

No. 609,908.

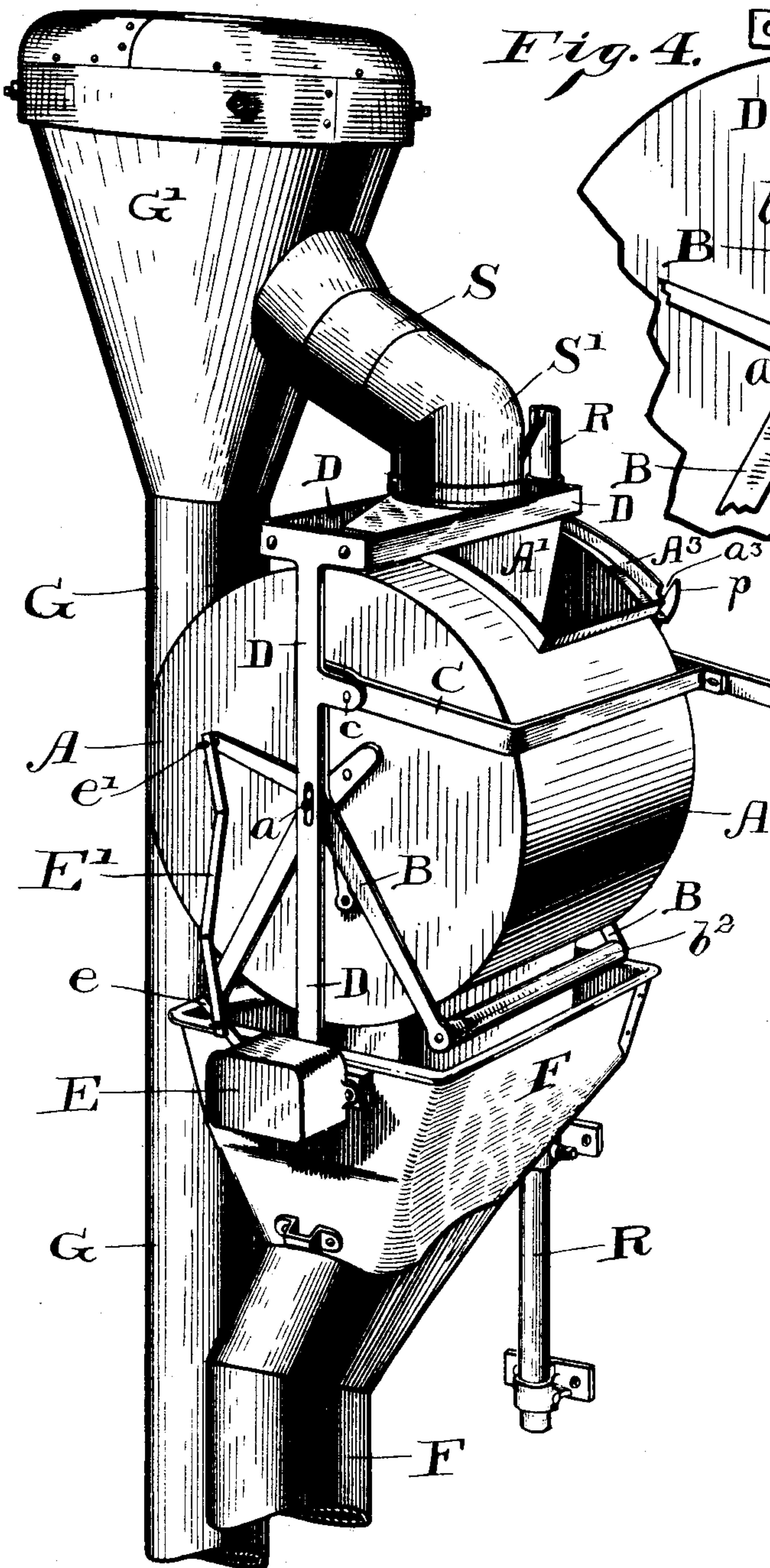
Patented Aug. 30, 1898.

