(No Model.) 2 Sheets—Sheet 1.

# A. K. THYLL.

## ELECTRIC CLOTH CUTTING MACHINE.

No. 556,224. Patented Mar. 10, 1896.

FIG. 2.

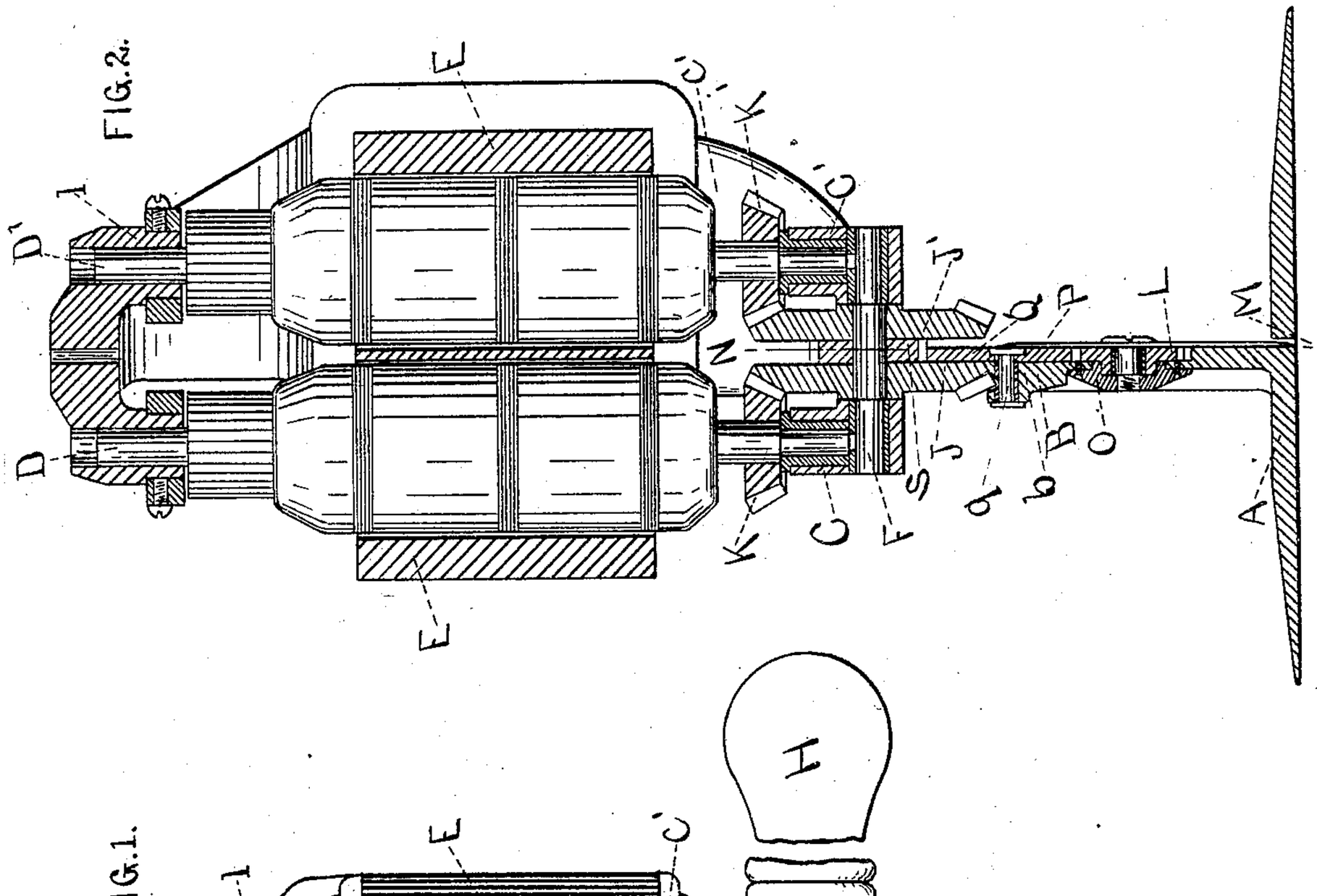
