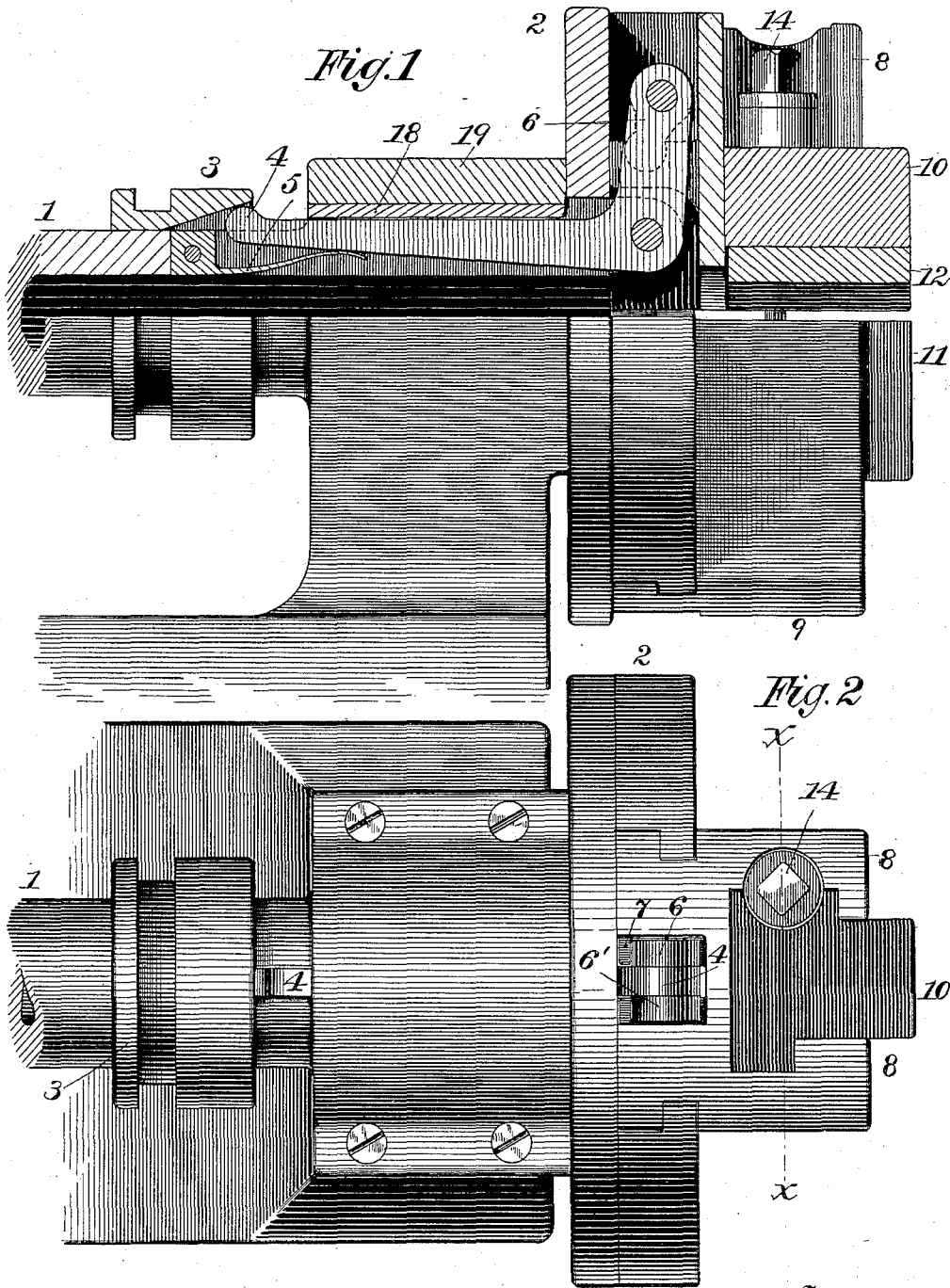


J. JOHNSTON.

CHUCK.

No. 371,762.

Patented Oct. 18, 1887.