J. B. SCHUMAN.  
AUTOMATIC WEIGHER.  
(Application filed Nov. 2, 1897.)

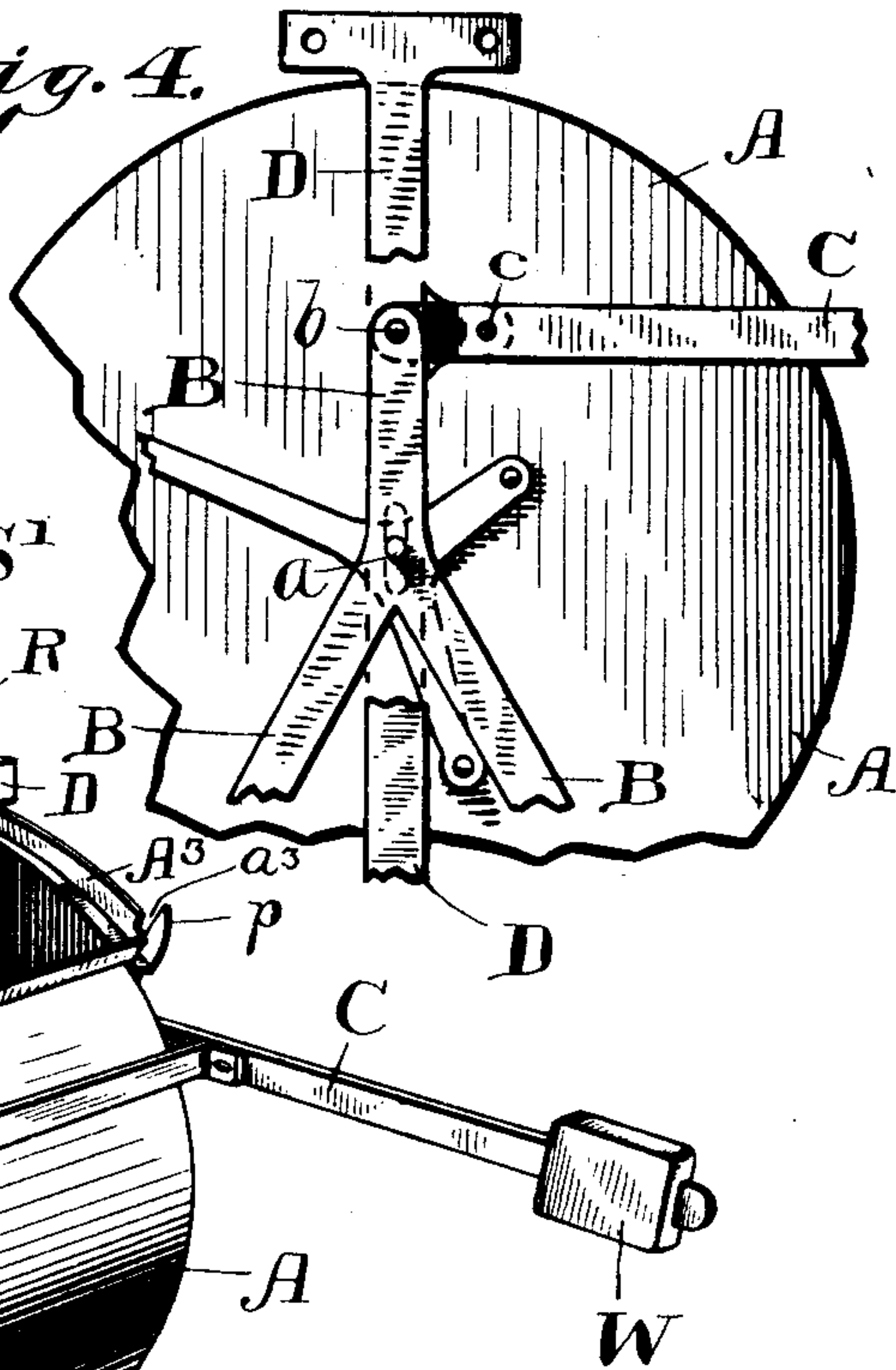
