

No. 652,824.

Patented July 3, 1900.

H. A. WEBSTER.
COUNTER SKIVING MACHINE.

(Application filed Feb. 23, 1900.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 1.

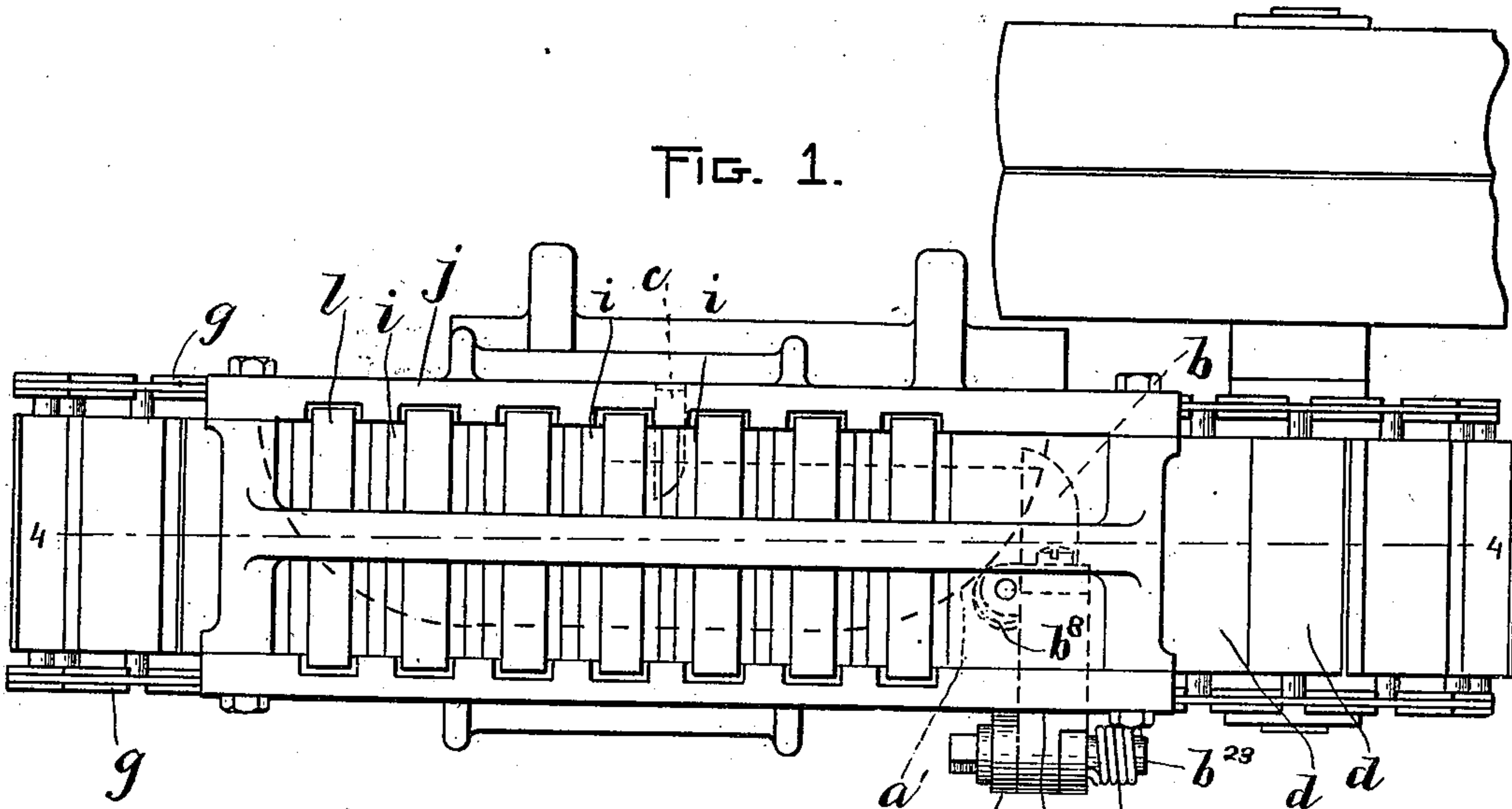
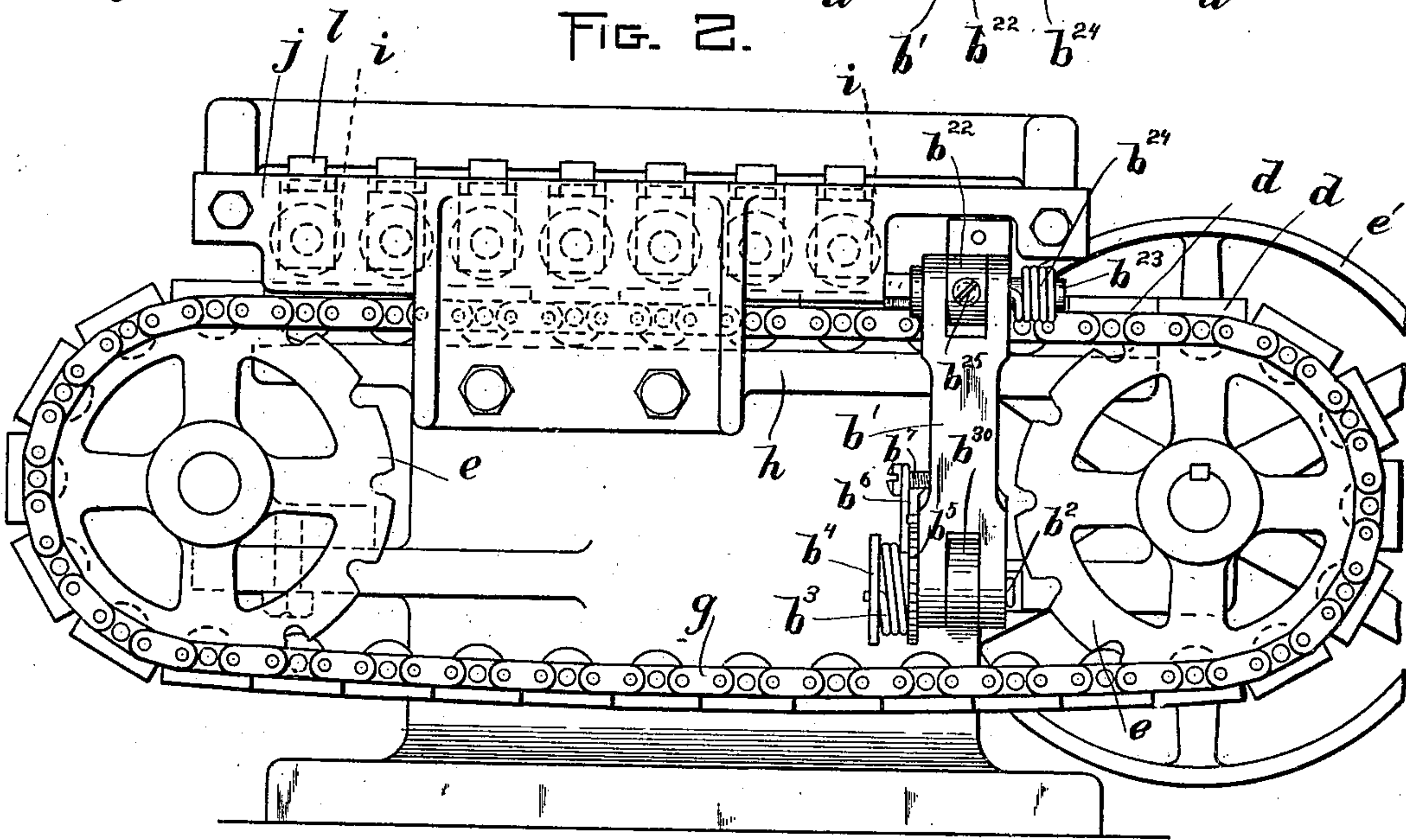


