

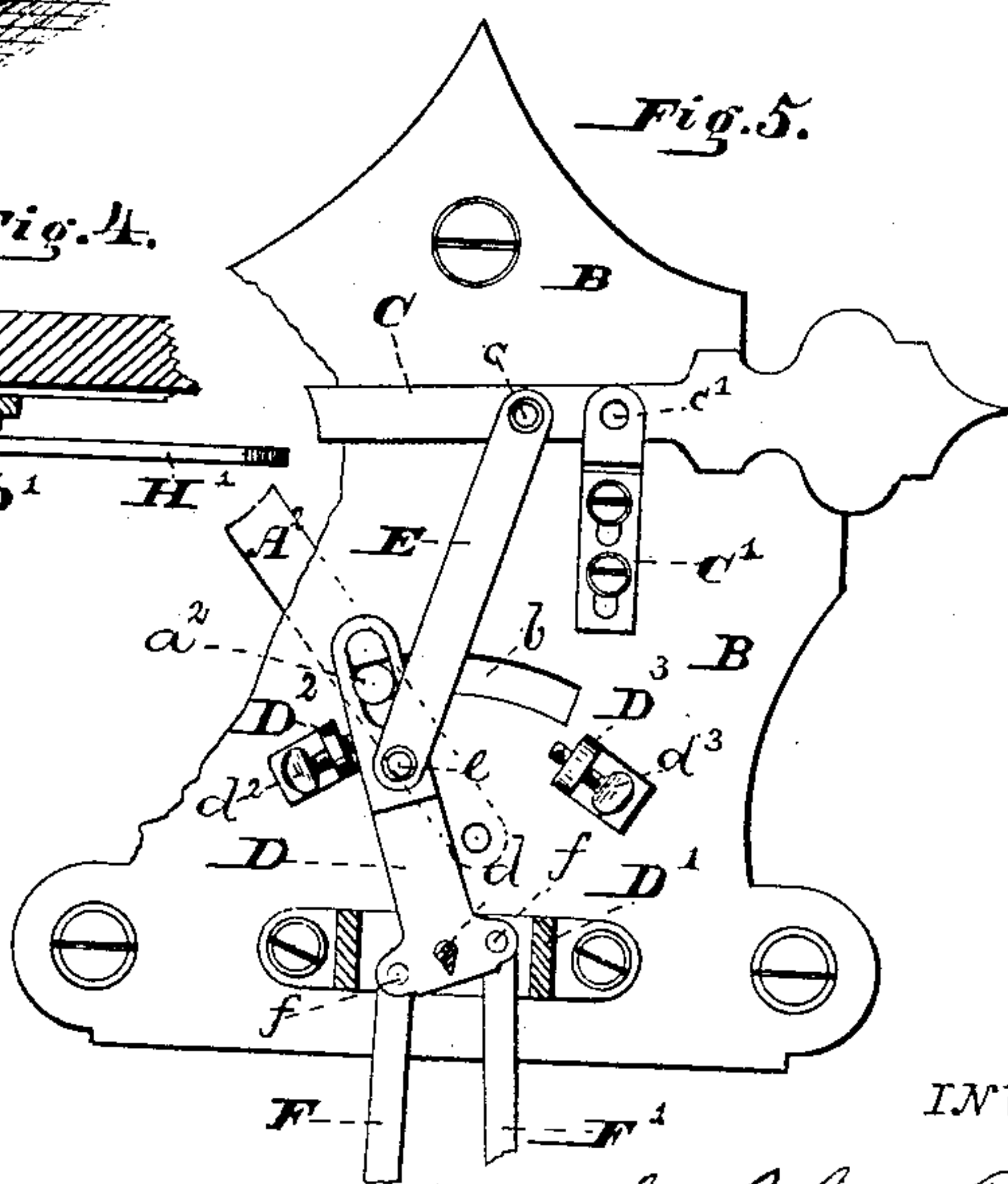
