

(No Model.)

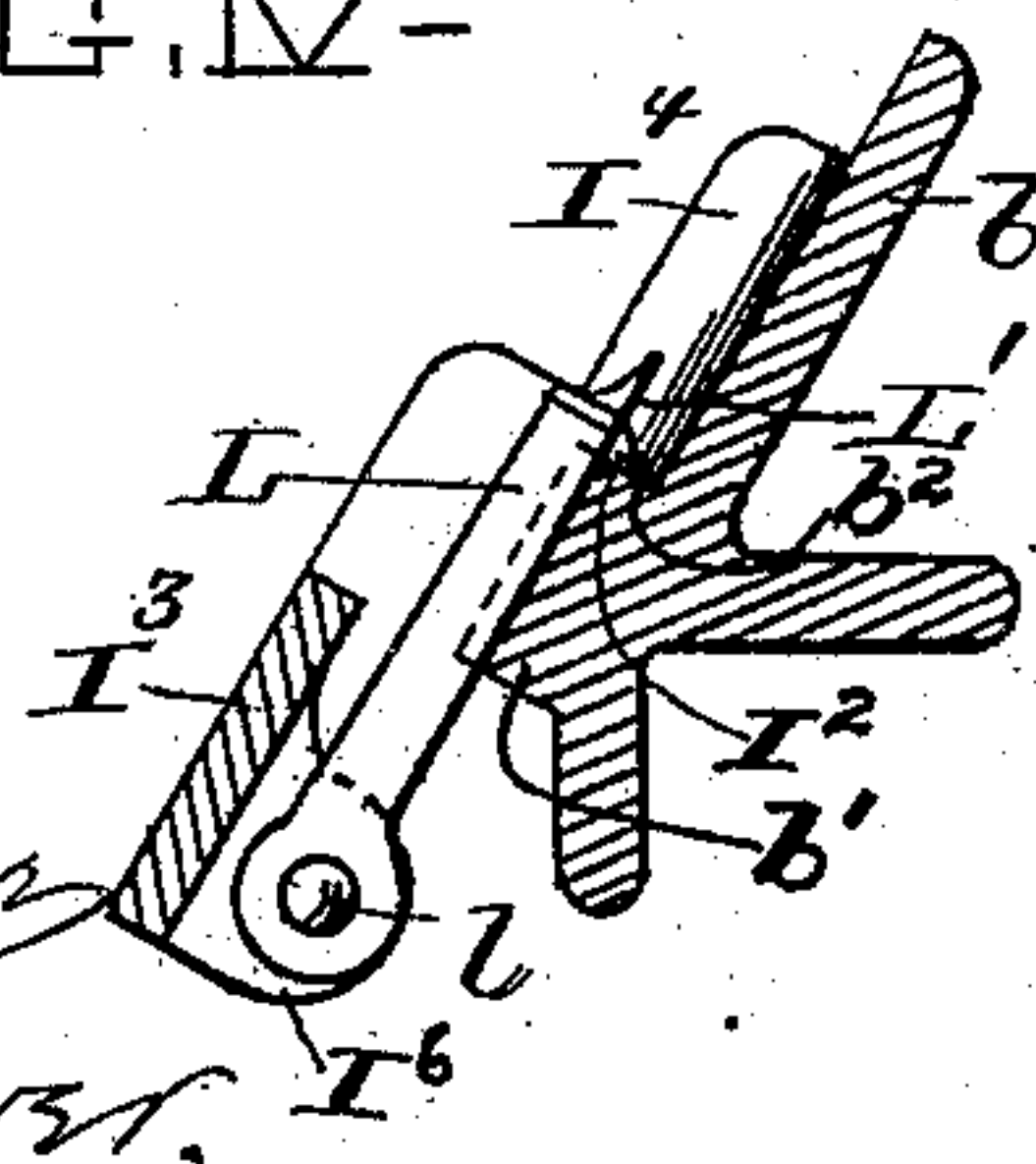
