

No. 704,176.

Patented July 8, 1902.

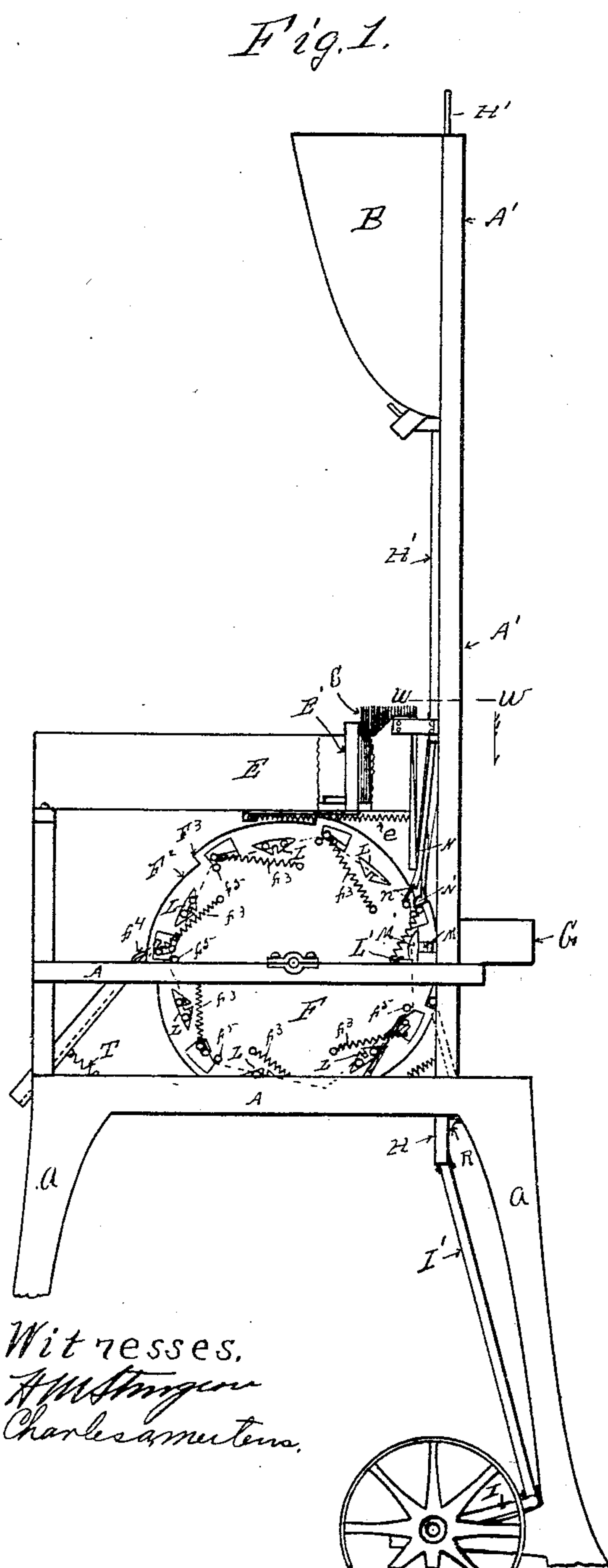
J. L. DROHEN.

BAG FILLING MACHINE.

