2 Sheets—Sheet 1.

G. BURNS.

Varnishing-Machine.

No. 200,894. **Patented March 5, 1878.**

Fig. 1

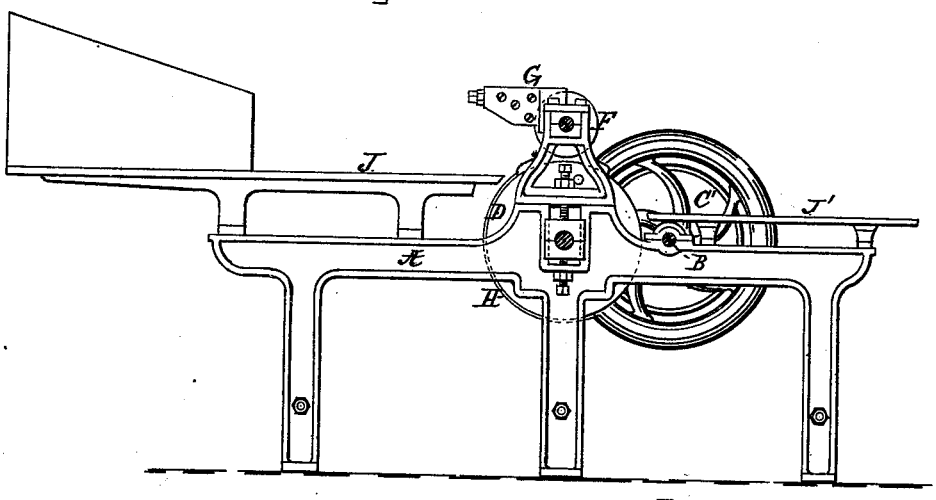
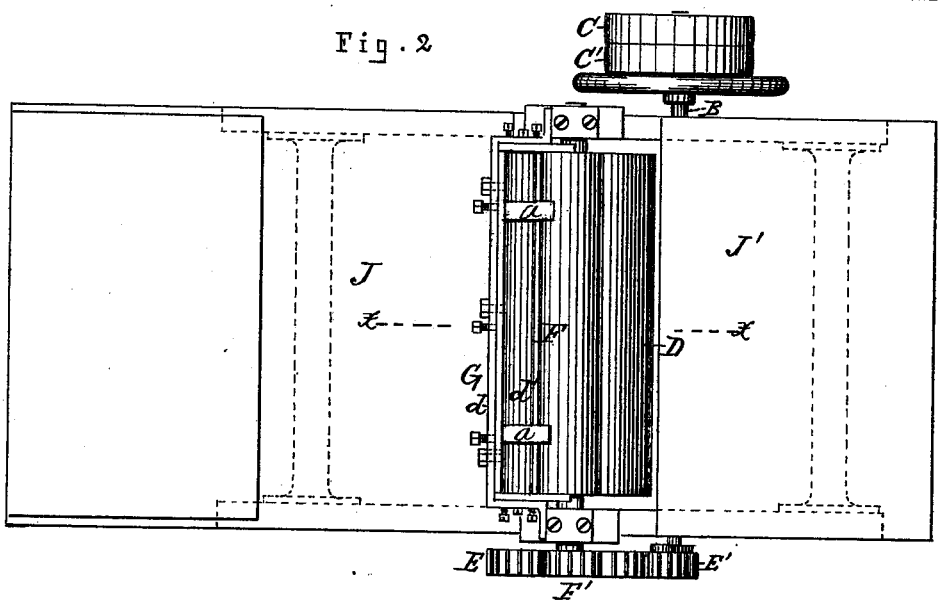


Fig. 2



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2 Sheets—Sheet 2.

