

A. W. LE BOEUF.
ADJUSTABLE TRIMMING MECHANISM.
APPLICATION FILED FEB. 10, 1910.

998,619.

Patented July 25, 1911.

4 SHEETS—SHEET 1.

Fig. 1.

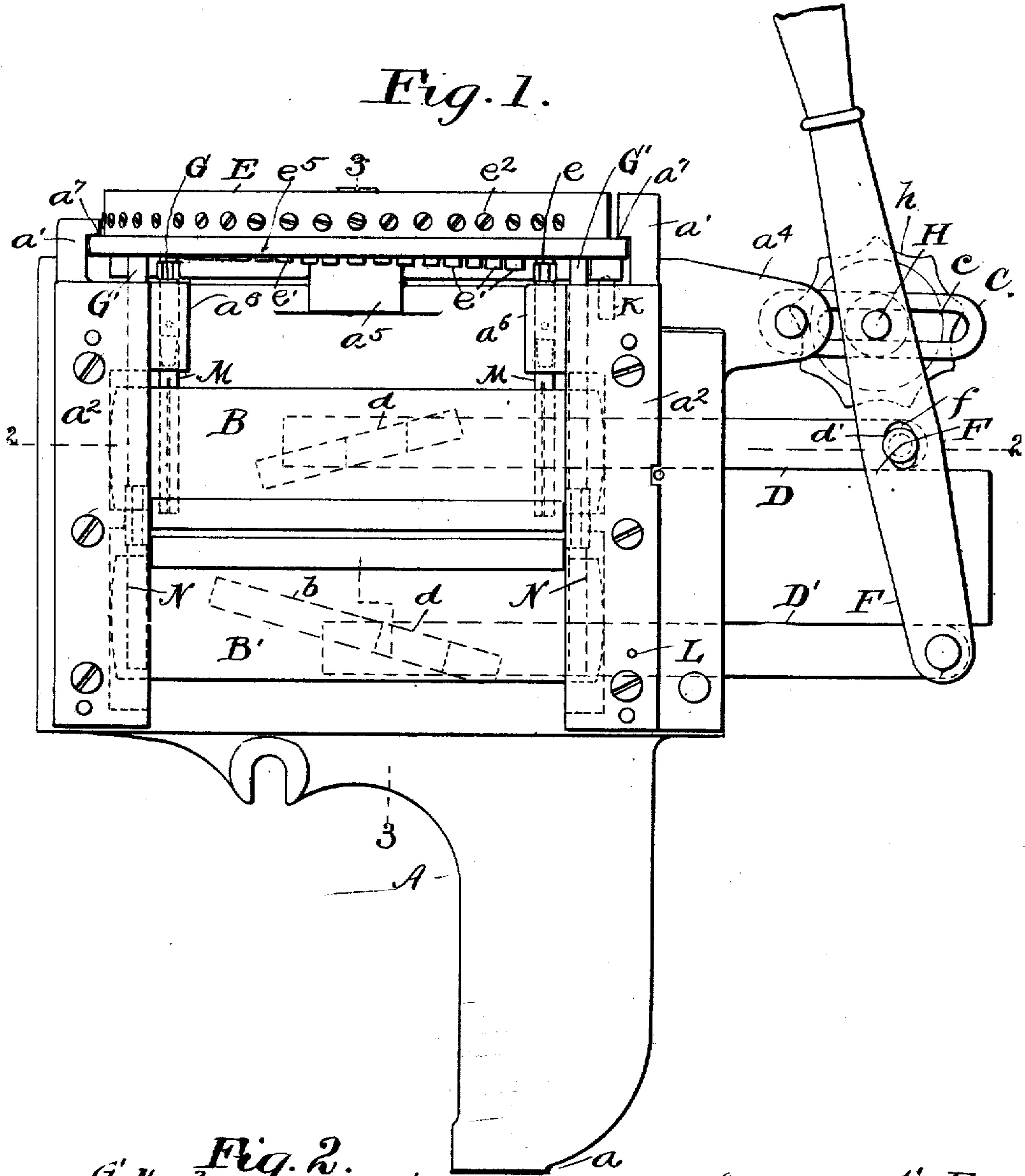
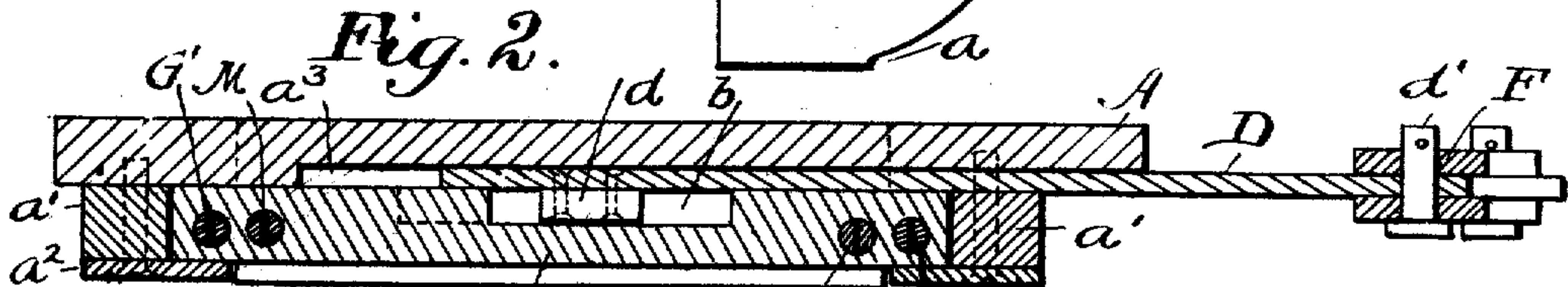


