

No. 624,225.

Patented May 2, 1899.

G. F. LARKIN.
HAT BLOCK CHUCK.

(Application filed Dec. 31, 1898.)

(No Model.)

2 Sheets—Sheet 1.

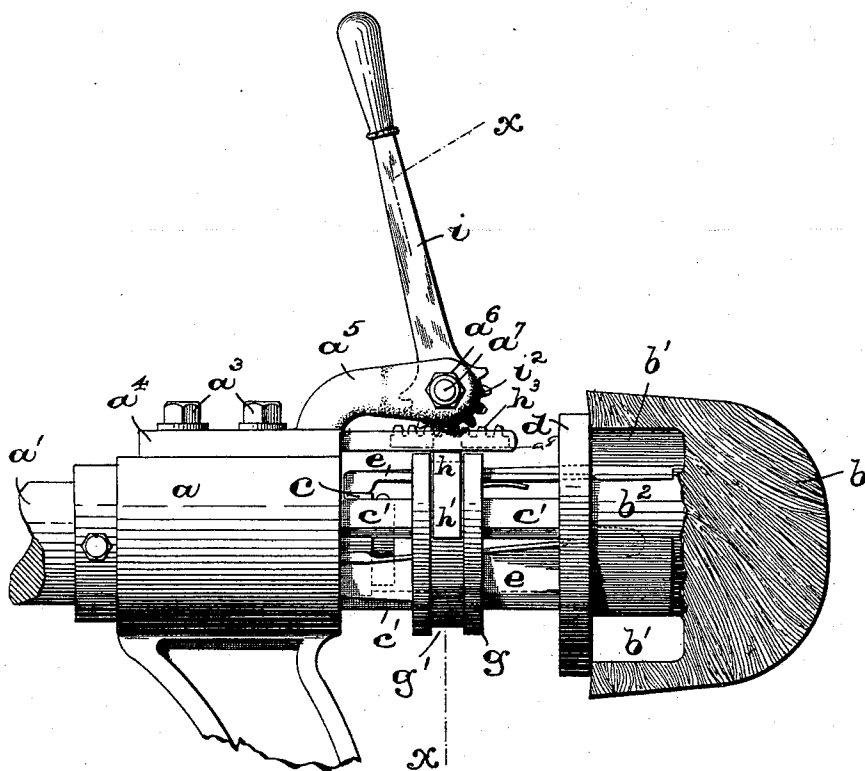
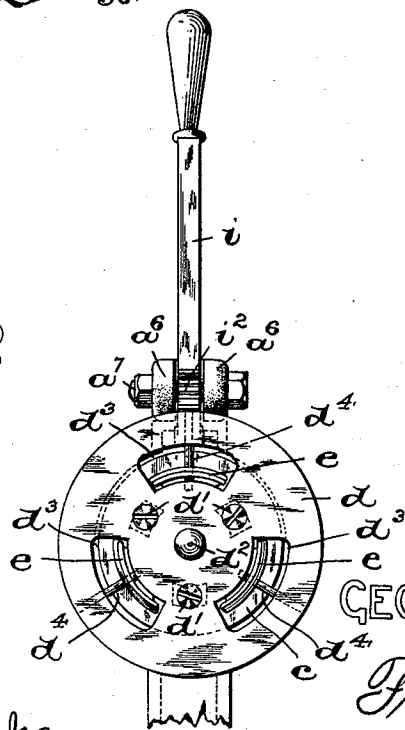


FIG. 1

FIG. 2



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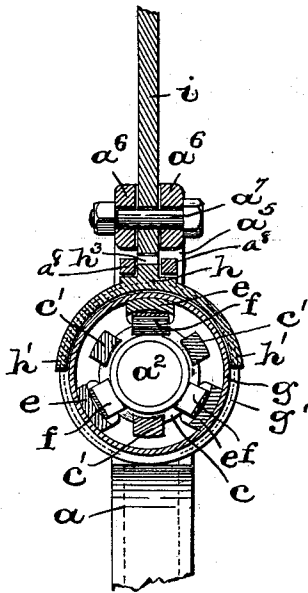


