

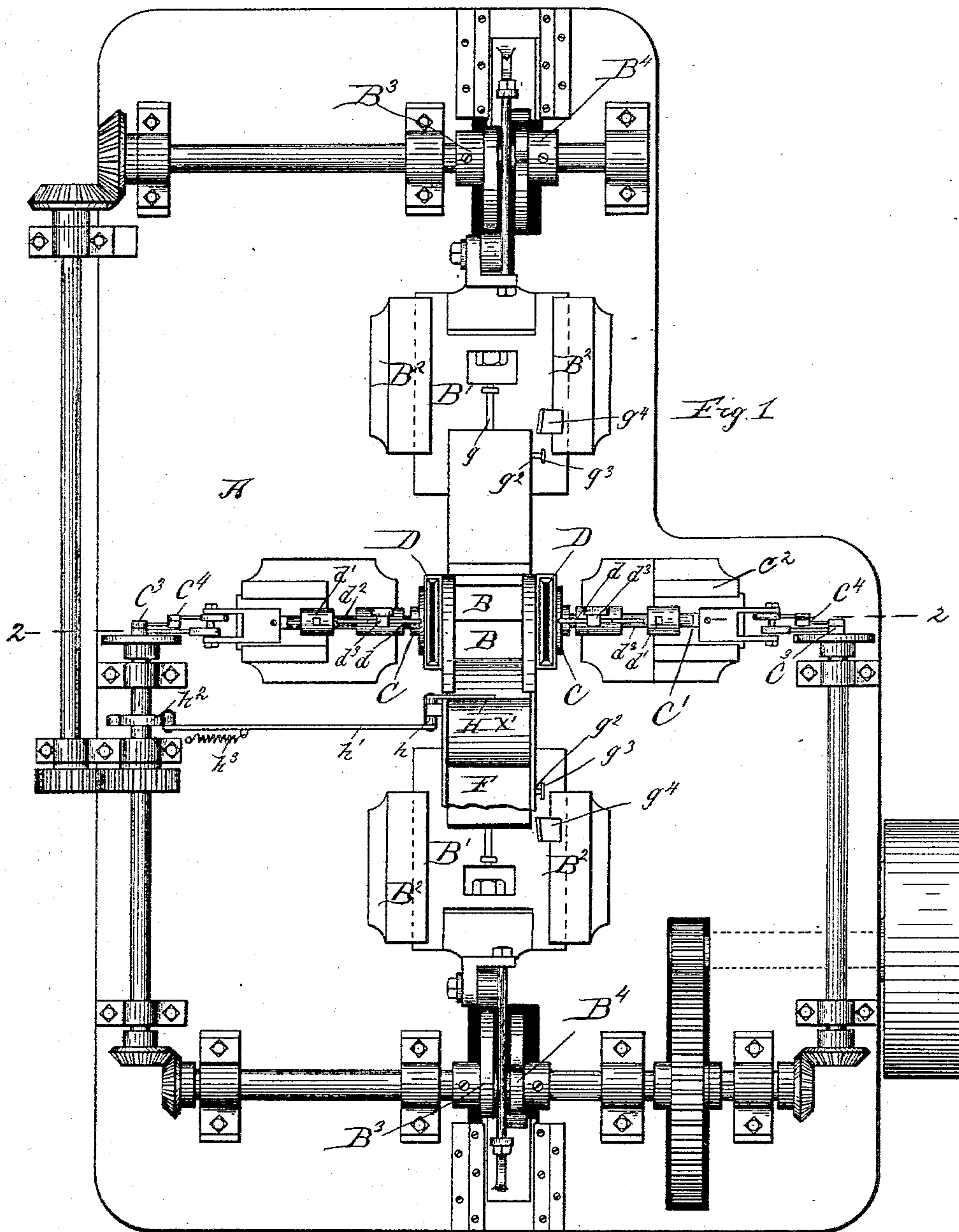
(No Model.)

3 Sheets—Sheet 1.

J. G. HODGSON.
CAN HEADING MACHINE.

No. 387,880.

Patented Aug. 14, 1888.



Witnesses:

Sew. C. Curtis.
92 W. Broadway.

Inventor:

John G. Hodgson,

By Munday, Edwards and Adcock.
His Attorneys:

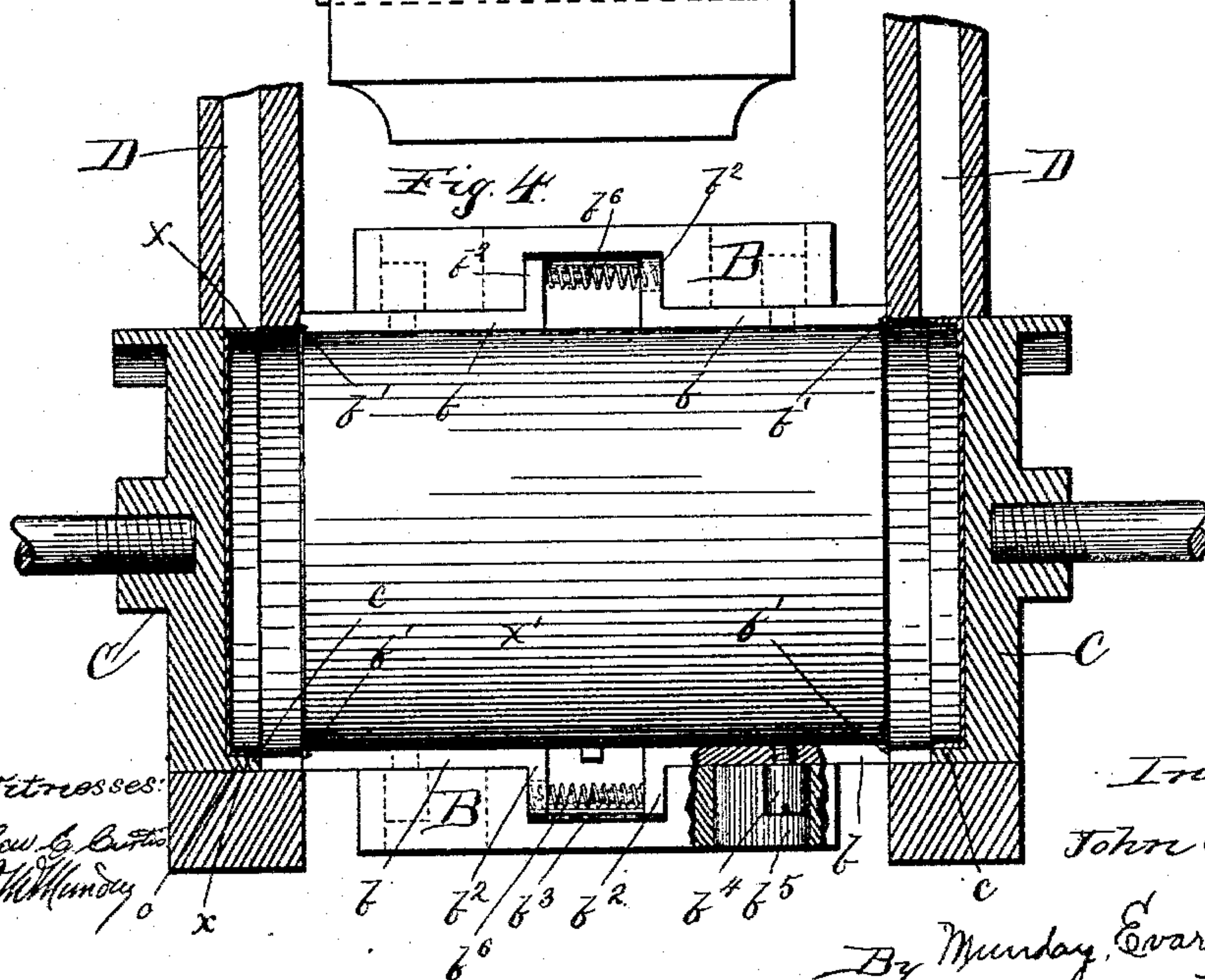
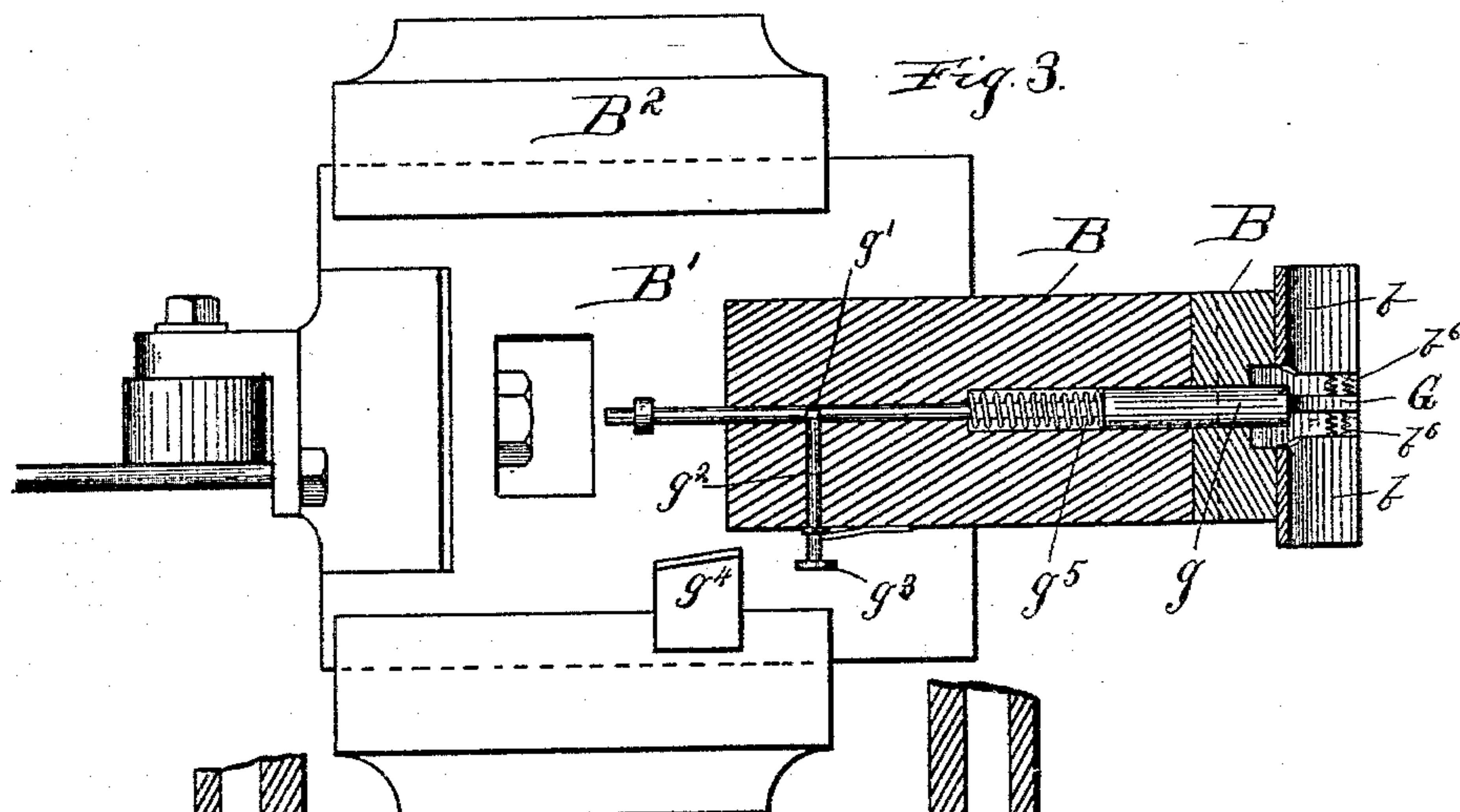
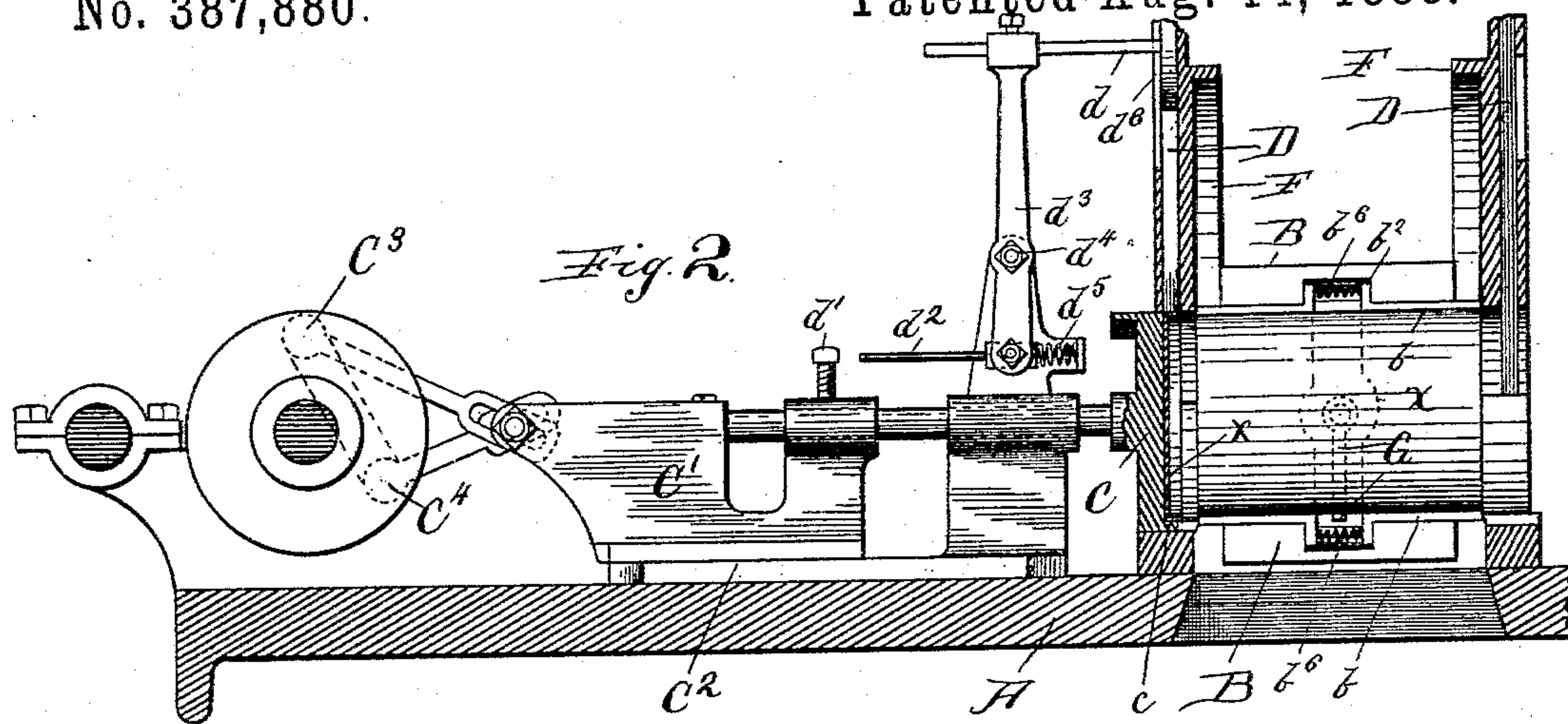
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J. G. HODGSON.
CAN HEADING MACHINE.

