C. S. DAVIS.

CLOTH-FINISHING MACHINE.

No. 180,705. Patented Aug. 8, 1876.

Fig. 3

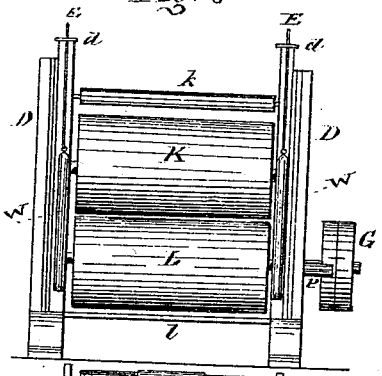


Fig. 4

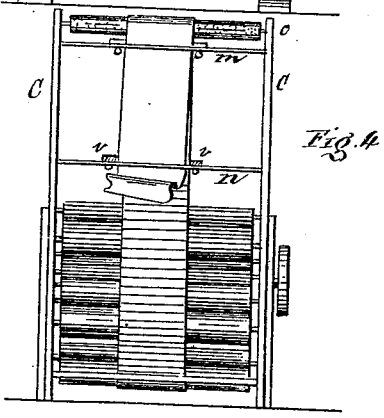


Fig. 1

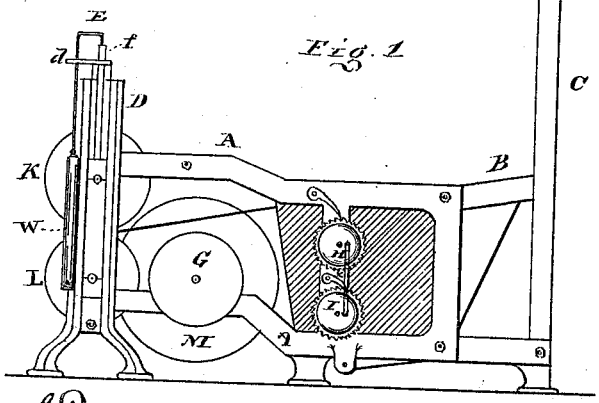


Fig. 2

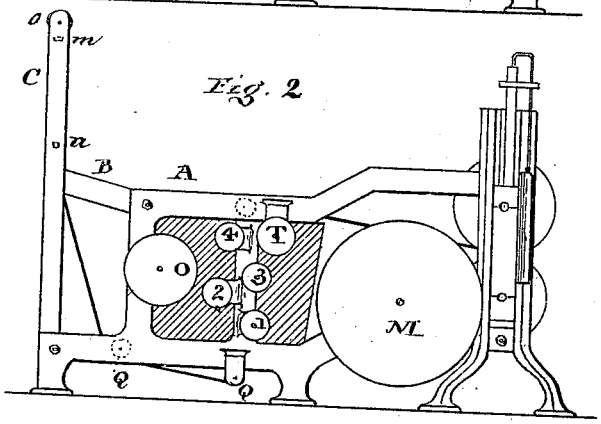


Fig. 6.

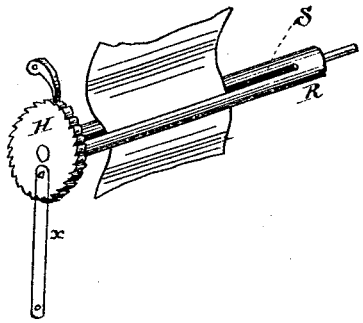
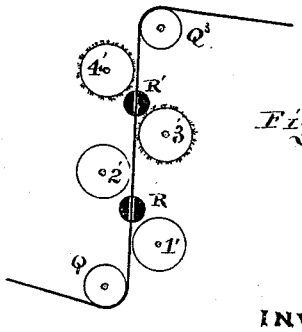


Fig. 5.



WITNESSES.

Theodore Sinc

Howard Cook

INVENTOR.

Caleb S. Davis

per Jacob Stauffer Atty.

UNITED STATES PATENT OFFICE.

CALEB S. DAVIS, OF MANAYUNK, PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CLOTH-FINISHING MACHINES.

Specification forming part of Letters Patent No. **180,705**, dated August 8, 1876; application filed April 26, 1876.

To all whom it may concern:

Be it known that I, CALEB S. DAVIS, of Manayunk, in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Cotton-Cloth-Finishing Machines, of which the following is a specification:

This invention relates to several improvements in a certain machine for finishing cotton goods, for which Letters Patent were granted to me, dated January 24, 1860, No. 26,895; and consists in the mode of regulating the tension of the goods against the several brush and emery rollers, by introducing slotted bars or rollers between the several pairs of rollers, and acting in unison with each other, together with the addition of a frame with slotted bars to prevent wrinkling, and to deliver the goods to the action of the brush and emery rollers more evenly, as well as the weighted bearings for the winding-up roll over the calendering-cylinders.