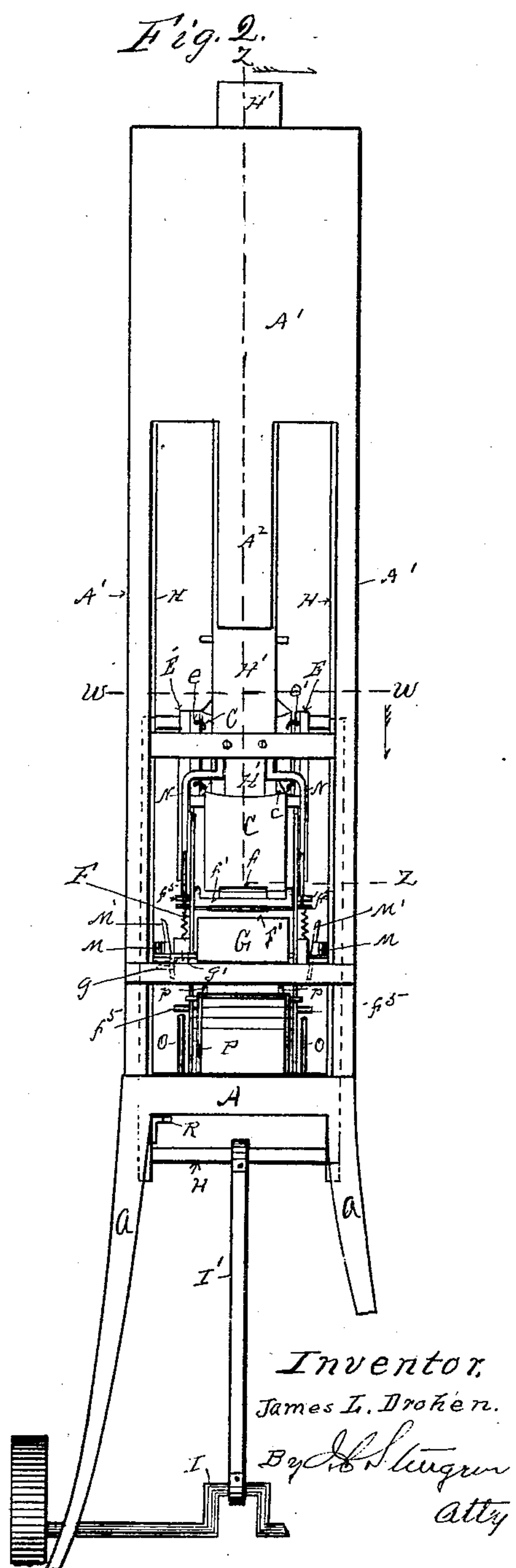
(Application filed Aug. 19, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses,
J. M. Sturgeon
Charles Amuteau.



Inventor,
James L. Drogen.

James L. Drohen.

By *H. S. Tugman*
att'y

THE NORRIS PETERS CO. PHOTO-LITHO. WASHINGTON, D. C.

