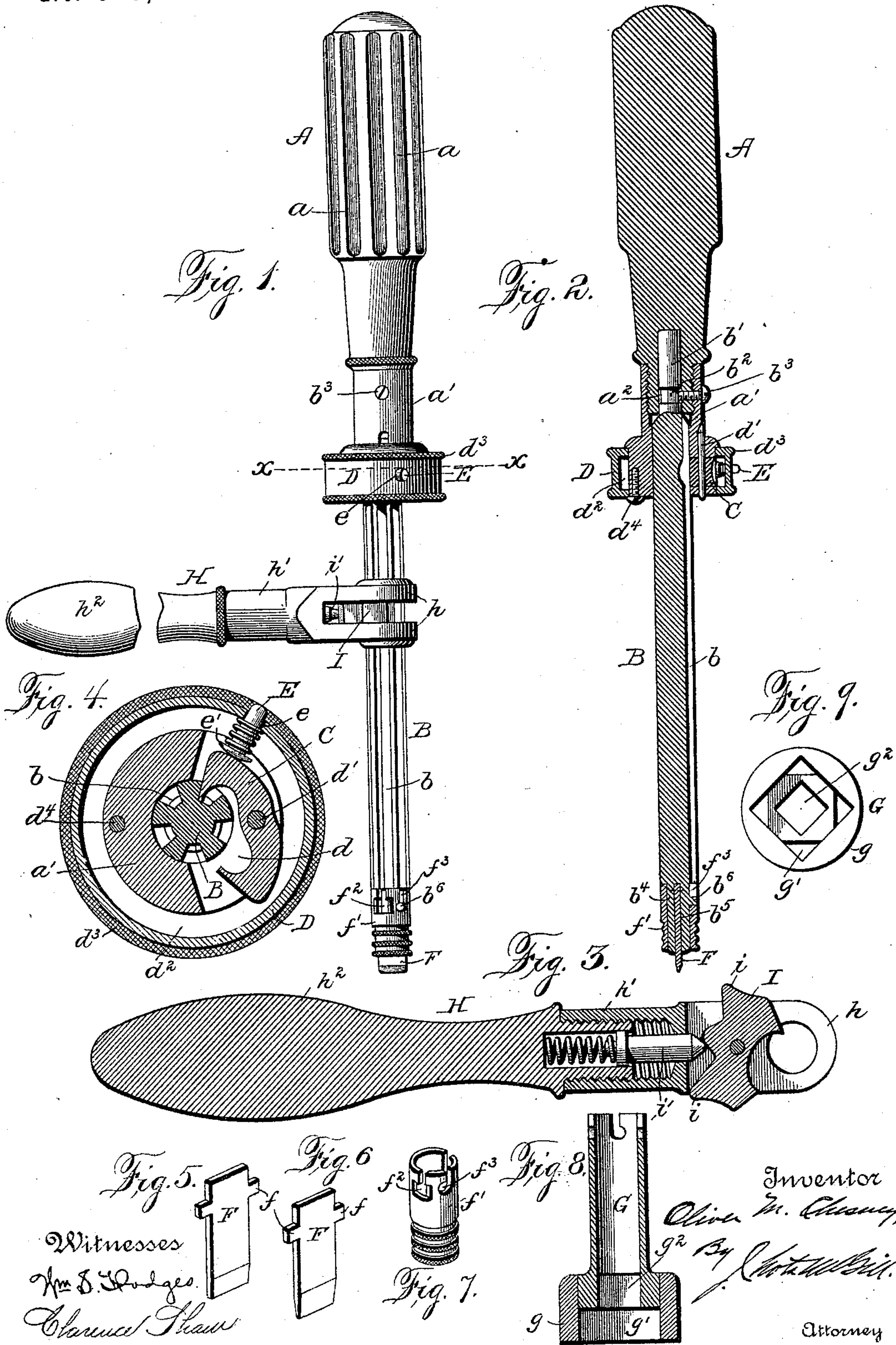


(No Model.)

