

T.A. Weston
Ratchet Brace

No. 75091

Patented Mar 3. 1868

Fig: 1.

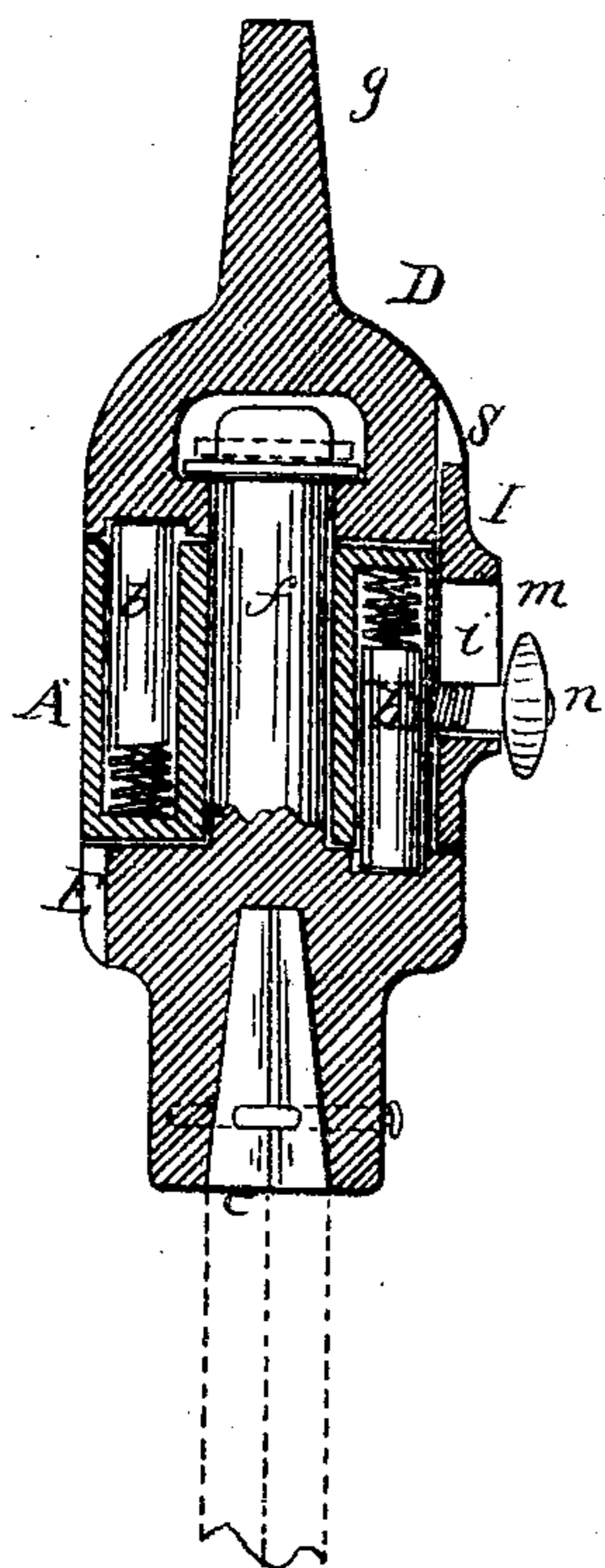


Fig: 3.