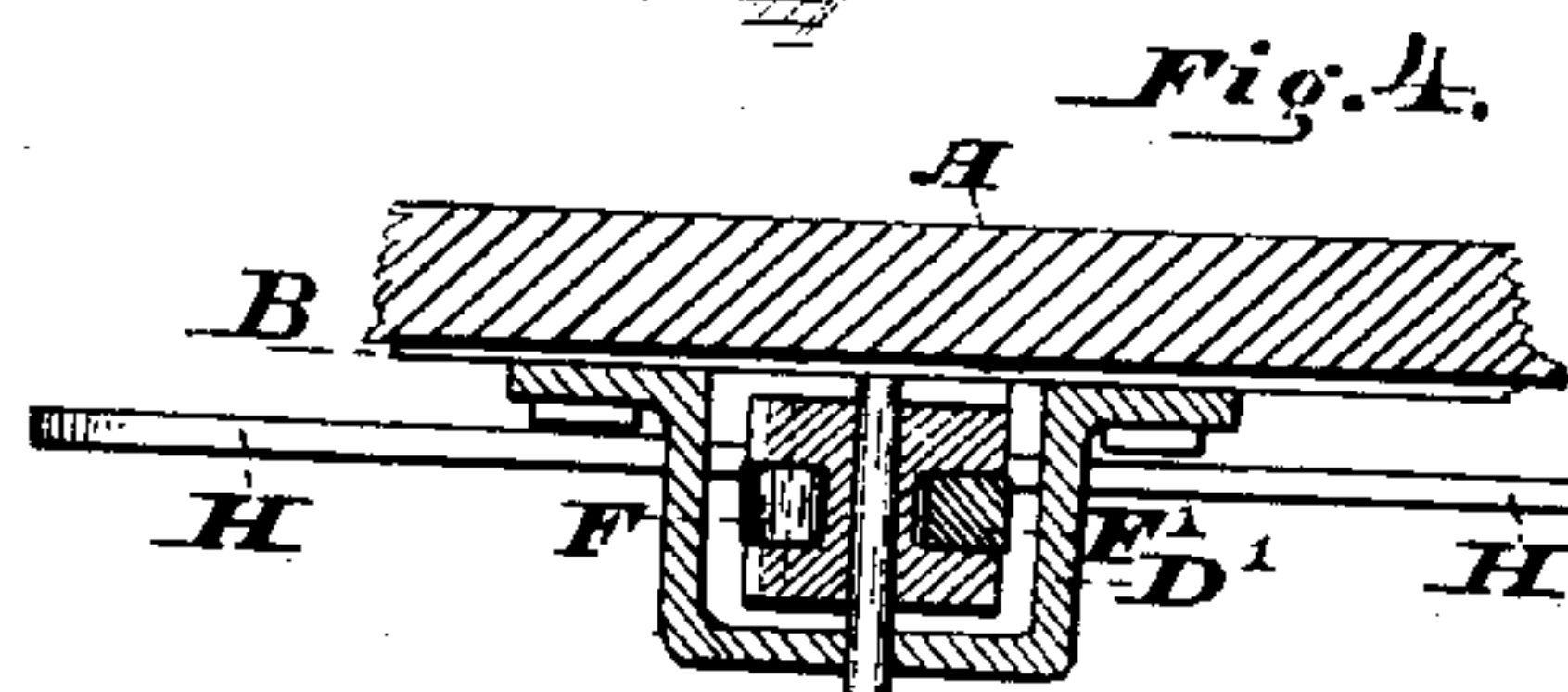
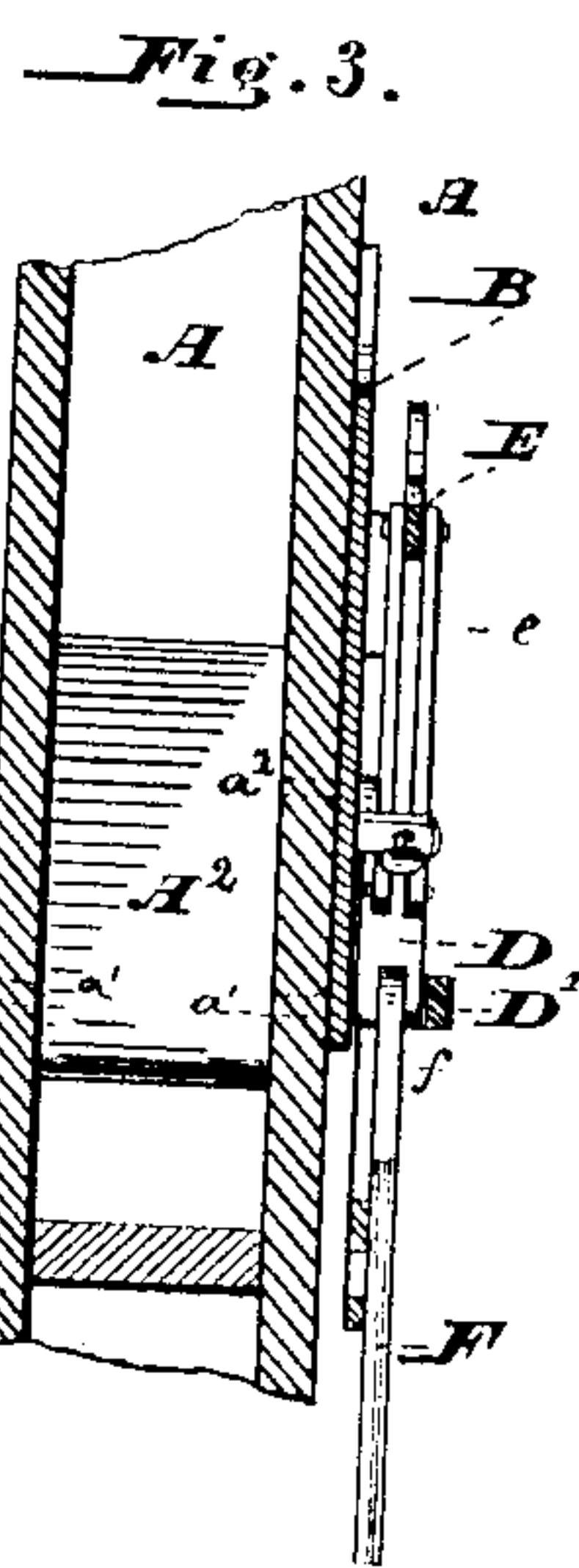
