(No Model.) 2 Sheets—Sheet 1.

A. H. BLISS.

BURNISHING MACHINE.

No. 332,476. Patented Dec. 15, 1885.

Fig. 1.

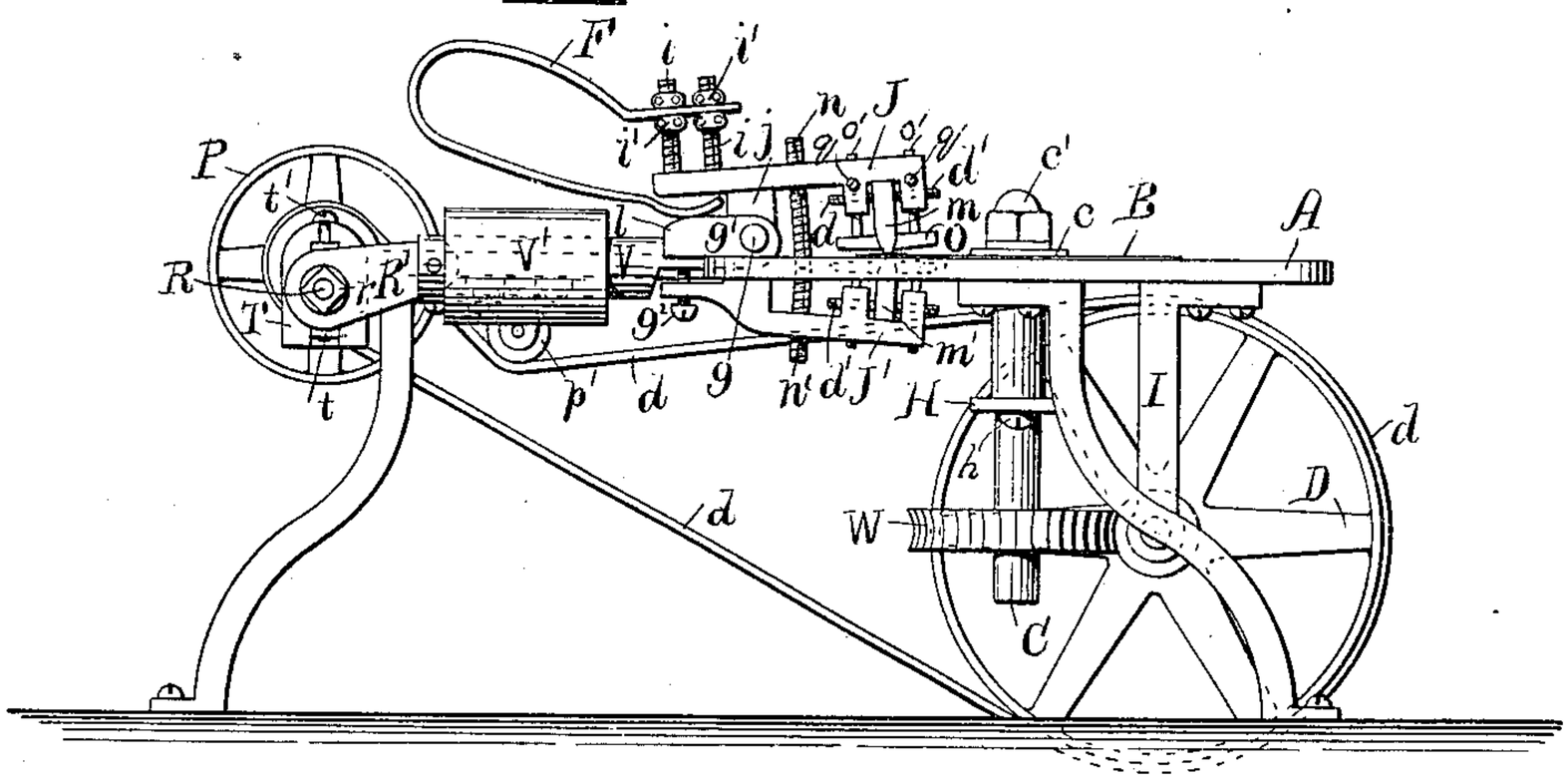
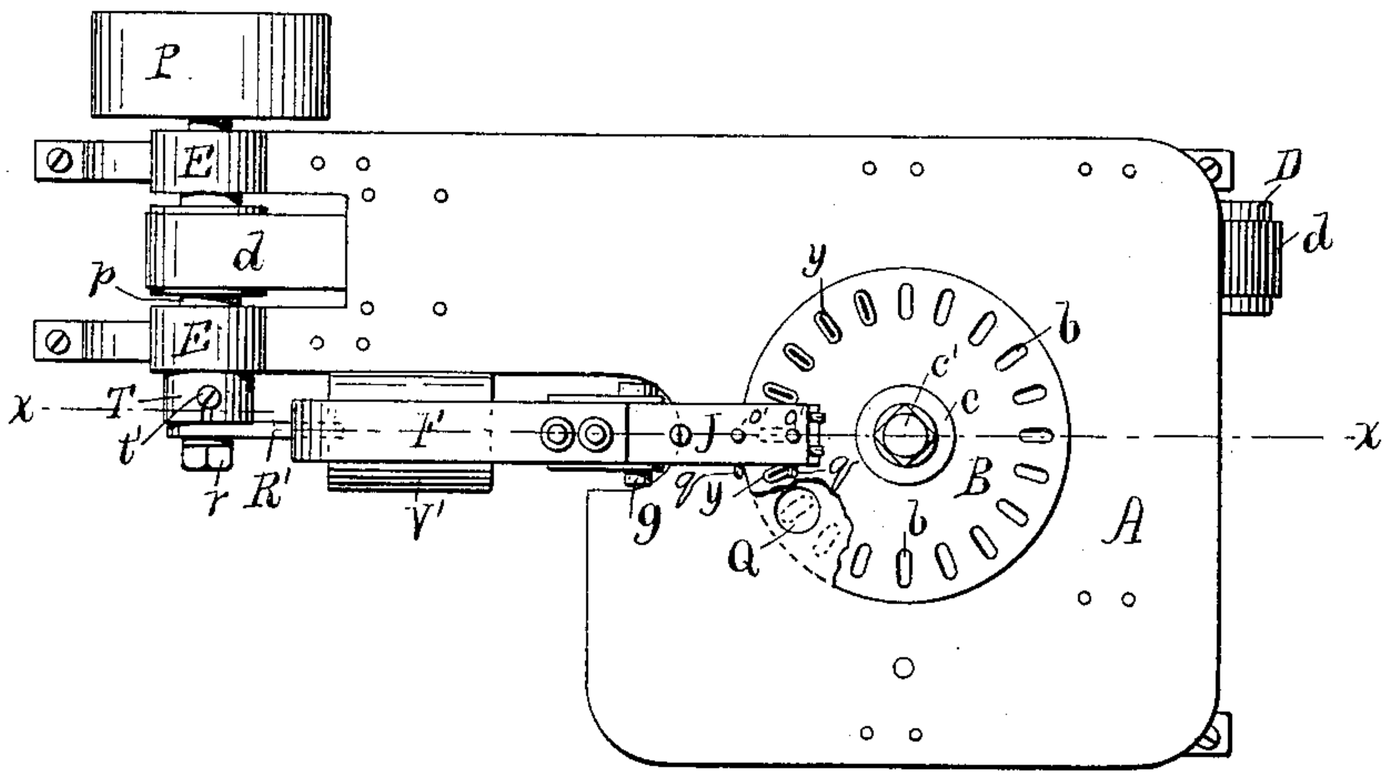


