No. 702,138. Patented June 10, 1902.

F. M. LEAVITT.

CAN HEADING MACHINE.

(Application filed Mar. 10, 1902.)

(No Model.) 6 Sheets—Sheet 1.

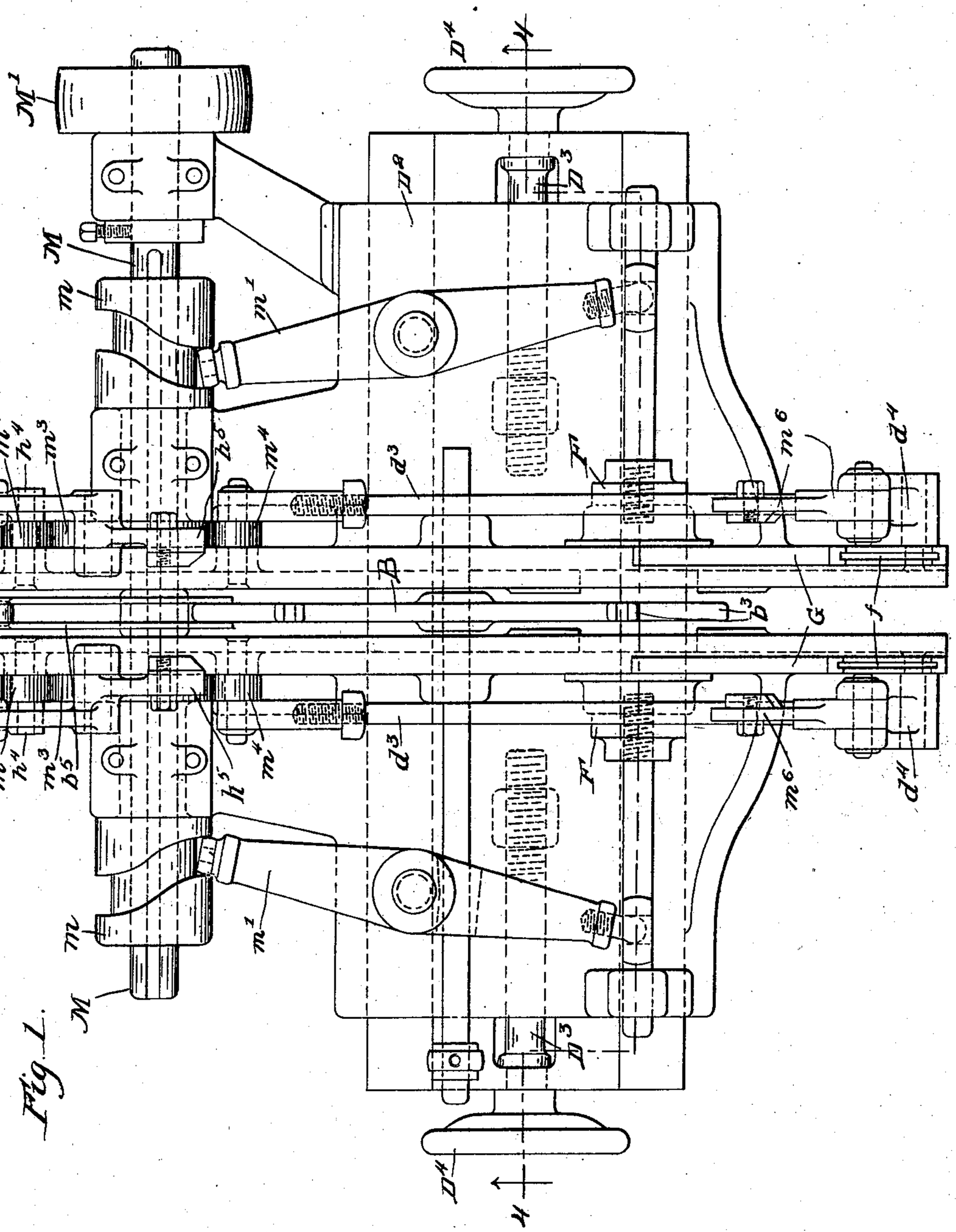

Fig. 1.

WITNESSES:

H. W. Munday.

Wm. Geiger

INVENTOR

Frank M. Leavitt

BY Munday Evarts & Adcock

ATTORNEYS.

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(No Model.) 6 Sheets—Sheet 2.