O. M. CHESNEY.
COMBINATION TOOL.

No. 569,955

Patented Oct. 20, 1896.



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UNITED STATES PATENT OFFICE.

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COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 569,955, dated October 20, 1896.

Application filed April 16, 1896. Serial No. 587,753. (No model.)

To all whom it may concern:

Be it known that I, OLIVER M. CHESNEY, of Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Combination-Tools; and I do hereby 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 contemplates certain new and useful improvements in combination-tools, and has for its object the production of a simple and highly efficient tool for tightening and loosening nuts, screws, and the like, and operating drill-bits, &c.

The principal object of the invention is to provide for obtaining a maximum leverage in a hand-operated tool and also to render certain parts interchangeable, whereby the tool can be used for different purposes.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation. Fig. 2 is a longitudinal sectional view, with the additional power-arm removed. Fig. 3 is a horizontal sectional view of said arm. Fig. 4 is a transverse section on line $x x$, Fig. 1. Figs. 5, 6, 7, 8, and 9 are views of details.

Referring to the drawings, A designates the handle, having a corrugated portion a , and a' is a barrel having an upper cylindrical extension adapted to receive the reduced end of the handle. This handle has a central longitudinal bore a^2 .

B is a rotatable shaft formed with a series of longitudinal corrugations b and terminating at its inner end in a reduced portion b' , having a circular groove b^2 , wherein fits the inner end of a holding-screw b^3 , extended through a threaded opening in the inner reduced portion of barrel a' . Screw b^3 also serves to unite barrel a' to handle A. The outer reduced end b^4 of this shaft is provided with a slot b^5 , open at its outer end, and from this reduced end projects a short lug b^6 .

C is a double pawl located in a slot d of barrel a' and centrally pivoted on a rod d' . The curved hooked ends of this pawl are designed to alternately engage the corrugations

of the shaft B to effect the rotation of the latter with the turning of the handle A. This barrel is inclosed by a ring D, having an inner circumferential groove d^2 and opposite circular flanges d^3 . The ring is held in place, free to rotate on the barrel, by the head of a screw d^4 , working in a hole in the latter. This ring carries a spring-pressed pin E, fitting in a hole e of said ring and having its inner headed end e' normally in engagement with the centrally-pivoted pawl C. This pin, by engaging said pawl on one side of the pivot of the latter, will force one end of the pawl into engagement with the corrugations of shaft B, raising the other end therefrom. By moving the ring the raised end of the pawl will be lowered and the other end raised, while when the pin is brought in alinement with the pivot-pin of the pawl both ends of the latter will be held out of contact with the shaft. Thus it will be seen that the direction in which the shaft is to be rotated is controlled entirely by the shifting of the ring D. In operation in reversing the movement of the handle A with the pawl set the latter will ride over the corrugations.

Within the slotted end b^4 of shaft B is designed to fit a short flat plate F, the outer projecting end of which is designed to serve as a screw-driver. A series of such plates may be employed. They are interchangeable. (See Figs. 5 and 6.) From the longitudinal edges of these plates project short lugs f , which extend laterally beyond the reduced portion of the shaft. These plates, or, rather, each of them, is held in place by a thimble f' , having at its inner end opposite L-slots f^2 to accommodate the lugs f and a single bayonet-slot f^3 , with an inner rounded end to engage the lug b^6 , by which the thimble is held in place. This lug b^6 prevents longitudinal movement of the thimble, and the L-slots serve to hold the plate F, in position and the latter aids in positioning the thimble. When the tool is to be used for operating nuts or augers or drill-bits, the thimble f' is removed and a sleeve G is substituted, said sleeve being held on the shaft B in the same manner as the thimble, the plate F not being removed. This sleeve is hollow and its outer widened end g has a square recess g' to accommodate a nut, while the outer end of the bore of this

sleeve is also square, as at g^2 , wherein is designed to fit the squared end of a bit.