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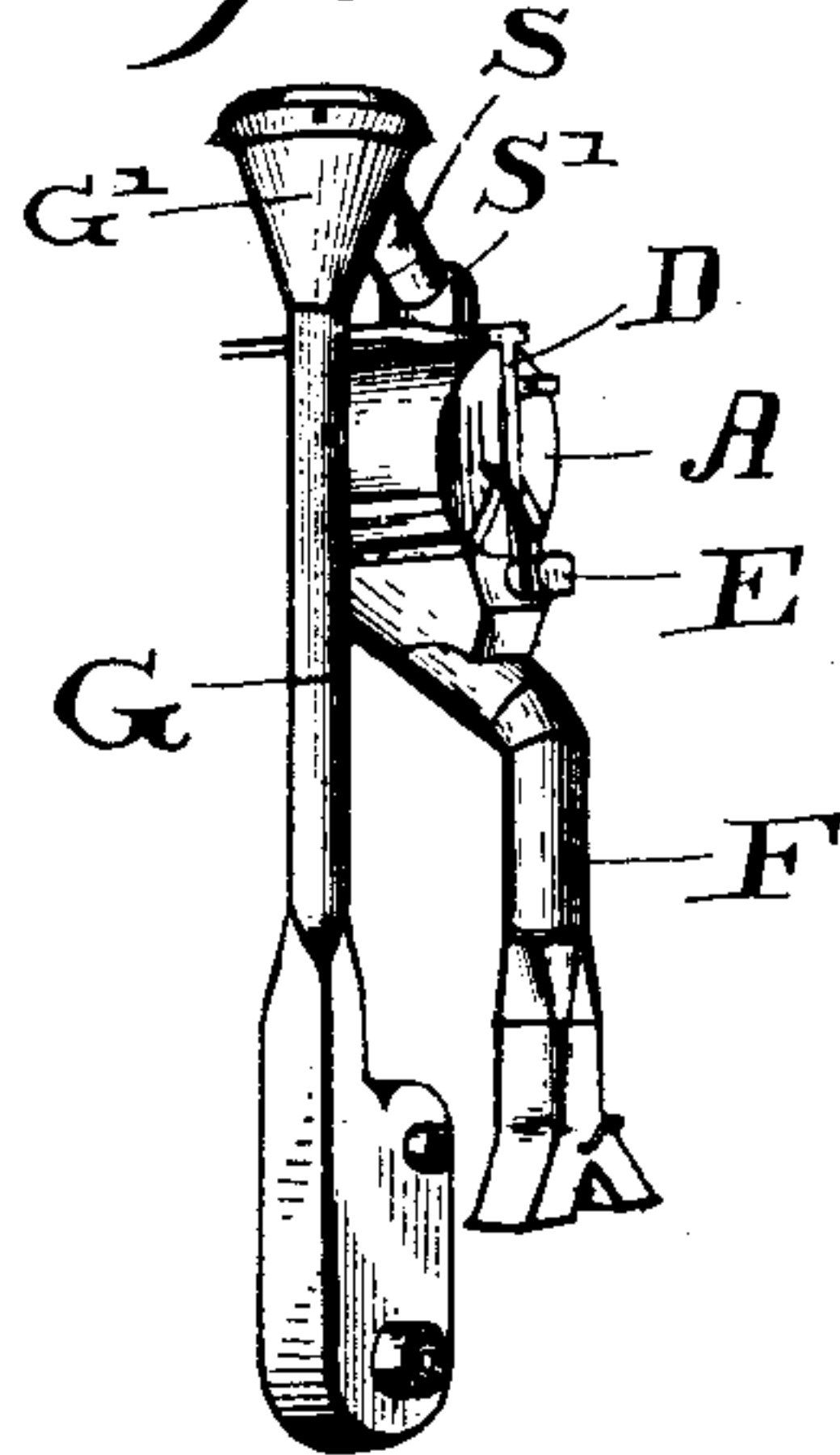
*Fig. 1.*



