

No. 704,969.

Patented July 15, 1902.

C. H. RUDGE.  
CRUPPER DOCK FORMING MACHINE.

(Application filed Jan. 21, 1902.)

(No Model.)

3 Sheets—Sheet 1.

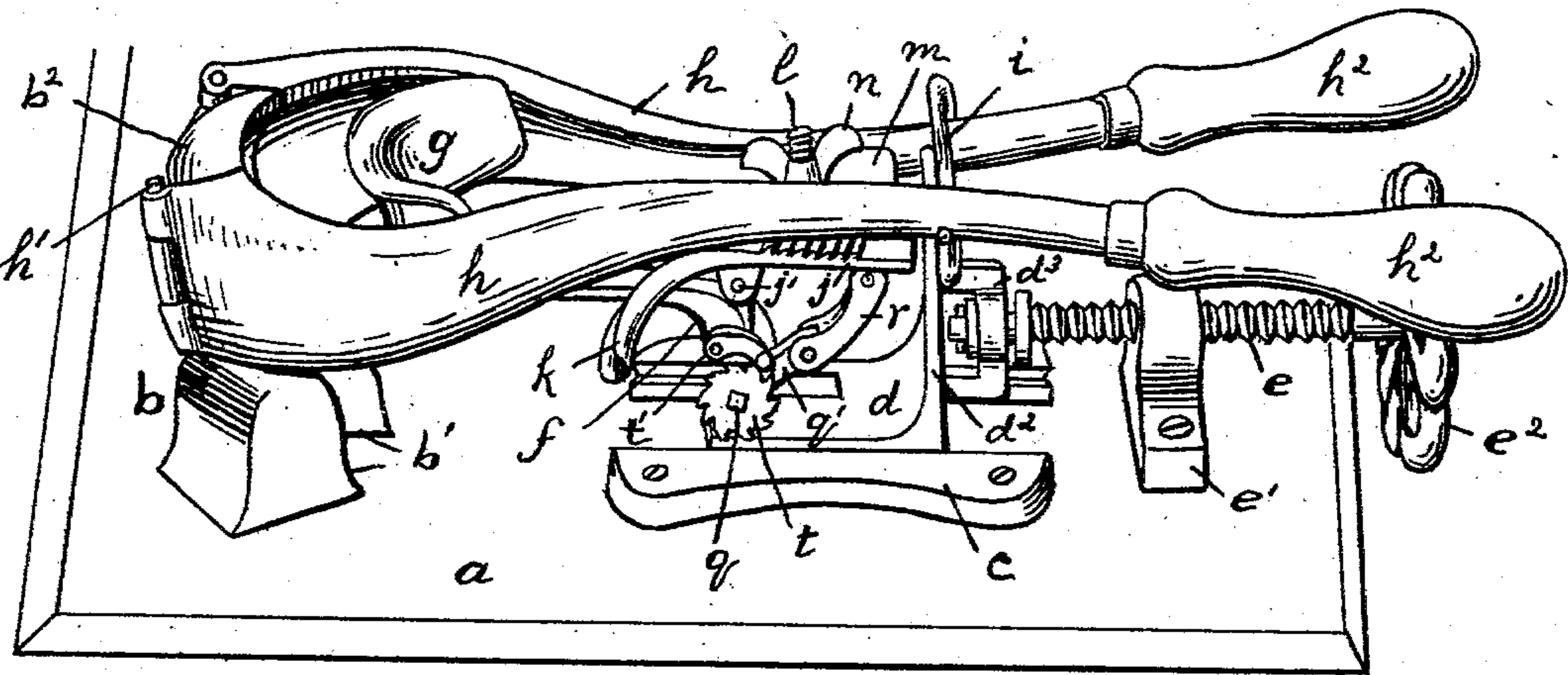


Fig. 1.