No. 387,880.

Patented Aug. 14, 1888.



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(No Model.)

3 Sheets—Sheet 3.

J. G. HODGSON.
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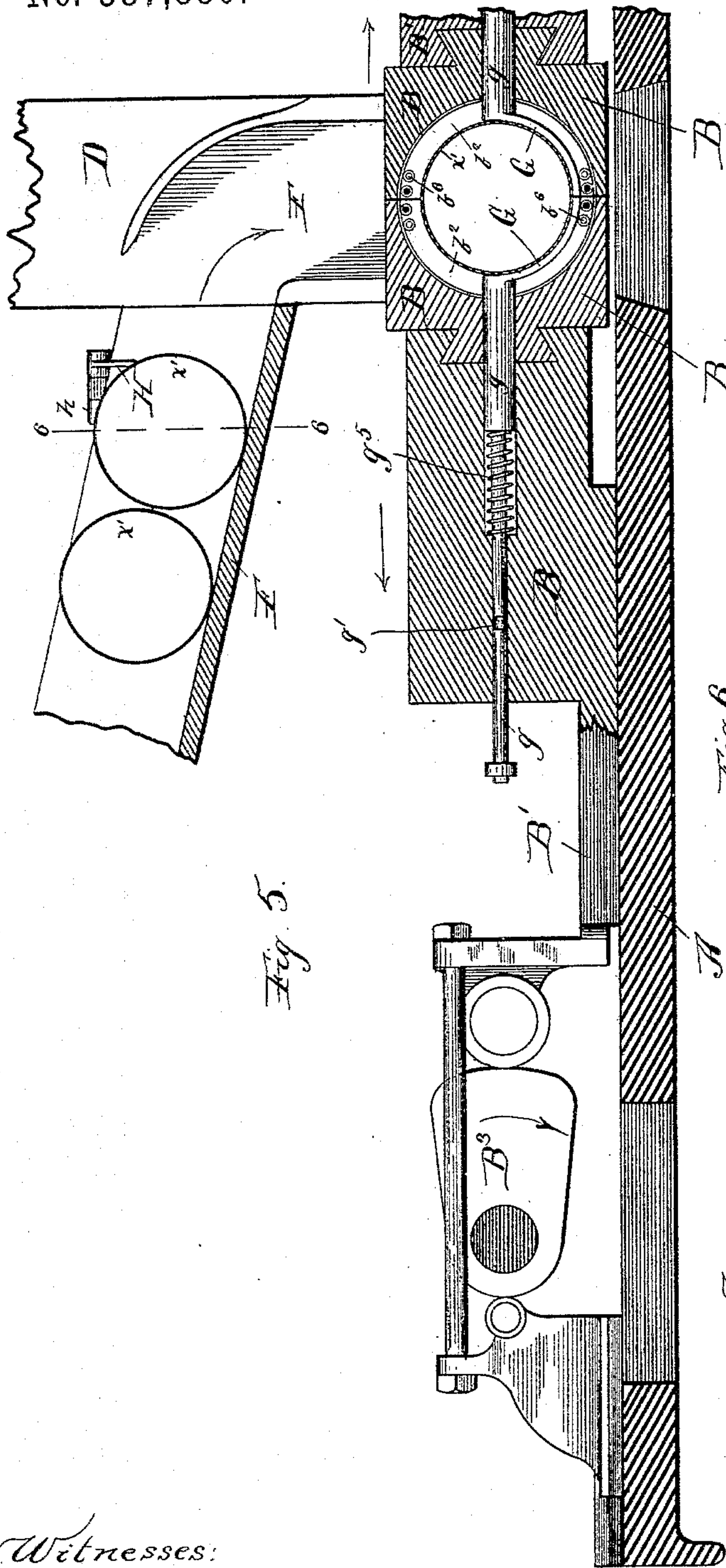


Fig. 5.

