

No. 656,357.

Patented Aug. 21, 1900.

L. F. KRAMER.  
CHUCK FOR BIT BRACES.

(Application filed June 13, 1900.)

(No Model.)

Fig. 1.

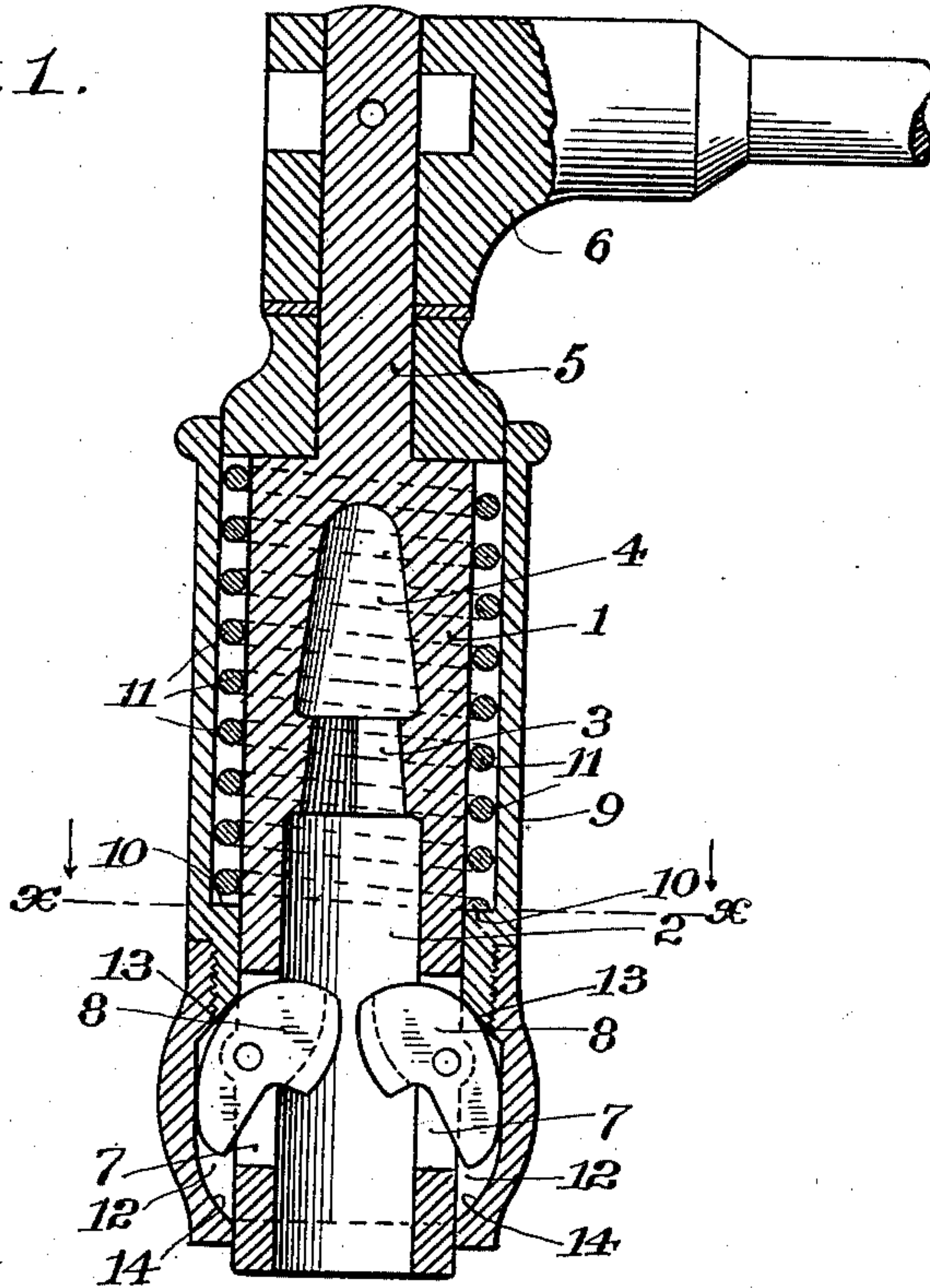


Fig. 2.

