(No Model.) 2 Sheets—Sheet 1.

E. & J. McCREARY.

MACHINE FOR BRUSHING FABRICS.

No. 370,399. Patented Sept. 27, 1887.

FIG. 1.

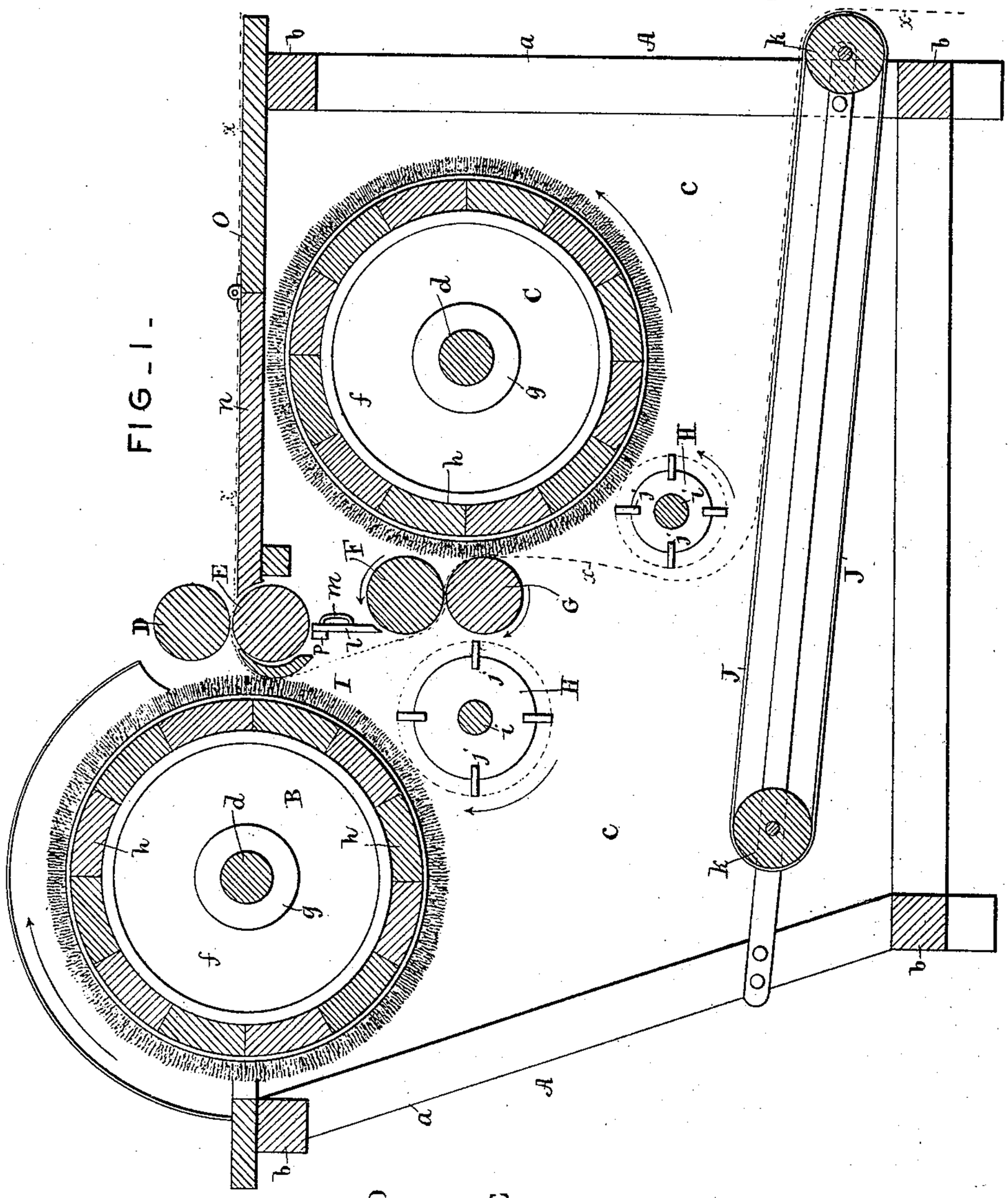
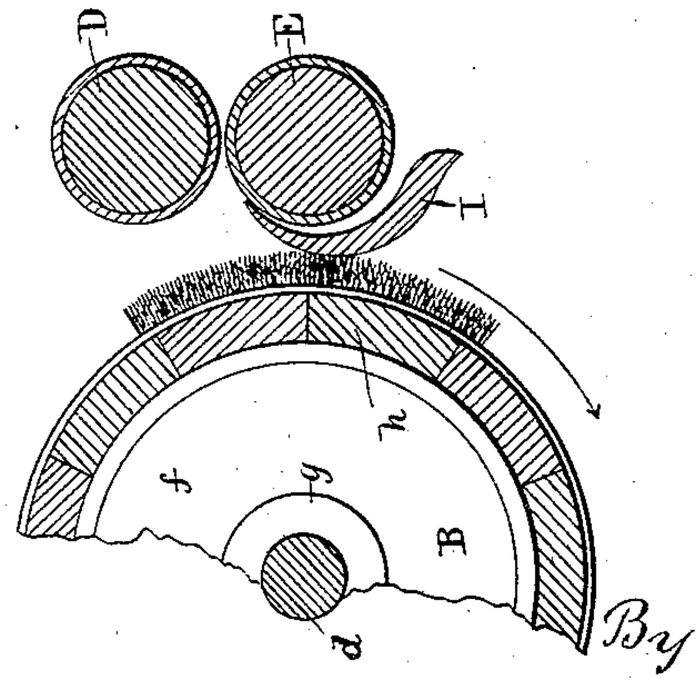