Fig. 2.



WITNESSES:

Chas. H. Luther Jr

Willis Fowler,

INVENTOR:

Anthony H. Bliss

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Attys

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

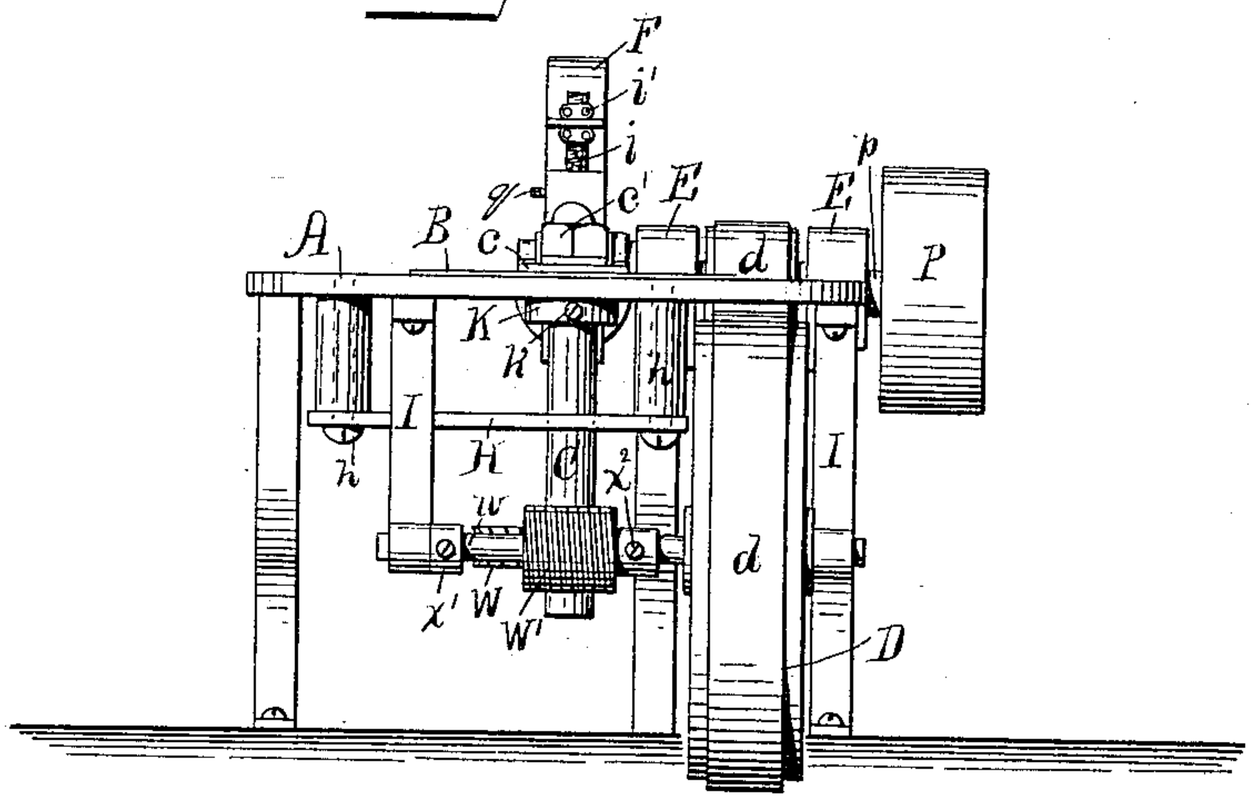


Fig. 4.

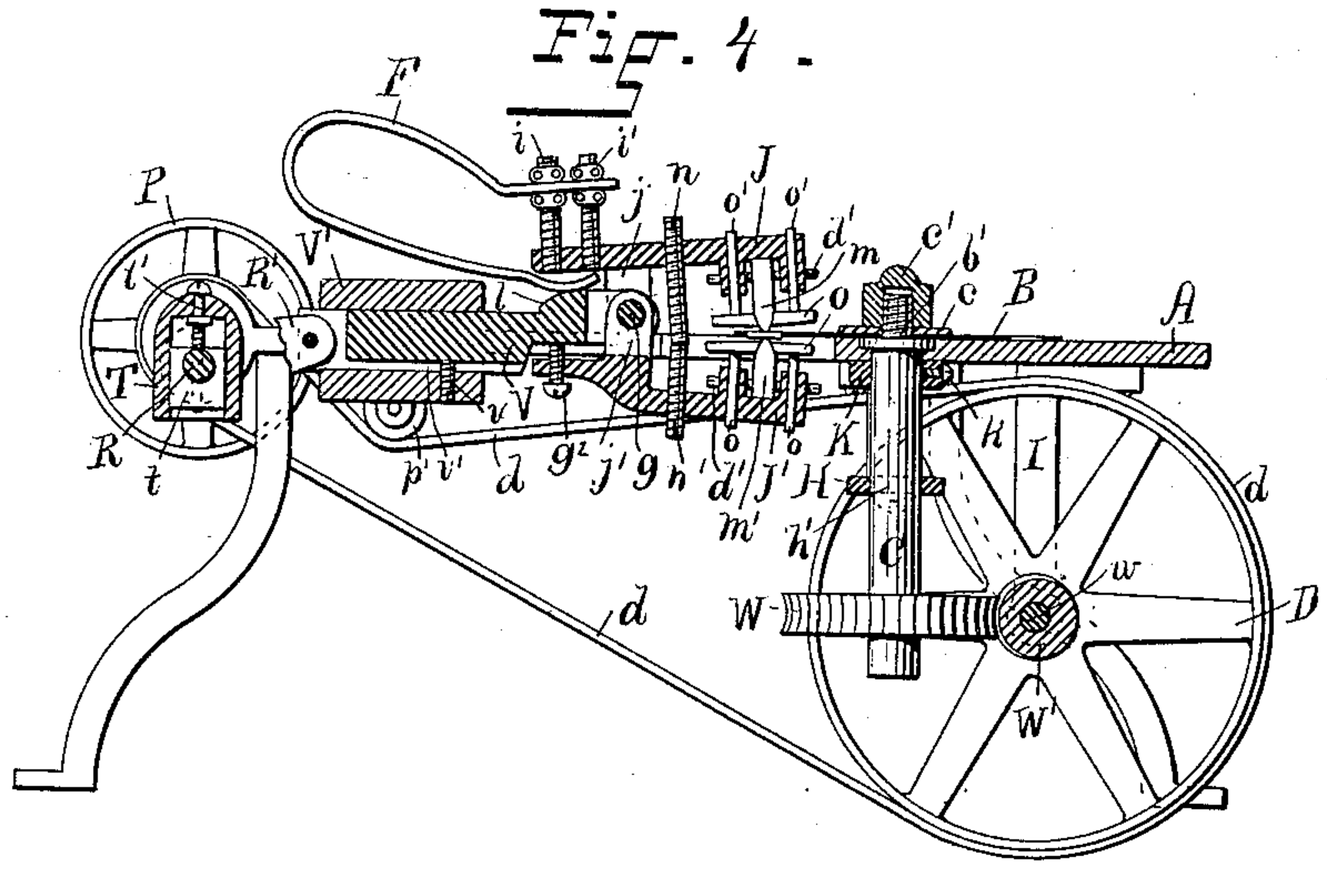
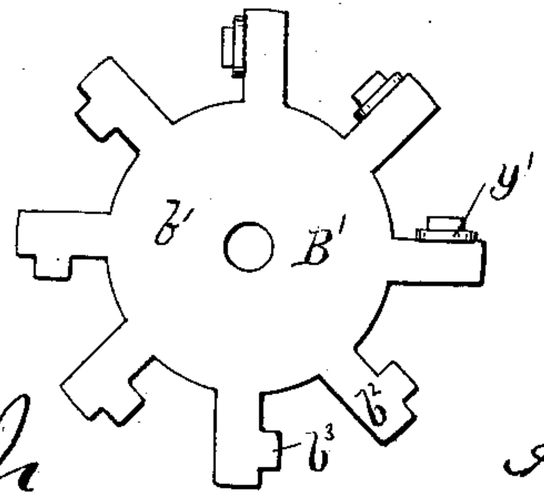


