

(No Model.)

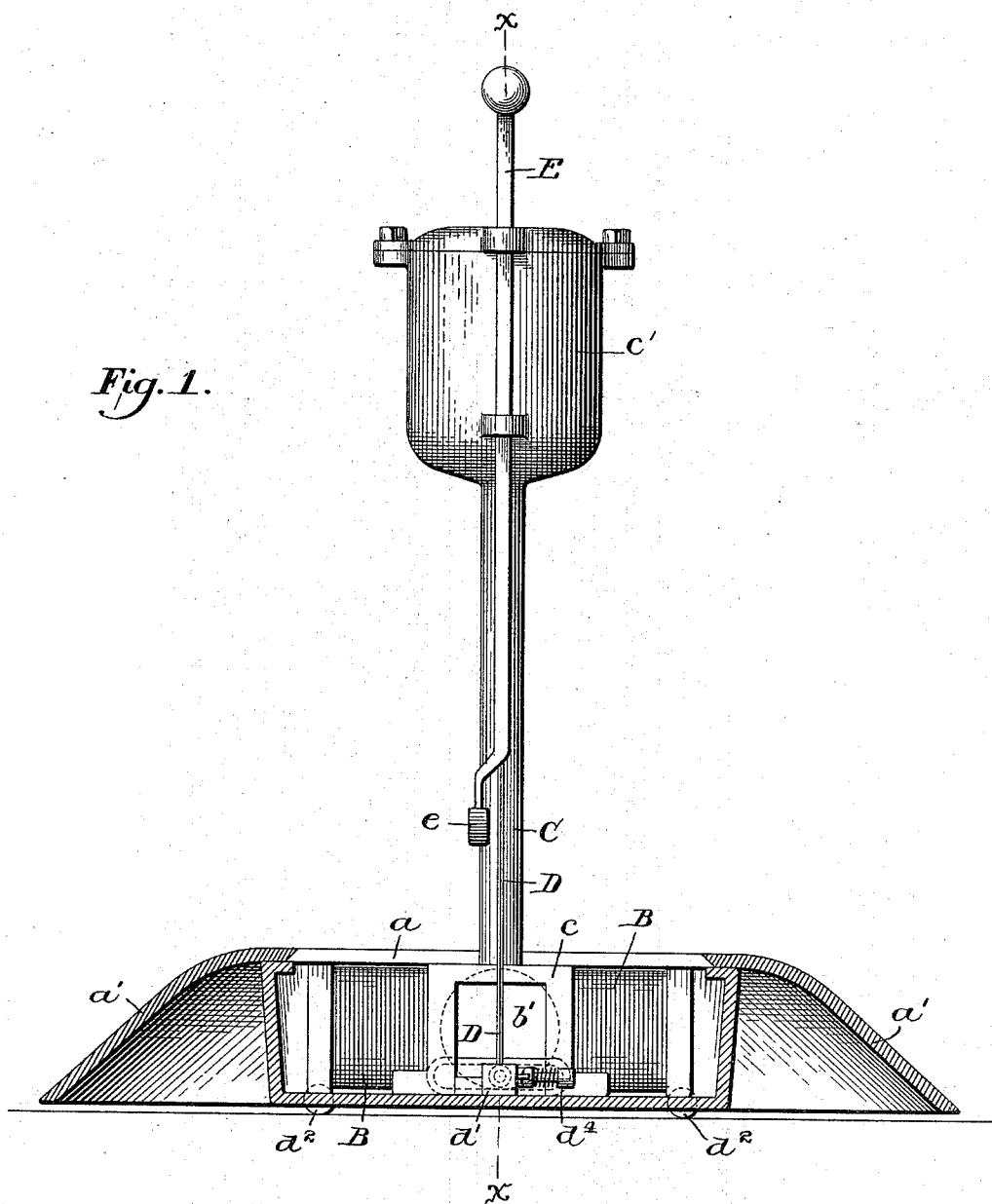
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G. IMHOF.
CLOTH CUTTING MACHINE.

No. 573,186.

Patented Dec. 15, 1896.

Fig. 1.



Witnesses.