The accompanying drawing, with the letters of reference marked thereon, and a brief explanation, will enable those skilled in the art to make and apply the several improvements.

Figure 1 is a side elevation, to show the position of the coupled ratchet-wheels, with their pawls. Fig. 2 shows the other side of the machine, and the position of the strap-pulleys; Figs. 3 and 4, the end views of the machine. Fig. 5 illustrates the relative position of the brush and emery rollers and slotted adjustable tension-bars; Fig. 6, a perspective view of one of these slotted bars, ratchet, pawl, and connecting-bar suspended to it.

The combination of the steam-calender with self-acting steam-cylinders K L is substantially the same, as also the frame-work A and general internal arrangement of the machine, as in my former patent, and these require no special notice. I therefore confine my description to the improvements already intimated, viz:

I add an extension, B, terminated by two elevated upright posts, C. These form a bearing at top for a traction-roller, O, and are also united by slotted cross-pieces *m n*. The latter are provided with sliding clamps, to gage the width of the slot to the cloth, which is passed through said slots upward in full view of the attendant. From these it passes over the traction-roller O, down again through said slots to the lower carrying-roller Q, in order to prevent any creasing or folding, and to present the cloth smoothly to the action of the emery and brush rollers formerly used.

As cloth varies in thickness, and for producing more or less contact with the several rollers, and to produce various results in the finish of cloth, I have introduced two slotted tension-bars, R R′, one vertically over the other, and diagonally between the pairs of emery-rollers 1′ 2′ and brush-rollers 3′ 4′, as shown by Fig. 5. The cloth being passed through the slots in said bars, and between the several pairs of rollers mentioned, to the upper carrying-roller Q^3, it is carried to the calendering-cylinders. These slotted bars R R′ are so arranged that when the slots in them are in a vertical position the cloth comes but slightly in contact with the several pairs of dress-rollers; but when more or less inclined, the cloth is more or less brought against the action of said emery and brush rollers. Thus the friction can be increased to any degree, according as the slots in the rollers vary from the vertical to the horizontal position, giving a range of ninety degrees for adjustment.

To hold them in their adjusted position, they (the said bars R R′) are provided with ratchet-wheels or segmental wheels H I, engaging with pawls pivoted to the side frame, and joined in their action by a pivoted connecting-rod, *x*, so that when one of the bars is turned the other turns in unison with it.

This arrangement, in combination with the emery and brush rollers, allows the most accurate adjustment to be made, and the desired amount of friction to be obtained, as circumstances may demand. Besides, a very soft finish or nap can be given on both sides of the cloth, which, with the calendering process, enables us to compete with the best quality of imported goods of this class, and brings advanced prices for our domestic manufacture.

I have also devised a self-adjusting pressure upon the bearings or shaft of the winding-up roller *k*, above the cylinder K. The slotted uprights D, in which the several bearings of the cylinders K L are adjusted, have a top bracket, *d*, for a rod, E, bent at two points,

contiguously at right angles. The vertical legs are held and guided in said bracket *d*, these legs being parallel. One is provided with a flat bearing-bar, *f*, which sets over the end of the shaft of the roller *k*, one on each side of the machine. The other leg is provided with a weight, W. This weight is adjusted so as to cause the plate *f* to keep the desired tension on the winding-up roller *k* as it increases in bulk, and yet so as to yield during its augmentation.

With these improvements added to my former invention I now have made it a very valuable machine, by which new and useful results are produced, and said improvements substantially changing the same to a new combination. Hence,

What I claim as novel and highly useful is—

1. The tension bars or rollers R R′, with their ratchets H I and coupling *x*, in combination with the emery and brush rollers 1′, 2′, 3′, and 4′, arranged in the manner and for the purpose substantially as herein specified.

2. The elevated frame B C, when provided with slotted cross-bars *m n*, adjusting-clamps *v*, and traction-roller O, the whole combined and arranged substantially in the manner shown, for the purpose set forth.

3. In combination with the bearings of the cloth-roll K over the bearings of the calender-rolls in D, the weighted rod E and slide-plate *f*, arranged substantially as and for the purpose mentioned.

C. S. DAVIS.

Witnesses:

SAML. W. STIVERS,

WILLIAM AMES.