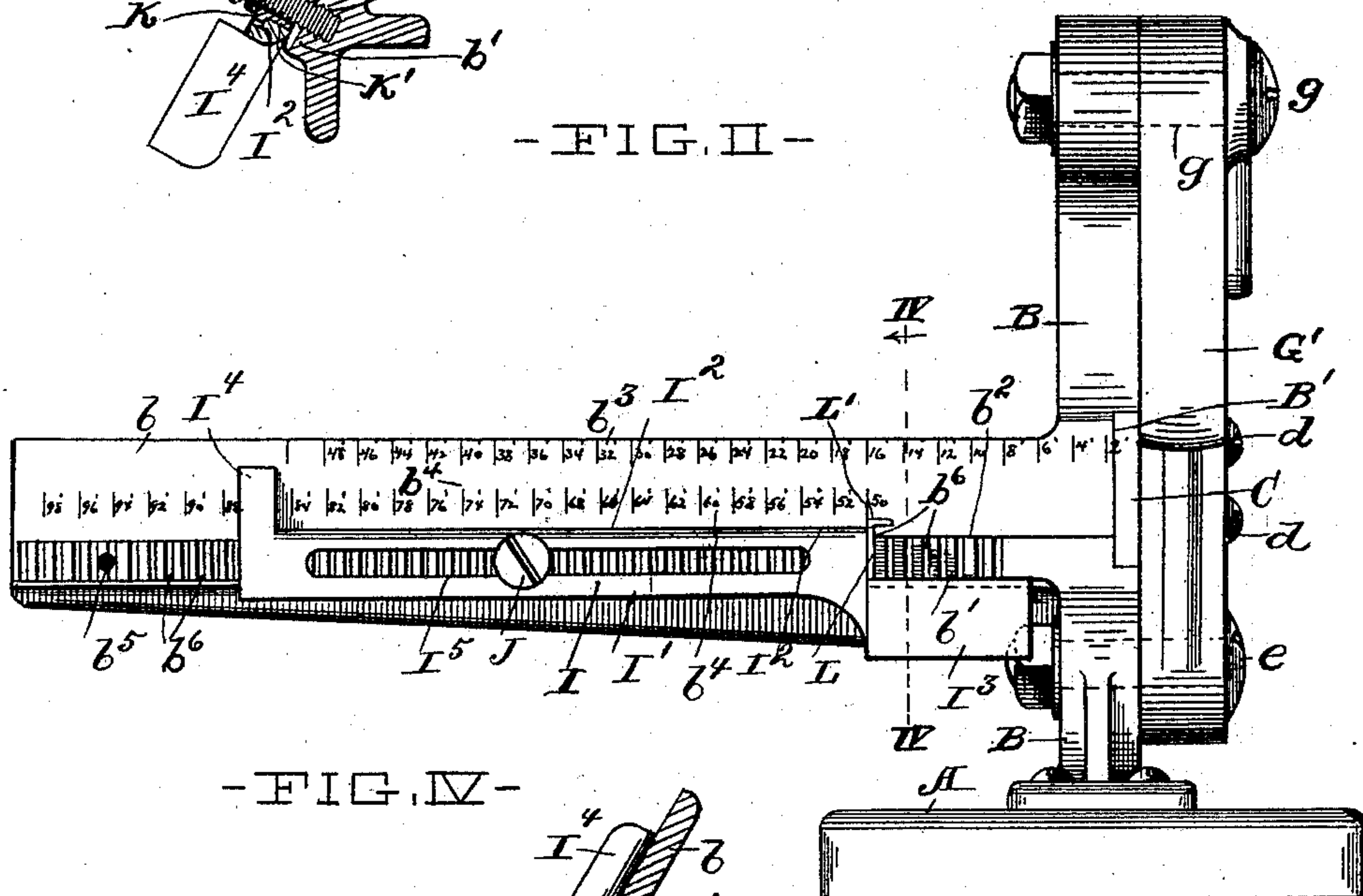
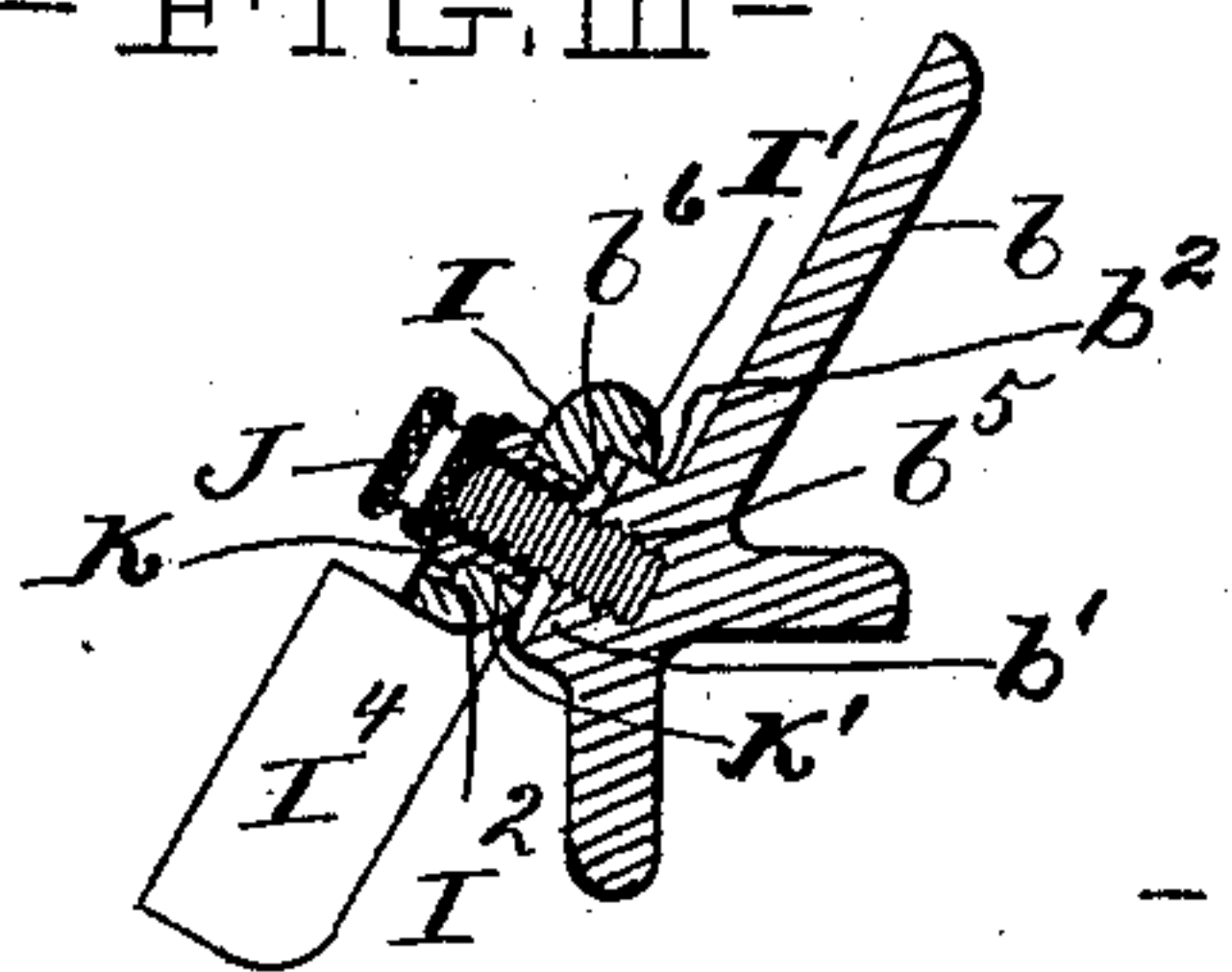
