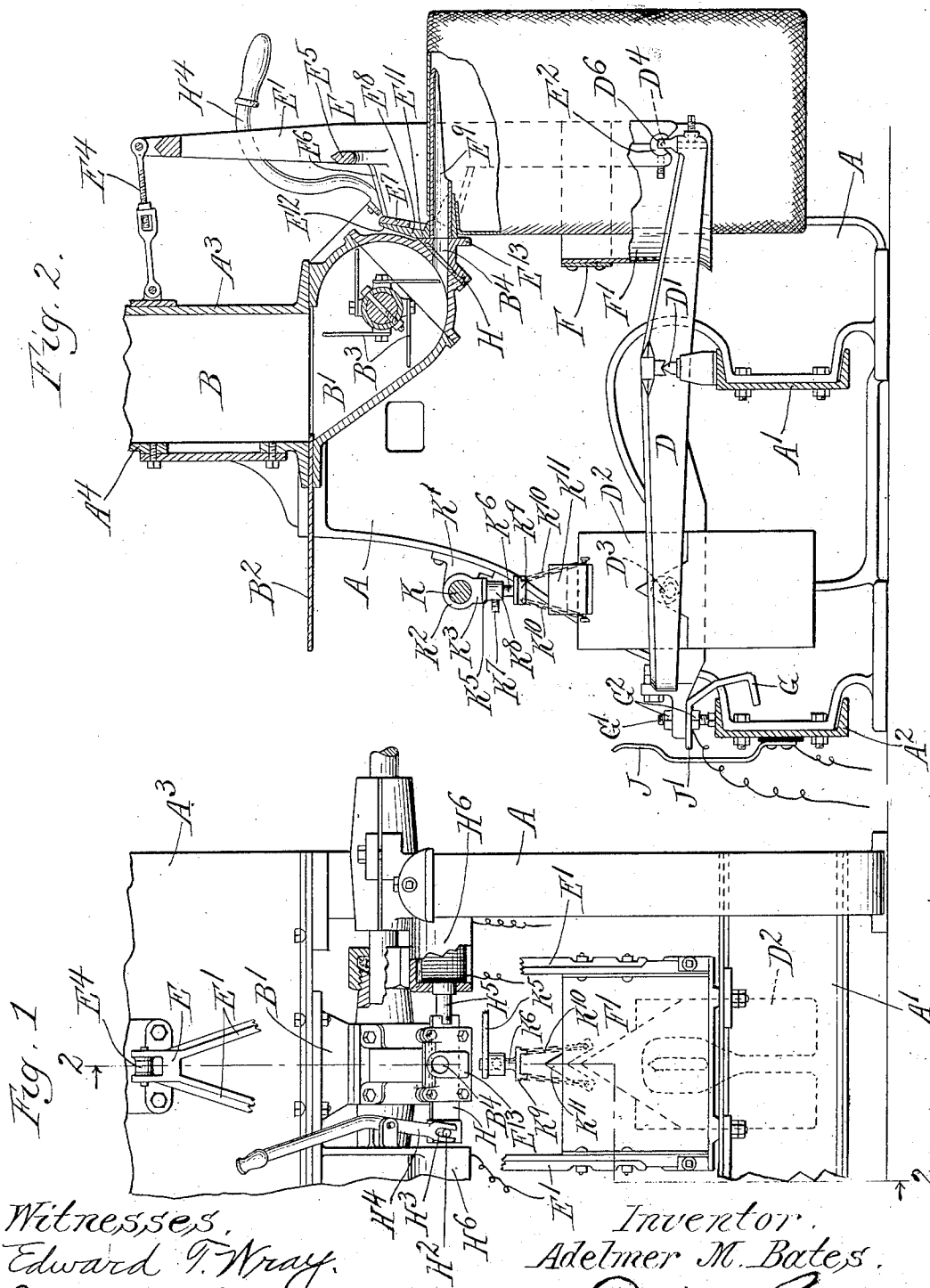


1,071,385.

Patented Aug. 26, 1913.

