

(No Model.)

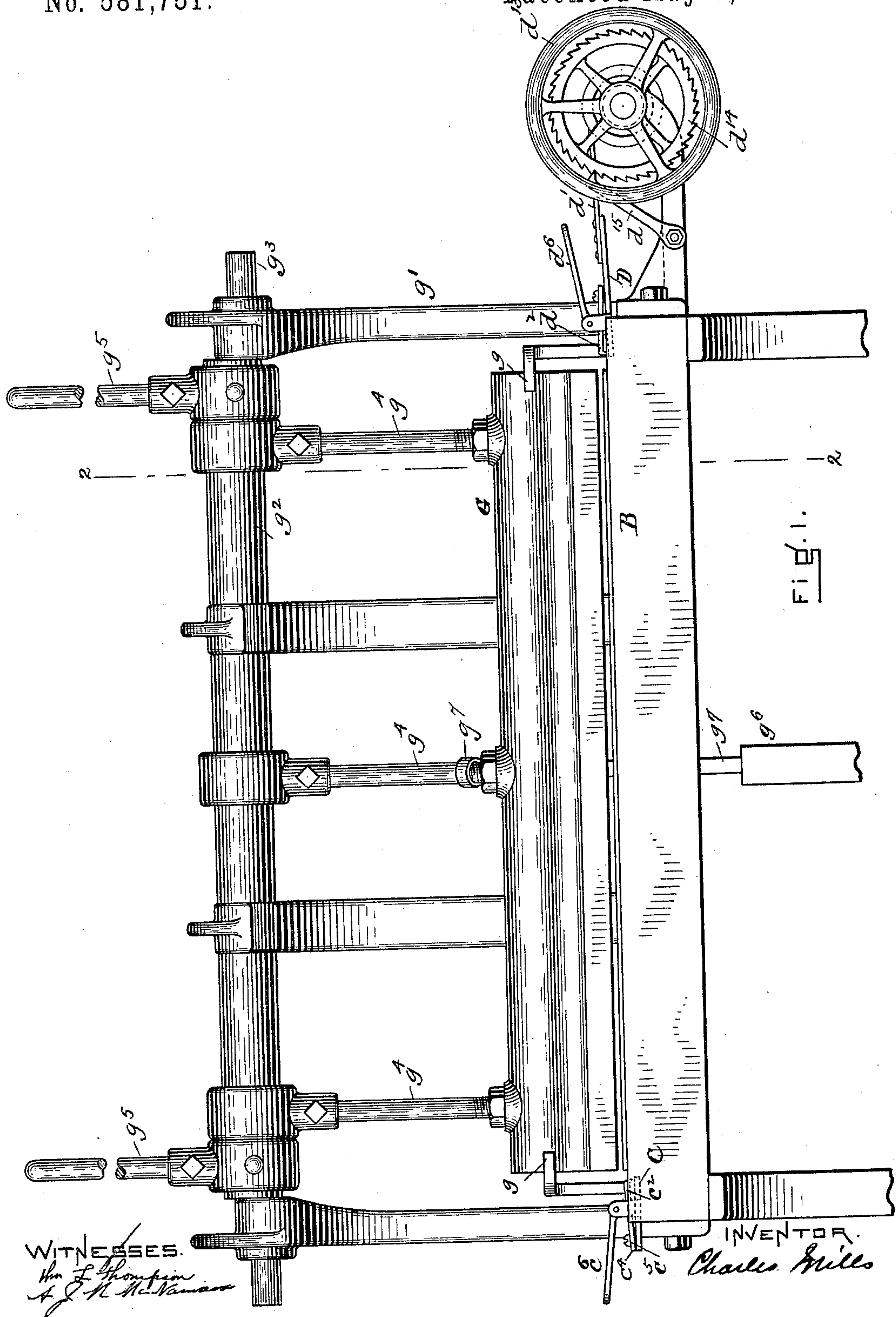
3 Sheets—Sheet 1.

