J. F. O'MALLEY.

COMBINATION TOOL.

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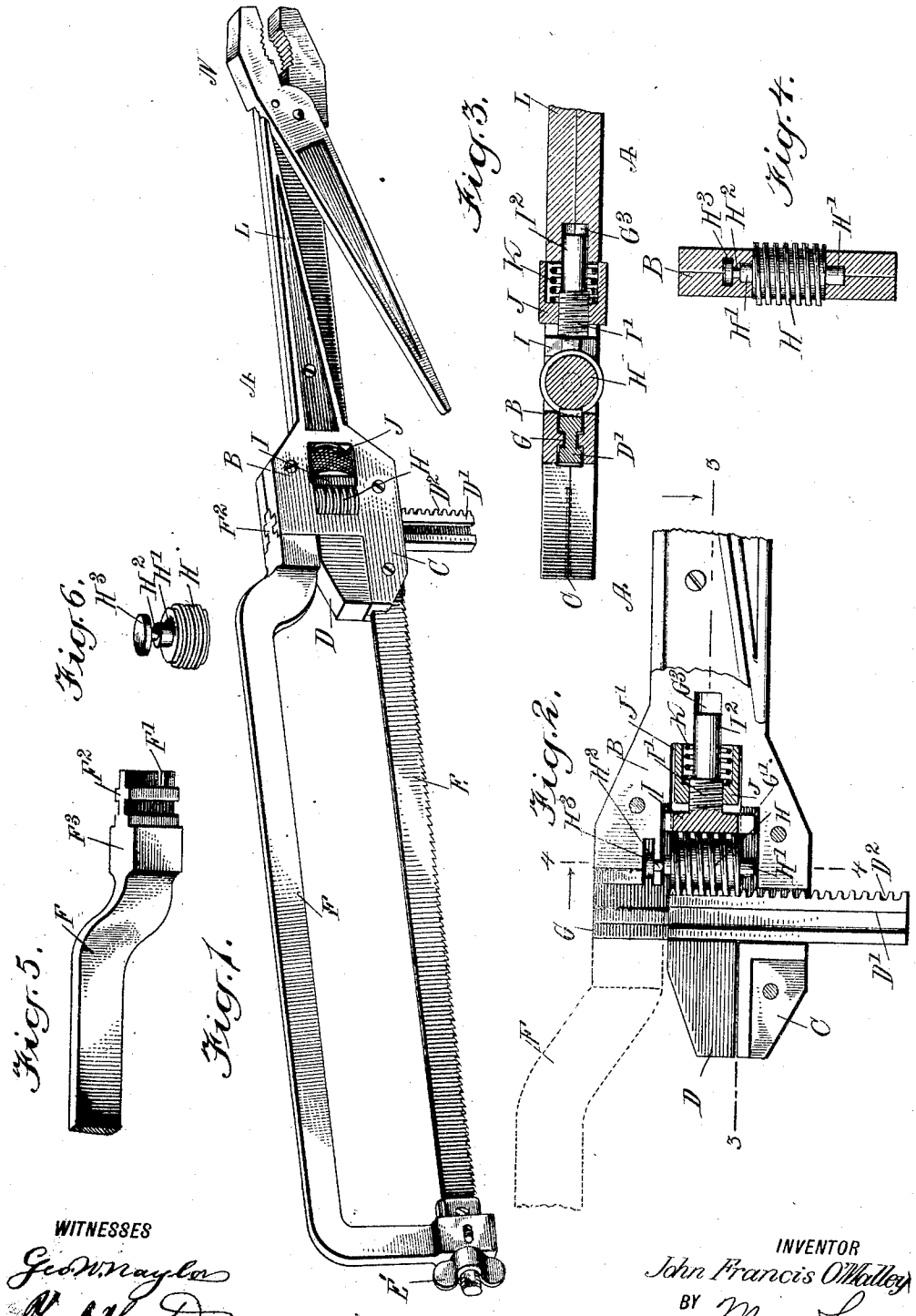
1,015,205.

Patented Jan. 16, 1912.



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COMBINATION-TOOL.

1,015,205. Specification of Letters Patent. Patented Jan. 16, 1912.

Application filed June 29, 1911. Serial No. 635,925.

To all whom it may concern:

Be it known that I, JOHN FRANCIS O'MALLEY, a citizen of the United States, and a resident of Avoca, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Combination-Tool, of which the following is a full, clear, and exact description.

