J. M. KEARNES.

WRENCH.

APPLICATION FILED SEPT. 23, 1908.

915,446. Patented Mar. 16, 1909.

Fig 1.

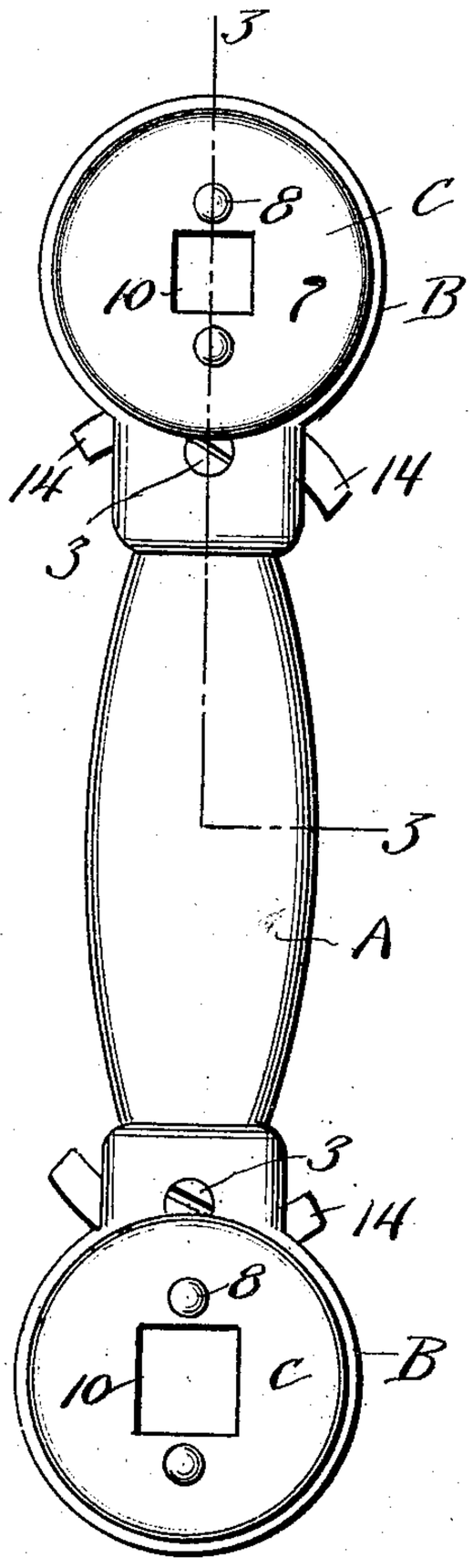


Fig 2.

