2 Sheets--Sheet 1

I. L. HOLMES.

Cloth-Shearing Machine.

No. 160,825. Patented March 16, 1875.

Fig. 1

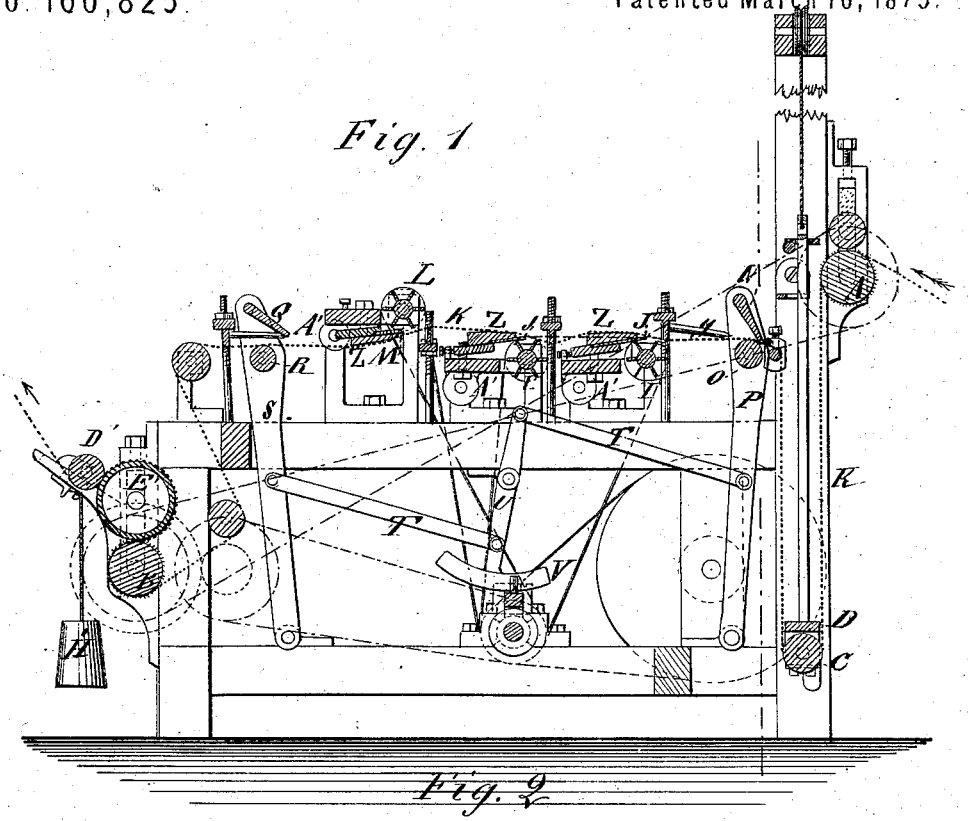
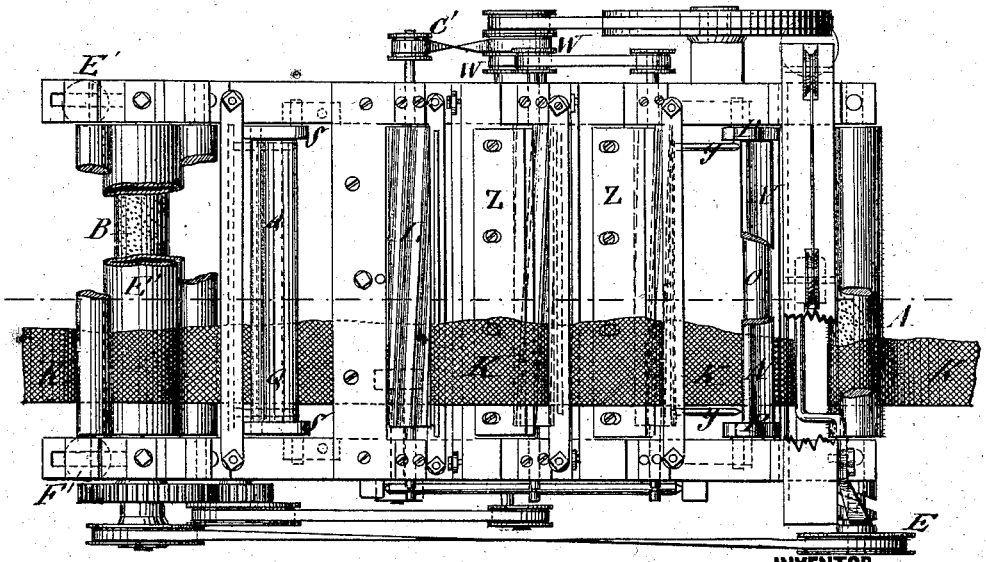


