(No Model.)

A. W. KLEINFELDT.

RATCHET WRENCH.

No. 538,525. Patented Apr. 30, 1895.

Fig. 1.

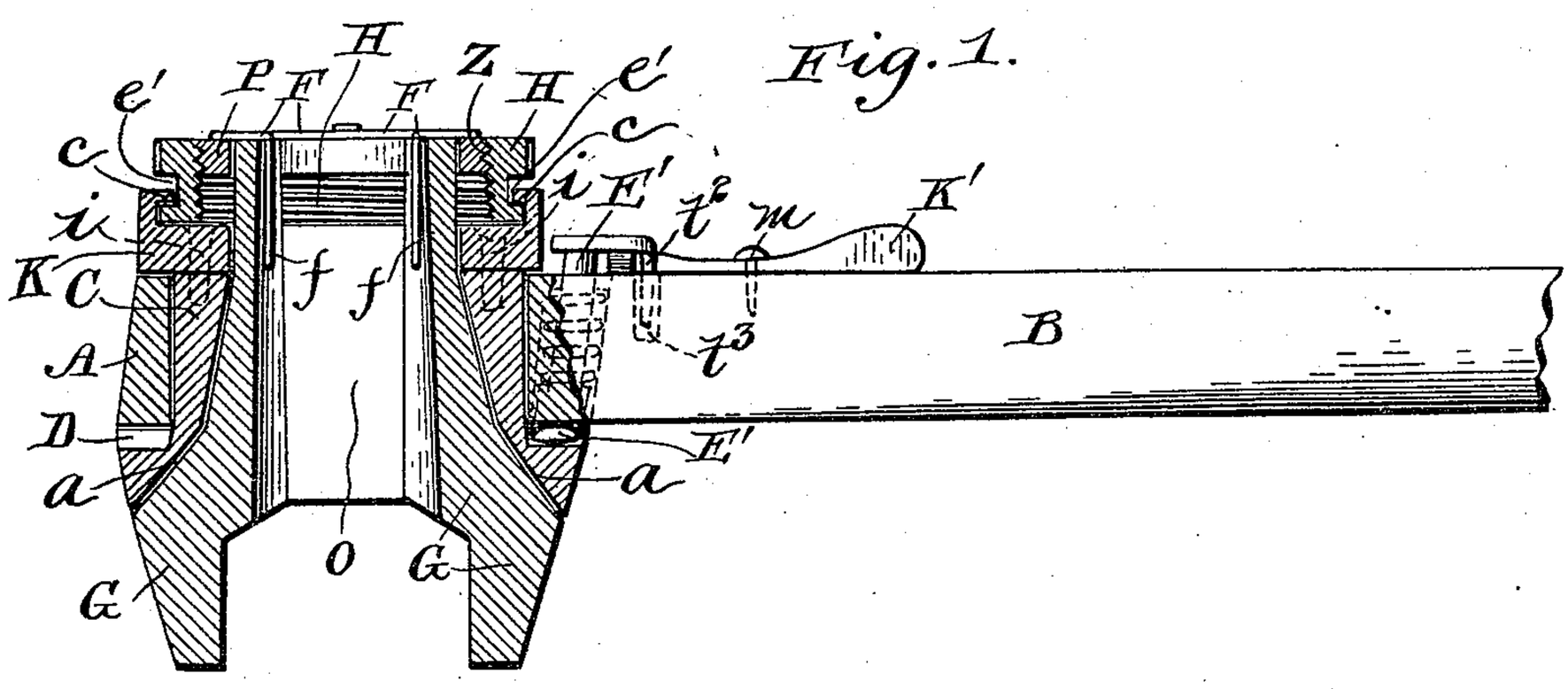


Fig. 2.

