J. H. VINTON.

Lathe-Chuck.

No. 212,413. Patented Feb. 18, 1879.

Fig. 1.

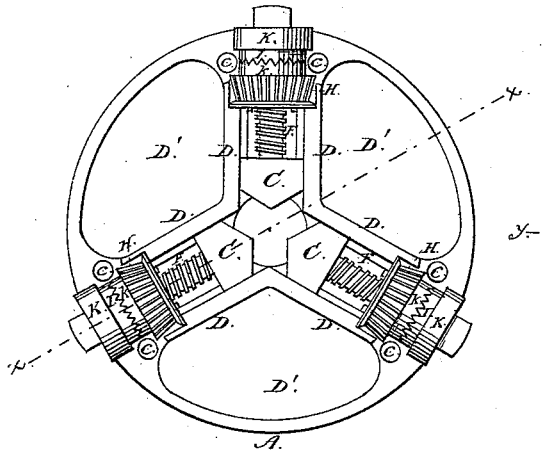


Fig. 2.

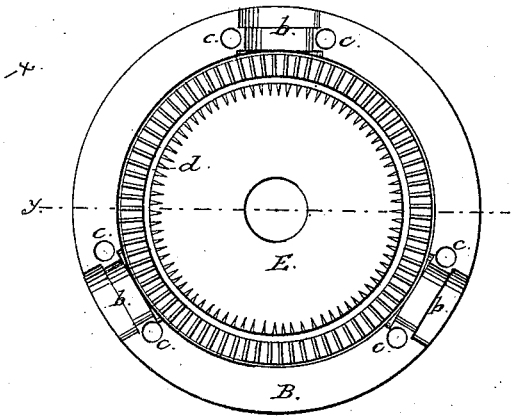


Fig. 3.

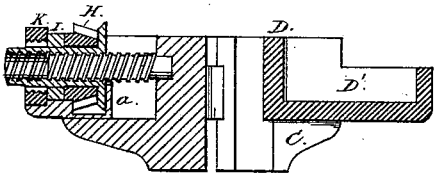


Fig. 4.

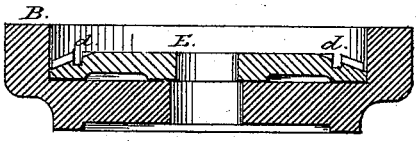


Fig. 5.

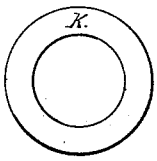


Fig. 6.

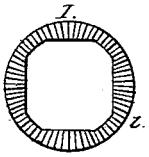


Fig. 7.

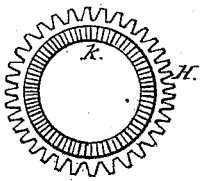


Fig. 8.

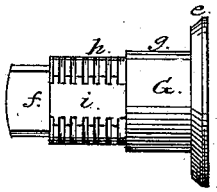
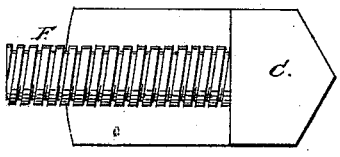


Fig. 9.



Witnesses;
H. W. Howard
John Tyler

Inventor;
J. H. Vinton
By atty Wm Cruttenden

UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO FRANK ARMSTRONG, OF SAME PLACE.

IMPROVEMENT IN LATHE-CHUCKS.

Specification forming part of Letters Patent No. **212,413**, dated February 18, 1879; application filed March 22, 1878.

To all whom it may concern:

Be it known that I, JOHN H. VINTON, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Chucks for Metal-Lathes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

My invention relates to certain new and useful improvements in chucks for metal-lathes; and consists in the peculiar construction and combination of the parts, as will be hereinafter set forth.

To enable those skilled in the art to which my invention pertains to readily understand the construction and operation of my improved chuck, I will proceed to describe the same, referring by letters to the accompanying drawings, in which—

Figure 1 is a plan view of the front half of the shell; Fig. 2, a similar view of the rear half; Fig. 3, a central section at the line *x x* of Fig. 1; Fig. 4, a similar section at the line *y y* of Fig. 2; Figs. 5, 6, 7, and 8 represent the jam-nut, lock-nut, gear, and driving-nut taken apart, or as they would appear as taken apart, in the order named and laid down; and Fig. 9 is a rear plan view of one of the jaws of the chuck.

Similar letters indicate like parts in the several figures.

A is the front half, and B the rear half, of the shell which incloses the jaws C and their operating mechanism. The half-shell A is cut away at D′, or cast to form radial walls D, to support and guide the jaws C, which are similar in construction to those shown in Letters Patent granted me August 18, 1874.

The solid portion of the shell is also cut away or recessed to receive the driving-nut, pinion, lock-nut, and check-nut, and form bearings for the same, and also a vertical wall or partition, *a*, to be more fully explained hereinafter.

