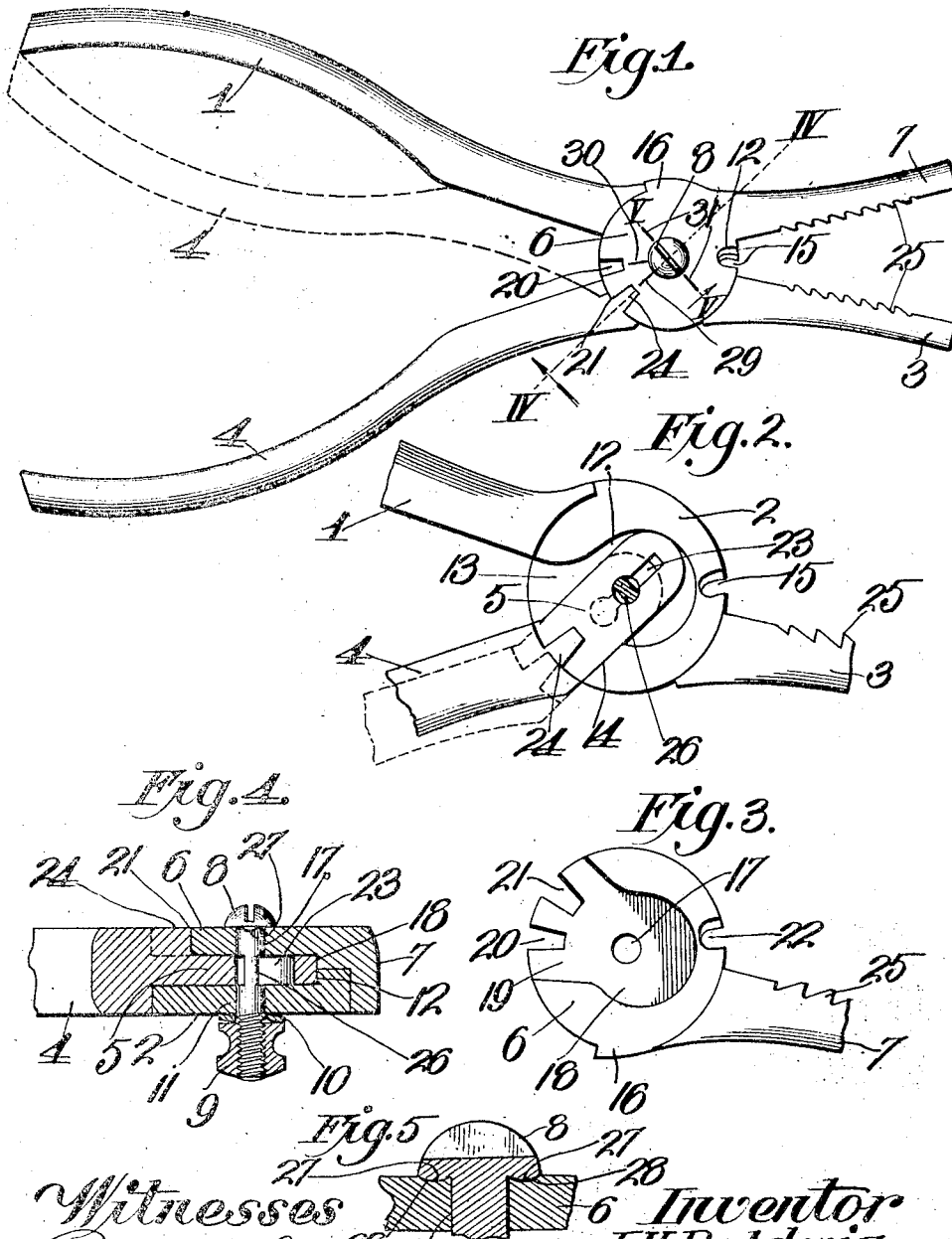


J. H. BALDWIN.
HAND TOOL.
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Patented Mar. 25, 1913



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UNITED STATES PATENT OFFICE.

