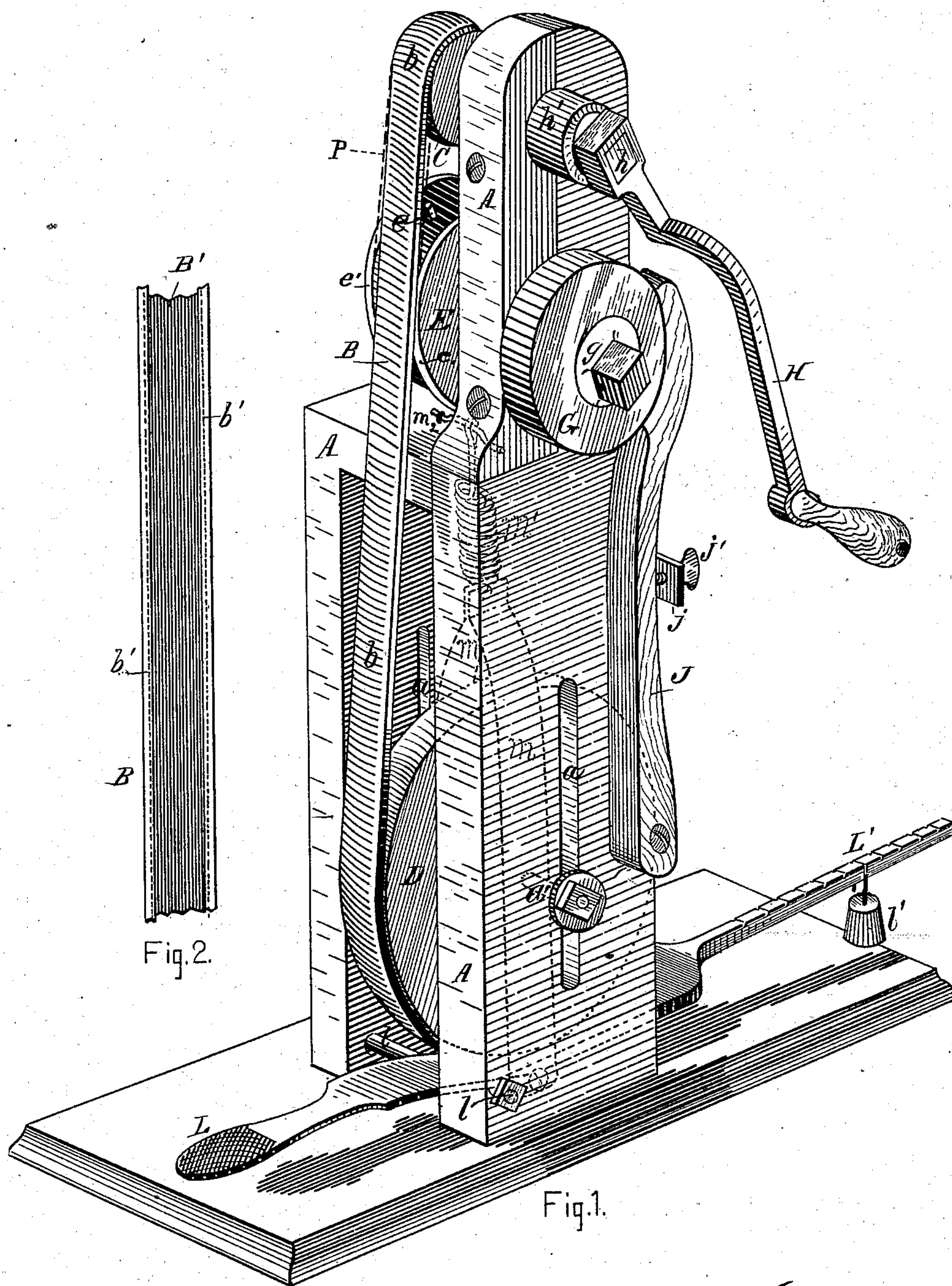


(No Model.)

J. G. BUZZELL.

Device for Molding Abrasive Paper, Cloth, &c.  
No. 239,364. Patented March 29, 1881.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN G. BUZZELL, OF LYNN, MASSACHUSETTS.

## DEVICE FOR MOLDING ABRASIVE PAPER, CLOTH, &c.

SPECIFICATION forming part of Letters Patent No. 239,364, dated March 29, 1881.

