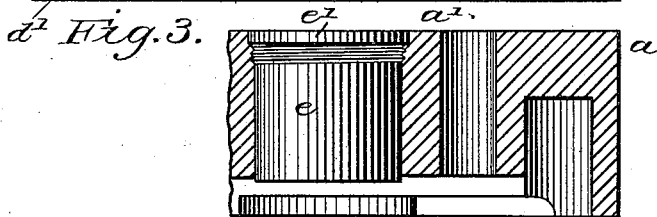
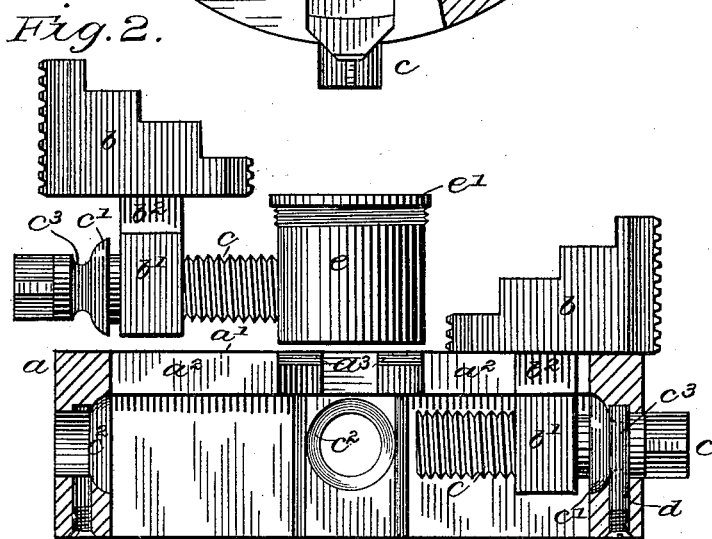
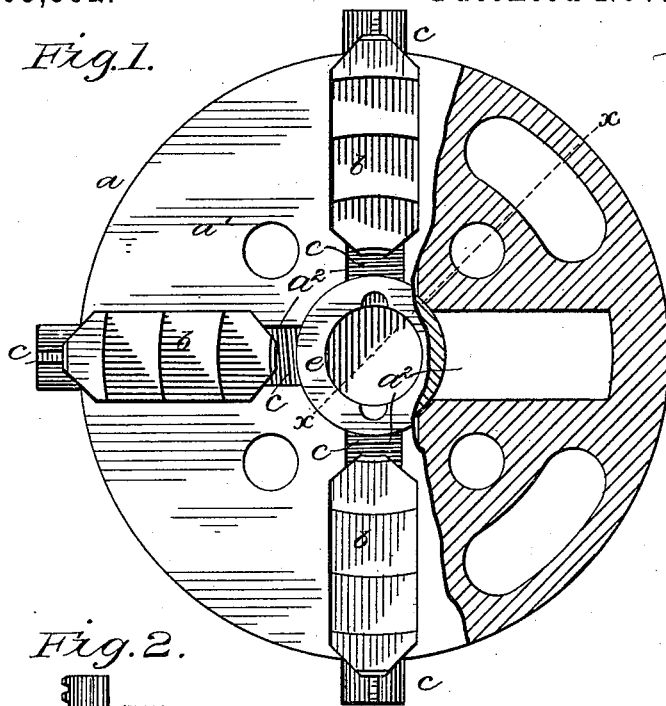


(No Model.)

J. N. SKINNER.
LATHE CHUCK.

No. 463,392.

Patented Nov. 17, 1891.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JAMES N. SKINNER, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE SKINNER CHUCK COMPANY, OF SAME PLACE.

LATHE-CHUCK.

SPECIFICATION forming part of Letters Patent No. 463,392, dated November 17, 1891.

Application filed April 13, 1891. Serial No. 383,711. (No model.)

To all whom it may concern:

Be it known that I, JAMES N. SKINNER, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Lathe-Chucks, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a lathe-chuck with reversible jaws, the whole being of simple and compact form and of great strength and durability.

To this end my invention consists in the details of the several parts making up the device as a whole and in their combination, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a plan or face view of a chuck embodying my invention. Fig. 2 is a detail view in cross-section of the chuck, the plane of section passing through and in line of the axis of the chuck. Fig. 3 is a detail view in cross-section of the chuck-body on plane denoted by dotted line xx of Fig. 1.

