

L. COTÉ.

Machine for Shaping Counter-Stiffeners.

No. 223,436.

Patented Jan. 13, 1880.

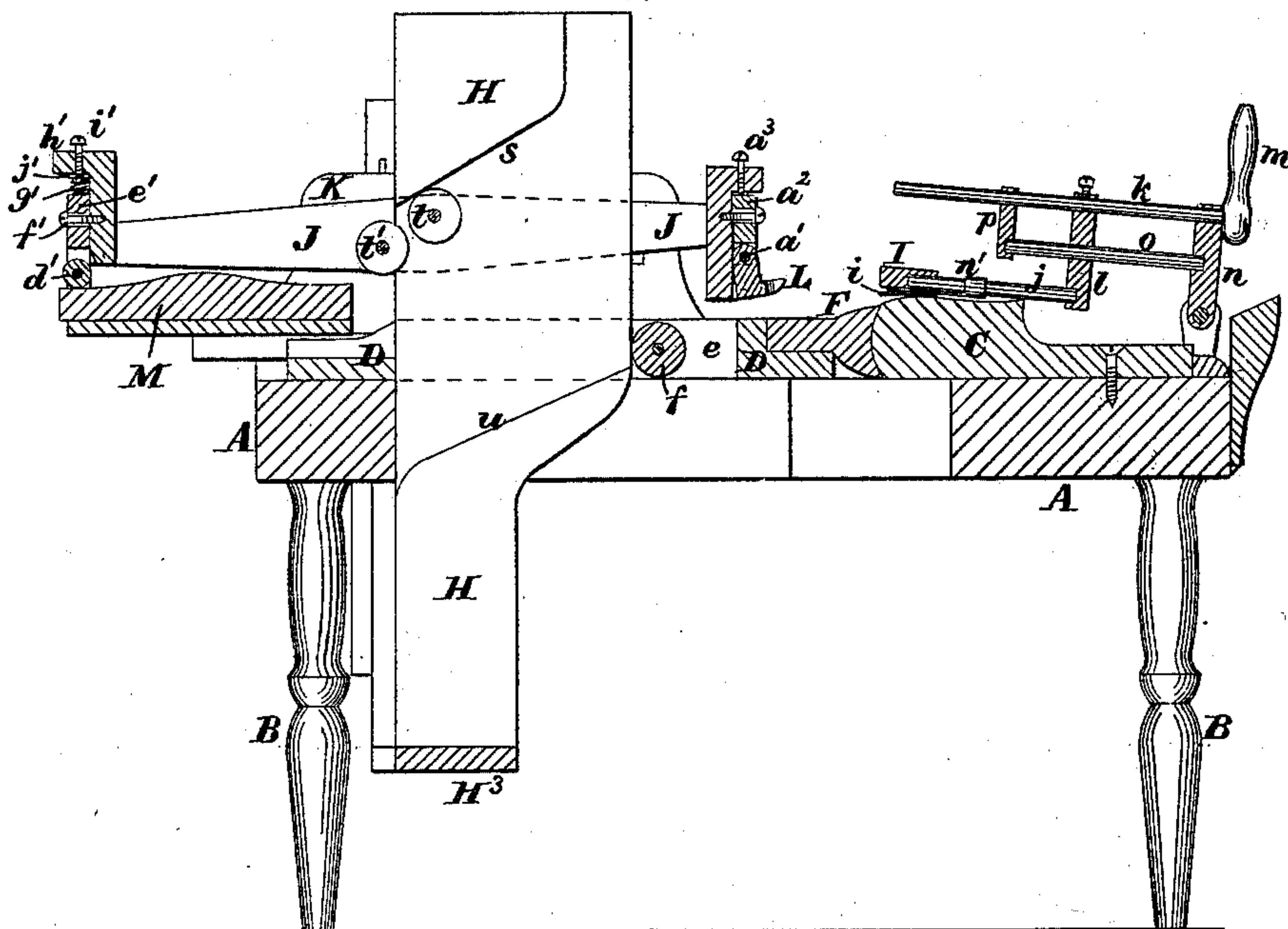


Fig. 2.

