A. SAUNDERS.

Chuck.

No. 204,254. Patented May 28, 1878.

Fig. 1.

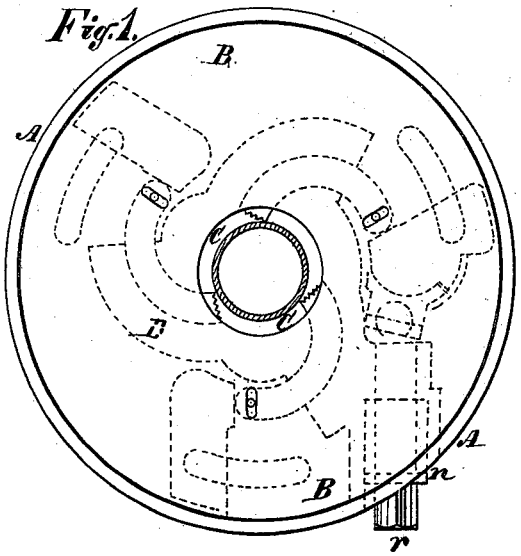


Fig. 2.

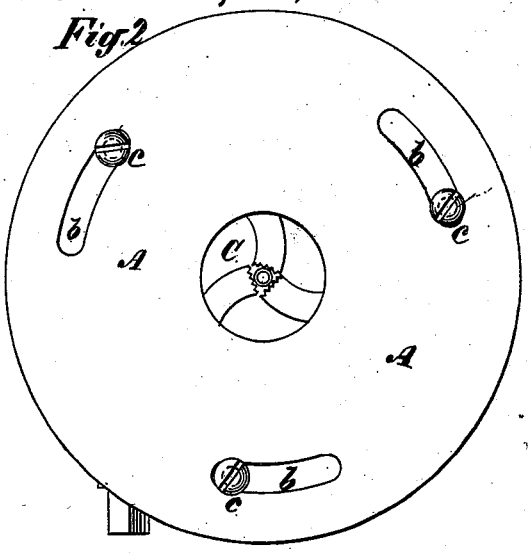


Fig. 3.

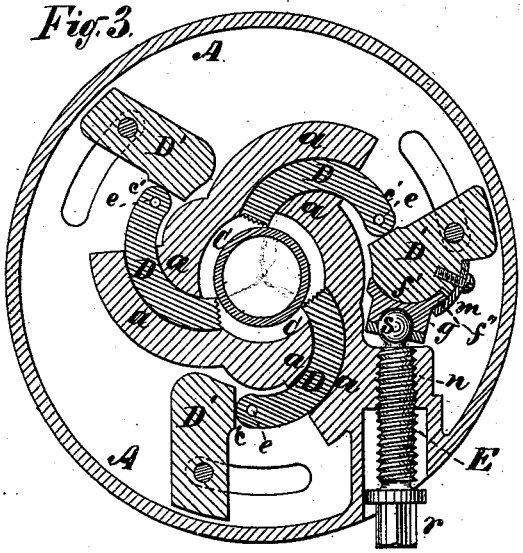


Fig. 4.

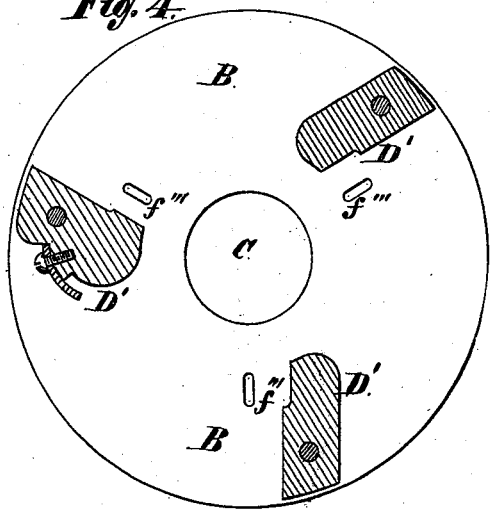


Fig. 5.

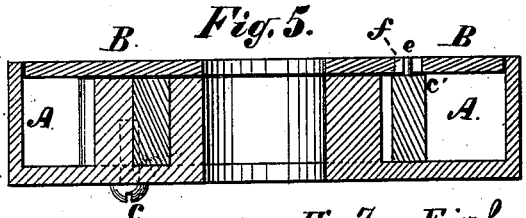


Fig. 6.

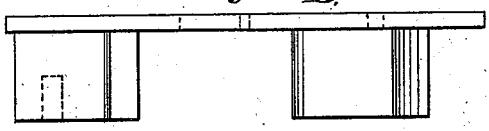


Fig. 7.

Fig. 8.

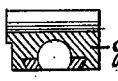
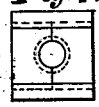


Fig. 9.



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W. Wells Jr.

Inventor:
Andrew Saunders.
per James A. Whitney, Atty.

