(No Model.) 2 Sheets—Sheet 1.

A. & E. LEVENE.

CLOTH CUTTING MACHINE.

No. 601,608. Patented Mar. 29, 1898.

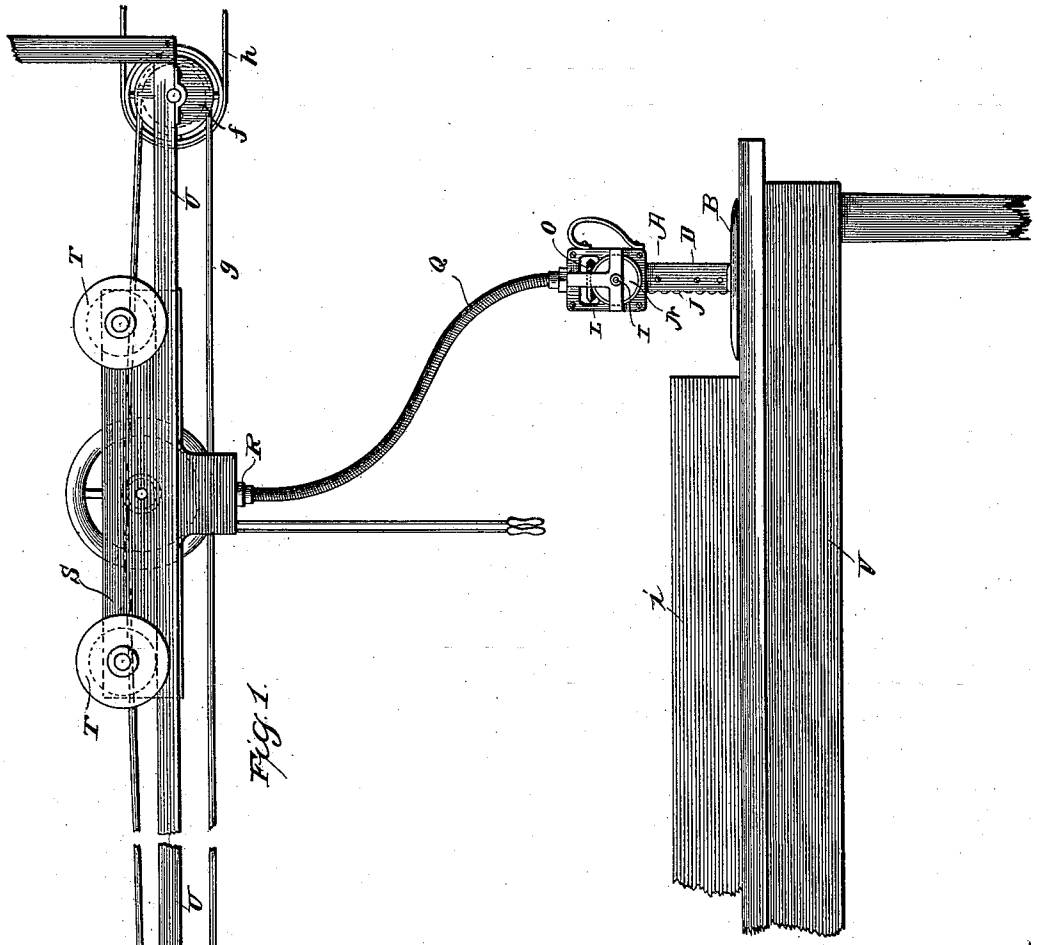


Fig. 1.

