No. 614,109. Patented Nov. 15, 1898.

A. E. HUGHES.

SINGLE DELIVERY MACHINE.

(Application filed Dec. 31, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

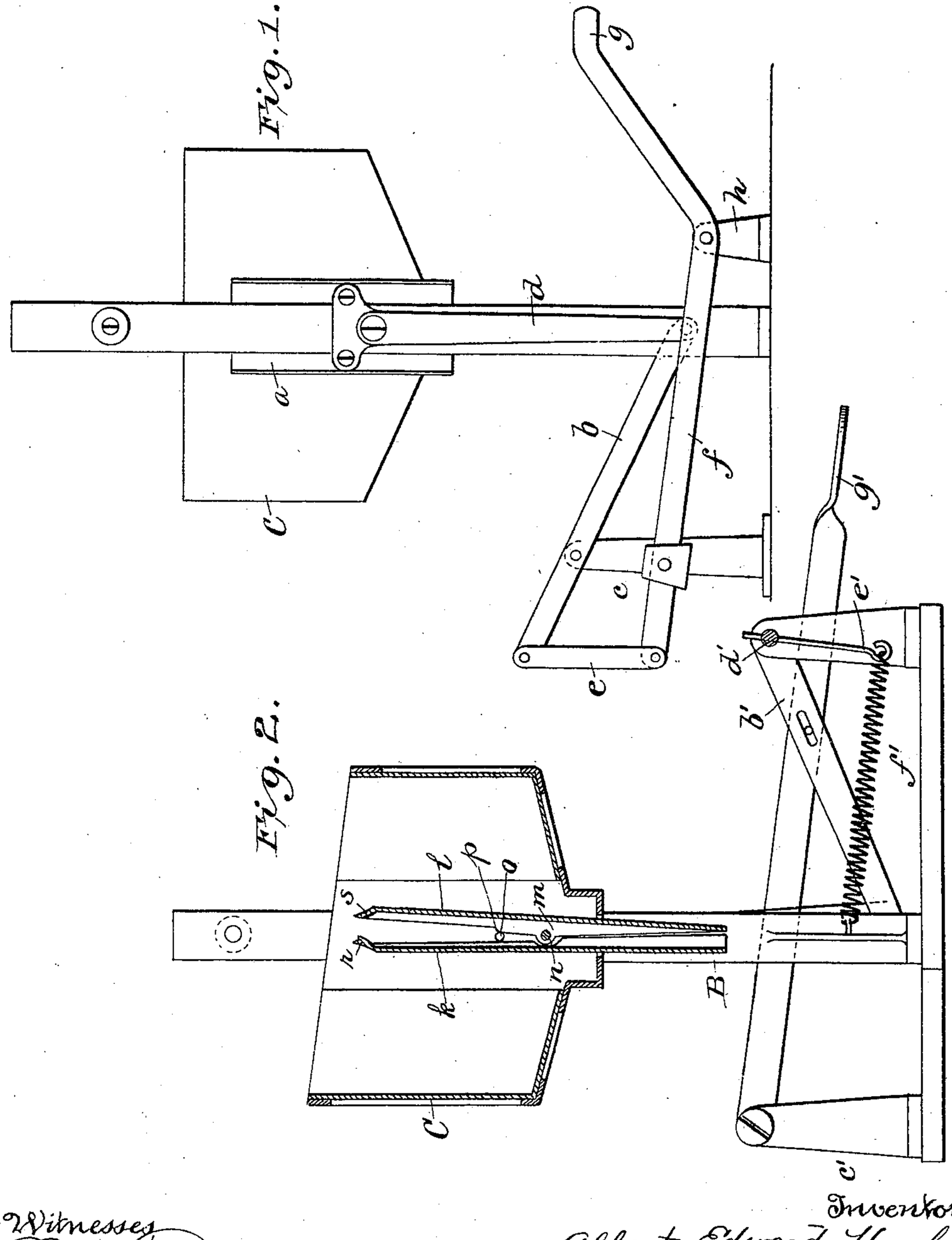

Fig. 2.

