(No Model.) 2 Sheets—Sheet 1.

C. H. REID.

CHUCK.

No. 301,277. Patented July 1, 1884.

Fig. 1

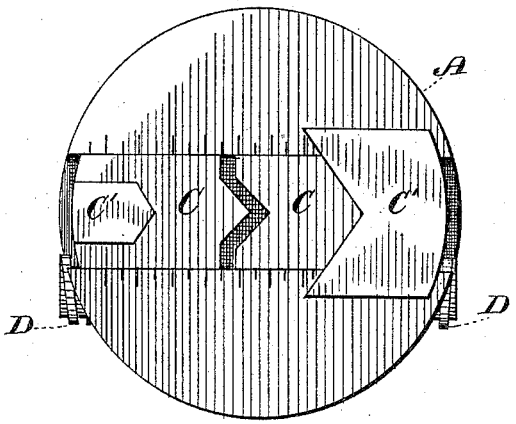


Fig. 2

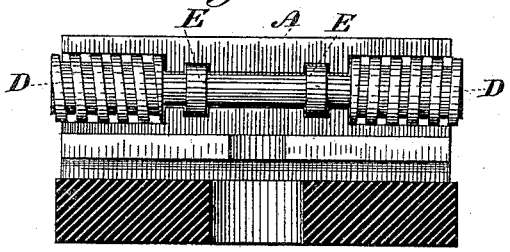


Fig. 3

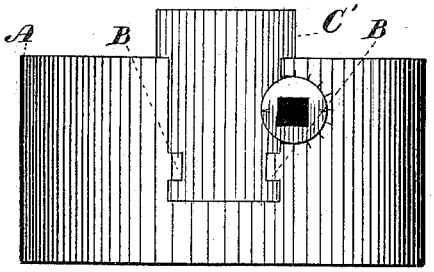
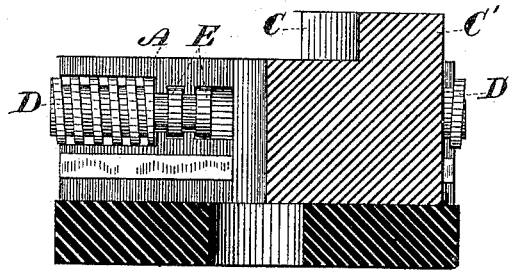


Fig. 4



Witnesses
S. S. Williamson
P. P. Smith & Co.

Inventor
Charles H. Reid
By Wooster & Smith
Attys

(No Model.) 2 Sheets—Sheet 2.

C. H. REID.

CHUCK.

No. 301,277. Patented July 1, 1884.

Fig. 5

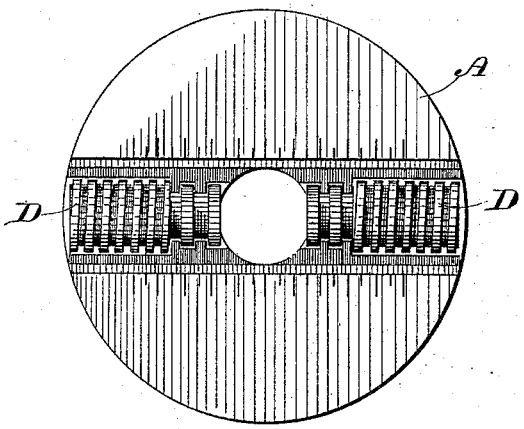


Fig. 6

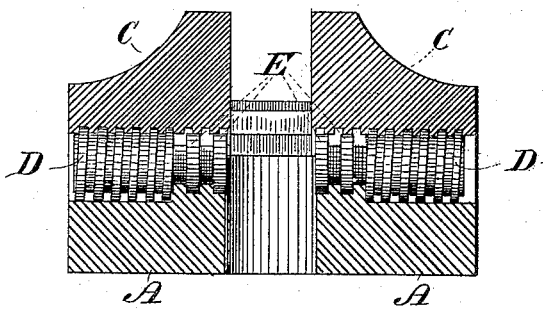


Fig. 7

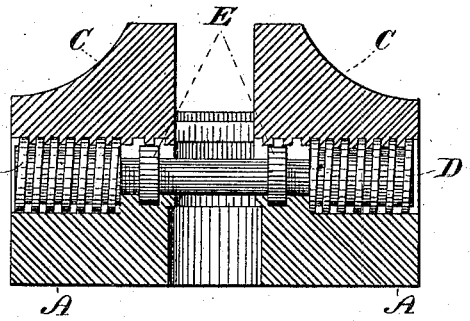
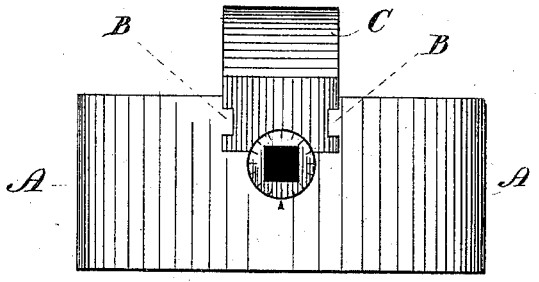


Fig. 8



Witnesses
S. S. Williamson
F. P. Smith Jr.