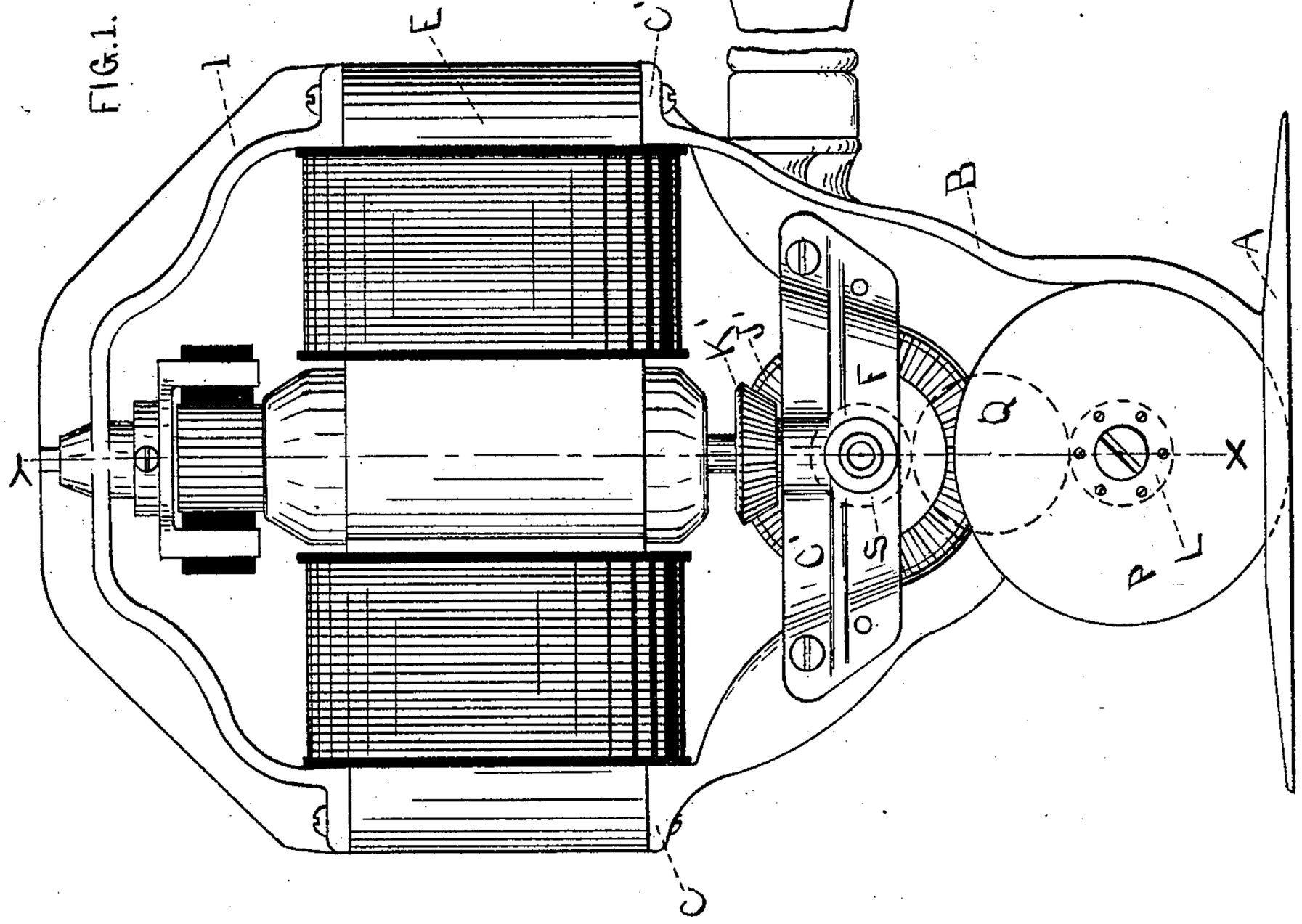



FIG. 1.




Witnesses
E. Millington Waring.

Inventor
Arthur K. Thyll

(No Model.) 2 Sheets—Sheet 2.