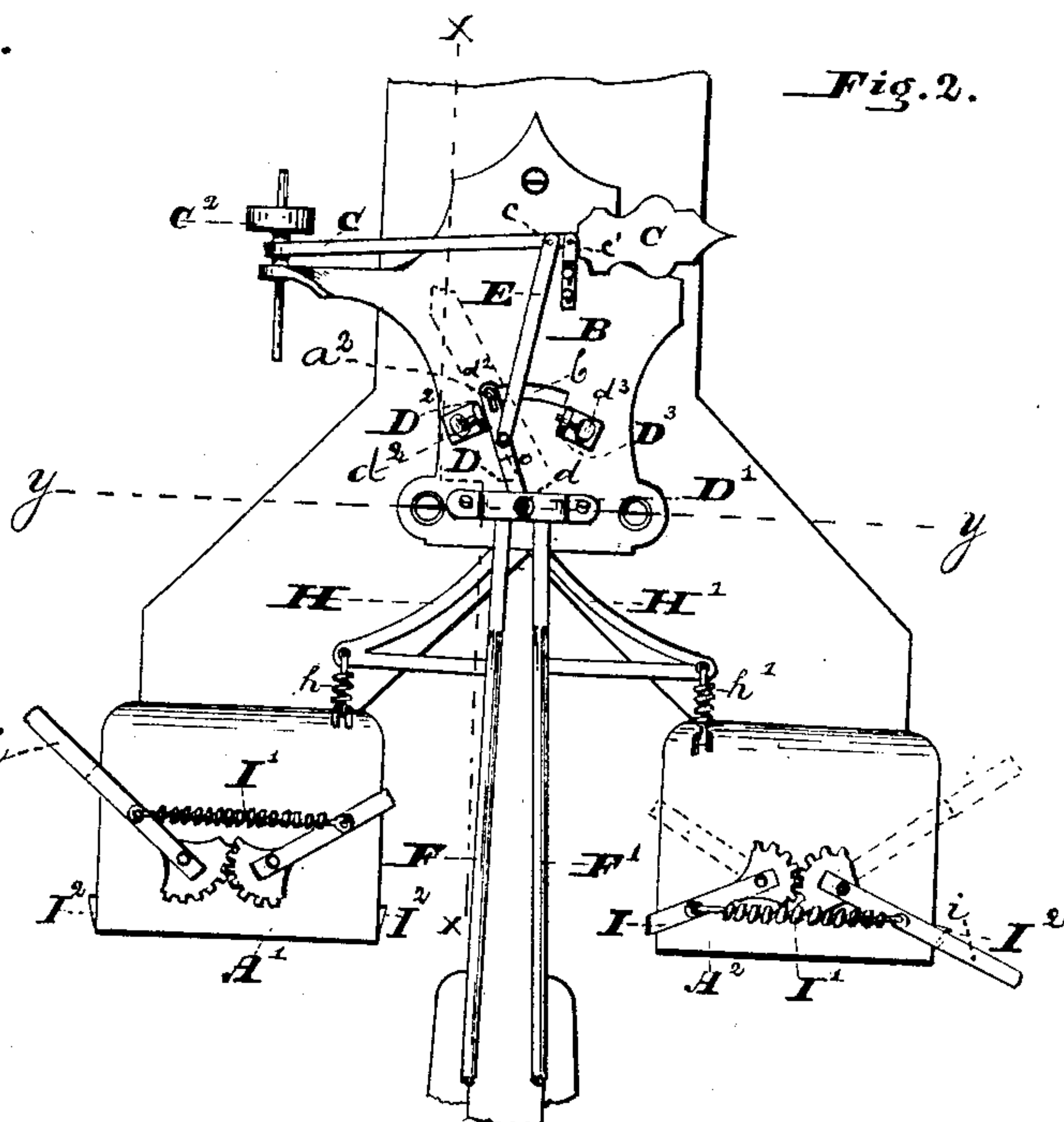
