No. 791,599. PATENTED JUNE 6, 1905.

J. A. ABOLT.

COMBINATION TOOL.

APPLICATION FILED SEPT. 15, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

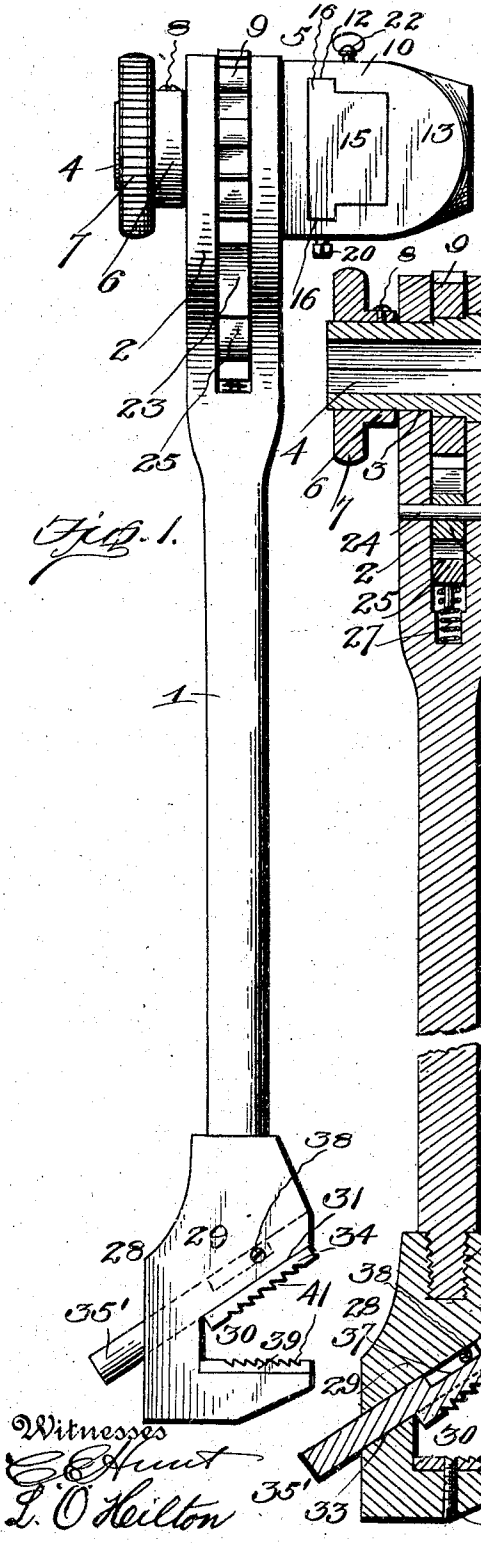


Fig. 2.

Fig. 3.

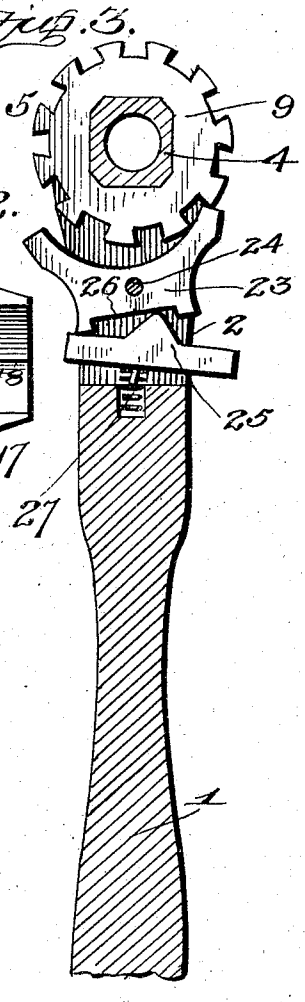
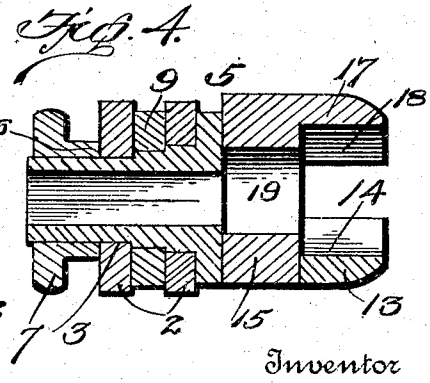


Fig. 4.



