

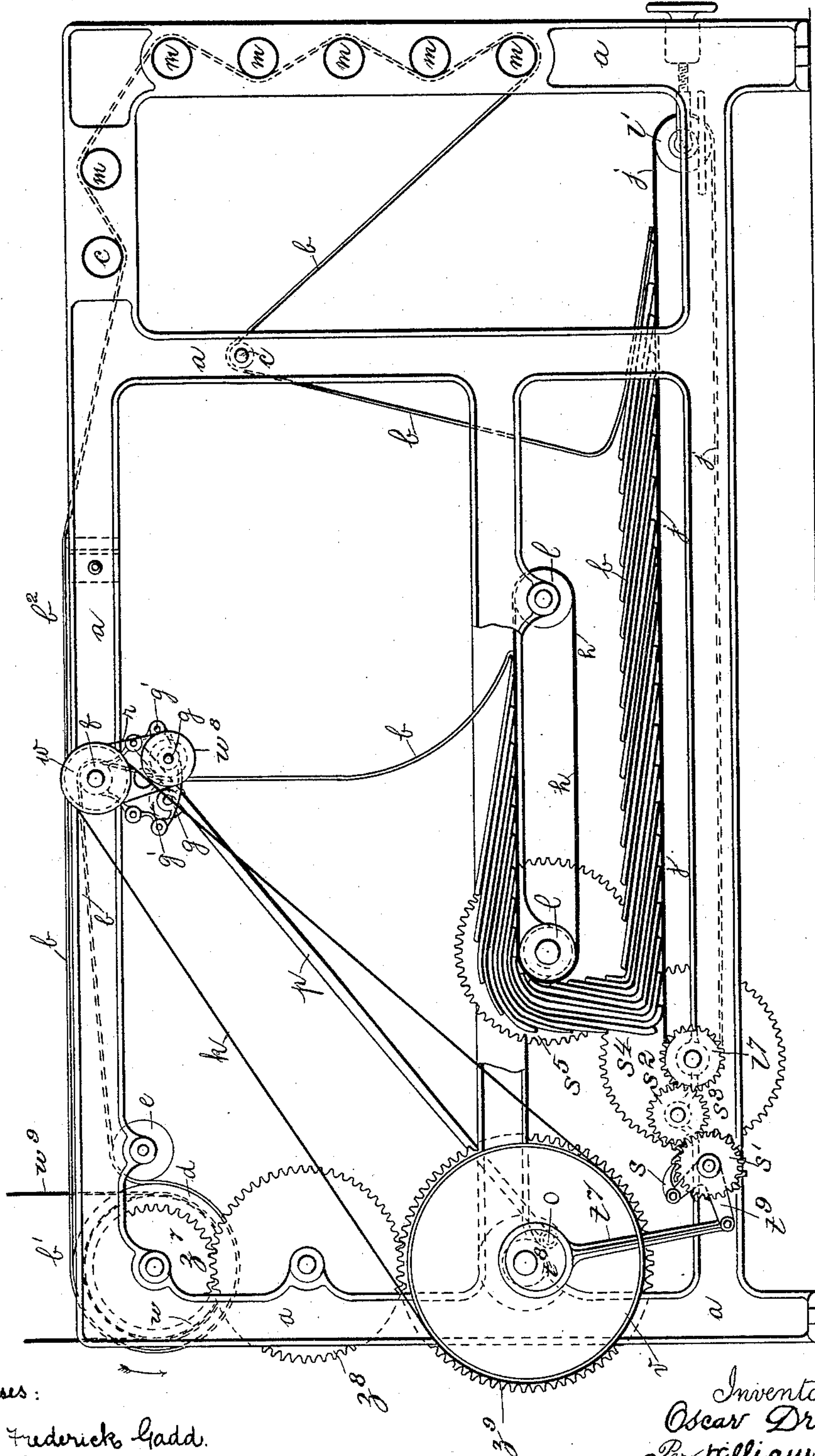
(No Model.)

O. DREY.

APPARATUS EMPLOYED IN THE CUTTING OF WEFT PILE FABRICS.

No. 445,620.

Patented Feb. 3, 1891.



Witnesses:

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UNITED STATES PATENT OFFICE.

OSCAR DREY, OF MANCHESTER, ENGLAND.

APPARATUS EMPLOYED IN THE CUTTING OF WEFT PILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 445,620, dated February 3, 1891.

Application filed April 29, 1890. Serial No. 349,963. (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, and 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 new and useful Improvements in Apparatus Employed in the Cutting of Weft Pile Fabrics, (for which I have obtained Letters Patent in Great Britain, dated February 26, 1889, No. 3,399; 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, dated January 17, 1890, Registro Generale, Vol. 23, No. 26,655, and Registro Attestati, Vol. 52, No. 291,) of which the following is a specification.

The improvements relate to apparatus designed 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. This I accomplish by means of two traveling bands, webs, or lattices, one over the other, by preference working horizontally. The upper of these

bands travels in one direction, while the lower travels in the opposite direction. The cloth is folded onto the upper band and is allowed to turn over onto the lower, which latter is extended sufficiently beyond the former 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 roller or rollers and folding apparatus taking direct motion.

The drawing or other roller or rollers employed 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 drawing, proceed more fully to describe means employed by me.

The drawing shows a longitudinal sectional elevation of apparatus arranged in accordance with my improvements, wherein—

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''*.

c c are guide-rollers for carrying or guiding the cloth in its travel through the machine.

d is the drawing-roller, mounted on the first-motion shaft and driven by the driving-band *w* passing over the driving-pulley *w*, 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 on the traveling web or lattice *h* somewhat in the manner of a plaiting or folding machine.

The apparatus for turning over and carry-

ing forward the folded cloth consists of the traveling web or lattice j , mounted on rollers $l' l'$, which web or lattice receives the cloth from the upper web $k k$, mounted on the rollers $l l$, and both have a constant slow motion given thereto by ratchets s' and train of toothed-wheel gearing $s^2 s^3 s^4 s^5$, as shown. The actuating-pawl s of the ratchet s' is pivoted on a rocking lever t^0 , actuated by the eccentric t^8 and rod t^7 , mounted on the second-motion shaft. The web or lattice j , carrying the folded cloth, is extended beyond and to clear the upper web, so that the cloth lying thereon is free to be again unfolded and may then 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 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 rocking arm g' ; but this rocking or plaiting motion may be accomplished by any mechanically equivalent means.

The rollers $g g$ have motion given thereto by means of suitable driving-straps k and r , the former connecting the pulley v with the pulley w and the latter connecting the pulley w with a pulley or wheel w^8 at the end of one

of the spindles of the rollers $g g$, by and between which rollers the cloth is drawn forward and plaited onto the upper web or lattice, the number of plaits being regulated by the speed at which the traveling lattices are set to act.

The shaft carrying the pulley v is driven by means of the toothed wheels $z^7 z^8 z^9$, which gear the first and second motion shafts together, as shown.

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 traveling surface upon which cloth is deposited in folds by the said plaiter, and an opposing traveling web having guide-rollers l' , upon which the folded cloth is allowed to fall and by which it is turned over, all substantially as herein set forth.

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