Fig. 2.



Witnesses.
E. B. Gilchrist.

H. B. Sullivan.

Inventor.
Arthur W. LeBoeuf
by E. I. Thurston
attorney

998,619

A. W. LE BOEUF.
ADJUSTABLE TRIMMING MECHANISM.
APPLICATION FILED FEB. 10, 1910.

Patented July 25, 1911.

4 SHEETS-SHEET 2.

Fig. 3.

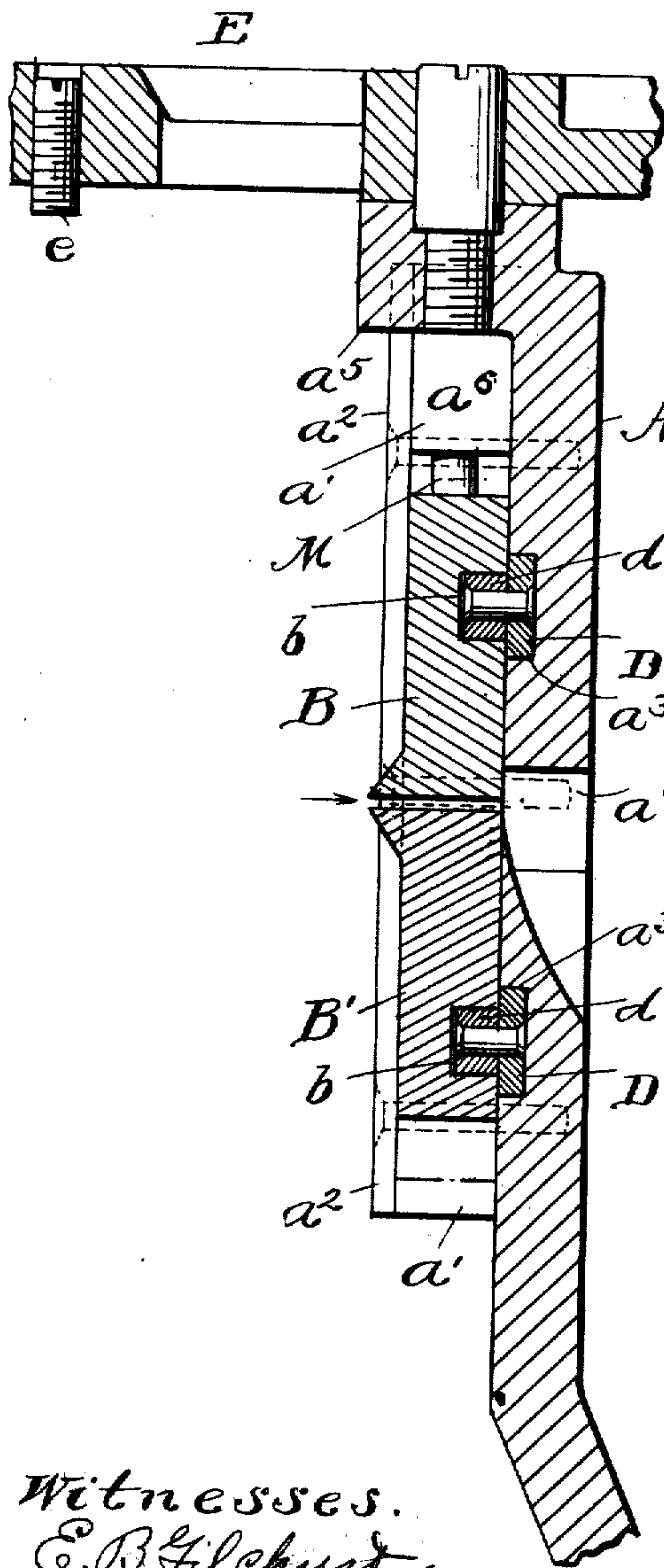
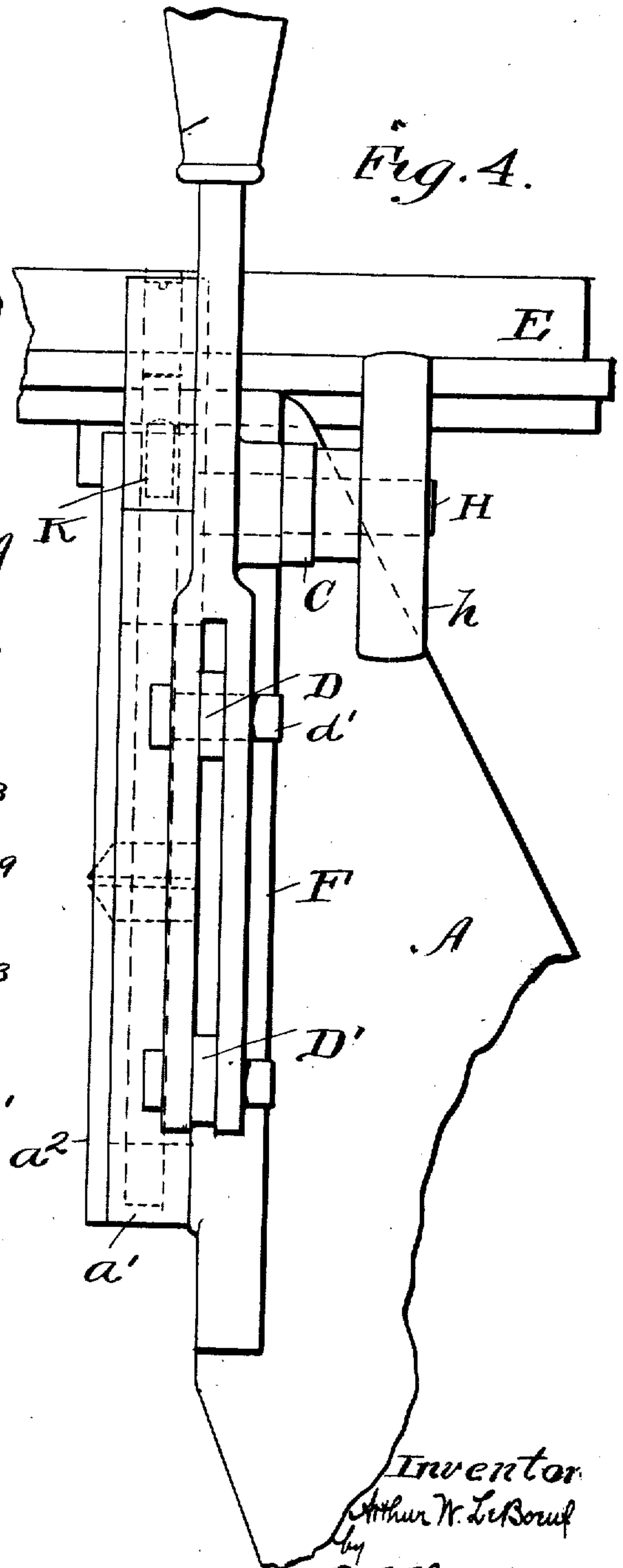