# A. K. THYLL.

## ELECTRIC CLOTH CUTTING MACHINE.

No. 556,224. Patented Mar. 10, 1896.

FIG. 5.

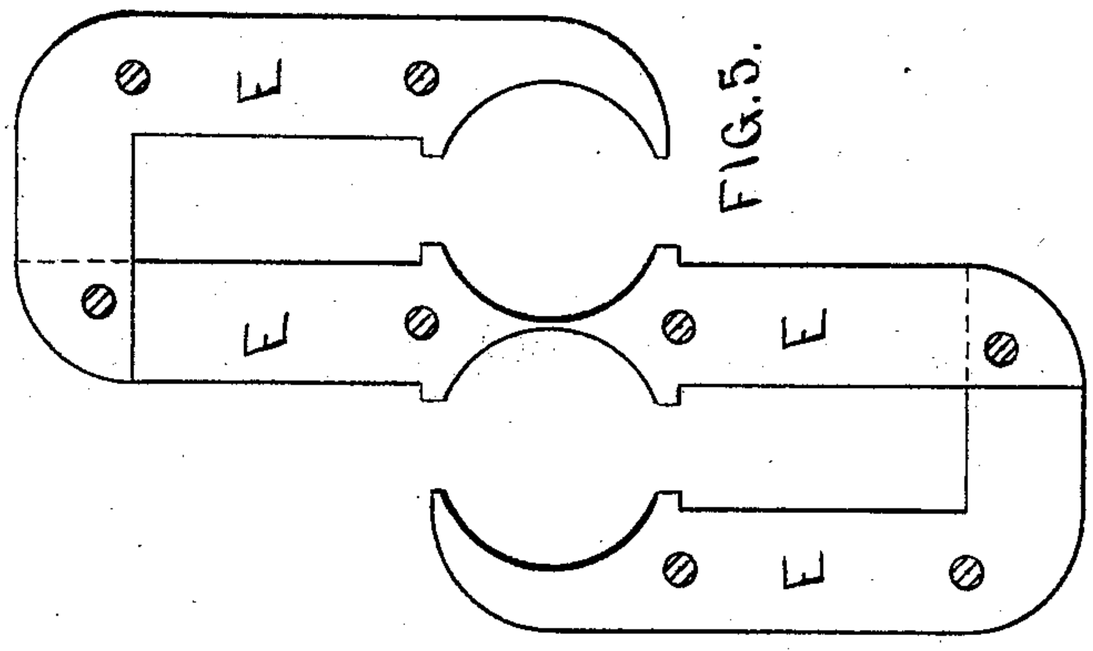


FIG. 4.