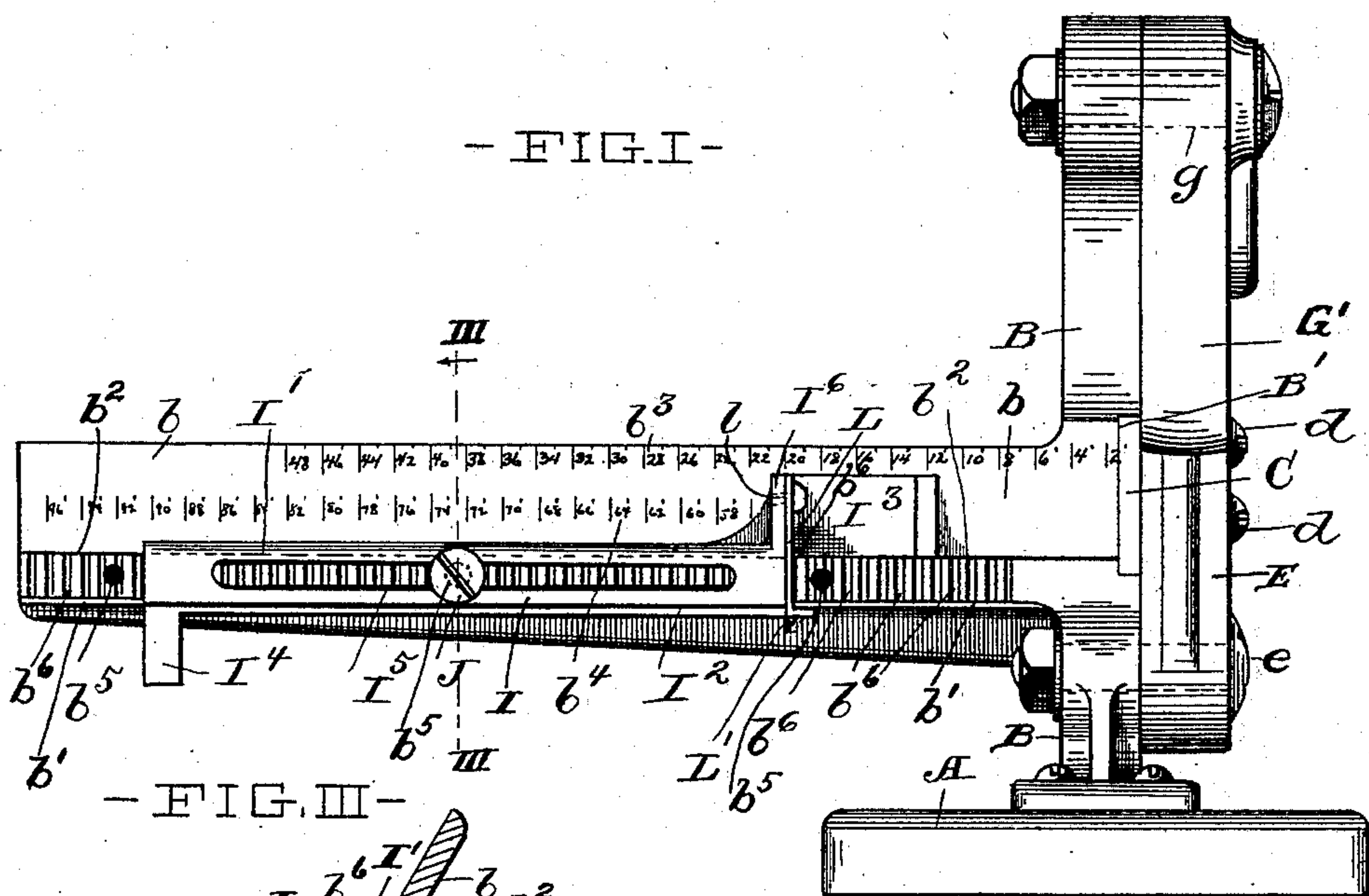
2 Sheets—Sheet 1.