When sleeve G is employed, it is necessary to retain plate F in the slotted end of shaft B in order to render said shaft solid and cause it to fill the tubular part of said sleeve. Otherwise the bifurcated end of the shaft might spring and become distorted under the excessive strains which the use of the wrench might occasion. The lugs on said plate serve to aid in retaining the same in position

In order to obtain an increased leverage for driving "home" or loosening a screw or nut, I employ an auxiliary arm H, having at its inner end two spaced-apart plates h , formed with openings to accommodate the shaft B. These plates h project from a barrel h' , into which screws a handle h^2 . Between these plates is a centrally-pivoted pawl I, similar to the pawl C, save that it has end projections i , by which the pawl can be turned on its pivot, according to the end thereof it is designed should engage the corrugations of the shaft. A spring-pressed pin i' , inclosed in barrel h' , bears at one end against this pawl. In practice when an increased leverage is desired, the auxiliary arm is slipped on the shaft B to a point near its lower end, and then by moving said arm back and forth great force of power is obtained. The back movement of this arm is easy, since the pawl in its reverse movement will slide over the corrugations, but in its positive action the flat side of the end of the pawl will bear firm against the side of one of the corrugations.

From what has been said it will be seen that I have provided an extremely simple combination-tool, that by means thereof a maximum power is obtained for forcing home or loosening a nut or screw, that the direction of operation is readily and easily changed, and that the handle being loose on the shaft the operator does not need to change his grasp thereof.

A tool constructed as herein described is extremely simple and inexpensive and not liable to readily get out of order.

I claim as my invention—

1. The combination with the shaft having corrugations and an inner reduced end provided with a groove, of a handle having a reduced end, a barrel secured on said reduced end and having an enlarged portion and provided with a bore to accommodate said shaft, a screw extending through said barrel and said handle and engaging said groove, said screw also serving to unite said handle and said barrel, a slot being formed in said barrel, a double pawl located in said slot and cen-

trally pivoted, a ring loosely mounted on said barrel and adapted to be rotated thereon, said ring having a hole therein, and a spring-pressed pin fitting said hole, substantially as set forth.

2. A combination-tool having a handle, an operating-shaft rotatably mounted at one end in said handle and slotted at its outer free end, a flat plate fitting in said slot and having opposite lugs projecting beyond the edges thereof, and a sleeve or thimble fitted on said slotted end and having opposite peripheral L-shaped slots through which said lugs are designed to project, substantially as set forth.

3. A combination-tool having an operating-shaft provided with a slotted reduced end, a lug extending from one side of said end, a flat plate fitted in the slot of said end and having opposite lateral lugs, and a sleeve or thimble provided with opposite L-slots, and a bayonet-slot to receive said lug, substantially as set forth.

4. A combination-tool having an operating-shaft provided with a slotted end and a lug, a plate fitted in said slot having lateral lugs, a sleeve having slots to accommodate said lugs and provided at its outer end with a recess and opening of different size, as set forth.

5. A combination-tool of the character herein described, having an operating-shaft provided with longitudinal corrugations, a handle loose on said shaft having a double pawl to engage said shaft, a ring loosely mounted on said handle, a pin carried thereby adapted to operate said pawl and an auxiliary arm fitted on said shaft having a double pawl also designed to engage said shaft, substantially as set forth.

6. The herein-described tool comprising the shaft having longitudinal corrugations and a reduced slotted end, a handle loose on the other end of said shaft having a slotted barrel, a double pawl centrally pivoted in said slot, a ring loose on said barrel having a spring-pressed pin engaging said pawl, a plate fitted in the slotted end of said shaft having opposite lugs, a sleeve or thimble on said shaft having slots to accommodate said lugs, and an auxiliary arm movable on said shaft having a double pawl designed to engage therewith, substantially as set forth.

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

OLIVER M. CHESNEY.

Witnesses:

FRED. S. STITT,
WM. S. HODGES.