Fig. 5.



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UNITED STATES PATENT OFFICE.

ANTHONY H. BLISS, OF NORTH ATTLEBOROUGH, MASSACHUSETTS.

BURNISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 332,476, dated December 15, 1885.

Application filed September 9, 1885. Serial No. 176,562. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY H. BLISS, of North Attleborough, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Burnishing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improved mechanism in burnishing apparatus which operates the burnisher reciprocatingly and rotarily.

The object of my invention is to provide a device for burnishing or polishing objects which is easy, certain, and rapid in its workings.

To these purposes my invention consists, essentially, in the construction and arrangement of the several parts of the device so as to bring the object to be acted upon between a pair of burnisher-bearing jaws or arms which are longitudinally reciprocated, and one of which arms is transversely rocked toward the other, which is itself fixed relatively to the reciprocating shaft.

In the accompanying drawings like letters designate like parts.

Figure 1 represents a front elevation of the machine. Fig. 2 represents a top plan view of the same, with the feed-plate B partly cut away. Fig. 3 represents an end view of the same. Fig. 4 represents a sectional view on the line *x x* of Fig. 2. Fig. 5 is a plan view of a modified form of feed-plate.

In the drawings, A designates a suitably-shaped platform, on the surface of which is rotated a feed plate or disk, B, having the suitable perforations, *b b*, for the links *y y* to be burnished. The feed-plate B is so placed that its central eye, *b'*, registers with an opening, *a*, in the platform A. The shaft C passes through the openings *a b*, and the feed-plate B is kept in juxtaposition to the platform by the washer *c* and the nut *c'*, which are fastened to the screw-threaded end of the shaft C. The parts *c' c*, together with the collar K, fastened by the screw *k* to the shaft C, prevent the same from having any vertical play.

h h designate two hangers on the under side of the platform, and to which is clamped the plate H, having the opening *h'*, which affords a bearing for the shaft C, which carries on its lower end a cog-wheel, W, playing into an endless screw, W', which is made fast to the shaft *w* by the binding-screw x^2.

I I designate two hangers depending from the platform A, affording the bearings for the shaft *w*, on one end of which is the collar *x'* and on the other end of the band-wheel D, around which passes the band *d*, which is operated by the shaft *p*, bearing the operating-pulley P. The band *d* is deflected from its upper line of travel by the pulley *p'* merely to avoid the cutting away of the platform A, which otherwise would be necessary.