C. MILLS.

MACHINE FOR ATTACHING CLIPS TO CARD CLOTHING.

No. 581,751.

Patented May 4, 1897.



(No Model.)

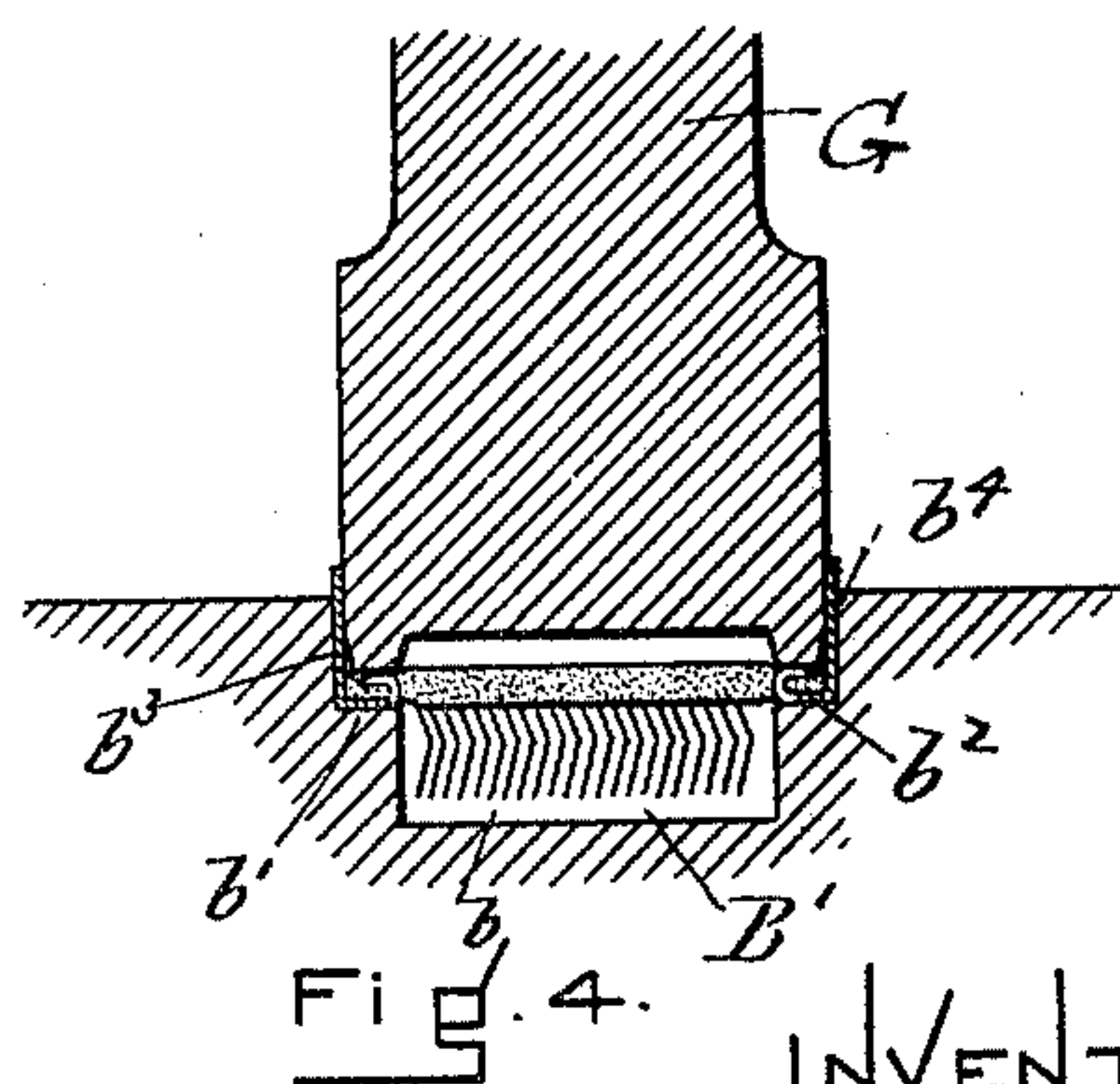