FIG. 2.



Attest:
Jas. K. McCathran
Rex. Smith.

Inventors:
Edw.d McCreary
John McCreary
A. M. Smith
Atty.

By

(No Model.)

2 Sheets—Sheet 2.

E. & J. McCREARY.

MACHINE FOR BRUSHING FABRICS.

No. 370,399. Patented Sept. 27, 1887.

FIG. 4.

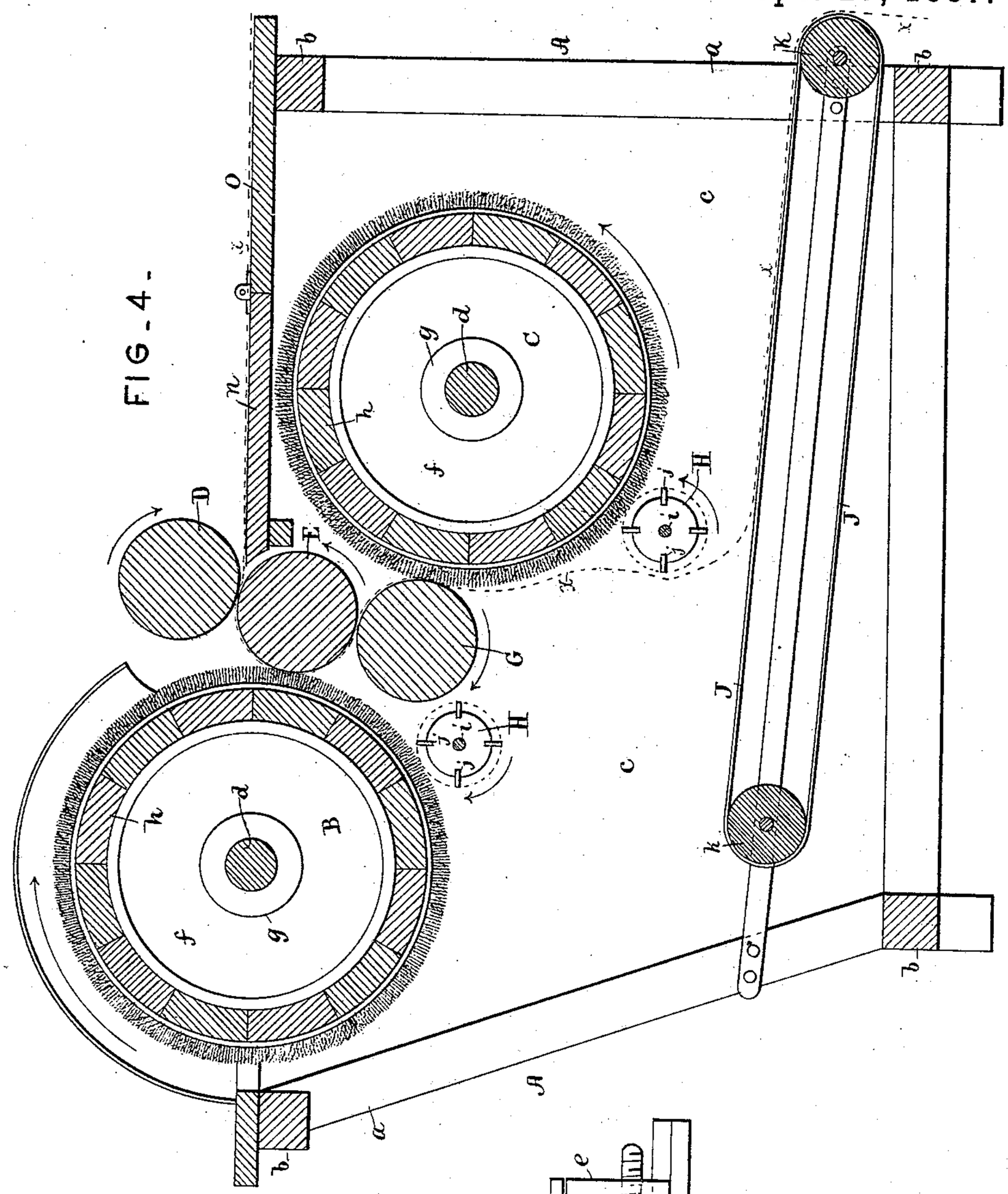
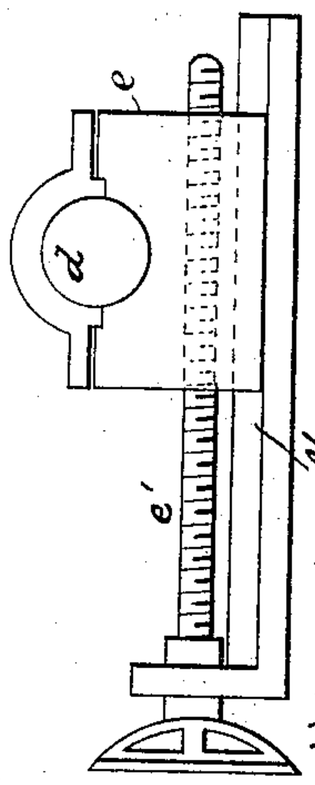


FIG. 3.



Attest:
Jas. K. McCathran
Rex. Smith.

Inventors:
Edw.d McCreary
By John McCreary.
A. M. Smith,
Atty.

UNITED STATES PATENT OFFICE.

EDWARD McCREARY AND JOHN McCREARY, OF COHOES, NEW YORK; SAID EDWARD McCREARY ASSIGNOR TO SAID JOHN McCREARY.

MACHINE FOR BRUSHING FABRICS.

SPECIFICATION forming part of Letters Patent No. 370,399, dated September 27, 1887.

Application filed December 27, 1886. Serial No. 222,640. (No model.)

To all whom it may concern:

Be it known that we, EDWARD McCREARY and JOHN McCREARY, both of Cohoes, county of Albany, and State of New York, have invented a new and useful Improvement in Machines for Brushing Knit Garments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

Our invention relates to that class of brushing-machines in which the fabric or garment operated on is drawn by rollers against the faces of revolving cylindrical brushes in such manner that the surface of the fabric or garment is softened or has a nap produced upon it by contact with the revolving brushes.