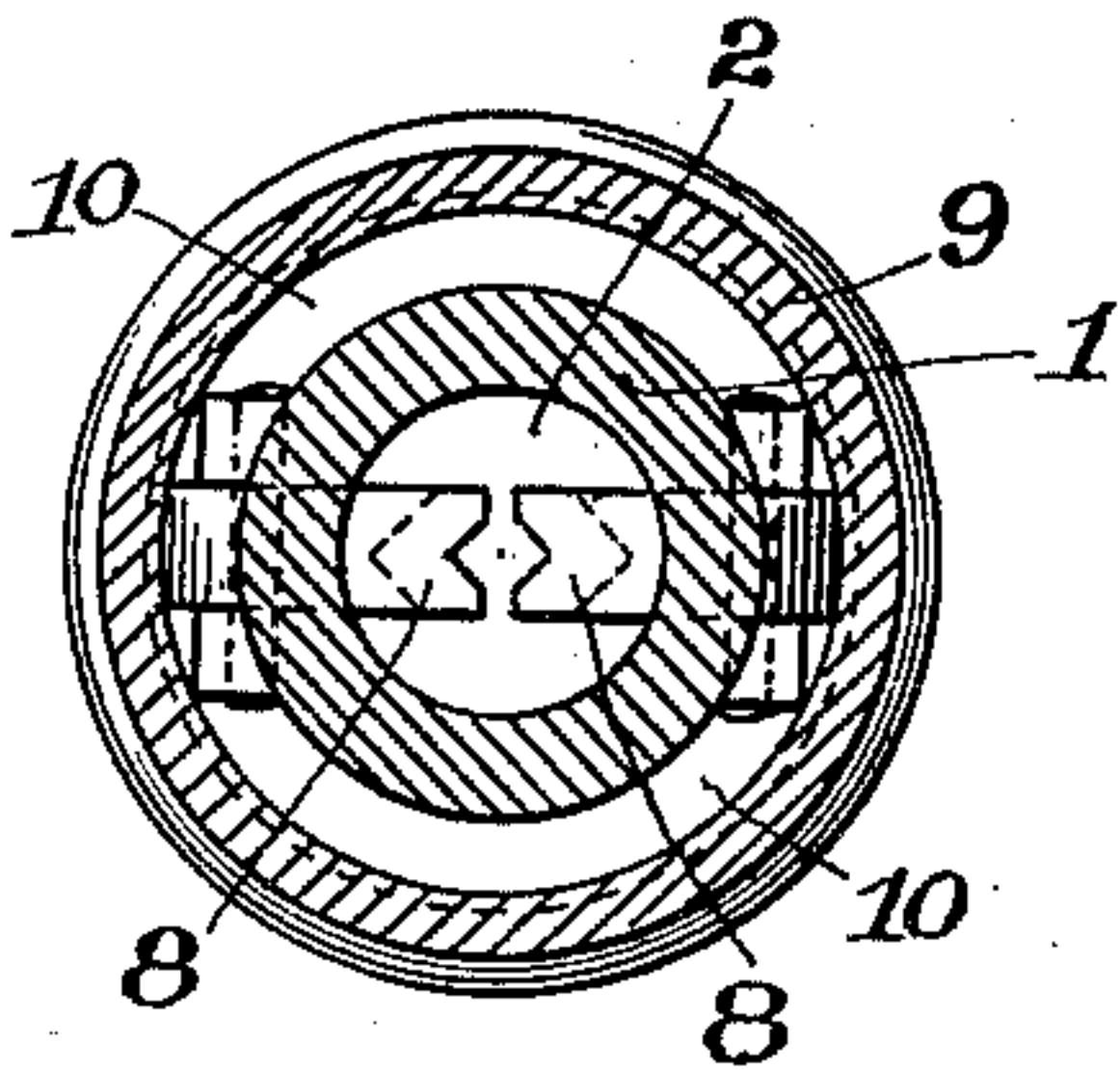
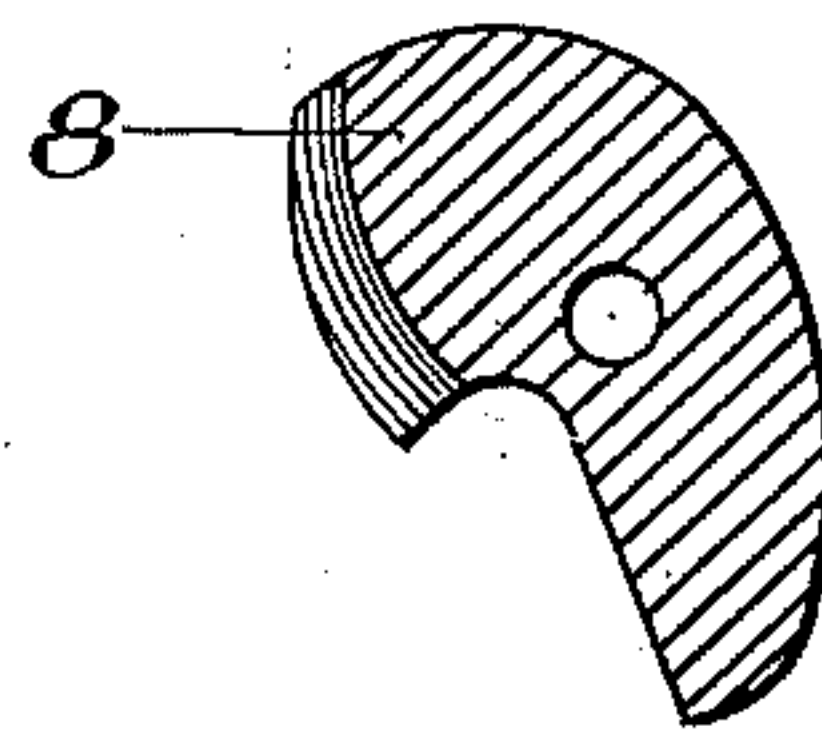