*Fig. 4.*



*Fig. 5.*



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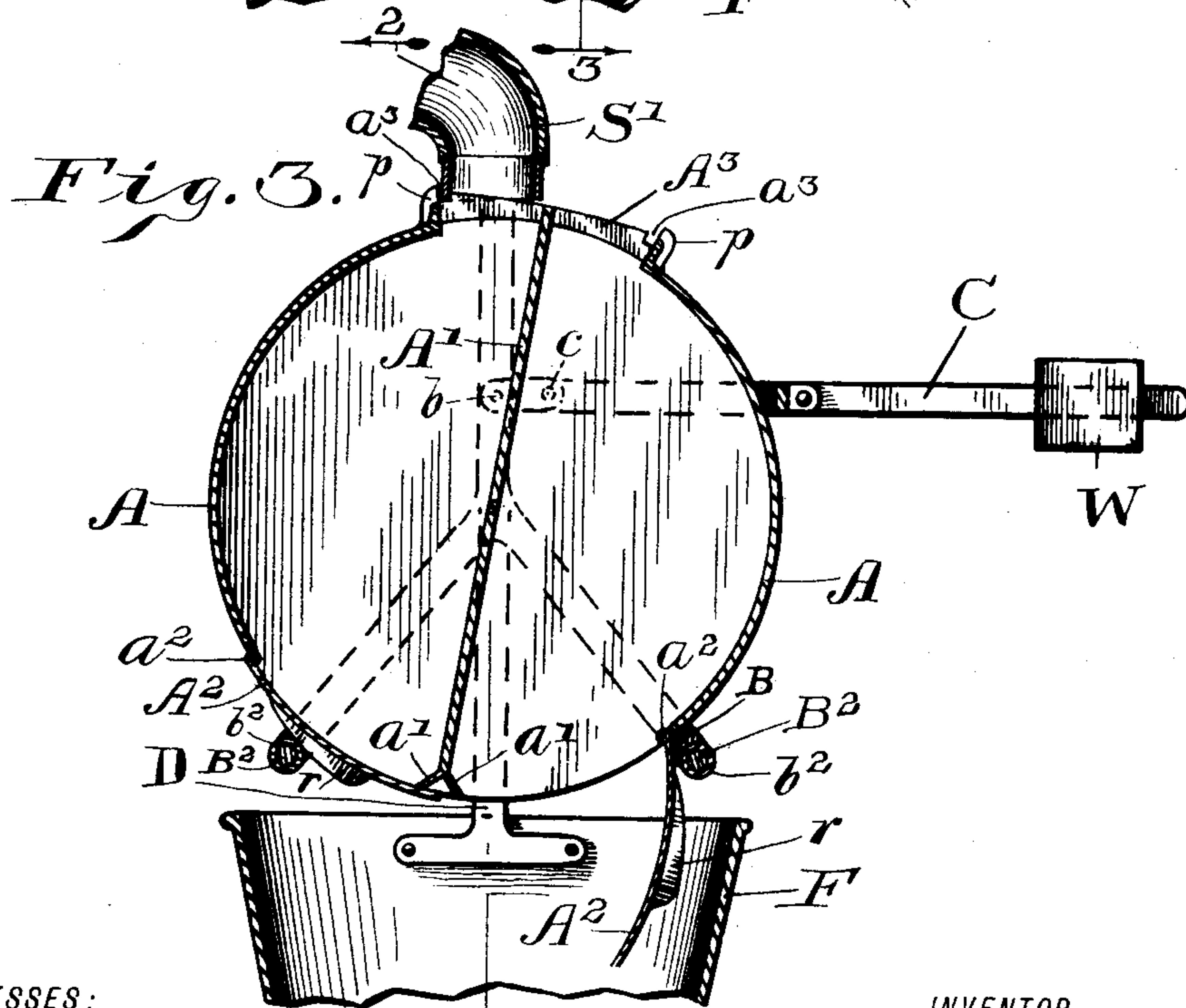
