

No. 679,056.

Patented July 23, 1901.

G. E. LEWIS.  
MACHINE FOR CUTTING CLOTH.

(Application filed Apr. 23, 1901.)

(No Model.)

Fig. 2.

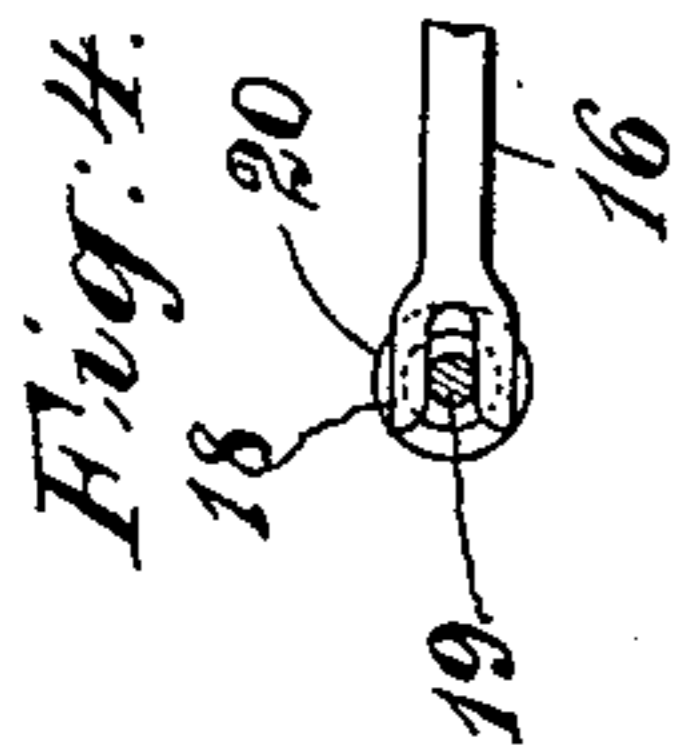
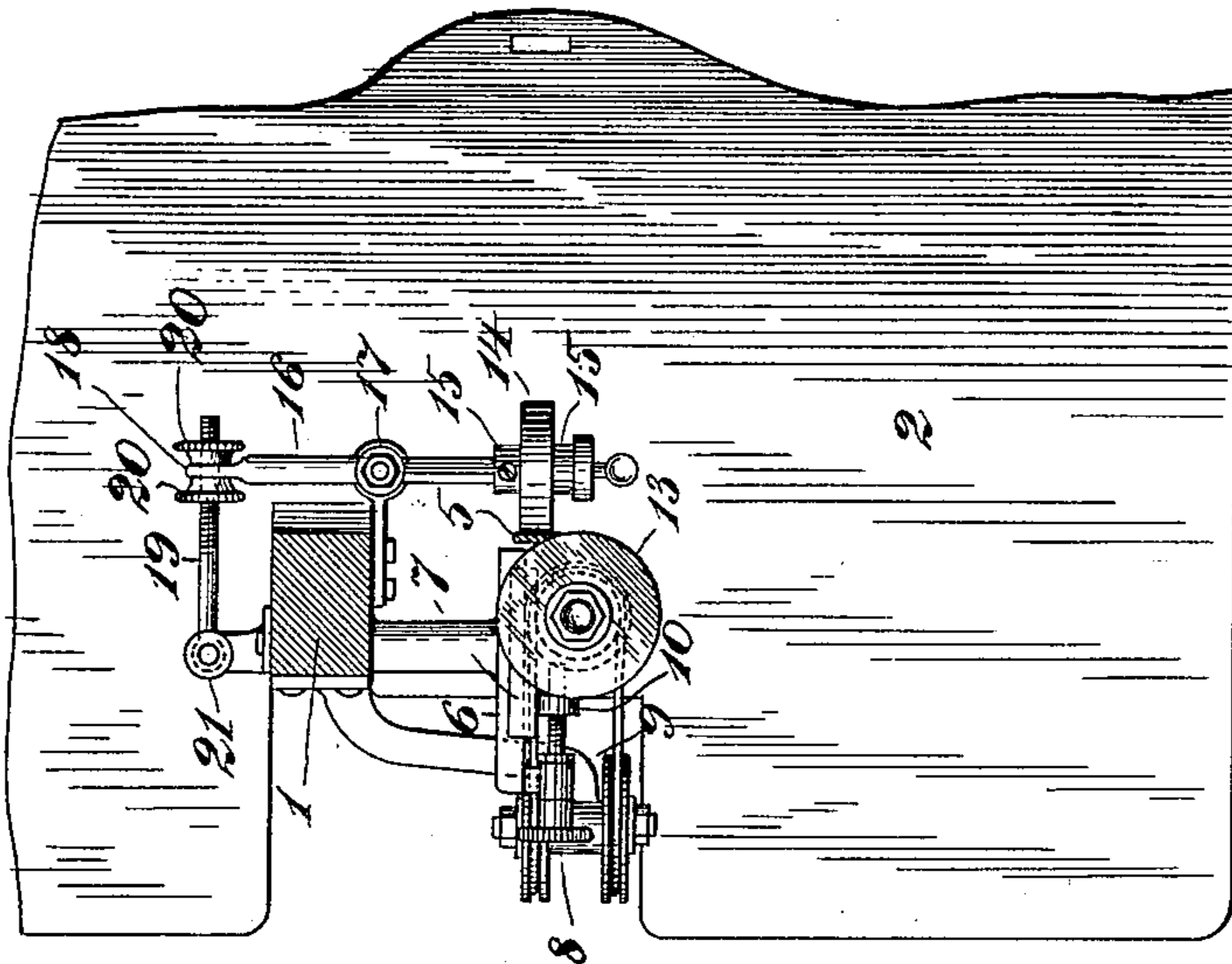
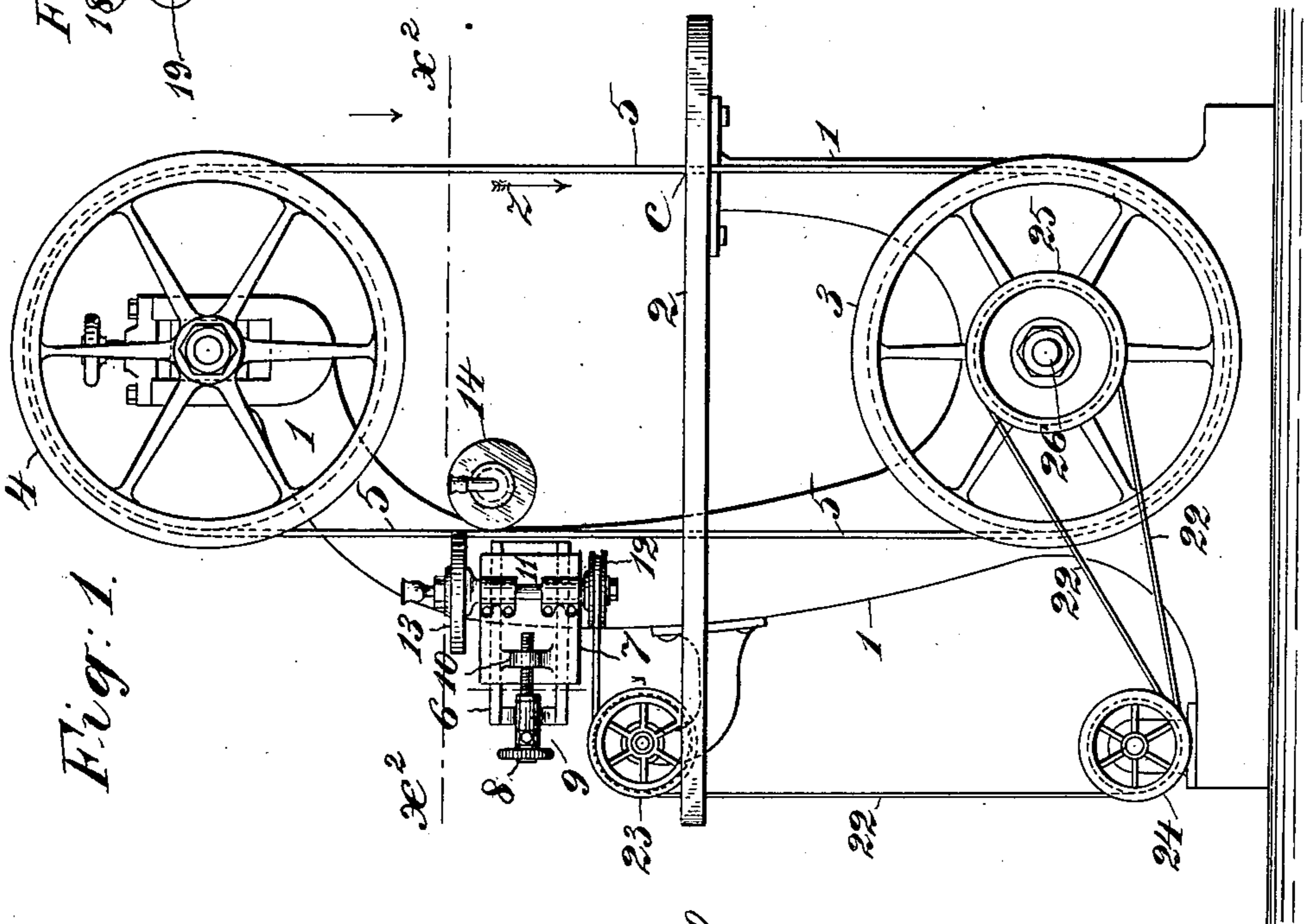