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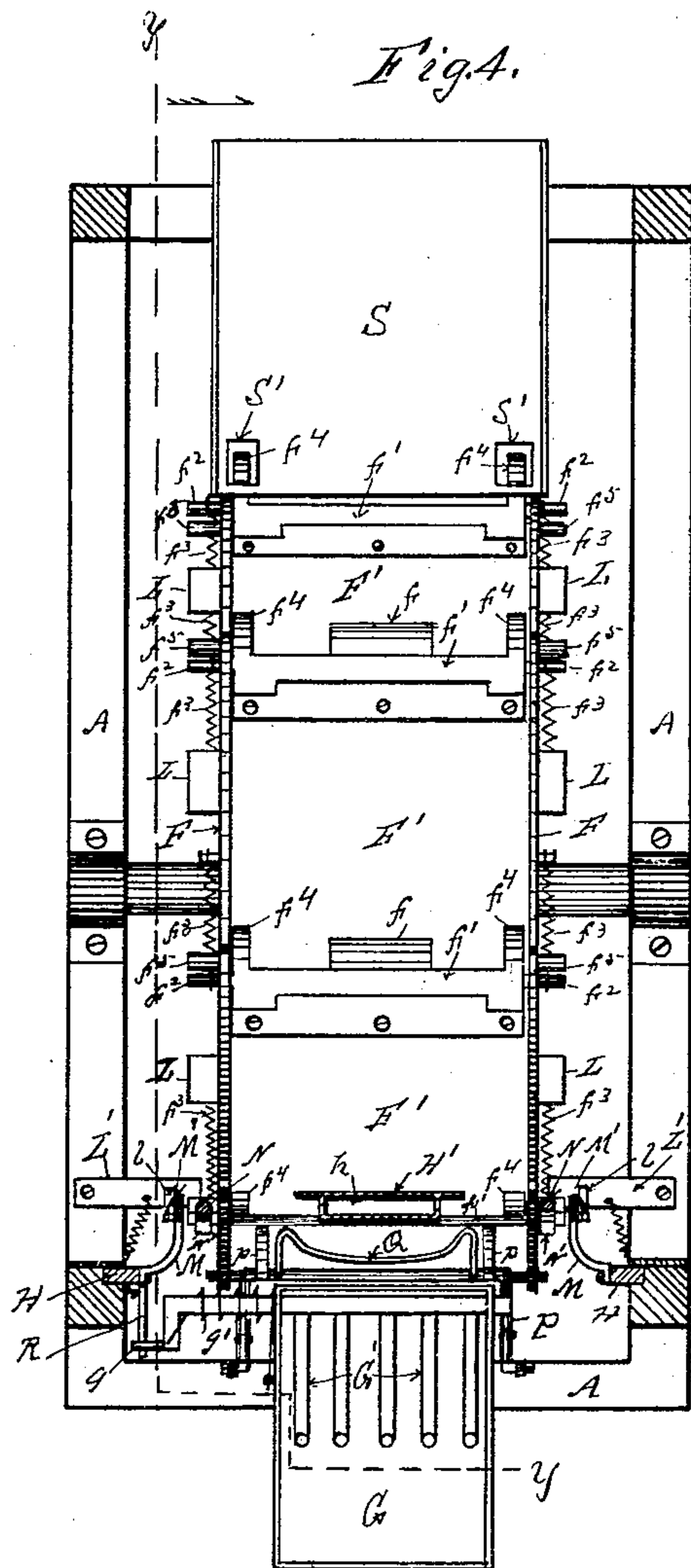
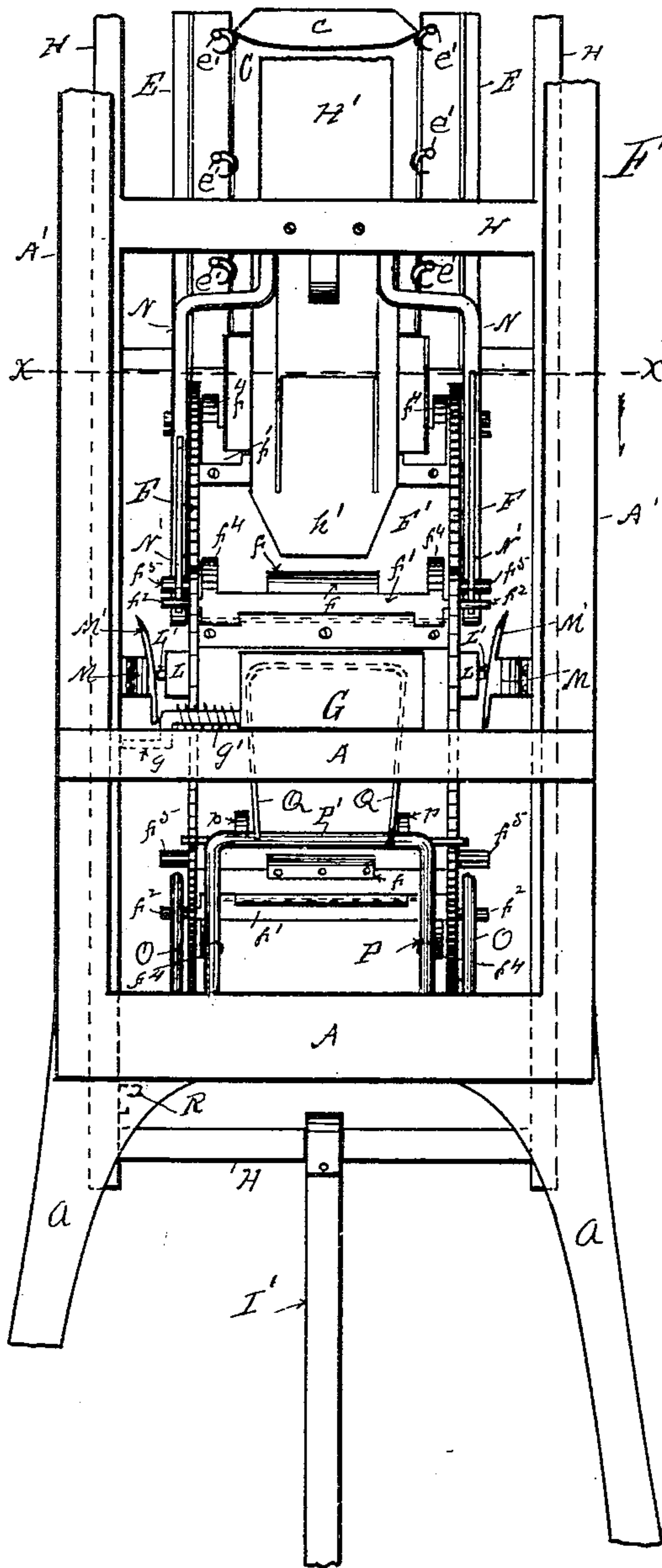
J. L. DROHEN.