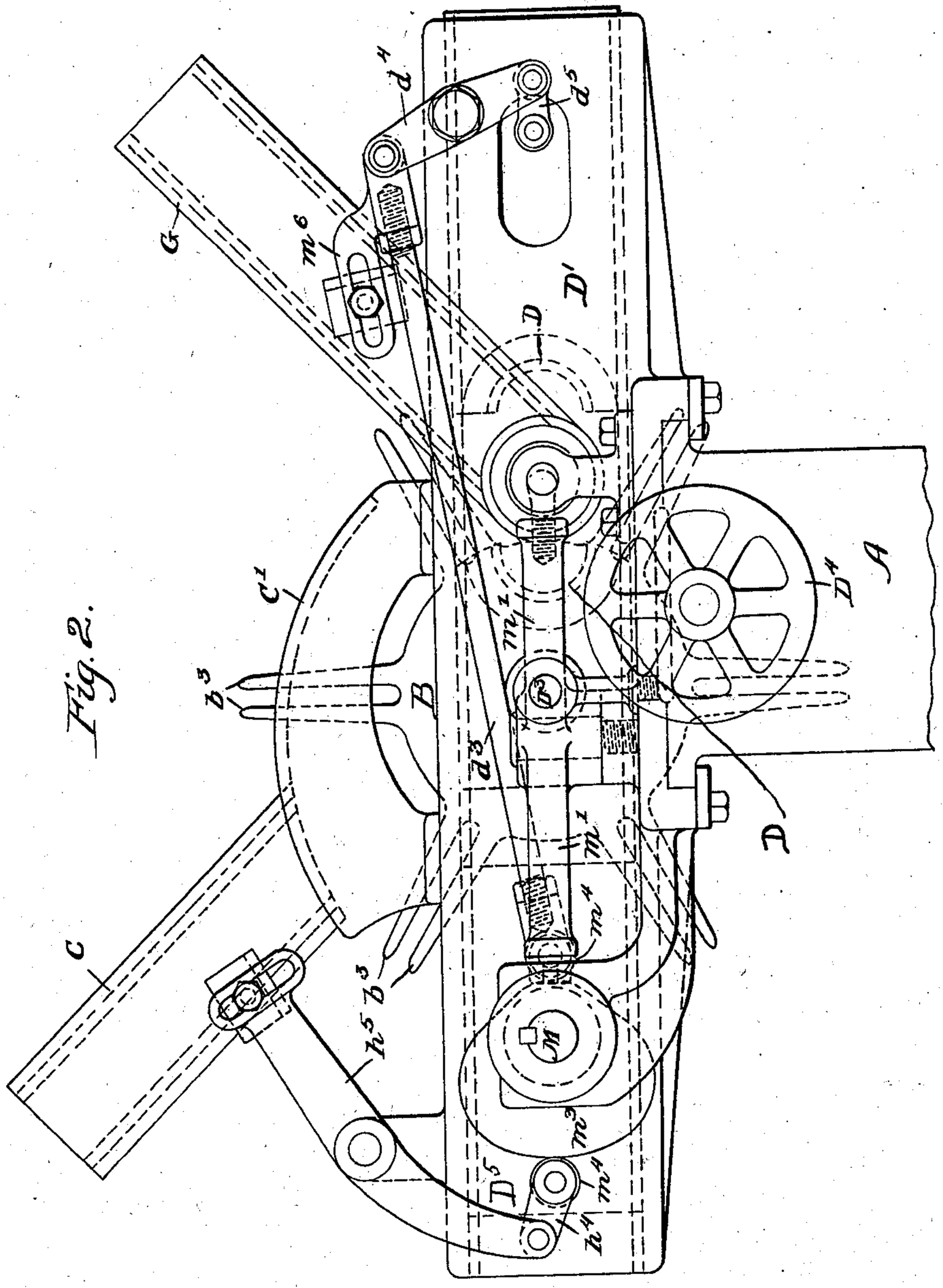

Fig. 2.

WITNESSES:

A. W. Munday.

Wm. Geiger

INVENTOR

Frank. M. Leavitt.

BY

Munday, Evarts & Adcock

ATTORNEYS.

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F. M. LEAVITT.

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(No Model.) 6 Sheets—Sheet 3.