The jaws C are constructed and arranged in place similar to those described in the Letters Patent herein named. The half-shell B is adapted to receive a flat driver, E, the face of which, near the periphery, is provided with bevel-gear teeth for the purpose to be presently explained. The shell is also cut away at *b* in its circular wall to form half-bearings, similar to those in the shell A, the two half-shells being secured in position by suitable screws at the points *c*, *c*, and *c*.

The main driving and driven gear E is provided with an annular recess, *d*, to receive the flange of the driving-nut, and the under face is made in the manner shown, or in any other suitable form to freely turn, when lubricated, on the shell B. The upper face is flat, and serves as a support for the back end of the jaws C. The jaws C are formed with a screw, F, adapted to work within driving-nuts G. (Shown clearly at Fig. 8.) These nuts have their inner ends formed with a flange, *e*, which rests within the annular recess *d* in shell B, and behind the vertical wall *a* of the shell A; and when the shells are together the nut is thus prevented from moving toward the center, and it is at the same time prevented from moving outward, by reason of the bevel-gear pinion H bearing against the wall of the recess formed to receive it in the shell A, (the nut and pinion being held in position by the screw-thread,) and hence, as the bevel-gear cannot move except upon its axis, it follows that the rotation of the gear causes the screw F of the jaw C to travel longitudinally, and thus the jaw is made to approach or recede from the center of the chuck.

The nut G is squared at *f* to receive a wrench, by which it is turned. It is cylindrical at *g*, and is threaded at the corners *h*, and flattened at *i* to correspond with the opening in the lock-nut I, Fig. 6.

K, Fig. 5, is a jam-nut with a similar thread, and designed to secure the several parts shown at Figs. 6, 7, and 8 together.

The gear H has a short cylindrical hub, *k*, in rear of the teeth, which is checked or serrated radially, and adapted to receive similar teeth or notches, *l*, on the face of the nut I, so that when said nut is forced into position by the jam-nut K the driving-nut G cannot rotate independently of the gear H; but when the jam-

nut is run back, the gear, with its checks *k*, will slip by and permit the cylindrical portion *g* of nut G to turn freely within the gear H.

When all the parts are in position seen at Figs. 1 and 2 the two shells A B are closed, and secured in position by suitable screws, the recesses *b* in shell B, and similar ones in A, making spaces for the gear H, and forming bearings for the short cylindrical hub *h* of the gear H and the cylindrical exterior of the checked nut I, the flange *e* of the driving-nut G resting against the vertical wall *a* of shell A, and within the annular groove *d* of the main gear E, and thus all dirt and chips are absolutely excluded from reaching the inside of the chuck-shell, as the walls D rest flush against the face of the main gear E. The jam-nut is provided with suitable holes in its exterior face to receive the points of a wrench, by which it is turned.

From the foregoing description it will be seen that when the several parts are all in position the turning of any one of the nuts G by a wrench will rotate the same, and, according to the direction of its rotation, move the jaw C toward or from the center; and as the gear H is made fast by reason of the check-nut I, it will also turn with said nut G, and the gear meshing with the main gear E causes it to rotate, and, in turn, rotate the other meshing pinions, H, which, in turn, operate the other nuts, G, thus causing them all to act in unison and simultaneously to operate all the jaws C; but if it is desired to move any one or more of the jaws independently to adjust them on account of wear, or to cause them to grasp the work out of center, it may be accomplished by running back the jam-nut K, which no longer holds the check-nut I in contact with the checked hub of the pinion-gear H, and the driving-nut G is then free to rotate to adjust the jaw to which it is affixed without affecting the pinion-gear, which remains at rest, and does not, therefore, rotate the main gear E, thus leaving the other jaws passive.

It will be seen that all the parts of my improved chuck are simple and very readily made and put together, and when in position and freely lubricated work very easily.

It will also be observed that when the wrench is applied to a nut which has not had its jam-nut loosened, the pinion will drive the main gear, which, in turn, will cause any other one in which the jam-nut has not been loosened to be operated, as hereinbefore stated.

What I claim as new, and desire to secure by Letters Patent, is—

1. The nut G, formed, as described, with the flange *e*, cylindrical portion *g*, threaded corners *h*, flat surfaces *i*, and squared end *f*, substantially as and for the purposes set forth.

2. The combination and arrangement of the nut G, loose bevel-gear H, locking-nut I, and jam-nut K, substantially as and for the purpose set forth.

3. In combination with the nuts G, bevel-gear H, lock-nuts I, jam-nuts K, and jaws C, the shells A B, constructed as described, to form bearings and prevent end thrust, substantially as set forth.

4. In combination with the shells A B, jaws C, and bevel-gears H, the main gear E, for operating the bevel-gears and forming a bearing for the back ends of the jaws C, substantially as hereinbefore set forth.

5. The main driving-gear E, formed with a central flat portion to form a bearing, as described, and provided with an annular groove to receive the flange of the driving-nut, substantially as and for the purposes set forth.

Witness my hand and seal this 18th day of March, A. D. 1878.

JOHN H. VINTON. [L. S.]

In presence of—

THEODORE COURTRIGHT,
WILLIAM O'MALLEY.