In the accompanying drawings, the letter a denotes a chuck-body that is preferably formed of a single casting, having a face a' , in which radial slots a^2 are formed for the reception of the shank of the chuck-jaw, the body of the chuck being left preferably open on the back. This chuck is provided with any desirable number of chuck-jaws b , usually four, arranged in radial lines in pairs in opposition to each other on the opposite sides of the axis of the chuck. Each chuck-jaw has on its under side a projecting part, in which a thread is made so that it forms a nut b' , united to the main part of the jaw by a shank b^2 , the sides of this part being grooved so as to enable it to fit within the radial slot a^2 in the chuck-body and allow a large part of the underneath side of the chuck-jaw to have a bearing directly upon the face of the chuck-body. This nut is preferably made central of the chuck-jaw, as shown, and the latter is arranged in place by slipping the nut in the direction of the axis of the chuck into the central opening on the face side, and then slipping it lengthwise into the guide-slot, the in-

ner end of the jaw-screw c entering the nut and the jaw being moved outward by turning the jaw-screw until the jaw is carried to the desired position. The jaw-screw c is provided with a head, preferably squared, to enable it to be grasped by a wrench or like tool and has a flange c' near the outer end that is somewhat spherical in form adapted to fit the socket c^2 , formed on the inner side of the flange of the chuck-body, as shown in the sectional view. A groove c^3 is formed in the neck of the screw just back of this shoulder and a locking-pin d is arranged in a socket d' in the chuck-body, so that the pin lies in the groove c^3 and serves to hold the jaw-screw against longitudinal play, although leaving it free to be turned. The function of the shoulder c' , when placed in the socket c^2 , is to take the end-thrust of the screw and of the jaw when the latter is clamped upon the outer surface of a piece of work. When the chuck is used to hold a piece of work by a grasp of the jaw in a reverse direction—that is, when it is necessary to pull upon the jaws radially outward—the thrust or strain comes in the opposite direction—that is, radially inward—and in order to take this latter strain a hollow hub e is secured in the central opening in the chuck-body, and against the outer surface of this hub the ends of all of the jaw-screws rest and thrust. This hub e consists of a cylindrical piece of metal, preferably hardened steel, having a flange e' at its upper extremity adapted to overhang the face of the chuck-body adjacent to the central opening, and this flange preferably fits a flange-socket formed in the face of the chuck. A thread is provided just below the flange, this thread being adapted to fit the threaded socket a^3 made in the substance of the face portion of the chuck in the hub-socket. The chuck-body is cut away, as shown in Figs. 1 and 3, thus forming a series of ribs circular and radial in the substance of the metal, and the outer surface of this hub e fits snugly against the ends of these ribs that are adjacent to the central opening.

The hub has two functions, one to afford an abutment against which the ends of the jaw-screws rest and thrust, so that no portion

of the strain comes upon the locking-pins *d*, and another is to strengthen and make rigid the face of the chuck and prevent the tilting strain that is thrust upon the jaws while holding a piece of work from being transmitted to the face-plate of the chuck-body in such manner as to break it. An outward or inward thrust upon the jaw is transmitted, as to a portion at least of the strain, into the outward pull upon the face or an inward push, and unless this face of the chuck that is cut into sections by the radial slots is practically united, as by means of the hub, arranged as shown and described, there is danger of breaking the face of the chuck. This could only be overcome by making the parts extremely heavy; but by my improved device the parts may be made comparatively thin and light, thus lightening all of the other parts and making a serviceable tool of convenient size and weight for any given purpose within the uses to which a lathe-chuck may be put.

The jaws of my improved chuck are preferably solid and in one piece and may be reversed by removing a hub, which is provided with suitable recesses, so that it may be engaged by a key or other tool for revolving it and running the jaw inward until the end is disengaged from the jaw-screw, so that it can be lifted up, reversed, and then refastened. After each jaw has been preferably reversed the hub can then be screwed to its seat and the chuck will be ready for use.

I claim as my invention—

1. In combination, in a lathe-chuck, a chuck-body having a central opening with a threaded hub-socket, the removable hub having a thread fitting said socket, the reversible chuck-jaws supported on the chuck-body and having a nut in the portion of the jaw projecting within the body, the radially-arranged jaw-screw having a shoulder adapted to thrust against the inner face of the flange of the

chuck-body and with its inner end resting against the outer surface of the hub, all substantially as described.

2. In combination with a chuck-body formed in one piece cast to shape, the radial jaw-slots formed in the face of the chuck-body, the central hub-socket having a thread adjacent to the face, the removable hub having a flange and a threaded portion at the upper end and fitting said socket and having a bearing against the substance of the chuck-body back of the face, the chuck-jaws having a threaded portion engaging the jaw-screw, the jaw-screw radially arranged within the body of the chuck with its end projecting beyond the periphery, a shoulder in contact with the inner surface of the flange of the chuck-body, and the inner end of the screw thrusting against the outer surface of the hub, all substantially as described.

3. In a lathe-chuck, in combination, the chuck-body opening on the back and having a face with a central threaded hub-socket, the reversible chuck-jaws arranged to move in the radial slots in the chuck-face and having a portion projecting within the body of the chuck, the removable hub having a threaded portion fitting within the hub-socket and in contact with the substance of the chuck-body back of the face of the chuck, the jaw-screw radially arranged within the chuck-body with one end projecting beyond the periphery and the inner end seated against the outer surface of the hub, the said screw having a shoulder in contact with the inner surface of the flange of the chuck-body and an annular groove within the said flange, and a locking-pin located in the flange and projecting into the groove, all substantially as described.

JAMES N. SKINNER.

Witnesses:

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