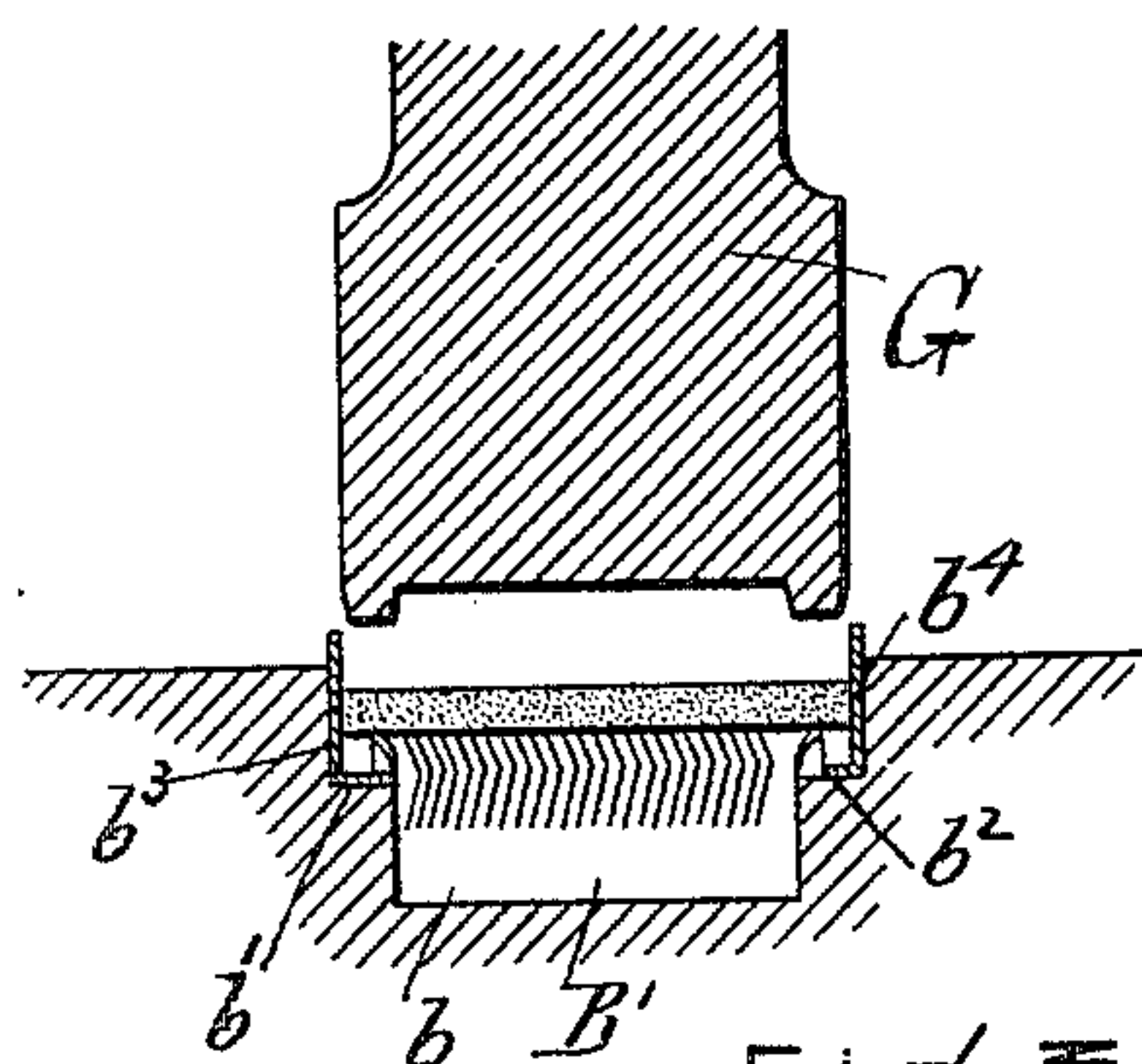
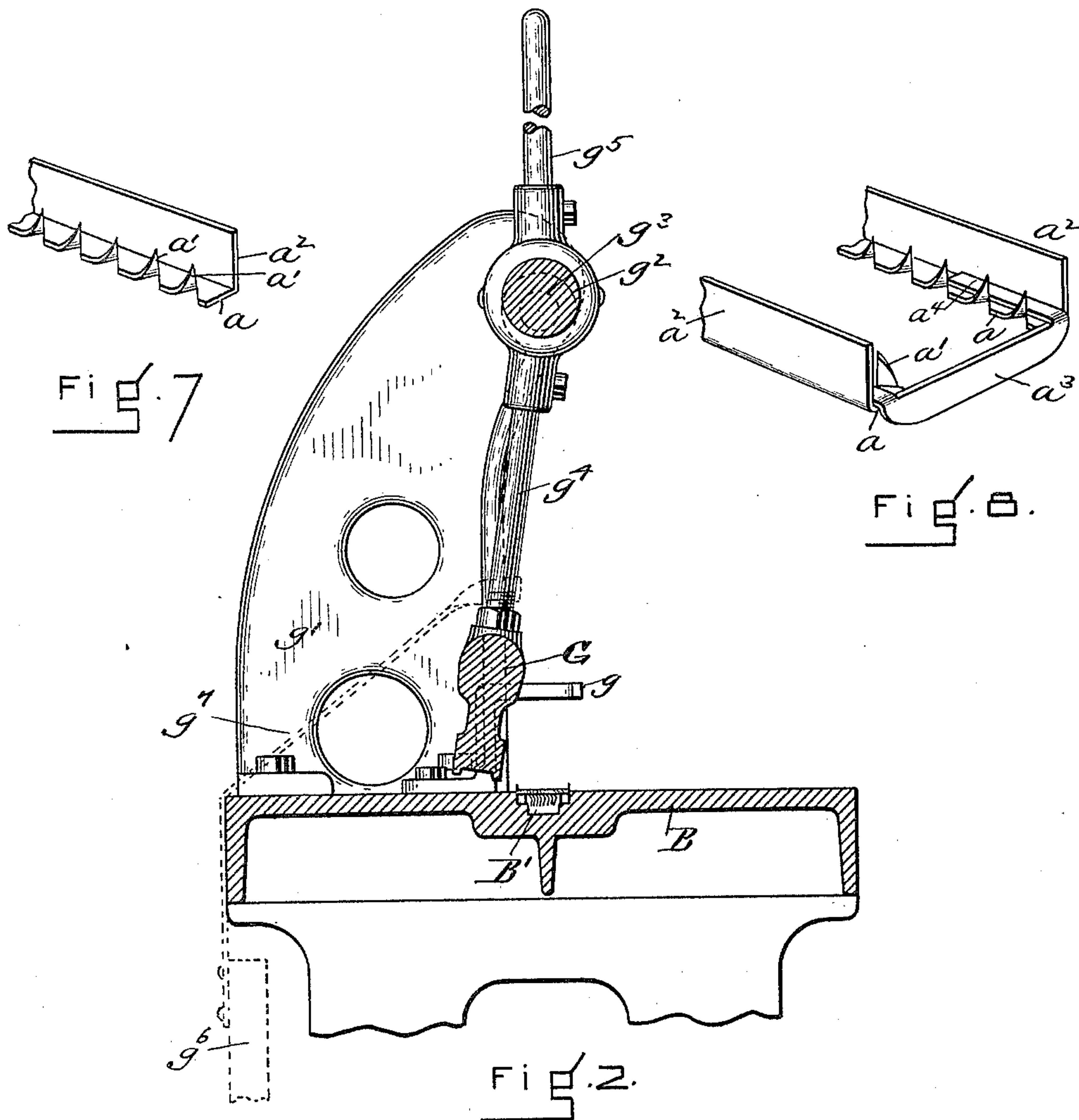
3 Sheets—Sheet 2.