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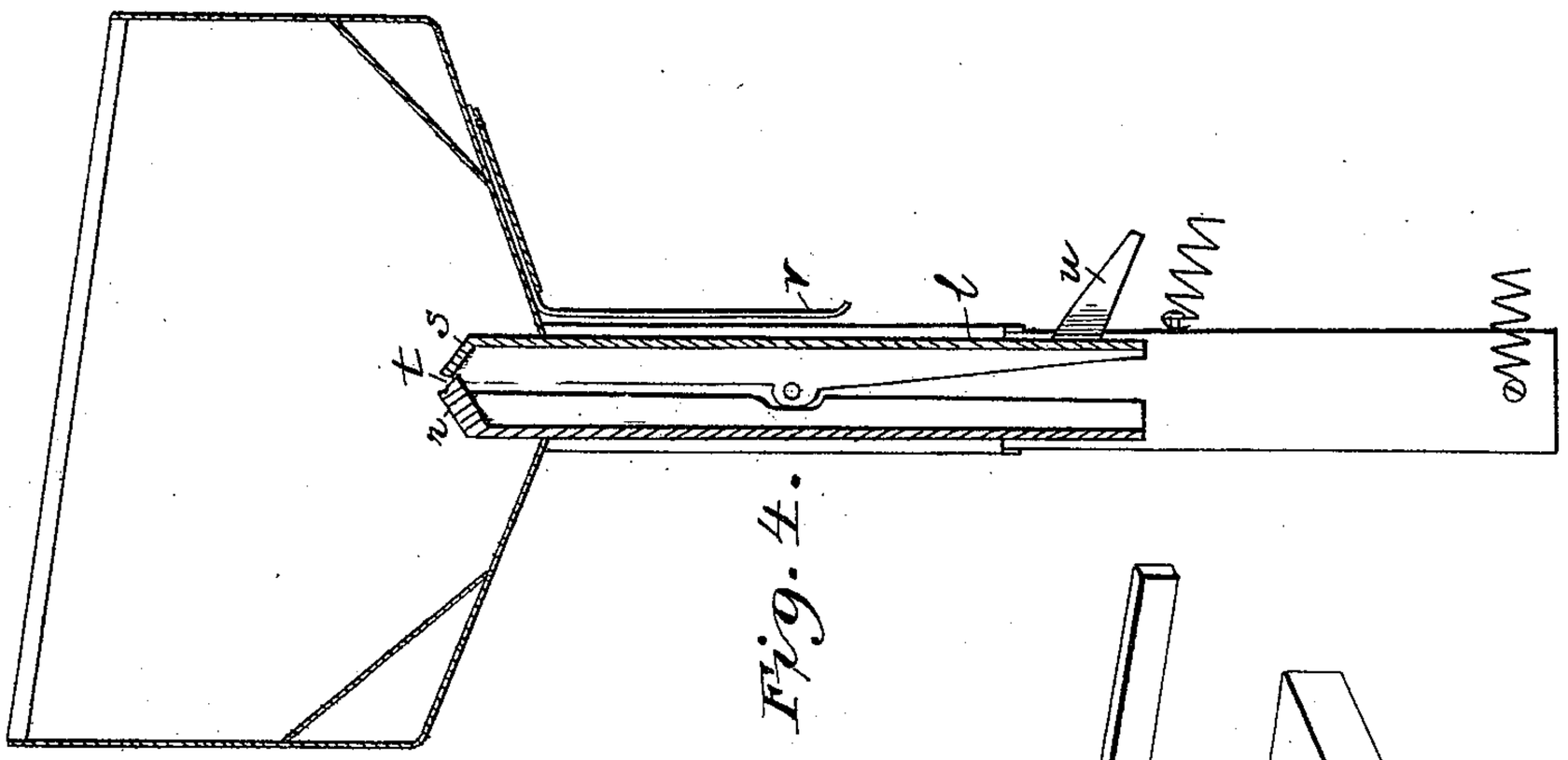

Fig. 4.

