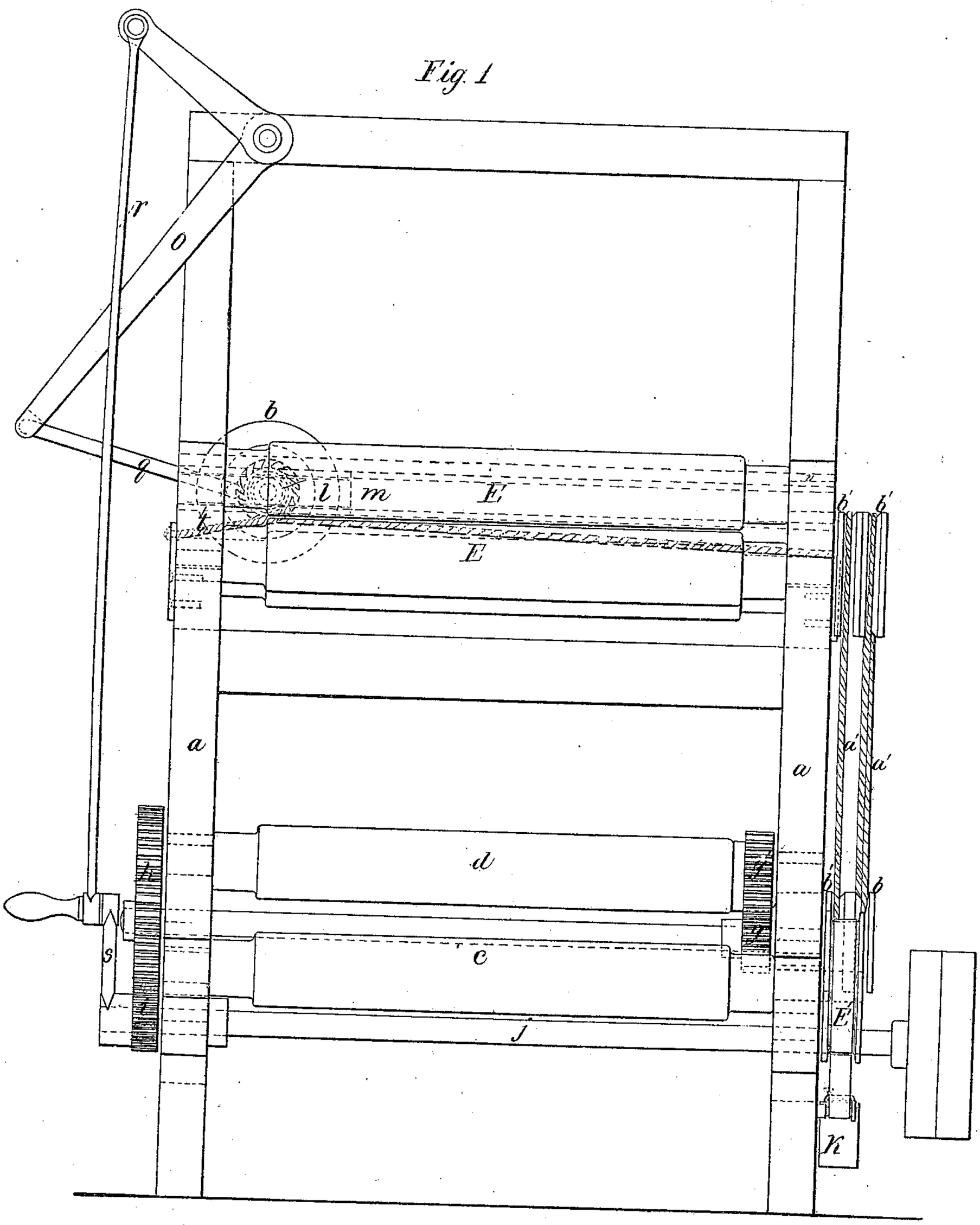
Sheet 1. 2 Sheets.

E. B. Bigelow.
Weaving Pile Fabric.

No. 13,862. Patented Dec. 4, 1855.