C. MILLS.

MACHINE FOR ATTACHING CLIPS TO CARD CLOTHING.

No. 581,751.

Patented May 4, 1897.



WITNESSES

Wm L Thompson
A J Mc Namara

INVENTOR
Charles Mills

(No Model.)

3 Sheets—Sheet 3.

C. MILLS.

MACHINE FOR ATTACHING CLIPS TO CARD CLOTHING.

No. 581,751.

Patented May 4, 1897.

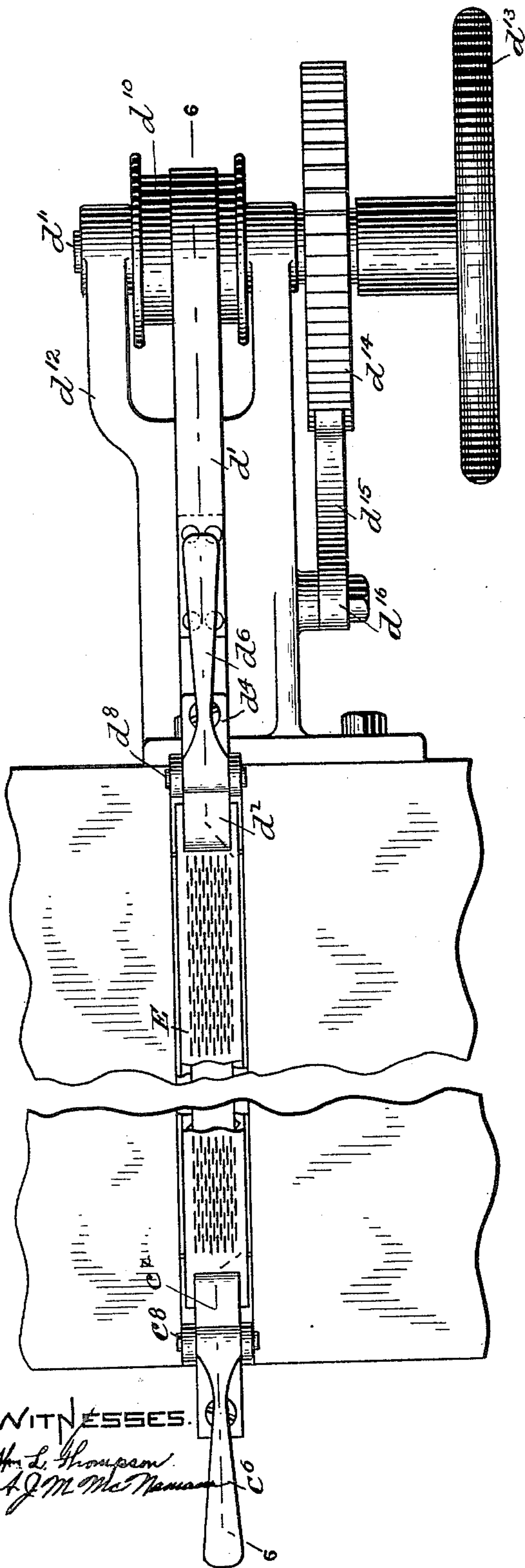


FIG. 5.