F. A. BURNHAM.

MACHINE FOR CUTTING PRINTERS' LEADS AND METALLIC RULES.

No. 580,658.

Patented Apr. 13, 1897.



WITNESSES:

J. C. Turner
L. Ward Hoover.

INVENTOR

Frank A. Burnham

BY

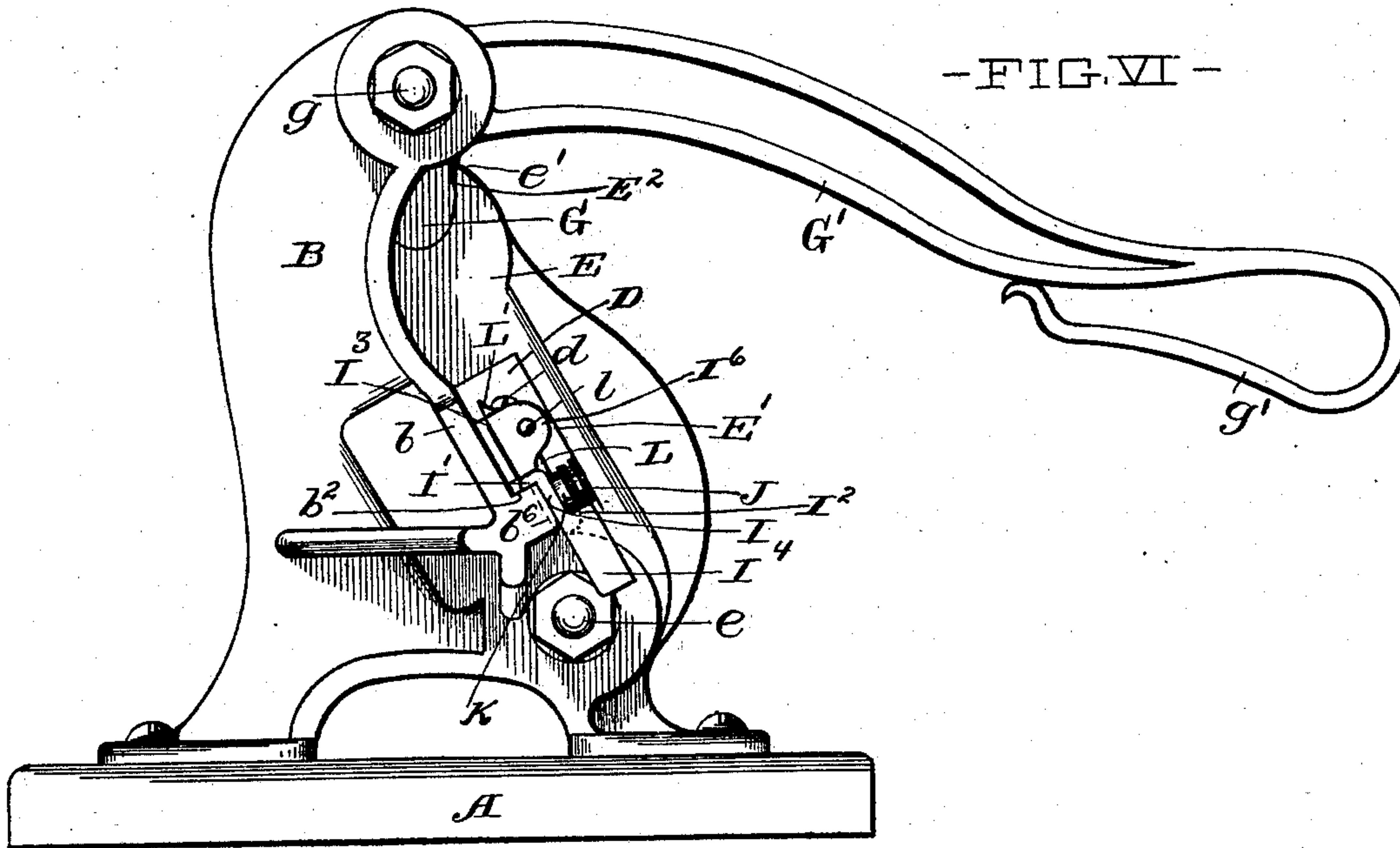
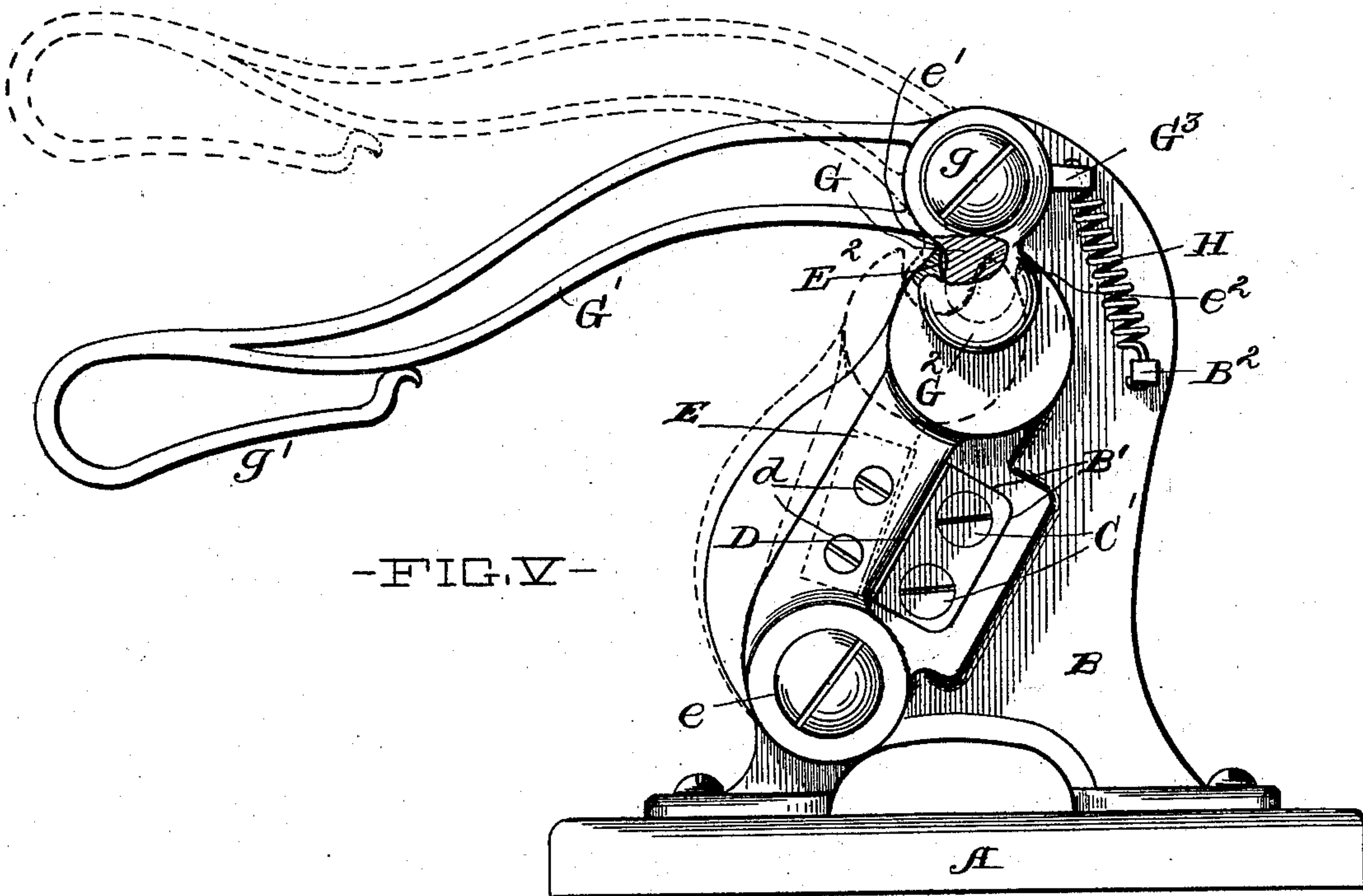
Synch. Dorer & Sonnelly

his ATTORNEYS.

