(No Model.) 2 Sheets—Sheet 1.

J. B. CLYNE.

AUTOMATIC FEED MECHANISM FOR CHUCKS.

No. 447,144. Patented Feb. 24, 1891.

Fig. 2.

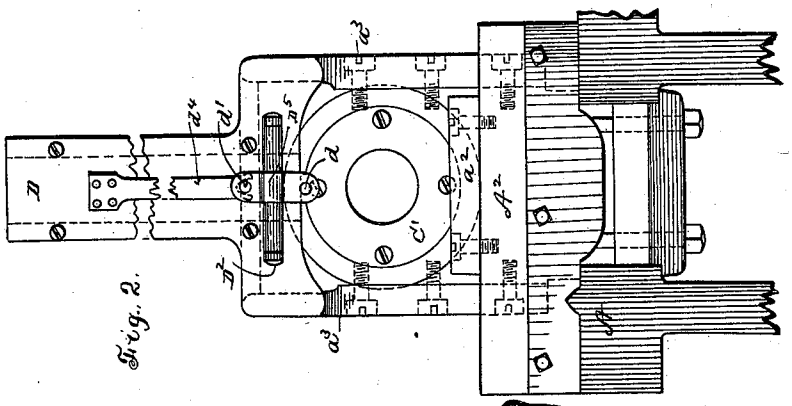
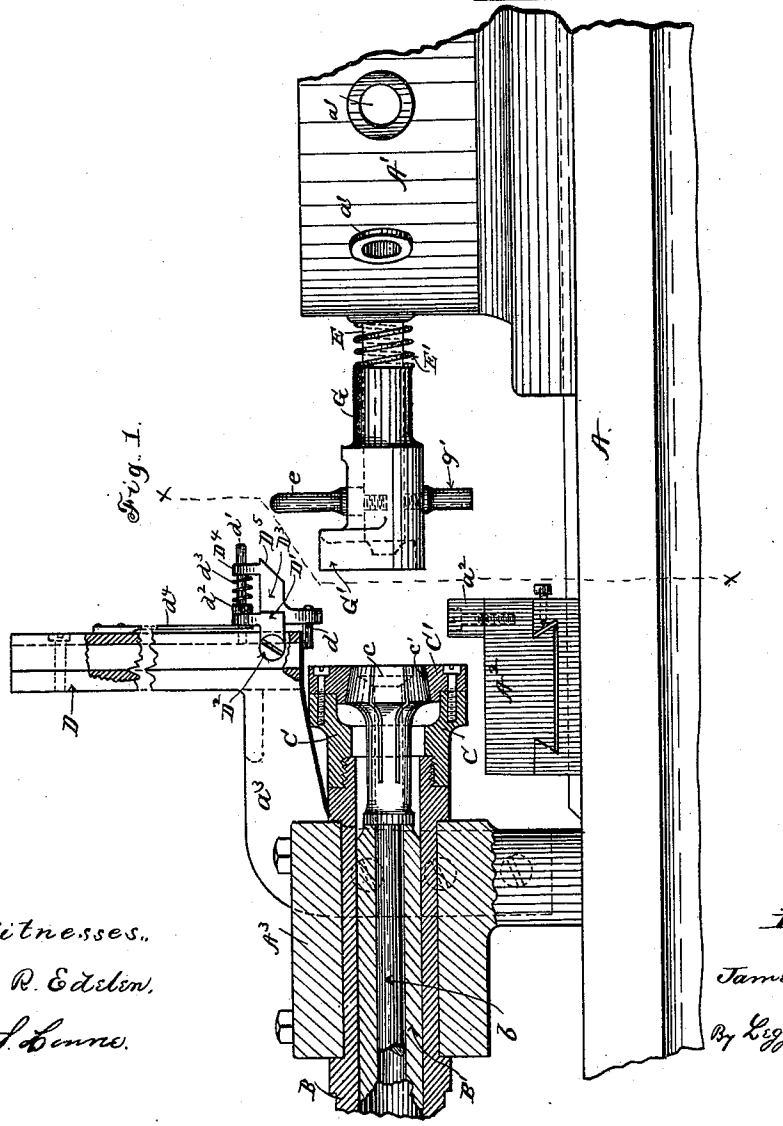


Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

J. B. CLYNE.

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Fig. 10.

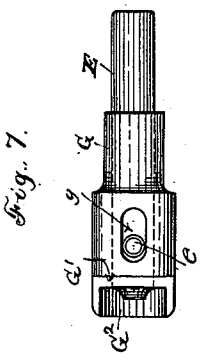


Fig. 7.

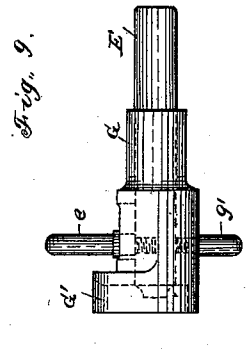


Fig. 9.