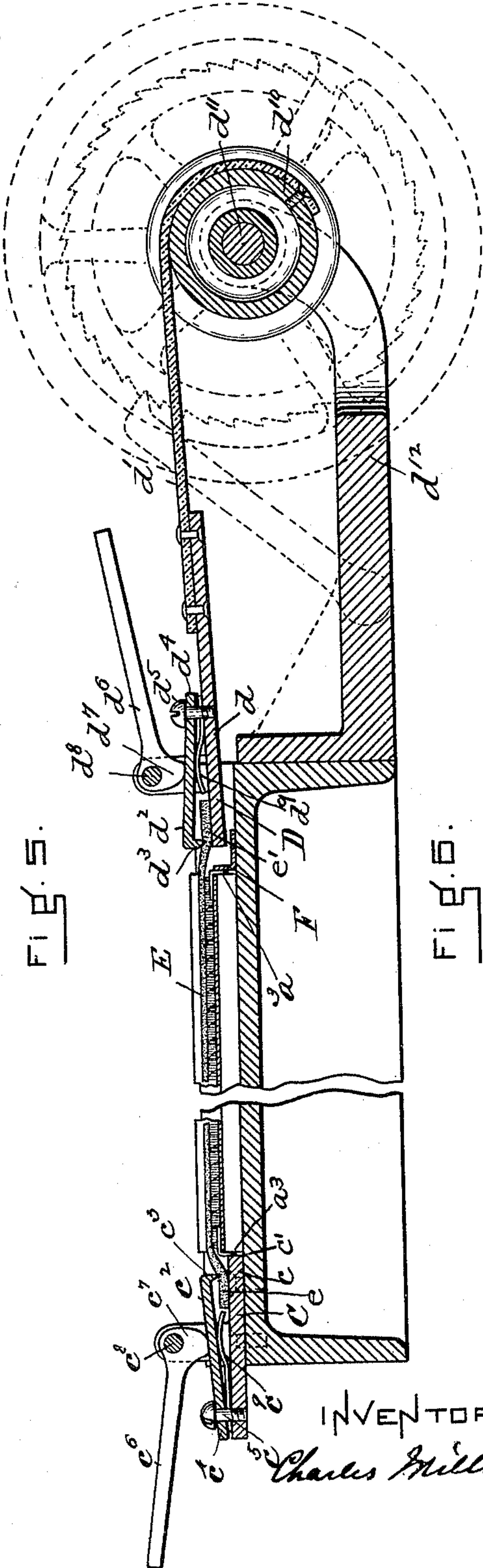


FIG. 6.

UNITED STATES PATENT OFFICE.

CHARLES MILLS, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO THE PETTEE MACHINE WORKS, OF SAME PLACE.

MACHINE FOR ATTACHING CLIPS TO CARD-CLOTHING.

SPECIFICATION forming part of Letters Patent No. 581,751, dated May 4, 1897.

Application filed October 23, 1896. Serial No. 609,800. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MILLS, a subject of Victoria, Queen of Great Britain, residing in Newton Upper Falls, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Machines or Devices for Attaching Clips to Card-Clothing, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention is designed to attach side clips similar to those described in Patent No. 564,691, dated July 28, 1896, to the edges of card-clothing and also to attach end clips thereto.

In the drawings, Figure 1 is a view in front elevation of a machine having the features of my invention. Fig. 2 is a view in vertical section upon the dotted line 2 2 of Fig. 1. Figs. 3 and 4 are enlarged detail views, in vertical section, of the plunger and holder for the card-clothing. Fig. 5 is a view in plan of a portion of the bed of the machine and of clothing-stretching devices. Fig. 6 is a view in longitudinal section upon the dotted line 6 6 of Fig. 5. Fig. 7 is a view in perspective of a side clip. Fig. 8 is a view in perspective of the ends of the side clips and of an end clip attached thereto preparatory to the attachment of the said clips to the clothing.

The side clip is angular in shape and has the section a , which lies upon a surface of the clothing at one edge and from which the prongs a' extend, and also a section a^2 , which extends by the edge of the clothing and the edge of the flat and is adapted to lap upon the inner surface of the flat; and the object of this invention is to simultaneously attach clips of this character to the edges of the card-clothing as well as the end clips represented in Fig. 8.