Fig. 4.



Witnesses.
E. B. Gilchrist.
H. B. Sullivan

Inventor
Arthur W. LeBoeuf
by
E. I. Thurston
attorney

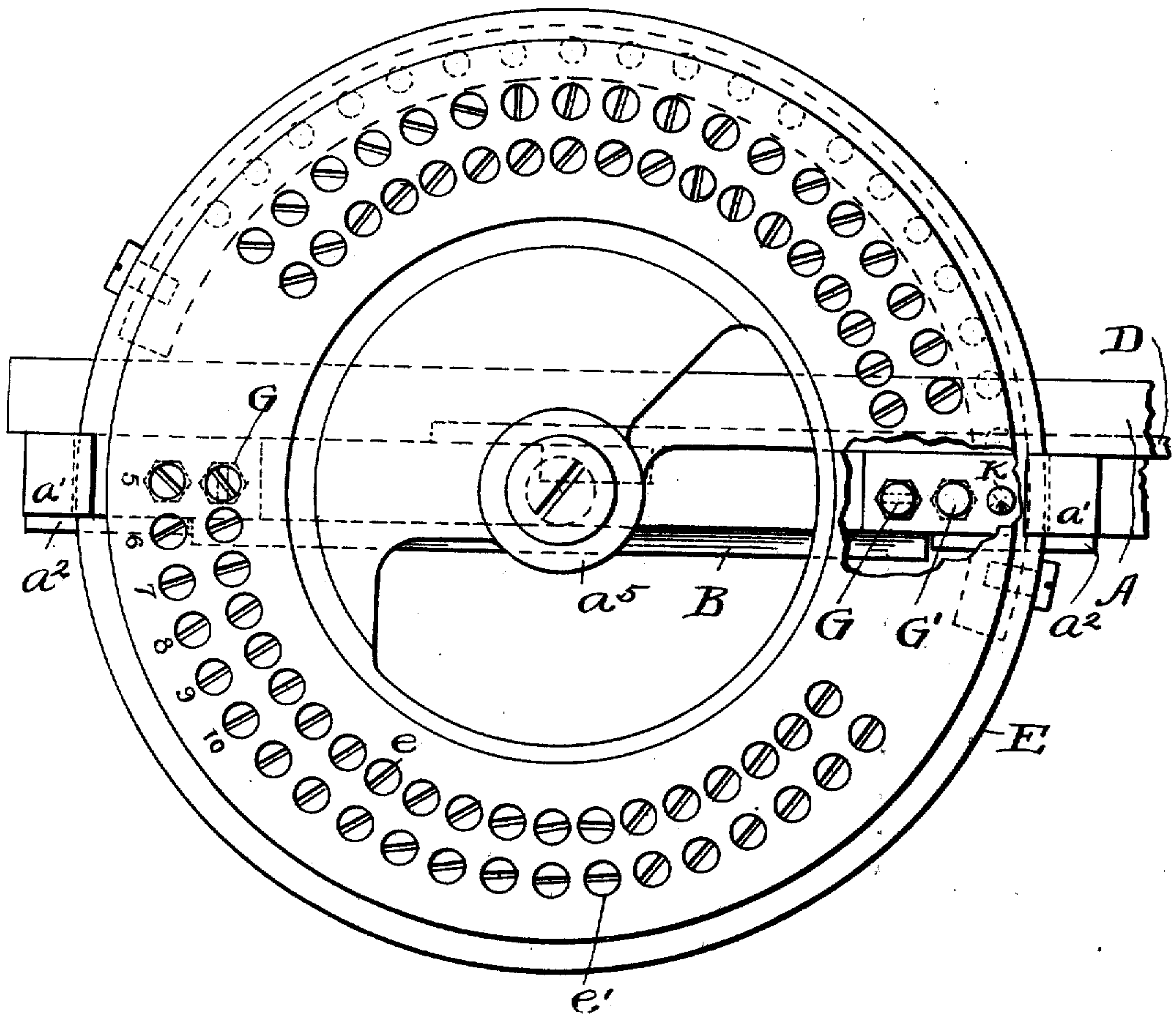
998,619.

A. W. LE BOEUF.
ADJUSTABLE TRIMMING MECHANISM.
APPLICATION FILED FEB. 10, 1910.

Patented July 25, 1911.

4 SHEETS—SHEET 3.

Fig. 5.



Witnesses,
E. B. Gilchrist,
H. R. Sullivan

Inventor,
Arthur W. LeBoeuf
by E. L. Thurston
attorney

A. W. LE BOEUF.
ADJUSTABLE TRIMMING MECHANISM.
APPLICATION FILED FEB. 10, 1910.

998,619.

Patented July 25, 1911.

4 SHEETS-SHEET 4.

Fig. 6.