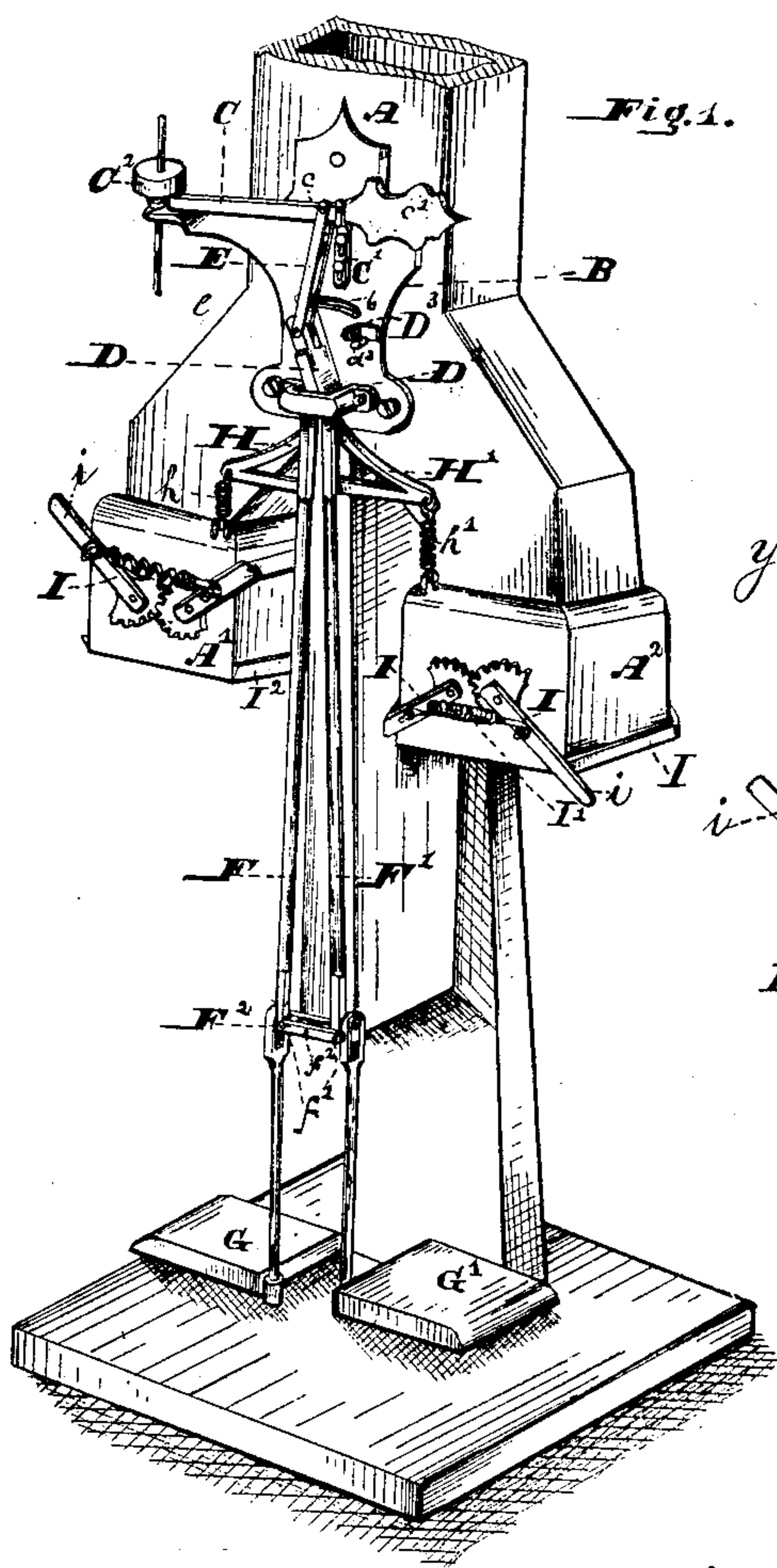
(Model.)