FIG. 2.



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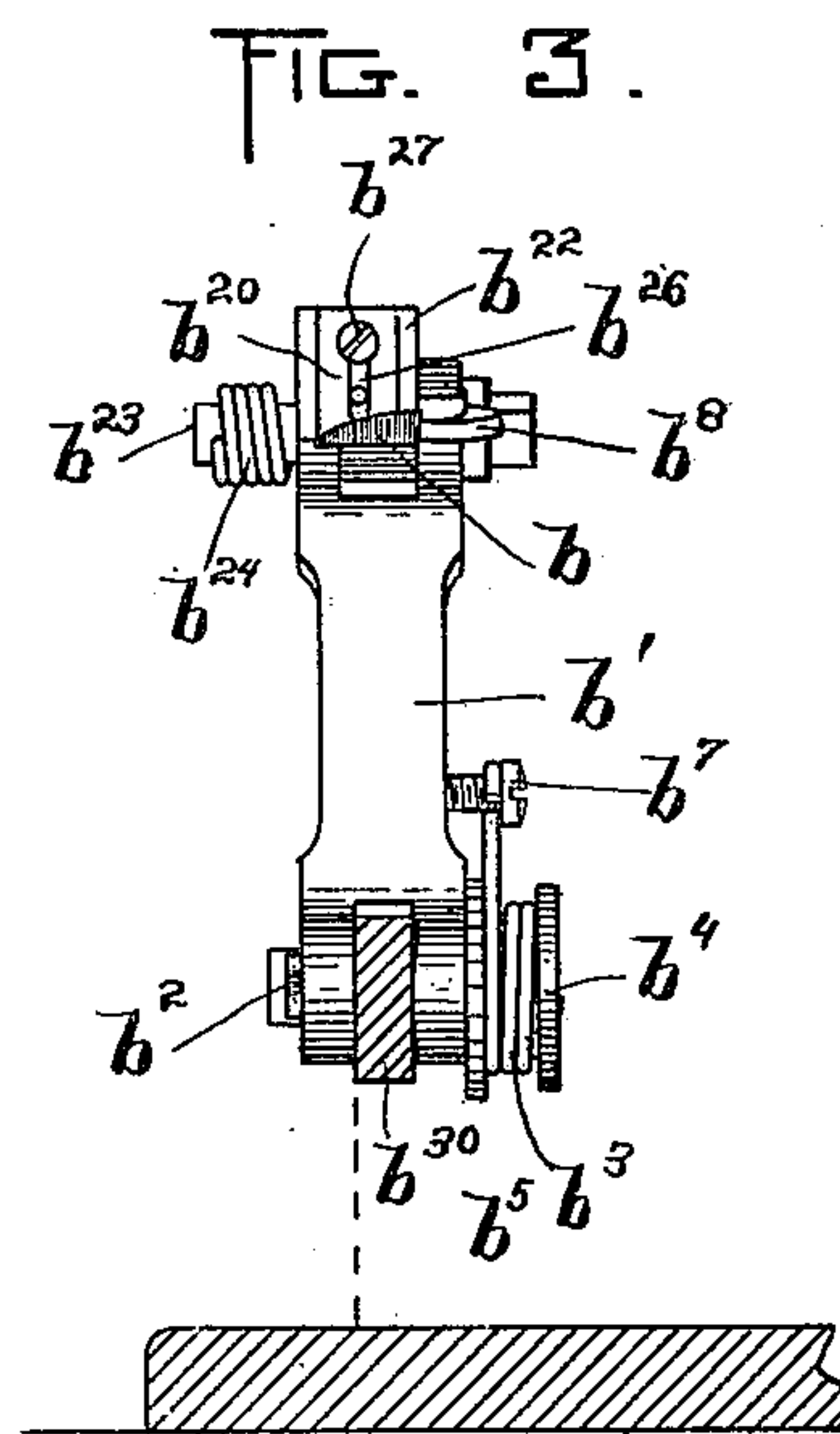