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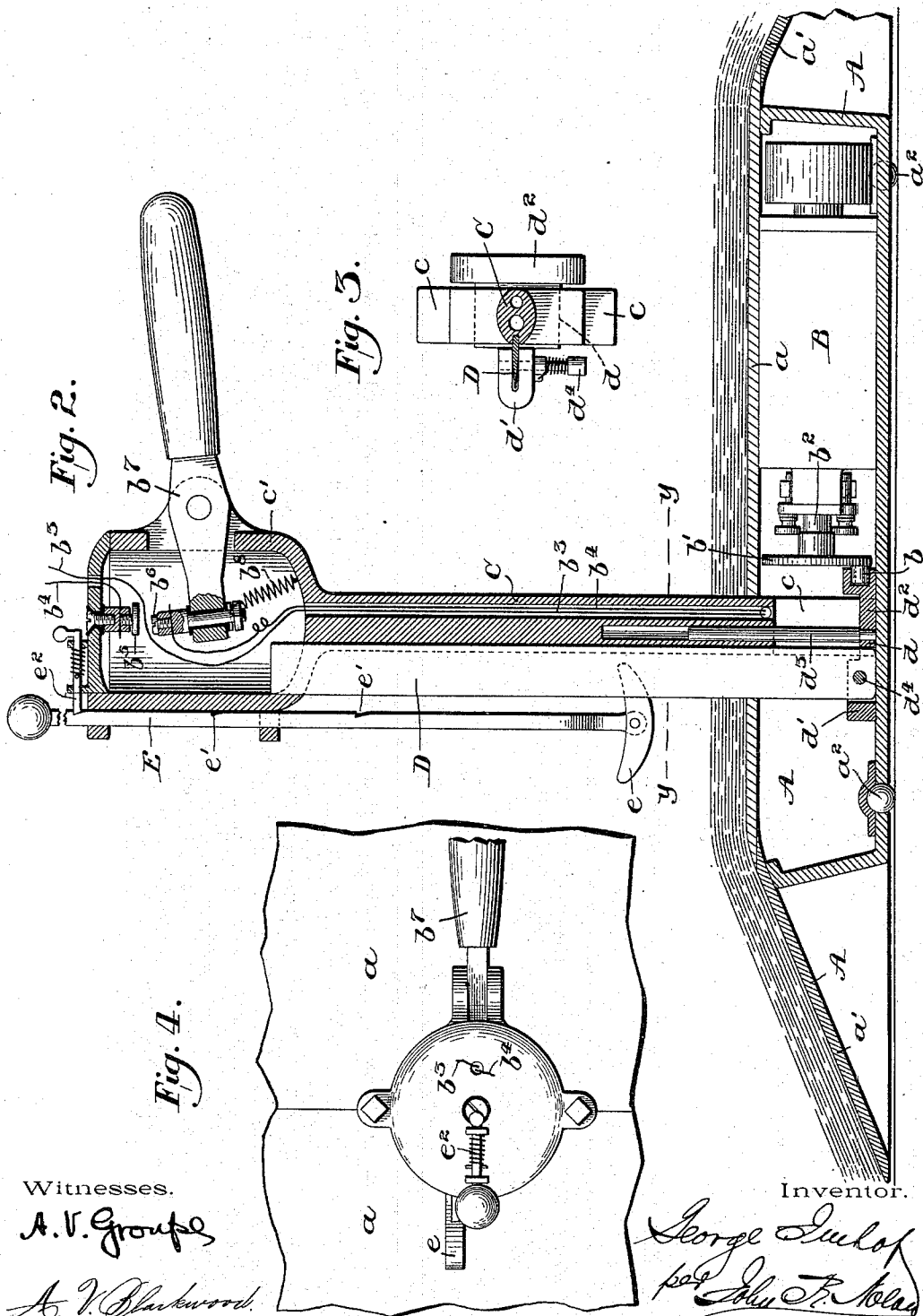
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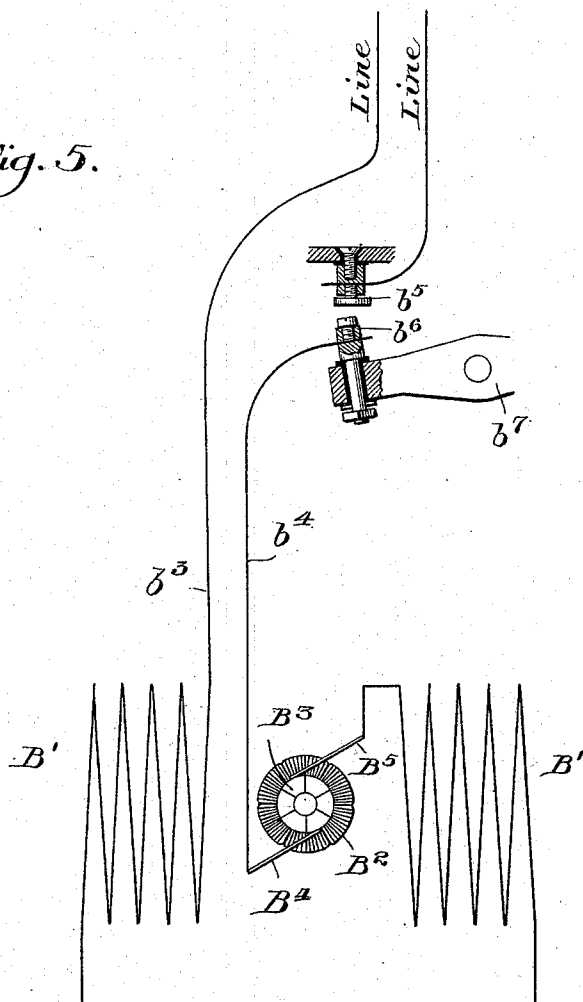
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Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE IMHOF, OF PHILADELPHIA, PENNSYLVANIA.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,186, dated December 15, 1896.

