(No Model.) 2 Sheets—Sheet 1.

R. B. CODLING.

MACHINE FOR FINISHING CASTER ROLLERS.

No. 398,378. Patented Feb. 26, 1889.

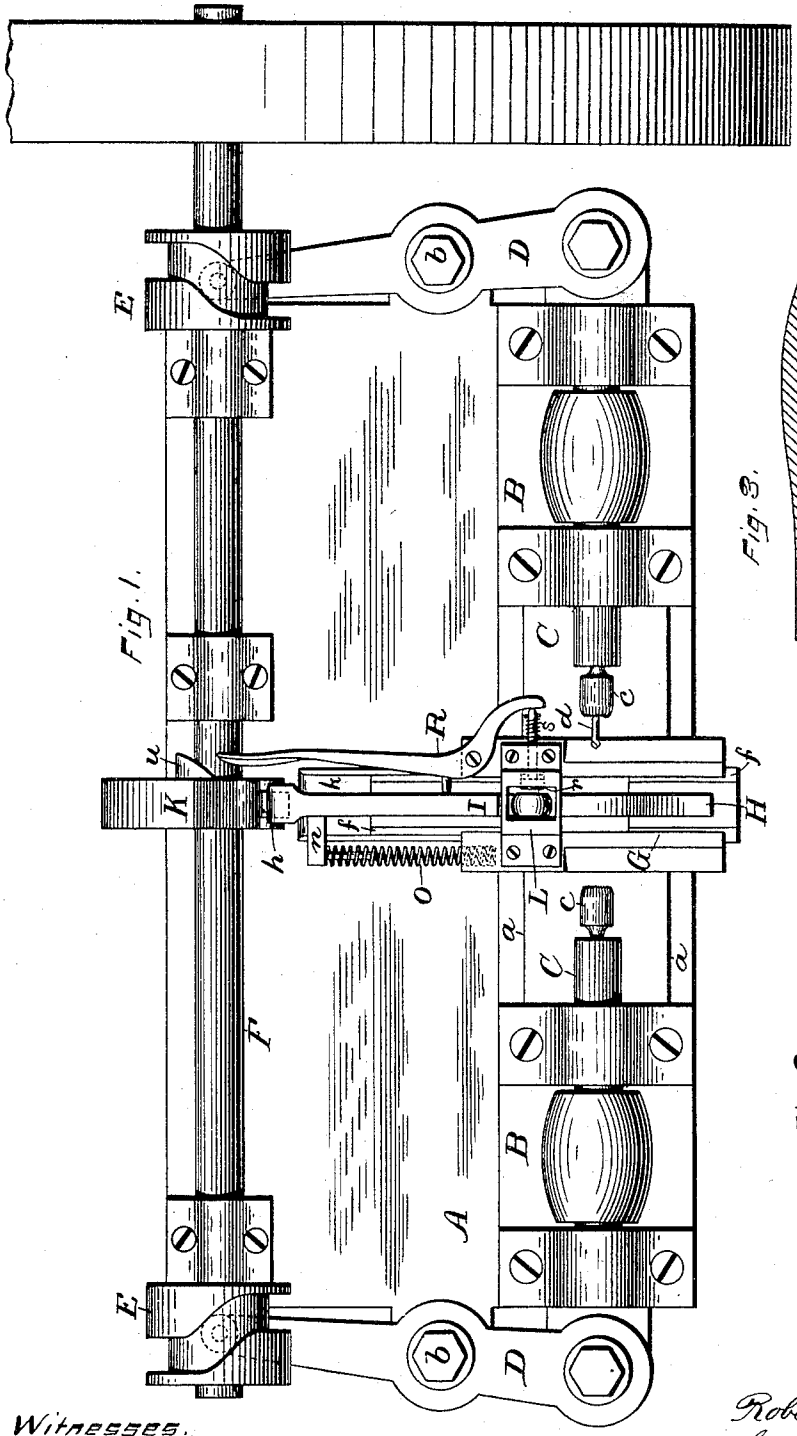


Fig. 1.

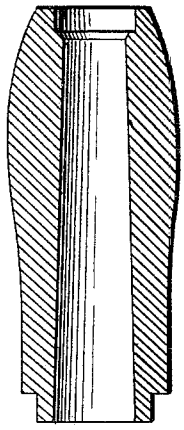


Fig. 3.