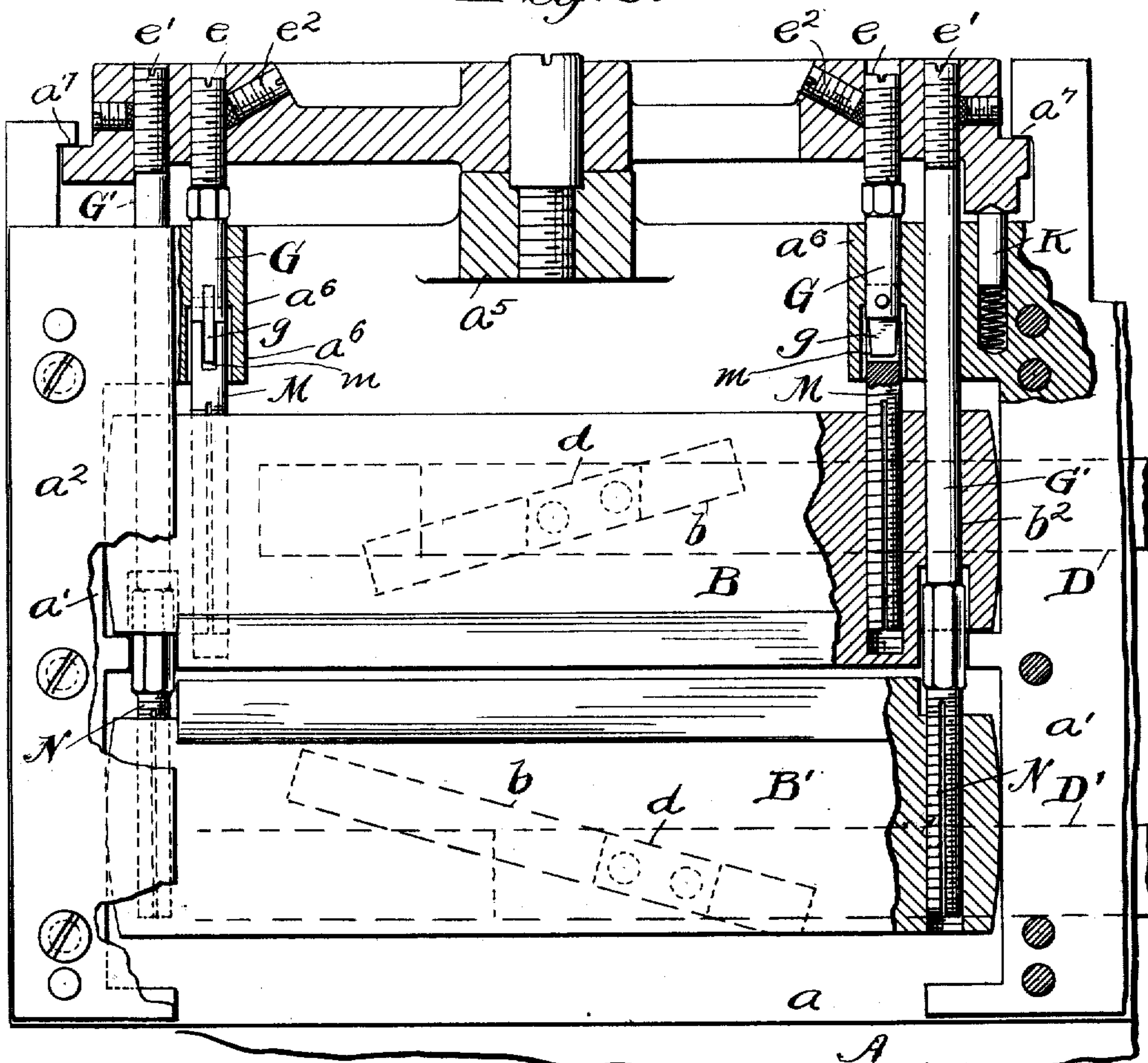


Fig. 7.

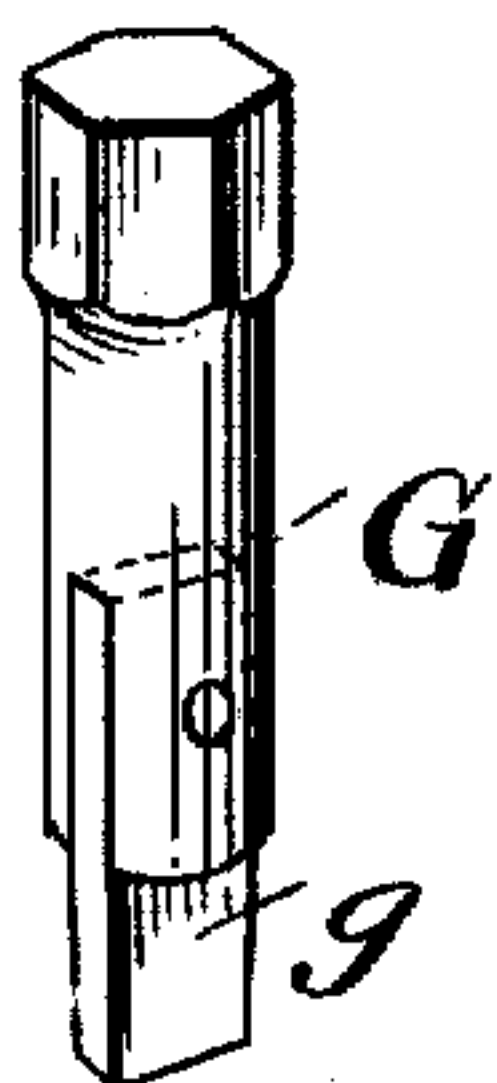


Fig. 8.



Witnesses.
E. B. Gilchrist.
H. R. Sullivan

Inventor.
Arthur W. LeBoeuf
by E. L. Thurston
Attorney

UNITED STATES PATENT OFFICE.

ARTHUR W. LE BOEUF, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR TO ELECTRIC COMPOSITOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

ADJUSTABLE TRIMMING MECHANISM.

998,619.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed February 10, 1910. Serial No. 543,127.

To all whom it may concern:

Be it known that I, ARTHUR W. LE BOEUF, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented a certain new and useful Improvement in Adjustable Trimming Mechanism, of which the following is a full, clear, and exact description.

10 This invention is especially adapted to be a part of a machine of the linotype class, for the purpose of trimming the type bars or slugs formed in such machines, in order that they may be of the required thickness.

15 The particular object of this invention is to provide slug trimming mechanism which may be quickly and accurately adjusted to trim slugs of different thicknesses corresponding with the various sizes of type.