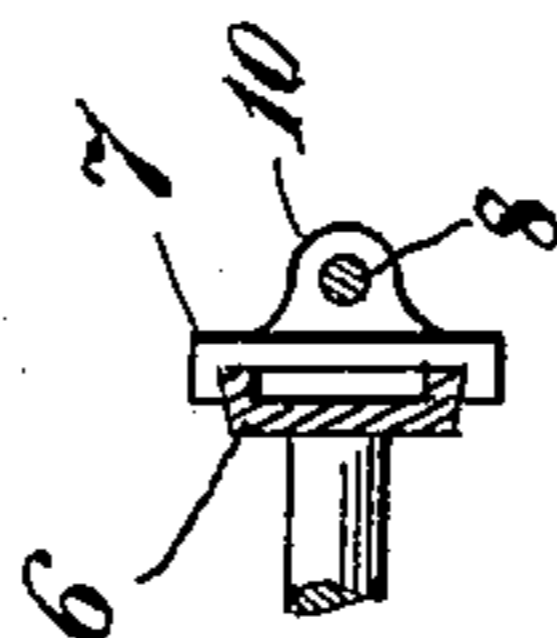
Fig. 1.



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Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR CUTTING CLOTH.

SPECIFICATION forming part of Letters Patent No. 679,056, dated July 23, 1901.

Application filed April 23, 1901. Serial No. 57,106. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. LEWIS, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings and city and State of New York, have invented certain new and useful Improvements in Machines for Cutting Cloth, of which the following is a specification.

This invention relates to the class of machines which employ endless blades or band-knives, over pulleys, for cutting, the cloth being in superposed layers supported on a table; and the object of the invention is, in the main, to provide a means capable of delicate adjustment for putting the proper edge on the band-knife and for keeping it uniformly sharp and in cutting condition at all times.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a side elevation of the machine; and Fig. 2 is a sectional plan thereof, the plane of the section being indicated by line  $x^2$  in Fig. 1. Figs. 3 and 4 are detail views.

1 designates the machine-frame, and 2 the cloth-supporting table. This latter may be of any desired or convenient shape or dimensions. In Fig. 2 part of it is broken away.

3 is the lower pulley, which may be driven from any source of power.

4 is the upper pulley, provided with means for adjusting it up or down.

5 is the band-knife, mounted on the pulleys somewhat in the manner of a band-saw. The arrow  $z$  in Fig. 1 shows the direction in which the band-knife moves, and  $c$  designates the cutting-point.

The means for sharpening the knife 5 and keeping it sharp will now be described.

Mounted on the main frame is a fixed track-way 6, which extends outward horizontally, and on this track is mounted a sliding carriage 7. Fig. 3 is a cross-section of the track and carriage. This carriage is adapted to be moved toward or from the knife by a screw 8, which is collared in a bearing on the track-way at 9 and screws through a fixed nut 10 on the carriage 7. In bearings on said carriage is rotatively mounted an arbor 11, on one end of which is secured a sheave 12, and on

the other end an emery-wheel 13, or a wheel having a suitable abrading or grinding surface. As will be noted by reference to Fig. 2, this wheel is so set with reference to the upwardly-moving side of the knife 5 that when set up to the knife it will grind or produce a beveled edge on one face of the same, the face being, incidentally, slightly hollow by reason of the curved periphery of the abrading-wheel.