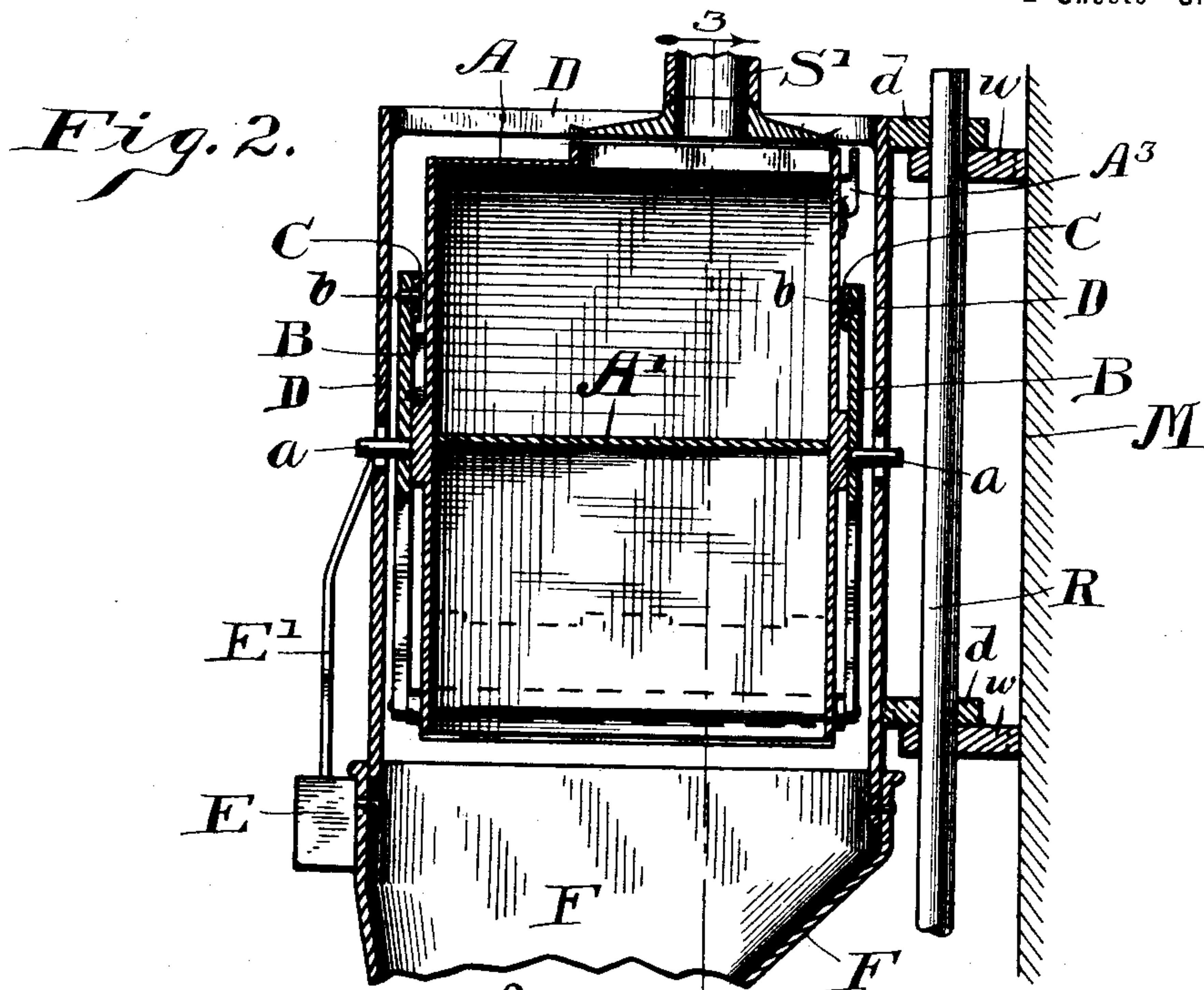
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# UNITED STATES PATENT OFFICE.