Inventor
Charles H. Reid
By Wooster & Smith.
Attys.

UNITED STATES PATENT OFFICE.

CHARLES H. REID, OF DANBURY, CONNECTICUT.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 301,277, dated July 1, 1884.

Application filed September 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. REID, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Chucks; 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 invehtion relates to certain novel and useful improvements in chucks, and has for its objects to provide such a device in which the jaws may be spread or closed by the action of a screw, while at the same time the screw shall be so constructed and arranged that an adequate bearing-surface is presented, which prevents the too rapid wearing away of the screw at the point or points where it comes in contact with or abuts against the frame of the chuck; also, to distribute the strain of the screw-thread against its bearing, while work is being performed, throughout a greater length of thread, and also to provide means for accurately centering the work of or determining the position of the jaws at any desired point; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully and in detail explained, and then specifically designated by the claims.

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

Figure 1 is a plan view of my improvement; Fig. 2, a vertical section through the chuck-frame with the jaws removed, showing the position of the screw within said frame; Fig. 3, a side elevation showing the position of the jaws within the frame and the graduations around the head of the screw; Fig. 4, a central vertical section with one jaw removed, illustrating two screws and the collars thereon and their relation to the frame; Fig. 5, a modification showing two screws in the center of the frame, with the jaws removed; Fig. 6, a sectional view showing two screws arranged centrally of the frame and any ordinary jaws in connection therewith; Fig. 7, a view similar to Fig. 6, but with a single screw; and Fig. 8, a side elevation showing the position of a central screw with graduations thereon.

Similar letters denote like parts in the several figures of the drawings.

A is the frame of the chuck, recessed, and having suitable bearings, B, for the jaws C.

D is a screw located within the frame at the side of the opening for the jaws. The jaws C are provided with screw-threads at their sides of a nature opposite to that of the thread on the screw itself, and are inserted within the frame on their proper bearings until their threads are in engagement with the screw. The threads on the latter are right and left handed, and will of course draw the jaws together or spread them apart, as the case may be. It will be readily understood that when work is being done the strain comes on the threads of the screw and upon the rear shoulder of the screw-shank, which abuts against the chuck-frame. This is a serious disadvantage, as said shoulder or thread becomes so worn by constant usage that it fails to perform its function, so that it becomes desirable, in order to avoid this result, to distribute the strain at the end of the screw over a greater amount of bearing-surface without increasing the strain on the screw-threads. In order to accomplish this, I provide two or more independent collars, E, or shoulders on the extreme inner ends of the independent screws. When the screw is within its proper position within the frame, these collars or shoulders fit closely within corresponding recesses in the frame. The strain on the threads would of course tend to force the screw D backward; but this is prevented by the abutment of the collars E against the walls of the recesses in the frame, and this strain being divided at the inner ends of the screw between the said collars, it follows that the wear on the screw is less effective, while at the same time I am enabled to carry the threads on the screw to the extreme rear ends of the latter, thereby distributing the strain on the thread over a greater number of threads to the inch; and when the work is extremely heavy, and the jaws accordingly set back farther, this advantage is most apparent.

In assembling the several parts of my im-

provement, I place the screws within the recessed frame, insert the jaws within the said frame on their proper bearings, and then operate the screws until an engagement is effected with the threaded jaws.

By placing a scale along the face of the frame close to the line of travel of the jaws, as seen at Fig. 1, and a series of graduations on the frame around the head of the screw, as seen at Fig. 3, I am enabled to determine any desired adjustment of the jaws or to center the work accurately. The jaws C at their forward portions are made flush with the face of the chuck-frame, and their rear portions are integral with a second pair of jaws, C′, which lie above the plane of the former jaws. Should it become desirable to utilize the chuck for heavy work the jaws C′ are used, their operation of course being controlled from the same source as in the case of the jaws C.

It will be readily understood that when a single screw is used but two collars or shoulders are needed, as the strain is distributed on all four sides of said collars, and has a tendency toward equalization. I am enabled to use two independent screws, constructed and arranged as shown at Figs. 4, 5, and 6, in which case the graduations would be around the head of each screw, and the movements of the jaws and the adjustments of the same be independent. If two screws are used, I prefer to use two collars on each screw, because the strain is all in one direction, and the greater the number of collars, provided enough screw-threads to the inch are allowed on the screw-shanks, the less will the wear affect the screw.

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

1. In a chuck, as described, the jaws actuated by independent screws, the latter being provided at their inner ends with collars or shoulders which abut or bear against the frame of the chuck, whereby the strain on the screws may be distributed over a greater number of bearing-surfaces, substantially as set forth.

2. In a chuck, the independent screws threaded and provided at their inner ends with shoulders, in combination with the jaws and frame, substantially as set forth.

3. In combination with the frame of the chuck, recessed, as described, and the threaded jaws, the independent actuating-screws provided with collars at their inner extremities, and with the threads extended to their outer extremities, whereby the strain on the body of the screws may be divided between a greater number of bearing-surfaces, and the strain on the threads distributed among a greater number of threads, substantially as set forth.

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

CHARLES H. REID.

Witnesses:

F. W. SMITH, Jr.,

S. S. WILLIAMSON.