2 SHEETS—SHEET 1.



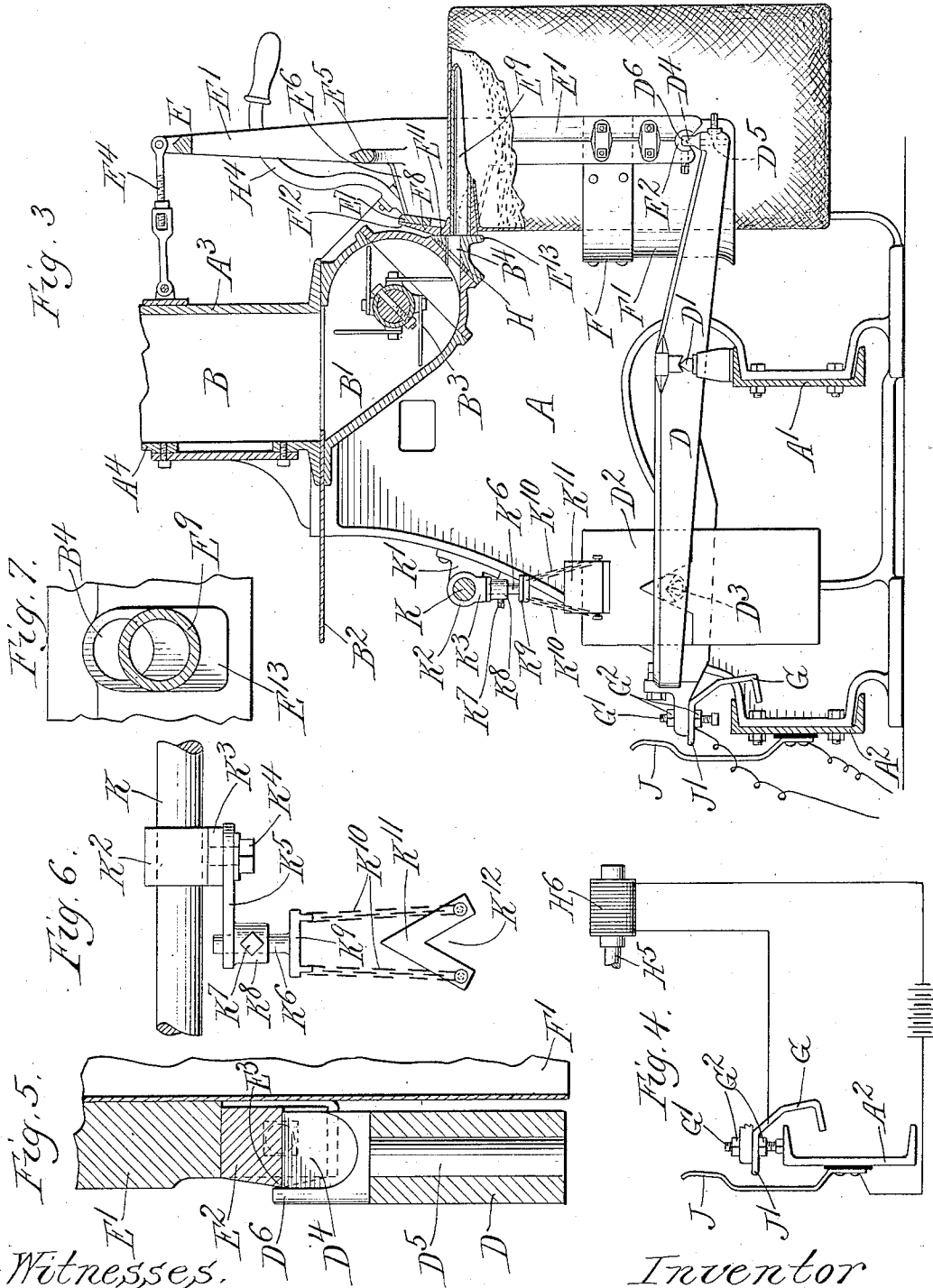
Witnesses.
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Minnie M. Lundenau

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ADELMER M. BATES, OF CHICAGO, ILLINOIS.

BAGGING-MACHINE.

1,071,385.

Specification of Letters Patent.

Patented Aug. 26, 1913.

Application filed January 6, 1911. Serial No. 601,083.

To all whom it may concern:

Be it known that I, ADELMER M. BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bagging-Machines, of which the following is a specification.

My invention relates to improvements in bag filling machines and is illustrated in one form in the accompanying drawing, wherein—

Figure 1 is a front elevation with parts broken away; Fig. 2 is a view in part section along the line 2—2 of Fig. 1; Fig. 3, similar to Fig. 2 with bag in slightly different position; Fig. 4, a wiring diagram; Fig. 5, a detail of one of the knife edges; Fig. 6, a detail of the support for the auxiliary weight; Fig. 7, a diagram section showing the feeding pipe and feeding throat in partial register.

Like parts are indicated by like letters in all the figures.