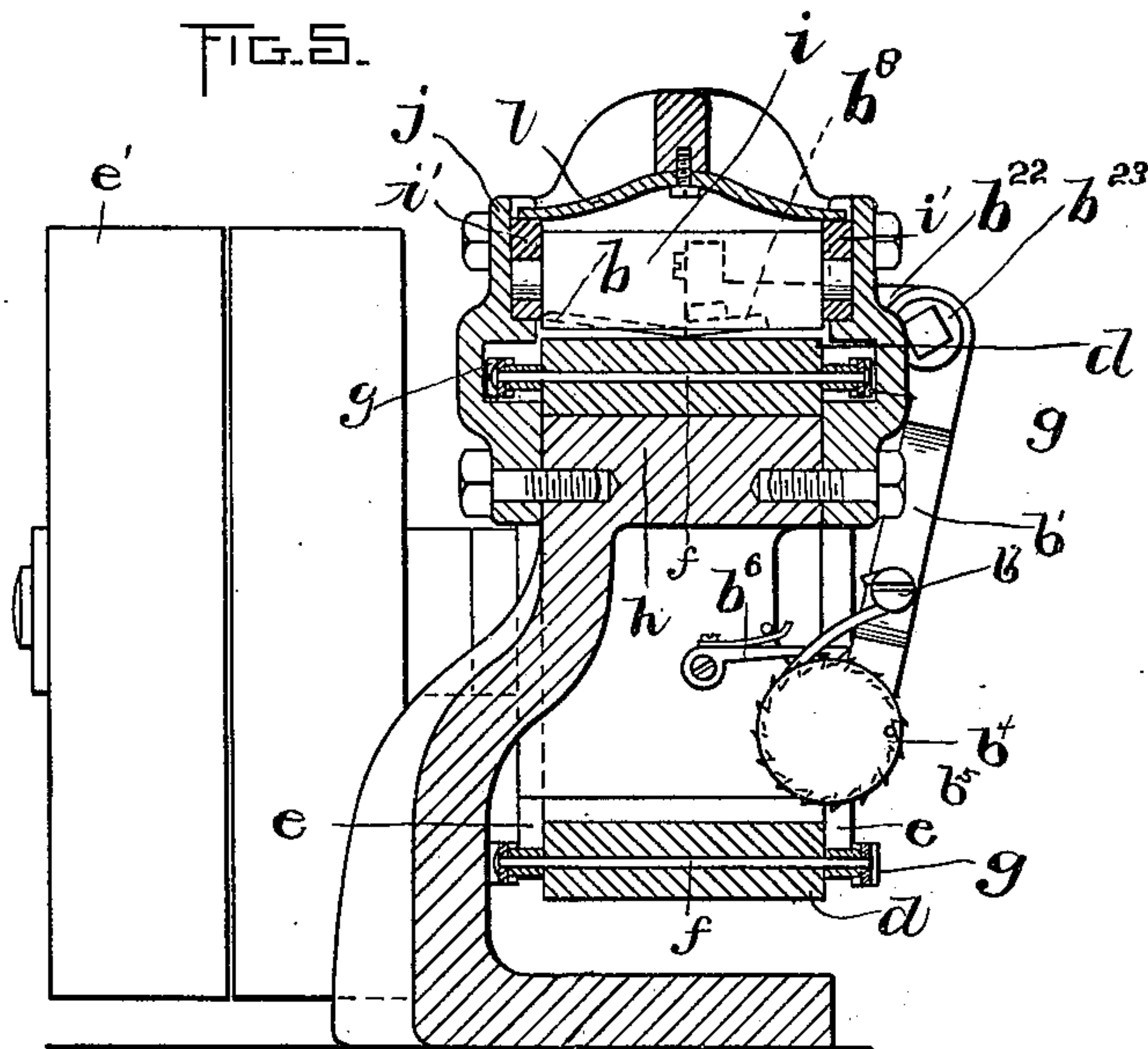
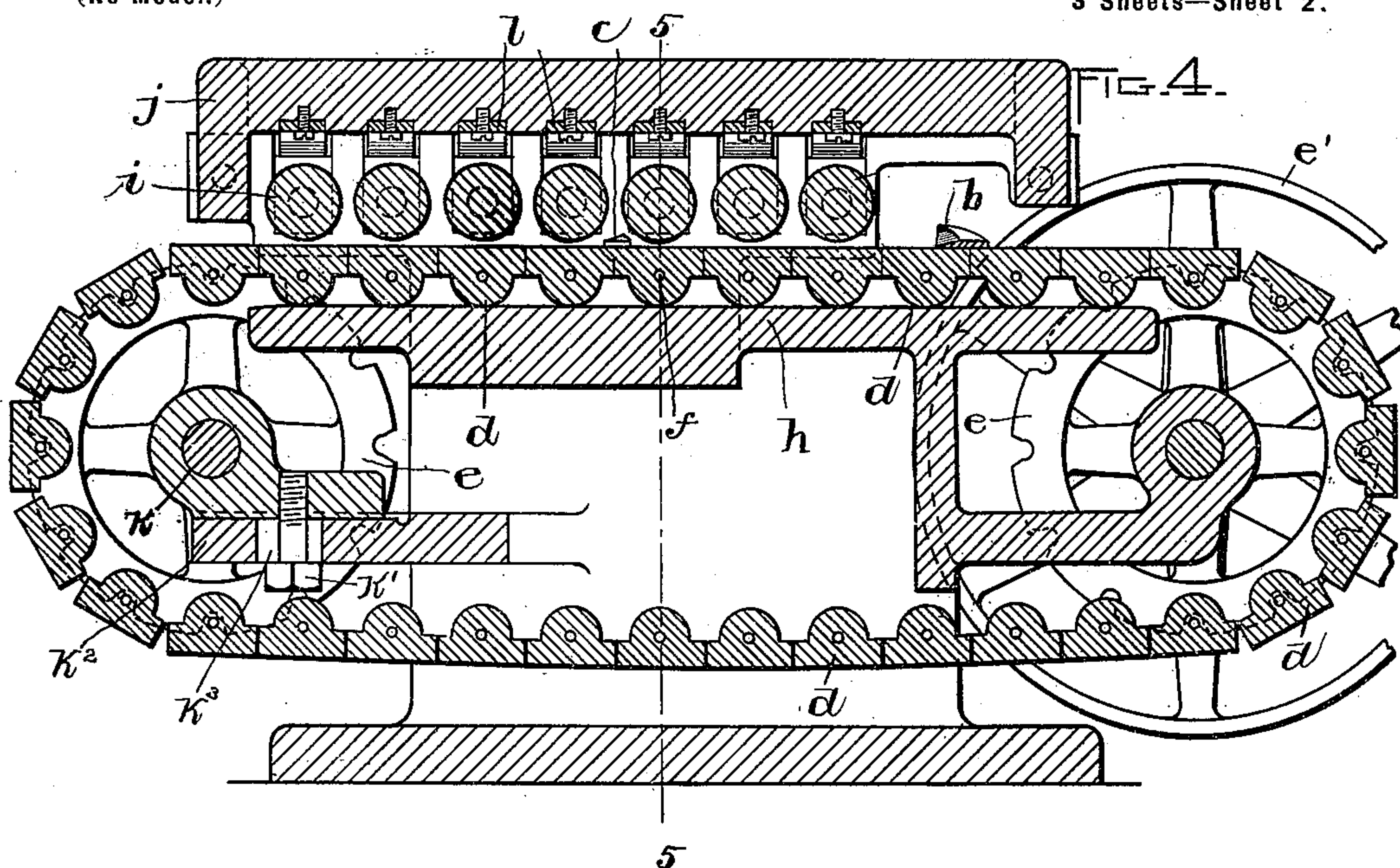
