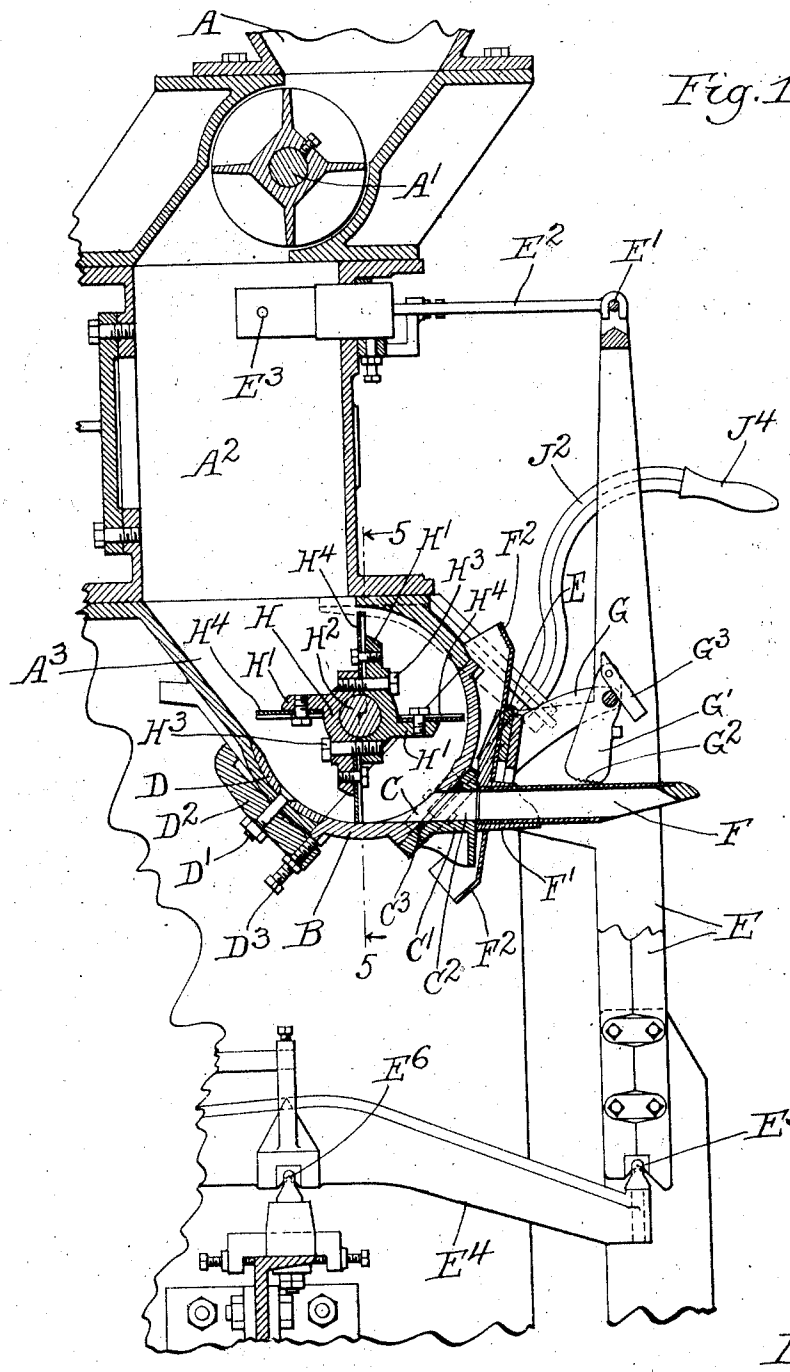
Nov. 17, 1925. 1,561,586

A. M. BATES

CEMENT PACKER

Filed May 26, 1922 3 Sheets-Sheet 1

Fig. 1.



Witness.
Edward T. Wray

Inventor
Adelmer M. Bates.
by Parker & Carter.
Attorneys.

Nov. 17, 1925. 1,561,586

A. M. BATES

CEMENT PACKER

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Fig. 2.

