F. KOCH & R. BRASS.

Cloth-Cutting Machines.

No. 129,285. Patented July 16, 1872.

Fig. 4.

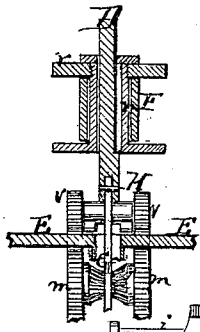


Fig. 1.

Fig. 3.

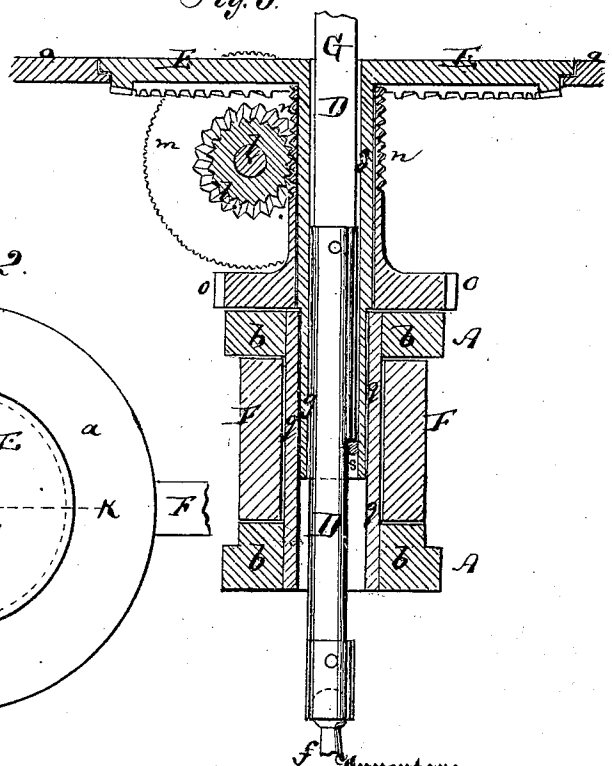
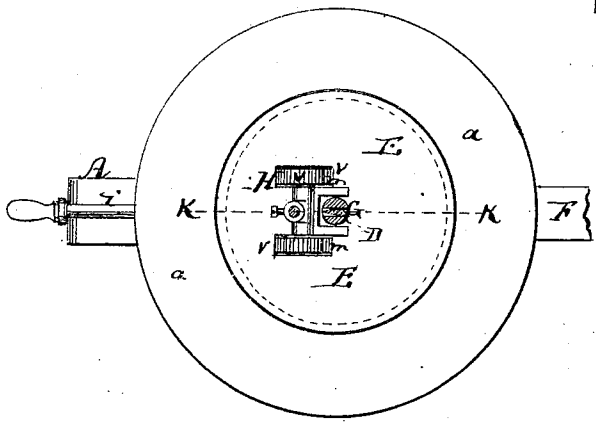


Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDRICH KOCH AND ROBERT BRASS, OF WILLIAMSBURG, NEW YORK.

IMPROVEMENT IN CLOTH-CUTTING MACHINES.

Specification forming part of Letters Patent No. 129,285, dated July 16, 1872.

Specification describing a new and Improved Cloth-Cutting Machine, invented by FREDRICH KOCH and ROBERT BRASS, of Williamsburg, in the county of Kings and State of New York.

In the accompanying drawing, Figure 1 is a side elevation of our improved cloth-cutting machine. Fig. 2 is a horizontal section of the same on the line *c c*, Fig. 1; and Fig. 3 a detail vertical section on the line *k k*, Fig. 2, showing the parts on an enlarged scale. Fig. 4 is a detail vertical section on the line *c k*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for cutting cloth of suitable thickness by means of a reciprocating blade, having its cutting-edge parallel to its line of motion. The invention consists chiefly in the arrangement, around the reciprocating cutter, of a circular table which carries the feed mechanism, and which, when turned, causes also the rotation of the cutter in equal degree, although it does not interfere with the up-and-down motion of the same. The invention also consists in the arrangement of a yoke-shaped swivel-arm, which holds the upper part of the mechanism, such as the presser-foot, the top guide for the cutter, &c., the said arm being swiveled so that it can be swung to either side out of the way of the cloth which is being fed. This is an important item, as it permits the cutting of large pieces on the machine and in suitable direction. Whenever the arm is in the way of the cloth it can be easily carried clear of the same. The invention also consists in a new and peculiar manner of imparting motion to the double-feed, and to a new combination of the concentric tubes that embrace the reciprocating cutter, all as hereinafter more fully described.