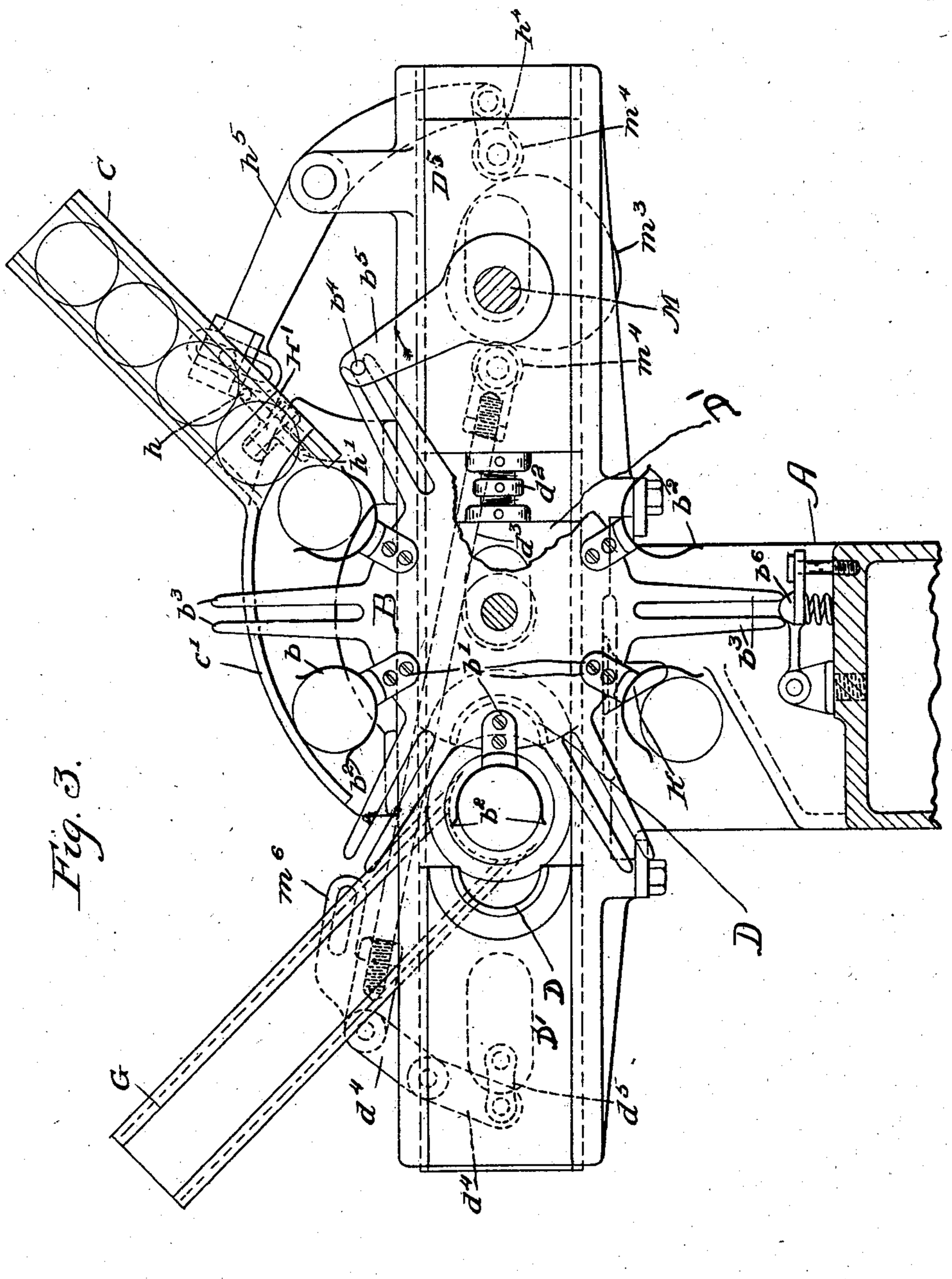

Fig. 3.

WITNESSES:

F. W. Munday

Wm. Geiger

INVENTOR

Frank M. Leavitt.

BY

Munday, Evarts & Adcock

ATTORNEYS.

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F. M. LEAVITT.

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(Application filed Mar. 10, 1902.)

(No Model.) 6 Sheets—Sheet 4.

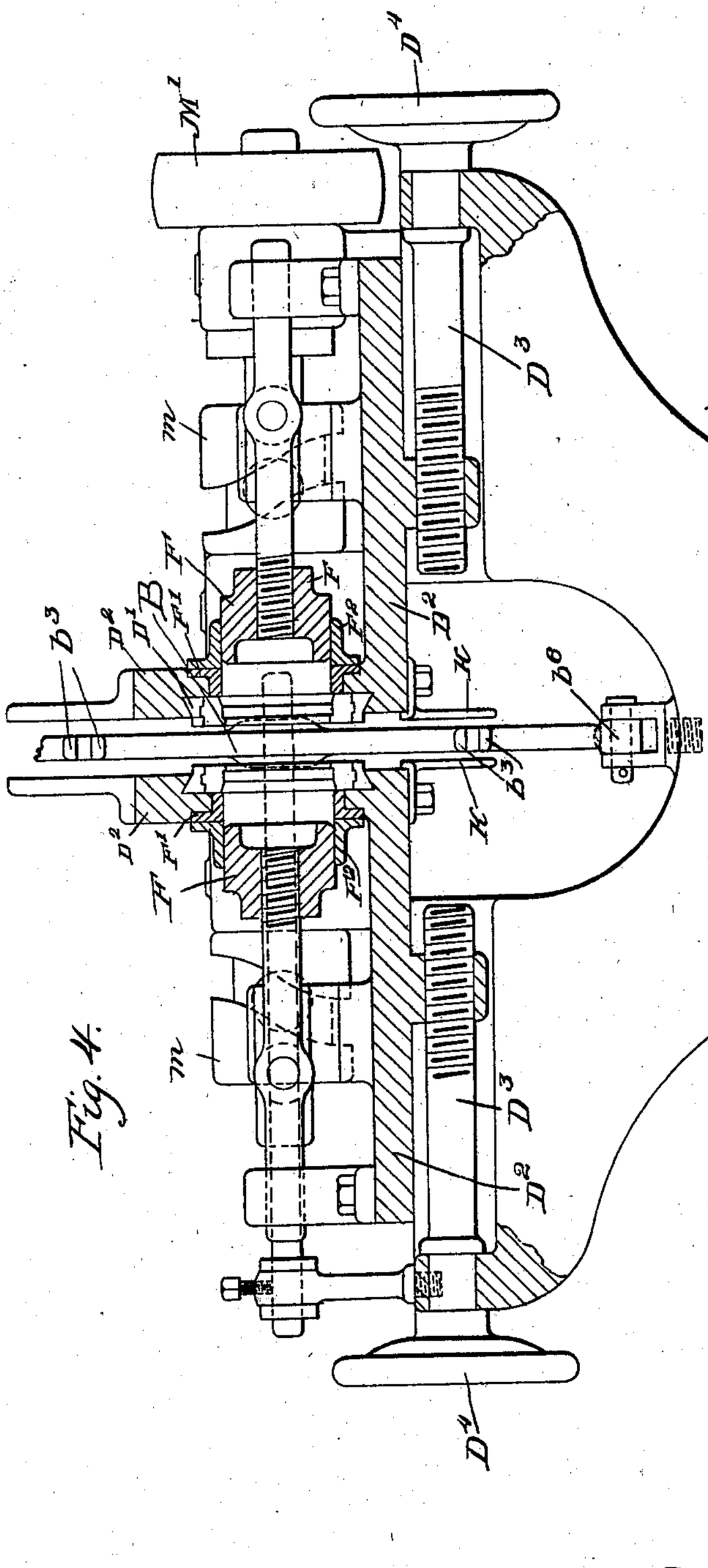


Fig. 4.

WITNESSES:

H. W. Munday.

Wm. Geiger

INVENTOR

Frank M. Leavitt.

BY

Munday, Evarts & Adcock

ATTORNEYS.

No. 702,138. Patented June 10, 1902.

F. M. LEAVITT.

CAN HEADING MACHINE.

(Application filed Mar. 10, 1902.)

(No Model.) 6 Sheets—Sheet 5.

Fig. 5.

