

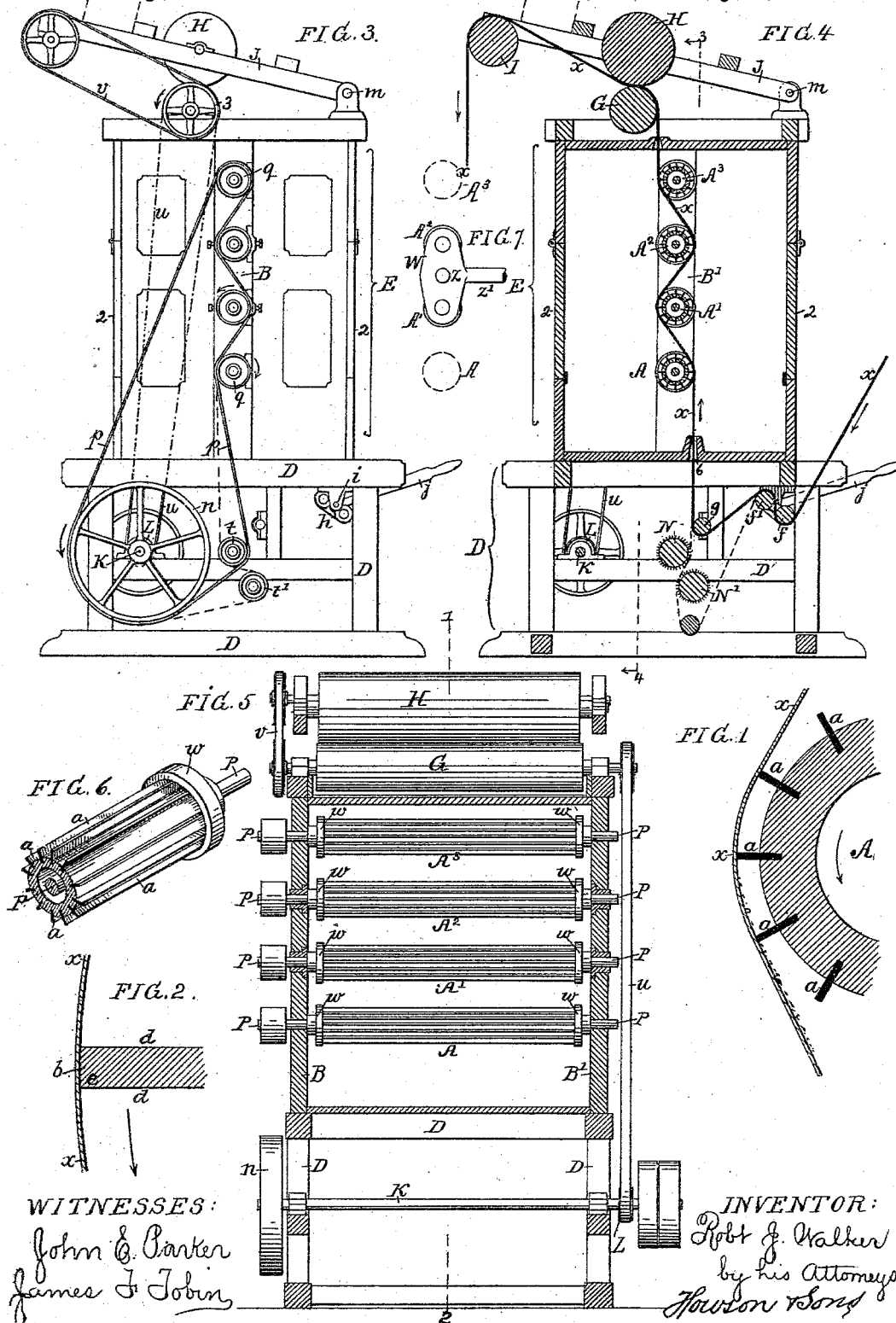
(No Model.)

R. J. WALKER.

MECHANISM FOR TRIMMING FABRICS.

No. 301,413.

Patented July 1, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT J. WALKER, OF PHILADELPHIA, PENNSYLVANIA.

MECHANISM FOR TRIMMING FABRICS.

SPECIFICATION forming part of Letters Patent No. 301,413, dated July 1, 1884.

Application filed November 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. WALKER, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Mechanism for Trimming Fabrics, of which the following is a specification.

My invention consists of mechanism, fully described and claimed hereinafter, for removing from the surfaces of fabrics the superfluous fibers and small lumps, and at the same time agitating and cleansing the fabric prior to starching and calendering.

In the accompanying drawings, Figure 1 is a sectional diagram illustrating the main feature of my invention; Fig. 2, an exaggerated diagram for the same purpose; Fig. 3, a side view of the machine by which the main feature of my invention may be carried into effect; Fig. 4, a vertical section on the line 1 2, Fig. 5; Fig. 5, a vertical section on the line 3 4, Fig. 4; Fig. 6, a sectional perspective view of one of the bladed rollers, and Fig. 7 a view representing a modification of my invention.