BAG FILLING MACHINE.

(Application filed Aug. 19, 1901.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses,
AM Stinson
Charles Murtens.

Inventor.
James L. Proken
By H. Sturges
Att'y.

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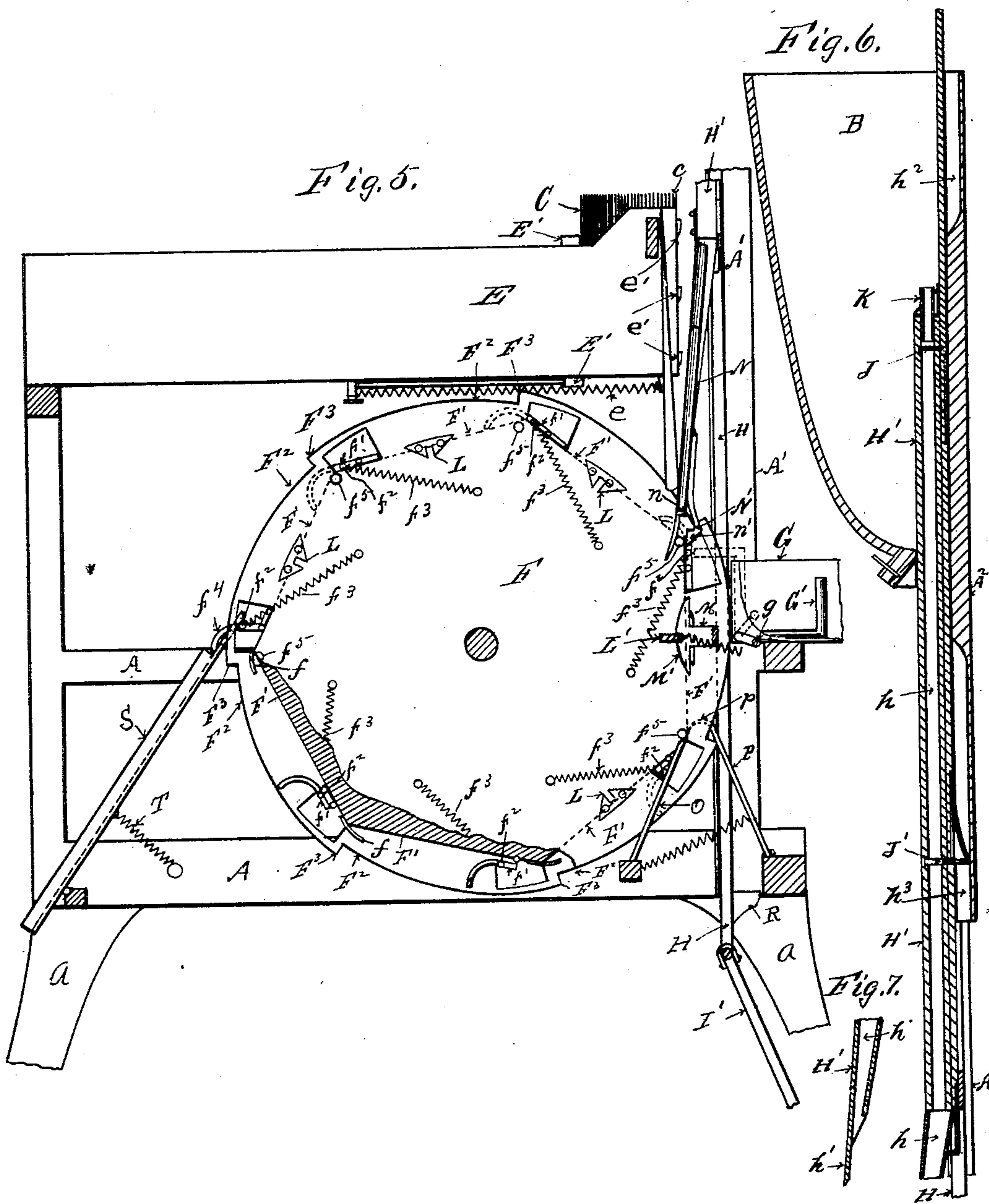
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J. L. DROHEN.
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(No Model.)

3 Sheets—Sheet 3.



Witnesses.
A. M. Sturgeon
Charles M. Muntz

Inventor.
James L. Drohen
By *A. M. Sturgeon*
Att'y.