Fig. 3.



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## CHUCK FOR BIT-BRACES.

SPECIFICATION forming part of Letters Patent No. 656,357, dated August 21, 1900.

Application filed June 13, 1900. Serial No. 20,178. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS F. KRAMER, a citizen of the United States, residing at Oklahoma, in the county of Oklahoma and Territory of Oklahoma, have invented certain new and useful Improvements in Chucks for Bit-Braces; and I do hereby 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.

My invention relates to certain new and useful improvements in chucks for bit-braces, and has for its object to provide a very simple and economical construction and to operate the jaws positively for the purpose of holding or releasing the bit-shank.

With these ends in view my invention consists in certain details of construction and combination of parts, such as will hereinafter be fully set forth and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand the same, I will proceed to describe its construction and operation in detail, reference being had by numbers of reference to the accompanying drawings, forming a part of this application, and in which—

Figure 1 is a sectional elevation showing my improved chuck attached to the brace of a bit, said brace being broken away; Fig. 2, a section at the line  $x-x$  of Fig. 1, and Fig. 3 a detail sectional elevation of one of the jaws.

Similar numbers of reference denote like parts in the several figures of the drawings.

Heretofore chucks of this sort have been constructed in which either the holding or releasing functions of the jaws have been controlled or effected by means of a spring element having immediate connection with the jaws; but by my present improvement I aim to avoid the use of any spring in such connection, since I am aware that the action of the spring is very uncertain, and, moreover, springs frequently become broken, thereby rendering the chuck useless.

1 is the chuck-head, which is cored out at the locations 2 3 4, the spindle 5 of said head being secured to the brace 6 of an ordinary bit. Elongated openings 7 are cut in the head 1 and communicate with the cored-out por-

tion 2, and within these openings are pivoted jaws 8 in such manner that the inner ends of the jaws normally extend within the cored-out portion 2, while the outer ends of said jaws normally extend beyond the outside circumference of the head.

9 is a sleeve which loosely surrounds the head throughout its length, said sleeve being capable of a free sliding movement and provided with an annular shoulder 10 in the inside. I have shown this sleeve constructed in two pieces and united together by a screw-thread, and this is for convenience in manufacture and assembly; but since these two parts with respect to the function performed are the same as one integral part I shall hereinafter designate them by the term "sleeve."