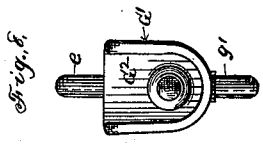


Fig. 8.

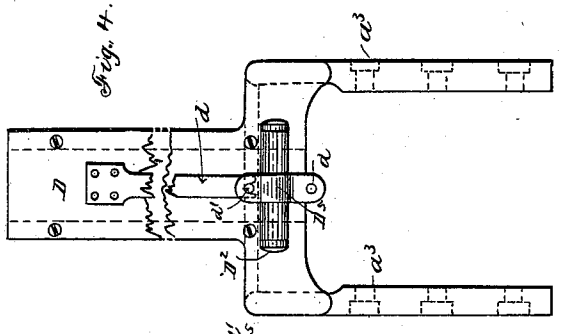


Fig. 4.

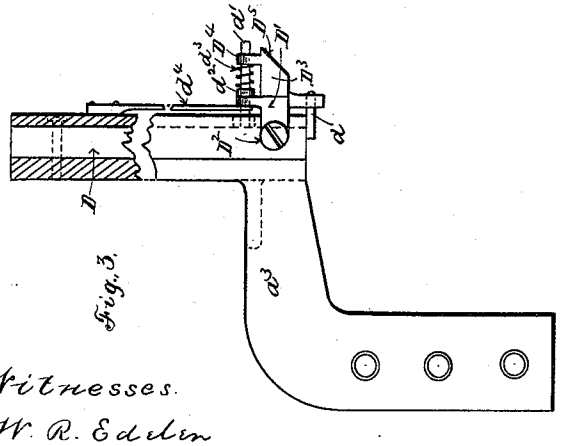


Fig. 3.

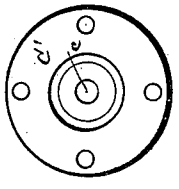


Fig. 6.

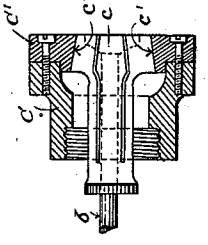


Fig. 5.

Witnesses.
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By Liggett & Liggett
Atty's.

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UNITED STATES PATENT OFFICE.

JAMES B. CLYNE, OF CLEVELAND, OHIO, ASSIGNOR TO THOMAS H. WHITE, OF SAME PLACE.

AUTOMATIC FEED MECHANISM FOR CHUCKS.

SPECIFICATION forming part of Letters Patent No. 447,144, dated February 24, 1891.

Application filed March 5, 1890. Serial No. 342,730. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. CLYNE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Automatic Feed Mechanism for 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 pertains to make and use the same.

My invention relates to improvements in automatic feed mechanism for chucks; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation, partly in section. Fig. 2 is an end view in section on line *x x*, Fig. 1. Figs. 3 and 4 are side and front elevation of the feed-box and attachments detached. Figs. 5 and 6 are details of the chuck, the former being a longitudinal section and the latter being an end elevation. Fig. 7 is a plan in detail. Fig. 8 is an end elevation, and Fig. 9 is a side elevation in detail. Fig. 10 is a view in perspective of a blank shown only as a sample.

A represents the ways of a turret-lathe; A′, the turret; A^2, a cross-slide, and A^3 the head-block.

B represents a hollow spindle, to which is attached a chuck C. The chuck has a removable face-plate C′, and has jaws *c* for grasping the work, the elastic shanks of these jaws being integral at the inner end thereof. The face-plate has a conical bore *c′*, the larger end thereof presenting inward, and the jaws are closed upon the work by being forced forward against the conical walls of the face place by means of sleeve B′, and the jaws backing and opening by the recoil of the jaw-shanks with the reverse movement of this sleeve. Sleeve B′ operates in the bore of the spindle, and a rod *b* operates in the bore of the sleeve for dischaging the work from the chuck when the jaws thereof open. The turret is provided with a series of radial holes *a′* for introducing different tools, the turret being automatically actuated both in its reciprocations toward and from the chuck, and in its intermittently-rotative movement on its axis. Slide A^2 is for attaching side tools, this slide being operated automatically or by hand, according to circumstances. This mechanism is well known, and the foregoing brief description is believed to be sufficient to show the connection and operation thereof with my improvements, which are as follows:

D is an upright container-magazine or feed-box, the latter having a vertical chamber, open top and bottom and adapted to receive loosely the blank, so that the latter will descend therein by gravity, and hence this feed-box and the internal chamber thereof may vary indefinitely, according to the size and shape of the blank. The blanks are usually round disks, with likely a hub that requires to be turned, faced, and bored. Thus far I have attached the feed-box to lathes that were already in use, and for supporting the feed-box I have employed bent arm a^3, these arms being attached to the sides of the head-block. For new lathes some provision would likely be provided for attaching the feed-box to some projecting member of the head-block.