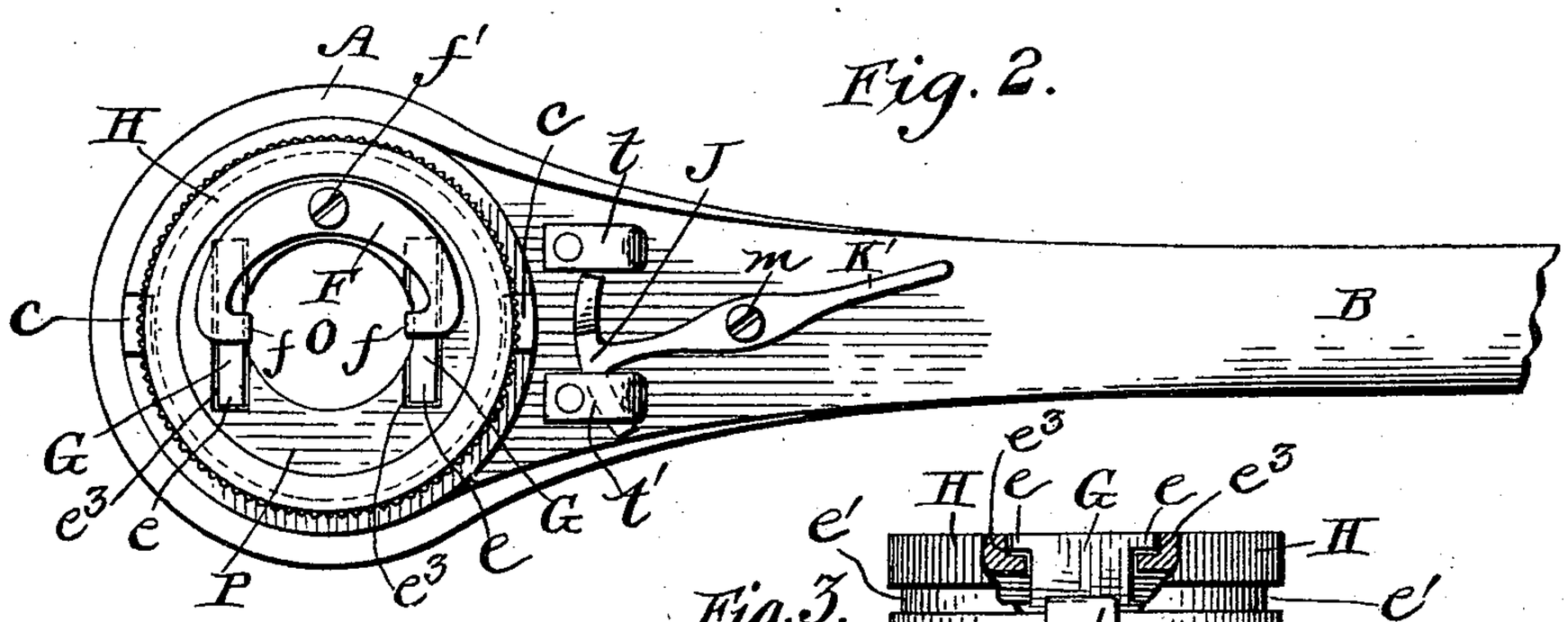


Fig. 4.