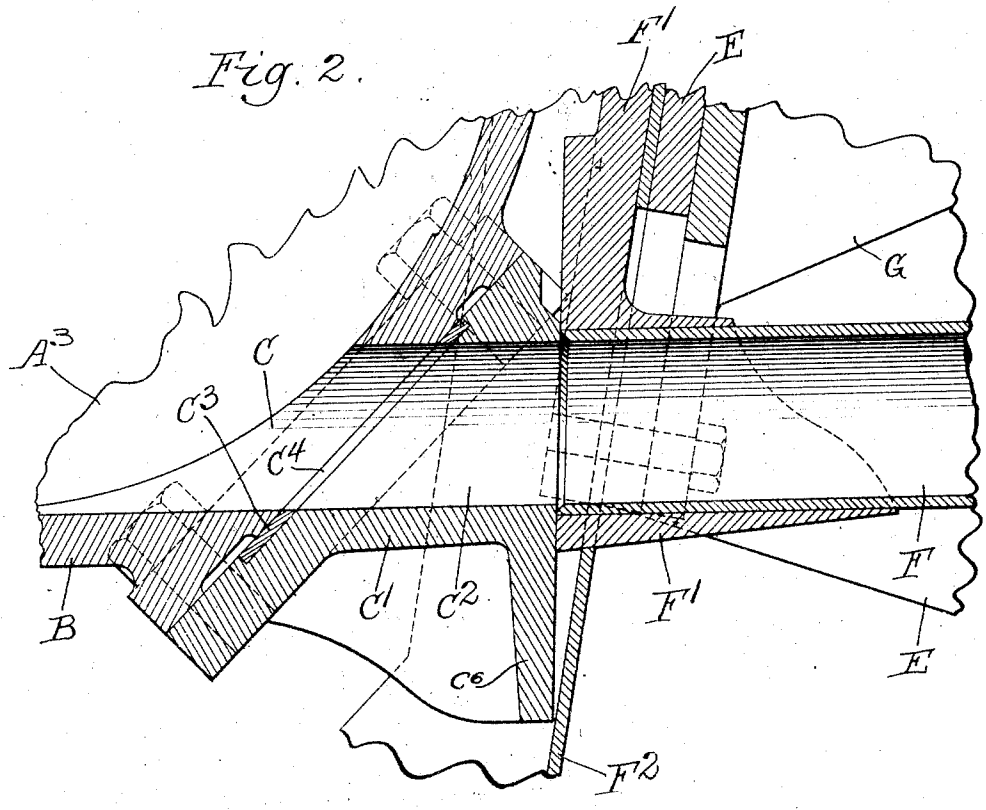


Fig. 3.

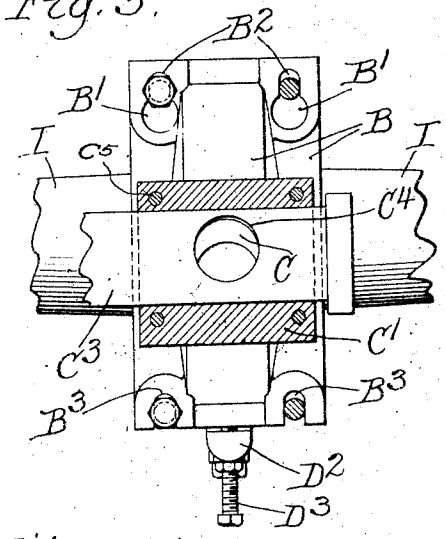
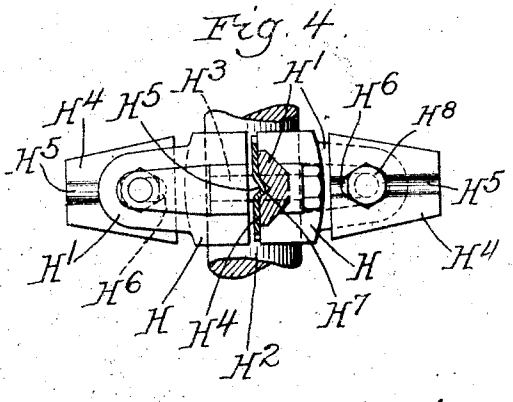


Fig. 4.



Witness
Edward T. Wray.

Inventor
Adelmer M. Bates.
by Parker & Carter.
Attorneys.

Nov. 17, 1925. 1,561,586

A. M. BATES

CEMENT PACKER

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Fig. 5.