Application filed January 13, 1896. Serial No. 575,202. (No model.)

To all whom it may concern:

Be it known that I, GEORGE IMHOF, a citizen of the United States, residing in the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Cloth-Cutting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to cloth-cutting machines, having reference more especially to that class in which a vertically-reciprocative knife is geared with and actuated by an electromotor in a manner to cut prescribed patterns from superposed layers of fabric. As heretofore constructed, the motor has been suspended from an overhead trolley or track-way, while the knife depended from the motor and was constructed and arranged to cut at its lower end only, similarly to a chisel, the cutting action thus being not only unsteady and uncertain, but being limited to the vertical throw or stroke of the knife. Besides, the machine as a whole was cumbersome and was serviceable only upon a specially-constructed table.

The object of my invention is to provide a compact and efficient machine which may be readily transported to and used upon any table, and in which machine the motor shall travel directly upon the table, the action of the knife be steady and positive, and the range thereof be determined by its length. To this end the invention comprehends novel features of construction and organization of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is an end elevation of the machine, the base being shown in section. Fig. 2 is a vertical section as on the line *xx* of Fig. 1. Fig. 3 is a partial horizontal section as on the line *yy* of Fig. 2. Fig. 4 is a partial plan. Fig. 5 is a diagram of the electromotor, showing the circuit-wire connections.

A represents a base constructed in the form of a shallow box or casing provided with a two-part sliding cover *a*, inclined side and end pieces *a'*, and suitable balls or rollers *a*². In this box or casing is contained an appro-

priate electromotor B, while to the bottom of the box, forwardly of the motor, is an open or slotted bed-block *c*, from which rises a standard C, surmounted by a hollow head *c'*. Within the block is mounted a vertically-reciprocative cross-head *d*, which is provided with forward and rearward extensions *d'* *d*², respectively, and with a vertical pin *d*³, that is fitted to a guideway in the post. The rearward extension is engaged by a wrist-pin B on a crank-wheel *b'*, mounted on the armature-shaft *b*² of the motor, to the end that during the operation of the latter the head will be vertically reciprocated. The forward extension has connected thereto the lower end of a vertically-disposed blade D, which is fitted to and guided in the post and head, as shown. The forward edge of the blade is sharpened or serrated, so as to constitute a cutting factor during its vertical reciprocation and horizontal traverse, as will presently appear. In this instance the blade is detachably connected with the cross-head *d* by means of a spring-actuated pin *d*⁴, so that the blade, if dulled, may be readily removed to be reground and replaced.