Our invention consists in a novel arrangement of feed-rolls and brushes, in combination with a bearing plate or plates for supporting the fabric or garments against the action of the brushes, and trip-rolls having flexible blades, which revolve in contact with the brushes, for stripping the fabric or garment therefrom, all as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a brushing-machine having our improvements applied thereto. Fig. 2 represents a pair of feed-rolls with leather clothing or covering, the bearing-plate, and a portion of a cylindrical brush. Fig. 3 represents one of the movable brush-axle boxes by which the proximity of the brushes to the feed-rolls may be adjusted, as required. Fig. 4 is a longitudinal sectional view showing a modified arrangement of the several parts, whereby three feed-rolls may be substituted for the two pairs shown in Fig. 1.

Like letters in the several figures refer to like parts of the machine.

A is a suitable frame, of which *a* are the legs, and *b* transverse bars, and *c* the sides.

B and C are the cylindrical brushes, the axles *d* of which revolve in sliding boxes *e*, made adjustable in ways A′ on the frame A, by means of screws *e*′, as shown in Fig. 3.

The brushes B and C and the feed-rolls may be of any suitable construction such as are generally employed in brushing-machines of this class, driven, adjusted, and operated in the usual manner. The bearing-boxes and driving and adjusting apparatus are of the usual construction, and are also such as are in general use in this class of machines. We prefer to employ cylindrical brushes and leather-faced feed-rolls of the construction described in Letters Patent No. 277,489, dated May 15, 1883, for a machine for "napping and brushing knitted goods."

In the construction shown in Figs. 1 and 2, *f* are iron flanges, having hubs *g*, secured to the axles *d*. The wooden staves *h*, secured to the rim of the flanges, form a cylinder, which is covered with clothing in bands, as described in the said Letters Patent above referred to. D, E, F, and G are the feed-rolls.

To simplify the drawings and description, the leather covering of the feed-rolls is not shown in Fig. 1, but is shown in the detached view, Fig. 2.

The arrangement shown in Fig. 4 may be adopted for the purpose of using three feed-rolls instead of four; but we prefer to employ four feed-rolls, as shown in Fig. 1. In Fig. 4 one feed-roll, E, is substituted for and does the work of the two rolls E and F in Fig. 1.

H H are the trip-rolls, trip-wheels, or trip-cylinders, which consist each of a cylinder having flexible projections or blades. We prefer to employ a cylinder of wood, having an iron axle or iron gudgeons, *i*, and projecting blades *j*, of leather, extending the whole length of the face of the wooden cylinder, and which should be equal to the length of the face of the cylindrical brush. The number of the flexible blades *j* employed will depend on the speed at which the trip-rolls are to run and the diameter of the rolls. We have successfully employed trip-rolls three and one-half inches in diameter with four leather blades making one hundred and seventy-five revolutions per minute. The directions in which the several rolls and brushes revolve are clearly indicated by the arrows. The bearing-plate I may be made of iron or other suitable material. It extends across the machine between the feed-roll and the brush. It is shown in section in Figs. 1 and 2. Its edge is made thin, and is placed as near as possible to the feed-rolls, so that the fabric or garment may not pass in between it and the feed-roll.

J is an endless apron, placed inside the frame, below the brushes and trip-rolls, for the pur-

pose of receiving the brushed garment from the rolls and carrying it out and delivering it clear of the machine. The apron J is carried by rollers *k*, the axles of which have suitable bearings in the frame A. One or both of said axles project beyond the frame and are driven by suitable belts or gearing.

The bearing-boxes, adjustable and otherwise, the belts, and other devices for giving motion to the several parts are omitted from the drawings, as not requiring description, being any suitable devices such as any one skilled in the art would suggest or adopt without invention or experiment.

l is a removable guard-plate, inserted between the rolls E and F to prevent the fabric or garment from passing in over the top of roll F.

m is a handle to the plate *l*.

n is a removable cover, which may be hinged to the covering-board O. The cover *n* and plate *l* are made removable to permit of access to the space between the brush B and rolls E and F.

When our invention is used without the bearing-plates I, a strip of leather, *p*, may be fastened to the edge of the plate *l* to sweep the garment or fabric off the surface of the roll E, should it cling to that surface.