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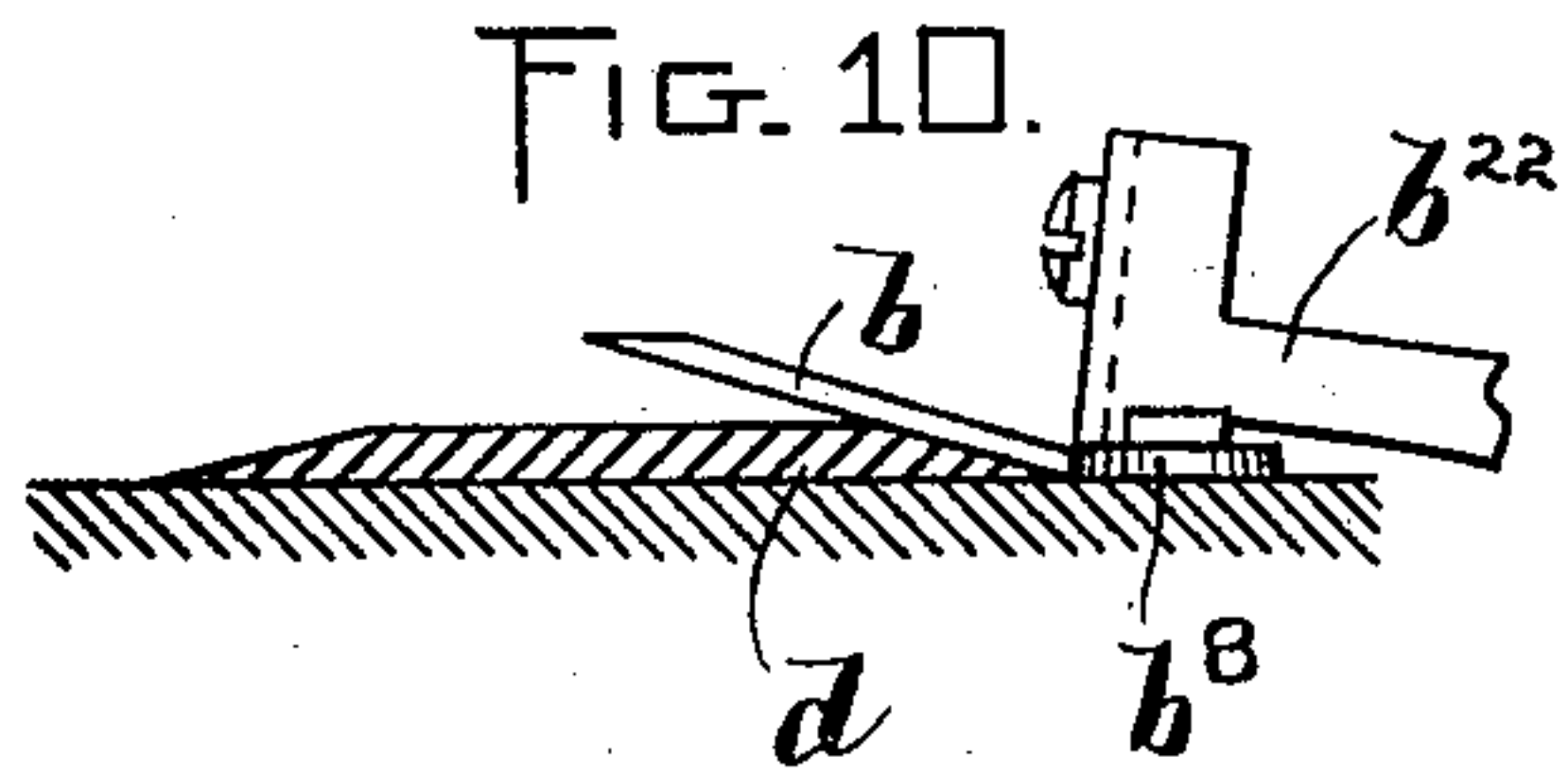
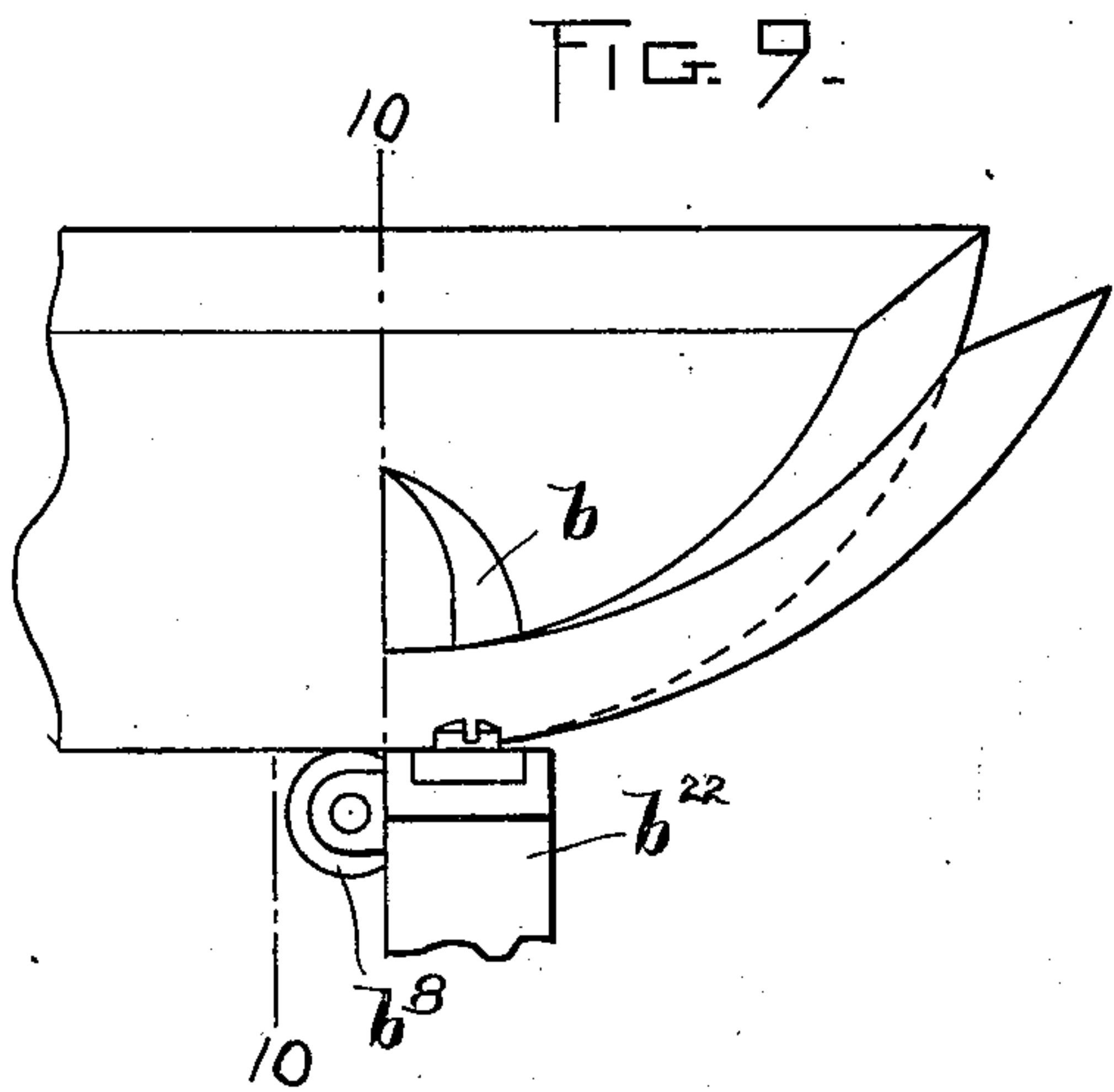