B is the bed of the machine. It has running lengthwise at about the center of its width a recess or holder B', which has the section b , of a depth, width, and length sufficient to receive the wired portion of the clothing which extends therein while the clips are being attached to the clothing. It also has the rests b' b^2 and the walls or vertical supports

b^3 b^4 . The rests are about the width of the parts a of the side clips. The walls or supports b^3 and b^4 are separated from each other by a space equal to the width of the clothing and the thickness of the side clips. The recess or holder has at one end a clamp C. It is represented as comprising a plate c , contained in the end of the recess or holder and the inner end c' of which acts as a gage and abutment, as will hereinafter be explained, and a jaw c^2 , having a movable grasping end c^3 , which coöperates with the plate c .

The jaw is loosely attached to the plate c at its end c^4 by a screw c^5 , which passes through an enlarged hole therein, and its end c^3 is moved downward by a lever c^6 , having a depressing and locking cam c^7 at its end which bears upon the jaw and depresses it and locks it in its lowest position. This lever is pivoted to lugs at c^8 . A spring c^9 serves to lift and hold elevated the jaw after the depressing-cam has been moved from it.

One end e of the card-clothing E is adapted to be grasped and held by this clamp with the end a^3 bearing against the end of the gage and abutment c' , the abutment serving to hold the end clip in position and also to locate that end of the wired section of the clothing. At the other end of the recess or holder B' is a movable clamp D. This is composed of a plate d , attached to a flexible drawing-band d' and a jaw d^2 , having the movable engaging end d^3 , attached at its other end d^4 to the plate d by a screw d^5 , extending through an enlarged hole therein. This jaw is moved downward and held locked in its depressed position by the lever d^6 , having the cam depressing and locking end d^7 and which is pivoted to the lugs carried by the plate D at d^8 . A spring d^9 serves to lift the jaw and hold it lifted when the cam-lever has been removed from it.

The band d' is attached to a winding-drum d^{10} , which is secured to a shaft d^{11} , having bearings at the outer end of the bracket d^{12} . This drum is adapted to be turned by a hand-wheel d^{13} , and it is locked in opposition to the strain upon the band and clamp by the ratchet-wheel d^{14} on the said shaft and the locking-pawl d^{15} , pivoted at d^{16} and the end of which engages the teeth of the wheel. (See Figs. 1

and 5.) This clamp D is adapted to engage the end e' of the clothing and by its movement when drawn by the winding-drum to stretch the clothing in the recess or holder B' to any desired extent. The end clip a^3 at that end of the clothing is located by the gage and abutment F. This gage or abutment F is in the form of an angle-iron which may be slotted on the portion which rests upon the bed and may be fastened thereto by means of a set-screw, so as to be longitudinally adjustable thereon.

It will be understood that before the card-clothing is attached to the end clips and stretched in said recess B' the side clips have been located or placed upon the rests b' b^2 , with their sections a^2 against the supports b^3 b^4 , as represented in Fig. 3, and that the end clips are also located at the ends of the side clips, with their arms a^4 resting upon the sections a of the side clips and between the prongs a' and the sides a^2 (see Fig. 8) and with the cross-bar a^3 of the clip at the ends of the side clips and bearing against the gage c' at one end of the recess B' and the gage F at the other end of said recess. The clothing is then placed in the recess or holder B' between the side clips and over the prongs, and one end is attached to the clamp C and the other end to the moving clamp D, and the moving clamp D is then moved outward by the winding-drum and the clothing E stretched longitudinally to any desired extent between its ends and over the prongs and without disturbing the side clips or the end clips, and while held so stretched a plunger G is moved from a position behind the said recess or holder B', as represented in Fig. 2, to a position immediately over the clothing and between the side clips.