FIG. 3

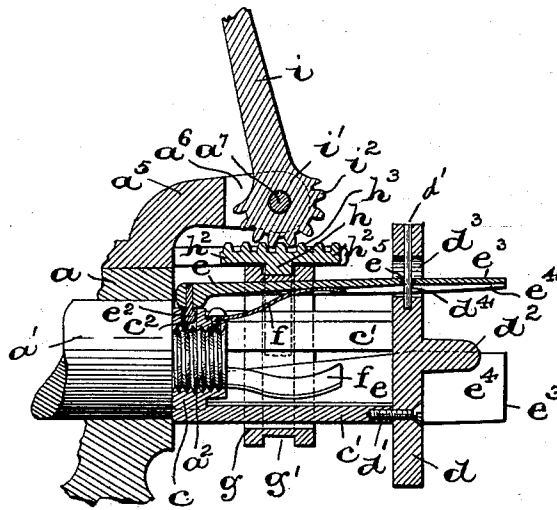


FIG. 4

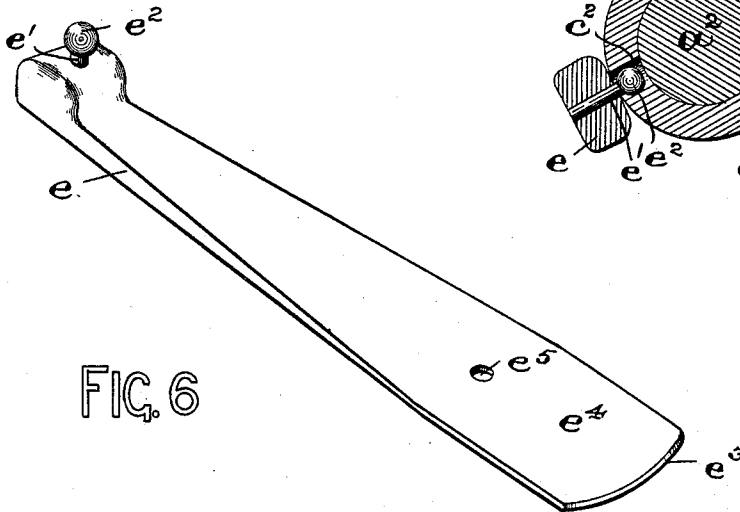


FIG. 6

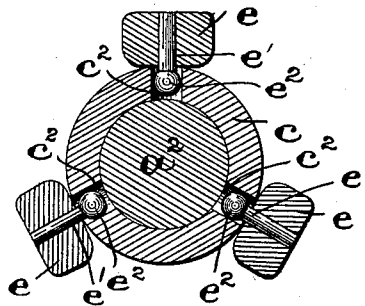


FIG. 5

WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE F. LARKIN, OF NEWARK, NEW JERSEY.

HAT-BLOCK CHUCK.

SPECIFICATION forming part of Letters Patent No. 624,225, dated May 2, 1899.

Application filed December 31, 1898. Serial No. 700,796. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. LARKIN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hat-Block 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention has reference to certain new and useful improvements in hat-block chucks; and the invention has for its principal object to provide a novel construction of hat-block chuck which can be readily secured in position on the end of a lathe-spindle and can be easily detached therefrom while the spindle is revolving.

This invention has for a further object to provide a novel and effectively - operating clutch construction for readily securing the hat-block in its operative position on the lathe.

With these several objects in view the invention consists generally in the novel construction of hat-block clutch hereinafter described, and, furthermore, my present invention consists in such novel arrangements and combinations of parts and the details of the construction thereof, all of which will be more fully set forth in the accompanying specification and finally embodied in the clauses of the claim.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of my novel construction of hat-block chuck in its operative position on the lathe-spindle, the lathe and its spindle being broken away and the hat-block being represented in part in vertical section. Fig. 2 is an end view of the several parts illustrated in said Fig. 1 with the hat-block detached. Fig. 3 is a vertical cross-section taken on line x in said Fig. 1. Fig. 4 is a longitudinal vertical section of the hat-block chuck with the hat-block detached; and Fig. 5 is a vertical cross-section, on an enlarged scale, of the lathe-spindle, the chuck-collar, and the chuck-jaws, said view illustrating in detail the pivotal connection be-

tween each chuck-jaw and the chuck-collar. Fig. 6 is a perspective view of one of the chuck-jaws.

Similar letters of reference are employed in all of the said above-described views to indicate corresponding parts.

In said drawings, b indicates the hat-block, which is provided within its rear face with an annular recess b' to provide a central hub b^2 , substantially as illustrated in Fig. 1. Rotatively arranged in the usual form of bearing a of any of the well-known constructions of lathe is the lathe-spindle a' , which, as will be seen more especially from Fig. 4, is provided with a screw-threaded end a^2 for receiving the hat-block chuck, as will be set forth more in detail in the following description.