Witnesses

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2 SHEETS—SHEET 2.

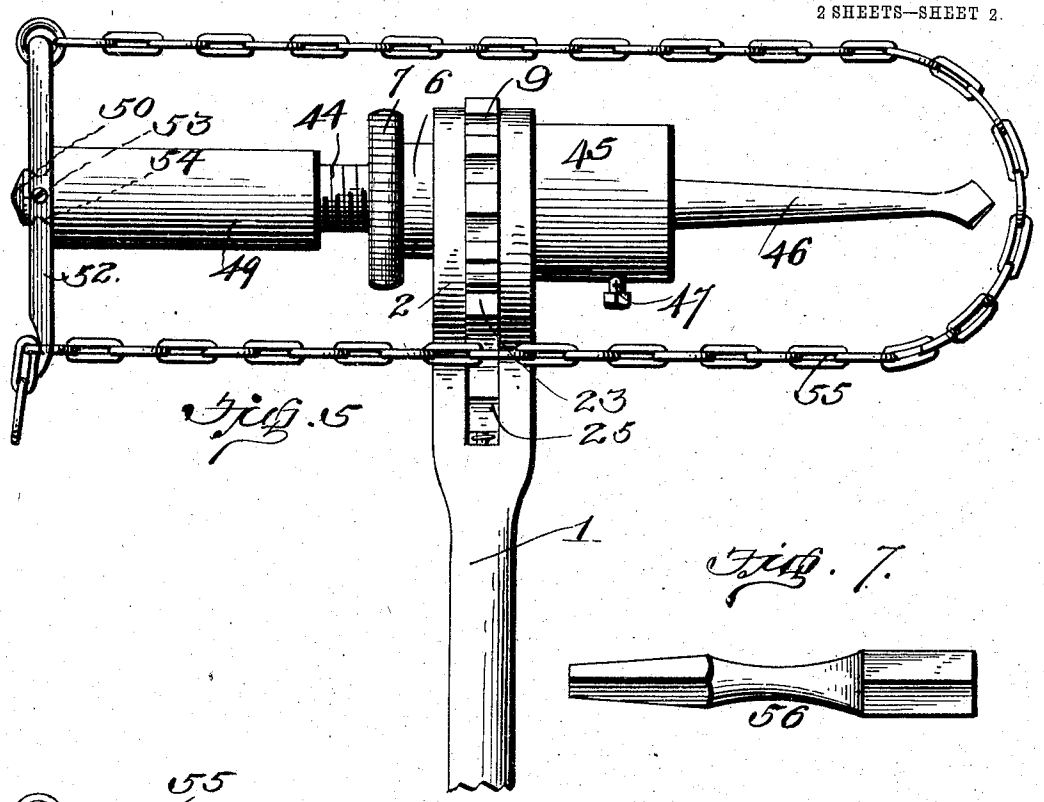


Fig. 5

Fig. 7.