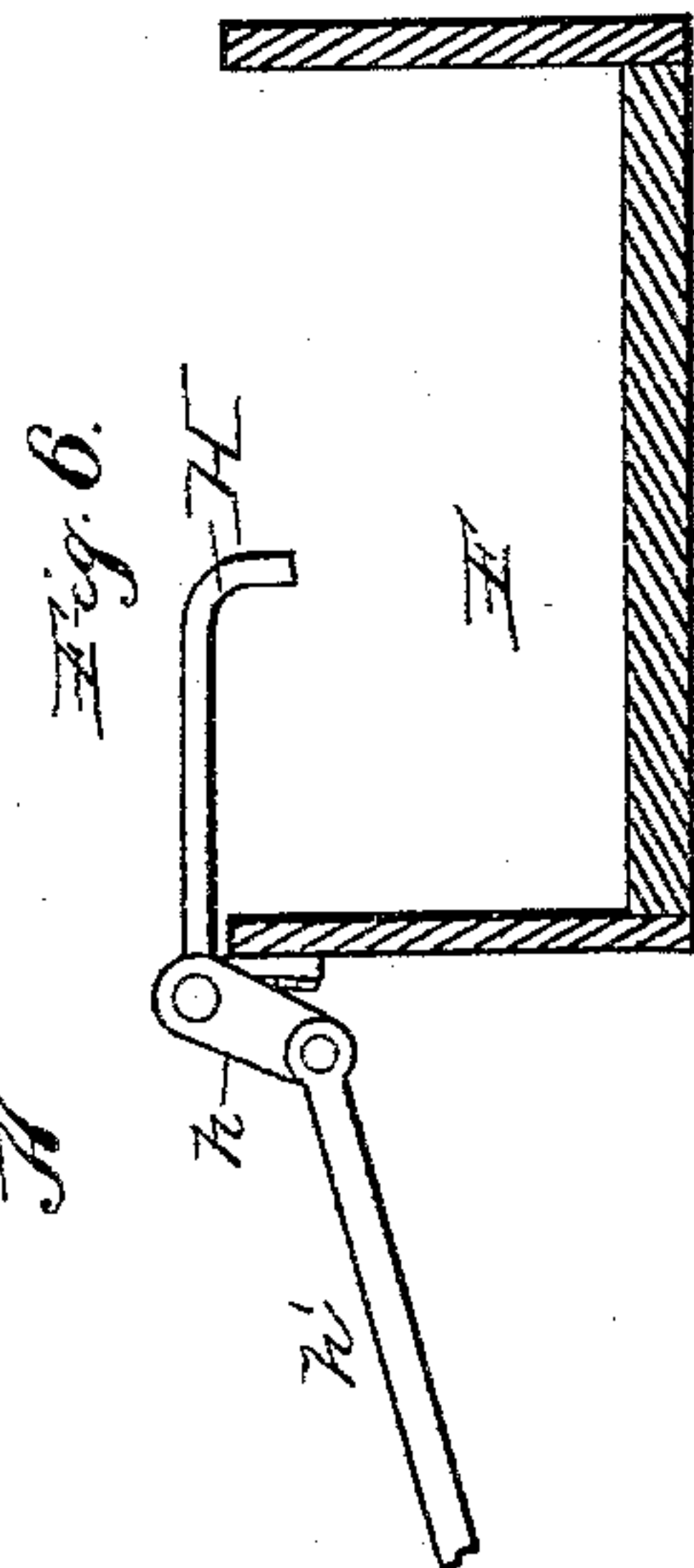


Fig. 6.