Fig. 1



Witnesses
Chas Hastings
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Inventor
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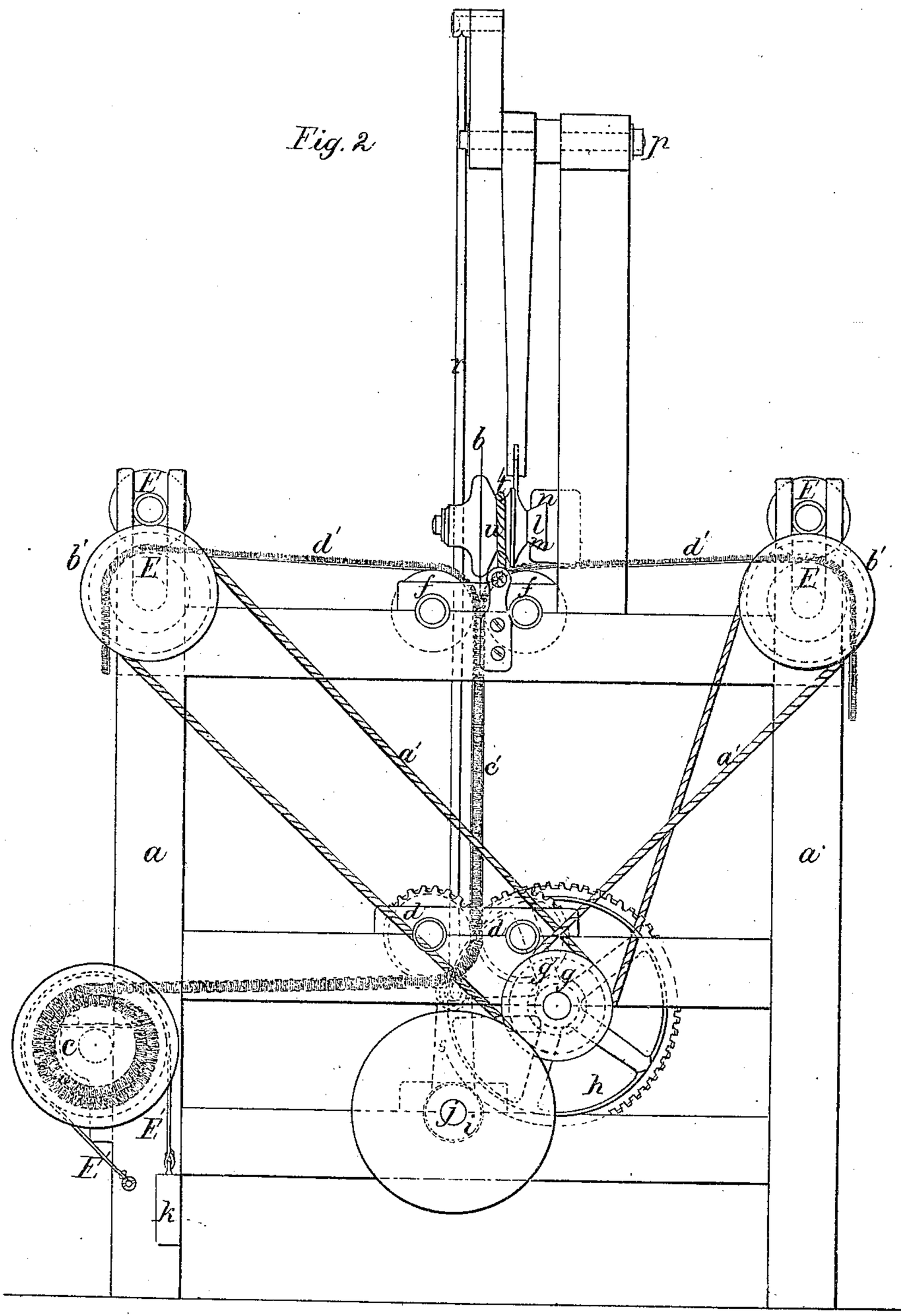
Sheet 2. 2 Sheets.

E. B. Bigelow.

Weaving Pile Fabric.

No. 13,862. Patented Dec. 4, 1855.

Fig. 2



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UNITED STATES PATENT OFFICE.

ERASTUS B. BIGELOW, OF BOSTON, MASSACHUSETTS.

CUTTING PILE FABRICS.

Specification of Letters Patent No. 13,862, dated December 4, 1855.

To all whom it may concern:

Be it known that I, ERASTUS B. BIGELOW, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in the Mode of Dividing Pile Fabrics After They Have Been Woven Double, and that the following is a full, clear, and explicit description thereof, reference being had to the accompanying drawing, making a part of this specification.

Figure 1 is a front elevation, and Fig. 2 is an end view of the apparatus employed.

The same letters indicate like parts in all the figures.