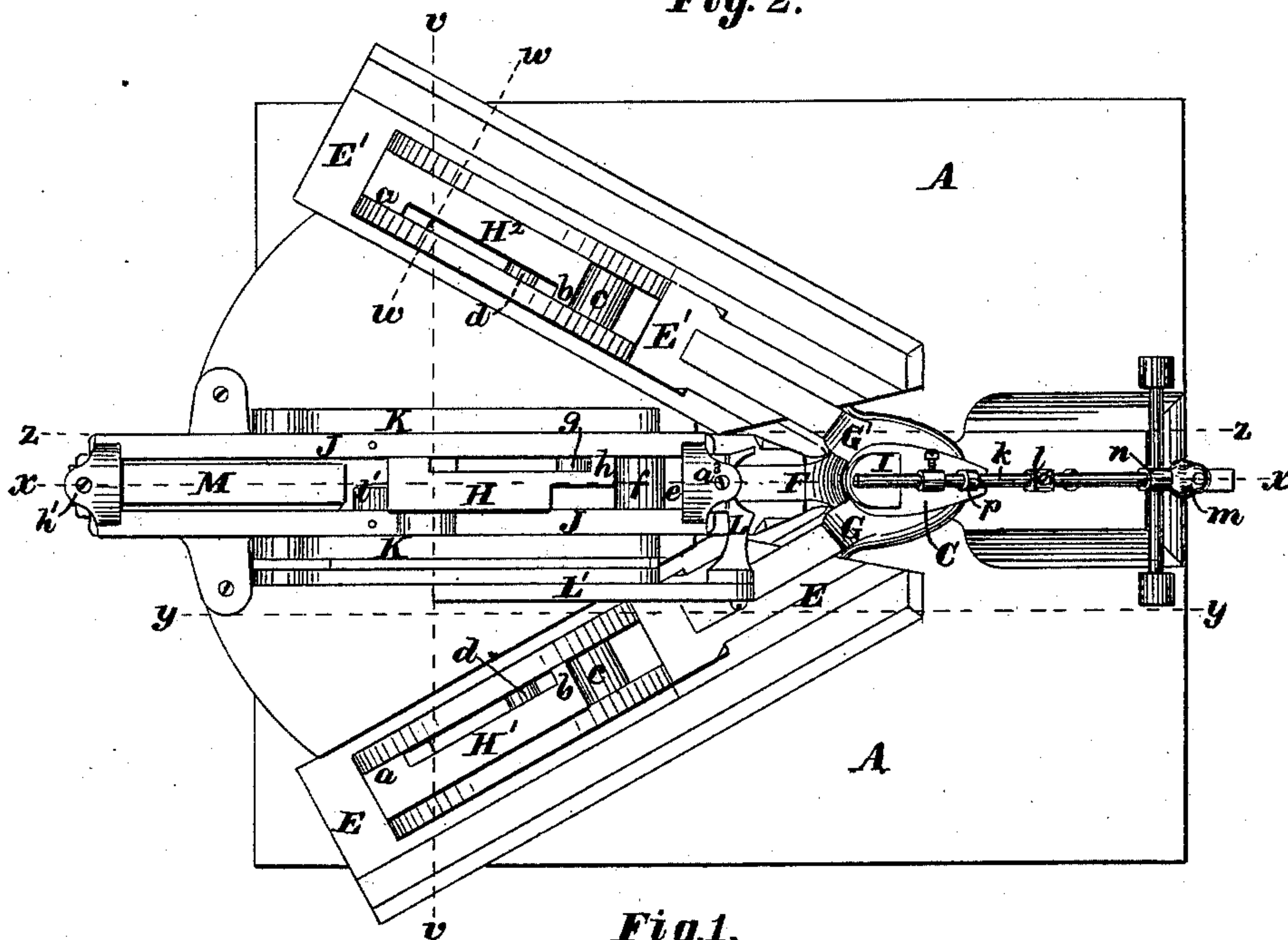


Fig. 1.

Witnesses:

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Walter O. Lombard.

Inventor:

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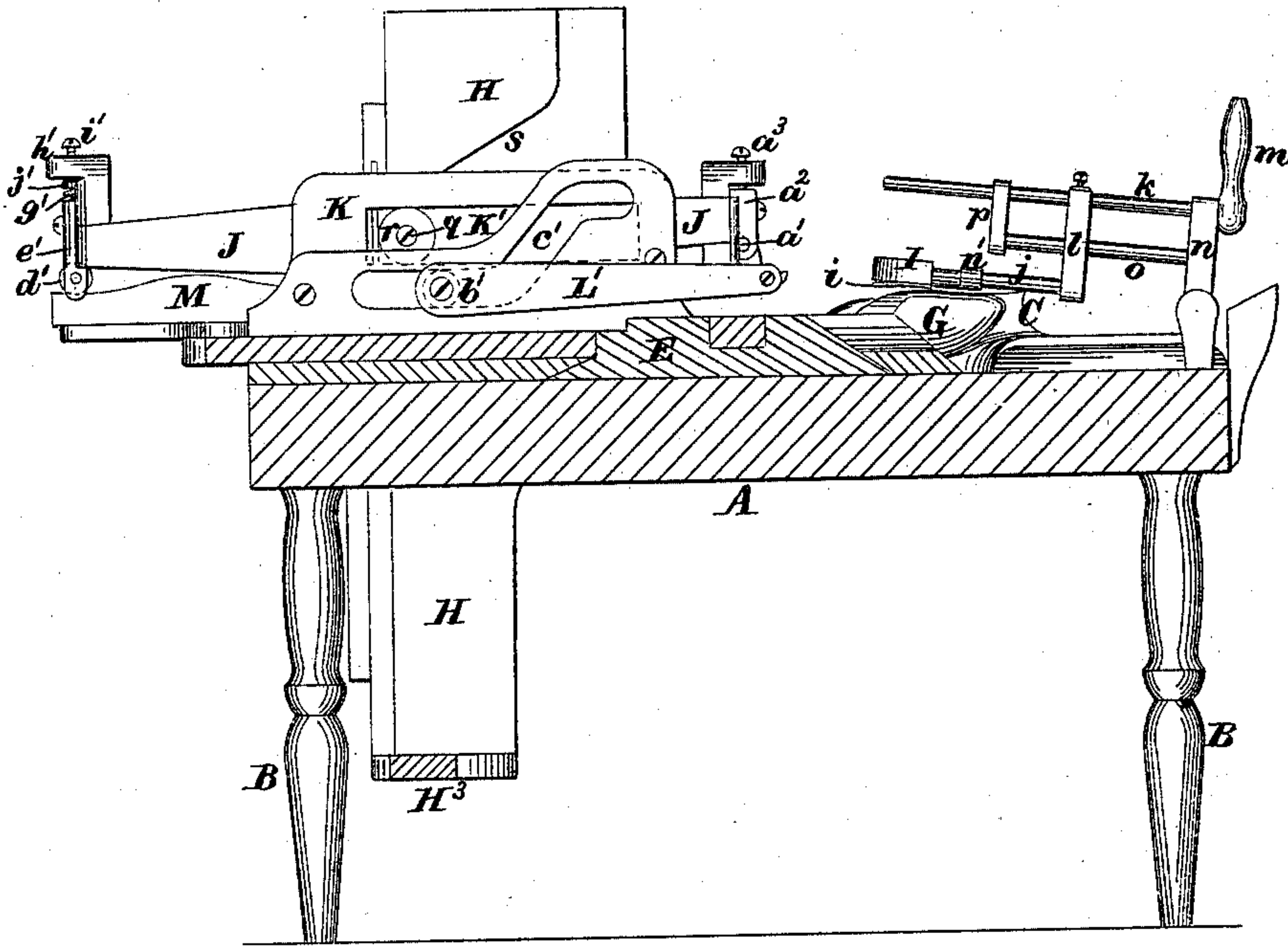


Fig. 2.