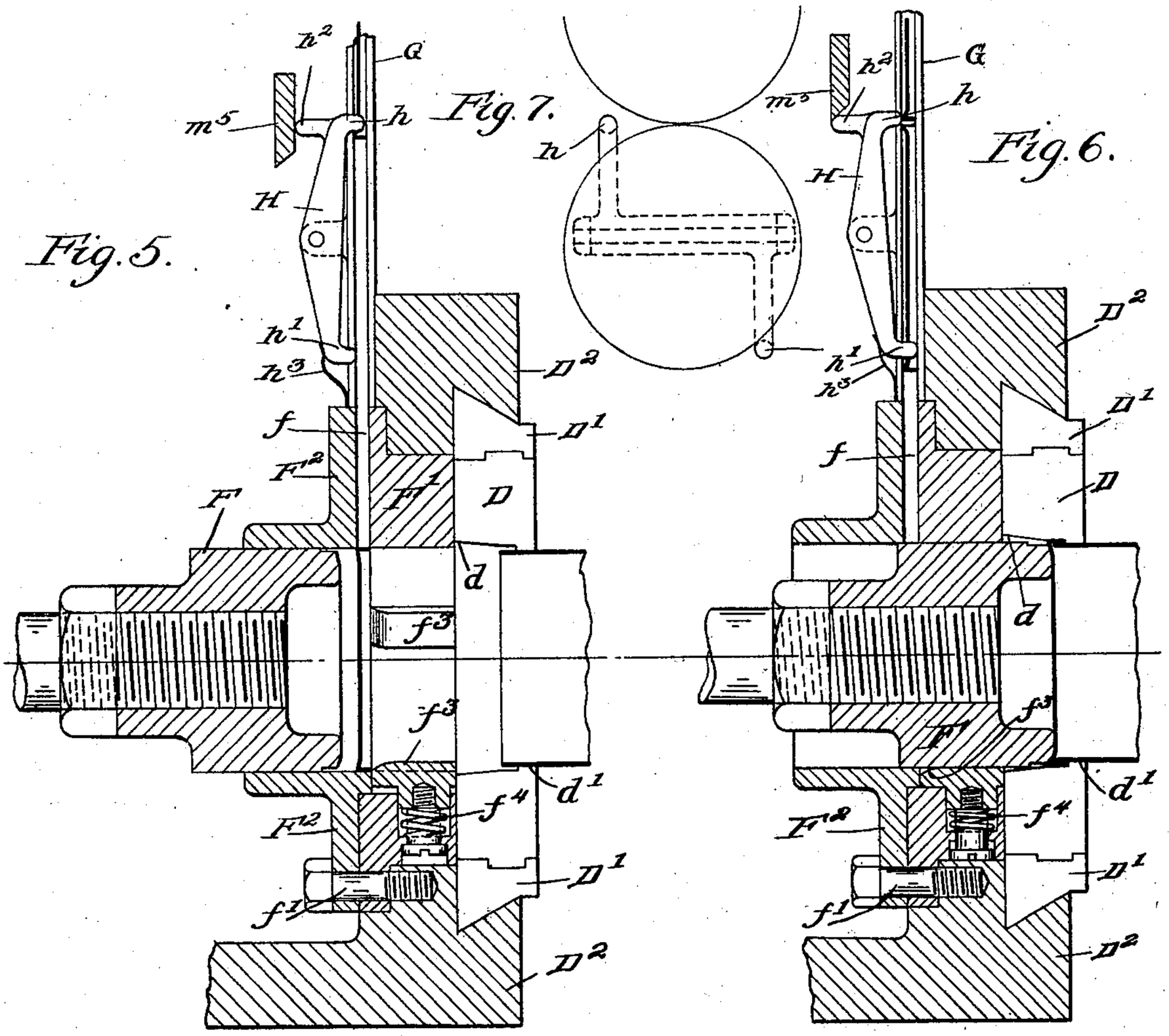
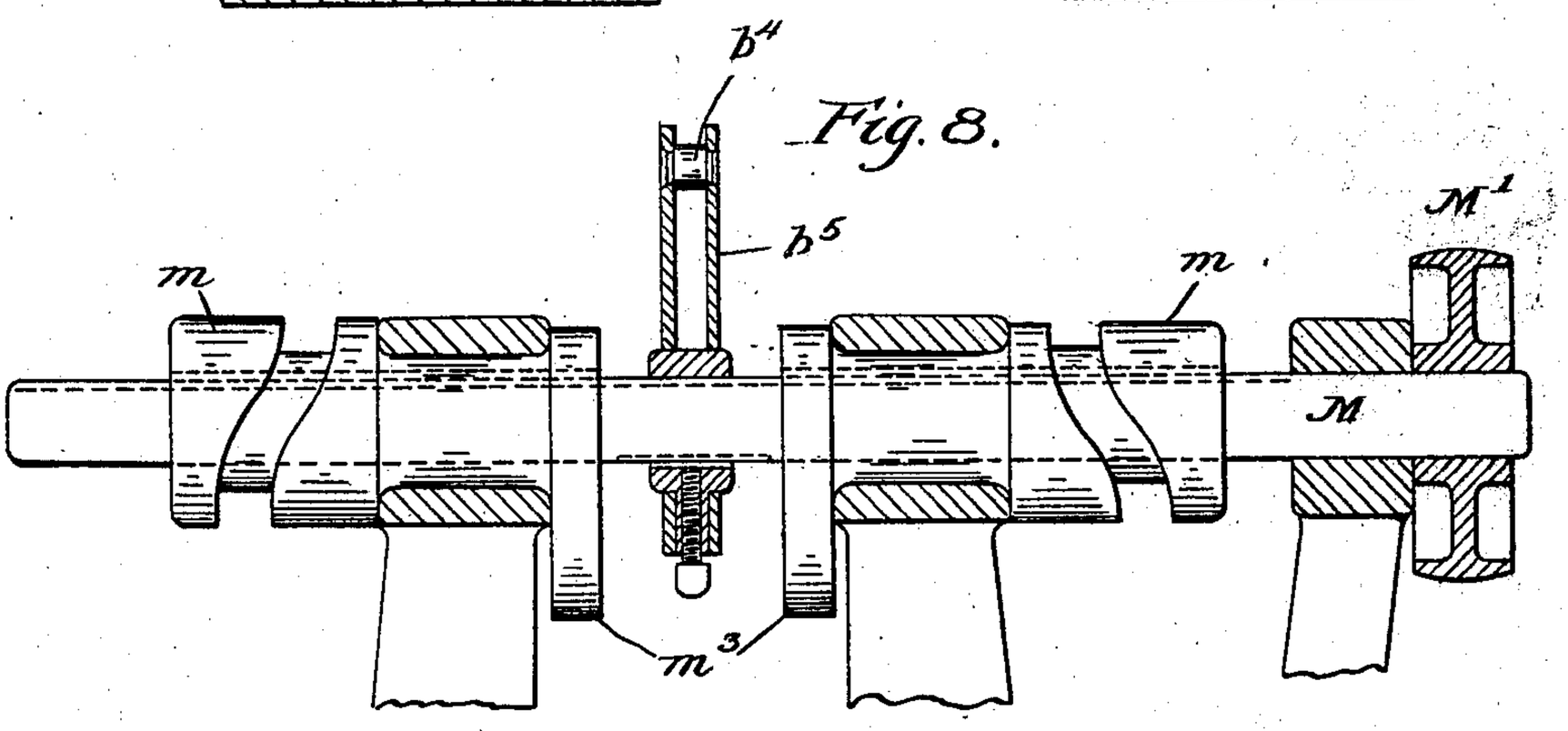