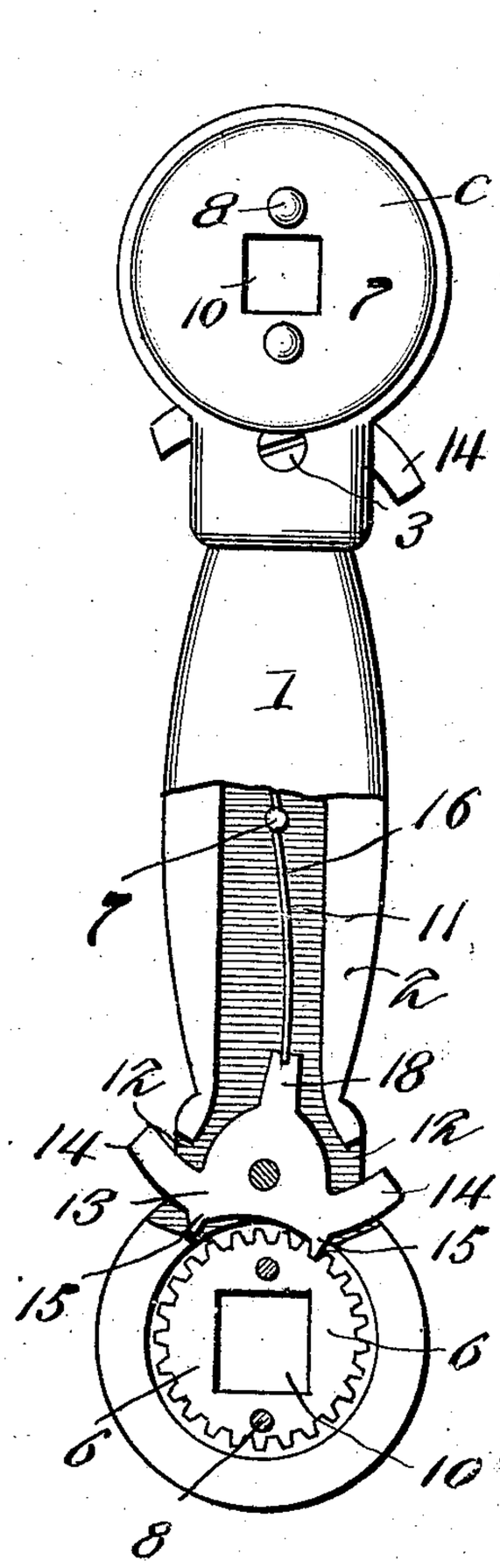
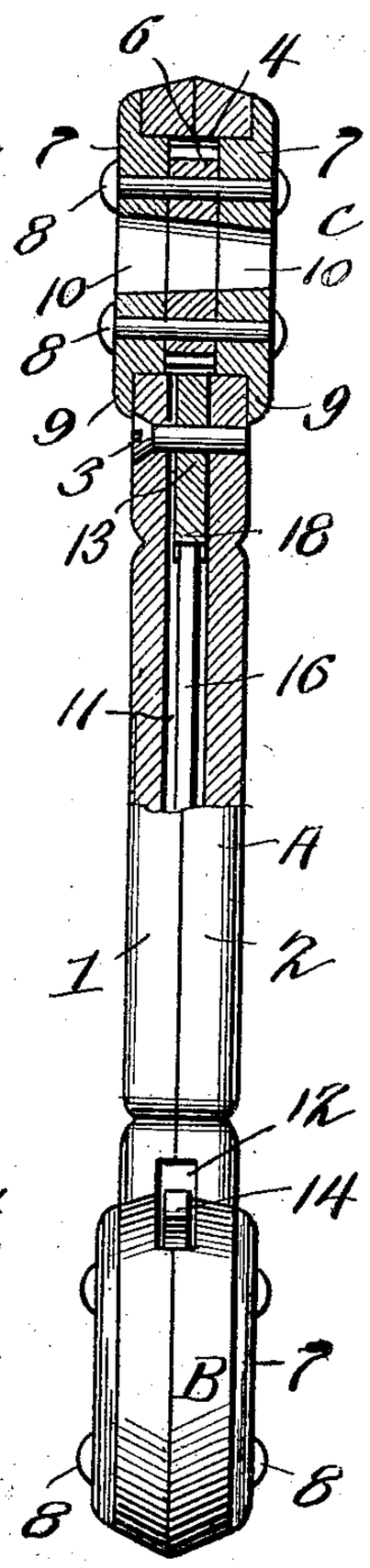


Fig 3.



Witnesses

Hugh H. Ott

C. Bradway.

Inventor

Joseph M. Kearnes

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

JOSEPH M. KEARNES, OF ESTO, KENTUCKY.

WRENCH.

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Application filed September 23, 1908. Serial No. 454,482.

To all whom it may concern:

Be it known that I, JOSEPH M. KEARNES, a citizen of the United States, residing at Esto, in the county of Russell and State of Kentucky, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to a wrench of the ratchet type including a plurality of nut-engaging rotary elements mounted on a common handle and adapted to fit nuts of different sizes.

The invention has for one of its objects to improve and simplify the construction and operation of wrenches of this character so as to be comparatively simple and inexpensive to manufacture and readily adjusted for removing or applying a nut.

Another object of the invention is the employment of a plurality of ratchet wheels and pawls therefor with a common spring acting on the pawls for holding them in engaging position with respect to the ratchet wheels.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the appended claims.