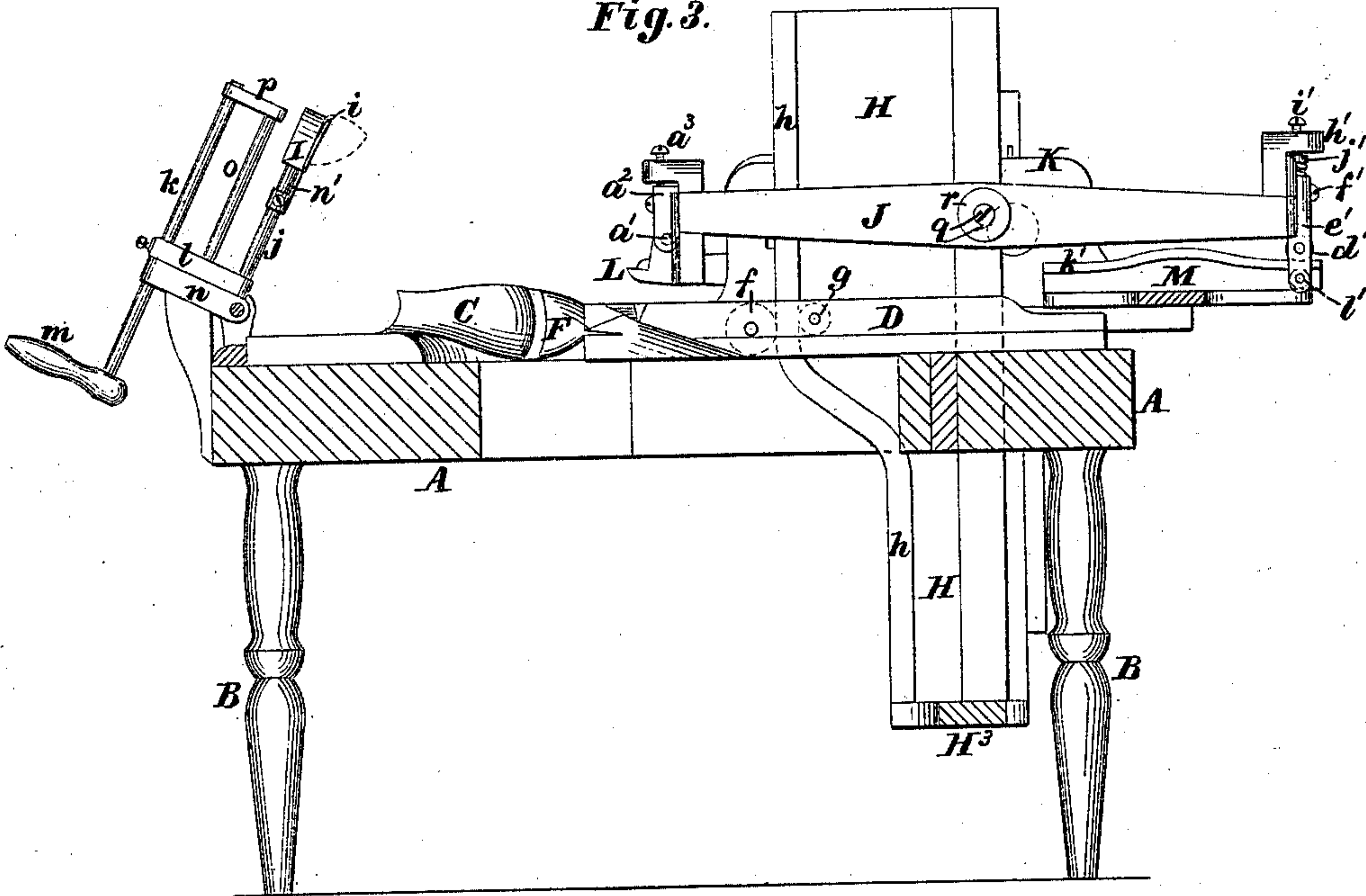


Fig. 3.