Fig. 7.

Fig. 6.

Fig. 8.



WITNESSES:

H. M. Munday.

Wm. Geiger

INVENTOR

Frank M. Leavitt.

BY Munday, Evarts & Adcock

ATTORNEYS.

No. 702,138. Patented June 10, 1902.

F. M. LEAVITT.

CAN HEADING MACHINE.

(Application filed Mar. 10, 1902.)

(No Model.) 6 Sheets—Sheet 6.

Fig. 9.

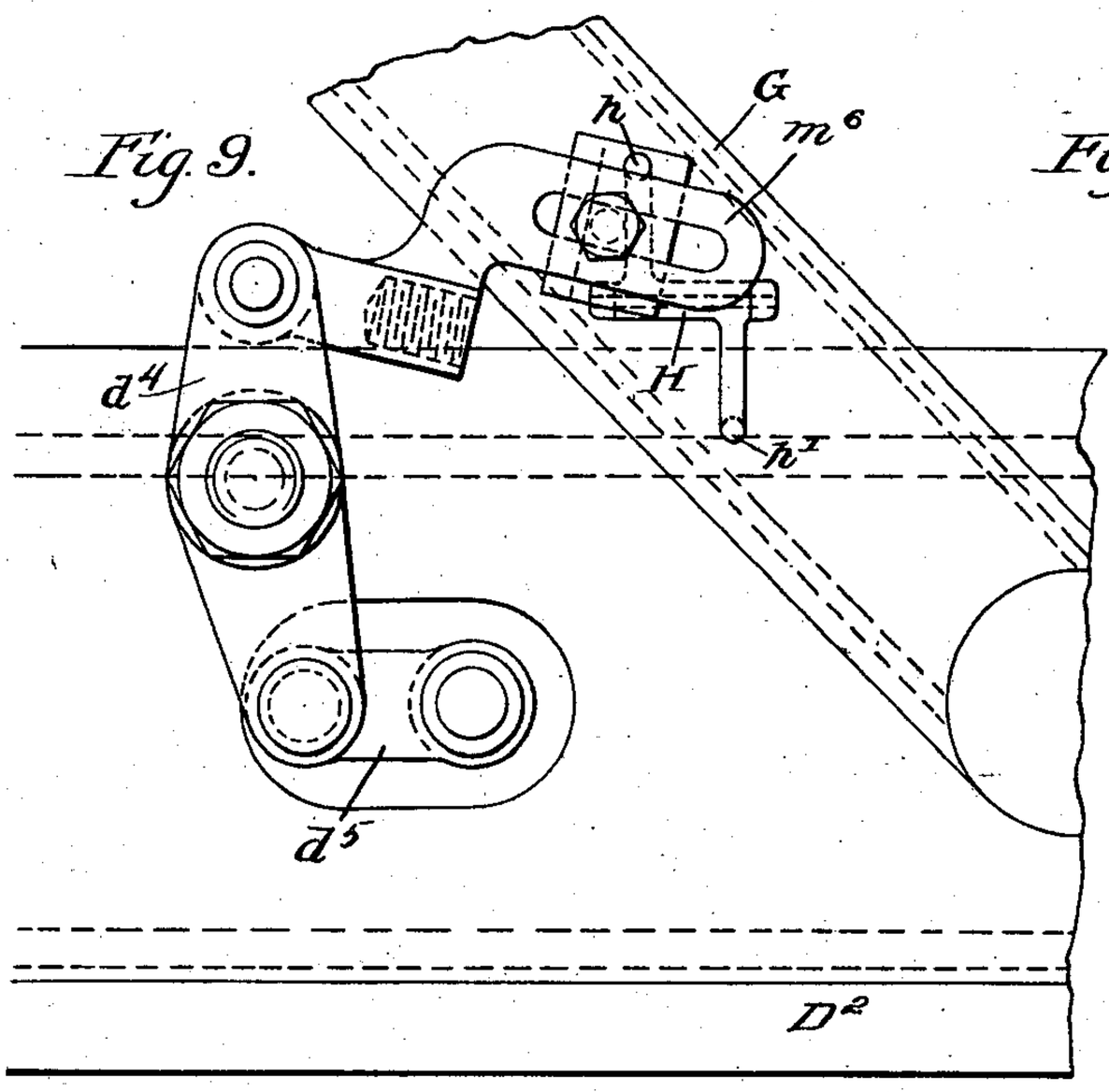


Fig. 10.