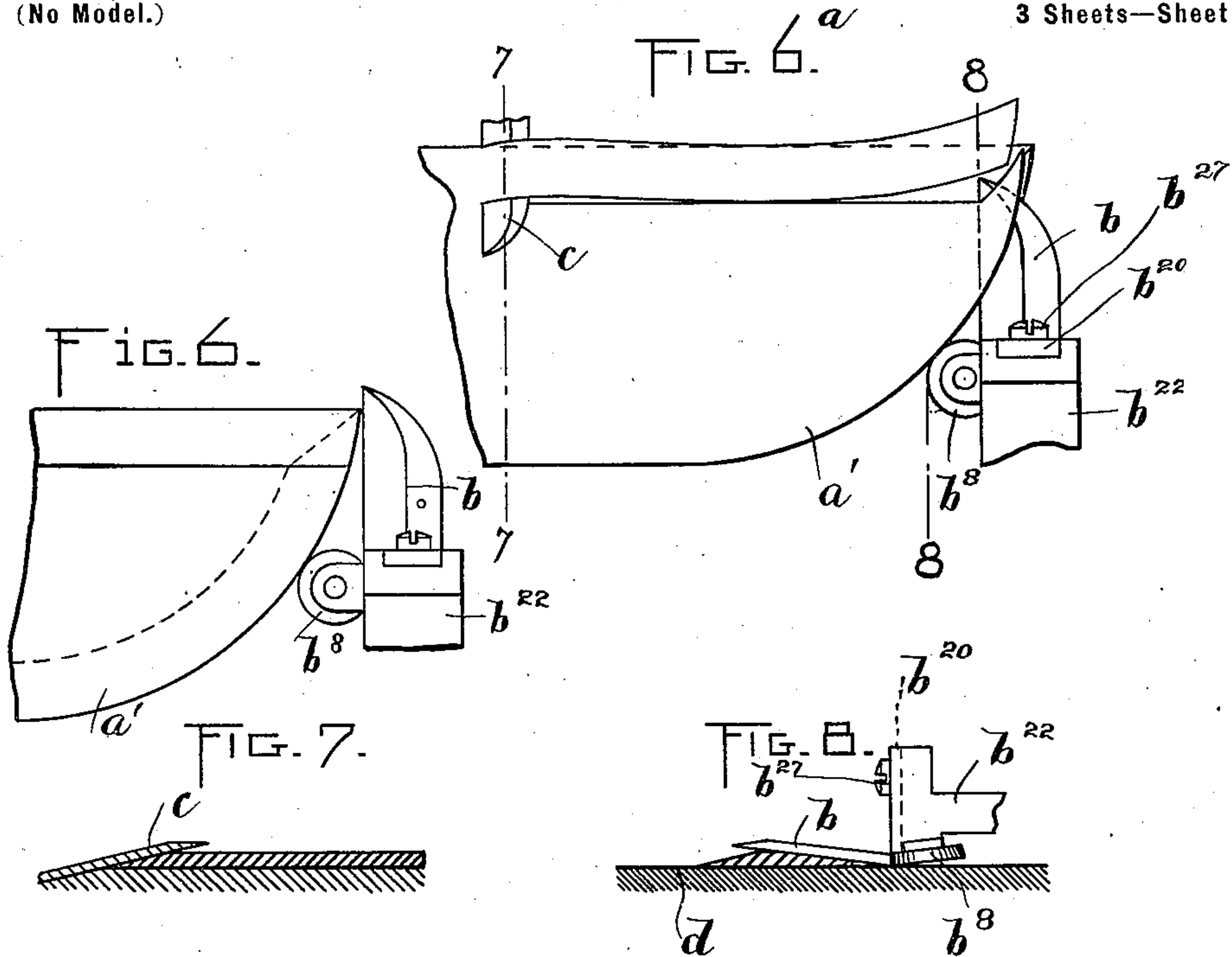
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