Witnesses

Frank H. Pierpont  
 H. L. Reshard

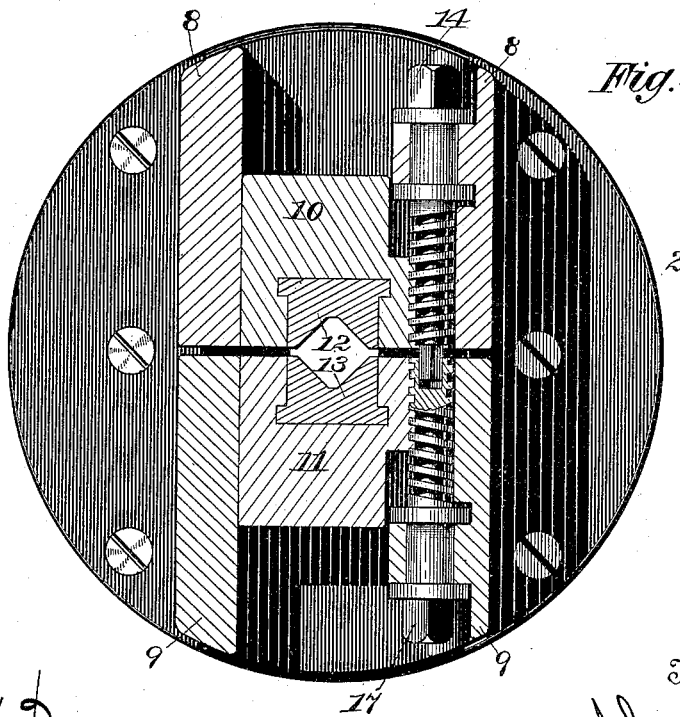
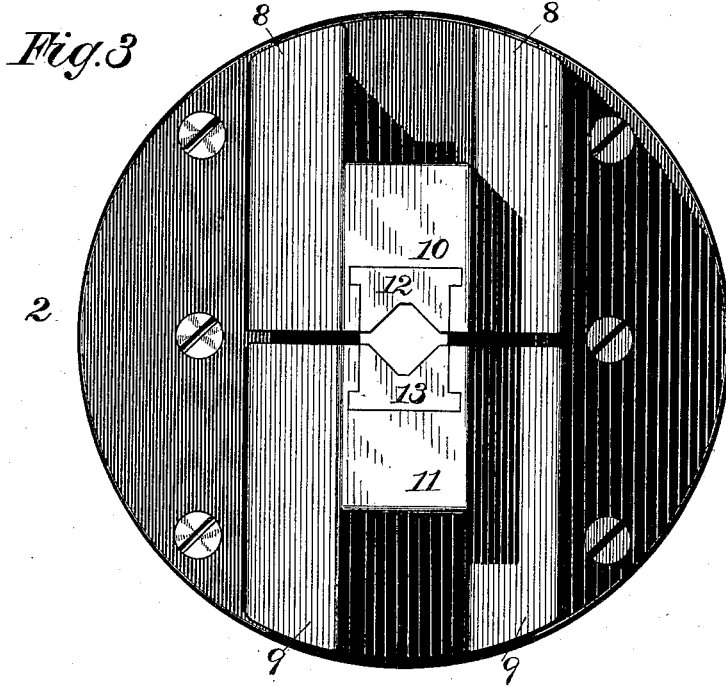
Inventor

By his Attorney John Johnston  
 Albert S. Walker

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*Frank H. Pierpont*  
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Inventor

*John Johnston*  
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his Attorney

(No Model.)