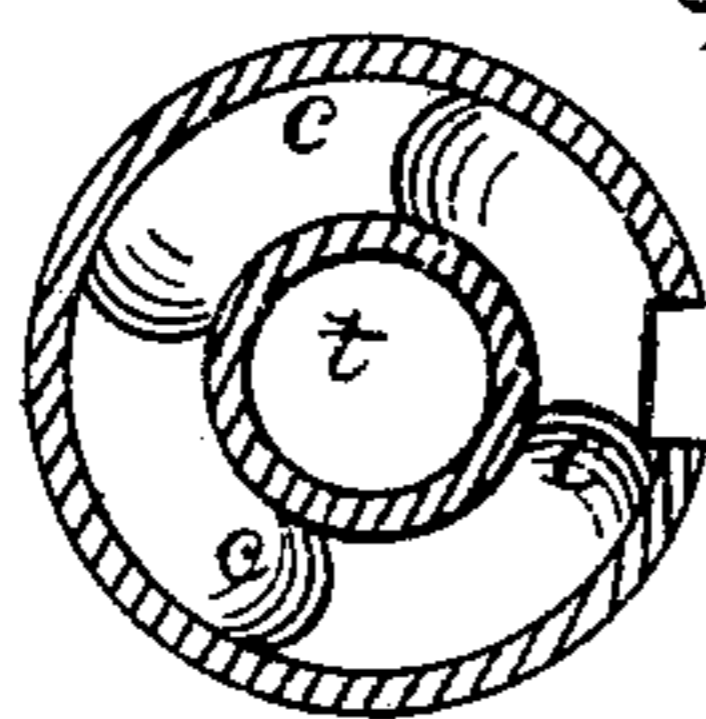


Fig: 4.

