

(No Model.)

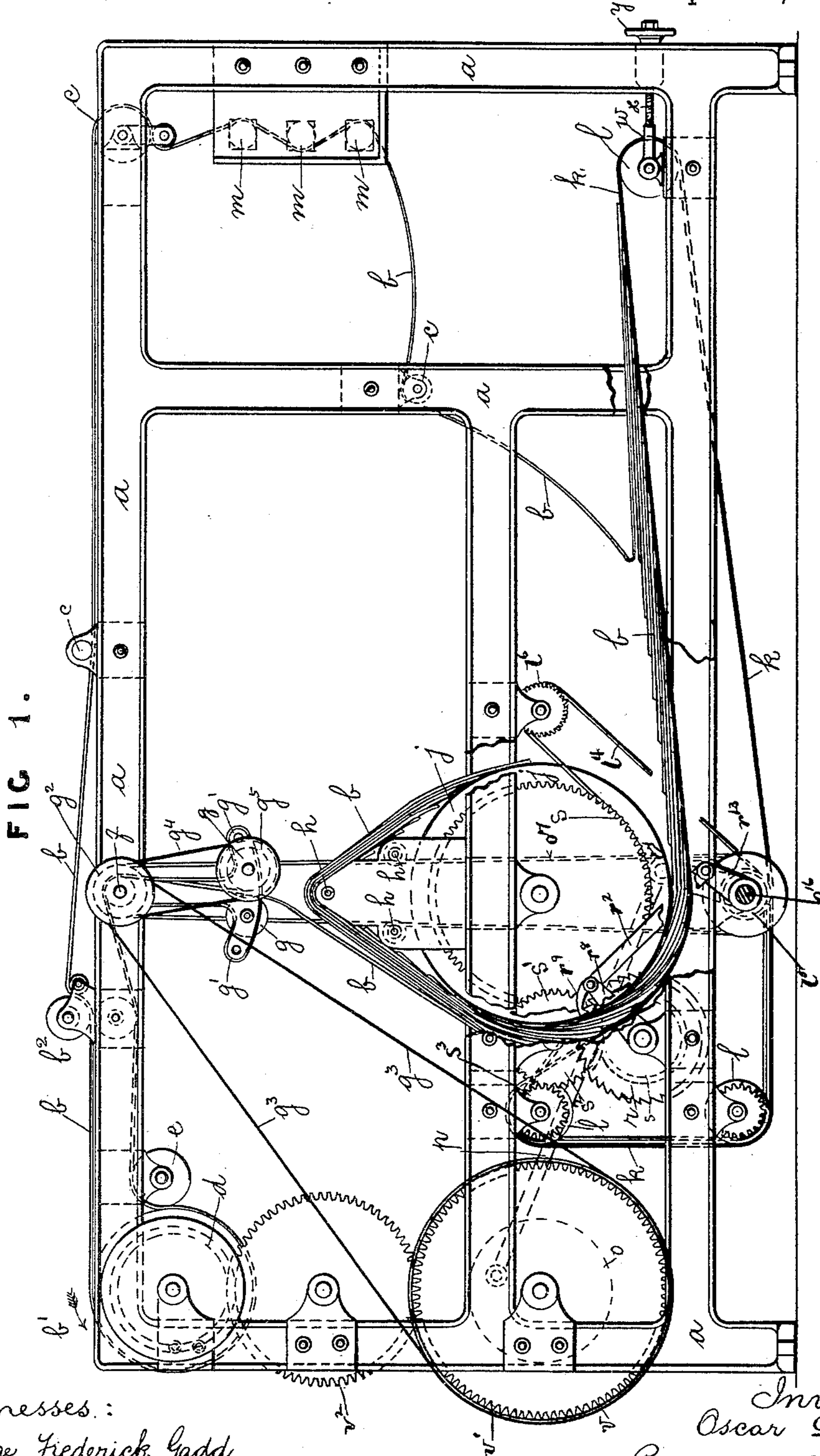
2 Sheets—Sheet 1.

O. DREY.

APPARATUS EMPLOYED IN CUTTING WEFT PILE FABRICS.

No. 450,692.

Patented Apr. 21, 1891.



Witnesses.:

George Frederick Gadd

Arthur Gadd.