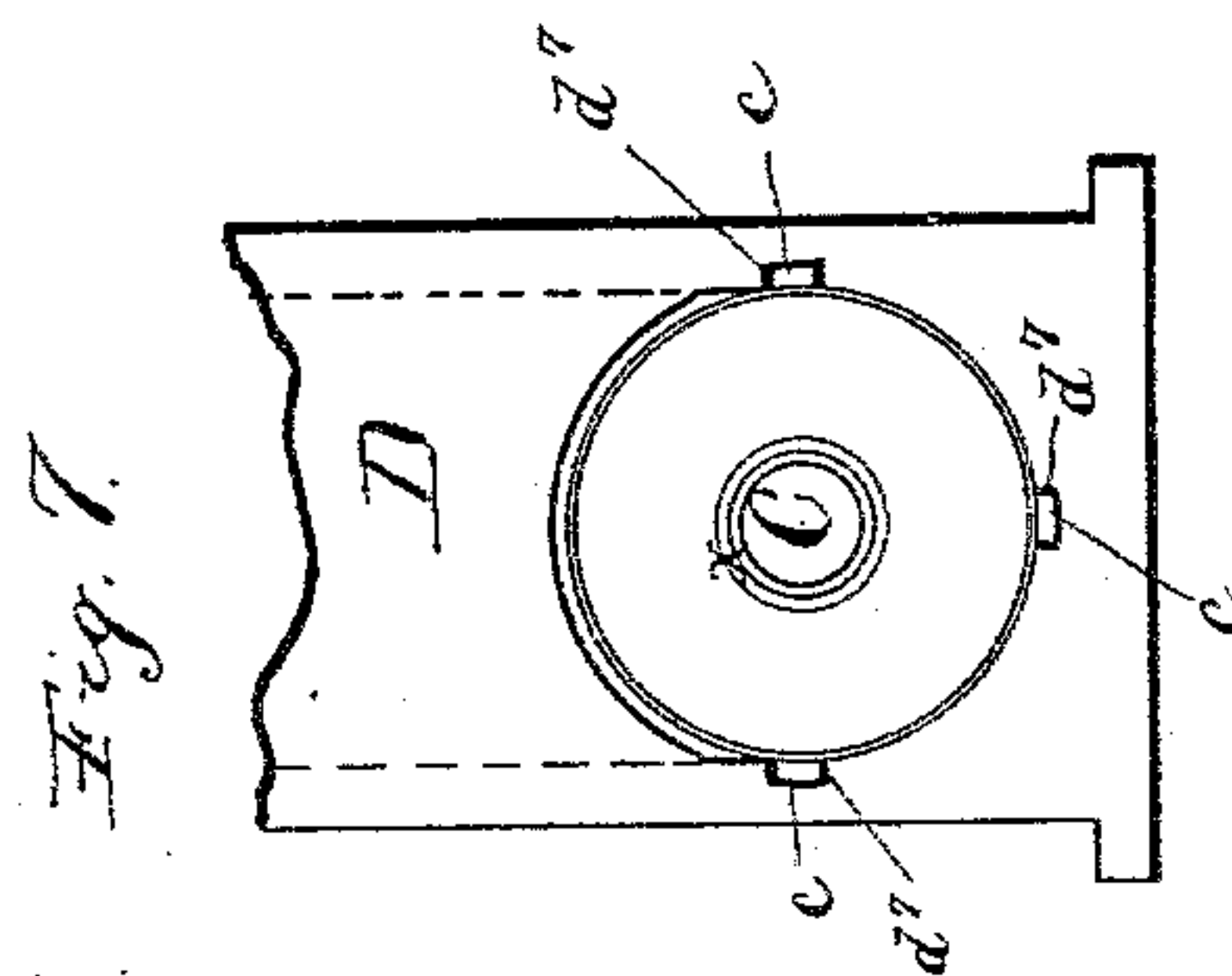


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN G. HODGSON, OF MAYWOOD, ILLINOIS, ASSIGNOR TO EDWIN NORTON,
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CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 387,880, dated August 14, 1888.

Application filed March 29, 1888. Serial No. 268,734. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. HODGSON, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Can-Heading Machines, of which the following is a specification.

My invention relates to machines for automatically applying the heads or ends to sheet-metal can-bodies.

My invention consists in the combination, with a mold or device for holding the can-body, a piston or device for forcing the can-head upon the can-body, and a can-head-supply chute through the mouth or base of which said piston reciprocates, of a movable stop or support for holding or supporting the can-heads in the supply-chute, so that but a single head may feed down at a time in front of the piston at the mouth of the mold, and mechanism for operating said movable stop to release the can-heads in said chute when the piston makes its forward stroke and to arrest or support the can-heads when the piston makes its backward stroke, said piston supporting the can-heads when the same are released by said stop, whereby two or more can-heads are prevented from slipping down at a time between said can-body-holding device and said piston. By this means the machine is made to operate more perfectly and stoppages and delays are prevented.

Any suitable means may be employed for operating the movable support or stop at proper intervals. I prefer to operate it by means of a lever which is engaged by a projection on the piston or its slide.

My invention further consists in a mold or device for holding the can-body, furnished with sliding interior sleeves or sections which are pushed in endwise as the can-head is forced upon the can by the piston. These slip-sleeves I also furnish with an annular channel to receive the flange of the can-head, and thus guide the same over the can-body as the sleeves are pushed in.

My invention further consists of a can-body-clamping device made in two parts which separate from each other, in combination with movable fingers or supports to hold or support the can-body while the mold or clamping

device is closing upon the same. These can-body supports or fingers are retracted, so as to discharge the headed can, when the clamping device opens.

My invention also consists in the novel devices and novel combinations of parts or devices herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a plan view of a device embodying my invention. Fig. 2 is a vertical section on line 2 2 of Fig. 1. Fig. 3 is a detail horizontal section showing the mechanism for operating the movable can-body-supporting finger. Fig. 4 is an enlarged detail section of the can-body-clamping device and pistons for applying the heads to the can-bodies. Fig. 5 is a cross-section of the can-body-clamping device, showing the can-body-feed chute. Fig. 6 is a cross-section on line 6 6 of Fig. 5, showing the device for feeding the can-bodies one by one to the can-body-holding device; and Fig. 7 is a detail view of the can head-supply chute.

In said drawings, A represents the frame of the machine; B B, the two parts of the can-body clamping or holding device; C C, the pistons for applying the heads to the can-body; D D, the can-head-supply chutes, through which the can-heads are fed down in front of the pistons C, and F is the can-body-supply chute, through which the can-bodies are fed to the can-holding device.

The can-body-holding device B B is preferably made in two parts, both of which are movable. As shown in the drawings, they are both made to reciprocate and are attached to and operated by suitable slides, B', which move in guideways B² on the frame, and are operated by suitable cams, B³ B⁴. The two-part can-body-holding device B is preferably made in the form of half-cylinders, which are each furnished with sliding interior sleeves or sections, b, which conform to the circumference of the can-body. These sections b are furnished with an annular channel or groove, b', at their ends to receive the flaring edge of the can-head flange x. The sliding sections b have flanged inner ends, b², which fit

in an annular recess, b^3 , in the part B. The width of this recess b^3 is sufficient to permit the sliding sleeves b to approach each other far enough to allow the heads x to be forced upon the can-body x' to the full depth of the flanges of the heads. The sliding interior sleeves, b , are secured in the half-molds B B, so that they may slide thereon, by means of screws b^4 , which are threaded into the sleeve b , and the heads of which fit in longitudinal slots b^5 , cut in the half-molds B. The sliding sleeves b on the half-molds B are forced apart by light springs b^6 . The flanges b^2 on the sleeves B limit the outward movement of the sleeves, so that the outer ends of the sleeves will just be flush with the end of the can-body inside the mold.