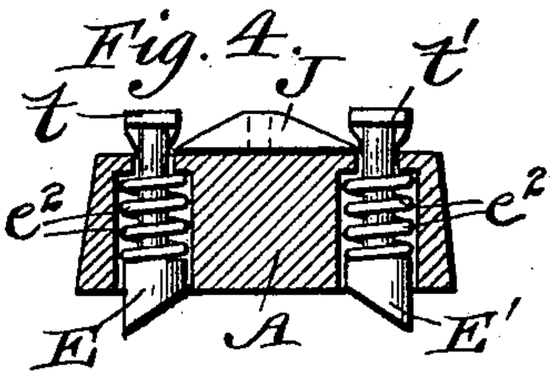
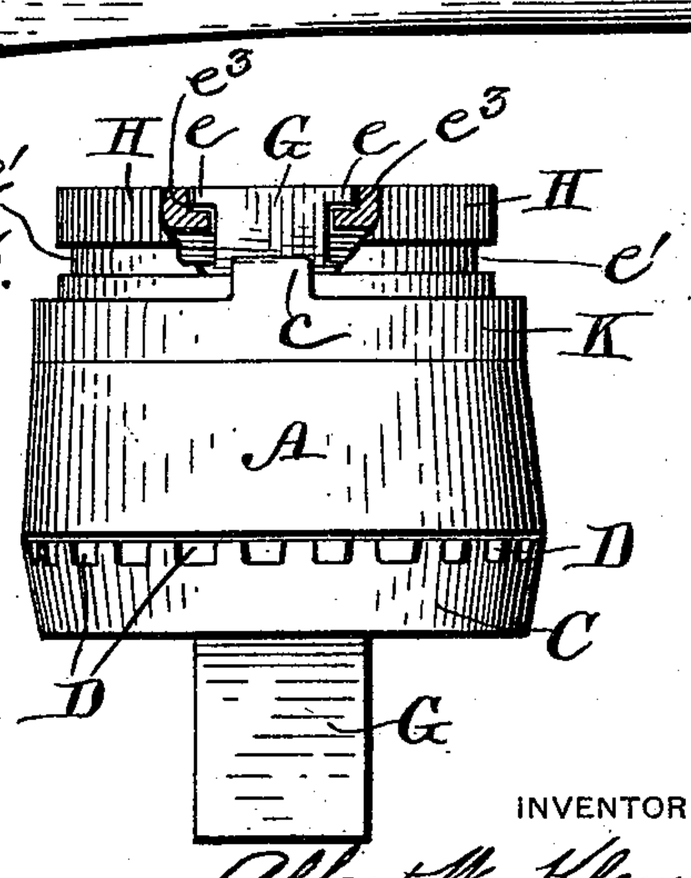


Fig. 3.



WITNESSES

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RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 538,525, dated April 30, 1895.

Application filed January 28, 1895. Serial No. 536,478. (No model.)

To all whom it may concern:

Be it known that I, ALBERT W. KLEINFELDT, a citizen of the United States, residing at Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Ratchet-Wrenches; 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in adjustable ratchet wrenches and has more particularly to do with such wrenches as are capable of operation in both directions, that is both to the right and left to turn a nut home upon its bolt.

The invention consists of the combination with a suitable handle, of a jaw holding portion loosely mounted in the same, and having ratchet connection therewith and provided with a central passage having inclined sides, nut engaging jaws in said central passage and having inclined sides engaging the inclined sides of the said passage and means for raising or lowering said jaws independently of said jaw holding portion.

It also consists of the combination with a suitable handle, of a jaw holding portion loosely mounted in the end of the same and provided with a central passage having inclined walls and with cog teeth, pawls mounted in said handle, means for drawing either one or the other of said pawls out of engagement with said cog teeth, nut engaging jaws having inclined sides engaging the inclined sides of said passage and means for moving said jaws along said inclined sides for adjusting the former in or out.

It also consists of certain other novel constructions, combinations and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a central vertical longitudinal section of my improved wrench, the handle of the same being shown in side elevation. Fig. 2 represents a top plan view of the same. Fig. 3 represents an end elevation of my said wrench partly broken away to show the pivotal mounting of the nut-holding jaws; and Fig. 4 represents a transverse section through the operating handle just in front of the spring-pressed pawls, the latter being shown in side elevation.

A in the drawings represents the head, and B the handle of the wrench. The head is provided with an interior revoluble jaw holder C which is provided with a central, vertical passage to receive the jaws G, G, and with inclines *a*, *a* on each side, up and down which the jaws slide for adjustment in and out. The jaw holder C extends outward below the head A and is provided upon the upper face of this extended portion with a series of cogs D, D, D which are engaged respectively by pin pawls E or E′ according to the direction in which the wrench is set to operate.