A in the drawing represents the rigid supporting-frame of our improved cloth-cutting machine. It is connected with or part of a horizontal plate, *a*, which is by preference sunk into and flush with the table or platform, along which the cloth to be cut is to be moved, and whereon it is supported. This frame A is held stationary by suitable means, and contains the bearings for the horizontal driving-shaft B, and in arms *b b;* also the bearings for a vertical shaft, C, which is by gear-wheels *d d* connected with the shaft B. The shaft B receives rotary motion by belt or other suitable means, and transmits it to the shaft C, and also to a crank, *e*, which, being at the end of the shaft B, connects, by a pitman, *f*, with a vertical rod, D, imparting reciprocating motion to the same. The rod D projects through a tube, *g*, which is suspended from a circular disk, E, whose bearings or support are in the plate *a*. The disk E is at its edge supported on the rabbeted edge of a circular opening cut through the plate *a*, as is fully indicated in Fig. 3. The under side of the disk E is toothed, so that it can be turned by means of a pinion, *h*, on an arbor, *i*, which hangs in the frame A, as shown. To the under side of the disk E are secured pendent ears *j j*, in which are the bearings of the arbor *l*, carrying the feed-wheels *m m*, both of which extend up through slots in the disk. The arbor *l* is a worm-wheel gearing into a worm or screw, *n*, which is formed on the tubular shank of a gear-wheel, *o*, that embraces the tube *g* loosely. The wheel *o* gears into a toothed wheel, *p*, which is mounted upon the shaft C, as shown, so that during rotation of the shaft B the feed-wheels *m m* will be continuously though slowly turned. The two arms *b b* of the frame A are connected by a tube, *q*, that embraces the lower part of the tube *g*, as shown in Fig. 3. This tube *q*, which is of course rigid, serves as the axle or pivot for the lower arm of a U-shaped yoke-frame F, as shown, allowing said frame to be freely turned thereon. The upper arm of the frame F carries a vertical tube, *r*, whose axis is in line with that of the tube *g*, and which is flanged at both ends, as in Fig. 4, to be held in place. The upper end of the rod D is guided in the said tube *r*. The cutter G forms part of the rod D, being interposed between the sections of the same, so as to have the requisite length of stroke above the disk E. The cutting-edge is between the two feed-wheels and always remains there, a groove and feather, *s*, or equivalent device, connecting the rod D in such manner with the tube *g* that the cutter will always revolve with the disk E when the same is turned by means of the arbor *i*. To allow this turning of the rod D the pitman connects with it by a knuckle-joint, as in Fig. 3. H is the presser-foot, sus-

pended from the top of the tube *r* and connected with a lever, *t*, whereby it can be raised, and with a spring, *u*, whereby it is forced down. The presser-foot proper consists of two small serrated rollers, *v v*, which bear directly upon the feed-rollers *m*, or rather upon the cloth directly above the feed-rollers.

The operation of the apparatus is simple and easy to understand. The cloth to be cut is placed upon the table *a* and disk E and fed to the reciprocating cutter, which can be turned, together with the feed, by means of the arbor *i*, to cause oblique or curved incisions in all directions. The yoke-frame F being swiveled can be readily swung to either side to be out of the way of the cloth.

In other cloth-cutting machines the support of the upper portion is always rigid and frequently in the way of the cloth, which cannot be the case in our machine on account of the swivel-frame F.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent—

1. The disk E, carrying the feed-wheels *m m* and embracing the reciprocating cutter G, whose axial rotations it regulates, substantially as herein shown and described.

2. The frame F, swiveled at the lower end and carrying at its upper end the presser-foot and upper cutter-guide, and made to operate substantially as set forth.

3. The combination of the feed-wheels *m m*, threaded axle *l*, tubular worm *n*, and tube *g* on the disk *e*, as shown and described.

4. The combination of the knuckle-pitman *f* with the reciprocating rod and cutter D G, tube *g*, disk E, tube *q*, and swivel-frame F, all arranged substantially as herein shown and described.

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