UNITED STATES PATENT OFFICE.

JAMES L. DROHEN, OF DUNKIRK, NEW YORK.

BAG-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 704,176, dated July 8, 1902.

Application filed August 19, 1901. Serial No. 72,603. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. DROHEN, a citizen of the United States, residing at Dunkirk, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Bag - Filling 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 the letters of reference marked thereon, forming part of this specification.

My invention relates to improvements in bag-filling machines, and particularly to machines for automatically depositing a predetermined amount of seed or other material in a bag and sealing it. I accomplish this end by constructing my machine with a bag-holder mechanism which automatically moves the bags forward under a reciprocating carrier and plunger which operates at each downward movement to deposit a predetermined quantity of seed in the outermost bag in the holder and at the same time move the bag downward upon a carrier, which receives the filled bag and holds it until it is gummed and the flap folded down and sealed, and during the next downward movement of the reciprocating part another bag is in like manner filled and the carrier moved forward to receive it, when it is gummed and sealed as before. These operations are carried out during each traverse of the reciprocating part of the machine until the supply of bags or seed, or both, are exhausted.

The features of this invention are hereinafter fully set forth and described and illustrated in the accompanying drawings, in which—

Figure 1 is a side view in elevation of my improved bag-filling machine. Fig. 2 is a front view in elevation of the same. Fig. 3 is an enlarged view, in front elevation, of the part of the machine below the line *ww* in Figs. 1 and 2. Fig. 4 is a horizontal section of the same on the line *xx* in Fig. 3. Fig. 5 is a vertical section of that portion of the machine below the line *ww* in Figs. 1 and 2 on the line *yy* in Fig. 4. Figs. 6 and 7 show a vertical section of the upper part of the machine on the line *zz* in Fig. 2.

In the drawings thus illustrating my invention, A is the frame, supported upon legs *a*, and on the front of the frame A there is an upright part A', on the upper part of which there is a hopper B. This upright part A' also operates as the guides in which the reciprocating portion of the mechanism hereinafter described operates. I secure to the frame A and the uprights A' a bag-holder E, adapted to hold bags C in an upright position and provided with a follower E' and an actuating-spring *e* for moving it forward, and on the edges of the open end of the bag-holder E, I secure stops *e'*, adapted to engage the edges of the outermost bag in the bag-holder and retain it until removed, as hereinafter described.

In the frame A, under the bag-holder E, I mount a rotary carrier F, the periphery of which is provided with flattened surfaces F', adapted to receive a bag when it is moved downward thereon by the operation of the reciprocating mechanism hereinafter described. At the lower edge of each of the faces F' there is a lip *f*, adapted to receive the lower end of a bag, and at the upper edge of each of the faces F' there is a hinged flap *f'*, adapted to be turned down and fold the flap *c* of a bag C down thereon. This hinged flap *f'* is provided with laterally-projecting studs *f*², which engage springs *f*³, which operate when the flaps *f'* are tripped, as hereinafter set forth. To open the flaps *f'*, they are also provided with curved arms *f*⁴, operating as hereinafter set forth. On the frame A, in front of the carrier F, I secure a cement-tank G, which is provided with a reciprocating cement-carrier G', adapted to be moved forward, so as to deposit cement on a bag C on the carrier F in the proper place to engage the flap *c* thereof when turned down thereon. This carrier G' is provided with an operating-arm *g* and a retracting-spring *g'*, adapted to be operated as hereinafter set forth.

In the uprights A' of the frame I mount a vertically-sliding frame H, adapted to move up and down reciprocally in guides in the frame-uprights A' and be driven by means of a crank I and pitman I' communicating therewith, or in any other convenient manner. In the reciprocating frame H, I secure a central hollow plunger H', having a vertical passage *h* therein, the lower end of which is pro-