Fig. 2



WITNESSES:

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A. F. Terry

INVENTOR:

Isaac L. Holmes

BY Munn & Co

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH, 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

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Fig. 5

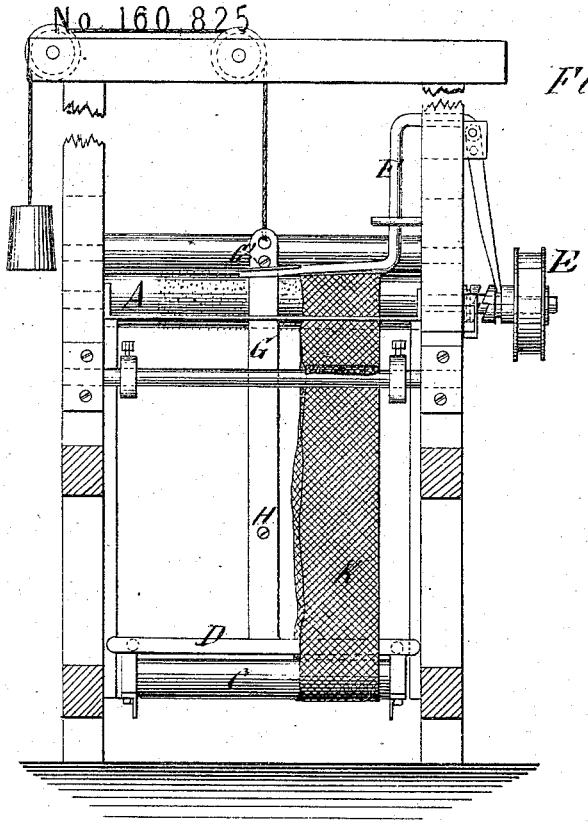


Fig. 5

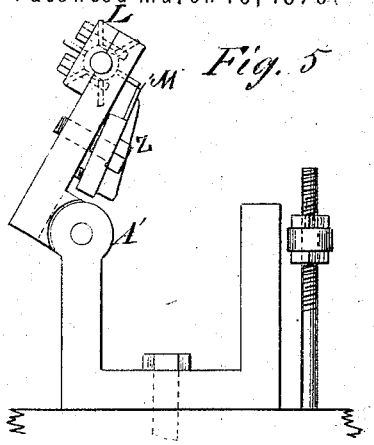


Fig. 6

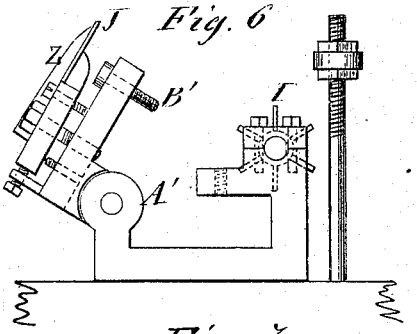


Fig. 7

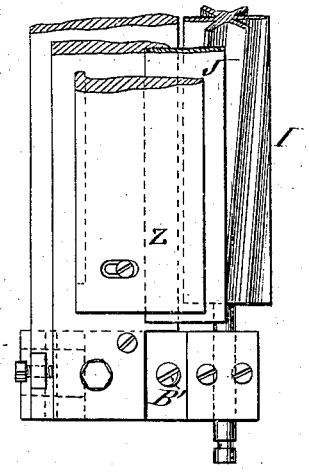
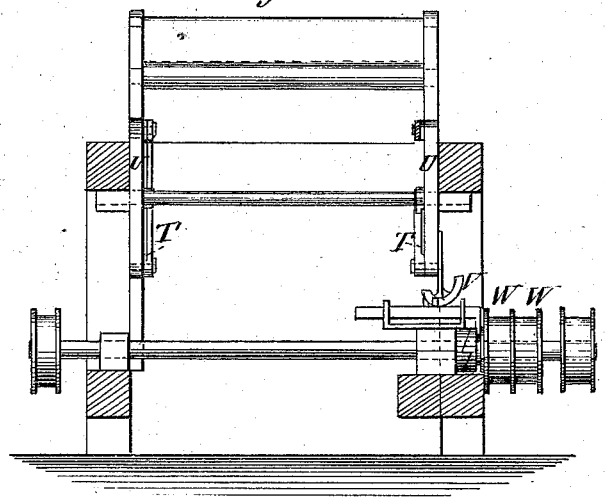


Fig. 4



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UNITED STATES PATENT OFFICE.

ISAAC L. HOLMES, OF SACO, MAINE.

IMPROVEMENT IN CLOTH-SHEARING MACHINES.

Specification forming part of Letters Patent No. **160,825**, dated March 16, 1875; application filed January 25, 1875.

To all whom it may concern:

Be it known that I, ISAAC L. HOLMES, of Saco, in the county of York and State of Maine, have invented a new and Improved Cloth-Shearing Machine, of which the following is a specification:

The first part of my invention consists of an automatic feed-regulating apparatus, whereby the cloth is delivered to the machine, so that it has a uniform tension while passing through it, not subject to the unequal pulls and strains common to the cloth when drawing into the machine.