20 This mechanism necessarily includes two knives, and means for moving one or both of said knives so as to change their relation, a movable stop carrier having a plurality of stops which may be brought to operative position by the movement of the carrier, devices, intermediate of the movable knife and carrier, adapted to be moved when the knife moves and to be carried against the stops so as to positively limit the movement of said knife.

25 The embodiment of the invention shown includes other cooperating mechanical parts, and the invention includes said parts to the extent set forth in the appended claims.

30 In the drawings, Figure 1 is a rear elevation of the best embodiment of the invention known to me. Fig. 2 is a sectional view in the plane indicated by line 2—2 on Fig. 1. Fig. 3 is a sectional view in the plane indicated by line 3—3 on Fig. 1. Fig. 4 is a side elevation from the right side of Fig. 1. Fig. 5 is a plan view of the stop carrier and parts adjacent thereto. Fig. 6 is a rear elevation partly broken away. Fig. 7 is a perspective view of one of the stop rods associated with the upper knife block; and Fig. 8 is a perspective view of one of the adjustment screws in said knife block.

35 Referring to the parts by letters, A represents a frame member upon which the various parts constituting the preferred embodiment of the invention, as shown, are supported. This frame member has a foot *a* by means of which it may be secured to the frame of the linotype machine, so as to pre-

40 sent the slug trimming mechanism, which it supports in proper relation to other parts of the machine,—particularly the mold and the ejector by means of which the slugs are forced from the mold and between the trimming knives. This frame member is in the form of a plate having two rearwardly projecting vertical side bars *a'* which may be formed as a part of the plate, or, by preference, independently, and fixed thereto. *a'* represents gib plates fixed to said bars *a'*.

45 Two trimming knife blocks B, B' lie against the rear face of the plate A and between it and the overhanging edges of the gib plate *a'*, with their ends, which are preferably made slightly convex, as shown, in sliding engagement with the inner vertical faces of the bars *a'*; by the described construction the knives are guided so that when they move they must move in a generally vertical direction, although if one end shall move slightly ahead of the other the knife blocks will not bind in the guideways.

50 D, D' represent two sliding bars which are movable longitudinally only in suitable guideways in front of the two knife blocks,—which guideways are preferably grooves *a''* cut into the rear face of the plate A. To each of these bars D an obliquely set block *d* is fixed; and these two blocks *d* severally project into and slidingly fit in oblique grooves *b* in the front faces of the two knife blocks. A lever F is pivotally connected with the lower bar D', and it has a slot *f* through which passes a pin *d'* carried by the upper bar D. A slotted link C is pivoted to an ear *a'* formed on the plate A. A screw H passes through the slot *c* in this link and screws into the lever F. This screw has an enlarged head in the form of a hand wheel *h* by which it may be turned, and which, as the screw is turned, will clamp together this link C and lever F.

55 E represents a stop carrier, which is rotatably mounted on a vertical axis in a bracket *a''* formed on the frame member A. This stop carrier carries a plurality of sets of stops *e, e'*. These are, in the form shown, screws which screw into the disk from the underside thereof until their lower faces are properly positioned; and these stops may, if desired, be fixed in position and held against accidental displacement, by set screws *e''*.

60 Associated with the lower knife block B' is

are two vertically movable stop rods G' which are vertically movable in guideways or holes formed in the bracket arms a^6 , which are parts of the bars a' , and in holes b^2 in the upper knife block. These stop rods at their lower ends engage with, what is for the time being a rigid part of the knife block B' , and at their upper ends they are so placed that they will engage with one or another of the outer series of adjustable stops e' . Similar stop rods G pass through vertical holes in the same brackets a^6 and engage at their lower ends with what is for the time being a rigid part of the upper knife block B ; and the upper ends of said rods are in such position that they may engage the lower faces of one or another of the adjustable stops e of the inner series.

As will be seen from Fig. 5, and as will be understood from the foregoing description, the stops e and e' are arranged in pairs, and each pair is associated with another pair diametrically opposed in position. Each set of four—that is to say, two associated pairs of these adjustable stops, are required for the adjustment of the two knife blocks for any given size, or rather thickness of slug to be trimmed. Preferably there will be graduation marks on the top face of the carrier disk, as for instance, 5, 6, 7, etc., to indicate that the knives will, by the action of the indicated stops, be set to trim slugs to be 5 points, 6 points, etc., in thickness. In order to set the knives to trim the slugs to any required thickness, the lever F is unlocked and swung to the right, as shown in Fig. 1. This will cause both knives to move down. Then the stop carrier is turned to bring the proper set of stops over the stop rods. An index plunger K in one of the frame members a' , is adapted to enter holes, of which there are a number in the lower face of the carrier E , when the latter has been moved to the proper position as shown by the graduation marks. Then the lever F is swung over to the left. This will move either bar D or D' or both. Let us assume that it moves bar D' to the left, and that the bar D' because, for example, it may encounter greater frictional resistance, does not move for the time being. Under such circumstances, the pivotal connection between lever F and the lower bar D' will be stationary, and will serve as a fulcrum about which the lever turns. This movement will cause the upper knife block B to move upward carrying the stop rods G with it until they, by engagement with two stops e , check its movement. The further movement of lever F in the same direction will now be about the pivot pin a'' as a fulcrum, and will now move bar D' to the right, and this will move the lower knife block up, until this movement is stopped by the engagement of the stop rods G' with stops e' . Both knife