A. R. COOPER.

AUTOMATIC WEIGHER FOR GRAIN, &c.

No. 266,608.

Patented Oct. 31, 1882.



WITNESSES.

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## AUTOMATIC WEIGHER FOR GRAIN, &c.

SPECIFICATION forming part of Letters Patent No. 266,608, dated October 31, 1882.

Application filed December 27, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, ASHLEY R. COOPER, of the town of Mooresville, county of Morgan, and State of Indiana, have invented certain new and useful Improvements in Automatic Weighers for Grain, &c., of which the following is a specification.

My said invention consists of a device for use in elevators, grist-mills, warehouses, granaries, &c., and with thrashing and winnowing machines, which will automatically weigh the grain, &c., as it falls into the receptacle provided to receive the same.

It further consists in combining with such a device, when the same is used in connection with a grain-spout, means whereby the flow of the grain may be automatically shut off when the desired weight is reached, or when the device is a double one turned to the other side, all as will presently be more specifically described.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of a double-mouthed grain-spout having my improved apparatus attached; Fig. 2, a front elevation of so much thereof as shows the principal working parts of the invention on an enlarged scale; Fig. 3, a vertical sectional view thereof, as seen when looking to the right on the dotted line  $xx$ ; Fig. 4, a horizontal sectional view as seen when looking downwardly on the dotted line  $yy$ ; and Fig. 5, a still larger view of the most important working parts, the frame-work being broken away to show them in full.

In said drawings the portions marked A represent the lower end of a spout for grain, which terminates in two branches or mouths,  $A' A^2$ ; B, a metallic plate secured to the face of said spout at about the point where the two branches come together, to which the greater portion of the mechanism of the device is attached; C, a bar similar to a scale-beam, mounted in bearings  $c'$ , supported by said plate; D, a vibrating arm mounted in bearings in said plate and in the bracket  $D'$ ; E, a link connecting said arm and the scale-beam;  $F F'$ , two rods jointed to the lower end of the arm D and extending down to near the floor, and terminating in the

platforms  $G G'$ , on which the sacks or vessels for receiving the grain are placed;  $H H'$ , arms rigidly attached to the rods  $F F'$ , near their tops, which extend out over the mouths  $A' A^2$ , and are connected thereto by springs  $h h'$ , and I I are half-bands upon the mouths  $A' A^2$ , terminating in segment-shaped toothed ends, which mesh into each other, and are connected by a spring,  $I'$ , and serve as sack-holders.

The spout A, as shown, is preferably divided into two branches, which terminate respectively in the mouths  $A' A^2$ , which should be vertically movable and suspended to the arms  $H H'$  by the springs  $h h'$ . This is so that said mouths, to which the sack-holders I are secured, shall be able to move up and down with the sacks attached thereto. The plate B, or some metallic device of like character, is preferably secured to the spout to serve as a base, to which the various bearings are to be attached, for the reason that wooden connections cannot be depended upon to remain accurate enough for scale purposes.

The scale-beam C is or may be of any ordinary or approved form. The bearing  $c'$  in the bracket  $C'$  and  $c$  on the end of the link E—as, in fact, all the bearings in this device—should be knife-edged, as is common in scale mechanism.