vided with a lip or projection h' , adapted to enter the outermost bag in the bag-holder E at each downward movement of the frame H. In the upper end of the passage h there is a removable measuring device K, the lower end of which is normally closed by means of a spring-actuated cut-off valve J, secured to the hollow plunger H' and adapted to be operated by the recess h^2 in the upper part of the frame A', so as to keep the cut-off valve J closed during the greater portion of the downward and upward passage of the plunger H' and only open it when the measuring device K is substantially at or above the top of the hopper B, through which the measuring device travels vertically as the plunger H' moves downward and upward. The measuring device K is made interchangeable, so that measuring devices of greater or less capacity can be used in the plunger H', as may be desired. Lower down in the plunger H', I place another spring-actuated cut-off valve J', adapted to be operated by the recess h^3 in the lower part of the central projection A² of the framework A', so that when the plunger H' moves upward until the cut-off valve J opens the contents of the measure K pass down the passage h and rest upon the cut-off valve J' until during the downward movement of the plunger H' the lip h' thereon engages and guides the lower end of the plunger into a bag at the end of the bag-holder E and moves the bag downward therewith until the lower end thereof rests under the lip f on the carrier F. Meanwhile the cut-off valve J' has moved back into the recess h^3 in the frame and allows the material retained thereby to pass downward into the bag.

On the sides of the rotary carrier F, opposite each of the flat peripheral surfaces F' thereon, there are stops L, with which spring-actuated latches L' on the frame A engage, so that when the latches L' are in engagement with the stops L the carrier F is in such position that one of the flattened surfaces F' thereon is in line with the traverse of the plunger H', and on the reciprocating frame H there are flexible arms M, upon which there are detaching devices M', adapted to disengage the spring-actuated latches L' from the stops L on the carrier F and permit it to be rotated by and in unison with the plunger H', as hereinafter described, during the latter part of its downward traverse, when the latches L' again engage the next stop L on the carrier F and retain it in position until again disengaged by the detaching device M' during the latter part of the next downward traverse of the reciprocating frame H and the plunger H', carried thereby.

To each edge of the plunger H', some distance above the lower end thereof, I secure arms N, which extend outward and downward, so that they will pass down outside of the carrier F during the downward movement of the plunger H', and on the lower portions of the arms N there are shoulders n , adapted to en-

gage studs f^5 on the carrier F during the downward movement of the plunger H', and on the front of each of the arms N there is a spring-hook N', having a wedge-shaped lower end n' , adapted as the arms N move downward upon the studs f^5 to pass between the studs f^5 and the studs f^2 on the hinged flap f' and turn the flap f' downward, so as to fold and clamp the bag-flap c during the downward movement of the plunger H', and at the same time the shoulders n on the arms N and the hooks N' engage the studs f^5 and rotate the carrier F during the remainder of the downward traverse of the plunger H', at the completion of which traverse the latches L' engage the catches L on the carrier F and retain it in that position. Meanwhile as the plunger H' is completing the last part of its downward traverse uprights O on the frame engage the hooks N' and disengage them from the studs f^5 on the carrier F, so that the frame H and the plunger H' will move upward without affecting the carrier F. For disengaging the bag C, carried down by the plunger and deposited on the carrier, there is a spring-actuated yoke P, provided with curved fingers p , which engage the edges of the lower portion of the bag C, deposited on the carrier, and retain it thereon until the flap f' on the carrier turns down and clamps the flap c of the bag. To retain the upper part of the bag on the carrier in place until the flap f' clamps it thereto, I provide a light wire spring Q, which engages the edges of the bag. As the frame H moves upward the latch-detaching device M' passes through slots l in the latches L' without moving them, these devices only operating thereon during the downward movement of the frame H and the plunger H'. As the frame H nears the end of its upward traverse an arm R thereon engages the arm g on the cement-carrier G' and brings the cement-carrier against the bag C on the carrier and deposits sufficient cement thereon to stick the flap c thereof fast when it is folded down thereon.

At the rear of the carrier there is an inclined chute S, the lower end of which is pivoted to the frame A, its upper end resting against the periphery of the sides of the carrier F, which are provided with depressions F², into which the upper end of the chute S drops as the shoulders F³ of the depressions pass the upper end of the chute, a retracting-spring T operating to retain the upper end of the chute S in contact with the peripheries of the carrier F. In the upper end of this chute there are oblong slots S', into which the curved arms f^4 on the hinged flaps f' enter as the carrier F rotates and operate to turn the flaps f' back to their normal positions and at the same time releases the bags carried around by the carrier to the chute S and allow them to pass down thereon.