The circuit-wires *b*³ *b*⁴ for the motor are extended through a longitudinal perforation in the post, so as to enter the hollow head *c'*. One of the wires continues through an orifice in the latter, while the other is broken within the head. One end of the broken wire *b*⁴ is attached to a contact-piece *b*⁵ on the under side of the cap-piece of the head, while the other end of the wire is connected with a corresponding contact-piece *b*⁶ on the inner arm of hand-lever *b*⁷, that is fulcrumed between lugs on the head, so that by manipulating said lever the circuit may be broken or completed in a manner to stop or operate the motor, as desired. The inner arm of the lever is held normally depressed or out of action by means of a suitably-disposed spring *b*⁸.

Fitted to guide-lugs on the forward side of the head *c'* is a vertically-movable rod E, on the lower end of which is pivoted a shoe *e*, which constitutes a presser-foot. The inner edge of this rod is provided at intervals with notches *e'*, while the cap-piece is provided with a spring-actuated bolt *e*², which is adapted to engage the successive notches as the rod is

drawn up and thus lock the rod in the desired position of vertical adjustment. When the bolt is retracted, the rod will drop by gravity.

The operation is as follows: Assuming the base to be placed upon the cloth-cutting table, the operator grasps the hand-lever and depresses it in a manner to complete the electric circuit, whereupon the knife is rapidly reciprocated. He then directs the inclined forward end of the base under the pile of cloth, drops the presser-foot, and guides the machine in the direction prescribed by the pattern or patterns to be cut.

It will be seen that the machine is directly under the control of the operator, that the action of the knife is steady and positive, that its range of action vertically will insure the cutting of a multiplicity of layers of fabric, and that the cutting will be expeditiously and uniformly effected.

In Fig. 5 is shown a diagram of the electrical connections of the circuit-wires with the motor, B¹ denoting the field-coils; B², the armature; B³, the commutator, and B⁴ B⁵ the usual brushes bearing thereon. The circuit-wire b⁴ is connected with the brush B⁴, while the wire b⁵ is connected with one end of the coils B¹, the opposite end of said coils being connected with the brush B⁵, and all cooperating in the usual manner to effect the rotation of the armature when the circuit is completed by the act of manipulating the hand-lever b⁷, as above described.

I claim as my invention—

1. In a cloth-cutting machine, the combination, of a basal casing, an electromotor contained therein, a vertically-reciprocative knife extending into said casing, operative connections between the lower confined end of said knife and the motor, a guide for the knife, a contact making and breaking device, and electrical connections between said device and the motor, substantially as described.

2. In a cloth-cutting machine, the combination, of a basal casing, an electromotor contained therein, a crank connected with the shaft of said motor, a bed-block in the casing, a cross-head connected with said crank and guided in the bed-block, a vertically-reciprocative knife connected at its lower end with the cross-head, a standard to which the knife is fitted, a contact making and breaking de-

vice, and electrical connections between said device and the motor, substantially as described.

3. In a cloth-cutting machine, the combination, of a basal casing, an electromotor therein, a standard rising from the casing provided with a hollow head, a vertically-reciprocative knife fitted to the standard, operative connections between said knife and motor, a hand-lever extending into said head, and electric connections between said lever and the motor, substantially as described.

4. In a cloth-cutting machine, the combination of a basal casing, an electromotor therein, a standard rising from the casing provided with a hollow head, a vertically-reciprocative knife fitted to and guided in said standard and head, operative connections between said knife and motor, a hand-lever extending into said head, a contact-piece on the cap of said head, a coacting contact-piece on the inner arm of the hand-lever, and electrical connections between said contact-pieces and the motor, substantially as described.

5. In a cloth-cutting machine, the combination of a basal casing, an electromotor therein, a crank on the armature-shaft of the motor, a bed-block in the casing, a cross-head connected with the said crank and guided in the bed-block, a vertically-reciprocative knife connected with the cross-head, a standard provided with a hollow head, a hand-lever extending into said head, and electric connections between said lever and the motor, substantially as described.

6. In a cloth-cutting machine, the combination of a base, a motor therein, a vertically-reciprocative knife, a standard supporting and guiding said knife, operative connections between the knife and motor, a presser-foot, a guide-rod therefor, provided on its inner edge at intervals with notches, and a spring-actuated bolt adapted to engage the successive notches as the rod is drawn up, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

GEORGE IMHOF.

Witnesses:

JESSE B. HELLER,
JOHN R. NOLAN.