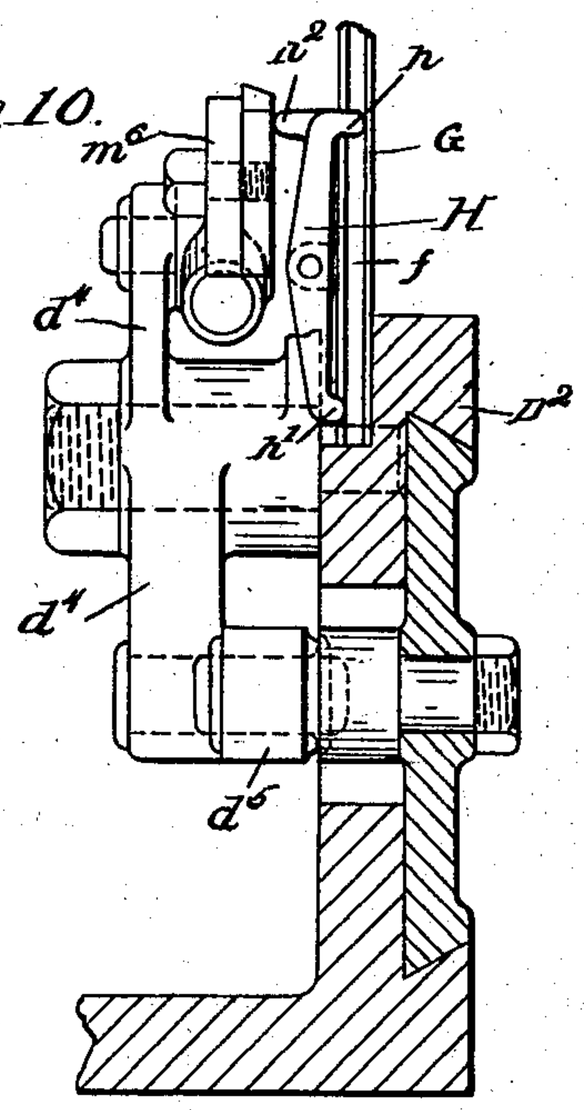


Fig. 11.

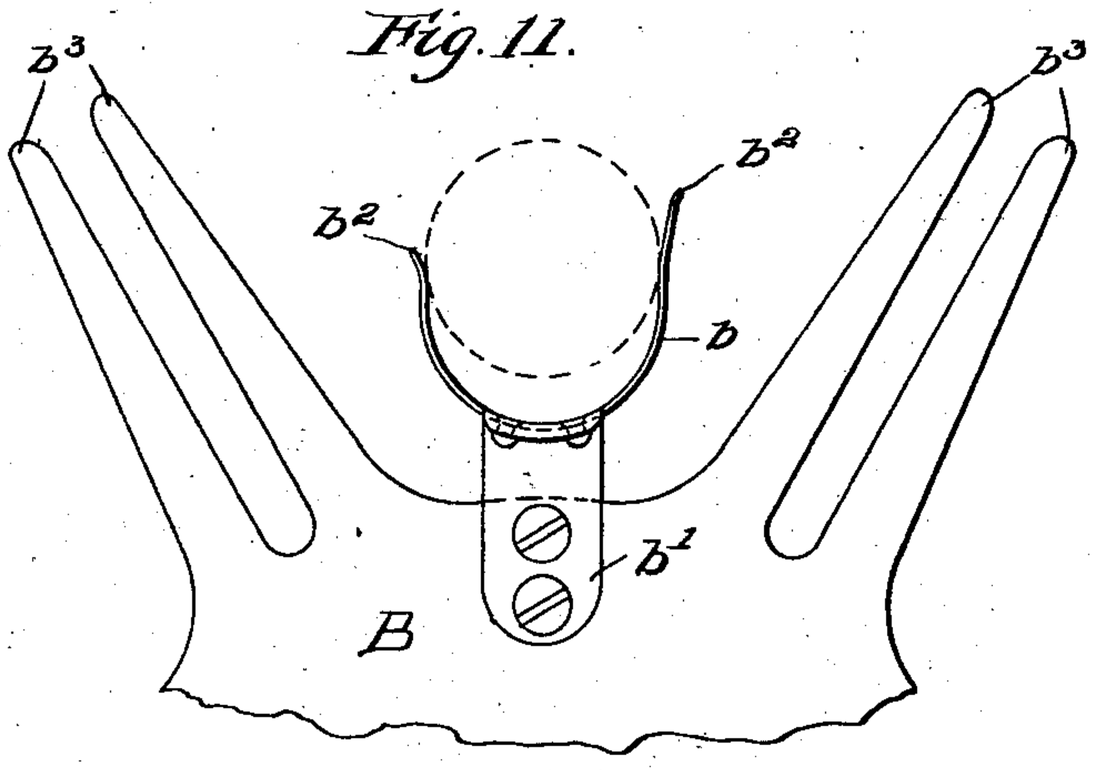
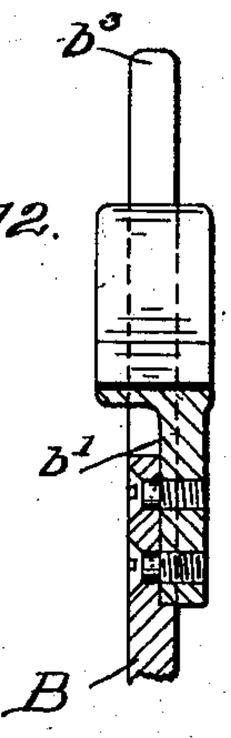


Fig. 12.



WITNESSES:

H. W. Munday.

Wm. Geiger

INVENTOR

Frank M. Leavitt.

BY Munday, Evarts & Adcock

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRANK M. LEAVITT, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN CAN COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 702,138, dated June 10, 1902.