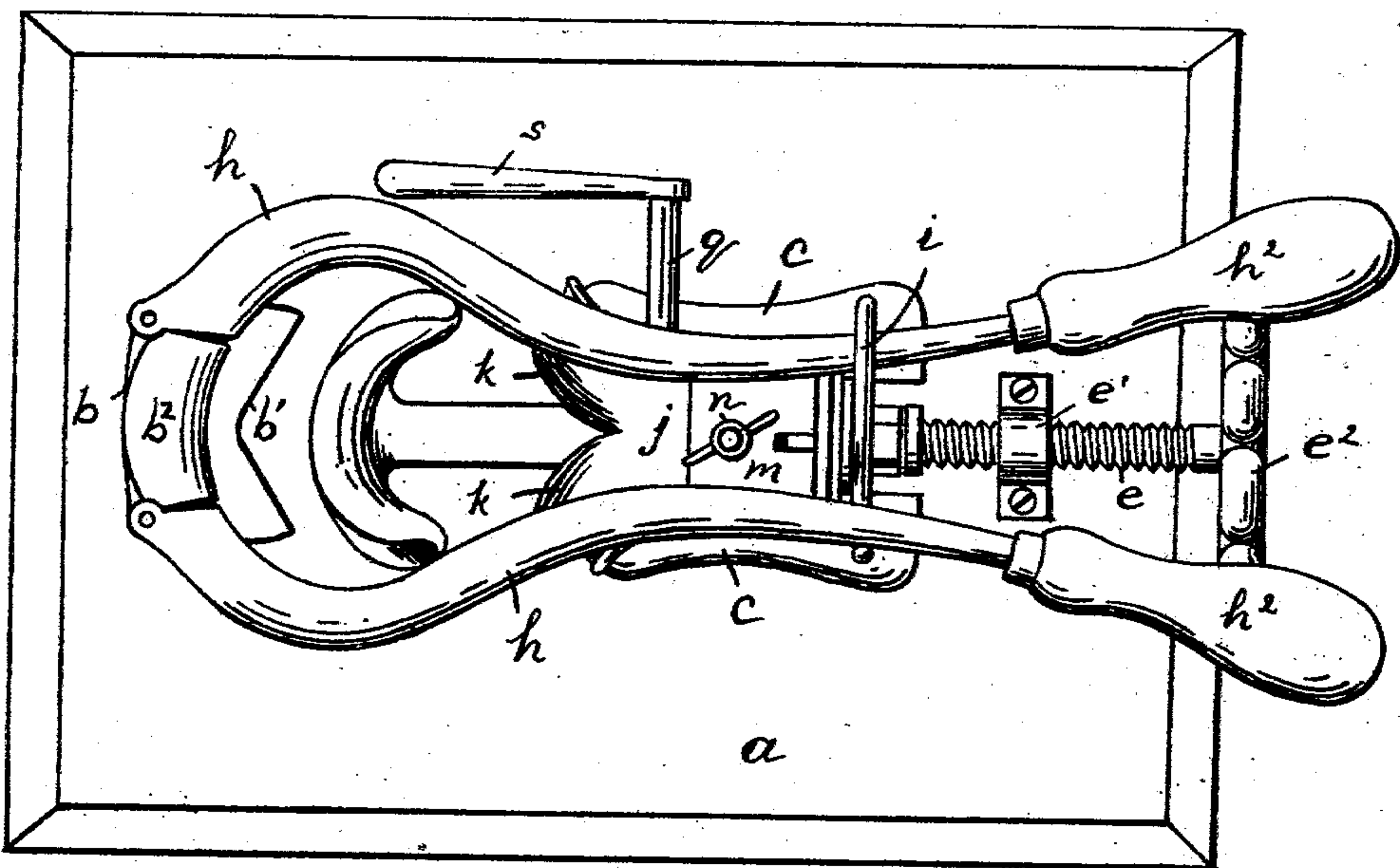


Fig. 2.

WITNESSES:

William Hoesly.  
Russell M. Everett.

INVENTOR:

Charles H. Rudge, Jr.

BY

Drake & Co.  
ATTORNEYS

No. 704,969.

Patented July 15, 1902.

C. H. RUDGE.  
CRUPPER DOCK FORMING MACHINE.

(Application filed Jan. 21, 1902.)

(No Model.)