The invention relates to combination tools such as shown and described in the Letters Patent of the United States, No. 922,322, granted to me May 18, 1909.

The object of the present invention is to provide a new and improved combination tool, for use as a hack saw, wrench and pliers, and arranged to permit a quick adjustment of the movable jaw, to securely lock the said movable jaw in the adjusted position, to quickly release the movable jaw whenever it is desired to do so, the hack-saw frame being locked in position by the adjusting means used for the movable jaw.

For the purpose mentioned, use is made of a fixed jaw adapted to receive one end of the saw blade, a jaw movable toward and from the said fixed jaw, a saw frame adapted to receive the other end of the saw blade and an adjusting and locking means for adjusting the said movable jaw and for locking the said saw frame against removal.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the combination tool, with the parts in position for use as a hack-saw or pliers; Fig. 2 is an enlarged, sectional side elevation of the combination tool, with the parts in position for use as a wrench; Fig. 3 is a sectional plan view of the same, on the line 3—3 of Fig. 2; Fig. 4 is a cross section of the same, on the line 4—4 of Fig. 2; Fig. 5 is a perspective view of the rear end of the hack-saw frame, and Fig. 6 is a perspective view of part of the adjusting and locking means for the movable jaw and the hack-saw frame.

The body A of the combination tool is preferably formed of two plates fastened together, and the forward end of the body A is enlarged, to form a head B provided with a fixed or integral jaw C operating in conjunction with a movable jaw D, when using the tool as a wrench. To the fixed jaw C is adapted to be fastened one end of a saw blade E, adjustably secured at its other end in a hack-saw frame F, removably held on the head B, as hereinafter more fully explained.

The head B is provided with a vertical guideway G, in which is mounted to slide a rack D′, forming an integral part of the jaw D and having its teeth D^2 in mesh with a worm wheel H, the shaft H′ of which is mounted to turn and to slide in a longitudinal guideway G′ formed in the head B and leading into the vertical guideway G. The upper end of the shaft H′ of the wheel H is provided with a reduced portion H^2, which terminates in a collar H^3 adapted to engage a notch or slot F′ cut into the end of a bearing F^2 formed on an offset F^3 on the inner end of the hack-saw frame F, so that when the bearing F^2 is fitted in the guideway G and the collar H^3 engages the notch F′, then the hack-saw frame F is locked in place in the head B of the body A.

The worm wheel H is adapted to be locked in place by a brake-shoe I, mounted to slide in the guideway G′, and the said brake-shoe I is provided with a rearwardly-extending threaded shank I′, terminating in a reduced, non-threaded portion I^2 mounted to slide in a guideway G^3 formed in the head B. On the threaded shank I′ screws a nut J, having a hollow extension J′ containing a spring K coiled around the reduced portion I^2 and pressing against the nut J, so as to hold the shoe I in contact with the wheel H.

It is understood that when the combination tool is to be used as a wrench, the hack-saw frame F is removed from the head B and the saw blade E is detached from the fixed jaw C. The operator, on turning the wheel H causes the shank D′ to slide in the guideway G, so as to move the jaw D into an open position, that is, away from the fixed jaw C, a distance corresponding to the object to be grasped. After the adjustment is made the operator on turning the nut J rearwardly, advances the shoe I in firm contact with the wheel H, so as to lock the latter in place, thus maintaining the jaw D in the adjusted position. When it is desired to unlock the jaw it is only necessary for the operator to slide the wheel H with its shoe I rearwardly, to disengage the teeth of the wheel H from the teeth D^2 of the rack D′.

When it is desired to use the combination tool as a hack-saw, the jaw D is moved into

closed position, as shown in Fig. 1, and then the inner end of the saw blade E is attached to the fixed jaw C, and the bearing F^2 is engaged with the guideway or socket G and the collar H^3 is engaged with the slot F′, to lock the bearing F^2 in place in the guideway G, and when the nut J is screwed back until it engages the rear wall of the head B, the bearing F^2 of the saw frame F is pivotally locked in place in the head B as the collar H^3 then cannot move out of the slot F′. When it is desired to unlock the saw frame for removal or for quickly releasing the jaw D, it is necessary to first turn the nut J to screw it forward on the threaded shank I′ to finally allow sliding of the nut J and with it the shoe I and the worm wheel H rearward, to disengage the collar H^3 from the slot F′ and the wheel H from the shank D′. Thus it will be seen that the jaw D and the saw frame F can be securely and positively locked in place in the head B, and when the nut J is screwed forward the shoe I and wheel H can be quickly moved bodily in a rearward direction by the operator to instantly release the jaw D or the saw frame F, as the case may be. The desired tension is given to the saw blade E by the adjusting device E′ of usual construction. The body A is provided with a handle L, for conveniently manipulating the combination tool, the handle L being provided with a pair of pliers N, the same as shown and described in the Letters Patent above referred to.