The pistons C for applying the heads to the can-bodies are furnished with one or more—preferably three—projections or flanges, c , to receive and guide or center the can-head in respect to the can-body held in the clamping device B. One of these flanges c is located at the lowermost part of the piston-head and the other two at the extremities of the horizontal diameter, so that the heads may drop down upon these supporting-flanges from the feed-chute D. In cases where, as shown in the drawings, these can-head guiding and supporting projections or flanges c are used in combination with the particular construction of can-body-holding device heretofore described, or a can-body-holding device having sliding sleeves or sections b , I provide these projections c preferably with square ends, which bear against the sliding sleeves b , and thus serve to force or push the sleeves in as the piston advances, and thus relieve the flange of the can-head from the strain necessary to overcome the force of the springs b^6 . The pistons C are attached to slides C' , which move in guideways C^2 on the frame of the machine. They are operated by cams C^3 C^4 .

The can-head-supply chute D is furnished with a movable stop or support, d , which operates to hold or support all the can-heads in the chute except the last one, which is permitted to drop down in front of the piston when the piston is withdrawn. This movable support d for the can-heads may be automatically and very conveniently operated or withdrawn, so as to permit the can-heads to feed down on top of the piston by means of a projection, d' , on the piston or its slideway, which strikes against an adjustable pin, d^2 , attached to the lever d^3 , upon the upper end of which the support d is mounted. The lever d^3 is pivoted at d^4 to the frame of the machine. A spring, d^5 , serves to hold the movable support d in position to support the can-heads, except when the same is retracted by the forward movement of the piston C.

When the piston C moves forward to force the can-head upon the can-body, the projection d' will operate the lever d^3 and withdraw the stop or support d , so that all the can-heads in the chute resting one on top of another may

press down upon the piston C. The moment the piston begins to recede, however, the spring d^5 will operate the lever d^3 and project the pin d through the slot d^6 in the can-head chute, so that the end of the pin d will engage or press against the second can-head in the chute, and thus support the same and all the can-heads above it, while the lowermost can-head in the chute will be free, and alone free, to drop down in front of the piston when the piston is sufficiently retracted to permit it to do so. The pin or support d is adjustable in the lever d^3 by means of the set-screw, and the height of the lever itself is adjustable, so that this feed device may be adapted to can-heads of different diameters or sizes.

After the heads have been applied to the can-body by the pistons C, the parts B B of the can-body clamping or holding device separate or are retracted to permit the headed can-body to be discharged and a second can-body from the chute F to feed in between them. To properly support the next succeeding can-body while the part molds B B are open, I provide the part molds with a movable can-body-holding finger, G, preferably secured to a sliding pin, g , extending through a suitable opening in the mold B or the slide to which it is attached. This sliding pin g is provided with a recess, g' , in which fits a spring-pin, g^2 . The pin g^2 has a head, g^3 , which engages a stationary cam, g^4 , secured to the frame of the machine or to the slideway B^2 . A spring, g^5 , serves to extend or move the rod g , so that the finger G will be in position for supporting the can-body when the holding-pin g^2 is retracted by the cam g^4 . Now, when the mold B begins to recede or open, the pin g^2 , engaging the rod g , will cause the finger G to be retracted with the mold B until the molds and fingers are sufficiently opened or separated to permit the headed can to be discharged. The instant, however, the headed can is discharged from the mold, and before the next succeeding can can fall down between the molds B B from the chute F, the head of the pin g^2 will have engaged the cam g^4 , and thus released the rod g , so that the spring g^5 will extend the finger G into position to catch and support the next succeeding can as it falls, and so hold it until the molds B B close upon the same. As the molds B B close together, the fingers G G will be retracted within the molds into position for the spring-pin g^2 to engage the recess g' in the rod g . By this means, therefore, the can-bodies will be automatically fed from the delivery-chute into the mold and be discharged therefrom after they are headed.

It will be observed that I have described and shown my invention as adapted to simultaneously apply the heads to the opposite ends of the can-body. The devices at the two ends, however, are merely duplicates of each other, and in cases where it is only desired to apply a head to one end of the can-body the devices at the other end need not be used, or may be omitted entirely from the machine.

While the sliding section or sleeve *b*, which serves to guide the flange of the can-head upon the can-body, is shown in the drawings as a continuous sleeve, it will of course be understood that this guide-section *b* need not be a continuous sleeve entirely encircling the can-body, but may be in parts cut away and only engage the flange of the can-head at a portion instead of the whole of its circumference. It should also be understood that my invention is equally applicable to operating upon other than cylindrical cans, the can-body-holding device and pistons being, of course, made to correspond to the shape of the can.

