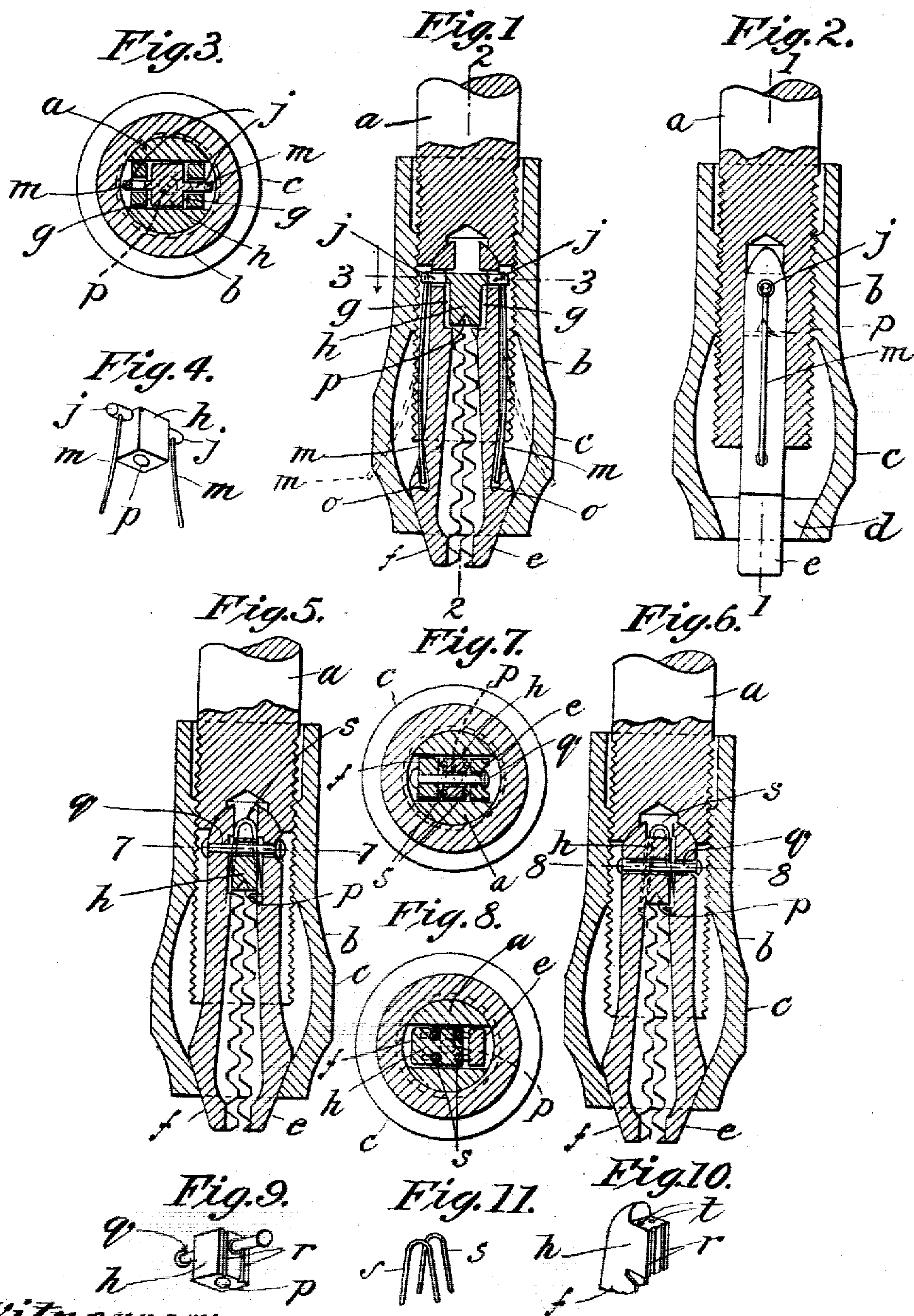


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W. A. PECK.
JAWS OF BIT STOCKS.
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UNITED STATES PATENT OFFICE.

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JAW OF BIT-STOCKS.

No. 814,320.

Specification of Letters Patent.

Patented March 6, 1906.

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To all whom it may concern:

Be it known that I, WILLIAM ALLEN PECK, a citizen of the United States of America, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Jaws of Bit-Stocks, of which the following is a specification.