JAMES B. SCHUMAN, OF COLUMBIA CITY, INDIANA, ASSIGNOR TO THE PNEUMATIC ELEVATOR AND WEIGHER COMPANY, OF INDIANAPOLIS, INDIANA.

## AUTOMATIC WEIGHER.

SPECIFICATION forming part of Letters Patent No. 609,908, dated August 30, 1898.

Application filed November 2, 1897. Serial No. 657,161. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES B. SCHUMAN, a citizen of the United States, residing at Columbia City, in the county of Whitley and State of Indiana, have invented certain new and useful Improvements in Automatic Weighers, of which the following is a specification.

The object of my said invention is to produce a simple and efficient automatic weigher suitable to be used in weighing grain or such like material as it comes from threshing-machines or other sources of supply. It is particularly designed to be used in connection with the pneumatic elevator which forms the subject-matter of Letters Patent of the United States No. 603,925, issued on my application dated May 10, 1898.

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 an automatic weigher embodying my said invention; Fig. 2, a vertical sectional view of the same on the dotted line 2 2 in Fig. 3; Fig. 3, a vertical sectional view on the dotted line 3 3 in Fig. 2; Fig. 4, a fragmentary elevation showing a portion of one side of the body or receptacle of the weigher and parts of the weigher mechanism, with fragments of the supporting-frame, portions of the latter being broken away to show the mechanism more clearly; and Fig. 5, a perspective view of the pneumatic elevator which forms the subject-matter of my said Patent No. 603,925 above referred to and the weigher which forms the subject-matter of this application assembled together and showing how they are ordinarily used.

In said drawings the portions marked A represent the cylinder or body of the weigher; B, the tilting frame in which said cylinder is immediately mounted; C, the scale-beam; D, the stationary frame carrying the other parts; E, a register or indicator; F, a conduit having a hopper-like upper end, which is suspended to the frame D, and which is adapted to convey away the material, such as grain, after it has been weighed to such receptacles as are provided to receive it; and

G, the tube or chute of a pneumatic weigher, such as my weigher is principally designed to be used with.

The body or receptacle portion A of the weigher is in general outline substantially cylindrical in form. It is shown in Fig. 2 as carried from an adjacent structure, such as the side of a threshing-machine M, by suitable supports. These supports, as illustrated, consist of a pivot-rod R, carried by wings w, upon which similar wings d on the frame D rest, the whole thus preferably forming a hinge-like mounting, upon which the structure can be swung somewhat, horizontally if desired, so as to occupy any desired position in respect to the elevator when used in connection therewith. Said receptacle is also provided with gudgeons or pivots a at its axial point, which pass through corresponding holes in the tilting frame B and out into and through vertical slots in the frame D, as will be presently more fully described. It is divided by a central partition A', the lower end of which is divided into two branches a', (see Fig. 3,) for purposes which will be presently explained herein. The upper side is open, one half of the opening being on each side of the central partition and each opening half being of sufficient size to receive the discharge of grain or other material from the cap end S' of the ingress-spout S, and the chamber below to contain the amount of such material which has been predetermined upon as a unit of weight, as a peck, a half-bushel, or a bushel. The lower side is also open, with one-half the opening on each side of the central partition, and each opening half is provided with a swinging door A<sup>2</sup>, said doors being hinged or pivoted at a<sup>2</sup>, so that the free ends thereof may close against the branches a' on the lower end of the partition A'. The utility of said branches is thus shown, as by means thereof the single thin partition is provided with a separate edge for each door to close against, sufficiently separated so that said doors need not interfere with each other.