UNITED STATES PATENT OFFICE.

ANDREW SAUNDERS, OF YONKERS, NEW YORK, ASSIGNOR TO D. SAUNDERS' SONS, OF SAME PLACE.

IMPROVEMENT IN CHUCKS.

Specification forming part of Letters Patent No. **204,254**, dated May 28, 1878; application filed March 28, 1878.

To all whom it may concern:

Be it known that I, ANDREW SAUNDERS, of Yonkers, in the county of Westchester and State of New York, have invented certain Improvements in Chucks, of which the following is a specification:

This invention relates to that class of chucks designed for holding pipes, cylindrical rods, &c.; and it comprises certain novel combinations of parts whereby a chuck of unusual strength, simplicity, accuracy of operation, and convenience of manipulation is secured.

Figure 1 is a side view of a chuck made according to my invention, and Fig. 2 is a similar view of the opposite side. Fig. 3 is a central transverse sectional view of the same. Fig. 4 is an inside view and partial section of the cap-plate of the chuck. Fig. 5 is a transverse sectional view of the chuck; and Figs. 6, 7, 8, and 9 are detail views of certain parts of the said chuck.

A is the flat circular shell of the chuck, and B is the cap-plate fitted into the open side of the shell, as shown in Figs. 1 and 5. Formed on the inner surface of the flat side of the shell itself are guides *a*, each shaped on the arc of a circle which, if continued, would intersect the center or axis of the shell. It is, of course, to be understood that said shell, together with the cap-plate, has the usual central orifice or opening C, into which the griping-jaws of the device converge in the operation of the chuck.

The griping-jaws are shown at D, and are of the arc shape represented in Figs. 1 and 3, being placed in the guides *a*, so as to move each on the arc of a circle, the several arcs intersecting at the center or axis of the shell. It is therefore manifest that the jaws being moved simultaneously inward upon a pipe or rod thrust into the opening C, the said pipe or rod will be griped by the said griping-jaws and held in a position axial to the chuck.

On the inner surface of the cap-plate B are provided shoulders D′, the innermost surfaces of which rest upon the flat interior surface of the shell, and thus assist in holding the cap-plate at the otherwise open side of the shell.

In the shell A are three slots, *b*, formed on arcs of circles concentric with the center or axis of the chuck. Extended through these slots are screws *c*, the heads of which retain the cap-plate upon the shell. The shoulders D′ correspond in number with the griping-jaws, and each of said shoulders bears against the rounded rear end *c′* of one of said griping-jaws. From the end *c′* of each griping-jaw D projects a pin or stud, *e*, through a radial slot, *f‴*, in the adjacent part of the flat side of the cap-plate B.

One of the shoulders D′ is constructed with a rounded bearing-surface, *f′*, upon which is placed a socket-piece, *g*, held in place by a clamping-plate, *m*, which projects from the shoulder aforesaid over a lip, *f″*, formed upon the socket-piece *g*, as more fully shown in Fig. 3.

E is an adjusting-screw, which works through a nut, *n*, formed in the shell, as also more plainly shown in Fig. 3. The outer end *r* of this screw E is squared, to permit the hold of a suitable key or wrench to turn the screw when required, and the inner end of said screw connects, by a ball-and-socket joint, *s*, with the socket-piece *g*.

The parts being constructed and arranged as aforesaid, the operation is as follows: Turning the screw E in one direction causes the cap-plate to turn about the axis of the chuck in such manner that the shoulders D′, pushing against the rounded ends of the griping-jaws D, force them inward toward the center or axis of the chuck, the outermost extremities of said griping-jaws projecting into the orifice C in proportion to the extent to which the screw is worked, and firmly grasping and holding the rod or pipe, which may be inserted through or into the orifice C. In order to release such rod or pipe A, it is, of course, only necessary to reverse the direction in which the screw is turned, whereupon the lip *f″*, holding behind the clamping-plate *m*, insures the reverse movement of the cap-piece, and the latter, acting through the studs on pins *e*, passed through the slots *f‴*, draws backward and inward the griping-jaws.

It is, of course, apparent that the function of the arc-shaped slots *b* is to permit the requisite turning of the cap-plate B upon the shell A, as hereinbefore explained; also, that the

entire manipulation of the chuck, so far as its griping action is concerned, is performed by means of the single adjusting-screw E.

What I claim as my invention is—

1. The socket-piece *g*, constructed with the lip *f'''*, the clamping-plate *m* on one of the shoulders D′, and the ball-and-socket joint *s* of the screw E, in combination with the griping-jaws D, shell A, and cap-plate B, substantially as and for the purpose set forth.

2. The arc-shaped slots *b* in the shell A, in combination with the screws *c*, the shoulders D′ on the cap-plate B, and the arc-shaped griping-jaws D in the guides *a* of the shell A, substantially as and for the purpose herein set forth.

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