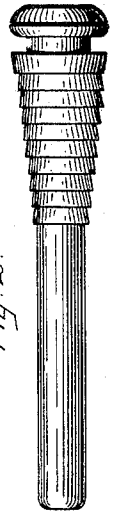


Fig. 2.

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Fig. 4.

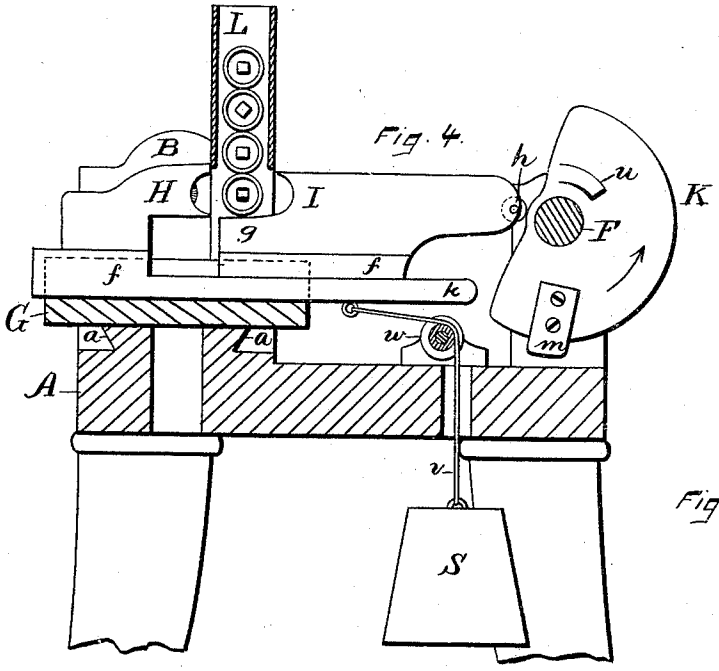


Fig. 6.

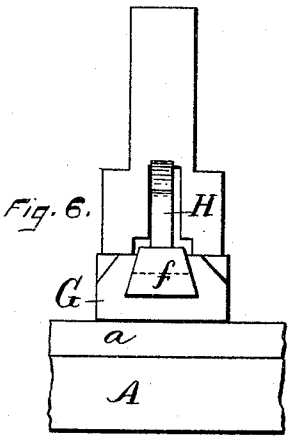


Fig. 5.

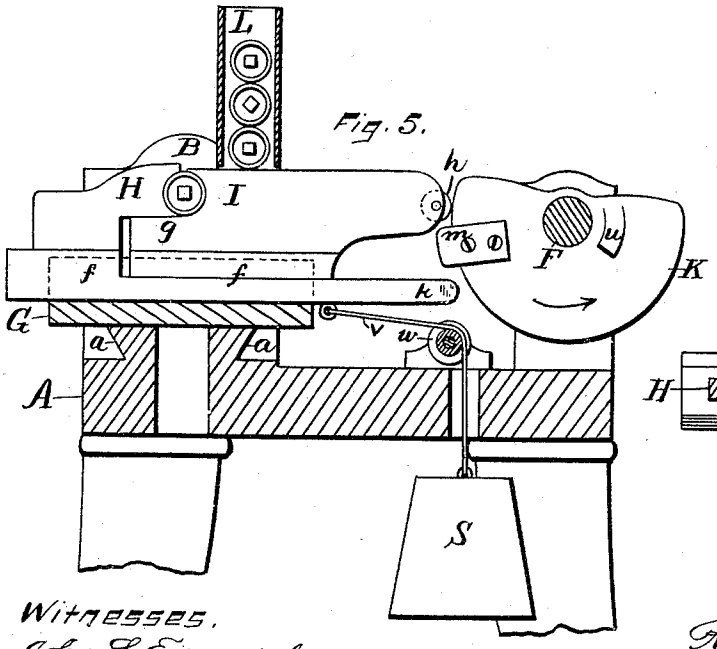
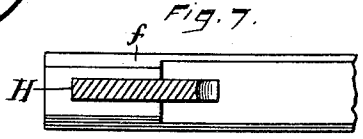


Fig. 7.



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UNITED STATES PATENT OFFICE.

ROBERT B. CODLING, OF BRISTOL, CONNECTICUT.

MACHINE FOR FINISHING CASTER-ROLLERS.

SPECIFICATION forming part of Letters Patent No. 398,378, dated February 26, 1889.

Application filed June 20, 1888. Serial No. 277,623. (No model.)