Extending along one side of the opening in the upper side of the receptacle A is a segment-shaped piece A<sup>3</sup>, having notches a<sup>3</sup> near



the ends, outside of which notches are preferably projections  $p$ , which extend above the remainder of the surface of said segment and are for the purpose of preventing the possibility of too great a movement of said receptacle, so as to insure its stopping at the proper points. The adjacent portions of the under edges of the rectangular upper end of the frame D are adapted to engage in these notches  $a^3$  when said receptacle is at its extreme position in one direction or the other, and thus lock said receptacle to its operated position. This engagement exists at all times except when the full load, constituting the unit of weight, has been deposited in the receptacle and the latter thus caused to descend.

The pivoted frame B carries the cylindrical receptacle A by means of its pivots  $a$ , and is itself carried by the scale-beam C, to which it is connected by the pivots  $b$ , and said scale-beam is in turn mounted on the pivots  $c$ , carried by the rigid surrounding frame D, as will be presently described. The frame B is branched, as shown in Figs. 1 and 4 and by dotted lines in Fig. 3, and is thus adapted, as the cylindrical receptacle A rocks from side to side, to alternatively operate to close and hold closed first one and then the other of the swinging discharge-doors  $A^2$ . Fig. 3 illustrates this most plainly, wherein one of said doors is shown closed and held to closed position, while the other is shown open, hanging down into the upper hopper-like end of the conduit F. The tilting frame B is kept from any appreciable lateral movement by the scale-beam C, that portion of said scale-beam between the pivots  $b$  and  $c$  serving as a stay to maintain it in position, as will be readily understood, while the cylindrical receptacle rocks back and forth on its pivots  $a$  from one position to the other, as indicated. The cross-bars  $B^2$ , carried by the lower ends of the branches of the tilting frame B, pass under the doors  $A^2$ , as shown. These cross-bars are preferably provided with loosely-mounted sleeves  $b^2$ , which serve the purpose of antifriction-rollers and run against the outer sides of the doors  $A^2$ , which preferably have ribs  $r$  thereon, with which said sleeves or rollers will come in contact. These ribs, as best shown in Fig. 3, are tapered somewhat, so that there is a cam action in closing said doors, which insures that they will be closed tightly and at the same time be capable of being released easily.

The scale-beam C is mounted on its pivots  $c$  on the short arms provided therefor on the frame D, as best shown in Fig. 1. It is bifurcated to pass astride the cylindrical receptacle A, as shown, and its extreme inner ends are connected by means of the pivots  $b$  to the upper end of the tilting frame B, which in turn, by means of the pivots  $a$ , carries said cylindrical receptacle. Said scale-beam is provided with a scale-weight W, which is adjustable and by which the quantity of ma-

terial constituting a unit of weight is determined, as is usual.

The frame D is carried from the supporting-rod R. Its upper portion is shown as rectangular, and it contains a mouthpiece, onto which the cap end  $S'$  of the ingress-spout fits, as best shown in Figs. 1 and 2. Its side bars extend down past the cylindrical receptacle A and are connected to and carry the conduit F. In the drawings they are shown as riveted to the hopper-like upper end of said conduit. These vertical side bars are slotted, as best shown in Fig. 1, and the pivots  $a$  pass out through and are guided by said slots, and thus the proper relation of the parts is maintained.

The register E is or may be of any ordinary or desired construction. A lever  $e$  extends out therefrom, and a link or connecting-rod  $E'$  connects said lever with a pivot  $e'$ , carried by the cylindrical receptacle A, said pivot preferably extending out from an arm of the spider, which forms the base of the pivot  $a$ . The operation is, as is obvious, that each vertical movement of the receptacle A as it descends under the weight of its load and raises after such load is discharged will operate to advance the mechanism of said register one point, and so the number of times the receptacle is operated is kept accurate account of.