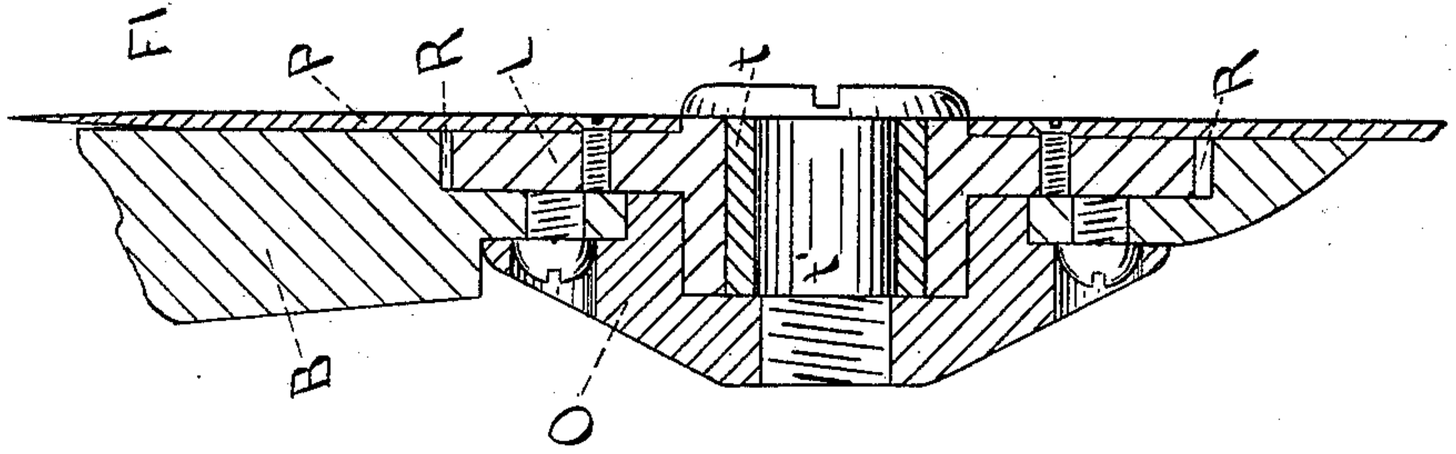
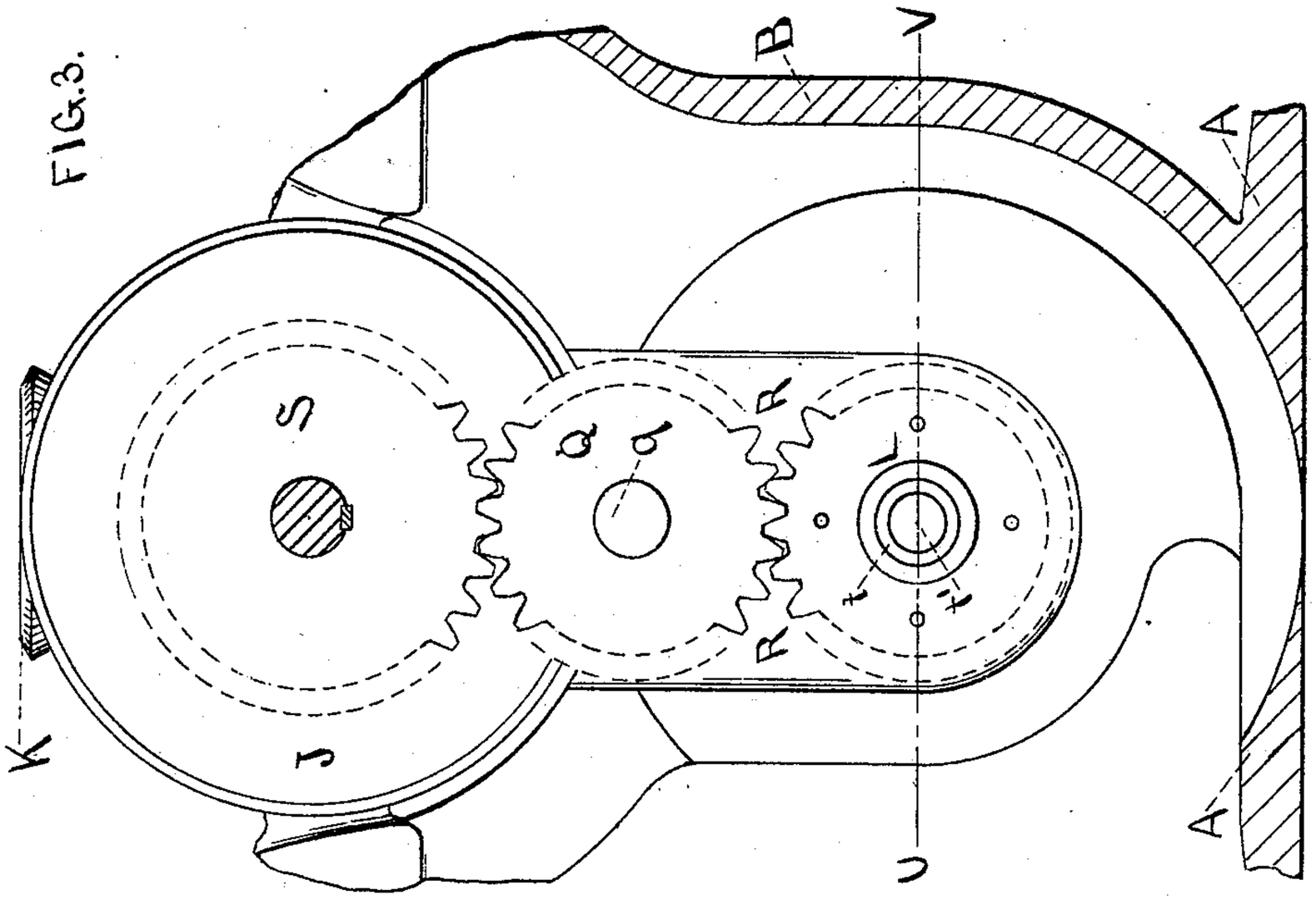



FIG. 3.