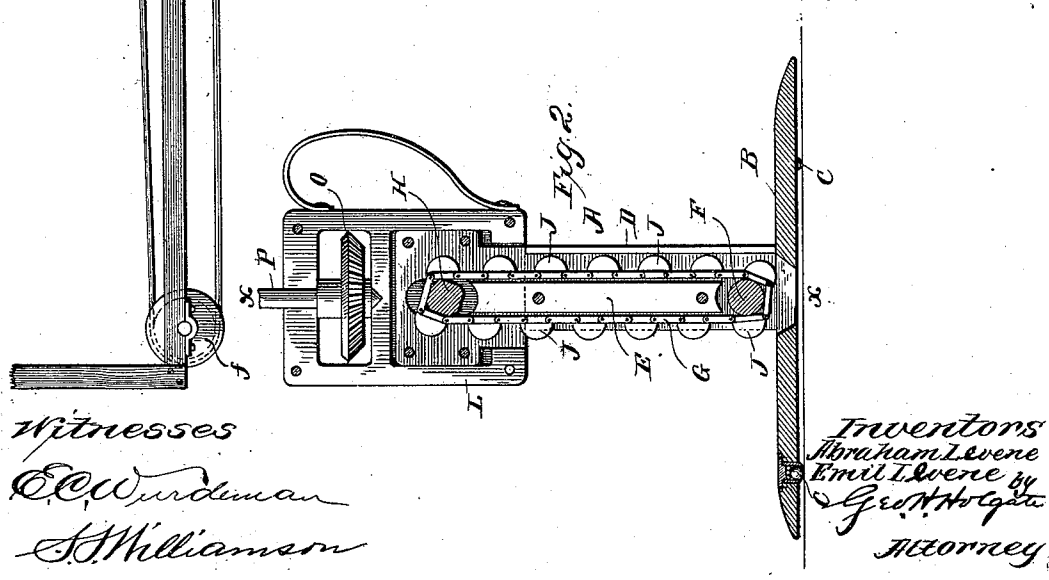


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

A. & E. LEVENE.

CLOTH CUTTING MACHINE.

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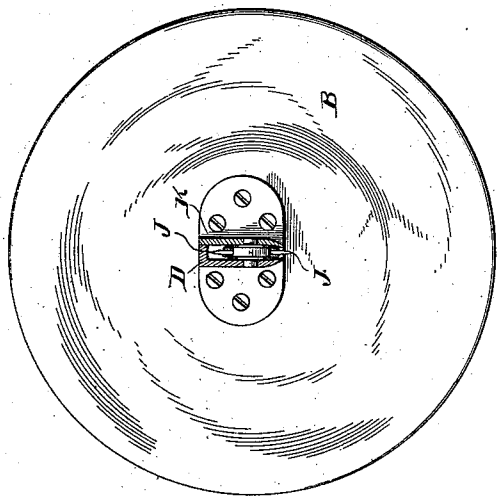


Fig. 4.

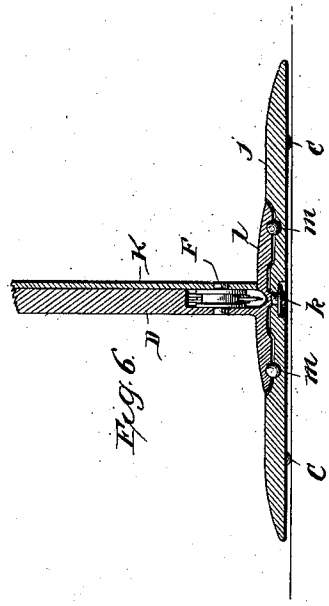


Fig. 6.

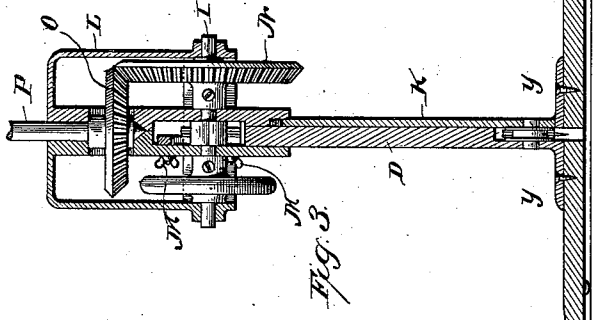


Fig. 3.