HAROLD A. WEBSTER, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO HERBERT B. NEWTON, OF SAME PLACE.

COUNTER-SKIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,824, dated July 3, 1900.

Application filed February 23, 1900. Serial No. 6,191. (No model.)

To all whom it may concern:

Be it known that I, HAROLD A. WEBSTER, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Counter-Skiving Machines, of which the following is a specification.

This invention has for its object to provide a machine for skiving at one operation both the straight and the curved edges of a heel-counter or counter-blank.

The invention also has for its object to provide improved means for feeding a blank, such as a heel-counter, to a knife or knives for skiving the same in such manner as to perfectly control the blank and keep it in a flat condition free from waves or wrinkles.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top plan view of a counter-skiving machine embodying my invention. Fig. 2 represents a side elevation of the same. Fig. 3 represents a side view of the tipping skiving-knife, hereinafter described, and its support. Fig. 4 represents a section on line 4 4 of Fig. 1. Fig. 5 represents a section on line 5 5 of Fig. 4. Figs. 6 and 6^a represent top views, each showing a portion of the counter-blank during the skiving operation. Fig. 7 represents a section on line 7 7 of Fig. 6. Fig. 8 represents a section on line 8 8 of Fig. 6. Fig. 9 represents a view similar to Fig. 6, showing the counter at a different stage in the skiving operation. Fig. 10 represents a section on line 10 10, Fig. 9.

The same reference characters indicate the same parts in all the figures.

An essential feature of my machine, so far as the operation of skiving the curved edge of a heel-counter *a* is concerned, is a tipping knife *b*, which normally stands in the path in which the counter is fed by the feeding and controlling mechanism, hereinafter described, and means controlled by the curved edge *a'* of the counter for varying the position of the tipping knife, the cutting edge of the knife being normally approximately or nearly parallel with the plane of the counter, so that in

meeting the advancing end of the counter formed by the intersection of the straight and curved edges the knife will stand nearly horizontally while first cutting into the counter, means being provided, which are controlled by the curved edge *a'* of the counter, for gradually increasing the inclination of the knife as the counter advances, so that after the knife has trimmed the end portion of the counter with an approximately-horizontal cut it will gradually assume a greater inclination which is maintained until the rear curved portion of the counter approaches the tipping knife, when the latter again gradually assumes its normal position and gives the rear end of the counter the same shape as the forward end. The tipping knife *b* is thus caused to skive the curved edge of the counter from end to end, so that the entire counter is skived at one operation, the machine being provided with a fixed skiving-knife *c*, adapted to skive the straight edge of the counter, as hereinafter described.

The tipping knife *b* is here shown as provided with an upwardly-projecting shank *b*²⁰ at one end, which shank is attached to the swinging end of a secondary arm *b*²², said arm being connected by a pivot-pin *b*²³ with a swinging primary arm *b'*, which is mounted to oscillate on a stud *b*², supported by a fixed ear *b*³⁰ on the frame of the machine. The secondary arm *b*²² projects over a progressively-moving flat bed, hereinafter described, said bed being composed of a series of sections *d* and adapted to support the counter and move it endwise against the tipping knife. The secondary arm is pressed downwardly by a spring *b*²⁴ toward the bed, and the primary arm is adapted to swing toward and from the bed to permit the knife to move endwise and follow the curvature of the portion *a'* of the blank on the bed. The spring *b*²⁴ is attached at one end to the primary arm *b'* and at the other end to the pivot-pin *b*²³. The secondary arm is attached by a set-screw *b*²⁵ to the pivot-pin. When said set-screw is loosened, the pin *b*²³ may be turned to vary the tension of the spring *b*²⁴ by a wrench applied to the squared end of the pivot-pin. The shank *b*²⁰ of the tipping knife is vertically adjustable on the end of the secondary arm *b*²² by means of a slot *b*²⁶

in the shank and a screw b^{27} passing through said slot and entering the secondary arm, the tipping knife being therefore vertically adjustable, so that the thickness of the skived edge formed by it on the counter can be varied. The primary arm b' is normally held with the cutting edge of the knife b projecting over the straight edge of the blank by means of a spring b^3 , one end of which is connected to an adjustable drum b^4 , held at any desired adjustment of tension of the spring by a ratchet b^5 and a pawl b^6 , the other end of the spring being connected to a stud b^7 on the arm b' .

b^8 represents a gage-roll pivoted to an ear on the secondary arm and projecting forward from the cutting edge of the knife b . The under side of the gage-roll bears on the blank supporting and feeding bed, as shown in Figs. 8 and 10, and its periphery bears against the edge of the blank just ahead of the knife b , as shown in Figs. 6, 6^a, and 9. Before the blank reaches the gage-roll the knife stands in the position shown in Fig. 6, its cutting edge being approximately parallel with the bed, although slightly inclined, and in position to skive the advancing end of the blank. As the knife b commences to make its cut the curved edge of the counter bears against the roll and exerts pressure thereon, displacing it, together with the knife b , from the normal position of the knife, as indicated in Figs. 6^a and 9, the knife being at the same time tipped and caused to form an inclined skived surface on the curved edge of the blank, as indicated in Figs. 8 and 10, said surface being continued along the straight portion of the edge between the curved portions. As the blank passes along the roll b^8 and the curved edge begins to recede the roll and knife are forced inwardly and follow the curvature of the blank, so that by the time the rear end of the counter reaches the knife the latter is once more in its normal position.