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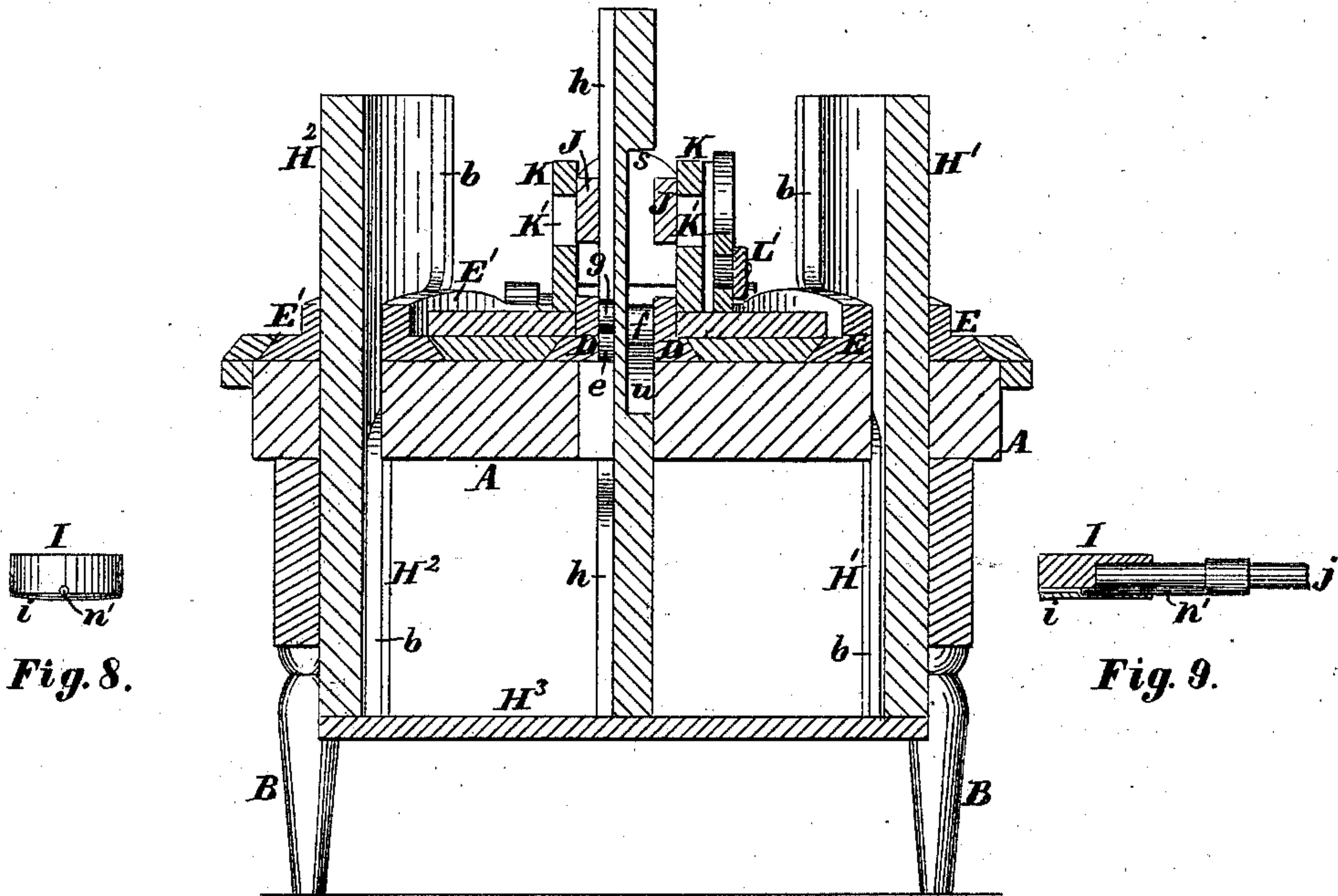


Fig. 5.

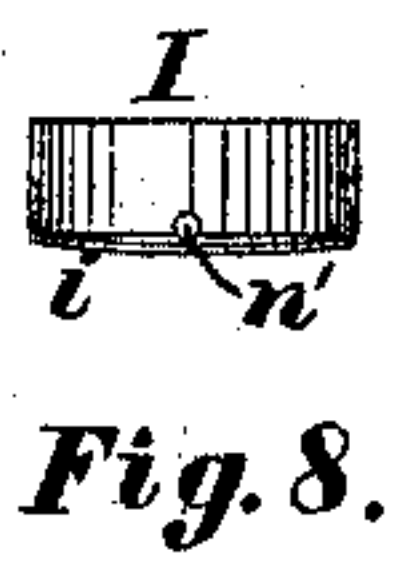


Fig. 8.

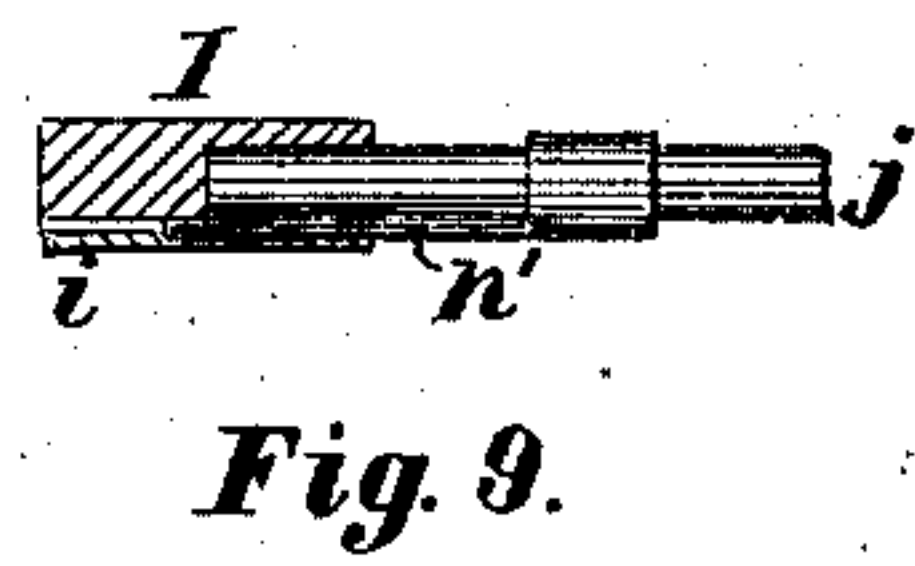


Fig. 9.