The second part consists of an automatic contrivance, whereby the revolving cutters are stopped by a seam when it approaches them, and allowed to rest until the seam passes, and then set in motion again, as it passes away from them, to protect the cutters from the effects of the extra thickness of the seam, and to prevent the seam from being cut.

The third part of the invention consists of the bed-pieces of the stationary knives pivoted to the frame, so that these knives can be readily swung up away from the revolving knives to facilitate the cleaning of the latter of the oil and emery used in sharpening them.

Figure 1 is a longitudinal sectional elevation of my improved machine, taken on the line *x x* of Fig. 2. Fig. 2 is a plan view with some parts broken out. Fig. 3 is a sectional elevation of the end of the machine, into which the cloth feeds for being sheared, the section being taken on the line *y y*. Fig. 4 is a section on the same line, but seen in the opposite direction. Fig. 5 is a detail, in side elevation of the bed-piece, of the stationary blade, having the revolving cutters arranged over it, showing the hinged contrivance of the knife-bed for raising it up for cleaning, &c. Fig. 6 is a similar view of one of the stationary knives, having the revolving cutters arranged under it, and Fig. 7 is a plan view of a portion of one of the stationary cutters arranged above the revolving cutters, and adjusted in the working position.

Similar letters of reference indicate corresponding parts.