This invention relates to bit-braces and like tools which comprise a chuck for drills, &c., the object of the invention being to provide an improved jaw construction for chucks such as are used in tools of the character above referred to whereby the butt-end of the drill or other tool to be inserted in and held by the jaws may be centered in line with the axis of the chuck and whereby an abutment is provided for the end of the drill or like tool to take the end thrust thereof, a further object being to provide improved means for securing the inner ends of the jaws together in a manner to permit their necessary freedom of movement toward and from one another and to provide an improved spring construction by means of which the free ends of the jaws may be normally held apart.

The drawings accompanying this application clearly illustrate this improved construction and certain modifications of the same, Figure 1 showing in sectional elevation the preferred embodiment of the invention in a two-jawed chuck of a well-known type. Fig. 2 is a similar view showing the construction in a plane at right angles to that shown in Fig. 1. Fig. 3 is a cross-sectional view on line 3 3, Fig. 1. Fig. 4 is a perspective view of a pivot-block located between the inner ends of the jaws and constituting a seat for the inner end of the tool. Fig. 5 is a sectional elevation similar to Fig. 1, showing a modification of the construction in this last-named figure. Fig. 6 is a sectional elevation similar to Fig. 1, showing another modification of the construction shown in this last-named figure. Fig. 7 is a cross-sectional view in the plane of line 7 7, Fig. 5. Fig. 8 is a cross-sectional view in the plane of line 8 8, Fig. 6. Fig. 9 is a perspective view of the block-and-pin construction shown in section in Fig. 7. Fig. 10 is a perspective view of the end of one of the jaws shown in Fig. 6, and Fig. 11 is a perspective view of the springs for the jaws used in the modified constructions shown in Figs. 5 and 6.

Referring to the drawings, *a* is the head of the chuck, exteriorly threaded, as shown, and provided with a sleeve *b*, screwing onto this threaded end, this sleeve having the usual enlargement *c* and the tapered contracted opening *d*, against which the similarly-tapered ends of the jaws *e* and *f* bear and against which these jaws are spring-pressed, all of which is common in chucks of this character, and the invention does not relate to these general features of construction, but particularly to the specific construction of the inner end of the jaws, as more particularly referred to above. The head *a* is transversely slotted in the direction of its length to receive the feed-jaws *e* and *f*, the inner ends of which are seated, as usual, in the lower end of the slot in the head.

The preferred construction embodying the invention is shown in Figs. 1 to 4, inclusive, and referring now particularly to Fig. 1 it is seen that the contiguous faces of the jaws *e* and *f* at and above the pivotal point of the latter are provided with recesses *g*, and a block *h* is located between the jaws at this point, two opposite sides of which fit substantially in these recesses *g*. From these opposite sides of the block near the base thereof the pivot-pins *j* extend through the holes in the jaws and project beyond the sides of the jaws, these pins having holes drilled therein to receive the springs *m*, which have a driving fit therein. Near the lower ends of the jaws *e* and *f* holes *o* are drilled therein in a line extending toward the free end of the jaws outside the chuck, and the springs *m* enter these holes loosely. Before these springs are thus fitted to the jaws they are formed an a curve, as shown by their dotted position in Fig. 1, whereby when the free ends thereof are located in the holes *o* the jaws will be under a constant outwardly-exerted spring-pressure, whereby their beveled outer ends will be yieldingly held against the beveled portion *d* of the sleeve. This manner of applying the springs to the jaws serves to hold the inner ends of the latter yieldingly against the block *h*, whereby the latter will always be centrally located relative to the two jaws, and as the inner ends of the jaws are centered by their seats in the head *a* and their outer ends held in the same relative position by the sleeve the jaws and the block *h* will always be in axial alinement with the head and the sleeve.

That end of the block *h* looking toward the open end of the chuck is provided with a conical recess *p* centrally thereof to receive the butt-end of a drill or other tool, whereby that end may be located on the axis of the chuck, and as the free ends of the jaws are held in their axial alinement by the sleeve the tool will be securely held in such alinement when the jaws close thereon by the screwing up of the sleeve *b* on the head. It will be noted that in this construction the parts may all be assembled without any mechanical operation and in case of the breakage of any part may be dismounted with equal facility, the springs serving as the binding or retaining elements, which hold the parts together.