We have used successfully brushes eight inches in diameter with feed-rolls two and one-fourth inches in diameter and trip-rolls three and one-half inches in diameter, the speed of the brushes being seven hundred revolutions per minute, that of the trip-rolls one hundred and seventy-five per minute, and that of the feed-rolls fifty-one per minute.

We do not confine ourselves to the sizes and speeds above mentioned, however. On the contrary, the speeds and diameters may be varied indefinitely. Our invention may be constructed and used with feed-rolls not covered with leather, and the said feed-rolls may be made of wood, metal, or any other suitable material.

In brushing garments with our invention the operator spreads the garment out on the covering-board O and removable cover *n*, and moves it toward the feed-rolls D and E until its edge is taken in by the said rolls. When the edge of the garment comes in contact with the revolving brush B, it is swept down against the bearing-plate I, if the bearing-plates I are employed, or against the feed-rolls E when such bearing-plates I are not employed, and is moved along by the brush as fast as the feed-rolls will permit toward the feed-rolls F and G. Should the garment cling to the feed-roll E when the bearing-plate I is not used, the leather strip *p* will brush it off. Should it cling to the brush, the trip-roll will sweep it clear and carry or throw it over toward the rolls F and G. The rolls F and G may be made a very little larger in diameter than the rolls D and E, if desirable, to compensate for any possible slip; but we have not found it necessary to make any difference in the diameters or surface-speed of the feed-rolls. The garment being drawn in by the rolls F G is carried against the face of the second revolving brush, C, and is swept down against a second bearing-plate I, if such bearing-plate I is used, and, after being thus brushed on both surfaces, drops onto the moving endless apron J, and is carried out clear of the frame A, and is thrown to one side by the operator. The dotted lines *x x x x* show the course of the garment through the machine. The second trip-roll sweeps the face of the second brush, C, and throws off the garment when it clings to that brush.

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

1. The combination, in a brushing-machine, of a cylindrical brush, clamping feed-rolls arranged in pairs for feeding the fabric or garment to the brush, the interposed plate for sustaining the garment against the pressure of the brush, a trip roll or cylinder having flexible blades arranged to sweep the face of the brush, and means, substantially as described, for receiving and delivering the fabric or garments operated on.

2. The combination, in a brushing-machine, of two cylindrical brushes, feed-rolls to each for feeding the fabric or garment to the brush, means, substantially as described, for sustaining the garment against the pressure of the brushes, and a trip roll or cylinder with flexible blades in close proximity to each brush, whereby said blades, when revolving, will sweep the face of the brush, one of said brushes being arranged, as described and shown, to operate on one surface of the fabric or garment and in the described relation to the other brush, whereby the fabric or garment will readily pass from the first brush to and between the feed-rolls of the second brush and present the opposite surface to the action of the second brush, substantially as described.

3. In a brushing-machine having two cylindrical brushes, the combination therewith of the feed-rolls for feeding the fabric or garment to the brushes, means, substantially as described, for sustaining the garment against the pressure of the brushes, the first of said brushes being arranged and placed, as described and shown, to operate on one surface of the fabric or garment, and arranged in relation to the second brush, substantially as described, whereby the fabric or garment will readily pass from the first brush to and between the feed-rolls of the second brush, and present the opposite surface to the action of the second brush, the whole being arranged as described and shown, and an endless apron arranged to receive the fabric or garment, and to carry the same out of the machine, substantially as described.

4. The combination, with a suitable framework and a traveling apron or carrier located in the lower part thereof, of the brush-rollers B C, the latter located below and to one side

of the former, and both mounted in adjustable bearings *e*, clamping feed-rolls placed in proximity to the brush-rolls, and the trip-rolls H H, having flexible blades *j*, and located adjacent to the brush-rolls, substantially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands this 23d day of December, A. D. 1886.

EDWARD McCREARY.
JOHN McCREARY.

Witnesses:
CHAS. O. EVEANS,
GEORGE JACKSON.