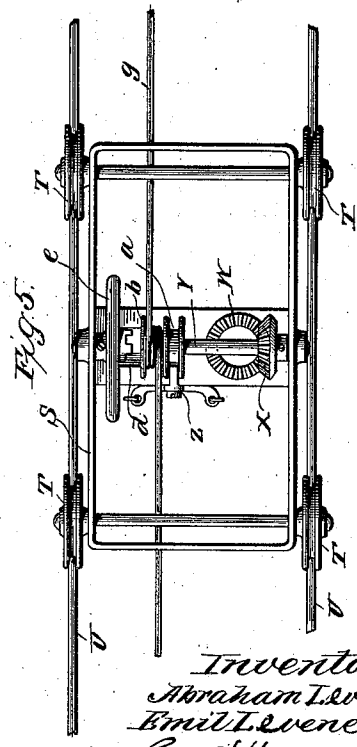


Fig. 5.

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UNITED STATES PATENT OFFICE.

ABRAHAM LEVENE AND EMIL LEVENE, OF PHILADELPHIA, PENNSYLVANIA.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 601,608, dated March 29, 1898.

Application filed August 11, 1897. Serial No. 647,816. (No model.)

To all whom it may concern:

Be it known that we, ABRAHAM LEVENE and EMIL LEVENE, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Cloth-Cutting Machines, of which the following is a specification.

Our invention relates to a new and useful improvement in machines for cutting cloth and the like, and has for its object to provide a simple and effective device of this description which shall be capable of cutting a number of layers at a single operation upon compound lines, such as are necessary for the following of patterns in the making of garments; and a further object of this invention is to adapt it for use in large establishments where power is utilized for the performing of such operations; and a still further object of the device is to bring about the cutting of the cloth in one direction, and that downward, thereby avoiding the tendency to lift the cloth by the cutters, as is usually the case.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a view in elevation, showing our machine ready for operation; Fig. 2, an enlarged section of the cutting apparatus; Fig. 3, a section at the line $x\,x$ of Fig. 2; Fig. 4, a section at the line $y\,y$ of Fig. 3; Fig. 5, a plan view of the power-carriage and driving mechanism therefor; and Fig. 6 is a longitudinal sectional view of the standard of the cutting apparatus, showing a base swiveled thereto.

In carrying out our invention as here embodied, A represents the cutting apparatus, which consists of the base B of disk shape, said base being mounted upon the rolls C, thereby permitting its movement in all directions for the purpose hereinafter set forth, and projecting upward from this base is a standard D of considerable width, but small thickness, and having formed on the side thereof the central vertical rib E. Near the bottom of the standard is journaled a roll F, around which the cutter-chain G passes, said chain also passing around the roll H, secured upon the shaft I. The cutter-chain carries the cutters J, which are here shown as semicircular, the curved portions thereof projecting beyond the vertical edges of the standard, while the inner straight edges of these cutters, as well as the intervening links, travel in proximity or contact with the rib E; and for convenience and safety the plate K is secured to the face of the rib and is of a width equal to that of the standard, thus inclosing the cutter-roll and permitting only the protruding edges of the cutters to be exposed. The shaft I, above referred to, is journaled in the head-frame L, which latter is adjustably secured upon the standard and may be held in any adjustment thereon by the thumb-nuts M, the object of which is to take up any slack which may exist in the cutter-chain and to cause it to properly operate at all times.

A beveled gear N is secured upon the shaft I and meshes with a similar gear O, secured upon the vertical shaft P, journaled in the head-frame, thereby permitting the transmission of motion from the vertical shaft to the shaft I and from thence to the cutter-chain, as will be readily understood. Power in turn is transmitted to the vertical shaft by a flexible shaft Q, one end of which is attached thereto, while the opposite end is here shown as being attached to the lower end of the short shaft R, the latter being journaled in the carriage S, said carriage being fitted with the wheels T, which are mounted upon the tracks U, supported by suitable hangers, by which means the carriage may be moved lengthwise of the table V, upon which the work is placed.

The shaft R has secured upon its upper end a beveled gear W, which meshes with the corresponding gear X, the latter being secured upon the cross-shaft Y, and this shaft in turn is journaled in the carriage, so that when it is revolved rotation will be transmitted therefrom through the just-described gearing to the flexible shaft with the hereinbefore-named results.