Application filed March 10, 1902. Serial No. 97,455. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. LEAVITT, a citizen of the United States, residing in New York, in the county of New York and State of New York, have invented a new and useful Improvement in Can-Heading Machines, of which the following is a specification.

My invention relates to can-heading machines.

The object of my invention is to provide an automatic can-heading machine of a simple, efficient, and durable construction by means of which exterior tight-fitting can-heads may be rapidly and cheaply applied to can-bodies and which at the same time may be readily adapted or changed for operation upon cans of different lengths or sizes.

My invention consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown or described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a machine embodying my invention. Figs. 2 and 3 are side elevations looking from opposite sides, Fig. 3 being partly in vertical section. Fig. 4 is a vertical section on the broken line 4 4 of Fig. 1. Figs. 5 and 6 are enlarged vertical sections centrally through one of the heading-plungers, showing parts in different positions. Fig. 7 is a detail view illustrating the operation of the can-head feeder or spacer. Fig. 8 is a detail view, partly in section, showing the crank-shaft. Figs. 9 and 10 are detail elevations showing the can-feeder and mechanism for operating the same. Figs. 11 and 12 are detail views showing portions of the can-body carrier.

In the drawings similar letters of reference apply to like parts of the several figures.

In said drawings, A represents the frame of the machine.

B is an intermittently-revolving can-body carrier provided with a series of spring-pockets *b*, secured thereto by brackets *b'*, to which the narrow semicircular spring-pocket strips *b* are attached. Each of the spring-pockets *b* slightly exceeds a semicircle and has flaring outer ends b^2, so that the can-bodies may be readily pressed into the spring-pockets, and thus retained therein as the carrier-wheel revolves.

C is the can-body chute down which the can-bodies roll or pass into the can-pockets *b* on the carrier. As the carrier rotates a curved and inclined guide C' forces the can-body snugly into the pocket *b*, as will be readily understood from Fig. 3 of the drawings.

D D are reciprocating half-round or semicircular heading jaws or molds, there being one pair of these for each end of the can. Each of these heading-jaws has a flaring mouth *d* to receive and guide the can-head onto and around the can-body and a shoulder *d'* of smaller diameter to compress and round the can-body, so that it will telescope with the flange of the can-head as the can head and body are forced together by the heading-plungers F. The heading-jaws D are removably secured in the reciprocating slides D', which are opened to receive and closed upon the can-body presented between them by the carrier B as the carrier rotates. The slides D', each carrying the heading-jaws D and which reciprocate transversely to the axis of the can-body, are mounted each pair upon an adjustable carriage D^2, so that the two pairs of heading-jaws may be adjusted closer together or farther apart as may be required for operation upon can-bodies of different lengths. The carriages or slides D^2 are thus adjusted in position by the adjusting-screws D^3, each furnished with hand-wheels D^4 for turning the same. The heading-plungers F reciprocate in the direction of the axis of the can-body through a header-ring F', which is provided with a transverse passage *f*, coinciding with the can-head chute G for the admission of the can-heads into the header-ring in front of the heading-plunger F, as will be readily understood from Figs. 5 and 6. The header-ring F' preferably has a removable part F^2 secured to the main part F' by a bolt *f'*. The header-ring F' is mounted upon the slide or carriage D^2, and it is also preferably provided with one or more yielding inwardly-projecting curved guards f^3 to prevent the can-heads from tilting inward in the ring F' after they are dropped into position therein in front of the heading-plunger F. These yielding

guards f^3 are held yieldingly in position by light springs f^4, the same readily yielding or moving out of the way of the can-head when the plunger F pushes the can-head forward through the header-ring. The can-head chute G is secured at its lower end to the adjustable carriage or slide D^2 and is thus moved in or out with the carriage. It is provided with a vibrating feeder H, having fingers $h\,h'$, adapted to space or feed the can-bodies one by one. The can-body feed-chute C is provided with a similar feeder H', having corresponding fingers $h\,h'$ for feeding the can-bodies one by one. The headed cans are automatically discharged from the spring-pocket b of the carrier B as the carrier rotates by an inclined discharger K, secured to the adjustable carriage D, one of these dischargers being preferably employed on each side of the carrier B.

M is the driving-shaft, furnished with a driving-pulley M'. The shaft M is provided with a pair of cams $m\ m$, which reciprocate the heading-plungers F F through the connecting-levers $m'\ m'$, which are mounted upon the adjustable carriages D^2, so that when the carriages are adjusted in and out to operate upon can-bodies of different lengths no longitudinal adjustment of the small cans will be required, the levers being pivoted at their middle.

The reciprocating slides D' D', carrying the heading-jaws D D, are reciprocated as required by means of cams $m^3\ m^3$, which engage a pair of friction-rollers $m^4\ m^4$ on the supplemental or operating slides $D^5\ D^5$, from which motion is communicated directly to one of the slides D' through the adjustable connection d^2 and to the other slide D' through the connecting-link d^3, lever d^4, and link d^5. The carrier B is intermittently rotated and locked in position as required, preferably by a Geneva stop mechanism, consisting, essentially, of radially-slotted arms b^3 on the carrier B, which are engaged by a crank-pin b^4 on a rotating arm b^5 on the shaft M. A spring pawl or lock b^6 on the frame of the machine engages the ends of the arms b^3 on the carrier-wheel and holds the same in position when the pin on the crank-arm is out of engagement with the slotted arms. The vibrating can-head feeder H is vibrated as required to feed the can-heads by a cam projection or arm m^5 on a bracket m^6 on the connecting-links d^3, which engages a projection h^2 on the feeder H, a spring h^3 vibrating the feeder in the opposite direction. The can-body feeder H' is vibrated as required from the supplemental slide D^5 through connecting-link h^4, lever h^5 carrying a similar cam projection to that before described for operating the can-head feeder H.