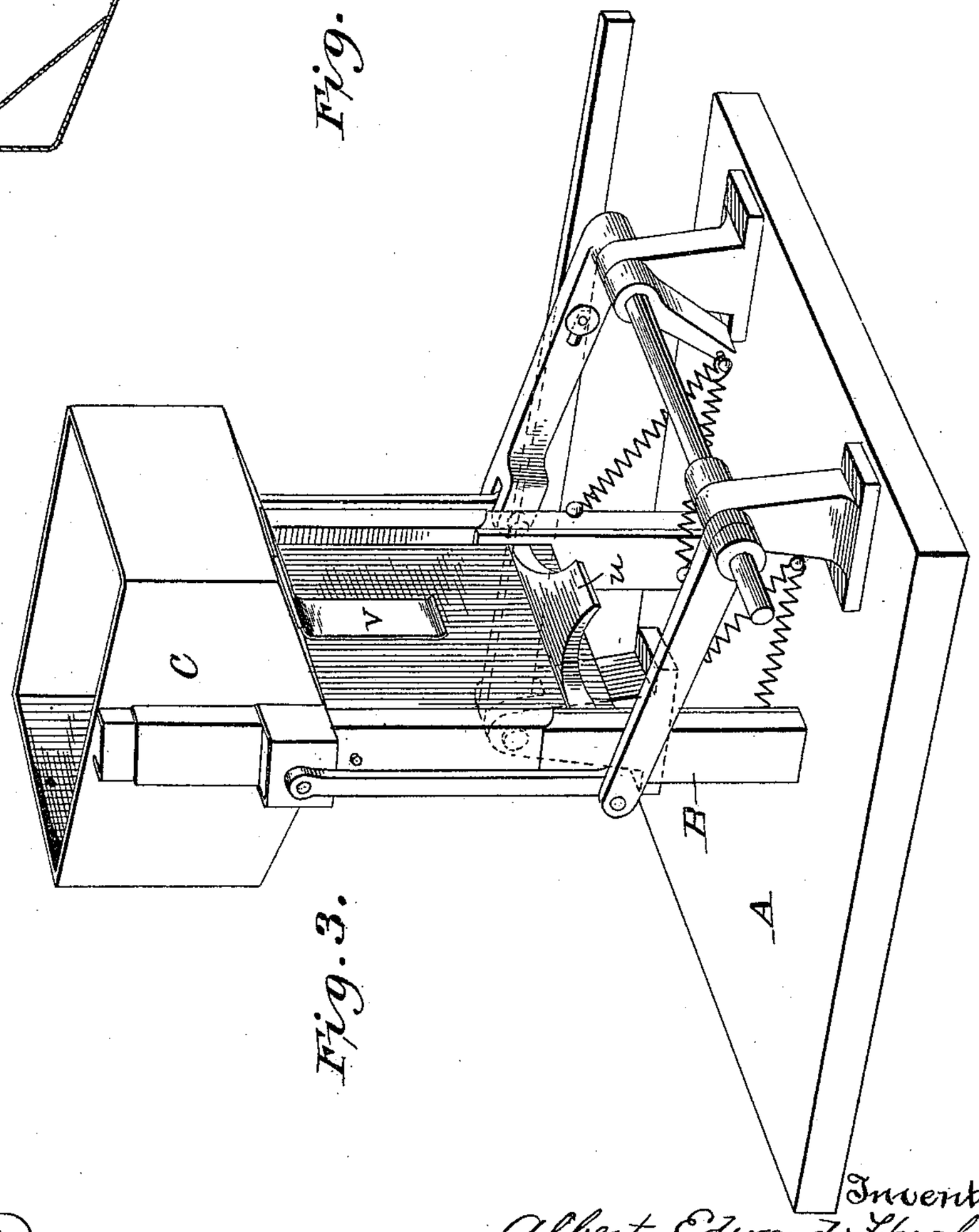

Fig. 3.