In operation the bags C are placed in the bag-holder E with their open ends up and with their flaps c at the rear. The follower E' then operates thereon to move the bags for-

ward to the open end of the bag-holder until the edges of the outermost bag are against the stops *e'*. Seed or other material with which it is desired to fill the bags is then placed in the hopper B and suitable cement is placed in the cement-holder G. Then suitable power being applied to operate the reciprocating frame H and the plunger H' thereon the machine will operate at each downward movement of the frame H and plunger H' to automatically remove a bag from the bag-holder E and deposit a predetermined amount of seed or other material contained in the hopper in the bag and deliver the bag so filled on the carrier and cement and fold down the flap *c* thereon at each reciprocal movement of the frame H and plunger H', the carrier meanwhile delivering the filled and closed bags upon the chute S until the supply of bags or filling material is exhausted.

I have thus shown and described a bag-filling machine embodying my invention so as to enable others to utilize the same. I am aware, however, that many parts thereof may be changed and modified so as to produce good results without departing from the spirit of my invention. Therefore I do not desire to confine myself to the exact construction herein shown and described, as

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

1. The combination in a bag-filling machine, of a bag-holder, a rotary carrier, a cementing apparatus, and a reciprocating plunger adapted to deliver bags from the bag-holder upon the rotary carrier, and cooperating with and actuating the rotary carrier, substantially as set forth.

2. The combination in a bag-filling machine, of a bag-holder, a rotating bag-carrier, flattened peripheral faces on said carrier adapted to receive bags from the bag-holder, a cement-carrier adapted to deposit cement on bags on the rotary carrier, bag-flap-folding mechanism on said rotating carrier, and a hollow reciprocating plunger mechanism, cooperating with and actuating said mechanism, substantially as set forth.

3. The combination in a bag-filling machine, of a bag-holder, a follower automatically moving bags along therein, a rotary carrier under said bag-holder adapted to receive bags removed from the bag-holder, a cementing mechanism in front of said carrier adapted to deposit cement on bags on the carrier, bag-flap folders on the carrier adapted to fold down bag-flaps after the bags are cemented, a hopper above the bag-holder, a reciprocating frame carrying a hollow plunger, adapted to remove bags from the bag-holder, deliver them upon the carrier and deposit a predetermined amount of the contents of the hopper therein, and means on the reciprocating frame and plunger for operating the carrier and the cementing apparatus, substantially as set forth.

4. The combination in a bag-filling machine of a bag-holder, means for moving bags forward therein, a carrier, means thereon for receiving bags and folding down the flaps thereof, a cement-receptacle, means for delivering cement therefrom to a bag on the carrier, a hopper, a reciprocating frame carrying a hollow plunger operating in said hopper, and also provided with means for removing a bag from the bag-holder and depositing it upon the carrier, means on said reciprocating mechanism for rotating the carrier and operating the flap-folding mechanism thereon, and means on said reciprocating parts for operating the cementing apparatus, substantially as set forth.

5. The combination in a bag-filling machine, of a frame having an upright extension thereon, a bag-holder, a follower therein for moving the bags forward, means for actuating said follower, a carrier, faces thereon for receiving bags, spring-actuated flap-holders on said carrier, stops on said carrier, spring-actuated latches on the frame engaging the stops on the carrier, a cement-receptacle in front of the carrier, a cement-conveying apparatus therein, a reciprocating frame operating vertically in said machine-frame and the upright extension thereon, mechanism for actuating said reciprocating frame, a hopper on the upright extension of the frame, a hollow plunger carried by said reciprocating frame, and communicating with said hopper, cut-off valves in said hollow plunger, a lip on the lower end of the plunger adapted to enter the mouth of a bag in the end of the bag-holder, arms on said reciprocating mechanism adapted to engage and rotate the carrier, and operate the bag-flap folders thereon, mechanism on the reciprocating frame adapted to disengage the latches from the stops on the carrier, and also for operating the cement-carrier, substantially as set forth.

6. In a bag-filling machine, a rotary carrier, peripheral faces thereon adapted to receive a bag, spring-actuated bag-flap-folding mechanism on said rotary carrier, means for engaging and opening the bag-flap folders, and means for actuating said rotary carrier, substantially as set forth.

7. In a bag-filling machine, a rotary carrier, having faces thereon adapted to receive and retain a bag when filled spring-actuated bag-flap-closing mechanism thereon, curved arms on said bag-flap closers, a chute at the rear of the carrier resting thereon having slots therein adapted to engage the curved arms on the bag-flap closers and release the bags from the carrier, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES L. DROHEN.

Witnesses:

HAROLD M. STURGEON,
FLORENCE STOCKERT.