A is the feed-roll for drawing the cloth into the machine. B is the roll which draws it out. The feed-roll is geared to gain a yard or so on a piece over the drawing-roll, and the cloth is passed under the take-up roll C, which is mounted in a vertically sliding and counterbalanced frame, D, so as to descend when the feed-roll gives an excess of cloth, and rise when it fails to feed as fast as the drawing-roll takes it, thus keeping a uniform tension on the cloth in the machine entirely unaffected by any irregular pulls and strains that it may be subjected to on the feed-roll. In order to stop the feed-roll when it has finished a certain amount in excess of the drawing-roll, the driving-pulley E for the feed-roll is connected to the shaft by a clutch, and the clutch is connected by the crooked shipper-lever F with the vertical bar G of the take-up roll, so that when a certain amount of slack has been given the stud-pin G′ will catch the lever as the take-up roll falls, and throw the feed-roll out of gear, and as the take-up roll rises by the taking up of the slack in the cloth by the drawing-roll, the stud H will strike the lever and set the feed-roll going again. I represents the two lower revolving cutters, and J the stationary ones, over which the cloth K passes, and L is the upper revolving cutter, and M the stationary one, under which the cloth passes. N and O represent a pair of griping-jaws in a vibrating frame, P, through which the cloth passes to the cutters. Q and R represent another pair of griping-jaws in another vibrating frame, S, through which the cloth passes as it goes from the cutters. These frames P and S are connected by the rods T and the rock-lever U, so that whenever one is swung forward or backward the other will be moved by the first, but in the opposite direction. The rock-lever also carries a cam, V, which works the clutch-pulleys W, by which the revolving cutters are drawn, so as to stop and start them. When a seam, X, in the cloth comes to the griping-jaws N O, it is caught by them, and they are carried by the cloth toward the cutters, which throws out the clutch-pulley W, and stops the cutters, and at the same time swings the jaws Q R toward the cutters. When the clutch-pulley is thrown out the jaws N O are opened to let the cloth pass, by the jaw N striking the relief-pins Y. The seam then passes over the revolving cutters, which are at rest, until it comes to the jaws Q R, which

gripe it in like manner, and are carried back by the cloth, so as to shift the clutch-pulley in again, and also swing the jaws N O forward to the position for griping the next seam. Z represents the stiffening-plates, which I have combined with the stationary blades, to prevent them from springing, particularly when the revolving cutters are large, which requires that the blades be wide and thin, in order to allow the edges to be adjusted with proper relation to the revolving cutters. Being thin they are apt to spring, if set close enough to the cloth to cut the strings and naps, and, also to heat more or less. All this is prevented by putting on the stiffening-plates, because when so stiffened the edges do not require to be set so close to the cloth.

If a thick single plate is put on, the cutting-edge which is the one on the opposite side to the cloth is too far from it, and it is liable to heat and set or spring. These stiffening-plates are made adjustable toward and from the edges of the blades.

A′ represents the joint of the bed-pieces of the stationary cutters, the object of which is to make the machine more convenient for clearing off the emery and oil after grinding the revolving cutters, which is done by running them in the reverse direction until they sharpen by the emery and oil applied.

With these joints the stationary blades can be readily turned back after taking out the screws B′ of the first two blade-supports, and removing the belt C′ from the pulley of the revolving cutters on the other blade-support, so that the clearing will be greatly facilitated.

D′ represents the ironing-roll, which I combine with the steam-roll E′, for smoothing the cloth as it passes out of the machine. This roll I have arranged in weighted sliding bearings F′ on the inclined supports, so that it will be forced up by any irregularities in the cloth, and back against the cloth when they are passed by the weights H′.

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

1. The combination of the take-up roll C, with the feed-roll A and the drawing-roll B, the former being geared to run faster than the latter, substantially as specified.

2. The clutch-pulley E, belt-shifter lever F, sliding bar G, and stops G′ and H, combined with the take-up roll and the feed-roll, substantially as specified.

3. The griping-jaws N O and Q R, rock-frames P and S, connecting-rod T, rock-lever U, and cam V, combined with the cutters of a cloth-shearing machine, and the shifting clutch-pulley for driving the revolving cutters, substantially as specified.

4. The combination, with the rotary cutter, of stationary blade-supports, arranged on pivots A′, to rise up for cleaning the machine, as described.

ISAAC L. HOLMES.

Witnesses:
WM. NOYES,
DARROW LITTLEFIELD.