blocks, it will be seen, are positively stopped in positions which are determined by the positions of the lower faces or ends of the stops e, e' . When the parts are in this position, the screw H is tightened so as to lock the lever F to the link C , and thereby the knife blocks are held in the position stated.

In order that there shall be no springing of the disk E , it is provided along its lower face with an outwardly extended flange e^3 , and this flange passes beneath overhanging lips a^7 formed on the upper ends of the bars a' ,—these overhanging lips being so placed that they are as close as possible to the adjustable stops e, e' which are for the time being in use to locate the position of the knife blocks.

It is desirable that when the stop screws e and e' have been once adjusted into proper position, they shall not be changed. Nevertheless, when the knives are sharpened, some of the stock on the cutting edges will be ground off, and in that event said stops would not serve their purpose, unless some means were provided for compensating for the grinding away of the knives. In order to provide such compensating adjustments, two screws M are screwed vertically into the knife block B near the ends thereof, so that the heads of these screws will be directly beneath the stop rods G . By turning these screws the throw of the upper knife block may be adjusted with accuracy, when such adjustment is necessary, without changing the position of the stop screw e . Inasmuch as it is not convenient, in the construction shown, to put a wrench head on the screws M , such head is put on the upper end of the stop rod G , and the lower end of said rod is provided with a thin rib g which enters a slot m in the upper end of the corresponding screw M . Therefore, by turning either stop rod G , the corresponding screw M may be turned in or out of the knife block B . Screws N are likewise screwed vertically into the knife block B' so as to be directly beneath the stop rods G' .

The described construction is such that both knife blocks are moved whenever the relative positions of the knife blocks are to be adjusted for trimming different sizes of slugs. There are, however, uses to which the described invention may be put, which requires only that one knife block shall be moved to adjust the distance between the knives to suit the various sizes.

The described mechanism may be modified in various ways so that only one knife block will move. Perhaps a simple way to accomplish this result is to have a pin L , which can be passed through one of the frame members a' and the bar D' . This will prevent the movement of that bar and consequently of the knife block B' associated with it, but will permit the movement

of the bar D and the associated knife block B. If this were done, or if in any way the lower knife block B' were rendered immovable and the upper knife block were alone allowed to move, a readjustment of the stop screws e' would probably be required. It is not likely that any one would ever go to the expense of putting in a movable knife block B and mechanism for controlling its movement, and then provide mechanism for stopping such movement. The reasonable construction, when it is desired to move only one knife block, would be to permanently fix the other, and therefore to provide no mechanism for moving it. The construction referred to is shown, however, merely to indicate that the remaining parts of the mechanism are adapted for use to control the movements of a single movable knife block. Where the knife blocks have been adjusted and locked by the described mechanism, the type bars to be trimmed are forced between them in the direction of the arrow on Fig. 3. It will be seen from this figure that a slot a'' is cut through the plate A to permit the type bar to pass through it.

It is clear that the invention as defined by the claims is not limited to the specific embodiment thereof shown. Many changes from such specific embodiment may be made without departure from the invention.

Having described my invention, I claim:

1. In adjustable trimming mechanism, the combination of a movable carrier on which are a plurality of stops, a movable knife block, mechanism by which the knife block may be moved toward said carrier, and devices intermediate of the knife block and carrier, which will be moved by said knife block and whose movement will be stopped by their engagement with such of said stops as are presented in their path.

2. In adjustable trimming mechanism, the combination of a movable carrier on which are a plurality of stops, a movable knife block, mechanism for moving the movable knife block, devices intermediate of the knife block and carrier, which will be moved by said knife block and whose movement will be stopped by their engagement with such of said stops as are presented in their path, and means for locking said knife block against movement away from the position in which it is so stopped.

3. In adjustable trimming mechanism, the combination of a movable carrier on which are a plurality of stops, a movable knife block, a guideway in which said knife block is movable in a direction substantially at right angles to its knife edge, which block has in one of its side faces an inclined slot, a slide movable in a path at an angle to that in which the knife block moves, and having a block which enters the inclined

groove in the knife block and devices intermediate of the knife block and carrier which will be moved by said knife block and whose movement will be stopped by their engagement with such stops as are presented in their path.