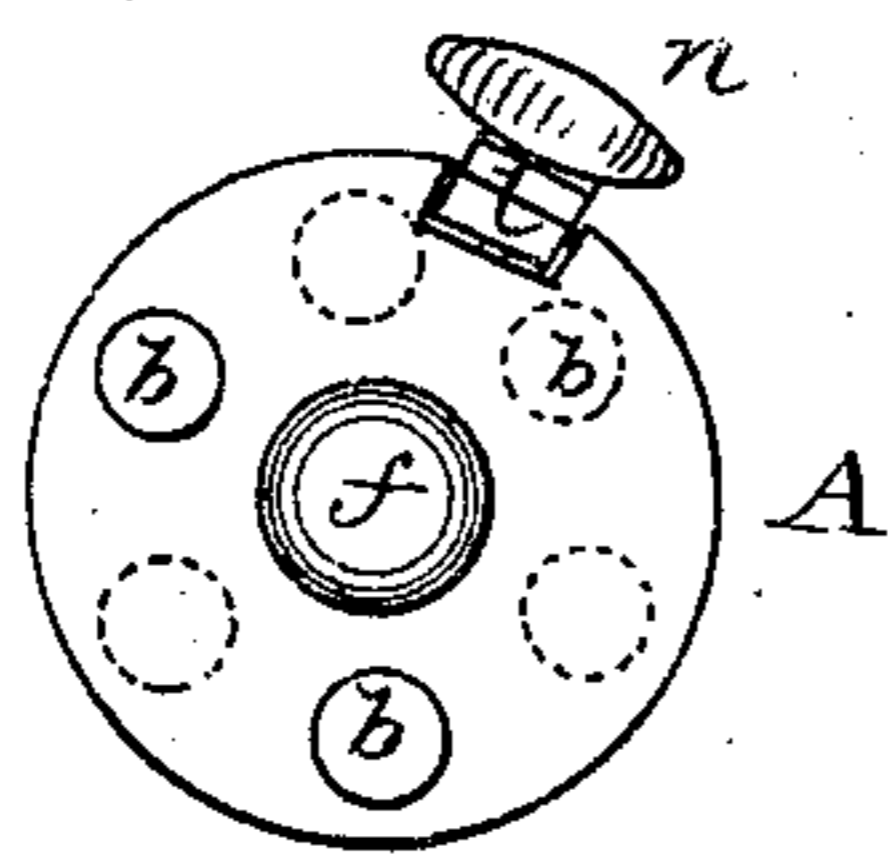
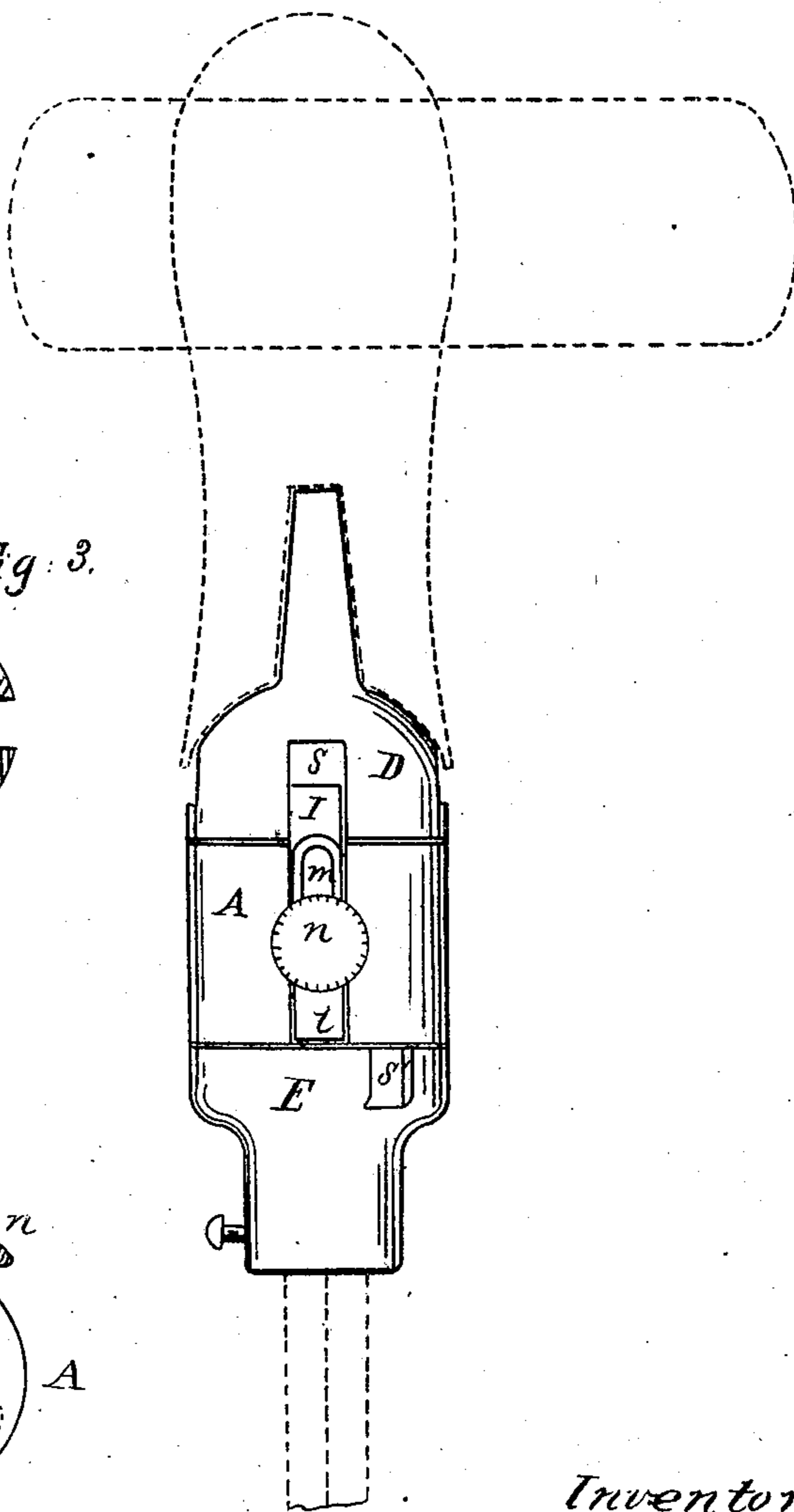


Fig: 2.



Witnesses:

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by
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United States Patent Office.

T. A. WESTON, OF BUFFALO, NEW YORK.

Letters Patent No. 75,091, dated March 8, 1868.