In order to properly feed or deliver the can-bodies one by one from the chute *F* to the can-body-holding device *B*, I provide the chute *F* with a movable stop, *H*, which operates automatically to discharge the cans one by one. This movable stop or feed lever is pivoted to the frame and is operated by a short arm, *h*, through the pivoted link *h'*, cam *h''*, and spring *h'''*. The cam serves to intermittently raise the lever *H* out of the path of the can-bodies in the chute *F*, and thus permit one can to roll past the lever, when the gate or lever *H* again descends and holds the remaining cans, the movement being properly timed in relation to the movements of the molds *B B* and pistons *C C*.

The can head-supply chute *D* is furnished with slots *d'* to permit the projections *c* of the piston *C* to pass through said chute. In case the sliding sleeve or section *b* of the can-body holder *B* were omitted, the holder *B* should be provided with similar notches to receive the projections *c* of the can-head-applying piston.

I claim—

1. In a machine for applying the heads or ends to can-bodies, the combination, with a can-body-holding device, of a piston for forcing the head upon the can-body, a can-head-supply chute through the mouth or base of which said piston reciprocates, adapted to guide the can-heads down in front of said piston and between the same and said can-body-holding device, a movable stop for arresting or holding all the can-heads but one in said chute, so that they may feed down one by one, and mechanism for operating said movable stop to release the can-heads in said chute when the piston makes its forward stroke and to arrest or support the can-heads when the piston makes its backward stroke, said piston supporting the can-heads when the same are released by said stop, whereby two or more can-heads are prevented from slipping down at a time between said can-body-holding device and piston, substantially as specified.

2. The combination, with a can-body-holding device, of a piston, a can-head-supply chute, a movable stop, *d*, a lever, and a pin or projection on the piston for operating said stop *d*, substantially as specified.

3. The combination, with a can-body-holding device, of a piston, a can-head-supply chute, a movable stop, *d*, a lever, and a pin or

projection on the piston for operating said stop *d*, and a spring, *d''*, substantially as specified.

4. The combination, with a can-body-holding device, of a sliding sleeve at the end thereof projecting to the end of the can-body and adapted to recede as the can-head is forced upon the can-body, substantially as specified.

5. The combination, with a device for forcing a can-head upon a can-body, of a can-body-holding device furnished with a sliding sleeve at its end, substantially as specified.

6. The combination, with a piston for forcing a can-head upon a can-body, of a can-body-holding device furnished with a sliding sleeve at its end, said piston being furnished with a flange or projection adapted to engage said sliding sleeve and push the sleeve in as the can-head is forced upon the can-body, substantially as specified.

7. The combination, with a piston having flanges or projections *c*, of a can-head chute, a can-body-holding device, and a sliding guide or sleeve for guiding the can-head upon the can-body, and a spring for extending said sleeve, substantially as specified.

8. The combination, with a piston or device for forcing a can-head upon a can-body, of a sliding or receding guide, *b*, adapted to fit over the can-body at its end and to recede longitudinally over the can-body as the can-head is forced upon the can-body by the piston, substantially as specified.

9. The combination, with a piston or device for forcing a can-head upon a can-body, of a sliding or receding guide, *b*, adapted to fit over the can-body at its end and to recede longitudinally over the can-body as the can-head is forced upon the can-body by the piston, said guide *b* having a groove or recess to receive the edge of the can-head flange, substantially as specified.

10. The combination, with a device for forcing a can-head upon a can-body, of a can-body-holding device furnished with a sliding sleeve at its end, said sliding sleeve having a groove or recess at its end to receive the edge of the can-head flange, substantially as specified.

11. The combination, with a two-part mold, *B B*, of a sleeve, *b*, sliding therein, and a piston, *C*, substantially as specified.

12. The combination, with a two-part mold, *B B*, of a sleeve, *b*, sliding therein, and a piston, said sleeve *b* having a groove or recess, *b'*, at its end, substantially as specified.

13. The combination, with a can-body chute, of a two-part mold adapted to open and close, and a movable can-body-supporting finger, as *G*, for holding the succeeding can while the mold closes upon the same, substantially as specified.

14. The combination, with a can-body-holding device, *B B*, of chute *F*, movable finger *G*, rod *g*, having recess *g'*, spring-pin *g''*, cam *g'''*, and spring *g''''*, substantially as specified.

15. The combination, with a can-body chute,

of a two-part can-body-holding device furnished with a movable finger adapted to be retracted to permit the discharge of the can, and furnished with a spring for quickly extending the same to catch the receding can as it falls from the chute, substantially as specified.

16. The combination, with a can-body-holding device, of a piston, C, for applying the heads to the can-body, and a can-head chute, D, said piston C being furnished with a flange or projection, *c*, substantially as specified.

17. The combination, with a can-body-holding device, of a piston for applying the can-head thereto, a can-body chute, F, a movable gate, H, lever-arm *h*, pivoted link *h'*, and cam *h''*, substantially as specified.

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Witnesses:

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