

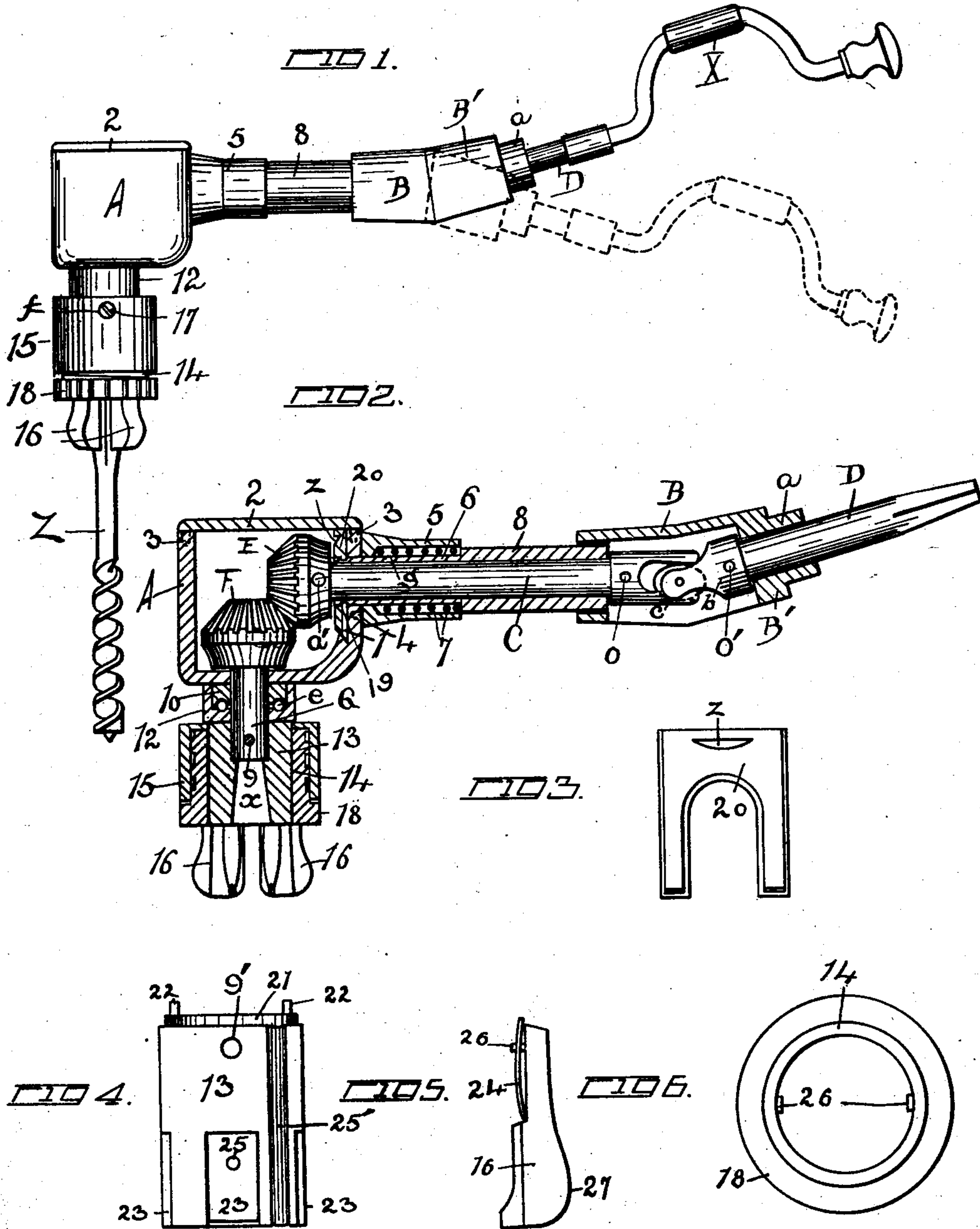
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PATENTED MAR. 22, 1904.

D. E. TRUMBULL.
BIT STOCK.

APPLICATION FILED JULY 21, 1902.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

DRAYTON E. TRUMBULL, OF FREMONT, NEBRASKA.

BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 755,078, dated March 22, 1904.

Application filed July 21, 1902. Serial No. 116,473. (No model.)

To all whom it may concern:

Be it known that I, DRAYTON E. TRUMBULL, residing at Fremont, in the county of Dodge and State of Nebraska, have invented certain
5 useful Improvements in Bit-Stocks; and I do hereby declare that the following is 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,
10 reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a new and useful improvement in bit-stocks.

15 The object of my invention is to provide a bit-stock so constructed that the operator may be able to drill a hole in a corner either upward or downward or sidewise without using a ratchet, the bit-holding end of the stock being so arranged that it may be placed at any
20 suitable angle in relation to the brace proper.