In the dressing of fabrics, one of the essential operations is to remove from their surfaces the superfluous projecting fibers and small lumps. This has been done in the case of cotton fabrics by singeing, but more recently by shearing-machines, in which the fabric is traversed in contact with a sharp-edged ledger-blade, against which the fibers were struck. I have found that more satisfactory results can be attained by dispensing with sharp-edged cutting-blades, and causing the fabric to traverse under tension against the rectangular edges of blades on a rapidly-revolving cylinder, as shown in Fig. 1, in which A is the cylinder revolving in the direction of the arrow, and *a* the blades, the fabric *x*, which is under more or less tension, being traversed in contact with the edges of the blades. I have applied the terms "rectangular edges" to the blades, because the edge *b* of each blade presents a flat surface at right angles, or nearly so, to the sides *d d*, as will be best understood by reference to the exaggerated view, Fig. 2, the corner *c*, where the side *d* of the blade meets the edge, performing the duty of cutting off the projecting fibers and small lumps

from the surface of the fabric, and this it does effectually, owing to the great speed of the cylinder, and without injury to the texture of the fabric, for this is prevented by the flat edges of the blades, against which the fabric under tension is brought to bear. In addition to this trimming of the surface of the fabric, the blades have a tendency to agitate it, and to thereby expel from the interstices such foreign particles as may have become lodged therein. To keep the blades in proper order, all that is necessary is to draw-file them from time to time, in order to keep the corners *c* in a sharp condition.

In carrying out my invention, I prefer to use a number of rollers having rectangular-edged blades, four such rollers, A, A', A², and A³, being shown in the machine illustrated in Figs. 3, 4, and 5. The shafts P of the rollers have their bearings in standards B B', erected on the base-frame D, on which is also built a box, E, forming part of the frame, and inclosing the rollers, so as to prevent the dissemination of the lint throughout the room in which the machine is situated, the box being provided with suitable doors, 2 2, so that access may be had to the rollers when necessary.

The fabric *x*, Fig. 4, passes under a tension-bar, *f*, over a tension-bar, *f'*, under a bar, *g*, thence upward through a slot, 6, in the bottom of the box E, then takes a zigzag course in contact with the blades of the four rollers, so that both sides of the fabric will be acted on, thence between the drawing-rollers G and H, and thence over the roller I to the portable receptacle, where it is deposited in folds, as usual in machines of this class. The tension-bars *f f'* are secured at each end to carriers *h*, which are pivoted at *i* to the frame or to any suitable attachment thereto, and to one of the carriers is secured an arm, *j*, by operating which more or less tension may be imparted to the fabric. It should be here understood, however, that in carrying out my invention I do not desire to restrict myself to this special tension device.

The shaft of the lower drawing-roller, G, is adapted to fixed bearings on the frame of the machine, but the shaft of the upper roller, H, has its bearings in a frame, J, which is piv-

oted at *m* to the main frame, and to which, if necessary, may be added weights 5, indicated by dotted lines, for causing the roller H to bear with more or less pressure on the fabric, so as to insure proper traction, for which purpose other well-known mechanical appliances may be adopted.

A driving-shaft, K, has its bearings on the frame of the machine, and round a pulley, *n*, on this shaft passes a belt, *p*, extending over a pulley, *q*, on the shaft of the highest of the rollers A, the belt traversing in contact with the pulleys *q* of the other rollers, and round a roller, *t*, to the said driving-pulley. A belt, *u*, indicated by dotted lines in Fig. 3, passes round a pulley, L, on the driving-shaft K, and round a pulley, 3, on the shaft of the roller G, and a belt, *v*, passes round another pulley similar to the pulley 3 and on the same shaft with the latter and round a pulley, 4, on the shaft of the roller I.

While other systems of belting may be adapted for driving the rotating parts of the machine, I prefer that just described, as it has proved to be efficient in practice. The several pulleys revolve and the belts traverse in the directions pointed out by their arrows.

In treating some kinds of fabric it is advisable before the fabric is subjected to the action of the bladed rollers to raise or loosen burrs, sticks, or other foreign matters that may be in the yarn. For this purpose I use two card or brush rollers, N N', the shafts of which have their bearings in the base-frame D of the machine. When these rollers are used, the fabric will take the course indicated by dotted lines in Fig. 4, and the driving-belt will take the course shown by dotted lines in Fig. 3—that is, round a pulley, *t*, on the shaft of the lower roller, N', and thence round the above-mentioned pulley *t* on the shaft of the upper roller, N.

The bladed rollers are preferably made in the manner shown in Figs. 1 and 6. The metal cylinder or roller A is grooved for the reception of the blades, against which the metal of the cylinder is calked, and the blades are at each end confined within the flanges of a disk, *w*, secured to the shaft P.

I prefer to make the intermediate bladed

rollers, A' and A², of the series laterally adjustable, for in trimming some fabrics it is advisable that they should not have as extended a bearing against the blades of the rollers as other fabrics. For this purpose the shafts of the rollers A' and A² may be adapted to ordinary adjustable bearings; but I prefer to hang these rollers to carriers W, Fig. 7, which are pivoted at *z* to the frame of the machine, one of these carriers being provided with an arm, *z'*, by adjusting which the two intermediate rollers may be brought more or less out of vertical line with the highest and lowest rollers, A³ and A, the positions of which are indicated in Fig. 7 by dotted circles.

There may be but three bladed rollers, the middle one only of which is adjustable laterally; or there may be more than four rollers, the shafts of the highest and lowest being in fixed bearings, and those of the intermediate rollers in adjustable bearings.

I claim as my invention—

1. The combination, in a machine, of the following elements, namely: first, a roller or series of rollers having blades with rectangular edges, and mechanism for rapidly rotating the roller or rollers; second, guides for directing fabric to the said roller or rollers; third, drawing-rollers for traversing the fabric; and, fourth, a tension device by which the fabric is caused to bear with more or less pressure against the blades of the rollers, all substantially as described.

2. The combination of a series of bladed rollers with mechanism for laterally adjusting an intermediate roller or rollers of the series, substantially as specified.

3. The combination of a series of bladed rollers and card or brush rollers with mechanism for causing the fabric to pass first in contact with the card-rollers and then in contact with the bladed rollers, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT J. WALKER.

Witnesses:

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HARRY SMITH.