To all whom it may concern:

Be it known that I, ROBERT B. CODLING, a citizen of the United States, residing at Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machines for Finishing Caster-Rollers, of which the following is a specification.

My invention relates to improvements in machines for finishing the sides of caster-rollers or the sides or ends of other turned work; and the objects of my improvement are to render the machine automatic in its action and to increase its productiveness and general efficiency.

In the accompanying drawings, Figure 1 is a plan view of my machine. Fig. 2 is a side elevation of a bobbin such as may have its ends finished by my machine. Fig. 3 is a longitudinal section of a wrench-handle, the ends of which may also be finished on my machine. Fig. 4 is a transverse vertical section of the main shaft, the hopper, carrier-bed, and bed or frame of my machine with the holding-jaws of the carrier in position to receive a caster-roller. Fig. 5 is a like view of the same with the holding-jaws closed and carried forward to the point where the sides of the roller are finished. Fig. 6 is a detached front elevation of a portion of the lathe-bed, carrier-bed, carrier, and hopper; and Fig. 7 is a horizontal section through the front holding-jaw of the carrier.

A designates the lathe-bed, near the front edge of which, on the upper side, are ways *a a*, upon which the frames B, with the bearings for the spindles C, slide longitudinally. To the end of each spindle-frame B a lever, D, is pivotally connected, the other ends of said levers resting in the grooves of the cams E on the cam-shaft F, the levers being fulcrumed to the lathe-bed, as at *b*. Each of the spindles C is provided with a cutter, *c*, for finishing the sides of a caster-roller to the desired shape, the shape of the cutter being determined by the shape of the work required. I also provide one of the spindles with a drill, *d*, for drilling the axial hole through the caster-roller.

Between the cutter ends of the spindles is the carrier-bed G, the carrier consisting of two holding-jaws, H I, having a dovetail-shaped base, *f*, fitted to slide in the dovetailed ways of the carrier-bed G, or fitted to have the same movement from front to rear in equivalent ways or guides.

Both holding-jaws have gripping-faces, which are semicircular in side view and concave in horizontal section to conform to the periphery of the work to be held. The jaw I has a projection, *g*, that extends forward of the holding-face and serves as a stop or rest for the caster-roller to stop it in the proper position when it is dropped in between the open jaws preparatory to being grasped by them. The jaw I has a rearward extension, preferably provided with a friction-roller, *h*, against which the edge face of the cam K bears to force said jaw I forward. Said jaw I is also provided with a side lug, *n*, Fig. 1, against which one end of the spring *o* bears, while the other end of said spring bears against a stationary support on the carrier-bed G, whereby said spring holds the jaw I backward with its roller bearing against the cam K.

The jaw H is provided at its base with an extension, *k*, against which the edge face of cam *m* acts with a short stroke to force said jaw H slightly forward at a given time. The jaw H is also under independent yielding pressure by being connected with the weight S through the cord or strap *v*, which passes over pulley *w*, whereby said jaw H has a constant rearward pressure exerted upon it. This pressure must be sufficiently strong to hold the work, for the pressure of the work between the holding-jaws is determined by this weight. Said jaw H must also be provided with a suitable stop to limit its rearward movement. This I have illustrated as accomplished by the upper inner corner of said jaw coming in contact with the front of the hopper L, as shown in Fig. 4. For convenience of fitting, I make the ways in the carrier-bed deep enough to embrace the dovetailed bases of both jaws when the base of the jaw I is placed on the top of the rearward extension of the base of the jaw H, the two forming together a dovetail which fits that of the ways in the carrier-bed.

L designates the hopper, which is affixed to the carrier-bed at such point as to be immediately over the open jaws when they are

in the position illustrated in Fig. 4. The side of the hopper which extends down by the left-hand side of the jaws constitutes a leveling-wall, and is set true and square with reference to the axis of the lathe-spindles. On the other side of the hopper is a plunger, *r*, having a spring, *s*, around its shank, so as to exert a continual outward pressure on said plunger-shank. A lever, R, Fig. 1, fulcrumed at *t* has one end bearing on said plunger-shank, while its opposite end is in position to be acted upon by the side cam, *u*.

