permitting the wedge-plates to approach each other as nearly as possible, the side walls *e³* thereof are beveled as at *e⁴*, and the plates themselves are slotted, as at *e⁵* to escape the screw *d*. The screw is provided with a head *d'* which may be of any suitable shape, but preferably is somewhat elongated to permit its being readily rotated.

While I prefer to form the side plates of sheet metal and to form the dove-tailed

grooves therein by bending the side walls e^2 thereof inward, yet it will be understood that they may be cast or drop-forged, if desired, and the stops for limiting the movement of the wedge formed in some other way.

It is quite evident that in lieu of connecting the wedge-plates directly to the wedge, they may be connected to the wedge through the medium of the screw d , the end of which may be upset. For instance in Fig. 7, two wedge plates $f f$ are illustrated as being formed of cast metal or drop forgings. They converge toward their outer ends as shown. The outer end portions of these wedge plates are formed of strip metal pieces f'' , which are secured to the plates f and which are bent at right angles thereto so that the end portion of one wedge plate overlaps the end portion of the other wedge plate. These overlapping end portions, which are indicated at $f'' f''$, are slotted to receive the screw which passes through the wedge. The end of the screw is upset as shown. Any convenient means may be utilized to secure the end portions to the bodies of the wedge plates, as, for instance, by the pins or rivets indicated in dotted lines. The connection of the wedge-plates with the screw prevents their being separated therefrom and from the wedge when the fastener is removed. I sometimes find it convenient, however, to embody the invention in the form illustrated in Fig. 8, in which the two wedge-plates $g g$ are formed of sheet metal and are connected by the bent portion g' . The sheet-metal is sufficiently resilient to hold the upper free ends of the wedge-plates yieldingly toward each other, so that it requires considerable force to entirely remove the wedge from between said wedge-plates. In this instance the said wedge-plates are provided with the side walls g^2 which serve to hold the wedge against lateral displacement. These side walls form guide-ways for the wedge and may be inclined inward so that the grooves or guide-ways will be dove-tail. The curved portion g' at the end forms a stop to prevent the wedge from dropping out.

In all of these embodiments of the invention, the wedge, the wedge-plates, and the screw are all connected together so that they may be handled as a unit.

Having thus explained the nature of the invention, and described a way of construct-

ing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, I declare that what I claim is:—

1. A fastener of the character described, comprising an internally threaded wedge, a screw, wedge plates in sliding engagement with said wedge and arranged at an angle to each other, said wedge, screw and wedge plates having means constituting a part thereof for connecting them in operative relation so that they may be handled as a unit, the parts so engaging each other as to prevent disengagement laterally of the plates from the wedge and means for positively limiting movement longitudinally of the plates on the wedge in both directions.

2. A fastener of the character described, comprising a screw, a nut, one or more wedge plates slidably engaging the nut, and means for permanently connecting the wedge plate or plates to the nut, whereby the fastener may be handled as a unit when removed from the handle.

3. A fastener of the character described, comprising a headed screw, a nut thereon, two wedge plates slidably engaging the nut and whose inner faces converge toward the head of the screw, and a connection between the divergent ends of the plates for permanently connecting them.

4. A fastener of the character referred to, comprising a screw, a metallic member presenting two opposing wedge plates which converge toward the outer end of the screw and an integral connection at their divergent ends, and a nut engaged with said screw and located between and slidably engaging said plates.

5. A fastener of the character referred to, comprising a screw, a nut thereon, a resilient metallic strip bent upon itself to provide two plates converging at their free ends and embracing the nut, and a spring connection at their divergent ends, said wedge plates having side walls for guiding said nut and preventing lateral movement thereof relatively to said plates.

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

HENRY V. JONES.

Witnesses:

MARCUS B. MAY,
C. C. STECHER.