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HAND-TOOL.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN H. BALDWIN, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Hand-Tools, of which the following is a specification.

This invention relates to hand tools, and has for its object to produce a simple, strong, durable and efficient tool which is equally serviceable as a wrench or pair of pliers.

With this general object in view, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which—

Figure 1, is a side view of a tool embodying the invention. Fig. 2, is an enlarged fragmentary view with the jaw of one lever omitted and the pivot in section; said figure also showing the jawless lever withdrawn preliminary to adjusting it to the position it occupies in dotted lines in Fig. 1. Fig. 3, is a fragmentary inner face view of the jaw for the adjustable or jawless lever. Fig. 4, is an enlarged section on the line IV—IV of Fig. 1. Fig. 5, is an enlarged section on the line V—V of Fig. 1.

The tool consists of six parts—a lever 1 having a circular head 2 and a jaw 3; a lever 4 having a tongue 5; a circular head 6 having a jaw 7; a pivot-bolt 8, a nut 9, and a spring washer 10.

The lever 1, head 2 and jaw 3 are preferably of integral formation as common in plier construction, the head being half as thick as the lever and jaw, and the last-named elements occupying a substantially parallel relation and are so proportioned that their inner faces extend radially with respect to the head.

The head 2, is provided with a pivot hole 11, at its inner side with a recess 12, the rear portion of the recess flaring rearwardly at 13, the flaring end of the recess at the side thereof opposite from the lever converges forwardly with respect to the latter and constitutes a shoulder 14, which limits the opening movement of the tool, as will hereinafter appear, and forward of the recess to the left of the jaw, the head is provided with the customary wire-receiving notch 15.

The head 6 and jaw 7 are integrally formed, and respectively correspond in thickness to head 2 and jaw 3, the head 6 fitting flatly against head 2 and snugly between lever 1 and jaw 3 and having an outwardly projecting portion 16 for endwise engagement with lever 1 when the tool is fully opened. The head is also provided with a pivot hole 17, and at its inner side with a recess 18 having a rearwardly flaring portion 19; the portion of the head in which portion 19 of recess 18 occurs being provided with peripheral notches 20 and 21. Said head is also provided with a wire-receiving notch 22 diametrically opposite notch 20.

The lever 4 and tongue 5 are of integral formation, the former being of the same thickness as lever 1 and the tongue of less thickness to fit snugly in recesses 12 and 18, the tongue being narrow so as to be capable of edgewise pivotal movement in the flaring extensions of said notches. The tongue is provided with a longitudinally extending key-hole slot 23, the circular portion thereof constituting a pivot hole. At one side of the tongue the lever 4 is provided with a tooth 24 extending radially of the said pivot hole and adapted for engagement with either of the notches 20—21 when said pivot hole end of the slot 24 is aligned with pivot holes 11 and 17, it being noted that when tooth 24 is in engagement with notch 21, the tool is adapted for use as pliers or as a wire cutter, and that when said tooth is in engagement with notch 20, the tool is adapted for use as a wrench, it being also noted that the inner faces of the jaws are serrated at 25, to insure a firm grip on the object to be turned such as a tap or pipe.

The pivot bolt 8 having the usual radially nicked head extends through the pivot holes 11 and 17 and the keyhole slot of the tongue, and where it extends through the latter is cut away at opposite sides to provide a portion 26 of substantially oblong shape in cross section incapable of rotation in the narrow end thereof, the flat sides of portion 26 preferably paralleling the head of the bolt so that the disposition of the nick shall indicate that of the flat side of the bolt. The latter is provided with a pair of small projections 27 at the underside of its head to engage a pair of shallow depressions 28 in the outer face of one of the heads preferably head 6 to prevent the

bolt turning while the tool is in operation and engaging the lower end of the bolt is the thumb nut 9, which is preferably made irremovable by upsetting or riveting the said lower end of the bolt. To guard against such accidental endwise movement of the bolt as would effect the withdrawal of the projections 27 from the said depressions, the spring washer 10 is interposed between the thumb nut and the head 2 of the tool, this washer being capable of yielding sufficiently to permit the bolt to be turned through the instrumentality of the thumb nut when it is desired to transform the tool from a pair of pliers into a wrench or after the tool has been retransformed into pliers.