The arm D is pivoted at  $d$  in the plate B and bracket  $D'$ , and when the machine is tilted describes the arc between the stops  $D^2 D^3$ . These latter are provided with set-screws  $d^2 d^3$ , against the inner ends of which the arm strikes, whereby the distance said arm shall travel is accurately adjusted. Said arm and the link E are pivoted together at  $e$ , thus forming a sort of toggle-joint between the points  $d$  and  $e$ , which, when straightened, raises the scale-beam. The upper end of the arm D is connected to a trap-door,  $A^2$ , by an arm,  $a^2$ , thereon, which projects through the arc-shaped slot  $b$ . Said trap-door is mounted on the pivots  $a' a'$ , and is thus enabled to move back and forth with the arm D, alternately shutting off one or the other of the branches of the spout A.

The rods  $F F'$  are connected to the arm D by pivots  $f$  on each side of the central pivot,  $d$ , and are held from swinging out of the proper position by a cross-bar,  $F^2$ , which is secured to the frame-work by a pivot,  $f^2$ , and to which said



rods are secured by pivots  $f'$ . The rods may be made divisible at this point also, as shown, so that the lower parts, including the platforms  $G G'$ , may be removable, when desired, for the purposes of transporting the same, or for other purposes.

The sack-holder  $I$  is operated by means of the handle  $i$ , by which the parts are lifted to the position shown by the dotted lines in Fig. 2, and when the mouth of the sack is drawn over the mouth of the spout the holder is thrown down into the position shown in full lines, and thereby holds the sack until purposely released after filling. There may be roughened strips  $l^2$  secured to the outside of the mouths  $A' A^2$ , directly under the point where the bands  $I$  strike when in use, to aid in holding the sack firmly in position. These, when used, should be formed to fit against said bands closely.

The operation of my said invention is as follows: There is first attached to one of the mouths (say  $A^2$ , for the purpose of illustration) a sack which rests on the corresponding platform,  $G'$ . The mechanism is set in the position shown in the drawings, and the grain is let down the spout. This is guided by the trap  $A^2$  to the sack into which it is desired to run a given quantity—say two bushels. The weight  $C^2$  and adjusting-screws  $d^2 d^3$  having been properly set, when this quantity has entered the sack the weight thereof overbalances the weight  $C^2$ , pulling the arm  $F'$  down, throwing the arm  $D$  over against the set-screw  $d^3$ , and with it the trap  $A^2$ , which causes the grain to run down the mouth  $A'$ , to which another sack has been meanwhile attached, and closing the mouth  $A^2$ . The full sack is then removed and replaced by an empty one, and the operation repeated.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an automatic grain-

weighing machine, with the tilting arm which operates the trap-valve for changing the flow of grain from one mouth of the spout to the other, of set-screws  $d^2 d^3$ , whereby the movement of said tilting arm may be accurately controlled, all substantially as shown and specified.

2. The combination, with the spout and weighing apparatus, as specified, of the mouth to the spout provided with the sack-holder, consisting of the two jaws  $I I$ , connected together by toothed segment-shaped heads and a spring, substantially as set forth.

3. The combination of the device  $D$ , the rods  $F F'$ , the cross-arm  $F^2$ , and the bag-rests  $G G'$ , said arm  $F^2$  being pivoted to the frame-work of the machine at  $f^2$ , and to said rods  $F F'$ , near their lower ends, by pivots  $f'$ , said rods being pivoted at their upper extremity to the device  $D$ , and said bag-rests being provided with upwardly-extending rods which are connected at their upper ends to the rods  $F F'$ , substantially as set forth.

4. The combination of the spout  $A$ , the scale-beam  $C$ , the tilting device  $D$ , having a slot in its upper end which acts on a stud,  $a^2$ , on the trap-valve  $A^2$ , said trap-valve, a link,  $E$ , which extends from the device  $D$  to the scale-beam and together with said device forms a toggle-joint for operating said scale-beam and sack-sustaining rods  $F F'$ , attached to the wings of the device  $D$ , all substantially as set forth.

5. The combination of the device  $D$ , the rods  $F F'$ , the arms  $H H'$ , the springs  $h h'$ , and the spout-mouths  $A' A^2$ , all substantially as shown and specified.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 17th day of December, A. D. 1881.

ASHLEY R. COOPER. [L. S.]

In presence of—

C. BRADFORD,

CHAS. L. THURBER.