In the accompanying drawing, which illustrates one of the embodiments of the invention:—Figure 1 is a plan view of the wrench. Fig. 2 is a similar view, showing a portion of the shank broken away and one head being removed. Fig. 3 is a side view, showing the portions in section on the line 3—3 of Fig. 1.

Similar reference characters are employed to designate like parts in the several figures.

Referring to the drawings, 1 designates the handle of the wrench which is formed with flat circular heads B. The handle is split longitudinally to form two sections 1 and 2 and the heads are each formed half on one section and half on the other and the two sections are secured together by screws or equivalent fastenings 3. The heads are formed with circular chambers 4 in which are rotatably mounted the ratchet elements C. Each element consists of a toothed wheel 6 and top and bottom disks 7 disposed at opposite sides of the wheel and secured thereto by rivets or other fastenings 8, the disks having annular flanges 9 which engage over the top and bottom faces of the heads so as to hold the ratchet elements in place for rotation in the chambers 4 of the heads. The disks 7 have non-circular openings 10 of different sizes for receiving nuts or heads of bolts as will be readily understood. The handle 1 is provided with a longitudinally extending chamber 11 which opens into the chamber 4 of the heads and the chamber 11 is also provided with side openings 12 located immediately between the heads and extremities of the handle.

Arranged in the handle are oscillatory ratchet devices or pawls 13 each mounted on a screw 3 as a pivot and the pawls having lugs 14 that extend outwardly through the openings 12 so that the pawls can be set for movement of the wrench in either direction. The pawls are each provided with a pair of teeth or projections 15 either of which is adapted to engage the teeth of an adjacent wheel 6.

The pawls are held in set position by a leaf spring 16 which is fastened to a post 17 arranged centrally in the handle A and the extremities of the spring enter notched lugs 18 extending inwardly from the pawls 13.

In practice it is first necessary to select the proper head that will fit the nut or bolt to be screwed or unscrewed and the nut or bolt is inserted in the opening in the head. The pawl 13 is then set to engage the wheel so that the wrench can be turned back and forth to impart rotation to the nut. In moving the wrench in one direction the pawl will lock with the ratchet element and turn the nut while movement in the reverse direction will cause the pawl to slide free over the teeth of the ratchet element until the next bite is taken. In this manner the nut can be applied or removed by a back and forth movement of the wrench.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and

that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what is claimed, is:—

1. A wrench comprising a handle composed of two sections divisible longitudinally and formed with a longitudinally extending chamber having side openings at the ends thereof, annular heads on the ends of the handle and divisible with the sections thereof, rotary ratchet elements mounted in the heads and each consisting of a central toothed wheel, and disks disposed at opposite sides thereof and provided with flanges engaging the opposite sides of the head, pawls pivoted in the chamber of the handle at the opposite ends thereof and arranged to engage the toothed wheels of the elements, lugs on the pawls at opposite points and both extending outward the openings of the chamber, a spring disposed within the handle and arranged with its ends secured to both pawls, and means for holding and rigidly securing the middle portion of the spring to the handle, either half of the spring being capable of bowing to either side of a line passing from the pivot of one pawl to the other for holding each pawl in either of its set positions.

2. A wrench comprising a handle composed of two sections, an annular head secured to the handle and divisible in the same plane as the parts of the handle, said handle having a longitudinal chamber provided with openings adjacent the head, a ratchet element rotatably mounted in the head and consisting of a central toothed wheel and disks disposed at opposite sides of the wheel and of larger diameter than the latter and provided with peripheral flanges engaging opposite sides of the head, fastenings for securing the parts of the element together, a fastening for securing the two parts of the handle and head together and preventing them from separating, a double pawl mounted on the last-mentioned fastening for pivotal movement and provided with oppositely extending lugs projecting out of the openings in the handle, and a leaf spring fastened within the handle and having its free end connected with the pawl for holding the latter in a set position, one of the flanges of the ratchet element being disposed over the last-mentioned fastening for preventing the latter from loosening.

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

JOSEPH M. KEARNES.

Witnesses:
S. B. Collins,
N. A. Whittle.