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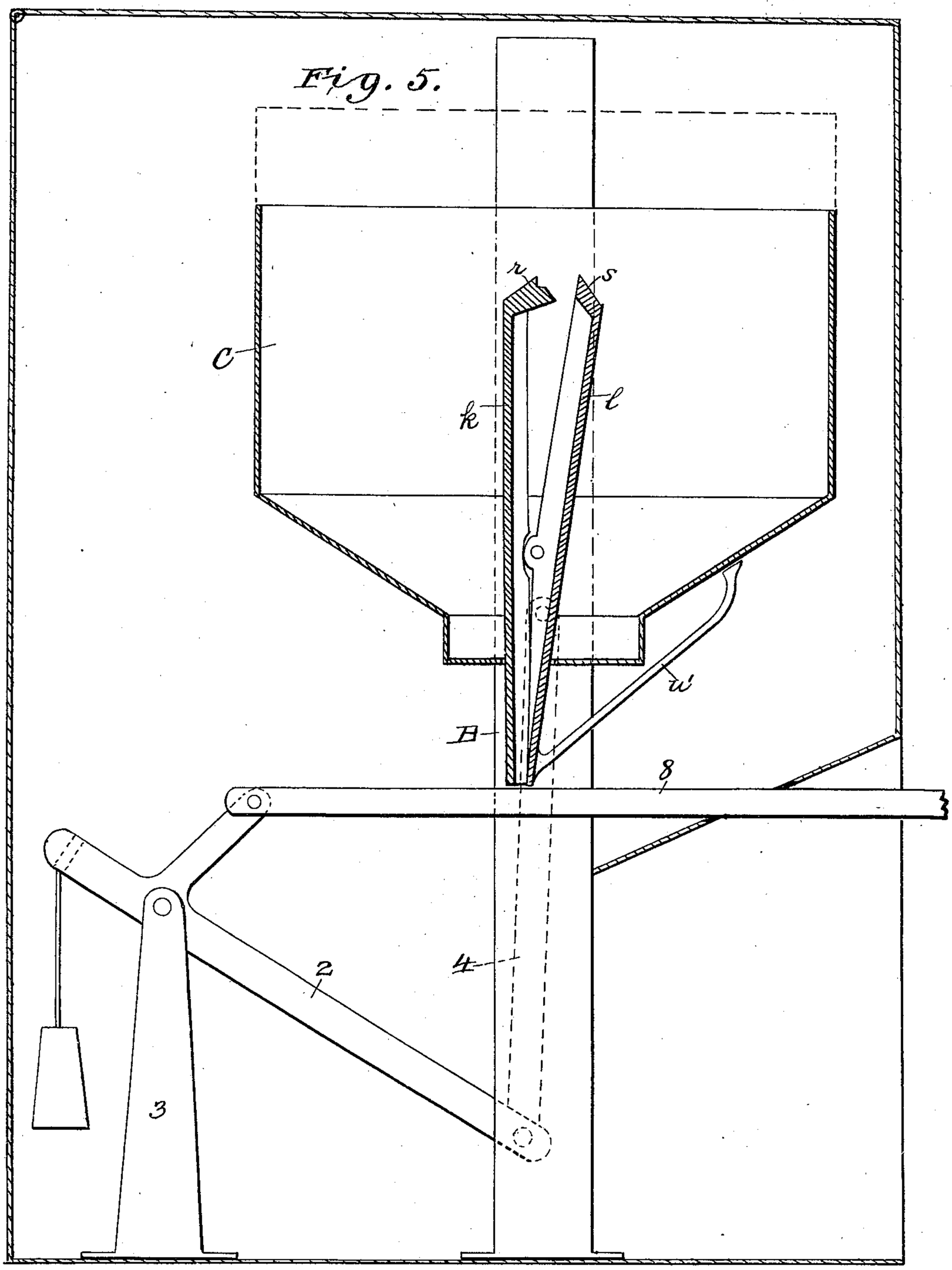
(No Model.) 3 Sheets—Sheet 3.

Fig. 5.



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UNITED STATES PATENT OFFICE.

ALBERT EDWARD HUGHES, OF DARIEN, CONNECTICUT.

SINGLE-DELIVERY MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,109, dated November 15, 1898.

