(No Model.)

# L. C. BOLEN.

## RATCHET BIT BRACE.

No. 360,650. Patented Apr. 5, 1887.

Fig 1

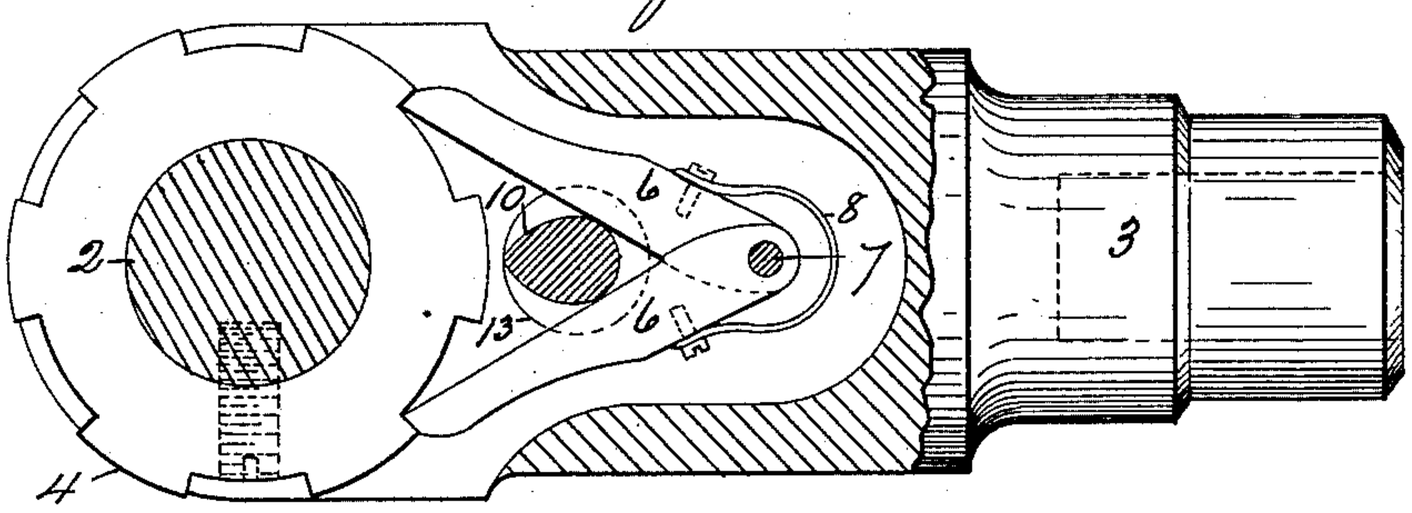


Fig 2

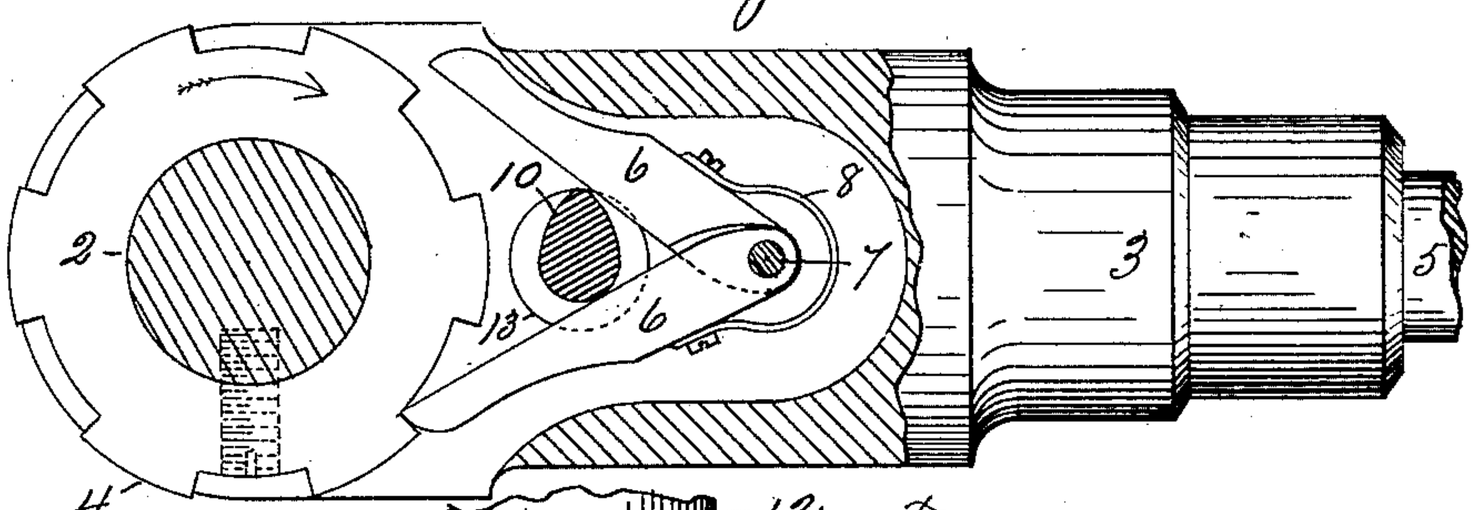


Fig 3

Witnesses
Wm H Chapin
G. M. Chamberlain.

Inventor.
Lawrence C Bolen
By Chapin & Co
Attys

# UNITED STATES PATENT OFFICE.

LAWRENCE C. BOLEN, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO LEONARD L. DAVIS, OF SAME PLACE.