E E are the bearings for the shaft *p*, located at one end of the platform A. The inner end of the shaft *p* has fastened to it the cap T, recessed for the reception of a slide, *t*, which is adjusted within the cap by the screw *t'*. From the outer face of the slide *t* there projects a pin, R, forming a journal for the crank R', and which is fastened thereto by the nut *r*. This adjustment of the pin R is to regulate the length of the stroke of the crank R', which reciprocates the rod V, to which it is connected by a knuckle-joint. The rod V works in the journal-box V', having on the interior a guide-piece, *v*, which plays in a longitudinal slot, *v'*, on the under side of the rod V, to prevent the same from turning on its axis in working. The inner end of the reciprocating rod V carries the two burnisher bearing arms J J', having the lugs *j j'*, which are fastened side by side on the pin *g*, having bearings in the lugs *g' g'* of the rod V. The arm J' is fastened to the rod V by the adjusting-screw g^2. The upper arm, J, has the spring F fastened to its outer end and above it by the screws *i i*, having thereon the nuts *i' i'*, for regulating the tension of the spring. The free end of the spring is loosely placed in the space between the arm J and the head *l* of the rod V. Since the lug *j'* has free motion on the pin *g*, the arm J can be given a rocking motion on this pin. Through the center of the arms pass the screws *n n'*, employed to regulate the distance between the said arms.

On the inside of the inner ends of the arms J J' are formed suitable cavities or beds for the burnishing material *m m'*, having the binding-screws *d' d'* to secure the same.

O O are little platforms or clearers adjusted, as desired, by the supporting-rods *o' o'*, sock-

eted in the arm J, and having binding-screws *q q*. These clearers act as guides and protectors for the burnishing material *m m'*. The arms J J' are so arranged and the platform A so shaped as to allow the feed-plate B to be rotated between the burnishers *m m'*.

Q is an opening in the platform A, situated within the area passed over by the openings of the feed-plate, to permit the removal of the objects placed therein after passing between the burnishers.

The feed-plate can be regulated in its speed by varying the construction of the wheel W and worm W'.

The openings *b b* in the feed-plate B are shaped to suit the objects to be burnished, and act as holders for the same when the rotated feed-plate passes them between the burnishers, which are given a reciprocating motion by the rod V.

The burnishers may be fixed rotarily to the arms J J' in preference to the manner shown by the drawings.

In the drawings, the feed-plate B is shown with oval fenestral openings adapted to fit the links *y y*, placed therein. The thickness of the feed-plate being less than that of the link *y*, the link is so exposed that in being carried between the burnishers by the rotation of the feed-plate it is rubbed on its upper and lower face at the same time by the respective burnishers *m m'*, after passing which the links are carried to the opening Q in the platform, through which they are dropped.

The upper arm, J, is so constructed, as before described, as to have an easy springy motion given it in riding over the links passed beneath it, and causing the burnisher to rub any irregular surface presented to it.

In Fig. 5 I show a modification, B', of the feed-plate having radial arms b^2 b^2, with lugs b^3 b^3, adapted to hold the link *y'*, which here presents another part of the link to the burnisher than is presented by the link *y* in the feed-plate B.

I make various modifications of the feed-plate in order to accommodate the variously-shaped links or objects. Thus by a series of treatments the links are finally burnished in all parts.

Without further detailing, it can be readily seen that my device affords ample means of burnishing many articles that are now tediously worked upon by hand, and is very rapid and efficient in performing the office it is designed for.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A burnishing-machine having a reciprocating pair of burnisher bearing-arms, and a feed-plate rotated between said burnishers, as specified.

2. The combination, with a longitudinally-reciprocated pair of arms bearing burnishers opposite to and approaching one another, of a feed-plate rotating between said burnishers, for the purpose described.

3. In a burnishing-machine, the combination, with a reciprocating rod carrying a fixed and a rocking arm, said arms bearing fixed or rotary burnishers, of a feed-plate rotating in the field of said burnishers, substantially as described.

4. In a burnishing-machine, the combination, with a reciprocating rod, of a pair of arms having thereon adjustable burnishers, and a feed-plate rotated in the field of the said burnishers.

5. In a burnisher, the combination, with a pair of arms, of burnishers having adjustable riders or platforms, for the purpose described.

6. The combination, with the arms J J', having the spacing-screws *n n'*, and supporting-rods *o' o'*, having binding-screws *q q*, and provided with the riders O O, of the feed-plate B, having the openings *b b*, substantially as and for the purpose described.

ANTHONY H. BLISS.

In presence of—
J. A. MILLER, Jr.,
M. F. BLIGH.