With the parts in the relation shown in Figs. 1, 2, and 4, the tool is adapted for use as pliers or for cutting wire, it being noted that the oblong portion 26 of the bolt extends transversely of the tongue and hence prevents such movement of the latter as would withdraw tooth 24 from engagement with notch 21, and that with the parts in such position pressure applied on the levers will cause approaching movement of the jaws for the purpose of clamping an object between them or for severing a wire which extends through the wire receiving notches 15, it being of course understood that the latter are so formed as to readily cut the wire, as customary. It will also be noticed that there is no chance of the bolt turning accidentally when the device is being used as pliers or as a wire cutter because the projections 27 are in engagement with the depressions 28 of head 6.

When it is desired to convert the tool into a wrench the operator turns the bolt a quarter of a revolution to dispose the nick in the head thereof in alinement with notch 21 and the oblong portion 26 of the bolt in alinement with the narrow portion of the keyhole slot of the tongue. If desired this adjustment may be facilitated by providing the head 6 with a radial marking 29, as a guide in arresting the turning of the bolt at the proper point. The lever 4 is then drawn rearwardly to the position shown in dotted lines Fig. 2, where it will be noticed tooth 24 is disengaged from notch 21 and then the lever is swung inward until arrested by contact with lever 1 the pivot bolt of course turning with the lever. As the lever is thus arrested, tooth 24 is alined with notch 20 so that the said lever 4 may be forced forward to cause the tooth 24 to enter said notch 20 and thus lock the handle in its new position, as regards pivotal movement. The forward movement of lever 4 redispeses the bolt in the enlarged or pivot hole of the keyhole slot so that the bolt may then be turned until projections 27 reengage depressions 28, at which time the oblong portion of the bolt will again be extending transversely of the

tongue and thus prevent lever 4 moving rearwardly so that it shall bear a rigid relation to lever 1, and with the latter constitute a convenient handle for using the tool as a wrench, it being noted in this connection, that the tool can be used as a wrench without handle 4, as the engagement of portion or stop 16 of head 6 limits the separating or opening movement of the jaws, and the object wedges tightly between the jaws and thus prevents opposite or closing movement thereof. To reconvert the tool into pliers, the bolt is turned until the nick in the head is in radial alinement with notch 20 and as a guide in so disposing the bolt, the head 6 is provided with a radial mark 30, extending from notch 20 to the head of the bolt. The lever 4 is then drawn rearwardly to withdraw tooth 24 from notch 20, and then said lever is swung outward to the position shown in dotted lines Fig. 2, when it is forced rearwardly to effect reengagement between its tooth 24 and notch 21. The bolt is then turned back to its original position, and to facilitate its return to said position (shown in Fig. 1) head 6 is provided with one or more radial marks 31, extending at right angles to mark or line 29, the nick in the head of the bolt occupying the same radial plane as said mark or marks 31 as the projections 27 reengage depression 28.

To guard against accidental endwise movement of the bolt and consequent disengagement of projections 27 from depressions 28, the bolt is preferably held under yielding pressure with its head against head 6, the washer 10, being a convenient means for accomplishing this purpose, and in this connection it is desired to state that, while the pivot bolt is referred to herein and in the claims as a bolt, it is to be understood that said term contemplates the use of a pin or non-threaded bolt as well as a threaded one.

By reference to Fig. 1, it will be seen that the teeth of the serrated jaws are disposed in opposite directions so that when the tool is manipulated to turn a nut, pipe or other object, the teeth of one of them is positioned to most efficiently perform its gripping function, and it will also be understood that the teeth alternate so that when the jaws are closed the teeth of one shall enter the notches of the other.