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UNITED STATES PATENT OFFICE.

FRANK A. BURNHAM, OF CLEVELAND, OHIO, ASSIGNOR TO THE CHANDLER
& PRICE COMPANY, OF SAME PLACE.

MACHINE FOR CUTTING PRINTERS' LEADS AND METALLIC RULES.

SPECIFICATION forming part of Letters Patent No. 580,658, dated April 13, 1897.

Application filed December 9, 1896. Serial No. 615,072. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. BURNHAM, of Cleveland, Cuyahoga county, Ohio, have invented certain new and useful Improvements in Machines for Cutting Printers' Leads and Metallic Rules; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in machines for cutting printers' leads and metallic rules; and it consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

The object of my invention is to provide a machine of the character indicated that is more simple, convenient, and efficient than the cutting-machines heretofore devised.

In the accompanying drawings, Figures I and II are front side elevations of a cutting-machine embodying my invention. Fig. III is a somewhat-enlarged vertical section on line III III, Fig. I. Fig. IV is a somewhat-enlarged vertical section on line IV IV, Fig. II. Figs. V and VI are opposite end views of the machine. Portions are broken away and in section in Fig. V.

Referring to the drawings, A designates the horizontally-arranged supporting-base of the machine. An upright arm or standard B is suitably secured to said base and is provided with a laterally and leftward extending arm *b*, that preferably just below its central portion is provided with a forwardly-projecting tenon or tongue *b'*, extending longitudinally of the arm. The upper side *b*² of said tenon or tongue forms the seat for the metallic strip or work required to be gaged and cut, and the forward side of arm *b* above tongue or tenon *b'* forms a back-rest for the work. This back-rest inclines upwardly and rearwardly, by which construction the strip of lead or metallic rule when introduced into the machine will readily become evenly seated by gravity from end to end upon the upper or seat-forming side of tenon or tongue *b'*, and the seat *b*² inclines forwardly and upwardly at right angles to the back-rest.

C designates the stationary knife of the machine. Said knife is seated in a recess or pocket B', formed in the forward and right-hand sides of standard B at the right-hand end of arm *b*, to which said knife is removably secured by screws C'. The cutting edge of this knife is formed upon the right-hand forward corner of the knife-forming plate or block, and, together with the forward edge of said block or plate, inclines upwardly and rearwardly to conform to the upward and rearward inclination of and is flush with the work's back-rest. The movable knife D is removably secured, by means of screws *d*, within a recess or pocket E', formed in the rear and left-hand sides of a forwardly and rearwardly tilting arm E, that is horizontally pivoted or fulcrumed at its lower end at *e* and below arm *b* to standard B. The movable knife is arranged to coöperate with the stationary knife, and the cutting edge of the movable knife is consequently formed upon the rear and left-hand extremity of the movable knife and has its sweep next to the right-hand side of the stationary knife. Arm E is bifurcated at its upper end, and the slot E² within said bifurcated end has its lower wall rounded and engaged by the correspondingly-rounded lower end of the depending short arm G of a bell-crank lever that is horizontally fulcrumed at *g* to the upper end of standard B, and the long arm G' of said lever extends forwardly and at its forward end terminates in a handle *g'*. By this construction it will be observed great power is attained, and this, of course, is desirable in machines of the character indicated.

The short arm of the bell-crank lever is provided with a flange G², that overlaps the right-hand or outer side of the upper end of arm E and prevents springing of the movable knife from the stationary knife during the cutting operation. A spiral spring H, attached at one end to a lug G³, formed upon and projecting rearwardly from the bell-crank lever at the axis of said lever and attached at its opposite end to a lug B², formed upon and projecting laterally and rightward from the standard B, acts to retain the movable knife in its normal position, and conse-

quently facilitates the return of said knife into said position upon the completion of the cutting operation. The forward and rear walls of slot E^2 diverge upwardly, and said slot above its lower rounded wall is wider than the lever-arm's position that engages the upper portion of the slot to accommodate the operation of the lever. Two shoulders e' and e^2 are formed at the upper extremities of arm E at the front side and rear side, respectively, of slot E^2 . In solid lines, Figs. V and VI, is shown the position of arm E and engaging lever upon the completion of a cutting operation, and in this position shoulder e' is engaged by the forward side of lever-arm G' and prevents the lever and engaging knife-bearing arm from moving farther in the direction in which they are moved when the machine is cutting. In dotted lines, Fig. V, is shown the normal position of the bell-crank lever and the engaging knife-bearing arm, and in this position shoulder e^2 is engaged by the rear side of lever-arm G' and prevents the return movement of said parts after the cutting operation beyond their normal position.