Application filed December 31, 1897. Serial No. 665,082. (No model.)

To all whom it may concern:

Be it known that I, ALBERT EDWARD HUGHES, a citizen of the United States, and a resident of Darien, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Single-Delivery Machines, of which the following is a specification.

My invention relates to a device adapted to contain articles such as matches, slate or lead pencils, needles or pellets, or any other class of articles capable of being delivered one at a time, whether these articles be complete in themselves, as in the case of matches and pencils, or whether they be contained in packages in such form as to be capable of single delivery.

The object of the invention is to provide an apparatus adapted to contain a number of like articles and to provide for the delivery of these articles one at a time by the manipulation of a lever or handle.

The machine may be used freely or it may be adapted for use in connection with a coin-freed mechanism and thus allow the use of the apparatus in the sale of the articles contained therein, the operating mechanism being freed by the weight of the coin.

The invention includes a hopper and a delivery-chute, one movable in relation to the other vertically. The delivery-chute is in two parts with a channel between, and this chute is in its closed form adapted to receive upon its closed upper end one of the articles to be delivered and in the operation of the device to open and allow the selected article to pass between the parts of the chute to the purchaser or person manipulating the handle. The invention also includes important details of construction more particularly hereinafter referred to.

In the accompanying drawings, Figure 1 is a side elevation of one form of the device. Fig. 2 is a sectional view through the hopper and delivery-chute with a slightly different arrangement of the operating devices. Fig. 3 is a perspective view of a slightly-modified form. Fig. 4 is a sectional view of Fig. 3, the operating devices being omitted. Fig. 5 is a modification partly in section.

The apparatus comprises a base-plate A, with upright standards B, and these standards support a vertically-movable hopper C, this hopper being provided with guiding-ways arranged upon each side of the standards B, as shown in Fig. 1, or encircling the standards, as shown in Fig. 3. The hopper is reciprocated vertically by any suitable operating device; but I prefer the simple construction shown in Fig. 1, in which a lever *b* is pivotally supported upon a post *c*, arranged upon the rear part of the base, the forward end of the lever *b* being connected to the hopper through the links *d*, while the rear end of the lever *b* is connected by a link *e* to an extension *f* of a hand-lever *g*, pivoted upon a post *h*. Upon the extension *f* a weight is adjusted, and this is just sufficient to overbalance the hopper C and keep it normally in its highest position, and in order to lower the hopper to cause a delivery the lever *g* is depressed to overcome the weight *i*. Instead of the weight a spring may be used.

The hopper, as shown in Fig. 2, incloses the upper part of a delivery-chute made up of a fixed part *k* and a pivoted part *l*. The fixed part of the chute is secured to the standards, while the movable part is pivoted to the standards through the side flanges *m*, the pivot being shown at *n*. The two parts of the chute constitute a channel extending through the bottom of the hopper, and the article to be delivered must pass through the chute in order to be discharged. The two parts of the chute are so arranged in relation to each other that the movable part swings upon its pivot in a tilting fashion, and thus when the hopper rises it swings in the upper end of the movable part to close the chute, and as it descends a pin or stud *o* bears against the cam-shaped edge *p* of the flange of the movable part, tilting it in the opposite direction, so as to open its upper end. Supposing the hopper to be filled with matches or articles of this class and to be in its normal or elevated position, as shown in Fig. 4,

it will be noticed that the articles will entirely cover the top of the chute, which is closed by the inwardly-extending parts *r s* coming together, leaving a central groove in the top of the part *r*, and as the hopper is depressed the articles are deflected away from the upper end of the chute, except the single article held in the groove *t*, and on the further depression of the hopper the jaws of the chute open, as in Fig. 2, and the match or other article drops through to the outside.

The whole device is inclosed in a suitable casing with the operating-lever projecting through the front. The front of this casing is suitably cut away to permit the article to be reached after it falls through the chute, as shown in Fig. 5. The outer faces of this casing afford opportunity for the display of advertisements. The casing is provided with a door or lid *x*, permitting access to the hopper for the purpose of filling same.