Application filed February 12, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN G. BUZZELL, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improved Device for Molding Abrasive Paper, Cloth, and other Fabrics, of which the following is a specification.

My invention consists in two rolls or wheels, one with a convex periphery, so arranged in their relations to each other and to the other parts of the machine that when the proper tension is applied the fabric is, either by means of a belt carried over the periphery of said convex roll or without the use of said belt, molded so as to be convex on the abrasive side and concave on the opposite side thereof, by stretching said fabric in the center thereof, both longitudinally and transversely, at the same time bringing the edges of the fabric down to the two edges of the periphery of the roll over which the fabric is molded, so as to perfect the shape of the fabric when molded.

Figure 1 of the drawings shows my invention in all its parts and in full working order. Fig. 2 shows a molding-belt made in a slightly different manner from the one shown in Fig. 1.

Like letters of reference indicate like parts in each figure.

A represents the frame of my machine.

D is a wheel or pulley with a convex periphery, the shaft *a'* passing through each side of the frame A, through each part of the double metal band *m*, and through the center of the pulley D, said pulley revolving around said shaft, and the shaft moving up and down in the two slots *a* in the frame, for the purpose hereinafter described. This shaft is prevented from moving latitudinally in the frame by means of a head at one end thereof and a nut at the other end, said nut appearing in Fig. 1—that is to say, this shaft is a bolt.

G is a pulley against which the tension-brace J bears, as shown in Fig. 1, the degree of bearing of said tension-brace being regulated by the spring-plate *j* and the set-screw *j'*, as shown in the drawings. The pulley G and the feed-roll E are both fitted tightly upon the same shaft, said feed-roll being provided with one, or, if desired, with more than one, brad, to prevent the fabric wound thereon from slipping annularly; and said feed-roll is also pro-

vided with the two flanges *e'*, to prevent the said fabric from slipping off of the feed-roll latitudinally.

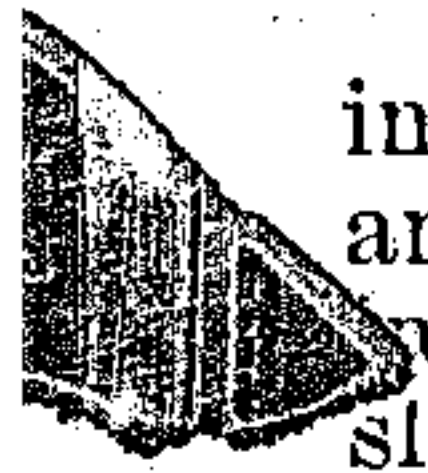
The molding-roll C, with convex periphery, is fitted upon the shaft *h*. The ordinary journal-box *h'* holds said shaft firmly to its work. The crank H is placed over and upon the end of the shaft or arbor *h*, and the same crank is placed upon the end of the shaft *g* when required, said crank being so shaped that when it is attached to the upper arbor, *h*, it will pass by the lower arbor, *g*, when turning. This is clearly shown in Fig. 1.

L is a treadle balanced upon the pivot *l*, which pivot forms a fulcrum. The opposite end of the lever is in form of a notched beam, *L'*, provided with an ordinary weight, *l'*. The double metal band *m* (shown by dotted lines) is attached firmly, one end thereof to each side of the treadle-lever L, in any ordinary and suitable manner. The two parts of said double band meet at their upper ends, where the spiral spring *m'* is attached, and said spring is held to the frame A in the manner shown by *m''*, or by any other suitable equivalent device.

B is a molding-belt, made of leather in Fig. 1, or of some similar material, with latitudinal slots *b*, which slots do not extend across the entire width of the belt, but leave a solid margin on each side thereof, for the purpose of holding the two edges of the strips of abrasive paper or other fabric against the edges of the roll C, and as the slots *b* admit of stretching the fabric to be molded both longitudinally and transversely at its center, so the solid edges of the belt hold the edges of the fabric down, thus molding said fabric into the shape hereinbefore described. Fig. 2 shows a molding-belt with the center *B'* made of some elastic material, preferably rubber, with leather edges *b'* stitched to each side of said elastic material. This elastic material answers the same purpose as does the slotted leather shown in Fig. 1. The periphery of the pulley D is convex, so as to prevent the belt B from deviating from its course.