Secured upon the upper portion of the bearing a by means of bolts or screws a^3 or in any other well-known manner is a plate a^4 , having a forwardly-extending arm a^5 , which is bifurcated at its free end by having a pair of perforated bearing portions a^6 , in which there is a pin or bolt a^7 to be used for the purposes hereinafter set forth.

The hat-block chuck consists, essentially, of a screw-threaded hub c , having two or more (preferably three, as here illustrated) forwardly-extending arms or posts c' , to the free ends of which is secured by means of screws d' or in any other suitable manner a chuck-head d , which is provided with a forwardly-extending and centrally-arranged bearing-pin d^2 , which extends into a correspondingly-arranged socket in the central hub b^2 of the hat-block when the latter is secured in position, as will be presently set forth. In the peripheral surface of the hub c I have arranged a suitable number of holes or sockets c^2 , preferably three in number, as indicated in Fig. 5, in each of which is operatively arranged the ball-shaped end e^2 of a post e' at the rear end of each chuck-jaw e in such a manner that each jaw e has a free oscillatory motion when in its operative position in the hat-block chuck proper.

The construction of each chuck-jaw is illustrated more particularly in Fig. 6, the forward end e^3 of each jaw being flattened out, as shown, and curved on its under side e^4 to correspond with the cylindrical surface of the hub b^2 of the hat-block, or approximately so.

Each jaw *e* has in engagement with its under side a suitable spring, as *f*, which is operatively secured at one end to the hub *c* and presses against the jaw, so that the normal tendency of each jaw is to be forced outwardly or in a direction away from the longitudinal and central axis of the lathe-spindle, as will be clearly evident from an inspection of Fig. 4. The forward end portions of said chuck-jaws *e* extend into and through correspondingly-arranged openings *d*³ in the chuck-head *d*, said openings being sufficiently large to allow of an outward radial motion of the forward ends of said jaws.

To limit the excess lateral motion of the forward ends of the jaws *e*, each jaw has a hole *e*⁵ directly in alinement with centrally-arranged pins *d*⁴, which are driven into the peripheral edge of the head *d* and down through the openings *d*³ into the body of said head, as clearly illustrated in Figs. 2 and 4. Said pins *d*⁴ are passed through the holes *e*⁵ in the respective chuck-jaws *e*, the diameter of each hole *e*⁵ being slightly greater than the diameter of the pin to permit of a limited lateral motion of each jaw *e*, whereby the free end of each jaw will readily accommodate itself to any inequalities in the cylindrical surface of the hub *b*² of the hat-block *b* when brought in operative grasping position with the hub.

Slidably arranged on the several chuck-jaws *e* is a collar *g*, having a central opening of an interior diameter approximately equal to or a trifle larger than the diameter of a circle passing through the outer surfaces of the radially-arranged jaws, so that any forward motion of said collar *g* will depress said jaws *e* and bring their free ends in operative clamping or holding relation with the cylindrical surface of the hub *b*² of the block, as will be clearly understood. Said collar *g* is provided with a circumferential groove *g*¹, and operatively fitted in said groove is a bearing-block *h*, having the arc-shaped parts *h*¹, which fit in the circumferential groove *g*¹ to more readily retain the said block *h* in its operative position on the collar *g*. To prevent any lateral displacement of said block *h*, the latter is operatively arranged between a pair of guides *a*⁸, which extend longitudinally and forwardly from said plate *a*⁴, substantially as illustrated. Said block *h* is provided at the top with oppositely-projecting arms *h*², having gear-teeth *h*³, whereby a suitable rack is provided. Pivotaly arranged on the pin or bolt *a*⁷ hereinabove mentioned is the hub *i*¹ of an operating-lever *i*, said hub being provided with gear-teeth *i*², which are in operative mesh with the rack-teeth *h*³.

From an inspection of Figs. 1 and 4 it will be evident that by throwing the lever *i* forward the collar *g* will be moved toward the bearing *a* of the lathe and the springs *f* will cause the jaws *e* to become relaxed from their gripping or holding relations with the hub *b*² of the hat-block; but a backward movement

of the lever *i* causes the collar *g* to slide forward, whereby the ends of the jaws *e* are brought in grasping or holding relation with the hub of the hat-block.