I claim—

1. In a can-heading machine, the combination of a rotary can-body carrier provided with a series of spring-pockets for receiving and holding the can-bodies, a curved and inclined guide for pressing the can-bodies into the spring-pockets, a can-body feed-chute provided with a vibrating can-body feeder, a pair of can-body feed-chutes provided with a pair of vibrating can-head feeders, a pair of header-rings provided with passages for the can-heads and furnished with yielding guards to prevent the can-heads from tilting inward, a pair of heading-plungers reciprocating in said header-rings, two pairs of reciprocating heading-jaws, one pair mounted on each side of said rotary can-body carrier, a pair of adjustable carriages or slides upon which the header-jaws, operating-slides, the header-ring and can-head chutes are mounted, and a discharger for forcing the can-bodies out of the spring-pockets on the carrier as the carrier rotates and mechanism for operating the header-jaws, header-plungers, and can-body feeders, substantially as specified.

2. In a can-heading machine, the combination with an intermittently-rotating can-body carrier provided with spring-pockets to receive and hold the can-bodies, of an inclined and curved guide for forcing the can-bodies into the spring-pockets, substantially as specified.

3. In a can-heading machine, the combination with an intermittently-rotating can-body carrier provided with spring-pockets to receive and hold the can-bodies, of an inclined and curved guide for forcing the can-bodies into the spring-pockets, and an inclined discharger on the stationary frame of the machine for forcing the cans out of the spring-pockets after they are headed, substantially as specified.

4. In a can-heading machine, the combination with an intermittently-rotating can-body carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages, one on each side of said rotary carrier, and two pairs of heading-jaws mounted one pair on each of said adjustable carriages, substantially as specified.

5. The combination, in a can-heading machine, with an intermittently-rotating carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages, one on each side of said carrier, a header-ring, a can-head chute and a pair of header-jaws having a pair of reciprocating slides for operating the same, all mounted on each of said adjustable carriages or slides, substantially as specified.

6. The combination, in a can-heading machine, with an intermittently-rotating carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages, one on each side of said carrier, a header-ring, a can-head chute and a pair of header-jaws having a pair of reciprocating slides for operating the same, all mounted on each of said adjustable carriages or slides, and a pair of heading-plungers, substantially as specified.

7. The combination with a can-head chute, a header-ring having a passage for the can-

heads, a reciprocating heading-plunger, a pair of header-jaws, a pair of reciprocating slides for operating the same movable transversely to the axis of the can-body and an intermittently-rotary can-body carrier having pockets to receive and hold the can-bodies, substantially as specified.

8. The combination with a can-head chute, a header-ring having a passage for the can-heads, a reciprocating heading-plunger, a pair of header-jaws, a pair of reciprocating slides for operating the same and an intermittently-rotary can-body carrier having pockets to receive and hold the can-bodies, and an adjustable slide or carriage D^2 upon which the can-head chute, header-ring, heading-jaws and their slides are mounted, substantially as specified.

9. In a can-heading machine, the combination with an intermittently-rotating can-body carrier B having pockets b to receive and hold the can-bodies, and provided with radially-slotted arms b^3, a shaft M having a crank-arm b^5 provided with pin b^4 engaging said slotted arms on the carrier, a spring pawl or lock b^6, a pair of reciprocating header-jaws D D, a header-ring F′ and heading-plunger F, substantially as specified.

10. In a can-heading machine, the combination with an intermittently-rotating carrier B having pockets b to receive and hold the can-bodies, of a pair of adjustable carriages or slides D^2, adjusting-screws D^3 therefor, header-jaws D D and D D, header-slides D′ D′ and D′ D′, header-rings F′ F′, heading-plungers F F, a shaft M having cams m m, and connecting-levers m' m' for operating the heading-plungers, substantially as specified.

11. In a can-heading machine, the combination with an intermittently-rotating carrier B, having pockets to receive and hold the can-bodies, of two pairs of header-slides and header-jaws, one pair on each side of said carrier, a shaft M having cams m^3 m^3, supplemental or operating slides D^5 D^5, and connections for operating said header-slides from said slides D^5, substantially as specified.

12. In a can-heading machine, the combination with an intermittently-rotating carrier B, having pockets to receive and hold the can-bodies, of two pairs of header-slides and header-jaws, one pair on each side of said carrier, a shaft M having cams m^3 m^3, supplemental or operating slides D^5 D^5, connections for operating said header-slides from said slides D^5, header-plungers F F and cams m m and connecting-levers for operating said heading-plungers, substantially as specified.

13. In a can-heading machine, the combination with a rotating carrier having pockets to receive and hold the can-bodies, of a pair of header-jaws and header-slides, a heading-ring, a heading-plunger, a cam and a supplemental slide operated by the cam for operating said header-slides, a can-body chute, a vibrating can-body feeder, and a connecting-link and lever for operating said feeder by said supplemental slide, substantially as specified.

14. In a can-heading machine, the combination with a rotating carrier having pockets to receive and hold the can-bodies, of a pair of header-jaws and header-slides, a header-ring, a heading-plunger, a can-head chute, a vibrating can-head feeder, and connecting mechanism between said feeder and one of said header-jaw slides for operating said can-head feeder, substantially as specified.

15. In a can-heading machine, the combination with carrier B having pockets b, adjustable carriage D^2, header-jaws D D, header-slides D′ D′, header-ring F′, heading-plunger F, and a cam-shaft provided with cams for operating both said header-slides and said heading-plunger, substantially as specified.

16. In a can-heading machine, the combination with a can-body carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages and header-rings, header jaws and slides movable transversely to the axis of the can-body and mounted on said adjustable carriages, substantially as specified.

FRANK M. LEAVITT.

Witnesses:
FRED WHITE,
THOMAS F. WALLACE.