WITNESSES:

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INVENTOR

Arthur K. Thyll

# UNITED STATES PATENT OFFICE.

ARTHUR K. THYLL, OF NEW YORK, N. Y., ASSIGNOR TO THE ELECTRIC CUTTER COMPANY, OF SAME PLACE.

## ELECTRIC CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 556,224, dated March 10, 1896.

Application filed May 31, 1893. Serial No. 476,191. (No model.) Patented in England December 7, 1893, No. 23,581; in France December 7, 1893, No. 224,621; in Belgium December 7, 1893, No. 107,524, and in Germany December 8, 1893, No. 78,763.

*To all whom it may concern:*

Be it known that I, ARTHUR K. THYLL, a citizen of Austria-Hungary, and a resident of the city of New York, county of New York, State of New York, have invented certain new and useful Improvements in Electric Cloth-Cutting Machines, (the same having been patented in Great Britain by Letters Patent No. 23,581, dated December 7, 1893; in France by Letters Patent No. 224,621, dated December 7, 1893; in Belgium by Letters Patent No. 107,524, dated December 7, 1893, and in Germany by Letters Patent No. 78,763, dated December 8, 1893,) of which the following is a specification.

My invention relates to machines for cutting cloth and like material, and comprises various parts of such machines, including improved means for utilizing electricity as the motive power in such machines and improvements in the means for carrying and imparting motion to the cutter-disk, and other improvements in the construction of such machines, as will be hereinafter more fully set forth.

The first object of this invention is to form a machine in which all the parts moving through the pile of cloth while working are reduced in thickness to such a degree as is necessary to allow the goods to pass smoothly along both sides of the narrow supporting-standard. Another object is to have a machine of a construction that will not obstruct the operator's view of the cutting-edge of the knife, thus enabling him in a comfortable position of his head and back to guide the machine by the lines marked on the goods. To accomplish my first object I employ a comparatively narrow bearing for the knife of a special construction. The second object is accomplished by a certain arrangement of the field-magnets and other details of construction.

The aforesaid improvements are described hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of an electric cloth-cutting machine embodying my invention; Fig. 2, a vertical section showing the field-magnets, gear, knife and bearings. Fig. 3 represents a section on the line M N in Fig. 2. Fig. 4 is an enlarged horizontal section on the line U V in Fig. 3, and Fig. 5 shows a plan of the field-magnets.

Similar letters of reference indicate the corresponding parts in the several figures of the drawings.

The supporting and carrying portion of the machine comprises a movable frame consisting of two main parts, a supporting base or foot A and a standard or upright B, extending upward from the base A. The base is shown as circular in shape, with a smooth under surface adapted to move freely over a table, but may of course be of any suitable shape to perform its function as a supporting base or foot for the movable machine. The standard B forms part of or is fastened to the base A. The lower part of this standard is quite thin, so that it may readily follow the cutting-edge through the goods during the cutting operation, and this lower portion is suitably recessed for the cutting-disk and driving-gears, as will be hereinafter described. As the standard B extends upward, it widens into the two diverging arms extending laterally on each side and carrying the field-magnets E.