3 Sheets—Sheet 2.

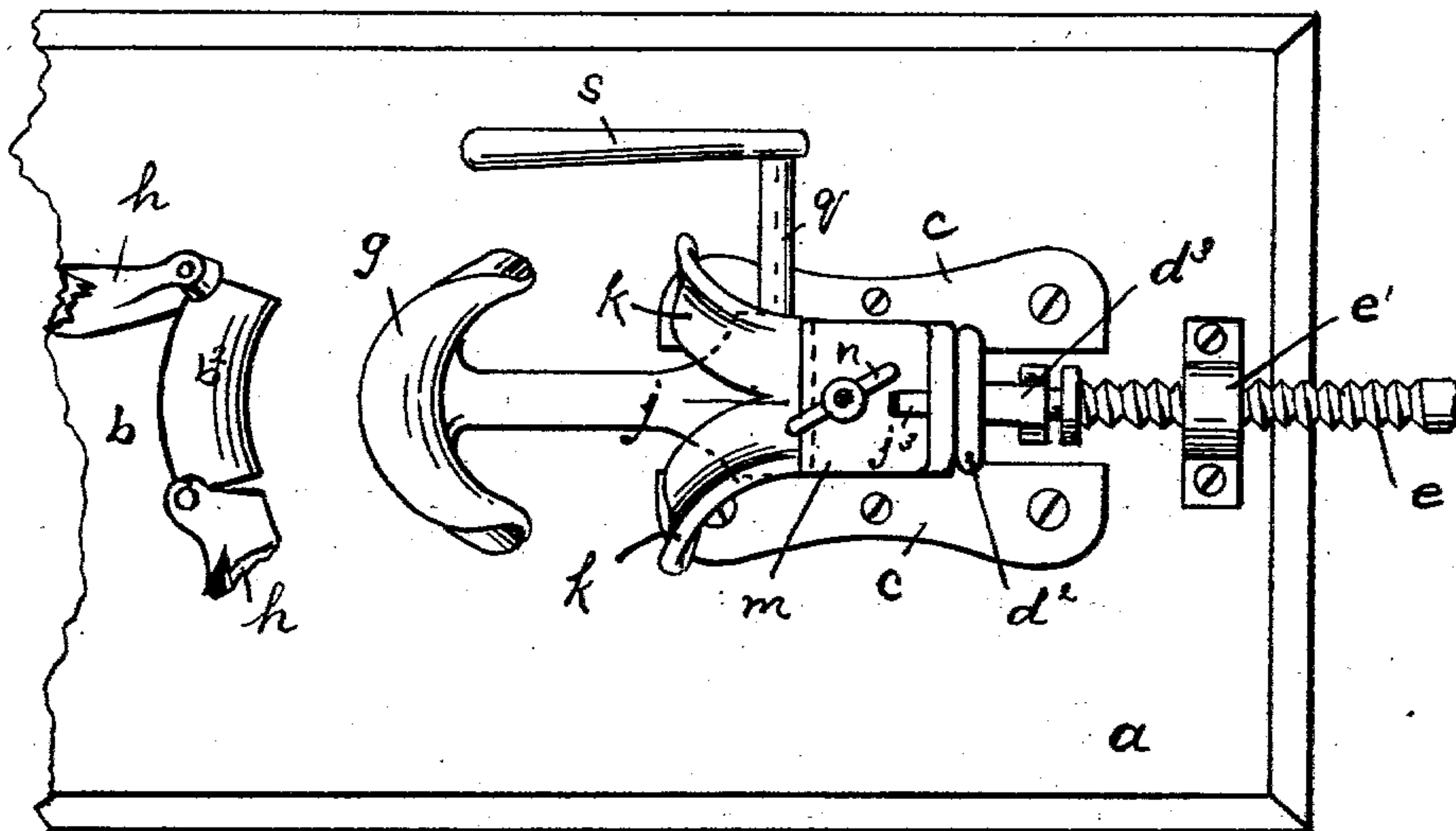


Fig. 3.