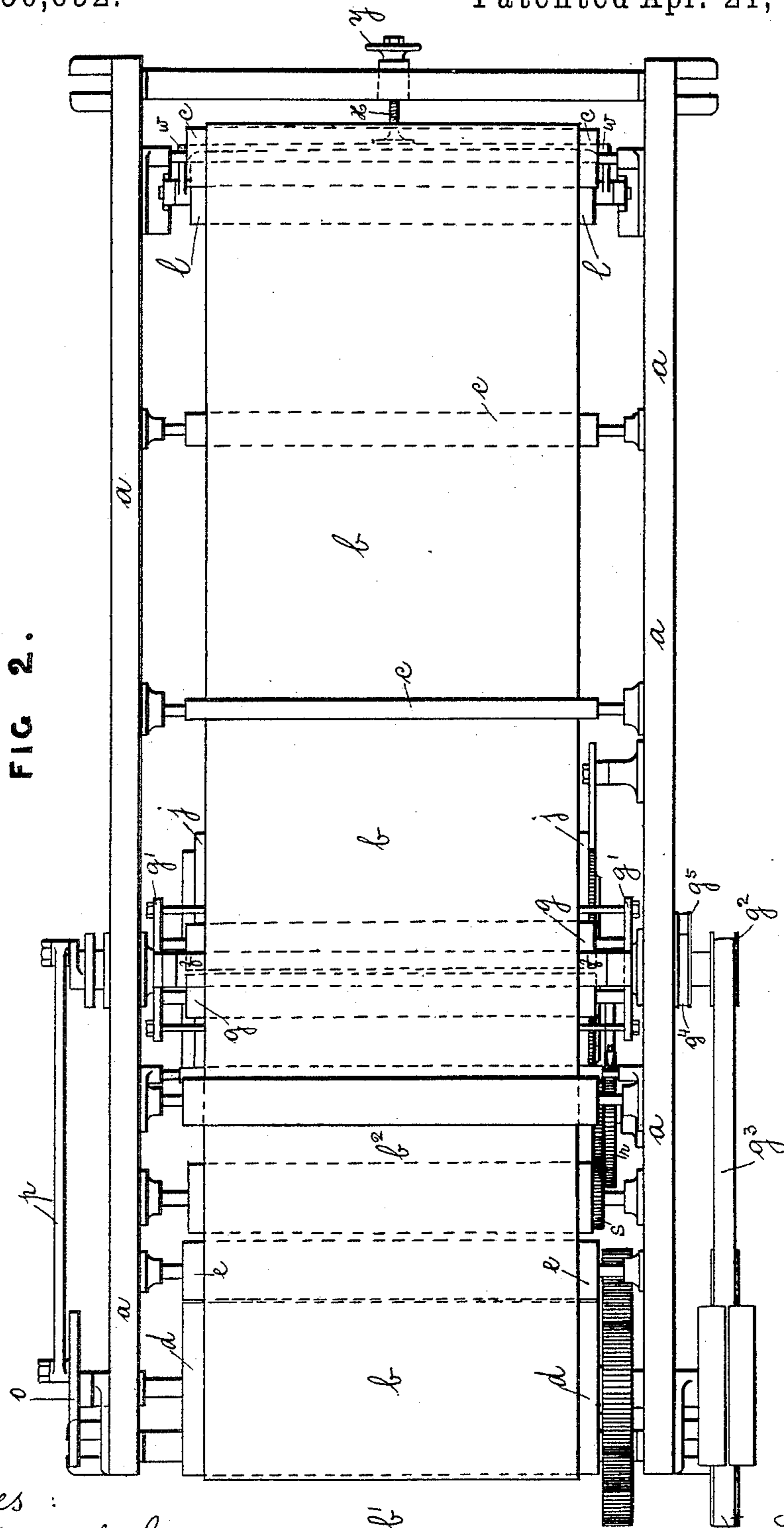
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UNITED STATES PATENT OFFICE.

OSCAR DREY, OF MANCHESTER, ENGLAND.

APPARATUS EMPLOYED IN CUTTING WEFT PILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 450,692, dated April 21, 1891.

Application filed December 6, 1889. Serial No. 332,864. (No model.) Patented in England February 26, 1889, No. 3,399; in France November 27, 1889, No. 202,260; in Belgium November 27, 1889, No. 88,633; in Spain December 20, 1889, No. 10,347, and in Italy January 17, 1890, XXIII, 26,655, LII, 291.

To all whom it may concern:

Be it known that I, OSCAR DREY, a subject of the Queen of Great Britain, residing at Manchester, England, have invented a new and useful Improvement in Apparatus Employed in the Cutting of Weft Pile Fabrics, (for which I have obtained a patent in Great Britain, dated February 26, 1889, and numbered 3,399, and since making the present application I have also obtained patents in the following countries: in France, dated November 27, 1889, No. 202,260; in Belgium, dated November 27, 1889, No. 88,633; in Spain, dated December 20, 1889, No. 10,347, and in Italy, Registro Generale, Vol. 23, No. 26,655, Registro Attestati, Vol. 52, No. 291, dated January 17, 1890,) of which the following is a specification.

The improvements relate to apparatus for use in the cutting of weft pile fabrics, such as velvets, velveteens, cords, and the like, and have for their object the attainment of a more continuous cut throughout the length of the piece, and consequently a more rapid operation than when a reciprocal action is given either to the piece or the cutting-knife. To accomplish this and to effect my improvements I form the piece of pile fabric desired to be cut into an endless web by joining the two ends thereof together. The cloth thus arranged is drawn forward for cutting purposes by means of a roller or rollers driven by hand or power against a knife or knives, which may be the ordinary fustian-cutting knives or a modification thereof, or other knives, and may be held by one or more operators, or, if found desirable, automatically in fixed or movable supports attached to the machine, and which allow sufficient play. Guide-rollers are placed at suitable intervals for guiding the web or cloth on its journey, which after the cutting operation passes back underneath the cutting-level. For taking up the length of the cloth into reasonable space I provide an apparatus somewhat similar to an ordinary plaiting or folding machine, but with an apparatus attached for turning over the folded cloth, so that the same may be readily again drawn from the folds at an upper surface. To this end I em-