The cut-out mechanism for discharging the blanks one at a time from the feed-box is as follows: A tilting lever D′ is pivoted, for instance, at D^2 to the feed-box. This lever has a lateral arm D^3, projecting toward the turret. The tilting lever, at or near the lower end thereof, is provided with a rigid pin *d*, the latter, in the normal position of the tilting lever, being adapted to extend under the line of the chamber of the feed-box to hold the blanks from falling out. The upper member of the tilting lever and lug D^4 of the arm D^3 are pierced for receiving a pin *d′* loosely, this pin being provided with a collar d^2, rigidly secured thereto, and between this collar and lug D^4 is located a spring d^3, preferably coiled around the pin and bearing against the collar and against the lug, the tension of this spring holding pin *d′* normally thrust as far toward the feed-box as the engagement of collar d^2 with the tilting lever will admit. Arm D^3 is provided with inclined face D^5 for operating the cut-out. A spring d^4 is fastened to the face of the feed-box, the free

end of this spring bearing against the upper section and inner face of the tilting lever for holding this end of the tilting lever normally away from the feed-box, in which position of parts the pin d extends under the feed-box and pin d' is withdrawn so far as not to obstruct the passage of the blanks through the feed-box. By raising the arm D^3 the lever D′ is tilted in the direction to thrust pin d' into the chamber of the feed-box and to withdraw pin d, thus cutting out the lower blank and allowing it to fall from the feed-box. In case the blanks are of such shape that pin d' cannot enter between the first and second blanks from the bottom of the feed-box the pin will engage the second blank, and by such engagement will be snubbed back against the action of spring d^3, in which case the tension of this spring will cause pin d' to bear against the blank with sufficient force to hold the blanks from falling until such time as the tilting lever, by the action of spring d^4, is returned to its normal position.

The device for receiving the blank discharged from the feed-box and delivering the same to the chuck is as follows: E is a small shaft or mandrel, the one end thereof being inserted in one of the holes a' of the turret. On shaft E is mounted with an easy fit sleeve G. The sleeve is provided with a slot g, in which slot operates an upright pin e, the latter being an attachment of shaft E.

E′ is a spring coiled around the shaft and located between the turret and the sleeve and bearing against each, the tension of this spring tending to hold the sleeve as far away from the turret as the engagement of pin e with the inner end wall of slot g will admit, in which normal position of the sleeve the head G′ thereof overhangs shaft E. Head G′ is provided with a recess G^2, adapted to receive the blank, this recess being open at the top and at the ends of the sleeve. (See Figs. 7 and 8.)

In operating the machine, the jaws of the chuck having been opened and the work discharged thereform, and the turret having been turned in such position that shaft E presents toward the chuck, the turret is then advanced so as to bring the head of the sleeve under the feed-box in position for a blank to descend into the recess G^2. To prevent the sleeve from engaging the face-plate of the chuck, and thereby causing friction and wear, the sleeve is provided with a pin g' that by engaging stop a^2 of slide A^2 holds the sleeve slightly separated from the face-plate. Meantime pin e, by engaging incline D^5, tilts lever D′, and thereby discharges a blank from the feed-box into recess G^2, whereupon the further advance of the turret causes shaft E to force the blank into the chuck, such further advance of the turret, of course, compressing spring E′. With the reverse movement of the turret the parts return to their normal position. As aforesaid, cross-slide A^2 is for attaching side tools, the latter being sometimes attached to the back end and sometimes to the front end of the slide, according to the nature of the work; but this slide necessarily remains at rest either in its rearward or forward position while the blank is being fed to the chuck. Stop a^2, therefore, comprises a narrow strip of metal attached so far to the one side of the slide that it is out of the way in attaching tools to the slide, this stop being of such length that it will engage pin g' in whichever position the slide happens to be. With such construction the feed mechanism hereinbefore described does not interfere in the least with the legitimate use of the cross-slide, and as the blanks descend by gravity through the chamber of the feed-box these blanks may be supplied from time to time without stopping the lathe, the feed-box usually being of such length as to hold a goodly number of blanks at a time.

The details of construction may be varied more or less without departing from the spirit and purpose of my invention. For instance, flat or other than coiled springs might be substituted for springs d^4 and E′, and a coil-spring might take the place of spring d^3; also, various changes might be necessary in adapting the device to the various turret-lathes, and such changes will readily suggest themselves to the builder.

What I claim is—

The combination, with upright feed-box and cut-out mechanism consisting, essentially, of a tilting lever carrying two stops or projections, one of which is yieldingly held in position, of a shaft projecting laterally from the lathe-turret, a spring-actuated sleeve mounted on such shaft, such sleeve having a recess adapted to receive the blanks discharged from the feed-box, the shaft having a projecting member adapted to actuate the tilting lever of the feed-box, substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 3d day of February, 1890.

JAMES B. CLYNE.

Witnesses:

CHAS. H. DORER,

WILL B. SAGE.