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Fig. 4

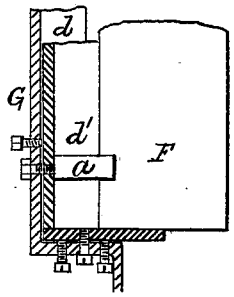


Fig. 5

Fig. 3

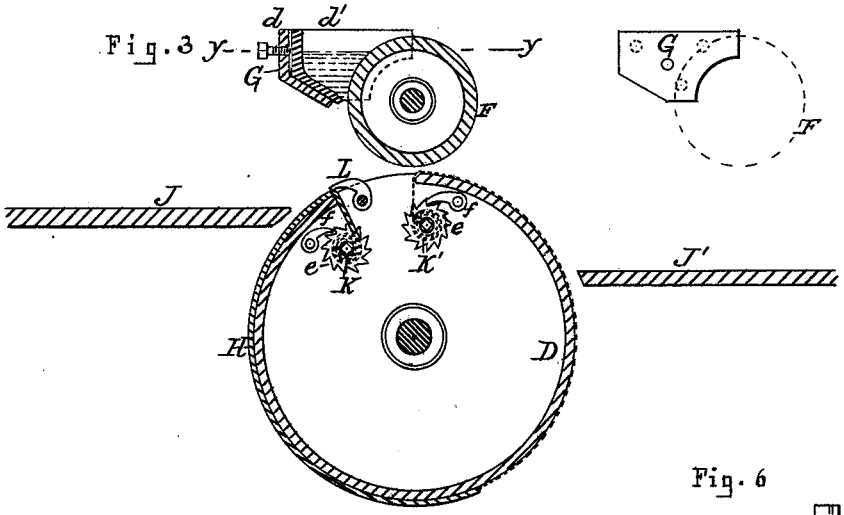


Fig. 6

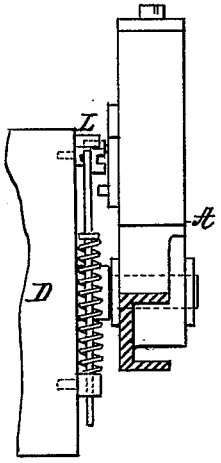
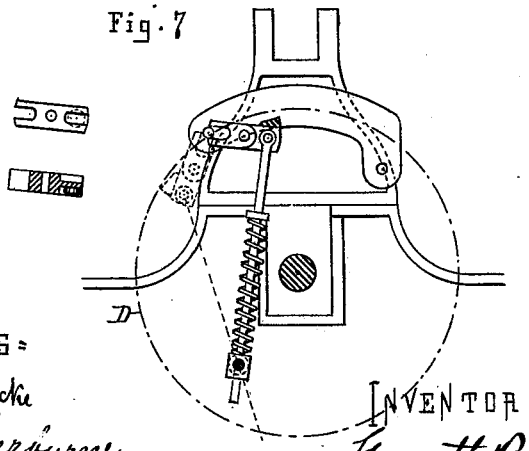


Fig. 7



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UNITED STATES PATENT OFFICE.

GARRETT BURNS, OF CHICAGO, ILLINOIS, ASSIGNOR TO RAND, McNALLY & CO., OF SAME PLACE.

IMPROVEMENT IN VARNISHING-MACHINES.

Specification forming part of Letters Patent No. **200,894**, dated March 5, 1878; application filed October 3, 1877.

To all whom it may concern:

Be it known that I, GARRETT BURNS, of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Varnishing-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of a varnishing-machine embodying my said invention. Fig. 2 represents a general plan or top view of the same. Fig. 3 represents an enlarged sectional elevation of the same, taken on the line *x x*, Fig. 2. Fig. 4 represents an enlarged sectional plan of a portion of the varnishing trough and roller, taken on the line *y y*, Fig. 3. Figs. 5 and 6 represent enlarged detail sections of a portion of the frame and feeding-cylinder, showing the means employed in operating the gripers used for holding the material to be varnished.

Like letters of reference indicate like parts.

My invention relates to that class of varnishing-machines employed in varnishing maps, charts, show-cards, and other similar articles of paper; and the object of my invention is to improve the construction of such machines, so as to render their operation more complete.

To that end my invention consists in the arrangement of the several parts, as hereinafter more fully described and claimed.

In the drawing, A represents the frame, which may be made in the form shown; or it may be made in any other suitable form that will support the operating parts of the machine. B is the main driving-shaft, which has its journal-bearings on the frame A, and is so arranged as to freely revolve. C is the main driving-pulley, which is permanently mounted upon the shaft B, and around which is passed a belt, (not shown,) communicating with any suitable motor for imparting motion to the moving parts of the machine. C′ is a like pulley, loosely mounted on the shaft B, and upon which the belt is shifted from the pulley C when the operating parts of the machine are to remain at rest.

D represents the feeding-cylinder, which is provided with suitable journals, having bearings on the sides of the frames, and are so arranged as to freely revolve. E is a gear-wheel, which is mounted on the shaft of the feeding-cylinder, so as to engage with a like gear-pinion, E′, on the end of the shaft B, by which means a rotary motion is imparted to the cylinder by the rotation of the said shaft. F is the varnishing-roller, having journal-bearings on the sides of the frame, immediately over the feeding-cylinder, so as to admit of a free-and-easy rotary movement, and is located at the proper distance above the feeding-cylinder to leave a space between its periphery and the periphery of the feeding-cylinder, as shown in Fig. 3. F′ is a gear-wheel, mounted on the shaft of the varnishing-roller, so as to engage with wheel E of the feeding-cylinder, by which means a rotary motion is imparted to the said roller by the rotation of the cylinder.