3 Sheets—Sheet 3.

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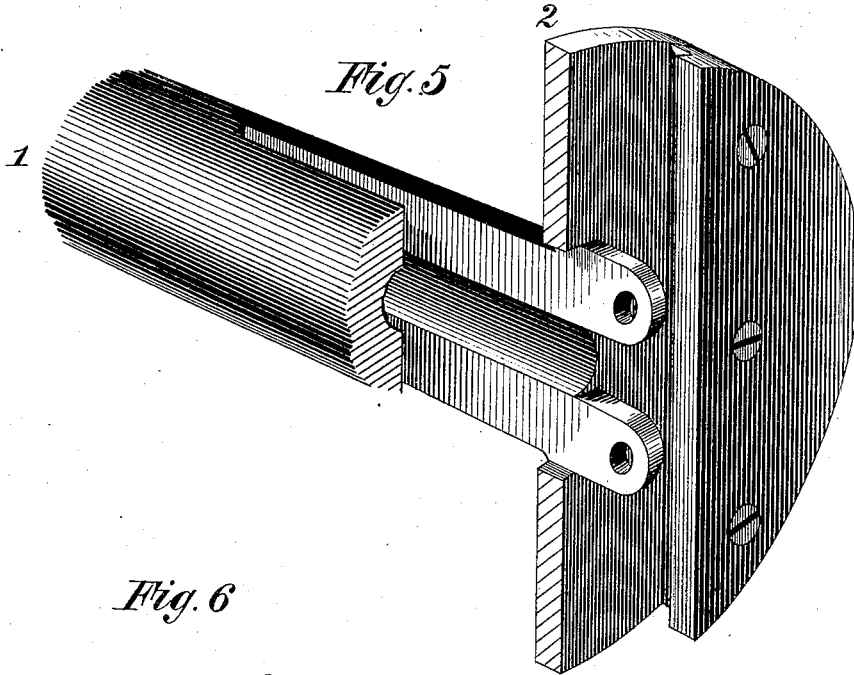


Fig. 6

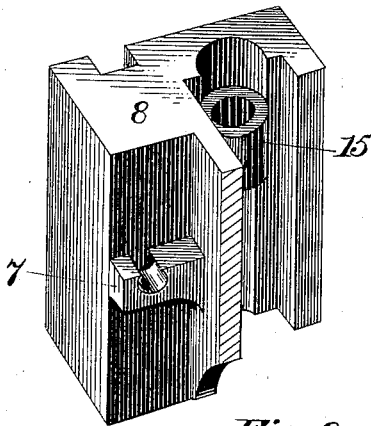


Fig. 7

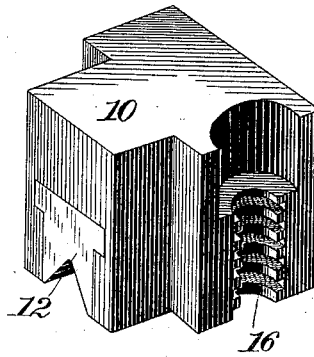
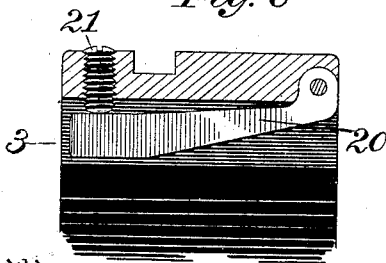


Fig. 8



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Frank H. Pierpont  
H. L. Rickard.

Inventor

By his Attorney  
John Johnston  
Albert H. Walker

# UNITED STATES PATENT OFFICE.

JOHN JOHNSTON, OF HARTFORD, CONNECTICUT.

## CHUCK.

SPECIFICATION forming part of Letters Patent No. 371,762, dated October 18, 1887.

Application filed April 27, 1887. Serial No. 236,377. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JOHNSTON, of Hartford, Connecticut, have invented a new and useful Chuck, of which the following description and claims constitute the specification, and which is illustrated by the accompanying three sheets of drawings.

This invention is suitable for use in a lathe, or in a bolt-cutter, or in a screw-machine, or in a chucking-machine, or in any other place where a chuck is required.

Figure 1 of the drawings is a vertical longitudinal view of the chuck, showing the upper half in diametric section. Fig. 2 is a plan view of the chuck, showing only the exterior thereof. Fig. 3 is an exterior elevation of the face of the chuck. Fig. 4 is a vertical transverse section on the line  $x x$  of Fig. 2. Fig. 5 is a perspective fragmentary view of the spindle and of half the chuck-plate, the other half being a counterpart of the half shown and being integral therewith, and being united to the broken-away half of the bifurcated end of the spindle. Fig. 6 is a perspective view of the right-hand half of the upper slide, and the left-hand half is a counterpart thereof, except that it has no place for a screw. The lower slide is a counterpart of the upper slide. Fig. 7 is a perspective view of the upper jaw, and the lower jaw is a counterpart of it. Fig. 8 is a longitudinal section of a modified form of the sliding collar.