In the accompanying drawings I have shown in Figure 1 a bit-stock in connection with an ordinary brace. Fig. 2 shows a sectional view
25 of my bit-stock. Fig. 3 shows a front view of the striding plate used in my invention. Fig. 4 shows a detail of the jaw as used in my invention. Fig. 5 shows a detail of one of the jaws and the spring operating against the
30 same, while Fig. 6 shows a top view of the exteriorly-threaded sleeve as used in my invention.

My invention embodies, essentially, a housing A, which is perforated upon the bottom
35 and one side and is provided with a removable top 2, which is provided with suitable pins 3, (shown in dotted lines in Fig. 2,) which pins work into suitable seatings, so that this top 2 may be removed, if desired. Upon the in-
40 terior and at the sides adjacent the point where the housing is perforated are provided the ribs 1. Upon each side and within these ribs 1 is held a striding fork-shaped plate or member 20, a detail of this plate being shown
45 in Fig. 3. This plate is provided with the notch *z*, as is shown in Fig. 2, so that the same may be removed.

Passing through the bottom of the housing A is a shaft G, which within the housing is

provided with the bevel-pinion F. Positioned 50 adjacent the housing below is the ball-race 10, within which is held a plurality of anti-friction-balls *e*, and these are in turn secured from below by means of the cup-shaped ball-race 12, so that the balls *e* are held between 55 the members 10 and 12.

Secured to the lower end of the shaft G is the central stock 13, a detail of which is shown in Fig. 4. This stock is provided with the narrow upper portion 21, the upwardly-pro- 60 jecting pins 22, and interiorly with a cylindrical seating adapted to receive the lower end of the shaft G, as is shown in Fig. 2, and a square seating *x*, adapted to receive the square end of the bit. At four points this 65 cylindrical stock is provided with square seatings 23, within each seating being held a spring 24, adapted to curve outward. In Fig. 5 a detail of one of these springs is shown. With-
70 in each seating 23 is a cylindrical opening 25, into which extends a pin 26, forming part of the jaws 16, so that these jaws 16 are normally forced outward below by means of the springs 24. These jaws, it will be noticed, curve slightly outward, as is shown at 27 in Fig. 5. 75 The ball-race member 12 described is provided at suitable points with two seatings, into which fit the pins 22 of the stock 13, so that this stock is secured to the lower ball-race member 12. This stock, further, at two points 80 is provided with two grooves 25, one of which is shown in Fig. 4, which extend the full length of the stock vertically. Working upon this stock 13 is a sleeve 14, exteriorly threaded and provided below with a milled flange 18, so 85 that this exteriorly-threaded sleeve 14 may be easily grasped. At a suitable point upon the inside this exteriorly-threaded sleeve 14 is provided with two vertical inwardly-extending ribs 26, which ribs are adapted to work into 90 the grooves 25, so that the stock 13 may slide up and down within the sleeve 14, which is not permitted any rotary movement therein. The lower end of this exteriorly-threaded sleeve 14 is adapted to work over and press 95 upon or rub upon the jaws 16 used in this bit-stock, there being four such jaws used, as is shown in Fig. 1. Threading upon this ex-

teriorly-threaded sleeve 14 is a collar 15, this collar being adapted to thread upward and downward upon the sleeve 14.

The shaft G, described as being provided with the bevel-pinion F, is provided with a threaded opening into which is adapted to thread the stem 9 of a suitable screw, the head of which passes through the stock 13, so that this stock 13 may be securely fastened to the shaft G, so that said stock forms a lower termination of said shaft. The outer collar 15 is provided with an opening, so that the head 17 of the screw 9 may pass through the same. In Fig. 1 the collar 15 has been so turned that the opening *f* shows the screw-head 17 within the stock 13. Now as the stock 13 and the jaws 16 are stationary, being secured to the shaft G to permit a rotary movement, in order to secure a bit, as Z, within it is simply necessary for the operator to grasp the collar 15 and turn the exteriorly-threaded sleeve 14 by means of two milled flanges 18 to feed this threaded sleeve 14 downward out of the collar 15, so that the jaws 16 are forced inward against the springs 24, until finally the jaws securely clamp the bit, as is shown in Fig. 1.

Extending laterally from the housing A and through the same is the shaft C, which interiorly is provided with the bevel-pinion E, meshing with the pinion F. This shaft C is provided with the head *c*, so that the same may be secured by means of a universal joint to the head *b* of the bit-shaft D, adapted to receive a suitable brace X, as is shown in Fig. 1, so that these shafts C and D are secured one to the other by means of a universal joint of any suitable construction. In order to support the first member C of this articulated shaft, I provide the sleeve 8, which has a reduced forward portion, as is shown at *g*, provided with the groove 19 and the striding plate 20, which is adapted to work into this groove 19, so that the sleeve 8 is removably secured to the housing A, the pinion E being secured to the shaft by means of the pin *a'*, so that in order to remove the shaft C from the housing the pin *a'* must be removed. The sleeve 8 is provided with an angular housing comprising the parts B and B', the first portion, B, being secured to the sleeve 8 and the portion B' being provided with a boss *a*, as shown, and within this sleeve 8 and boss *a* are held the shafts C and D.