It will be observed that by reason of the fact that the handle of the tool, when the same is adapted for use as a wrench, stands at one side of a direct line leading from the pivot bolt between the jaws, the tool can be used more conveniently in places which are difficult to reach than an ordinary wrench, and as the wrench is of the universal or "alligator" type it is adaptable for use in connection with taps and pipe which vary materially in size.

From the above description it will be ap-

parent that I have produced a combination tool embodying the features of advantage enumerated as desirable, and I wish it to be understood that while I have illustrated and described the preferred embodiment of the invention, I do not desire to be restricted to the exact details of construction shown and described as obvious modifications will suggest themselves to one skilled in the art.

10. I claim:—

1. In a hand tool a pair of heads fitted together and having forwardly projecting jaws, a lever rigid with and projecting from one of the heads, and a second lever reduced in thickness at its front end to form a tongue to fit between said heads and provided with a longitudinal keyhole slot, and a pivot extending centrally through said heads and said slot and flattened within the latter and capable of turning in the enlarged end but not in the narrow end thereof, and adapted when occupying a certain position in the enlarged end of the slot to prevent endwise movement of the tongue and when turned to a position for engagement with the narrow portion of the slot to permit endwise movement of said tongue.

2. In a hand tool, a pair of heads fitted together and having forwardly projecting jaws, a lever rigid with and projecting from one of the heads, and a second lever reduced in thickness at its front end to form a tongue to fit between said heads and provided with a longitudinal keyhole slot, a pivot extending centrally through said heads and said slot and flattened within the latter and capable of turning in the enlarged end but not in the narrow end thereof, and adapted when occupying a certain position in the enlarged end of the slot to prevent endwise movement of the tongue and when turned to a position for engagement with the narrow portion of the slot to permit endwise movement of said tongue, and means for securing the tongue-carrying lever in rigid relation to the head not provided with the rigid lever, when the pivot is in engagement with the narrow end of the slot.

3. A tool, comprising a member consisting of a circular head, a forwardly projecting jaw and a rearwardly projecting lever, a second member consisting of a circular head fitting against the first-named head and provided at one side of its center with a forwardly projecting jaw, and a lever extending rearwardly from said second head

and provided with a tongue fitting flatly between the said heads, said tongue having a keyhole slot; a pivot extending pivotally through the said heads and said slot and of oblong form in cross section within said slot and capable of turning in the enlarged end and incapable of turning in the narrow end of said slot, and means for preventing accidental turning movement of the pivot.

4. A tool, comprising a member consisting of a circular head provided with a forwardly projecting jaw and a rearwardly projecting lever, a second member consisting of a head to fit against the first-named head and provided with a forwardly projecting jaw, a headed bolt extending centrally through said heads to hold them together and provided with a flattened portion, a second lever having a tongue fitting between said heads, provided with a keyhole slot receiving said bolt and rotatable on said bolt when the flattened portion of the latter engages the enlarged end of the slot and rotatable with the bolt when the flattened portion of the latter engages the narrow portion of said slot, means for interlocking the last-named lever with the last-named head when the flattened portion of the bolt is engaging the enlarged portion of said slot, a retaining device secured on the non-headed end of said bolt, and a spring washer interposed between said retaining means and the adjacent head of the tool.

5. In a tool, a pair of heads fitted together, a lever rigid with one of the heads, a second lever having one end fitting between said heads and provided at such end with a keyhole slot, a pivot extending through said heads and keyhole slot and flattened within the latter and capable of being independently turned when the flattened portion engages the enlarged end of the slot and incapable of being turned independently when said flattened portion engages the narrow portion of said slot, and means for interlocking the last-named lever with the last-named head when the flattened portion of the pivot is engaging the enlarged portion of the slot.

In testimony whereof I affix my signature, in the presence of two witnesses.

JOHN H. BALDWIN.

Witnesses:

CHAS. B. SEARS,

PERCY C. FREEMAN.