## RATCHET BIT-BRACE.

SPECIFICATION forming part of Letters Patent No. 360,650, dated April 5, 1887.

Application filed August 4, 1886. Serial No. 209,986. (No model.)

*To all whom it may concern:*

Be it known that I, LAWRENCE C. BOLEN, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Ratchet Bit-Braces, of which the following is a specification.

This invention relates to improvements in ratchet bit-braces; and the invention consists in the peculiar construction and arrangement of the parts of the device, as hereinafter fully described, and pointed out in the claims.

In the drawings forming part of this specification, Figures 1 and 2 are top plan views, partly in section, of the parts of a bit-brace at the junction of the handle and the bit-holding stock embodying my improvements, Fig. 1 showing the pawls and their controlling mechanism in one position, and Fig. 2 showing said parts in another position, as hereinafter fully described. Fig. 3 is a side elevation, partly in section.

This invention is in the nature of an improvement on the devices shown in Patent No. 342,727, dated May 25, 1886, the object being to simplify the construction shown in said patent without impairing the efficiency of the bit-brace.

In the drawings, 2 is the upper portion of the stock in which the bit is secured, the lower portion being shown broken off in the drawings. The within-described invention relates, essentially, to improvements in the pawl devices which operate in conjunction with a ratchet secured to the upper end of said stock 2, said pawl devices being located in that part of the bit-brace immediately connected to the stock, and adapted to be engaged with and disengaged from said ratchet. The upper end of the stock 2 is made of suitable size to pass through a perforation made through the bifurcated end of the brace or handle 3, and a ratchet-wheel, 4, is secured on the stock by a screw or other suitable means, as shown, between the opposite parts of the bifurcated end of the brace, whereby the latter is secured on the stock, and is capable of being rotated thereon in the usual way. The brace 3 has a socket in its end, as indicated in Fig. 1 by dotted lines, to receive the end of the usual bent portion thereof, 5.

Figs. 1 and 2 illustrate the interior part of the brace 3, adjoining the stock 2 about on line *x x*, Fig. 3.

In the recess between the bifurcated parts of the end of the brace 3, back of the ratchet 4, are located two pawls, 6, pivoted together and to the brace by a pin or screw, 7, and a flat spring, 8, having one end thereof secured to each of said pawls, which serves to swing the ends of the latter toward the ratchet 4. A pawl-actuating stud, 9, is placed in the brace 3 between said two pawls, the lower end of its shank entering a socket beneath the latter, as shown in Fig. 3, and said lower end of the stud-shank is connected with that part of the stud above the pawls by a cam-shaped extension (in cross-section) or neck, 10, which, by the location of said stud, is brought immediately between the inner opposite sides of the two pawls 6. Said stud is capable of a rotary motion by means of a finger-piece, 12, on its outer end, (shown partly broken off in Fig. 3,) whereby the edge of said neck 10 may be swung alternately against either one of the pawls to disengage them from or to permit them to engage with the ratchet 4, as indicated in Fig. 2; or said stud may be turned to bring its cam-shaped neck to the position shown in Fig. 1, whereby both pawls are permitted to swing into engagement with said ratchet. The construction of the stud 9, whereby the said cam-shaped neck is formed thereon, results in producing a head or collar, 13, thereon at its lower end, and when the parts are in operative position the said collar rests in the said socket in the brace beneath the two pawls, and the latter are held normally in such position by the pin 7 that they swing over the sides of said head, one or both of them always being above the head, thereby holding the stud in the position in the brace which is shown in Fig. 3. When the stud is put into or taken out from the brace, it is necessary to remove the screw 7 and slide the pawls rearwardly away from the ratchet, thereby disengaging them from the head on the stud. When the stud 9 is turned to the position shown in Fig. 2, thereby throwing the pawl there shown away from the ratchet, the latter and the stock 2 may be rotated by the brace in the direction indicated by the arrow in said figure, and when the stud is turned to throw the opposite pawl away from the ratchet, letting the other pawl en-

gage therewith, said stock may be rotated in the opposite direction; but when the stud is turned to the position shown in Fig. 1 both pawls are brought into engagement with the ratchet, and the latter and the stock may be rotated by the brace in either direction. It is doubtless understood that when one only of either of the pawls is in engagement with the ratchet the latter may be rotated intermittently or continuously.

What I claim as my invention is—

1. In combination, the stock 2, having the ratchet-wheel 4 secured thereon, the brace 3, rotatably attached to said stock, two pawls pivotally attached to said brace to one side of said ratchet-wheel, capable of a vibratory motion toward and from the latter, and a rotating stud, 9, located between said pawls, having a cam shaped neck for engagement therewith, whereby they are vibrated, and a head engaging under said pawls, substantially as set forth.

2. In combination, the stock 2, having the ratchet-wheel 4 secured thereon, the brace 3, rotatably attached to said stock, two pawls pivotally attached to said brace to one side of said ratchet-wheel, capable of a vibratory motion toward and from the latter, united by a spring, and a rotating stud, 9, located between said pawls, having a cam-shaped neck for engagement therewith, whereby they are vibrated, and a head engaging under said pawls, substantially as set forth.

LAWRENCE C. BOLEN.

Witnesses:
G. M. CHAMBERLAIN,
H. A. CHAPIN.