To support the blade or knife at the point where the abrading-wheel is applied thereto or at the point where pressure on the back or inner face of the knife is required, a bearing-wheel 14 is mounted rotatively between collars 15 on one arm of a horizontal lever 16, fulcrumed at 17 on the main frame. The other arm of this lever has at its end an eye or fork 18, through which extends a screw 19, bearing two adjusting-nuts 20, which embrace the said fork. This screw is pivotally coupled to the main frame at 21. By manipulating the nuts 20 the bearing wheel or roller 14 may be carefully adjusted to bear with the desired pressure on the inner face of the knife or blade. Fig. 4 shows the fork on the lever 16.

In the operation of the machine the band-knife, in the form of a plain endless band or strip of steel, is mounted on the pulleys 3 and 4 and the latter pulley adjusted so as to put the proper tension on the knife. The bearing-wheel 14 is then adjusted to bear properly on the back or inner face of the blade. A rather coarse emery-wheel suitable for putting the primary bevel on the knife is then secured on the upright arbor 11 and the latter set in motion. The arbor may be driven by a belt 22, which passes about the sheave 12, about pairs of guide-sheaves 23 and 24, and over a driving-sheave 25 on the shaft 26 of the lower or driving pulley 3 of the knife. The emery-wheel is fed up gradually to the knife by means of the screw 8, until the proper bevel is put on the knife and the latter is brought to an edge. When this has been effected, the coarser abrading-wheel may be replaced by one of finer grit, more suitable for maintaining a uniformly sharp cutting edge on the knife, and this wheel can be adjusted

to the blade from time to time as required during the use of the machine for cutting cloth.

It may be noted that the slight extent of the movement of the arbor 11 in setting the abrading-wheel up to the knife will be permitted by the stretch or elastic yielding of the belt that drives the said wheel.

Having thus described my invention, I claim--

1. In a machine for cutting cloth, the combination with the main frame and table, the band-knife, and its supporting and driving pulleys, of the grinding-wheel, means for driving said wheel, means for adjusting said wheel up to the moving knife, a bearing-wheel, and means for adjusting said bearing-wheel up to the moving knife whereby the knife is kept sharp during the cutting operation, substantially as set forth.

2. In a machine for cutting cloth, the combination with the main frame, the knife-supporting pulleys mounted in said frame, the knife, and the cloth-supporting table, of the grinding mechanism comprising the fixed trackway 6, the carriage 7 mounted thereon, the screw 8 for operating said carriage, the upright arbor 11 mounted rotatively in said carriage, the grinding-wheel secured on said arbor, means for driving said arbor, and means for supporting the moving blade at the back while it is being ground, substantially as set forth.

3. In a machine for cutting cloth, the com-

bination with the main frame, the knife-supporting pulleys in said frame, the knife, the cloth-supporting table, and the adjustable grinding mechanism, of the lever 16 fulcrumed on the frame, the bearing-roller 14 mounted rotatively on one arm of said lever and adapted to bear on the inner face of the knife, and the screw 19 and nuts 20, adapted for operating said lever and adjusting the bearing-wheel up to the knife, substantially as set forth.

4. In a machine for cutting cloth, the combination with the main frame, the horizontal table having in it a slot for the band-knife, the upper and lower knife-bearing pulleys arranged one above the other in the frame, and means for driving the lower pulley, of the vertically-traveling band-knife 5, mounted on said pulleys, and means for grinding and sharpening said knife at its ascending side during the cutting operation, said means comprising a grinding-wheel, means for driving said wheel, means for adjusting said wheel up to the ascending part of the knife, a bearing-wheel, and means for adjusting said bearing-wheel up to the face of the knife, substantially as set forth.

In witness whereof I have hereunto signed my name, this 18th day of April, 1901, in the presence of two subscribing witnesses.

GEORGE E. LEWIS.

Witnesses:

HENRY CONNETT,  
PETER A. ROSS.