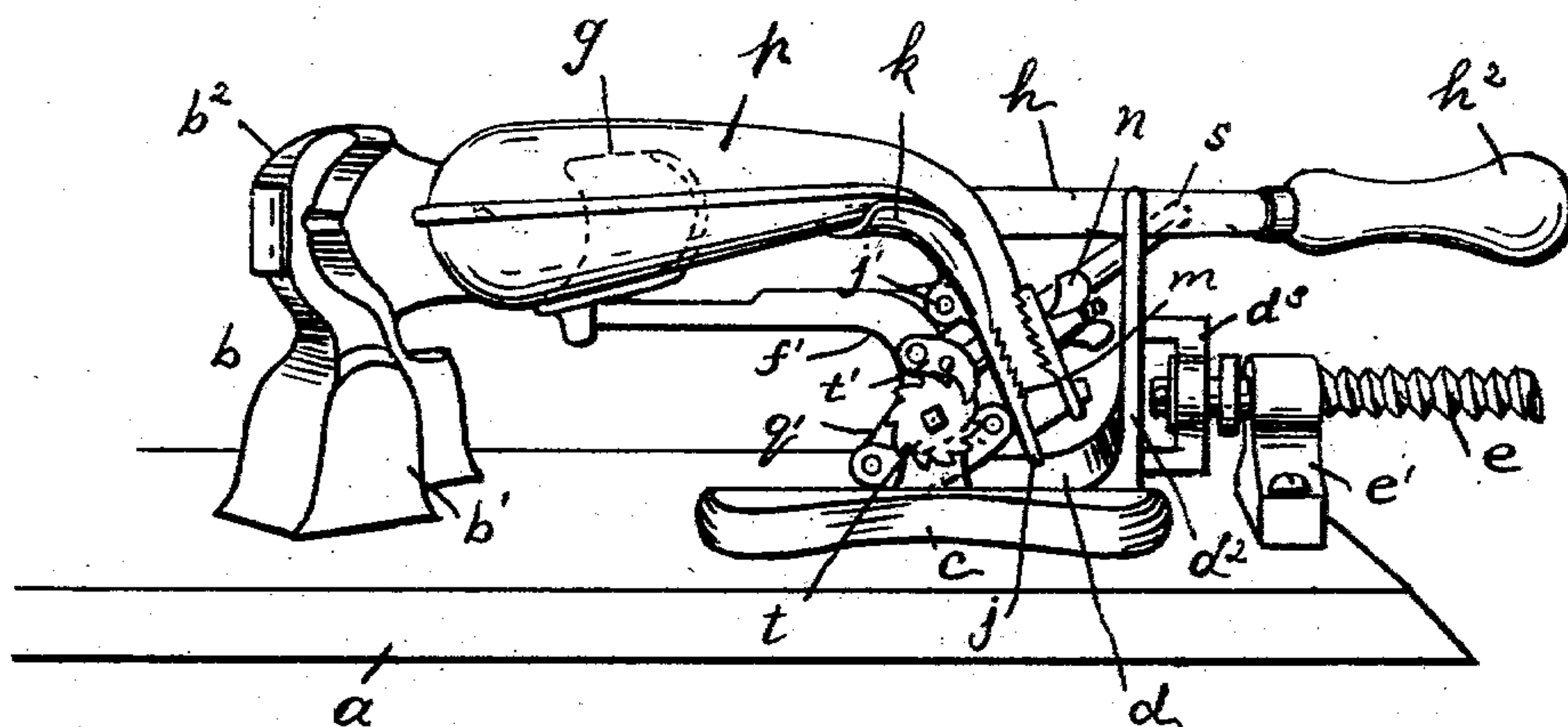


Fig. 4.

WITNESSES:

William Hoesly  
Russell M. Everett

INVENTOR:

Charles H. Rudge,

BY

Drake & Co.  
ATTORNEYS.

No. 704,969.