The device for gaging the length of the lead or rule to be cut comprises a longitudinally-adjustable bar I, that is slidably mounted upon tongue or tenon b' and is rigidly secured in the desired longitudinal adjustment by a set-screw J, that is adapted to engage any one of several screw-threaded holes b^5 , formed in said tenon or tongue. Bar I extends longitudinally of the tongue or tenon and is provided with two parallel flanges I' I^2 , formed upon its opposite sides, respectively, and a suitable distance apart. Said flanges extend longitudinally of the bar, and the flange that is at the rear side of the bar overlaps the upper side of the slideway-forming tongue or tenon and is instrumental in supporting the bar from said tongue or tenon. The two flanges I' and I^2 accommodate a lateral reversal of bar I. Said bar is also provided with two gage-forming lugs or flanges I^3 and I^4 , formed upon opposite ends, respectively, and at opposite sides, respectively, of the bar. Lug or flange I^3 , that is at the right-hand end of the bar, is arranged to rest upon the work's seat b^2 and abut the back-rest in one of the lateral positions of said bar and is employed in gaging the shorter and medium leads and rules. Lug or flange I^4 , that is at the left-hand end of the bar, is arranged to abut the back-rest when it rests upon the work's seat in the other or reverse lateral position of the bar and is employed in gaging longer leads and rules.

A scale b^3 , marked upon the upper portion of the back-rest, is used in conjunction with the gage I^3 at the right-hand end of the sliding bar, and another scale b^4 , marked upon the lower portion of said rest, is employed in conjunction with the gage I^4 , formed upon the left-hand end of said bar. Both of said

scales extend from right to left, and scale b^4 constitutes a continuation of scale b^3 , and gage I^4 , that is designed to begin its work at the limit of the gaging capacity of gage I^3 , is capable of gaging work that is much longer than arm b .

The slot I^5 in bar I, and through which set-screw J extends, is long enough to accommodate the longitudinal adjustment of the gage-bar, and a washer K is interposed between the head of the set-screw and forward side of said bar, and has a portion K' thereof projecting rearwardly into said slot and easily fitting between the top and bottom walls of the slot, as shown in Fig. III.

The gage-bar is locked in the desired longitudinal adjustment and thereby prevented from displacement while it is secured by set-screw J, by a movable latch L, whose one end is pivoted horizontally and longitudinally of bar I, as at l , to a lug or ear I^6 , formed upon the right-hand end of said bar at the inner end of gage-forming member I^3 . Latch L is arranged to engage any one of the series of vertical or upright notches b^6 , formed at equal distances apart in the forward side of tongue or tenon b' . Adjacent notches are separated a distance equal to the distance between the graduations of scales b^3 and b^4 . By tilting this latch forwardly out of engagement with the opposite notch and loosening screw J bar I is rendered free to be moved longitudinally. The sweep of this latch is forward of gage I^3 when the latter is in an operative position, as shown in Fig. I, and is at the rear of said gage when gage I^4 is in its working position, as shown in Fig. II. The pivotal attachment of this latch accommodates its location between two adjacent notches b^6 , out of engagement with any notch, when odd lengths, for which notches b^6 have not been provided, are to be cut by the machine.

A pointer L' for the lower scale b^4 is preferably formed upon the free end of latch L.

What I claim is—

1. A cutting-machine of the character indicated, comprising a standard having a laterally-extending arm provided with the seat and back-rest for the work, the stationary knife arranged flush with the back-rest at one end of said arm, the movable knife having its sweep next adjacent to the stationary knife, and the laterally-reversible gage-bar provided with means for supporting it from the work's seat in either lateral position of the bar, and provided at one end with a gage-forming member rendered operative in one of the lateral positions of the bar, and having, at its other end, another gage-forming member arranged to be rendered operative in the reverse lateral position of the bar, substantially as and for the purpose set forth.

2. A cutting-machine of the character indicated, comprising a standard having a laterally-extending arm provided with the seat and back-rest for the work; a stationary knife

arranged flush with the back-rest at one end of the bar; a movable knife having its sweep next adjacent to the stationary knife; a longitudinally-adjustable and laterally-reversible gage-bar having two lateral flanges arranged longitudinally thereof and formed upon opposite sides, respectively, and at the top and bottom, respectively, of the bar, said bar provided, at one end and at one side, with a gage-forming member arranged to be rendered operative in one of the lateral positions of the bar, and the bar having, at its opposite side and opposite end, another gage-forming member arranged to be rendered operative in the reverse lateral position of the bar, and means for holding the bar in the desired longitudinal adjustment, substantially as and for the purpose set forth.