Above the field-magnets a bracket I extends upward and bridges across the two armatures and carries the bearings for the upper ends of the armature-shafts D D′. The bearings for the lower ends of said armature-shafts are located in two brackets C C′, and these brackets extend from and are secured to the standard B, and these brackets are also provided with bearings for the horizontal shaft F, upon which are mounted two bevel-gears J J′, meshing into two bevel-pinions K K′, mounted one each upon the lower ends of the armature-shafts D D′. A spur gear-wheel S is mounted upon the horizontal shaft F and located between the two bevel-gears J J′. This spur-gear S meshes into an intermediate spur-gear Q, which is mounted upon a shaft *q* fitted to rotate in a bearing *b* formed in the standard B. The intermediate gear Q also meshes into a gear-wheel L, which carries the cutting disk or knife P, said cutting-disk being fastened by screws or otherwise upon the

outer face of said gear-wheel L, so that it may be readily attached and removed. The gear-wheels Q and L are located in the recess R of the standard B. By this construction and arrangement of gearing the rotary motion of the armature-shafts D D′ is uniformly and steadily imparted to the knife P.

The bearing for the gear-wheel L and cutting-disk P carried thereby is constructed with a loose bushing *t*, which intervenes between the stud *t′*, which is the supporting part of the bearing and the bore of the gear-wheel L, and thus has a bearing upon both these parts, and when the gear-wheel L and knife P are caused to rotate this intervening bushing will also rotate, usually at a slower speed. Thus by this bushing the bearing-surface is doubled and the relative speeds of the parts are reduced.

The stud *t′* which carries the bushing *t* and the gear-wheel L and the knife P extends from and is preferably screwed into a nut O, which is held by fastening-screws or otherwise to the standard B, and is recessed to allow as great a thickness at the bearing of the knife P as is consistent with properly following the cutting-edge through the goods when the goods extend above the center of the cutting-knife. A suitable handle H for guiding the machine along the lines or pattern marked on the goods is attached to the standard B.

The magnetic circuit comprises four field-coils, two of which have their cores in the same piece of iron with a single pole-piece between, which pole-piece is thus common to both armatures. (See Fig. 5.) In this way the left forward corner and the right back corner of an imaginary rectangle inclosing the field-magnets are cut away, leaving completely free view to the cutting-knife without giving an unbalanced overweight on either side of the center line of the standard B. Thus large field-magnets and armatures may be employed above and close to the cutting-knife without interference with the inspection of the knife as it is doing its work.

My improved electric cloth-cutter is handled with great facility, the cloth being evenly cut and passed smoothly along both sides of the narrow supporting-standard above and below the center of the knife. The driving-gears produce a uniform motion of the knife, so that a reliable and even cut is obtained through numerous layers of cloth laid to a great height or thickness.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a movable frame comprising a supporting base or foot and a standard extending upward from the same, with an electric motor having two armatures and supported by said standard, and bevel-gears, two of which are attached to the armature-shafts and two others to a transverse shaft below the same, a pinion attached to the same shaft between the second bevel-gears, an intermediate shaft provided with a gear-wheel meshing with said pinion, and the cutting-disk fastened to another gear-wheel meshing with the gear-wheel of the intermediate shaft, substantially as set forth.

2. The combination of a movable frame comprising a supporting base or foot and a standard extending upward from the same, with an electric motor having two armatures and supported by said standard, and bevel-gears, one attached to each armature-shaft and two others to a transverse shaft below the same, a pinion attached to the same shaft between the second bevel-gears, a secondary shaft provided with a gear-wheel meshing with said pinion, and a cutting-disk fastened to another wheel with a bushing fitting in the bore of said wheel and over a supporting-stud projecting from the standard and free to rotate with respect both to the wheel and stud, the gear of said wheel meshing with the gear-wheel of the secondary shaft, substantially as described.

3. The combination of a movable frame and an electric motor having two armatures carried by the same, the field-magnets of which extend in opposite directions and have three poles one of which serves for both armatures of the motor, a cutting-knife carried by said movable frame, said cutting-knife being located beneath said electric motor, and connecting means for operating said cutting-knife from the armatures of said electric motor, substantially as described.

4. In an electric cloth-cutter the combination of an electric motor having two armatures and field-magnets extending in opposite directions, and having three poles, one of which poles serves for both armatures, with a standard B, with the bevel-pinions K K′, bevel-gears J J′, a horizontal shaft F, the gear-wheels S, Q, and L, and the knife E fastened to the gear-wheel L, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 22d day of May, 1893.

ARTHUR K. THYLL.

Witnesses:
L. A. SMITH,
E. MILLINGTON WARING.