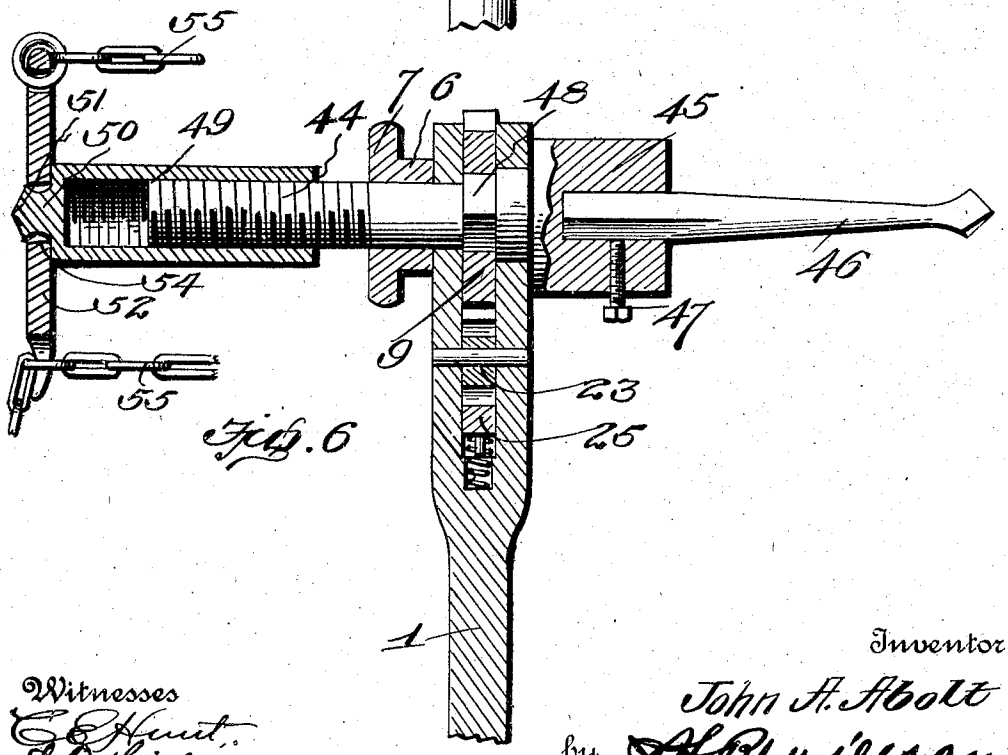


Fig. 6

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No. 791,599. Patented June 6, 1905.

UNITED STATES PATENT OFFICE.

JOHN A. ABOLT, OF ELDON, IOWA.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 791,599, dated June 6, 1905.

Application filed September 15, 1904. Serial No. 224,567.

To all whom it may concern:

Be it known that I, JOHN A. ABOLT, a citizen of the United States, residing at Eldon, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Combination-Tools; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in combination-tools.

The object of the invention is to provide a combination-tool consisting of a nut, a pipe-wrench, and a drill-chuck.

Another object is to provide a combination-tool of this character having a ratchet-handle for holding the same.

A further object is to provide a combination-tool which will be simple, strong and durable in construction, adjustable, and readily transformed for use in its various capacities.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of the tool, showing the same arranged for use as a nut and pipe wrench. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a transverse vertical sectional view through the handle, showing the ratchet connection of the same with the head of the wrench. Fig. 4 is a horizontal sectional view showing the upper end of the handle and the head of the wrench. Fig. 5 is a side elevation of the tool, showing the parts arranged for use as a drill. Fig. 6 is a longitudinal vertical sectional view of the same, and Fig. 7 is a detail view of a brace connection for the head of the drill or wrench.

Referring more particularly to the first four figures of the drawings, 1 denotes the handle, having a bifurcated upper end 2, in which is formed a longitudinally-disposed circular opening 3. In the opening 3 is arranged the hollow circular shank or stem 4 of a head 5, said head being disposed adjacent to one side of the upper end of the handle, as shown. On the opposite end of the shank or stem 4 is mounted a nut 6, having a milled flange 7. Said nut 6 is provided with a set-screw 8, whereby the same may be rigidly attached to the end of said stem 4. That portion of the stem 4 which lies between the bifurcated upper end of the handle is squared, and on said squared portion is mounted a ratchet-disk 9. The head 5 is formed with laterally-projecting flanges 10, on the inner sides of which are formed transversely-disposed grooves or channels 12. On the outer edges of said flanges 10, adjacent to one end of the same, is formed an outwardly-projecting block 13, in which is formed a V-shaped recess 14, whereby said block is adapted to form the fixed jaw of a nut-engaging wrench.