IMPROVEMENT IN RATCHET-BRACE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, T. A. WESTON, of the city of Buffalo, in the county of Erie, and State of New York, have invented a new and improved Right and Left-Hand Ratchet-Brace; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section of my improvement.

Figure 2 is an elevation.

Figure 3 is a plan of the inner end of the upper crown ratchet-head.

Figure 4, a plan of the upper end of the pawl-barrel.

Like letters of reference designate corresponding parts in all the figures.

This invention consists in the construction and arrangement of the parts of my improved instrument, by which it may be used as a right or a left-hand brace, as required.

I construct my improved ratchet-brace as follows: A is a pawl-barrel, or short cylinder having a series of pawls, *b b*, sliding in an axial direction, and equidistant from each other, working outward from one end of the said pawl-barrel, and a similar series of pawls, *b' b'*, working outward from its other end. In connection with these two sets of pawls are two crown ratchet-heads or wheels, D E, having respectively right and left-hand teeth, *c c*, *c' c'*. The head E has a nozzle or tool-socket, *e*, on the outside, and on its inside, projecting from the toothed face, a central shank or spindle, *f*, passing upward through a central hole or bearing bored for it in the pawl-barrel, on which the latter turns. The head D has, outside, a shank, *g*, to enter or engage with the bit-socket of a carpenter's brace, or with a handle, as shown in red lines, fig. 2, and it has a hole, *t*, bored centrally in its inner face, to receive the spindle *f* of the other ratchet-head, which is secured therein by a washer and pin, *h*, fig. 1. The pawls *b b'* have small springs, *i*, at their rear, forcing them outward against their respective ratchet-teeth. I is a dog or sliding bolt, provided with a slot, *m*, and thumb-screw, *n*, or equivalent, by which either ratchet-head is locked firmly to the pawl-barrel, according as the dog is slid in one or the other of the grooves *s s*, leaving the other ratchet-head free from action with its corresponding series of pawls. Each ratchet-head has one tooth more in number than the number of the engaging-pawls. In the drawings are shown four teeth, *c c'*, in each ratchet-head, and three pawls to act thereon, giving twelve stops or engagements in a revolution. Other numbers may be used: thus, four pawls and five teeth, giving twenty stops, &c., in each case keeping a difference of one between the respective numbers of the ratchet-teeth and of the series of pawls acting thereupon.

Having placed a drill, bit or other tool in the nozzle *e*, a right-hand motion is given thereto by locking the ratchet-head E to the pawl-barrel, leaving the head D and its series of pawls to turn free, the operator giving, by his hand, the usual intermittent and partially rotary motion applied to all ratchet-braces. A left-hand rotary action is given to the apparatus by simply changing the position of the locking-device from E to D.

The advantages of this construction of braces are as follows:

First. The two ratchet-heads, with the intermediate pawl-barrel and the shifting lock, insure both a right and left motion at pleasure, by simply sliding the lock up or down, and the form of the ratchet is such as produces the most effective use, being far preferable to any device in which the right and left motion is alternated by throwing a pawl out and another in gear. It will be noticed that the pawls *b b'* are always free in their action, whichever way the ratchet turns. Indeed, this is necessary to gear the parts together.

Second. This arrangement is such as to embody the differential principle of the pawls and teeth to be substituted where a large number of fine teeth are used, by which the disadvantages of fine teeth (viz, great wear and want of strength) are obviated.

Third. The construction is simple, and the form such that the device may be applied and worked by a vibratory or partial rotary motion where there is insufficient space for an entire revolution.

Fourth. It forms a convenient tool for the hand.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of two ratchet-heads D E, an intermediate pawl-barrel, A, and the locking-device, which may shift from one head to the other to engage and disengage the said heads, substantially as set forth.

2. The combination of the shifting slide I and tightening-screw *n*, or equivalent, with the ratchet-heads D E, and pawl-barrel A, substantially as herein set forth.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

T. A. WESTON.

Witnesses:

JAY HYATT,

ALBERT HAIGHT.