Normally when the machine is at rest the lever *i* is in its forward position, and the block *b* can be placed against the head *d*. The lever *i* is then thrown backward, thereby driving the collar *g* forward and forcing the jaws *e* firmly against the hub *b*² of the hat-block, whereby the latter is held in its operative position.

From the above description it will be seen that I have devised a simple and operative mechanism for attaching a hat-block in its operative relation upon the lathe-spindle or for removing it therefrom while the spindle is revolving.

I am fully aware that changes may be made in the various arrangements and combinations of the parts, as well as in the details of the construction thereof, without departing from the scope of my present invention—as, for instance, the hat-block chuck proper may be differently secured in position upon the end of the lathe-spindle and the chuck-head *d* may be variously connected with the ends of the arms or posts *c*¹ of the chuck-collar *c*; also, the centering pin of said head *d* may be dispensed with, if desired. Hence I do not limit my invention to the exact arrangements and combinations of the several parts herein described and illustrated, nor to the details of the construction thereof.

Having thus described my invention, what I claim is—

1. The combination, with a bearing and a lathe-spindle, of a hat-block chuck, comprising spring-actuated chuck-jaws, a collar sliding circumferentially on said jaws, means connected with said bearing for preventing lateral displacement of said collar, a rack on said collar, and a toothed operating-lever in engagement with said rack whereby said jaws may be actuated to cause them to grasp the hub of a hat-block, substantially as and for the purposes set forth.

2. The combination, with a bearing and a lathe-spindle, of a hat-block chuck, comprising spring-actuated chuck-jaws, a collar sliding circumferentially on said jaws, a circumferential groove in said collar, a block having arc-shaped parts fitted in said groove, means connected with said bearing for preventing lateral displacement of said collar, a rack on said block, and a toothed operating-lever in engagement with said block whereby said jaws may be actuated to cause them to grasp the hub of a hat-block, substantially as and for the purposes set forth.

3. The combination, with a bearing and a lathe-spindle, of a hat-block chuck, comprising a hub, forwardly-extending arms or posts on said hub, a chuck-head on said arms or posts having openings, spring-actuated chuck-jaws on said hub having their free ends ex-

tending into and through said openings in the chuck-head, a collar sliding circumferentially on said jaws, and means by which said jaws may be actuated to cause them to grasp the
 5 hub of a hat-block, substantially as and for the purposes set forth.

4. The combination, with a lathe-spindle, of a hat-block chuck, comprising a hub, forwardly-extending arms or posts on said hub,
 10 a chuck-head on said arms or posts having openings, spring-actuated chuck-jaws on said hub having their free ends extending into and through said openings in the chuck-head, a collar sliding circumferentially on said jaws,
 15 a circumferential groove in said collar, a block having arc-shaped parts fitted in said groove, a rack on said block, and a toothed operating-lever in engagement with said block whereby
 20 said jaws may be actuated to cause them to grasp the hub of a hat-block, substantially as and for the purposes set forth.

5. The combination, with a lathe-spindle, of a hat-block chuck, comprising a hub, forwardly-extending arms or posts on said hub,
 25 a chuck-head on said arms or posts having openings, spring-actuated chuck-jaws on said hub having their free ends extending into and through said openings in the chuck-head, pins in said openings passing through perforations in said chuck-jaws to prevent lateral
 30 movement, a collar sliding circumferentially on said jaws, and means by which said jaws may be actuated to cause them to grasp the

hub of a hat-block, substantially as and for the purposes set forth.

6. The combination, with a lathe-spindle, of a hat-block chuck, comprising a hub having sockets, chuck-jaws having ball-posts in said sockets, whereby said jaws have an oscillatory motion, a collar sliding circumferentially on said jaws, means to limit the lateral motion of said jaws, and mechanism by which
 40 said jaws may be actuated to cause them to grasp the hub of a hat-block, substantially as and for the purposes set forth.

7. The combination, with a lathe-spindle, of a hat-block chuck, comprising a hub having sockets, forwardly-extending arms or posts on said hub, a chuck-head on said arms or posts having openings, chuck-jaws having
 50 ball-posts in said sockets, whereby said jaws have an oscillatory motion, and said jaws having their free ends extending into and through said openings in the chuck-head, a collar sliding circumferentially on said jaws, and means
 55 whereby said jaws may be actuated to cause them to grasp the hub of a hat-block, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this
 60 28th day of December, 1898.

GEORGE F. LARKIN.

Witnesses:

FREDK. C. FRAENTZEL,
 WALTER H. TALMAGE.