The end frames A are connected at their bottom by means of the channels A¹, A² and at their tops by means of the channels A³, A⁴. The supply passage B communicates at its bottom with the propeller pocket B¹ and may be separated therefrom by means of the slide B². The propeller B³ which may be of any suitable form is located within the propeller pocket B¹ in opposition to the feeding throat B⁴. The scale beam D is mounted upon the knife edge D¹ upon the channel A¹ and carries near one end the weight D² mounted upon the knife edge D³ and has at the other end the knife edge D⁴ carried upon the rod D⁵ and having the upwardly extending apron D⁶. The A-frame E which is made up of the side members E¹ and is mounted upon the knife edge D⁴ by means of the agate bearings E² having the conical points E³ to engage the apron D⁶ at the apex of the knife edge, is connected at its upper end with the channel A³ by means of the adjustable link E⁴, which is pivoted upon the channel A³ at a point below its connection to the A-frame when the scale beam is in its unloaded position. The side pieces E¹ are connected by means of the brace E⁵ and have below the brace E⁵ the web members E⁶ which carry the yoke E⁷. The plate E⁸ mounted upon the yoke E⁷ carries the feeding tube E⁹ which is adapted to register with the feeding throat B⁴, which, in turn, communicates with the propeller

pocket B¹. The plate E⁸ has the flat vertical surface E¹¹ to engage a corresponding flat vertical surface about the feeding throat B⁴ and has the surface E¹² at an angle with the surface E¹¹. The lug E¹³ provides for a continuation of the flat surface about the feeding throat, thus maintaining the feeding tube closed at all points where it is not in register with the feeding throat. The semi-circular yoke F connects the members E¹ of the A-frame near the knife edges and supports the downwardly depending bag protecting apron F¹. The scale beam D has at its rear end the hook G held thereupon by means of the bolt G¹ and lock nuts G² and adapted to engage the flange of the channel A². The end of the bolt G¹ is adapted to act as a stop and engage the top of the channel A² when the scale beam is in its unloaded position. The feeding throat B⁴ is provided with the cut-off slide H located approximately tangential to the feeding pocket, and provided at one end with the projection H² to engage the slot H³ in the handle H⁴, and at the other is connected by means of the rod H⁵ with the solenoid H⁶. The contact spring J is mounted upon and insulated from the channel A² and is adapted to be engaged by the projection J¹ upon the end of the scale beam when the scale is in its loaded position. The rod K mounted upon the brackets K¹ upon the end frame A carries slidably mounted thereon the collar K² having the downwardly depending lug K³ to which is rotatably held by means of the cap screw K⁴ the arm K⁵. The rod K⁶ is adjustably held by means of the set screw K⁷ in the lug K³ upon the arm K⁵, and carries at its bottom the cross piece K⁹ to which are attached the chains K¹⁰ to support the auxiliary weight K¹¹. The weight K¹¹ has the angular groove K¹² to engage the angular surface of the weight D².

It will be evident that while I have shown in my drawings an operative device, still many changes may be made both in size, shape and arrangement of the parts and I wish therefore, that the presentation be regarded as in a sense diagrammatical and that I be not confined to the particular arrangement and design of the machine as here shown and described.

The use and operation of my invention are as follows: In the old type of bag filling machines where the break between the filling tube and filling throat was placed diag-

onally, the pressure of the discharged material tended to force the bag downwardly, thus interfering with the accurate weighing of the contents of the bag. In my device I provide the break on a line perpendicular to the travel of the material, thereby doing away with any such downward pressure. The bag is supported upon a scale beam and when filled descends by its own weight moving the filling tube out of registration with the filling throat. There is a duplex cut-off for the supply, the first operation of which is that associated with the bag, a plate in connection with the filling tube descending and closing the discharge throat. The second operation is that associated with the discharge throat itself, and this cut-off is preferably diagonal so as to be as close as possible to the blades of the feeding device during their movement, thus preventing plugging of the material into the discharge tube. This cut-off is needed to prevent the premature discharge through the tube when the filling tube has returned to its filling position. This second cut-off is moved by a lever and handle, which handle can be used to operate the slide in both directions, although I also provide a solenoid for cutting off the supply when the feeding tube passes out of register with the feeding throat.

In providing for accurate weighing of the contents of the bag it is necessary that the last few pounds be introduced in a much more gradual manner than the remainder of the material. In order to accomplish this, I provide two weights, one larger than the other, the larger supported upon the scale beam, the smaller adapted to be picked up when the weight of the bag overbalances the larger at a point intermediate the limits of the motion of the scale. The result of this is, that when the big weight is overbalanced, the scale being dropped, the feeding tube and feeding throat are moved until but a small part of the feeding tube is in register with the feeding throat. This decreases very materially the size of the stream and as a result the speed of filling. The process then continues with the more gradual filling until the total weight is again overbalanced when the bag drops and the feeding throat is entirely closed. The bag is supported upon a frame which is supported by knife edges upon the weighing arm and connected by means of a link to the mechanism above the bag. This link is so located that as the bag and frame descend, the feeding tube is thrown slightly outward from the feeding throat, thus permitting any material which may be caught between the feeding throat and feeding tube to drop out, and thus prevent clogging.