ploy a revolving drum or cylinder mounted horizontally beneath a saddle, upon which the rocking motion folds the cloth. The folded cloth is held to one side of the circumference of the drum as it turns around by means of an endless web, band or bands, or an equivalent thereof pressing against the same, and which band or bands pass over suitable guide pulleys or rollers to enable the return journey to be made, one or more of which guide pulleys or rollers may be weighted or otherwise have tension adjustment provided, so as to keep the band or bands sufficiently tight to hold the folded cloth to the drum or cylinder during the turning-around or turning-over process. The traveling band is extended sufficiently from the drum to clear the folded cloth, so that the drawing roller or rollers can freely unfold or pull the same forward. When the joint of the two ends of the piece arrives at the knife or knives, another race may be presented thereto either by hand or automatic guiding, as shall be found most desirable, and the operation of cutting is thus rendered continuous in one direction by the drawing-rollers and folding apparatus taking direct motion.

The drawing or other rollers may be smooth or roughened, or both combined, as may be found most convenient, and the apparatus may or may not be provided with means for throwing the knife or knives out of gear when an obstruction is presented or when they penetrate or otherwise damage the cloth; but that the improvements may be better understood, I will, by the aid of the accompanying drawings, proceed more fully to describe means employed by me.

In the drawings, Figure 1 shows an elevation, partly in section, and Fig. 2 a plan view, of apparatus arranged in accordance with my improvements.

The same letters indicate corresponding parts wherever they occur.

a a is the main framing of the machine, and *b b* is the web of cloth to be cut. The cutting process or application of the knife is made on the upper surface, by preference between *b'* and *b*².

c c are various guide-rollers for carrying or

guiding the cloth in its travel through the machine.

d is the driving-roller, which with the nip-roller *e* draws the cloth forward in the direction of the arrow. The cloth then passes over the roller *f* and between the driven rollers *g g*. These rollers *g g* being mounted on the rocking arms *g' g'* and caused to oscillate to and fro plait or fold the cloth partly on the saddle formed by the small rollers *h h* and partly on the drum or cylinder *j*, somewhat in the manner of a plaiting or folding machine.

The apparatus for turning over the folded cloth consists of the drum or cylinder *j*, which receives the cloth from the saddle and has a slow motion given thereto by ratchet *r* and train of toothed wheel gearing *s s*, as shown. The pawl *r⁹*, which actuates the ratchet *r*, is mounted on a lever *r⁸*, which obtains its motion from being connected by a short link *r²* to a crank *r¹⁸* on the bottom rocking shaft *o¹⁶*. The rollers *l l*, carrying the endless web, are geared to the system by means of a band or chain *l⁴*, passing underneath and partly round the large wheel *s* on the drum-shaft, then over the left-hand top roller *l*, underneath the bottom left-hand roller *l*, underneath a carrier-roller *l⁵*, turning loosely on the bottom rocking shaft *o¹⁶*, and upward and around the suspended carrier-wheel *l⁶* on the right of the drum *j*. A web or continuous band or lattice *k* is carried by rollers *l l*, one of which is rendered movable by means of the tension apparatus composed of the carrying-arms *w w*, adjusted by the screw *x x*, which is operated by the hand-wheel *y y* and is geared to work along with the drum or cylinder aforesaid, and the folded or plaited cloth is carried down and underneath as folded by being nipped between the drum and the web, which thus turns the folded or plaited cloth over. The traveling band, web, or lattice carrying the folded cloth is extended beyond to clear the drum, so that the cloth lying thereon is again unfolded and may pass between or over such

tension-bars as *m m* or rollers, as are found requisite for the weight of cloth under operation. Any further suitable tension or weighting motion may be employed at such point as is found necessary.

Motion is given to the rocking or plaiting apparatus in this example by means of the crank *o* and link *p*, operating the bottom rocking shaft *o¹⁶*, which is connected by means of the vertical bands *o¹⁷* to the top rocking shaft carrying the roller *f* and so actuate the rocking arms *g' g'*; but this rocking or plaiting motion may be accomplished by any mechanically-equivalent means. The rollers *g g* have motion given by means of the straps *g³*, driven by the geared pulley *v* and passing over the loose pulley *g²*, which carries a second strap or band *g⁴*, also passing over the pulley *g⁵* at the end of the spindle of one of the rollers *g g*, by and between which rollers the cloth is drawn forward and plaited onto the saddle, the number of plaits being regulated by the speed at which the drum and traveling lattice are set to act. The shaft carrying the pulley *v* is driven by means of the toothed wheels *v' v² v³*, which gear the first and second motion-shafts together, as shown.

These rollers *g g* may be either geared so as to both run by gearing or by friction.

Variations in detail may be made without departing from the peculiar character of the invention.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

The combination, with a plaiter, of a saddle on which the cloth is laid in folds by the said plaiter, a roller or drum *j*, and a traveling web *k*, having guide-rollers *l*, substantially as described.

OSCAR DREY.

Witnesses:

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