The shaft Y has loosely mounted thereon a drum *b*, from which projects the clutch-

teeth *d*, adapted to engage with similar teeth formed upon the hub of the balance-wheel *e*, said wheel being secured to the shaft Y. Also formed with the drum is a grooved collar *a*, in which fits the upper end of the clutch-lever Z, the latter being pivoted to the carriage and having its lower end extending within easy reach of the operator. By this arrangement when power is transmitted to the drum this power may or may not be transmitted to the shaft Y by throwing the clutch into or out of engagement, as the case may be, thus starting or stopping the cutters of the cutting apparatus without interfering with the primary power.

At each end of the tracks is journaled a pulley *f*, over which runs the cable or rope *g*, the latter passing over and around the drum *b*, and thus transmitting motion from the pulleys *f* to said drum regardless of the position of the carriage upon the tracks, thereby permitting said carriage to travel to and fro without interfering with the power transmitted thereto or therefrom. Power may be transmitted to either of the pulleys *f* by suitable belting *h*, leading from any source.

From the foregoing description the operation of our improvement will be obviously as follows: The goods to be operated upon are placed upon the table, as indicated at *i*, and so held by any suitable clamping mechanism, (here not shown,) when the base B is passed beneath the bottom layer of the goods until the exposed edges of the cutters are in close proximity to the work, when power is transmitted to said cutters in the manner hereinbefore set forth, causing them to move downward after the manner of a band-saw, after which a forward movement of the cutting apparatus will bring these exposed edges into contact with the work, causing them to sever the goods upon the line directed by the operator, and this line may be that of a pattern previously marked upon the goods, which may be followed by simply turning the cutting apparatus in any desired direction, while at all times exerting sufficient forward pressure thereon to cause it to cut its way through the goods, and a number of designs may be cut from the goods without moving the latter, since the cutting apparatus may travel throughout the length of the table during its operations, and the carriage will follow the same, as before described, in its lengthwise movement, while the flexible shaft will permit a limited sidewise movement equal to the width of the table.

While we do not wish to limit this invention to a particular shape of cutter-blades, yet in practice we have found that the semicircular blades are especially adapted for the purpose intended, since they effect a shear cut, thereby requiring less power and leaving a smooth edge, and a further advantage of this shape is that they may be easily sharpened, thus requiring less loss of time for the accomplishment of this object.

By the use of our improvement it will be seen that all classes of garments may be cut in large numbers with but little labor, and each garment made from material thus cut will be more uniform than if it had been cut by a single pattern.

For some purposes it may be found desirable to cause the cutting apparatus to turn more readily than might be possible with a large base left only to turn upon its ball-bearings, and for this purpose we have shown the cutting apparatus in Fig. 6, which consists in mounting the standard upon the base *j* by swiveling it, as indicated at *k*, and forming a circular foot *l* with the standard and interposing between said foot and the base a series of ball-bearings *m*, the effect of which will be to reduce the friction between the standard and the base and avoid the necessity of the base turning upon its own axis, while accomplishing the same result.

Any suitable handle may be provided for use in forcing the cutting apparatus forward. Likewise drop-cords may be utilized for stopping and starting the machine.

Having thus fully described our invention, what we claim as new and useful is—

1. In combination, an elevated track, a carriage adapted to ride thereon, a horizontal shaft journaled in the carriage, a drum on said shaft, an endless cable running parallel with the track wound around said drum whereby power will be transmitted to the drum regardless of the position of the carriage, clutch mechanism attached to said drum for turning said shaft into or out of operation, a flexible shaft secured to the carriage, means for operating said flexible shaft from the horizontal shaft, cutting mechanism operated by said flexible shaft, substantially as set forth.

2. In combination with a cutting-machine of the character described a base, a standard carrying the cutting mechanism, a foot formed with the standard, a lug extending downward from the foot by means of which the base is swiveled to the standard and a series of balls interposed between the foot and the base, as and for the purpose described.

In testimony whereof we have hereunto affixed our signatures in the presence of two subscribing witnesses.

ABRAHAM LEVENE.
EMIL LEVENE.

Witnesses:
S. S. WILLIAMSON,
SAMUEL L. TAYLOR.