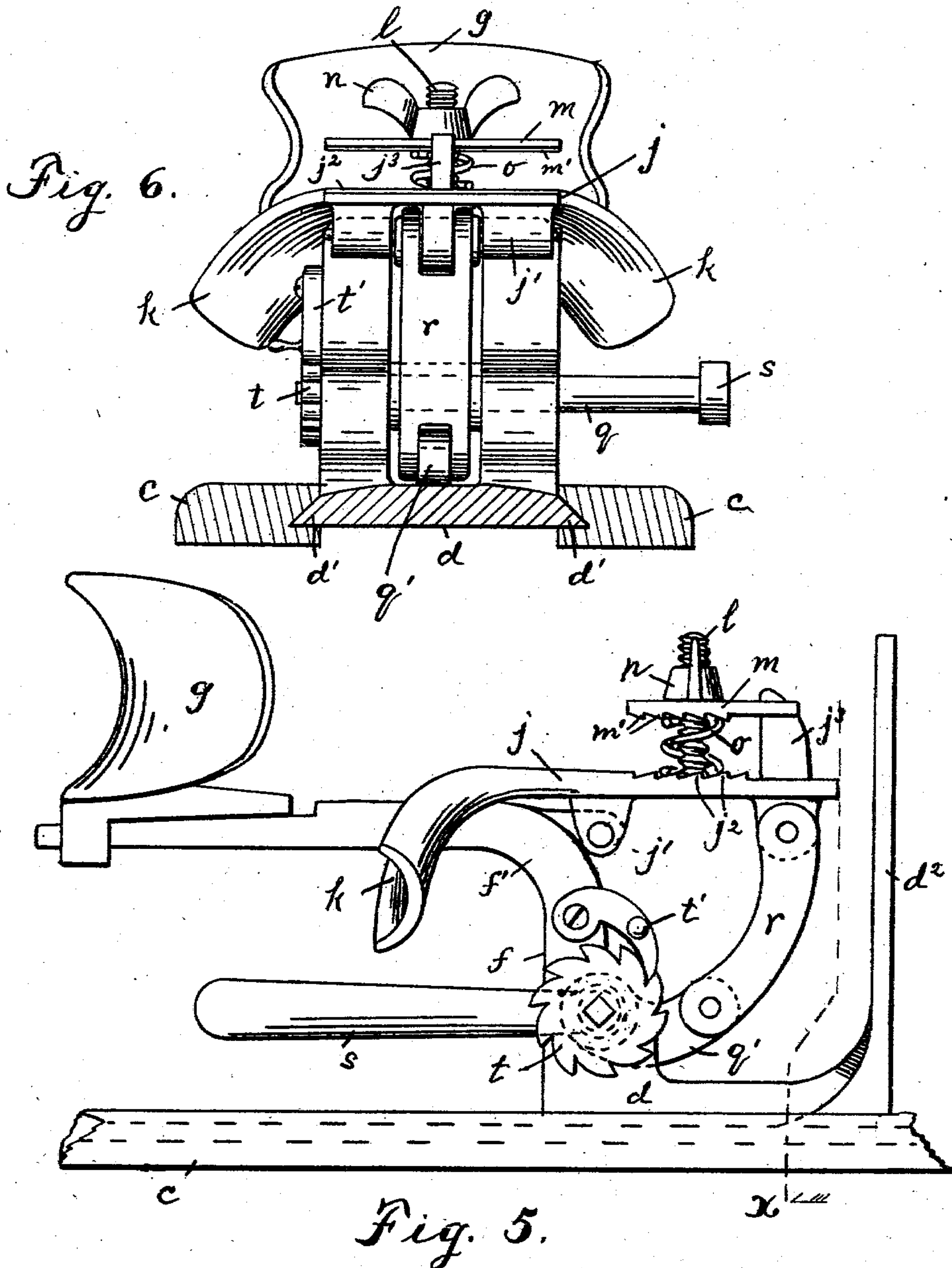
Patented July 15, 1902.

C. H. RUDGE.  
CRUPPER DOCK FORMING MACHINE.

(Application filed Jan. 21, 1902.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES:

*William Hensley*  
*Russell M. Everett*

INVENTOR:

**Charles H. Rudge,**  
BY  
*Drake & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

CHARLES H. RUDGE, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF  
TO ARTHUR E. RUDGE, OF NEWARK, NEW JERSEY.

## CRUPPER-DOCK-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 704,969, dated July 15, 1902.

Application filed January 21, 1902. Serial No. 90,651. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. RUDGE, a subject of the King of Great Britain, residing at 184 Warren street, Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Crupper-Dock-Forming Machines; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide for the use of harness-makers a machine for bending crupper-docks into the desired shape, to thus save the labor of doing it by hand and to secure a more uniform bending than can be done by hand, to bend the crupper-dock without wrinkling the same and enable it to be held in bent position to set or permanently assume its bent form, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved machine for forming crupper-docks and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a side view of my improved machine in perspective; and Fig. 2 is a plan of the same, the bending-levers being closed. Fig. 3 is a plan of the machine with the bending-levers broken away. Fig. 4 is a side elevation of the machine with a crupper-dock therein bent to its final position, the bending-lever next the observer being removed to more clearly disclose the parts. Fig. 5 is a detail view of the sliding member and its slideway in side elevation; and Fig. 6 is a section of the same on line  $x$ , Fig. 5, looking in the direction of the arrow.

In said drawings,  $a$  indicates a base-plate, of either wood or metal, upon which the working parts of my machine are mounted. Near