The modifications shown in Figs. 5 to 8, inclusive, involve the same idea of a centrally-located block between the base of the jaws to serve as a seat for the inner end of the tool, and their construction in its general principles is so like that just described as to bring both of these modifications within the scope of the invention.

In Fig. 5 the block *h* is separate from the pivot-pin, (in this figure indicated by *q*,) this pin in this figure being shown as driven tightly into the jaw *f* and having a loose fit in the hole in the jaw *e*, the block also fitting loosely on the pin. Each of those faces of the block through which the pin passes is provided with grooves *r*, extending lengthwise thereof to receive the U-shaped springs *s*, (shown in separated relation in Fig. 11,) the free ends of which springs extend beyond the end of the block and bear against the inner faces of the jaws above their pivotal point, thus pressing the free ends of the latter outwardly, these springs, as shown in said Fig. 11 and elsewhere, being U-shaped, whereby they may straddle the block *h* in the manner described. In this construction, as in the preferred construction, the end of the block *h* is provided with the conical recess *p*, located axially thereof.

In the construction shown in Fig. 6 the block *h* is shown as being made integral with one of the jaws, this particular construction being shown in perspective in Fig. 10, and while the block has been shown as integral with the jaw *f* it is entirely immaterial which jaw carries this block. In this construction the same grooves *r* in the side of the block for the reception of the springs *s* are provided, and to receive the other leg of the springs, which, as stated, are U shape, holes *t* are bored through the block and extend beyond the end of the latter, and thus the same springs as are used in the construction shown in Fig. 5 may be used in this construction. The pin *q* in this last-named construction may be loose in the jaws or may fit tightly in that jaw on which the block *h* is located.

Neither of these modified constructions is as desirable as that shown in Fig. 1, although the function of either of them in centering the butt-end of the drill or other tool is precisely like that of the block *h*. (Shown in Fig. 1.)

Whichever one of the block constructions described herein is used, it will serve as an abutment for the end of a tool inserted in the chuck and take the end thrust of the tool when in use, whether the centering-recess *p* be formed therein or not.

In further explanation of the practical advantages of arranging the abutment-block *h* between the inner ends of the chuck-jaws it will be observed that the construction described possesses means for not only holding together the inner ends of the jaws, but also for permitting such a freedom of movement toward and from each other that said jaws will readily adapt themselves to the shanks of tools or tool-bits, whether of a tapered or non-tapered form. At the same time the block *h* constitutes an abutment which arrests the inner end of the tool or tool-bit in the proper position without permitting the same to drop past the inner ends of the jaws or assume oblique or non-centered positions. These results are rendered possible by reason of the fact that one or both of the chuck-jaws are recessed at their inner ends to receive therein the abutment-block. This recessing of one or both jaws at the inner ends thereof provides a construction whereby the gripping portions of the jaws contiguous to the abutment-block project over such block and maintain an axially centered relation with reference thereto. A further point of advantage in the construction referred to resides in the fact that the abutment-block and spring-mounting are carried directly by the jaws at their inner ends, so that this part of the tool is removable and replaceable as an entirety entirely independent of the head or shank carrying the same.

I claim—

1. In a chuck, a pair of opposed jaws, an abutment-block carried by the jaws and extending transversely across the interval between the inner ends thereof, the projection of said abutment being past the gripping portions of the jaws contiguous to the block, whereby such jaw portions overlap the block and maintain an axially-centered relation thereto, means for yieldingly pressing the jaws apart and for yieldingly connecting the inner ends thereof, and means for closing the jaws upon a tool.

2. In a chuck, a pair of opposed jaws, a loose abutment-block arranged between the inner ends of the jaws and overlapped by the contiguous portions of the gripping-faces, pivot-pins holding the jaws and block in loosely-engaged relation, a spring held in po-

sition to the point of support for the jaws and block and arranged to press the jaws apart, and means for closing the jaws.

3. In a chuck, a pair of opposed jaws having recessed inner ends, an abutment-block arranged between the inner ends of the jaws and within the recesses thereof, pin members for holding the jaws and block in loosely-con-

nected relation, a spring arranged to normally support the jaws at both their inner and outer ends, and means for closing the jaws.

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