The pin pawls E, E′ are provided with oppositely beveled heads so that each pin will only engage the cogs D when revolving in one direction. The heads being beveled each upon the side opposite to the other are adapted to revolve the holder C in opposite directions. The pins are mounted in recesses in the under side of the handle and are pressed downward by coil springs e^2, e^2 which bear against the bottoms of said recesses and the heads of the pins. The pins are provided upon their upper projecting ends with plates *t*, *t′* respectively.

J is a switch block having oppositely beveled sides and operated by the thumb-lever K′ pivoted at *m*. By moving the lever K′ horizontally to the right or to the left, the block J is pressed beneath either one or the other of the plates *t* or *t′*, which are attached to the top of the pins E and E′, and thereby raises one of the pins from the cogs allowing only the other to operate when the wrench is used. Thus, if desired to revolve the wrench only to the right the thumb lever K′ should be moved to the right thereby moving the block J beneath the plate *t* and raising the pin E so that it will not operate. Then the pin E′ only engages the cogs D and revolves the jaw holder C to the right. By reversing the lever K′ the pin E is only made to operate.

Each of the plates *t*, *t′* is provided at its outer end with a downwardly projecting guid-

ing pin. These pins fit into recesses t^3 in the handle B and the pin pawls are thus prevented from turning out of their proper position in relation to the cog teeth they engage.

A central circular passage O extends between the jaws and entirely through the head of the wrench to accommodate the end of a bolt on which the nut is being secured. Each of the jaws G, G has its rear side inclined to correspond to the incline *a* against which it bears and said jaws are adjusted to fit nuts of different sizes by sliding them up or down the inclines *a*, *a*. This is accomplished by revolving an annular nut H which engages screw thread Z upon the periphery of an annular ring P. The jaws G, G are pivoted to the ring P at the top as shown in Fig. 3, by projections *e*, *e* which rest in recesses e^3, e^3 provided in the upper surface of the ring, and as the nut H is revolved to the right or left the ring P and the jaws G, G carried thereby are raised or lowered up or down the inclines *a*, *a*, to close or open the jaws as may be desired. An annular ring K is attached to the jaw holder C by the screws *i*, *i* and revolves therewith and is provided with overhanging inwardly turned flanges *c*, *c* integral therewith and adapted to engage and travel in the groove *e'* in the ring H when it is revolved and prevent it from rising or lowering upon the screw threads Z, the ring P being the one which rises and falls to raise and lower the jaws G, G for adjustment to the desired size of nut. A spring F having arms *f*, *f* extending downward within the opening O to spread the jaws G, G is retained in position on the top of the ring P by a securing screw *f'*.

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

1. In a ratchet wrench the combination of a suitable handle having an annular head, a jaw holding portion movably mounted in the same and having ratchet connection therewith, nut holding jaws mounted in said jaw holding portion so as to turn therewith, an annular screw threaded ring to which the jaws are suitably connected, a screw threaded nut engaging the said ring to raise or lower the same, and means connecting said nut and the jaw holding portion so that it cannot move away from the latter, substantially as described.

2. In a ratchet wrench the combination of a suitable handle, having an annular head, a jaw holding portion movably mounted in said head but having ratchet connection therewith and provided with a central passage having inclined walls, nut holding jaws having inclined sides engaging the walls of said passage, an annular screw threaded ring to which the jaws are pivotally connected, an annular screw threaded nut engaging the said ring to raise and lower the same and means for allowing a rotary, but preventing a vertical movement of said nut, substantially as described.

3. In a ratchet wrench, the combination of a suitable handle having an annular head, a jaw holding portion movably mounted in said head and having a projecting flange below the same, cog teeth on said flange, spring pressed pawls mounted in said head so as to engage said cog teeth, a reversely inclined, pivoted wedge adapted to raise either one or the other of said pawls out of engagement with the cog teeth, nut holding jaws having inclined sides and mounted in said jaw holding portion and means for raising and lowering said jaws to move them in and out, substantially as described.

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

ALBERT W. KLEINFELDT.

Witnesses:
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CHARLES J. SCHMITT.