My invention relates to the production of cut pile fabrics such as are first woven double, and then cut apart by an intersecting knife or knives thus producing a cut pile face on either fabric.

The nature of my invention consists in the employment of a rotating cutter for dividing double pile fabrics such as have just been alluded to, when said rotating cutter is combined with take up rollers for drawing the two fabrics apart and carrying them forward as the cutting operation proceeds. The take up rollers to be used in combination with the said rotating cutter may be attached to the loom as specified in my Letters Patent for improvements in looms for weaving cut pile fabrics double, dated March eighteenth, eighteen hundred and fifty one, and numbered 7983, or they may be operated separately as represented in the accompanying drawings.

(*a*, *a*,) represent the frame for supporting the apparatus; (*b*,) the rotating cutter; (*c*,) the roller on which the double cloth is wound preparatory to its being divided; (*d*, *d*,) the delivering rollers which determine the speed at which the cloth is to be delivered to the cutter.

(*e e*, *e e*) are the take up rollers for drawing the two fabrics apart and carrying them forward as the cutting operation proceeds, and (*f*, *f*,) are guide rollers which determine the strain given to the pile at the time it is being cut.

The rollers (*d*, *d*,) are provided with spurs to hold the cloth and are geared together by the pinions (*g*, *g*,) which receive motion through the wheel (*h*) and pinion (*i*) from the driving shaft (*j*). The double cloth (*c'*) is passed from the roller (*c*) between the delivering rollers (*d*, *d*,) thence up between the guide rollers (*f*, *f*,) where it is divided by the rotating cutter (*b*) and when so divided the two fabrics (*d'*, *d'*,) pass to their respective take up rollers (*c*, *c*,) by which they are drawn away. The take up rollers (*e e*, *e e*) are driven from the delivering rollers (*d*, *d*,) by their respective bands (*a' a'*) and pulleys (*b' b' b' b'*) said pulleys being so graduated as to cause the bands (*a' a'*) to slip in proportion to the strain required upon the cloth. The delivering rollers (*d*, *d*,) having a positive motion determine the speed at which the double cloth (*c'*) is delivered to the rotating cutter (*b*) while the take up rollers (*e e*, *e e*) by the slip of their respective bands (*a' a'*) as aforesaid give the necessary tension to each fabric, and as the two fabrics are thus drawn around their respective guide rollers (*f*, *f*,) the pile between them to be cut is drawn straight with more or less tension as the cutting edge of the cutter (*b*) is more or less above the center of the guide rollers (*f*, *f*,). The double cloth (*c'*) is kept straight by the strap (*e'*) and pace weight (*k*). The revolving cutter (*b*) turns on a stud which extends from a sliding bar (*l*) which slides to and fro in the groove (*m*) in the bar (*n*).

(*o*) represents a bent lever which vibrates on the stud (*p*) and has one arm connected by the connecting bar (*q*) to the sliding bar (*l*) while its other arm is connected by the rod (*r*) to the crank (*s*) on the driving shaft (*j*) so that when the driving shaft (*j*) revolves it causes the rotating cutter (*b*) to travel to and fro across the cloth.

To give the rotating motion to the rotating cutter (*b*) the cord (*t*) is passed around the groove (*u*) in the hub of said cutter and made fast to the frame at either end, so that the vibrating motion of the cutter causes it to rotate on its axis. Instead of the groove and cord, a pinion and rack may be used as an equivalent.

A sharpener may be attached to the sliding bar (*l*) and brought in contact with the edge of the rotating cutter (*b*) in such a manner as to sharpen it during its operation.

The construction and arrangement of the machinery to operate the rotating cutter may be variously modified without changing its general character, as for instance, instead of deriving its rotary motion from its vibratory motion through a rack and pinion or a pulley and cord attached to the frame as

above specified, it may be driven by a band from an independent shaft having a constant motion in one direction. This modification is to be preferred in cases where a high velocity of the cutter is required to cut the pile. If the cutting operation is done apart from the loom, the double cloth may be drawn from the loom by one set of spur take up rollers geared together in the usual way or like the delivering rollers (*d*, *d*).

Having described my improvements, what I claim as new therein and desire to secure by Letters Patent, is—

The employment of a rotating cutter in combination with take up rollers substantially in the manner and for the purpose specified.

ERASTUS B. BIGELOW.

Witnesses:
CHAS. HASTINGS,
FRANK F. HASTINGS.