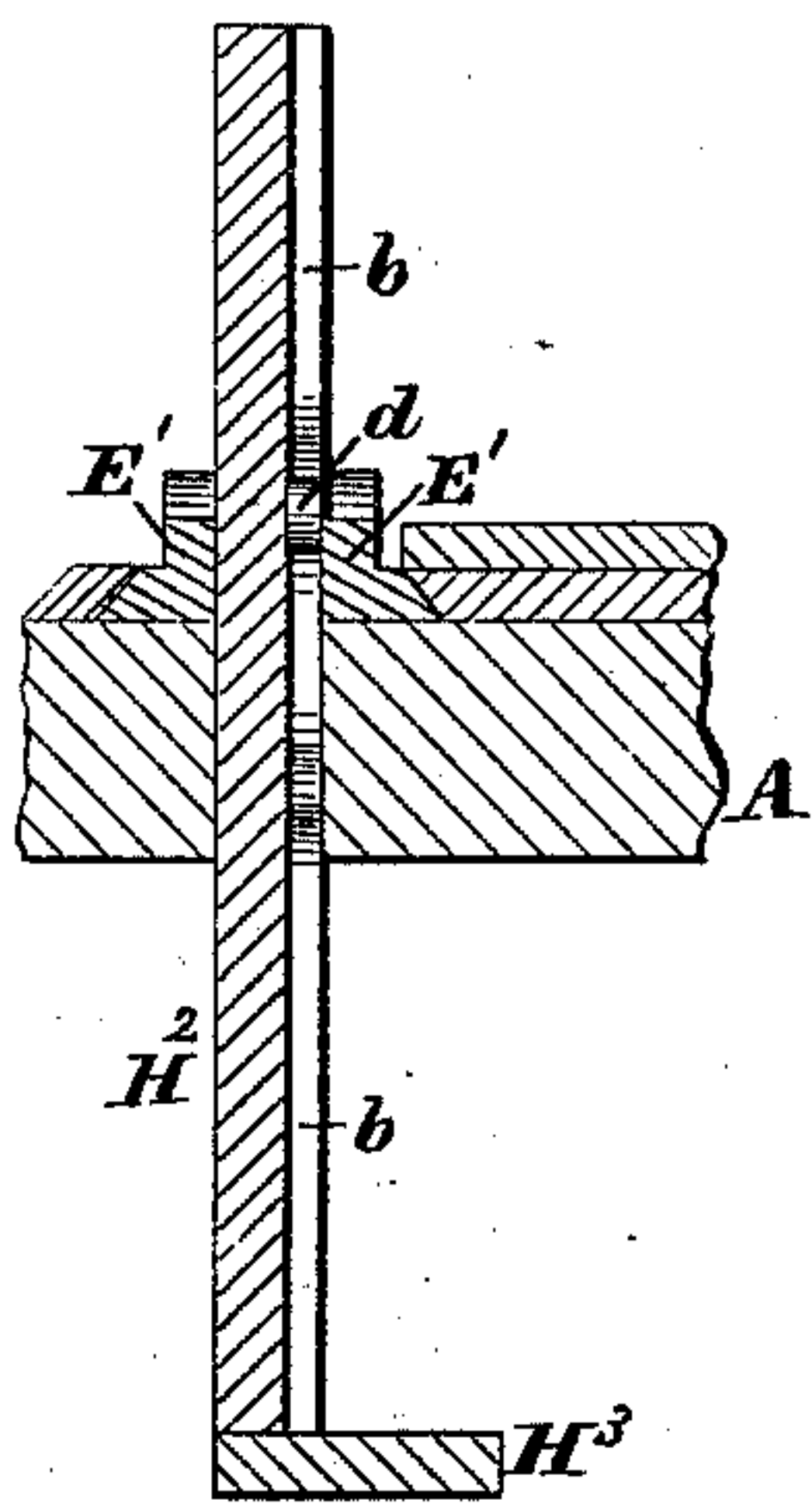


Fig. 6.

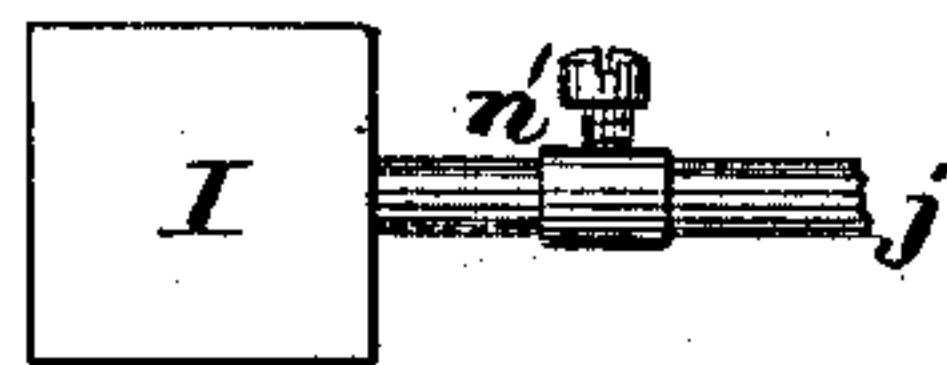


Fig. 11.

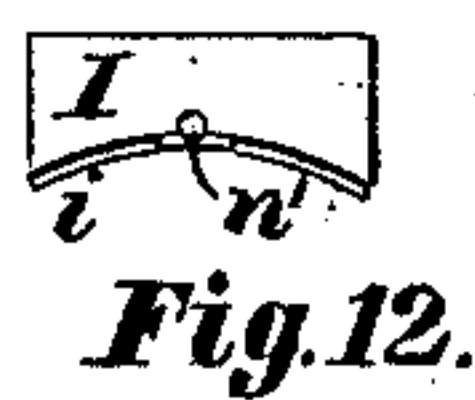


Fig. 12.