Motion is imparted to the cam-shaft F in the direction indicated by arrow-points in Figs. 4 and 5, the cams being so set or timed that when the spindles C C have been drawn away from each other the cut-away portion of cam K will be opposite the tail end of jaw I, whereby the spring *o* forces the jaw I backward, and the weight pulls back the jaw H until its rearward movement is limited by its stop, the parts being then in the position illustrated in Fig. 4. A caster-roller is then dropped between the jaws H I and rests upon the forward extension, *g*, of the jaw I. The continued movement of the cam-shaft next brings the side cam, *u*, against lever R, thereby pressing the plunger against the side of the roller and in turn pressing the opposite side of the roller against the side of the hopper or equivalent leveling-face to hold it true and square. If desired, the lever R may be light enough to spring a little, and thereby hold the caster-roller for truing it with a yielding pressure. While the caster-roller is thus held the cam K acts to force the jaw I upon the roller, carrying it forward until it presses against the jaw H, after which the roller is grasped with all the force of the weight S. By grasping it when thus held true and square the periphery is properly seated in the jaws, so that the sides will be correspondingly finished by the tools of the spindles. The cam K forces the jaws and caster-roller still farther forward and brings them into axial alignment with the lathe-spindles. The cams E E, through levers D D, act to force the lathe-spindles and their tools toward each other when the drill *d* bores the central hole and the cutters *c c* sweep and finish both sides of the roller, reducing it to a given length or thickness. The concentric face of the cam K now passes the tail of the jaw I as it is about to do so in Fig. 5, while the cam *m* strikes the rearward extension, *k*, of the jaw H, throws said jaw slightly forward and holds it forward until the jaw I retreats under the force of spring *o*, and allows the work to fall from between the jaws. The cut-away portion of the cam is again opposite the tail of the jaws, and they both return to the position illustrated in Fig. 4, ready for a repetition of the operation.

If desired, an opposing plunger like the plunger *r* may be substituted as an equivalent for the stationary leveling-wall formed on one side of the hopper.

While I prefer a weight to regulate the pressure of the holding-jaws, it is evident that a spring might be substituted as an equivalent therefor.

The caster-rollers which I intend to finish in my present machine are those whose peripheries have previously been turned in any proper manner. An example of such turning and a machine for doing the work may be seen in my prior patent, No. 379,307, March 13, 1888. Said patent shows the combination of sliding lathe-heads, cam-shaft, and a carrier between the confronting ends of the lathe-heads, and therefore I hereby disclaim the same.

While I have herein illustrated my machine as fitted specially for finishing caster-rollers I do not wish to confine myself to such use, and I therefore show two examples of other work, which may, by merely such changes as mechanical skill will suggest, be finished in my machine. Fig. 2 shows a bobbin, the periphery of which (that is, all but its two ends) may be turned by any known process, or in a machine like that of my aforesaid patent, and its ends then finished in my present machine. This will require, just as it does for caster-rollers, shaping the holding-faces of the jaws to conform to the work to be held, shaping the finishing-tools to conform to the ends to be finished, and having them stop under the action of the cams when the cutters are the requisite distance apart to bring the work to the desired axial length.

Fig. 3 shows in longitudinal section a wrench-handle, of which it is designed to have the periphery previously turned, while the finishing-machine may drill or ream or drill and ream the axial hole, form the tenon at the left-hand end, and square and counterbore the right-hand end. These two examples explain how the machine is adapted to various work, and it is considered unnecessary to cite other specific examples. It may sometimes be desirable to finish work on only one side or axial end, in which case only one of the lathe-spindles would be necessary.

I claim as my invention—

1. The combination of a pair of holding-jaws, the leveling-plunger and an opposing face for confining the work under lateral pressure when about to be grasped by the jaws, and mechanism for operating said plunger, substantially as described, and for the purpose specified.

2. The holding-jaws having holding-faces and arranged to move for bringing said faces to and from each other, and a weight or spring for holding the jaws together when gripping the work, and thereby determining the pressure of the jaws upon the work, substantially as described, and for the purpose specified.

3. The combination of the holding-jaws I H, the cams K and *m*, acting, respectively, upon the jaws I and H to force them forward, and a pressing device for throwing the jaw I

toward the cam, and another pressing device for throwing the jaw H toward the jaw I and the cams, substantially as described, and for the purpose specified.

4. The combination of a lathe spindle or spindles, the holding-jaws I H, the cams K *m*, acting, respectively, first on the jaw I and then on the jaw H, and pressing devices for returning said jaws, substantially as described, and for the purpose specified.

ROBERT B. CODLING.

Witnesses:
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W. H. GRAHAM.