Slidably mounted between flanges 10 is a block 15, having on its side edges flanges 16, which are adapted to engage the grooves or channels 12 in the flanges 10, whereby said block is adapted to have a sliding or adjustable connection with the head of the wrench. On the outer face of said block 15 is formed an outwardly-projecting block 17, in which is formed a V-shaped recess 18, said recess 18 being adapted to coact with the recess 14 of the stationary jaw-block 13, thereby forming an adjustable recess or socket to receive the nut or tap that it is desired to screw or unscrew. In the block 15 is formed an elongated longitudinally-disposed passage 19, which is adapted to coincide at all times with the passage in the stem 4 and head 5 of the wrench.

In one of the flanges 10 in the head 5 is arranged a set-screw 20, which is adapted to be screwed into engagement with a recessed portion 21, formed in the adjacent flange 16 of the block 15, thereby limiting the outward movement of said block between the flanges 10, thus preventing the same from being entirely removed from engagement with the head 5. In the flange 10 on the opposite side of the head 5 is arranged a set-screw 22, which is adapted to be screwed into engagement with one of a series of depressions formed in the adjacent side of the block 15, thereby holding the same in its adjusted positions.

In the bifurcated upper end of the handle is arranged a double pawl 23, which is pivotally mounted upon a pin or bolt 24, passed through said head. The upper ends of the pawl are adapted to be brought into engagement with the teeth on one or the other side of the ratchet-wheel or disk 9, so that when said handle is rocked in this direction said ratchet-wheel and the head of the wrench will be turned thereby, a reverse movement of the wrench-handle causing said pawl to play loosely over the teeth of the ratchet-wheel, thereby preventing the retrograde movement of said wrench-head. When it is desired to turn the wrench-head in an opposite direction, the end of the pawl on the opposite side of the handle will be engaged with the teeth on the adjacent side of said ratchet-wheel, while the pawl on the first-mentioned side would be thrown out of engagement with said teeth. In order that the pawl 23 may be rocked to engage the ends of the same with the teeth on either side of the ratchet-wheel, a trip-block 25 is provided, said block having formed on one side an outwardly-projecting lug which is adapted to engage a recess 26, formed in the adjacent end of the pawl 23, whereby when said block is forced to one side or the other said pawl will be rocked upon its pivot-pin 24, thereby causing one or the other of the ends of the same to engage the teeth of said ratchet-wheel. The block 25 is adapted to be held into engagement with the adjacent end of the pawl by means of a coiled spring 27, which is seated in a recess formed in the handle 1, the opposite end of said spring engaging a pin or stud formed on the adjacent side of said trip-block. On the opposite end of the handle 1 is mounted a pipe-wrench 28, which consists of a head 29, in one side of which is formed a recess 30, the inner wall of which is beveled or inclined, as shown at 31. In said beveled wall of the recess 30 is formed a groove or channel 32, which connects with an aperture 33, formed in the opposite side of the head 29. On the inclined wall 31 is slidably mounted a plate 34, which forms the inner movable jaw of the pipe-wrench. On the lower side of said plate 34 is formed a flange 35, which is continued beyond the inner end of said plate in the form of a pin or bolt 35′, which is adapted to project through the aperture 33, the flange 35 being adapted to engage and slide in the channel 32, said flange and bolt thereby forming guiding and retaining elements for said plate 34. A portion of the flange 35 beneath the plate 34 is cut away to form a recess 37, through which is adapted to project a pin 38, which is passed through the side of the wrench-head 29, said pin thereby limiting the outward movement of the plate 34, as will be understood. On the wall or face of the recess 30 opposite to the beveled wall 31 is arranged a plate 39, which is adapted to form the outer jaw of the pipe-wrench, said plate being removably secured to the adjacent portion of the wrench-head by means of screws or rivets 40, whereby when the same becomes worn out it may be removed and replaced by a new plate. On the opposite faces of the plates 34 and 39 are formed oppositely-projecting teeth 41, whereby the same are adapted to take a firm grip upon the pipe or rod to be turned.