The fixed skiving-knife c , which is arranged to act on the straight edge of the counter, is suitably inclined to cut a uniform bevel along said straight edge and is preferably located in advance of the tipping knife b , as indicated in Figs. 1 and 6.

For feeding the counter against the knives b and c and at the same time holding it in a flat condition free from waves or wrinkles I employ a feeding mechanism comprising a progressively-moving bed, which is preferably composed of a series of sections $d d$, connected to form an endless chain, as shown in Figs. 2 and 4, said chain being supported by wheels $e e$, one of which is rotated by suitable means, such as a belt running from a pulley e' , attached to the shaft of the driven wheel. To the ends of the sections $d d$ are connected, by means of transverse pins or rods $f f$, sprocket-chains $g g$, which are engaged with sprocket-teeth formed on the wheels $e e$.

h represents a fixed table forming a part of the supporting-frame and arranged to support in a horizontal position the sections $d d$ forming the upper stretch of the chain, so that the said sections collectively form a continuous horizontal unyielding bed, as shown in Fig. 4. Above this rigidly-supported or acting portion of the bed are arranged a series of pressure-rolls i , which are preferably rolls of rigid material having trunnions which are journaled in vertically-movable bearings i' , fitted to slide in guides in a fixed frame j , said bearings being pressed yieldingly downward by means of springs l , supported by said frame.

It will be seen that the pressure-rolls i cooperate with the moving bed in supporting the counter a in a flat condition and controlling it while it is being skived, said bed and pressure-rolls being arranged to cooperate with the skiving-knives b and c . As here shown, the fixed knife c is arranged to project between two of the pressure-rolls, the tipping knife b being at the rear end of the series of rolls and projecting over the upper surface of the acting portion of the bed.

I do not limit myself to the conjoint use of the described feeding mechanism, the fixed skiving-knife, and the tipping skiving-knife, as it is obvious that the tipping knife may be used in connection with any other suitable feeding mechanism and with or without the fixed knife. It is further obvious that the described feeding mechanism may be used with one or more skiving-knives and that when used with one skiving-knife the same may be either the fixed knife c or the tipping knife b .

In Fig. 4 I show means for adjusting the chain of links or sections d , said means comprising an adjustable bearing k for the shaft of one of the wheels e , said bearing being attached by a bolt k' to a fixed bracket k^2 , which has a slot k^3 , through which the bolt k' passes, said slot permitting the adjustment of the bearing k .

I claim—

1. A counter-skiving machine comprising a tipping skiving-knife, means for feeding a counter against said knife, and means controlled by the curved edge of the counter, for varying the position of the knife.

2. A counter-skiving machine comprising means for feeding a counter lengthwise, a tipping skiving-knife yieldingly held with its cutting edge approximately parallel with the plane of the counter, and means controlled by the curved edge portions of the counter, for tipping or inclining the knife and varying its inclination.

3. A counter-skiving machine comprising means for feeding a counter, a skiving-knife, an oscillatory yielding arm which normally holds the knife in the path of the counter, with its cutting edge approximately parallel with the plane of the counter, and a gage on

said arm arranged to cooperate with the curved edge of the counter in tipping or inclining the knife.

4. A counter-skiving machine comprising means for feeding a counter, a skiving-knife, an oscillatory arm for supporting the knife and pivoted to an oscillatory support, springs acting on the arm and support to normally hold the knife with its cutting edge approximately parallel with the plane of the counter, and a gage on said arm adapted to cooperate with the curved edge of the counter in alternately displacing the knife from its normal position and permitting it to return thereto.

5. A counter-skiving machine comprising a fixed knife arranged to skive the straight edge of a counter, a tipping knife arranged to skive the curved edge of the counter, means for feeding a counter against said knives, and means controlled by the curved edge of the counter for varying the position of the tipping knife.

6. A counter-skiving machine comprising counter holding and feeding mechanism, including a progressively-moving rigid or unyielding counter-supporting bed and a series of holding-down rolls cooperating with the bed, and a skiving-knife inclined relatively to the bed and arranged to skive one edge of the blank.

7. A counter-skiving machine comprising counter holding and feeding mechanism, including a progressively-moving counter-supporting bed and a series of holding-down rolls cooperating with the bed, a skiving-knife lo-

cated in the path in which the counter is moved by said bed and rolls, said knife having a tipping movement, and means controlled by the curved edge of the counter for varying the position of the tipping knife.

8. A counter-skiving machine comprising counter holding and feeding mechanism including a progressively-moving counter-supporting bed and a series of holding-down rolls cooperating with the bed, skiving-knives located in the path of the counter, one of said knives being fixed and arranged to act on the straight edge of the counter, while the other is adapted to tip and is arranged to act on the curved edge of the counter, and means controlled by the said curved edge for varying the position of the tipping knife.

9. A counter-skiving machine comprising an endless counter-supporting bed composed of sections connected to form an endless chain, wheels for supporting and propelling said bed, a fixed support for one of the stretchers of the bed, a series of pressure-rolls located over the supported portion or stretch of the bed and arranged to cooperate with the bed, and inclined skiving-knives arranged to skive the edges of the counter while it is being fed by the bed and rolls.

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

HAROLD A. WEBSTER.

Witnesses:

C. F. BROWN,
E. BATCHELDER.