G is the varnish-trough, which is made in two parts, *d* and *d′*, as shown in Figs. 3 and 4, into which the varnish to be used is introduced. The part *d* is firmly secured at its ends to the sides of the frame or uprights supporting the ends of the varnishing-roller, and the part *d′* is loosely fitted into the part *d*, so as to bring the lower wall of the said part *d′* in the same horizontal plane with the center of the shaft of the varnishing-roller, and is so arranged as to admit of being moved to or from the roller to increase or decrease the size of the opening between the roller and the edge of the lower wall of the trough through which the varnish flows.

The object of making the part *d′* of the varnish-trough adjustable, as described, is to regulate the amount or thickness of the coat of varnish to be applied to the paper.

H is an elastic cushion, which is attached to the periphery of the feeding-cylinder, and is so arranged as to admit of being removed at will. The area or surface of this cushion is equal to the size of the sheet of paper to be varnished, and the thickness of the cushion is such as to fill the space between the

varnishing-roller and feeding-cylinder, so as to compress the paper against the varnishing-roller as the feeding-cylinder is rotated.

a a are gage-blocks, which are fitted within the varnish-trough G, and are so arranged as to admit of being moved to or from each other, and are made to closely fit the walls of the trough and against the varnishing-roller, so as to prevent the varnish which is between the blocks from flowing past them toward the end of the trough. The object of these adjustable blocks is to regulate the flow of the varnish against the varnishing-roller, so as to conform to the size of the sheet being varnished.

J is the receiving-bed, upon which the sheets of paper to be varnished are placed, and J′ is a like bed, upon which the sheets of paper are deposited as they pass between and from the varnishing-roller and feeding-cylinder. K and K′ are tightening-rollers, which are arranged longitudinally within the feeding-cylinder, and having journal-bearings at the heads of the said cylinder, so as to admit of a free-and-easy rotary movement.

Mounted upon one or both ends of the said rollers K and K′ are ratchet-wheels *e e*, which engage with pawls *f f*, pivoted to the cylinder-heads, as shown in Fig. 3, by which means the said tightening-rollers are prevented from being moved backward.

One edge of the cushion H is attached to the roller K through a slot in the feeding-cylinder, and the other edge is attached to a strip of cloth or thin leather, which passes around the feeding-cylinder, as shown by dotted lines, Fig. 3, and is secured to the tightening-roller K′, the object of which is to hold the cushion firmly against the periphery of the feeding-cylinder.

L represents the gripers, which are arranged within the feeding-cylinder, so as to seize and release the respective sheets of paper in the usual manner.

The operation of my improved varnishing-machine is as follows: The varnish to be used is deposited within the varnish-trough G, and the part *d′* of the trough adjusted to regulate the amount or thickness of the coat of varnish to be applied to the paper. The machine is then set in motion, and the sheets of paper placed one at a time upon the receiving-bed J, so as to allow one edge of the sheet to rest against the feeding-cylinder in proper position to be seized by the gripers when the cylinder reaches the proper point in its rotation. The sheets are then seized by the gripers and drawn between the cushion and varnishing-roller, when the gripers release the sheet, and the latter is moved along by the rotation of the cylinder and roller, and is compressed against the roller, so that the varnish upon the roller is made to adhere to the paper, leaving a smooth and finished surface; and as the sheet passes from between the cylinder and roller it falls upon the bed J′, from whence it is moved before the next succeeding sheet is released from the cylinder and roller.

I have described the cushion as being equal in size to the size of the sheet to be varnished, and the varnishing-roller as being slightly elevated above the feeding-cylinder, so as to leave a space between the cylinder and roller, the object of which is to prevent the varnishing-roller from coming in contact with the cylinder and cushion, and thus keep the varnish from contact with any part of the feeding-cylinder or cushion which would cause it to adhere to the back of the sheet.

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

1. The combination, with the feeding-cylinder D and varnishing-roller F, of the removable elastic cushion H, made to conform to the size of the sheets to be varnished, and projecting from and beyond the periphery of the feeding-roller, substantially as and for the purpose specified.

2. The combination, with the varnish-trough G and varnishing-roller F, of the movable gage-blocks *a a*, substantially as and for the purpose specified.

GARRETT BURNS.

Witnesses:
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N. H. SHERBURNE.