The wrench-head 29 may be secured to the end of the handle 1 in any suitable manner, but is here shown as being provided with a threaded aperture 42, by means of which the wrench-head is adapted to be secured onto the reduced threaded end of the handle 1.

When applying the wrench to a nut, the set-screw 8 in the nut 6 is loosened, thereby permitting the end of the stem 4 to turn loosely therein. The milled flange of the nut is now grasped in one hand, thus pivotally supporting this end of the stem, while the jaws of the head of the wrench at the opposite end of the stem are in engagement with the nut to be screwed on or off, the handle being grasped and operated by the other hand to turn the nut.

Referring to Figs. 5 and 6, in which the tool is arranged for use as a drill and in which the wrench stem and head 4 and 5 have been removed from the handle 1 and in place thereof has been inserted a shank or stem 44, having formed on one end thereof a drill-chuck 45, in which is formed a centrally-disposed socket for the reception of the end of a drill-point 46, said drill-point being removably held in said chuck by means of a set-screw 47, as shown. The stem 44 is provided with a squared portion 48, which is adapted to receive the ratchet-wheel 9, and on the opposite end of the stem 44, adjacent to the outer side of the wrench-handle, is arranged the milled nut 6 in the same manner as in the connection with the nut-wrench stem shown in the first figure of the drawings. The stem 44 is provided throughout its length with screw-threads, and on the same is adapted to be screwed an interiorly-threaded feeding-sleeve 49, on the outer end of which is formed a reduced cylindrical lug 50, having a pointed or conical-shaped end 51, whereby the same may be engaged with a fixed jaw to enable the drill to be fed by the turning of the stem and drill-chuck, as will be understood. When desired, an apertured cross-bar 52 is arranged upon the lug 50, said bar being loosely held upon said lug by means of a set-screw 53, which is passed through one edge of the same and is adapted to engage an annular groove 54. On one end of the bar 52 is connected the end of a chain 55, which is adapted to be passed around the object to be drilled and to have its opposite end connected with the forked opposite end of the bar 52, thereby

holding the object being drilled in place and affording a bearing against which the drill may operate.

In Fig. 7 of the drawings is shown a connecting bar or stem 56, having squared ends whereby the same may be inserted in the squared outer end of the passage of the hollow stem 4. With the opposite end of the bar 56 may be engaged a brace by which the stem and wrench-head may be operated instead of by the handle 1.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended application.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a tool of the character described, the combination with an operating-handle having a bifurcated outer end, of a hollow tool carrying a stem loosely mounted in said end of the handle, a flanged wrench-head arranged on the end of said stem, a fixed jaw formed on the outer edge of one end of the flange of said head, a block slidably mounted between the same, a jaw formed on said block to coact with said fixed jaw, a set-screw whereby the movement of said slidably-mounted jaw is limited, and means whereby the same is held in an adjusted position, and a double pawl and trip-block arranged on said stem and handle whereby the head is turned by said handle, substantially as described.

2. In a tool of the character described, the combination with an operating-handle having a bifurcated outer end of a hollow tool-carrying stem loosely mounted in said end of the handle, a flanged wrench-head arranged on the end of said stem, a fixed jaw formed on the outer edge of one end of the flanges of said head, a block slidably mounted between the same, a jaw formed on said block to coact with the said fixed jaw, a set-screw whereby the movement of said slidably-mounted jaw is limited and means whereby it is held in an adjusted position, a ratchet-wheel fixedly mounted on said stem in the bifurcated end of said handle, a double pawl mounted in the latter to engage one side or the other of said wheel, a spring-pressed tripping-block adapted to rock and automatically hold said pawl into engagement with one side or the other of said ratchet-wheel, and a hand-nut loosely mounted on the free end of said stem whereby said wrench-head is rotatably held in engagement with the nut to be turned, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN A. ABOLT.

Witnesses:
ROBERT CUMMING,
E. K. DAUGHERTY.