3. A cutting-machine of the character indicated, comprising a standard having a laterally-extending arm shaped to form a rearwardly and upwardly inclining back-rest for the work, and provided, upon its forward side, with the forwardly-projecting tongue or tenon b' ; the stationary knife C; the movable knife D; the longitudinally-adjustable and laterally-reversible gage-bar I having the lateral and longitudinal flanges I^1 and I^2 and the gage-forming lugs or flanges I^3 and I^4 , and means for holding the bar in the desired adjustment, all arranged and operating substantially as shown, for the purpose specified.

4. A cutting-machine of the character indicated, comprising a standard having a laterally-extending arm shaped to form a back-rest and provided, at the lower extremity of the back-rest, with a forwardly-projecting tongue or tenon arranged longitudinally of the arm and having a series of notches arranged at equal intervals; the stationary knife arranged flush with the back-rest at one end of the arm; the movable knife having its sweep next adjacent to the stationary knife; the longitudinally-adjustable gage-bar provided with means for supporting it from the aforesaid tongue or tenon, and the forwardly and rearwardly tiltable latch pivoted to said arm and arranged to engage a notch of the aforesaid series of notches, substantially as and for the purpose set forth.

5. A cutting-machine of the character indicated, comprising a standard having a laterally-extending arm having a back-rest for the work, and provided, at the lower extremity of said rest, with a forwardly-projecting tongue or tenon arranged longitudinally of the arm and having a series of notches arranged at equal intervals; the stationary knife arranged flush with the back-rest at one end of the arm; a movable knife having its sweep next adjacent to the stationary knife; the longitudinally-adjustable and laterally-reversible gage-bar provided with means for supporting it from the aforesaid tongue or tenon, said bar provided, at one end and at one side, with a gage-forming member arranged to be rendered operative in one of the

lateral positions of the bar, and said bar having, at its opposite side and opposite end, another gage-forming member arranged to be rendered operative in the reverse lateral position of the bar, and a forwardly and rearwardly tiltable latch supported from said bar at or near the inner end of one of said gage-forming members and arranged to engage a notch of the aforesaid series of notches in the operative position of either gage-forming member of the bar, substantially as set forth.

6. A cutting-machine of the character indicated, comprising a standard having a laterally-extending arm shaped and arranged to form a seat and a rearwardly and upwardly inclining back-rest for the work; a stationary knife arranged flush with the back-rest at one end of said arm; a movable knife having its sweep next adjacent to the stationary knife; a laterally-reversible gage-bar provided with means for supporting it from the work's seat in either lateral position of the bar, and provided at one end with a gage-forming member arranged to be rendered operative in one of the lateral positions of the bar, and having, at the other end, another gage-forming member arranged to be rendered operative in the reverse lateral position of the bar, and the two scales b^3 b^4 formed upon the upper portion and lower portions, respectively, of the back-rest, all arranged and operating substantially as shown, for the purpose specified.

7. In a cutting-machine of the character indicated, the combination with the standard having a rest for the work, a stationary knife at one end of said rest, the forwardly and rearwardly tiltable arm pivoted or fulcrumed, at its lower end, and provided with a knife arranged to cooperate with the stationary knife, and said knife-bearing arm being bifurcated at its upper end, and a bell-crank lever supported from the upper end of the standard and comprising a forwardly-extending arm and a short arm engaging a slot in the bifurcated end of the knife-bearing arm; of the flange G^2 formed upon said short arm of the lever and overlapping the outer side of the knife-bearing arm, substantially as shown, for the purpose specified.

8. A cutting-machine of the character indicated, comprising a standard having a laterally-extending arm shaped to afford a support for the work; means for gaging the work; a stationary knife arranged at one end of said arm; a forwardly and rearwardly tiltable arm pivoted or fulcrumed at its lower end, and provided with a knife arranged to cooperate with the stationary knife, said knife-bearing arm being provided, in its upper end, with an upright slot E^2 that is open at the top and has a rounded lower wall; a bell-crank lever supported from the upper end of the standard, said lever comprising a forwardly-extending arm and a depending short arm rounded at its lower end and engaging the lower end of said slot and narrower than said

slot above its rounded end; the shoulders e'
and e^2 formed at the upper extremities of the
slotted arm at the front side and rear side,
respectively, of the slot, and a spring acting
5 to retain the knife-bearing arm and engaging
lever in their normal position, substantially
as shown, for the purpose specified.

In testimony whereof I sign this specifica-
tion, in the presence of two witnesses, this 24th
day of November, 1896.

FRANK A. BURNHAM.

Witnesses:

C. H. DORER,
ELLA E. TILDEN.