In order to insert the shafts C and D within the housing, the universal heads *c* and *b* are removably secured to their respective shafts by means of the pins O O', as shown. In order to remove these shafts C and D from the two-part angular housing B and B', it is simply necessary to remove the pins O and O' and draw out the shafts C and D.

Working upon the reduced portion of the sleeve 8 is a coil-spring 7, which works against

the shoulder of the portion 8 to force the same forward, while at its remaining end the spring works against the inner portion of an adjustable boss 5, (shown in Fig. 1,) which is suitably secured to the housing A. To prevent this boss from turning, the reduced portion 6 of the sleeve 8 is grooved at a suitable point, while the adjustable boss is provided with a pin which works into said grooves, so that the boss can be slid backward and forward upon the sleeve 8, but cannot be turned. From this it will be seen that the sleeve 8 by means of the striding plate 20 is adjustably secured to the housing A. The striding plate 20 would simply hold the sleeve 8 in such a manner that the sleeve would freely revolve within this plate, and this would be objectionable, and in order to hold the sleeve 8 the adjustable boss 5 is used, which secures the sleeve 8 to the housing. In one position the boss 5 would hold the sleeve 8 in such a way that the shaft D would extend upward, while to draw out the boss 5 against the spring 7 and again insert the same within the openings the shaft D would be so held as to extend downward, as is disclosed in dotted lines in Fig. 1, so that from this it will be noticed that the shaft D can be given any suitable position by simply changing the boss 5, which is adjustably secured to the housing A by means of one or more pins which fit into a number of openings within the housing A, so that the sleeve 8 may be revolvably and adjustably secured to the housing A.

In using the bit Z, for instance, the operator would put the brace against his body in the usual way, place one hand upon the brace to rotate the same, while the other hand would be placed upon the top 2 of the housing A to press the bit Z downward, and this would be down in pressing the housing A upon the ball-race 12, so that the friction would be reduced to a minimum, it being of course understood that the lower ball-race 12 revolves with the stock 13, as has been described. This construction enables the operator conveniently drilling holes in corners, as the brace-bit may be below the side or above the top of the housing A, as the conditions may require.

These bit-stocks are made in suitable sizes.

Having thus described my said invention, what I claim as new, and desire to secure by United States Letters Patent, is—

1. The combination with a suitable housing, of a shaft extending from said housing, a pinion-wheel secured to said shaft, a drill or bit chuck secured to the lower end of said shaft, an articulated shaft extending from said housing, a pinion secured to said articulated shaft meshing with said first-mentioned pinion, a sleeve holding said articulated shaft, and an adjustable boss holding said sleeve, being adjustably secured to said housing.

2. The combination with a suitable housing,

of a shaft extending from said housing, a pinion secured to said shaft at one end, a chuck secured to said shaft at the remaining end, an articulated shaft extending from said housing, 5 a pinion secured to said articulated shaft meshing with aforesaid pinion, a collar working about the first member of said articulated shaft, a boss adjustably secured to said collar and to aforesaid housing, an angular housing 10 secured to said collar, the remaining end of said articulated shaft extending through said housing at an angle to the first member of said shaft, as and for the purpose set forth.

3. The combination with a suitable housing, 15 of a pinion within said housing, a shaft extending from said pinion, a chuck secured to said shaft, a second pinion within said housing meshing with aforesaid pinion, a shaft secured to said second pinion, a sleeve secured to said 20 shaft, a boss working upon said sleeve, said boss being adjustably secured to said housing, a universal joint secured to said shaft and a second shaft extending from said joint, and an angular housing secured to said sleeve and

containing the last-mentioned shaft, as and for 25 the purpose set forth.

4. The combination with a suitable housing, of the pinion within said housing, a shaft extending from said pinion, a chuck secured to said shaft, a second pinion meshing with afore- 30 said pinion, a shaft extending from said second pinion, a sleeve supporting said last-mentioned shaft, a boss working upon said sleeve and being adjustably secured to aforesaid housing, a spring interposed between said boss 35 and sleeve to force said boss into engagement with said housing, an angular housing secured to said sleeve, a universal joint within said angular housing and secured to said last-mentioned shaft, and a second shaft extending from 40 said universal joint, all arranged as and for the purpose set forth.

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

DRAYTON E. TRUMBULL.

Witnesses:

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HERBERT G. SOMERS.