The numeral 1 indicates the spindle. It is bored through its axis for the reception of the rod or wire to be clasped by the chuck and its end is bifurcated, and each of those bifurcations terminates in two perforated lugs, as indicated in Fig. 5. The chuck-plate 2 is cast with the spindle and with the four lugs projecting forward from its inner face as far as the plane of its outer face. The collar 3 slides on the spindle 1, and thus works the bell-crank lever 4 and a corresponding lever in the diametrically-opposite side of the spindle. These two levers are pivoted between the upper and the lower pair of terminal lugs of the spindle, respectively, and their longer ends work between the bifurcations of the spindle, being forced toward each other by the inclined planes on the inside of the collar, and being forced

from each other by the spring 5 and a corresponding spring fixed in the opposite side of the spindle. The shorter end of the lever 4 is pivoted between the two links 6 and 6', and the other lever is pivoted between two other corresponding links. The inner end of the link 6 works in the socket in the ledge 7 of the upper slide, 8, and the inner end of the link 6' works in a corresponding socket in a corresponding ledge on the other half of that slide, 60 while the inner ends of the other two links work in corresponding sockets in corresponding ledges on the lower slide, 9. The jaws 10 and 11 are preferably provided with the removable dies 12 and 13, which may have any form desired and may be changed at will. The right-handed screw 14 turns with its unthreaded part in the bearing 15 of the slide 8 and with its threaded part in the half-nut 16 of the jaw 10, while the left-handed screw 17 turns in corresponding places in the slide 9 and the jaw 11, respectively. These two screws are joined by a square tenon on the inner end of one of them and a square mortise in the inner end of the other, so as to turn always uniformly together. The bushing 18 is preferably shrunk upon the bifurcated part of the spindle 1 to provide a continuous journal for revolution in the journal-box 19.

The chuck-plate 2 may be fixed to the spindle instead of being cast therewith, and the four lugs, which furnish fulcrums for the levers, may be integral with the chuck-plate, so that when the chuck-plate is removed from the spindle it will carry the lugs and the levers along with it. The modified sliding collar shown in Fig. 8 differs from that shown in Fig. 1 in having its working inclined surfaces adjustable to variant degrees of inclination, so as to give a variable movement to the jaws. This end is reached by providing a pivoted arm, 20, the inclined surface of which works the lever 4, and which is adjustable to different inclinations by the set-screw 21, and by providing a duplicate of the same arrangement in the opposite side of the collar. Instead of the lever 4 being pivoted between two links, it may have its shorter end bifurcated, with the link 6 pivoted between its bifurcations and working in a socket in a ledge projecting from

the middle wall of the slide 8 into the space between those bifurcations. The corresponding lever on the other side of the chuck may likewise be bifurcated and work but one link instead of two.

The mode of operation is as follows: The jaws are adjusted to receive wires or rods of variant sizes by turning one of the screws, and thus turning both of them, so as to change the position of the jaws in the slides. When the jaws are open, the slides are slightly apart. Then the wire or rod is inserted in the jaws and the collar is moved by any proper means toward the chuck-plate. That movement forces inward the longer ends of the levers, and thus forces the inner ends of the links to approach each other and to press the slides together into contact. The jaws are carried with the slides, and thus firmly clasp the inserted rod or wire between them. When that article is to be removed from the chuck, the collar is moved back and the springs press the longer ends of the levers apart, and thus open the jaws.

I claim as my invention—

1. The combination of the collar 3, the lever 4, the link 6, and the slide 8, all constructed and arranged so that a movement of the collar depresses the slide, substantially as described.

2. The combination of the slides 8 and 9, the jaws 10 and 11, and the screws 14 and 17, all constructed and arranged so that the jaws may be adjusted mutually and equally relatively to the slides by turning either or both of the screws, substantially as described.

3. The combination of a sliding collar provided with two inner inclined planes, two bell-crank levers worked by that collar, two links worked by those levers, and two jaws worked by those links, all substantially as described.

Signed at Hartford, Connecticut, April 21, 1887.

JOHN JOHNSTON.

Witnesses:

ALBERT H. WALKER,  
CLARENCE E. BUCKLAND.