The gages g , attached to the brackets g' , determine when the plunger has been so located. It is then moved downward upon the clothing and between the clips by the eccentrics g^2 upon the eccentric-shaft g^3 , supported by the brackets g' , and the clothing is moved downward, causing its edges to be forced upon the prongs and a strong union or attachment with the clips to be made, while at the same time the end clips are attached to the clothing by the side clips.

It will be understood that this movement of the clothing in relation to the prongs of the clips is continuous throughout its length and that both edges of the clothing make simultaneous engagement throughout their lengths with the pronged sections of the clips and that without causing the clips to be spread and also while the clothing is longitudinally stretched or under tension. The bearing-sections of the plunger G are upon its under surface along its outer edge, there being a recess or space between the two, whereby the pressure of the plunger is delivered only to the edges of the clothing. (See Fig. 4.) The eccentrics have suitable eccentric-straps upon the shaft g^3 , which are connected with the

plunger G by the rods g^4 , and the plunger is adjustable upon the ends of the rods by a screw connection therewith. The shaft g^3 and the eccentrics are turned by the levers g^5 , attached to the ends of the shaft. The plunger G is movable backward from the holder or recess B' to the position shown in Fig. 2 to expose the recess or holder throughout its length and permit the ready insertion of the clips and clothing and unrestricted engagement with the clamps and the easy removal of the clothing and attached clips at the end of the operation of the machine, and it is so held by a weight g^6 , which is attached to one of the rods g^4 by a strap g^7 . (See Fig. 2, where the weight and strap are shown by dotted lines.)

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for attaching clips to card-clothing, the combination of clip-holding mechanism, a clothing-stretching device for stretching the clothing longitudinally, and a plunger adapted to press the edges of the stretched clothing into engagement with the clips, as and for the purposes set forth.

2. The combination, in a machine for attaching clips to card-clothing, of a holder consisting of rests to receive the clips, and a recess between said rests to receive the wired portion of the clothing, a cloth-stretching device for stretching the clothing longitudinally between the clips, and a presser adapted to press the edges of the stretched clothing into engagement with the clips, as and for the purposes described.

3. The combination in a machine for attaching clips to card-clothing, of a clip-holding mechanism consisting of rests to receive the side clips separated by a recess to receive the wired portion of the clothing and end gages to hold end clips, the clothing-stretching devices adapted to stretch the clothing lengthwise, and a plunger for moving the stretched clothing into engagement with the clips, as and for the purposes described.

4. The combination of a clip-holding mechanism, a plunger adapted to reciprocate toward and from said clip-holding mechanism and to be oscillated forward and back, and a gage located to check the forward movement of said plunger and guide it in its downward reciprocation into said clip-holding mechanism, as and for the purposes set forth.

5. The combination with the holder B', the plunger G adapted to be reciprocated vertically toward and from said holder, the lower end thereof being movable laterally in relation to said holder and provided with means for holding it in its removed position, as and for the purposes described.

6. The holder B' provided with rests to receive the side clips and adapted at each end to receive an end clip, in combination with devices for stretching the clothing longitudinally and for simultaneously attaching the

stretched clothing to the side clips and end clips, as described.

7. The combination of the holder B' having the recess *b*, the rests *b'*, *b*² and the side walls *b*³, *b*⁴ with clamp C at one end of said recess, and a movable clamp D in the other end of said recess, means for moving said clamp D and for holding it in any desired position, and the plunger G, as and for the purposes set forth.

8. The combination in a machine of the character specified, of the holder B' having

means for receiving the clips and the wired portion of the clothing and provided at one end with means for holding the end of the clothing, a clamp D adapted to engage the other end of the clothing, means whereby said clamp may be pulled and said clothing stretched, and whereby said stretched clothing may be attached to said clips, as set forth.

CHARLES MILLS.

In presence of—

F. F. RAYMOND, 2d,
J. M. DOLAN.