one end of the said base-plate is a fixed member  $b$ , comprising a suitable base  $b'$ , secured to the plate  $a$  and at its upper portion constituting a rest  $b^2$ , curved in plan and also concaved in vertical direction at its face next the farther end of the base-plate  $a$ , the said curvatures being adapted to conform to the middle portion of a stuffed crupper-dock. Toward the said other end of the base-plate  $a$  is a slideway formed of oppositely-disposed cleats  $c c$ , secured to the base-plate and undercut at their facing edges to receive the opposite base-flanges  $d'$  of a sliding member  $d$ , which member is adapted to move toward and away from the stationary member  $b$ , above described. Said sliding member is moved by means of a hand-screw  $e$ , working in a threaded nut or seat  $e'$ , secured to the base-plate. At its extreme opposite end from the stationary member  $b$  the end of the sliding member  $d$  next said screw is provided with an upright projecting plate  $d^2$ , which plate carries at its outward face a yoke  $d^3$ , in which the end of the screw  $e$  is adapted to work loosely, so as to carry the sliding member  $d$  with said screw in its longitudinal movement. A hand-wheel  $e^2$  at the outward end of the screw  $e$  and projecting beyond the base-plate  $a$  enables the sliding member  $e$  to be adjusted with facility. At the end of the sliding member  $d$  next the stationary member  $b$  an extension  $f$  projects first upwardly and then is bent, as at  $f'$ , to extend rearwardly and substantially in horizontal position. At its extremity said extension  $f$  carries a former  $g$ , adapted to cooperate with the upper part of the stationary member  $b$  to grasp the crupper-dock, the said former lying at the opposite side thereof from the stationary member. Said former is concaved from top to bottom at its face, as shown in Fig. 5, and is in plan rounded to the proper curvature to which it is desired to bend the crupper-dock.

In operating the machine the crupper-dock, straight as stuffed, is laid with its middle portion against the stationary member  $b$ , and the sliding member  $d$  is moved toward the same until it presses firmly against the opposite side. The crupper-dock is then to be bent at its ends around the said former  $g$ , and to effect this I provide bending-levers  $h h$ , one



pivoted at each side of the upper concaved portion of the stationary member *b* upon a vertical pin *h'*, whereby the two handles or levers are adapted to swing in horizontal plane. Each lever is at its inner face and adjacent to the stationary member *b* concaved, as shown in Fig. 1, to form a continuation of the concaved surface of the stationary member, and in plan the levers are bent into the form which it is desired to have the crupper-dock assume, as shown in Fig. 2 more particularly. When the crupper-dock is being placed in the machine or gripped, as above described, the two levers *h h* are thrown wide apart, as indicated in Fig. 3; but when the crupper-dock has been firmly gripped the next step is to swing said levers *h h*, by means of handles *h<sup>2</sup> h<sup>2</sup>* at their extremities, toward one another, thus forcing the crupper-dock into bent position. During this process of bending the former *g* presses firmly against the inner bent surface of the crupper-dock and serves not only to give the crupper-dock proper shape, but also prevents any wrinkling of the leather at the inner side of the crupper-dock. When the two levers *h h* are brought close together, they may be secured by means of a double-ended catch *i*, pivoted upon the projection *d'* of the sliding member and adapted to hook at its opposite ends over the bending-levers. It is necessary to next bend the adjacent smaller ends of the crupper-dock downwardly, and to effect this I provide beneath said ends, as they are brought together by the bending-levers, a lower clamping-plate *j*, pivoted, as at *j'*, to the bend of the extensions *f* and being toward the former *g* from said point of pivoting bifurcated to form lips *k*, each of which is concaved and bent downwardly and outwardly. The opposite end of the lower clamping-plate *j* is at its upper surface provided with corrugations or teeth *j<sup>2</sup>*, directed away from the former *g*, and said corrugated portion of said clamping member has also a central stud or screw *l*, upon which slides an upper clamping member or plate *m*, also having teeth or corrugations *m'*, like the lower plate, and adapted to be forced thereagainst by a finger-nut *n* on the screw *l*. The said clamping-plates are normally held apart by a spiral spring *o* between, so that the smaller ends of the crupper-dock can be pushed therebetween. Then the screw *n* is tightened, and the clamping-plates *m j* are forced tightly together, so that they firmly grasp the said ends of the crupper-dock. Preferably the end of the upper clamping-plate *m* is slotted or perforated to slide upon a vertical guide *j<sup>3</sup>*, projecting from the lower clamping member, whereby its action is steadied.