While I have shown the hopper movable vertically, it will also be understood that the hopper may remain stationary and the chute be made movable vertically as well as laterally, as it is only necessary that these parts be movable in relation to each other. The hopper or receptacle may also be arranged to remain normally at either its highest or lowest limit of movement, as preferred, and the operating mechanism adjusted accordingly.

Instead of having a groove longitudinally of the part *k* of the chute, as shown at *t*, this may be a depression or recess of other form particularly adapted to the articles to be contained in the device.

In the form shown in Figs. 3 and 4 I show a modified construction of the means for tilting the movable part *l* of the chute, and in this case I use a projection *u*, extending from the lower part of *l*, and an extension *v*, depending from the hopper, strikes this projection in the relative movement of the parts and forces in the lower end of *l* to open the jaws at the upper end.

I may use any ordinary or improved means of operating the parts, and in Fig. 2 the lever *g'* is pivoted to a post *c'* and has a sliding connection by a pin and slot with one of a pair of levers *b'*, these levers being connected by a cross-piece *d'*, having bearings in posts *e'*. The opposite ends of the lever *b'* being connected with the links *d*, the hopper is kept raised normally by springs *f'*, extending between the standards and projections *g'* on the piece *d'*. I prefer the devices shown in Fig. 1, because they are arranged at the rear of the machine, and this leaves the front of the machine free for the deposit of the articles within easy reach of the operator.

As shown in Fig. 5, the construction may be modified to arrange for the normal position of the hopper to be its lowest position with means for elevating it, the hopper returning to its normal position upon the release of the operating-lever. In Fig. 5 the hopper is shown as down and the jaws of the chute open. A pair of posts 3 support a lever-frame 2, connected by links 4 with the hopper, and a push-lever 8 operates the frame 2 to lift the hopper, which on the release of the lever 8 drops by gravity or by the pressure of a spring. An arm *u'*, connected to the movable jaw, is in the path of the hopper and is operated to open the jaw as the hopper descends.

It will be obvious that the operating-lever may be controlled by a lock adapted to be freed by the insertion of a coin after the manner of any of the well-known coin-freed devices.

What I claim is—

1. An apparatus for the single delivery of articles comprising a hopper and a delivery-chute extending through an opening in the hopper and having an upper open mouth, said parts having movement in relation to each other, and the delivery-chute being adapted to discharge the article carried thereby, substantially as described.

2. In an apparatus of the class described, a hopper, a delivery-chute extending within the hopper, said parts being movable in relation to each other, means for receiving an article on the end of the chute, and means for opening the chute to allow the selected article to drop through, substantially as described.

3. In an apparatus of the class described, a hopper, a delivery-chute extending within the same, the parts having movement in relation to each other, the said chute being adapted to open and close and having means for alternately opening and closing the upper end of said chute in the movement of the parts in relation to each other, substantially as described.

4. In an apparatus of the class described, a hopper, a delivery-chute extending within the same comprising two parts, the upper end of each of said parts being extended upwardly and inwardly and means for separating the parts of the chute laterally in relation to each other to allow the discharge of an article, substantially as described.

5. In an apparatus of the class described, a hopper, a two-part delivery-chute having a seat at its upper end for the reception of an article, said chute being opened in the movement of the parts to discharge the article, substantially as described.

6. In an apparatus of the class described, the base-plate, the standards, a vertically-movable hopper, a discharge-chute composed of two parts one pivoted and the other fixed and having a seat at its upper end adapted to receive an article and means for tilting the movable part of the chute to allow the article to drop through, substantially as described.

7. In combination, with a suitable base-plate and standards, a hopper and delivery-

chute having movement vertically in relation to each other, an operating-lever extending to the front of the machine and connections from said lever to the movable part, said connections being located at the rear of the machine, substantially as described.

8. In combination, a hopper, a discharge-chute, a casing independent of and surrounding said parts having a cut-away portion at one side to expose the discharge-chute and permit the article to be discharged before the operator, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALBERT EDWARD HUGHES.

Witnesses:

OTTO MUNCK,

H. L. BEIL.