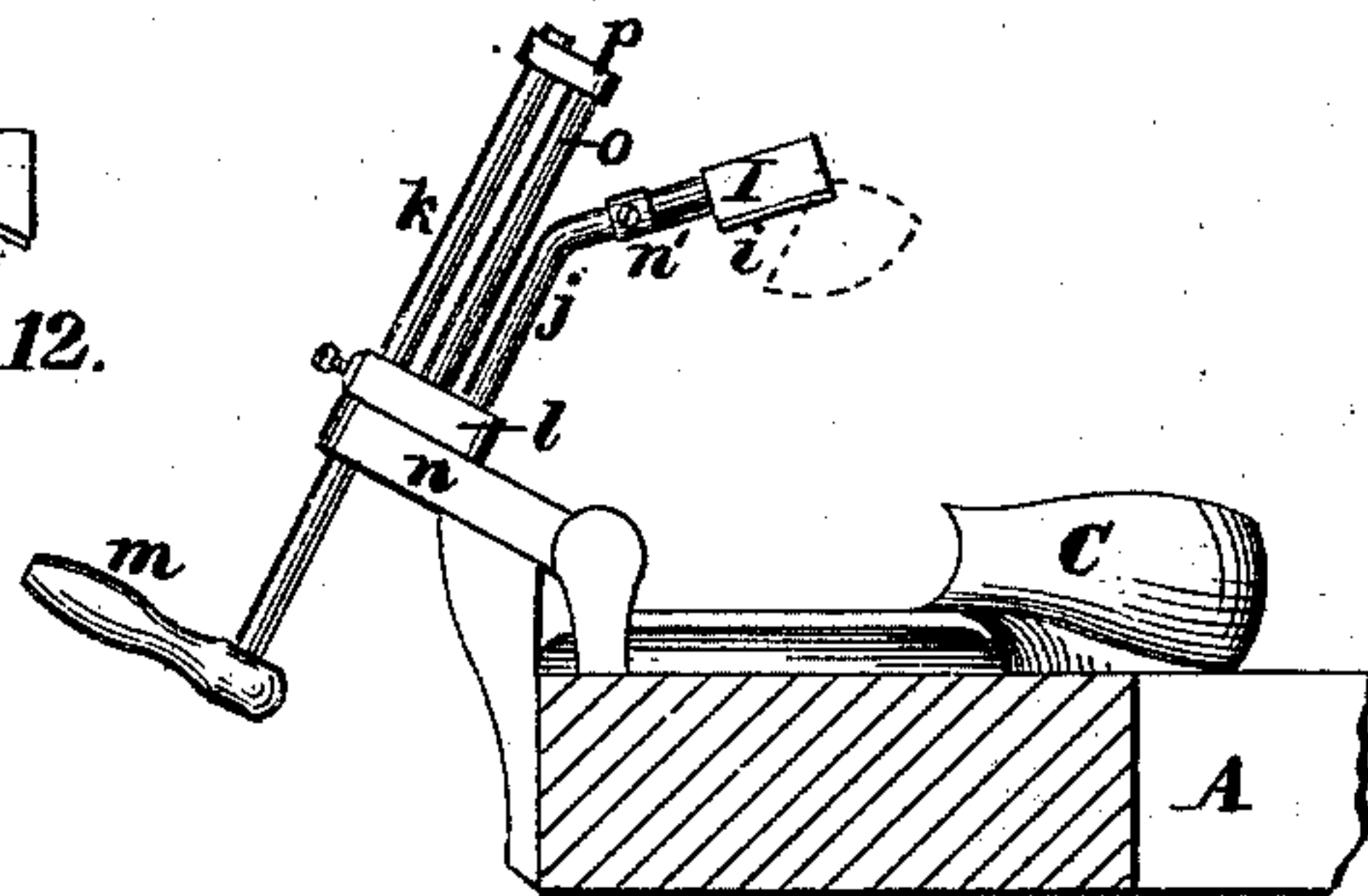


Fig. 10.

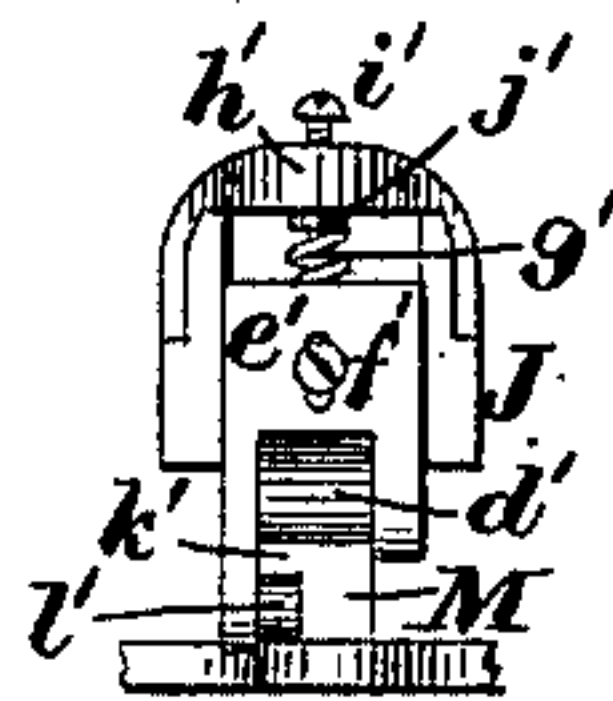


Fig. 7.

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UNITED STATES PATENT OFFICE.

LOUIS COTÉ, OF ST. HYACINTHE, QUEBEC, CANADA.

MACHINE FOR SHAPING COUNTER-STIFFENERS.

SPECIFICATION forming part of Letters Patent No. 223,436, dated January 13, 1880.

Application filed November 14, 1879.

To all whom it may concern:

Be it known that I, LOUIS COTÉ, of St. Hyacinthe, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Machines for Shaping Counter-Stiffeners, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a machine for finishing boot and shoe counter stiffeners after they have been partially formed or shaped by a previous operation; and it consists, first, in the combination, with a last or heel-shaped former and one or more movable clamping-jaws adapted to press the partially-formed counter-stiffener and hold it upon said former, of a reciprocating flange pressing and finishing tool adapted to yield or be moved in a direction at right angles, or nearly so, to its general path of reciprocation, for the purpose of accommodating itself to the varying thickness of the stock and to the curvature of the heel-seat of the last, whether said heel-seat be composed of a single curve in one direction or of two reverse curves, as will be described.

It further consists in the combination of a last or heel-shaped former, one or more jaws or clamping devices adapted to co-operate with said former to hold the partially-formed counter-stiffeners thereon, a rubbing-tool for pressing down and finishing the flange or inwardly-projecting lip of the stiffener, mounted upon a lever or beam adapted to be vibrated slightly about a movable pivot, and a pattern cam or guide for controlling the vibration of said lever or arm, thereby causing the rubbing-tool to move in a path substantially parallel to the heel-seat of the last or former, whatever may be its shape.