In the lower portion of the extension *f* of the sliding member is journaled a transverse shaft *q*, projecting beyond said extension at its opposite ends. The said extension is at that portion preferably slotted or cut away from its middle part to expose the said shaft

and afford space for an arm *q'*, fixed upon said shaft. Said arm projects outwardly from said extension *f* beneath the toothed or corrugated end of the clamping-plate *j* and is pivotally connected thereto by means of a link *r*, while the outward end of the shaft *q* carries a handle or lever *s*, by means of which the said shaft can be oscillated to tip the forward end of the clamping-plate *j* downward to its normal position. Thus in the operation of the machine after the smaller extremities of the crupper-dock have been brought to their adjacent positions by means of the bending-levers *h h* they are firmly clamped by the plates *m j*, just described, and then the said clamping means or plates are tilted upon the pivot *j'* by means of the shaft *q* and its handle *s*. This carries the extremities of the crupper-dock downward, and back from said extremities bends the end portions of the crupper-dock over the rounded lips *k*, which serve as formers. When the parts are brought into this position, as shown in Fig. 4, the shaft *q* is locked, preferably by means of a ratchet-wheel *t*, fast on said shaft at its end opposite the handle *s* and adapted to be engaged by a pawl *t'*, pivoted upon the extension *f* of the sliding member. The crupper-dock *p* is then left to "set," while another one is stuffed and gotten ready for bending.

By the device thus described it will be seen that I provide means for very easily and quickly bending the crupper-docks, and, furthermore, without any possibility of wrinkling at the inside of the bend. Again, it will be obvious that all crupper-docks will be bent uniformly and to the same extent, thereby securing a neater appearance and a better fit on the horse.

Having thus described the invention, what I claim as new is—

1. A machine for bending crupper-docks, comprising a stationary member *b*, concaved in plan and adapted to fit against one side of the crupper-dock, a sliding member convexly curved in plan, and adapted to lie against the other side of the crupper-dock, means for forcing said sliding member toward the stationary member to grip a crupper-dock, and bending-levers pivoted at opposite ends of said stationary member to swing in horizontal plane.

2. The herein-described machine for bending crupper-docks, comprising adjustable clamping members concaved at their faces to grasp the crupper-dock and curved in plan to conform to its ultimate shape, said members being adapted to grasp a crupper-dock at its middle, and bending-levers pivoted at the ends of one of said members to swing in horizontal plane, and being adapted to bend the crupper-dock around the other members.

3. In a machine for bending crupper-docks, the combination of two curved clamping members adjustable in relation to each other, the one at the inner ends of the curve being extended rearwardly at its ends to constitute a



former around which the crupper-dock may be bent, bending-levers pivoted at the ends of the outer clamping members adapted to swing in horizontal plane, and tilting gripping means adapted to grasp the ends of the crupper-dock, when brought together by the said forming means, and bend them out of the plane of the main portion of the crupper-dock.

4. In a machine for bending crupper-docks, the combination of a former having a side or face vertically concaved to fit a crupper-dock and being curved in plan to shape said crupper-dock, a clamping member having a similarly-concaved face adapted to coöperate with the former in gripping a crupper-dock, and clamping-levers pivoted to opposite ends of said clamping member and adapted to close around the former to press the crupper-dock thereagainst.

5. In a machine for bending crupper-docks, the combination of a former shaped in plan to give proper form to a crupper-dock and being vertically concaved at its edges to receive the crupper-dock, of curved bending-levers adapted to swing in the plane of the said former and close therearound and a supporting member to which said bending-levers are pivoted.

6. The combination with the stationary member *b*, and bending-levers pivoted thereto, of a member *d*, adapted to slide toward and away from said stationary member and providing a former, and a screw for moving said sliding member.

7. The combination with the gripping mem-

bers *b*, *d*, one comprising a former around which a crupper-dock may be bent, and bending-levers, of pivotal clamping-plates adapted to grasp the ends of the crupper-dock when brought together one of said plates providing a curved surface next to the crupper-dock and means for tilting said clamping-plates.

8. The combination with the gripping members *b*, *d*, one comprising a former around which the crupper-dock may be bent, of a pivotal plate at the rear of said former presenting a curved surface adapted to lie at one side of the plane of said bending, means for clamping the ends of the crupper-dock to said pivoted plate and means for tilting said plate and clamping means.

9. The combination of members *b*, *d*, adapted to grip a crupper-dock at its middle one of said members, constituting a former, bending-levers pivoted clamping means adapted to grasp the ends of the crupper-dock when bent, curved lips on said clamping means adapted to lie at one side of the plane of the crupper-dock, and means for tilting said pivoted clamping means, whereby the ends of the crupper-dock may be bent over the said curved lips.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of January, 1902.

CHARLES H. RUDGE.

Witnesses:

ARTHUR E. RUDGE,  
C. B. PITNEY.