4. In adjustable trimming mechanism, the combination of a frame member whereon are vertical guideways, a knife block mounted on said member in said guideways, a movable carrier above said knife block and having a plurality of stops, vertically movable stop rods which at their lower ends engage with a part of the movable knife block and at their upper ends are adapted to engage with certain of said stops presented in their path, and means for moving said knife block toward and away from said carrier.

5. In adjustable trimming mechanism, the combination of a frame member whereon are vertical guideways, a trimming knife mounted on said member in said guideways, a movable carrier above said knife block and having a plurality of stops, vertically movable stop rods which at their lower ends engage with a part of the movable knife block and at their upper ends are adapted to engage with certain of said stops presented in their path, and means for moving said knife block, and means for locking the knife block against movement from the position in which it was stopped by the engagement of said stop rods with said stops.

6. In adjustable trimming mechanism, the combination of a frame member whereon are vertical guideways, a trimming knife mounted on said member in said guideways, a disk rotatable upon a vertical axis and having on its under face a plurality of stop surfaces in different horizontal planes, vertically movable stop rods which at their lower ends engage with a part of the movable knife block and at their upper ends are adapted to engage with certain of said stops presented in their path, means for moving said knife block, and means for holding the knife block in position in which it was stopped by the engagement of said stop rods with said stops.

7. In adjustable trimming mechanism, the combination of two movable knife blocks, mechanism for moving them, a movable carrier whereon are two series of stops, devices intermediate of each knife block, and a series of stops on the carrier, which devices are engaged with and moved by the knife blocks and in turn engage with stops so as to limit the movement of the knife blocks.

8. In adjustable trimming mechanism, the combination of two movable knife blocks, mechanism for moving them, a movable carrier whereon are two series of stops, two stop rods interposed between one knife block and said carrier and adapted to be engaged by a

part of the knife block and by stops in one series of stops, and two other stop rods interposed between a part of the other knife block and carrier and adapted to be engaged by
5 said knife block and by stops in the other series on said carrier.

9. In adjustable trimming mechanism, the combination of a frame member having guideways, two movable knife blocks supported by said frame member in said guideways, a rotatable disk mounted on said frame member and carrying two annular series of stops, a pair of vertical stop rods associated with each knife block and adapted to engage
15 at their lower ends with a rigid part of said knife block, and each pair of stop rods being adapted for engagement at their upper ends with stops on said carrier.

10. In adjustable trimming mechanism, the combination of a frame member having vertical guideways, two movable knife blocks supported thereby in said guideways, each knife block having in one of its faces an oblique groove, two operating bars supported in guideways on said frame member, at substantially right angles to the guideways in which the knife blocks are movable, each bar having a block fixed to it which enters the oblique groove in the associated
25 knife block, a carrier movable above said knife blocks and having two series of stops, a pair of vertical stop rods movable endwise in suitable guideways, one pair engaging at their lower ends with the upper knife block, and at their upper ends with stops on said carrier, and the other pair of stop rods engaging at their lower ends with the lower knife block and at their upper ends with stops on said carrier, an operating lever pivoted to one of said operating bars, and having a slot and pin connection with the other, and mechanism for locking said lever in various positions.

11. In adjustable trimming mechanism, the combination of a frame member having vertical guideways, two movable knife blocks supported thereby in said guideways, each knife block having in one of its faces an oblique groove, two operating bars supported
30 in guideways on said frame at substantially right angles to the guideways in which the

knife blocks are movable, each bar having a block fixed to it which enters the oblique groove in the associated knife block, a stop carrier movable above said knife blocks and having two series of stops, a pair of vertical stop rods movable endwise in suitable guideways, a pair engaging at their lower ends with the upper knife block, and at their upper ends with stops on said carrier, and the other pair of stop rods engaging at their lower ends with the lower knife block and at their upper ends with stops on said carrier, an operating lever pivoted to one of said operating bars, and having a slot and pin connection with the other, a freely swinging slotted link, and a screw passing through the slot of said link and screwing into said lever whereby the link is clamped to said lever.

12. In adjustable trimming mechanism, the combination of a frame member, two movable knife blocks supported by said frame member in said guideway, a rotatable disk mounted on a vertical axis and carrying two annular series of adjustable stops, lips fixed to the frame member overhanging the edges of said disk and engaging therewith, a pair of vertical stop rods associated with each knife block and adapted to engage at their lower ends with a rigid part of the associated knife block and adapted to engage at their upper ends with stops on said carrier.

13. In adjustable trimming mechanism, the combination of a frame member having vertical guideways, two knife blocks supported by said frame member in said guideways, a movable stop carrier, a pair of adjustment screws screwing into each knife block, and vertical stop rods which engage at their lower ends severally with said adjustment screws and are adapted at their upper ends to engage the stops on said carrier, and means for moving said knife blocks.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

ARTHUR W. LE BOEUF.

Witnesses:

ROY J. SOULER,
E. F. GODDARD.