There may be a large number of the molding-rolls C which can be used upon the same machine, so that when one is filled with the molded fabric it may be removed and replaced with an empty one. The shaft upon which the mold-





ing-roll C is placed is provided with a spline, and the perforation in the center of the molding-roll for the reception of said shaft has a slot therein, so that said roll cannot slip annularly on the shaft. The molding-rolls can then be slipped on and off of the shaft at will.

When paper is to be molded it should be first cut in strips of the desired width, then moistened, so that it will fit upon and wind around the molding-roll without breaking. The brad *e* is first run through the strip reasonably near the end thereof, the crank H is placed upon the arbor *g*, turned thereon, and the strip of paper is wound upon the periphery of the feed-roll E until said roll contains as much of the fabric as can be held between the two flanges *e'*. Meanwhile the belt B may be hung over the top of the frame A, to keep said belt out of the way. Proper tension is then applied to said feed-roll by regulating the bearing of the brace J against the periphery of the pulley G by means of the spring-plate *j* and set-screw *j'*, as before described. The end of the paper is then carried up over and upon the periphery of the molding-roll C, and fastened thereon in any suitable manner. After the operator has relieved the tension of the belt B by bearing with his foot upon the treadle L, and thus raising the weight *l'*, he can then hang the belt upon the top of the frame A, while he carries the paper up over and upon the periphery of the roll C. The belt is then properly adjusted in its place, and the weight *l'* allowed to bring the belt down taut, by lowering the shaft *a'*, and with said shaft the pulley D. The degree of tension of the belt B upon the fabric as it is wound over the periphery of the roll C is regulated by moving the weight *l'* from notch to notch upon the beam L'. The crank H being placed upon the arbor *h* and turned, as much paper or other fabric as is thought desirable may be molded upon the periphery of the molding-roll C, layer upon layer. When one roll is filled it can be replaced by another, and so on indefinitely.

In molding abrasive cloth or other comparatively tough fabric it is not necessary to use the molding-belt, because, in this event, the tension upon the feed-roll E can be increased, by means of the tension-brace J, to a degree sufficient to properly mold said fabric upon the periphery of the molding-roll C; but should a like degree of tension, by the use of said brace, be applied in the molding of some kinds of paper or other comparatively brittle material, the fabric would break; so, in the latter case, a less degree of tension is applied

by the use of the brace J, and the molding-belt B is employed to complete the operation.

The molding-roll C may be taken from this machine after one layer of abrasive fabric is molded thereon, if so desired, and, leaving said layer upon the roll, said roll may be placed upon the shaft of a shoe-buffing machine, and thus form a "heel-scourer," for finishing the heels of boots and shoes. When this is done, and abrasive cloth is the fabric used, said cloth need not be moistened before it is molded; but when said cloth is to be removed from the molding-roll, and is thus wound in layers thereon, it should be previously moistened, so that when dried it will become stiff from the drying of the glue that holds the abrasive material to the cloth, and so retain its molded shape after being removed from the roll.

The dotted line P shows the course of the fabric in process of molding.

What I claim as new, and desire to secure by Letters Patent, is—

1. The mode of molding an abrasive or other fabric by stretching the center thereof longitudinally and transversely over a roll provided with a convex periphery, substantially as described and shown.

2. A molding-belt with center thereof slotted latitudinally, and with solid edges, or with said center made of suitable elastic material, constructed and arranged substantially in the manner described and shown, and for the purpose set forth.

3. In combination, the frame A, the feed-roll E, with flanges *e'* and brad or brads *e*, the shaft *g*, the pulley G, the brace J, with spring-plate *j* and set-screw *j'*, the crank H, the molding-roll C, the shaft *h*, with journal-box *h'*, the molding-belt B, with slotted or elastic center, the pulley D, the shaft *a'*, the two slots *a*, the double band *m*, the spiral spring *m'*, with attachment *m''*, the treadle-lever L, with notched beam L' and weight *l'*, and the pivot *l*, constructed and arranged substantially in the manner described and shown, and for the purpose set forth.

4. In combination, the frame A, the feed-roll E, with flanges *e'* and brad or brads *e*, the shaft *g*, the pulley G, the brace J, with spring-plate *j* and set-screw *j'*, the crank H, the molding-roll C, and the shaft *h*, with journal-box *h'*, constructed and arranged substantially in the manner described and shown, and for the purpose set forth.

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