11 is a coil-spring around the head 1 and confined between the lower end of the bit-brace and the shoulder 10, the function of this spring being to normally keep the sleeve in projected position, as shown at Fig. 1.

The forward end of the sleeve 9 is provided with an annular recess 12 at the inside, into which recess the outer ends of the jaws 8 extend. The end walls of this recess form shouldered portions, which are preferably beveled, as shown at 13 14, and when the sleeve is projected by the spring, as above set forth and as shown at Fig. 1, the bevels 13 will strike against the jaws and will force the inner ends toward each other, while the retraction of said sleeve will cause the bevels 14 to strike against the outer portions of these jaws, and thereby throw the inner ends of the same apart. The edges of the inner ends of the jaws are V-shaped in cross-section, as shown at Fig. 2, and extend from top to bottom in the arc of a circle, as shown at Fig. 3.

My improvement is utilized as follows: The bit-shank is inserted in the head between the jaws and through the cored-out portion, said jaws yielding readily, and thereby forcing back the sleeve in order to permit of this. The squared end of the bit-shank is inserted within the cored-out portion 3, which latter is square in cross-section, and the bit is thereby prevented from turning. When the bit has been inserted within the shank-head as far as possible, the round shank of the bit will be automatically gripped by the jaws, and any attempt to withdraw the bit by pulling will



cause these jaws to bind more tightly against the bit-shank. Since the contact-surfaces of the inner edges of the jaws are in the arc of a circle, they will have a rolling contact with the round shank of the bit, and these contact edges may be serrated, if desired. It will thus be readily understood that when bits of different sizes are inserted within the chuck-head the contact edges of the jaws will more readily adapt themselves so as to obtain a firm hold on the different sizes of the round bit-shanks than would be the case if said contact edges were simply in an inclined plane as normally assembled. To withdraw the bit, the sleeve is grasped by the hand and forced backward, and thereby causing the bevels 14 to operate to release the jaws, whereupon the bit may be readily withdrawn.

I have shown and described the resiliently-acting sleeve as provided with bevels 13 14, which operate to throw the jaws into clamping position or to release them; but it will be clear that the obvious mechanical equivalent of this construction would be obtained if these shouldered portions 13 14 instead of being beveled were simply rectangular and acted against properly-constructed beveled portions formed on the jaws themselves, and I therefore do not wish to be limited in this respect.

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

1. In a chuck for bit-braces, the combination of the head secured to the bit-brace and cored out and provided with elongated openings as described, the jaws pivoted within said openings, the sleeve loosely surrounding said head and having a recess on its inside near its front end into which recess the outer portions of the jaws extend, the end walls of said recess being beveled, and the coil-spring

surrounding said head and operating to normally project said sleeve whereby the jaws are thrown into clamping position, substantially as set forth. 45

2. In a chuck for bit-braces, the combination of the head recessed to accommodate the bit-shank, the jaws pivoted within said head, the sleeve loosely surrounding said head and jaws and having beveled portions above and below said jaws, and the coil-spring surrounding said head and operating to normally project said sleeve whereby the jaws are thrown into clamping position, substantially as set forth. 55

3. In a chuck for bit-braces, the combination of the head cored out to receive the bit-shank, the jaws pivoted to said head and having their inner ends extending toward each other within the cored-out portion, and a resiliently-acting sleeve loosely surrounding said head and capable of a free sliding movement and provided with shouldered portions which strike against said jaws whereby the latter are thrown into clamping position or released, substantially as set forth. 65

4. In a chuck for bit-braces, the combination of the head cored out to receive the bit-shank, the jaws pivoted within said head and having their inner contact edges extended within said cored-out portion and disposed in the arcs of circles, and the resiliently-acting sleeve surrounding said head and capable of free sliding movements and provided with shouldered portions which operate to clamp and release said jaws, substantially as set forth. 75

In testimony whereof I affix my signature in presence of two witnesses. 80

LOUIS F. KRAMER.

Witnesses:

BERT MCFADDEN,  
PATRICK RODEN, Jr.