The conduit F leads from the weighing cylinder or receptacle A to such point as it is desired to discharge the grain or material being weighed. I have shown in Fig. 5 a construction wherein it is designed to bag the grain, and in which to this end the lower end of the conduit terminates in two branches, each of which is capable of having the mouth of a grain-bag attached thereto, with a gate located at the fork, by which the flow of grain can be shifted from one branch to the other. This, however, is no part of my present invention, and is shown merely for purposes of illustration. The upper end is shown as hopper-like in form and rigidly secured to the lower ends of the side pieces of the frame D.

The tube or chute G is shown merely for purposes of illustration, and shows the relation which my present invention bears to a pneumatic elevator when the two are used together. On the upper end of this chute is the separating-head  $G'$ , from which the spout S leads to the structure embodying my present invention, as more fully explained in Patent No. 603,925, hereinbefore referred to.

The operation is as follows: After the chamber in one side of the receptacle A has become loaded with its predetermined charge of grain or other material and the weight W on the scale-beam thus overbalanced and said receptacle caused to descend so that the segment  $A^3$  thereon is out of engagement with the edges of the frame D said cylinder will be operated by gravity to rock on its pivot from one position to the other, and during this movement the rod  $B^2$  will serve to close the



discharge-door of that side or chamber which has previously been emptied, while the door to the side or chamber which has just been filled will pass from the control of its rod B<sup>2</sup> 5 and be permitted to fall open. At the same time the ingress-opening of the latter chamber passes out from under the mouth of the ingress-spout, while the ingress-opening of the first-named chamber passes under said 10 mouth, ready in turn to receive the inflow of grain or other material.

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

15 1. The combination, in a weigher, of a receptacle A, a stationary frame D the side pieces whereof have short central vertical slots therein, the frame B having pivot-holes therein, pivots or gudgeons *a* on the said receptacle passing through said holes and said 20 slots, a scale-beam C pivoted to the frame D and to the upper end of the frame B, and a catch-segment on the upper side of said receptacle with suitable catches therefor on the 25 stationary frame, said several parts being arranged and operating substantially as shown and described.

2. A weigher-receptacle cylindrical in form and mounted on horizontal axial pivot-points, 30 a frame also carried by said pivots or gudgeons having branches which extend diagonally to the lower side of said receptacle, discharge-opening doors pivoted to said receptacle at its lower side, means whereby said 35 receptacle is caused to rock from one side to the other as it is loaded and discharged, whereby said doors are brought in contact with bars carried by said stirrup branches and closed or permitted to open alternatively, a segment- 40 shaped piece at the upper side of said cylindrical receptacle having notches at its ends and projections outside said notches, and a frame member having edges adapted to enter

one or the other of said notches when said receptacle is in its upper position thus securing 45 it in place while being filled, all substantially as and for the purposes set forth.

3. The combination, in a weigher, of a pivoted cylindrical receptacle having a central partition with a widened lower end and hav- 50 ing two ingress-openings at the upper side of said receptacle one upon each side of said partition and two egress-openings at the lower side one upon each side of said central partition, doors to said egress-openings hinged at 55 the outer sides thereof, the inner edges of said doors each extending when closed partially over the widened lower edge of said central partition, a stationary framework carrying the weigher structure and provided with slots 60 through which the ends of the gudgeons or pivots to the receptacle extend, a scale-beam pivoted to said frame, a tilting frame pivoted to the inner ends of the scale-beam and in which the cylindrical receptacle is immedi- 65 ately mounted, said tilting frame having arms or branches, cross-bars carried in the ends of said branches and passing behind the doors to said receptacle, and a segment upon the upper side of said receptacle having notches 70 at or near its ends, the stationary frame having suitable engaging points or edges adapted to enter said notches separately and alternatively as the receptacle is rocked from side to side and there remain while said receptacle 75 is in its raised position, the whole being arranged and operating substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 80 29th day of October, A. D. 1897.

JAMES B. SCHUMAN. [L. S.]

Witnesses:

CHESTER BRADFORD,  
JAMES A. WALSH.