The combination tool is very simple and durable in construction, and the parts can be readily adjusted for forming a hack-saw or wrench, and the pliers can also be used whenever desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A combination tool, comprising a body having a head provided with a guideway, a jaw fixed on the said head and adapted to secure one end of a saw blade, a movable jaw mounted to slide in the said guideway, a saw frame adapted to receive the other end of the saw blade and removably connected with the said guideway, and adjusting and locking means for adjusting the said movable jaw and for locking the said saw frame against removal from the said guideway.

2. A combination tool comprising a body having a head provided with a guideway, a jaw fixed on the said head, a movable jaw having a rack mounted to slide in the said guideway, a saw frame having an arm removably fitting the said guideway, and a wheel for engagement with the said rack, mounted to turn and to slide bodily in the said head, the wheel having means for engagement with the said saw frame arm, to lock the latter in position in the guideway.

3. A combination tool comprising a body having a head provided with a guideway, a jaw fixed on the said head, a movable jaw having a rack mounted to slide in the said guideway, a saw frame having an arm removably fitting the said guideway, a wheel for engagement with the said rack, mounted to turn and to slide bodily in the said head, the wheel having means for engagement with the said saw frame arm, to lock the latter in position in the guideway, and a spring-pressed shoe mounted to slide in the said head and adapted to engage the said wheel.

4. A combination tool comprising a body having a head provided with a guideway, a jaw fixed on the said head, a movable jaw having a rack mounted to slide in the said guideway, a saw frame having an arm removably fitting the said guideway, a wheel for engagement with the said rack, mounted to turn and to slide bodily in the said head, the wheel having means for engagement with the said saw frame arm, to lock the latter in position in the guideway, a shoe mounted to slide in the said head and provided with a threaded shank, a nut screwing on the said shank, and a spring pressing the said nut.

5. A combination tool comprising a body having a head provided with a guideway, a jaw fixed on the said head, a movable jaw having a rack mounted to slide in the said guideway, a saw frame having an arm removably fitting the said guideway, and provided with a slot, a wheel adapted to mesh with the said rack and mounted to slide bodily in the said head, the wheel having a collar adapted to engage the said slot, a shoe mounted to slide in the said head and adapted to bear against the said wheel, the shoe having a threaded shank, and a nut screwing on the said shank and adapted to bear on the said head.

6. A combination tool comprising a body having a head provided with a guideway, a jaw fixed on the said head, a movable jaw having a rack mounted to slide in the said guideway, a saw frame having an arm removably fitting the said guideway, and provided with a slot, a wheel adapted to mesh with the said rack and mounted to slide bodily in the said head, the wheel having a collar adapted to engage the said slot, a shoe mounted to slide in the said head and adapted to bear against the said wheel, the shoe having a threaded shank, a nut screwing on the said shank and adapted to bear on the said head, and a spring coiled on the shank and pressing the said nut.

7. A tool, comprising a body having a head, a jaw fixed on the head, a jaw movably mounted on the said head and provided

with a rack, a worm wheel for engagement with the said rack and mounted to turn in the said head and to slide bodily therein, a shoe for engagement with the said worm wheel and having a threaded shank, and mounted to slide bodily in the said head, and a nut screwing on the said threaded shank and adapted to abut against the said head.

8. A tool, comprising a body having a head, a jaw fixed on the head, a jaw movably mounted on the said head and provided with a rack, a worm wheel for engagement with the said rack and mounted to turn in the said head and to slide bodily therein, a shoe for engagement with the said worm wheel and having a threaded shank and mounted to slide bodily in the said head, a nut screwing on the said threaded shank and adapted to abut against the said head, and a spring coiled on the said shank and pressing the said nut.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN FRANCIS O'MALLEY.

Witnesses:
HAROLD F. LINABURY,
THOMAS F. RYDER.