It further consists in the combination of a last or heel-shaped former, a clamping device for pressing and holding the partially-formed counter-stiffeners upon the former, a reciprocating rubbing-tool hinged to its carrier and provided with an arm or lever, and a cam path or surface adapted to act upon said arm or lever to vibrate said tool about its hinge-pin or pivot, for the purpose of causing the rubbing-surface of the tool to lie parallel, or nearly so, to the heel-seat of the last or former, as will be described.

It further consists in the combination of a last or heel-shaped former and suitable jaws or clamping devices for pressing and holding the partially-formed counter-stiffeners thereon, a rubbing-tool adjustably mounted upon an arm or lever adapted to be slightly vibrated about a movable pivot or fulcrum, a cam for determining the amount and time of said vibration, and mechanism adapted to impart to said movable pivot and the arm or lever mounted thereon a reciprocating motion in a right line in the direction of the length of said arm or lever.

It further consists in the combination, with a last or heel-shaped former, suitable jaws or clamping devices for pressing and holding the partially-formed counter-stiffeners upon said former, and a reciprocating tool for bending and rubbing the flange of the counter-stiffeners; of a feeding device for placing the counter-stiffeners upon the former without exposing the fingers of the operator to the danger of being caught by the clamping-jaws as they seize the counter-stiffeners, composed, essentially, of a holder having a spring plate or finger, and mounted upon a movable frame or rod connected by suitable supports with a rocker-shaft in such a manner that it may be retracted and raised above said former to receive the blank, and then be pushed forward and turned downward, carrying with it the partially-formed counter-stiffeners into position to be clamped upon the former, as will be described.

Figure 1 of the drawings is a plan of so much of a machine embodying my invention as is necessary to illustrate its novelty. Fig. 2 is a central longitudinal section on line *x x* on Fig. 1, but showing the operating cam-plate in elevation. Fig. 3 is a vertical section on line *y y* on Fig. 1. Fig. 4 is a vertical section on line *z z* on Fig. 1, with the feeding apparatus in position to receive the partially-formed counter-stiffeners. Fig. 5 is a transverse vertical section on line *v v* on Fig. 1. Fig. 6 is a partial vertical section on line *w w* on Fig. 1. Fig. 7 is a rear end elevation of the tool-carrying arm or lever and the cam for determining the path of the tool in passing over the counter-stiffeners. Figs. 8 and 9 are, respectively, a front end elevation and a longitudinal sec-

tion of the feed-griper enlarged. Fig. 10 illustrates a modification of the feed-griper adapted to feed an unflanged counter-blank, and Figs. 11 and 12 are, respectively, a plan and a front end elevation of the modified feed-griper.

A is the bed-plate or table of the machine, supported upon the legs B or any other suitable supports, and having secured upon its upper side, near one end, the last or heel-shaped former C, and also having formed in its upper side three dovetailed grooves converging toward the former C to receive the bars D, E, and E', having attached to one end thereof the jaws F, G, and G', respectively, said jaws having concave faces adapted to fit to and, by co-operation, inclose the sides and one end of said former and gripe the counter-blank placed thereon.

H, H', and H² are three cam-plates connected together by the tie-bar H³, and adapted to be reciprocated vertically in unison by any well-known device adapted to impart such motion; or said cam-plates may be disconnected from each other and reciprocated in unison or independently of each other and at different times by modifying said cam-plates according to the change in the times of their movements.

The cam-plates H' and H² are substantially alike, each being provided with the straight rib a, by which it is guided in a vertical path in its upward and downward movements in its bearings in the table A, and with a second rib, b, the upper and lower portions of which are straight and parallel with the rib a, but at unequal distances therefrom, and the central portion is inclined, as shown, said rib b passing between the anti-friction rolls or trucks c and d, mounted upon journals set in the bar E or E', which are slotted to allow the passage of said cam-plates H' and H² through the same, the inclined portion of the inner edges of said cam-plates acting upon the rolls or trucks c to force the bars E and E' toward the former C as the cam-plates descend, and the opposite edges of the ribs b acting upon the trucks d to move the bars E and E' and jaws G and G', attached thereto, away from the former C as the cam-plates ascend. The bar D also has cut vertically through it a slot, e, within which are mounted upon suitable journals the anti-friction rolls or trucks f and g, with which the inner edge of the cam H and the opposite side of the rib h formed thereon, respectively, act to move said bar, with its jaw F, toward or away from the former C in substantially the same manner as the bars E and E' are moved by the cam-plates H' and H².

So far the devices described are old, and therefore are not claimed broadly by me; but it is very desirable that a machine for shaping or finishing counters should shape them to conform as nearly as may be to the form of the last upon which the boot or shoe is to be built; and as the tread-surface of the heel portion of the last is convex and curved longitudinally, it follows that the flange of the counter should not be turned over at the same

level all around the counter-stiffener, but said line of turn should be at a different level at the center of the two sides than at the front or rear ends; and I will now proceed to describe the devices by the use of which this result is produced, and which constitute the novel features of my improved counter-stiffener shaper.

The upper surface of the heel-shaped former C is made to correspond, as near as may be, to the shape of the last, and the partially-formed counter-stiffener is placed thereon in proper position and firmly secured, as follows: If the partially-formed counter-stiffener to be shaped has a flange turned down thereon, the central portion of the flange is placed by the operator between the block I and spring i, which constitute the feed-griper, when said griper is in the position shown in Fig. 4, as indicated in dotted lines, and the rod j, to which the griper is secured, together with the rod k, connected thereto by the tie l, is moved, by means of the handle m, toward the heel end of the former C, said rod k sliding freely through a bearing in the pivoted arm n, carrying with it the tie l, which slides freely on the rod o, firmly set in the arm n at one end, and having secured upon its other end the upwardly-projecting lug p, in which the rod k has a second bearing.