I provide mounted upon the scale beam a

plurality of knife edges having at one side an apron perpendicular to the knife edge. I also provide upon the frame, bearing surfaces adapted to engage and ride upon the knife edges. These bearing surfaces have a conical end, the apex of which coincides with the bearing line upon the knife edge. This apex contacts the apron upon the knife edge and prevents lateral movement of the knife edge and bearing, and since this apex is at the center of rotation between the knife edge and bearing no appreciable friction results.

I claim:

1. A bag filling machine having a feeding throat and a filling tube separate from but in substantial registry with each other, and means responsive to the weight of material in the bag for laterally displacing the filling tube to vary the supply of material passing through it.

2. A bag filling machine having a feeding throat and a filling tube separate from but in substantial registry with each other, and means responsive to the weight of material in the bag for laterally displacing the filling tube to vary the supply of material passing through it, together with means for cutting off the supply of material.

3. A bag filling machine having a feeding throat and filling tube, and a plurality of independent means each adapted to cut off the supply, said means responsive to the weight of material in the bag.

4. A bag filling machine having a feeding throat and a filling tube and means for cutting off the supply of material associated with the filling tube directly responsive to the weight of the material in the bag, together with electrically operated means associated with the feeding throat responsive to the movement of the bag for cutting off the supply of material.

5. A bag filling machine having a feeding throat and a filling tube laterally movable responsive to the weight of the material in the bag, and means responsive to said lateral movement for varying the supply of material to the bag.

6. A bag filling machine having a feeding throat and a filling tube laterally movable responsive to the weight of the material in the bag, and means responsive to said lateral movement for varying the supply of material to the bag together with means responsive to said movement for cutting off the supply of material.

7. A bag filling machine having a feeding throat and a filling tube laterally movable responsive to the weight of the material in the bag, and means responsive to said lateral movement for varying the supply of material to the bag together with means responsive to said movement for cutting off the supply of material and auxiliary electric-

cally operated means for positively cutting off the supply of material.

8. A bag filling machine having a bag supporting frame and a scale beam, a knife edge upon said scale beam having an upwardly projecting apron at one end of the apex of the knife and a bearing groove upon the frame adapted to engage said knife edge.

9. A bag filling machine having a bag supporting frame and a scale beam, a knife edge upon said scale beam having an upwardly projecting apron at one end of the apex of the knife and a bearing groove upon the frame adapted to engage said knife edge, and a conical surface adjacent one end of said bearing groove having its point in a line with the center of said groove.

10. The combination in a bag filling machine of a feeding tube adapted to enter the bag and means for varying the effective area thereof at some point between the beginning and ending of the feeding operation, said means responsive to the weight of material in the bag.

11. A bag filling machine having a filling tube adapted to enter the bag, means for varying the effective area thereof during feeding and a weighing mechanism and means for varying the balance-weight thereof.

12. A bag filling machine having a filling tube adapted to enter the bag, means for varying the effective area thereof during feeding and a weighing mechanism and means for varying the balance-weight thereof, the variation in the effective area of the feeding tube being responsive to the variation in the balance-weight.

13. A bag filling machine, having a filling

tube and a filling throat with which it registers, and means for simultaneously moving the filling tube longitudinally toward and from the throat and bodily across the mouth of the throat, said means responsive to variations in the weight of the bag being filled.

14. A bag filling machine having a feeding throat and feeding tube and means for varying the cross sectional area of the stream of material passing through said feeding tube before the bag is filled, said means responsive to the weight of material in the bag.

15. A bag filling machine, having a feeding throat and a filling tube, and means for laterally moving said tube out of alignment with said throat together with means for longitudinally displacing said tube, all such means responsive to the variation in the weight.

16. A bag filling machine comprising an A-frame, a feeding throat, a filling tube in said frame in engagement with said throat, of a link connection between the top of said A-frame and the filling machine, said link pivoted upon the filling machine at a point below its connection to the A-frame, such means responsive to the variation in the weight.

17. A bag filling machine, having a filling tube and a filling throat with which it registers and means for simultaneously moving the filling tube longitudinally toward and from the throat and bodily across the mouth of the throat.

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