When the feed-griper carrying the partially-formed counter-stiffener is sufficiently extended, the griper-carrying frame is vibrated about the pivot of the arm n till the counter-stiffener is placed in position on the former C, when, the cam-plates H, H', and H² being moved downward, the bars D, E, and E' are moved toward the former till the jaws F, G, and G' close upon and press the counter-stiffener firmly to the surface of the former, preparatory to receiving its finishing operation.

By the use of this feeding device the operator is saved all danger of having his fingers jammed by being caught by the clamping-jaws while in the act of placing the counter-stiffener on the former, as heretofore practiced.

J is a tool-carrying beam or lever provided with trunnions q, on which are mounted the anti-friction trucks or rolls r, fitted to and adapted to roll along the straight slots K', formed in the plates K, said bar J being provided with a vertical slot, through which the cam-plate H moves freely up and down, and by the action of the inclined projecting surface s upon the trucks t and t', as it descends, moves the beam J toward the former C, and the inclined projecting surface u, acting upon the same trucks, moves said beam in the opposite direction.

L is a flange turning and rubbing tool hinged at a' to the plate a², which in turn is adjustably attached to the end of the beam J in such a manner that said tool may be raised or lowered to adjust the pressure upon the counter-stiffener by the set-screw a³.

The tool L has secured to one side thereof the arm L', which extends backward therefrom in nearly a horizontal position, and has mounted upon a journal set in its rear end an anti-friction roll, (shown at *b'* in dotted lines,) which is fitted to and moves in the curved or cam-shaped slot *c'* as the beam J is moved forward and backward, said arm L' and the tool L being vibrated about the hinge-pin *a'* to vary the position of the working surface of the tool, to cause it to conform to the varying curve of the upper surface of the former, the cam-slot *c'* being varied in shape to correspond with the varying shapes of the different formers.

The rear end of the beam J has secured there to an anti-friction bearing-roll, *d'*, mounted on a journal set in the plate *e'*, attached to said beam by the screw *f'*, passing through a slot in said plate in such a manner that said plate and roll may be moved upward slightly, to allow for the varying thicknesses of the flange of the counter-stiffener, a spring, *g'*, being placed above said plate, and between it and the ear *k'* on the beam J, through which is fitted the set-screw *i'*, the point of which bears upon the washer or disk *j'*, and by means of which the tension of the spring *g'* may be regulated to give the desired pressure of the tool upon the counter-stiffener flange.

The bearing-roll *d'* rests upon and rolls along the upper curved surface of the pattern-cam M, which is so shaped as to give the desired vibratory motion to the beam J, to cause the tool L to follow the curve of the upper surface of the former and impart to the counter-stiffener placed thereon an equable pressure throughout, said beam being moved in one direction by the upper surface of said pattern-cam acting upon the roll *d'*, and in the other direction by the rib or lip *k'*, formed upon one side of said pattern-cam, acting upon the roll or truck *l'*, also carried by the plate *e'*, as shown in Figs. 4 and 7.

The feed-griper I *i* is provided with an adjustable gage, *n'*, to determine the depth to which the counter-stiffener blank shall enter the griper.

If it is desired to turn the flange on and shape an unflanged counter-stiffener blank, the feeding-griper and appurtenances should be constructed as shown in Figs. 10, 11, and 12, and the counter should be placed in the griper as shown in dotted lines in Fig. 10.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for shaping boot and shoe counter stiffeners, the combination of a last or heel-shaped former, one or more movable clamping-jaws adapted to press and hold the partially-formed counter upon said former, and a flange turning and rubbing tool adapted to be reciprocated in the direction of the length of the former, and to yield or be moved in a direction at right angles, or nearly so, to its

plane of reciprocation, substantially as and for the purposes described.

2. In combination with a last or heel-shaped former and one or more movable jaws adapted to co-operate therewith to hold the partially-formed counter-stiffeners upon said former, a flange forming or rubbing tool mounted upon a beam or lever, adapted to be reciprocated endwise and to be vibrated to a limited extent about a movable pivot, and a pattern cam or guide for controlling said vibrations, substantially as and for the purposes described.

3. In combination with a last or heel-shaped former and a clamping device for holding the partially-formed counter-stiffener upon the former, the beam J, the hinged tool L, arm or lever L', and cam-shaped slot *c'*, all arranged and adapted to operate substantially as and for the purposes described.

4. In a machine for shaping boot and shoe counter stiffeners, the combination of the following elements, viz: a last or heel-shaped former, a clamping device for pressing and holding the partially-formed counter-stiffener upon the former, a pivoted tool-carrying beam adapted to be slightly vibrated about its pivot, a flange turning or rubbing tool adjustably mounted upon said beam, a fixed pattern-cam adapted to determine the vibrations of said beam, and mechanism adapted to impart to said beam and the tool carried thereby a reciprocating motion in the direction of the length of former, substantially as described.

5. In combination with a last or heel-shaped former and one or more clamping-jaws for pressing and holding the partially-formed counter-stiffener upon the former, the feed-griper I *i*, adapted to hold the counter-stiffener and convey it into position on the former, substantially as and for the purposes described.

6. In combination with a last or heel-shaped former and one or more clamping-jaws co-operating therewith to hold the partially-formed counter-stiffener thereon, the feed-griper I *i*, mounted upon a frame adapted to be vibrated about a pivot and to be moved endwise, and the gage *n'*, all arranged and adapted to operate substantially as and for the purposes described.

7. The combination of the former C, one or more clamping-jaws adapted to press and hold the partially-formed counter-stiffener upon the former, a feeding-griper adapted to be vibrated about a pivot and extended to convey the counter-stiffener to a position on the former, and a reciprocating flange forming or rubbing tool, all arranged and adapted to operate substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 27th day of October, A. D. 1879.

LOUIS COTÉ.

Witnesses:

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C. H. DODD.