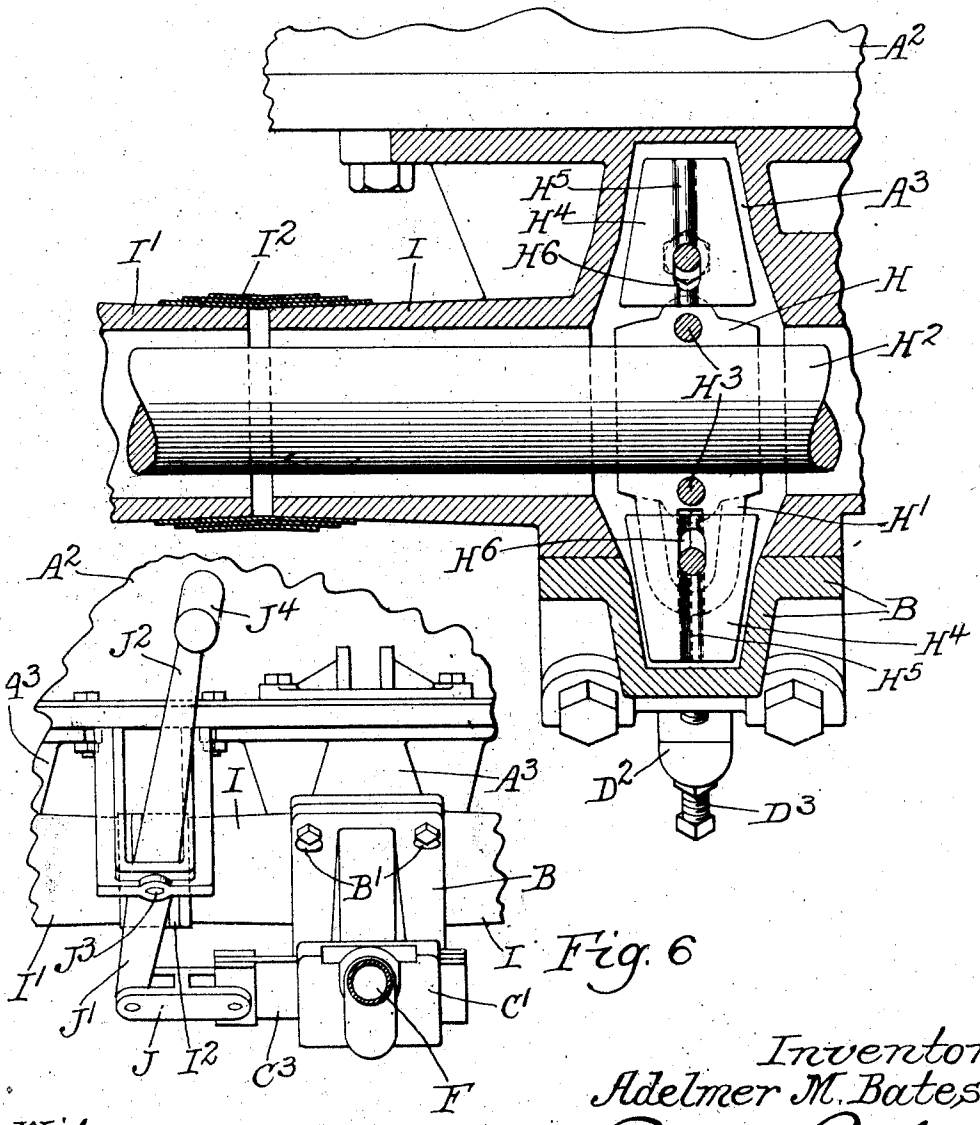


Fig. 6

Witness.
Edward T. Wray.

Inventor.
Adelmer M. Bates.
by Parker & Carter.
Attorneys

Patented Nov. 17, 1925. 1,561,586

UNITED STATES PATENT OFFICE.

ADELMER M. BATES, OF CHICAGO, ILLINOIS, ASSIGNOR TO BATES VALVE BAG COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF WEST VIRGINIA.

CEMENT PACKER.

Application filed May 26, 1922. Serial No. 563,933.

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 Cement Packers, of which the following is a specification.

This invention relates to a bag or package filling machine wherein granular material is forcibly fed into the package. It relates particularly to a feeding means.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein:

Figure 1 is a fragmentary vertical cross section of the filling machine;

Figure 2 is a view on an enlarged scale of a portion of Figure 1 showing the discharge spout and control;

Figure 3 is an elevation with parts in section showing the opening and controlling slide;

Figure 4 is an elevation with parts in section of the impeller;

Figure 5 is a longitudinal section taken on line 5—5 of Figure 1 with parts omitted and showing the impeller in position;

Figure 6 is an elevation showing the discharge spout and controlling valve, with parts in section.

Like parts are designated by like characters throughout.

A is the hopper into which the material is fed and from which it is downwardly moved by the feeding wheel A′ into a chest A^2 from which it falls into the impeller casing A^3. This casing is provided with a removable segment B, which forms about one-third of its bottom. This segment is bolted onto the main casting which forms the remainder of the impeller casing. The particular form in which this is accomplished is shown in Figures 3 and 6. The casting B is provided with lateral extensions and at its upper end there is a pair of enlarged perforations B′ B′ communicating with narrowed slots B^2 B^2. The lower extension has a pair of slots B^3 B^3. The bolts or screws which hold the segment B in position are mounted in the main casting and segment B is moved into position so that the heads of the bolts or screws pass through the enlarged holes B′. It is then slipped down so that the shank of the bolts or screws move into the narrow slots. The screws are then tightened and the segment is secured in position.

The segment B is perforated as at C and has fastened to it at this point a member C′, which is provided with a perforation C^2 in continuation of the perforation C. Mounted so as to slide across the perforation C is a shutter C^3, provided with a central perforation C^4. This shutter is held in position by the member C′ and may be moved back and forth across the opening so as to control the discharge of material therethrough. The member C′ may be fastened to the segment B by bolts C^5, shown in section in Fig. 3. A skirt portion C^6 projects downward from the outer end of the member C′.

D is a removable floor piece for the impeller casing. It is positioned at the point at which it has been determined the greatest wear takes place, and it is made removable in order that replacement can be made. This member is perforated and is held in position by a bolt D′ which passes through it and through a positioning finger D^2. The bolt is sufficiently tightened to hold the parts in the position shown, and the set screw D^3 in the outer end of the finger D^2 is manipulated further to tighten the bolt and to hold the parts more rigidly in position. This set screw D^3 also serves to adjust the segment B in position before the same is finally clamped by means of the bolts in slots B^2, B^3.

E is a package holding frame pivoted at E′ upon a laterally extending rod E^2 which is itself pivoted at E^3. The frame E is supported upon the ends of the scale beam E^4, as at E^5. The scale beam E^4 is pivotally supported upon a knife edge E^6. The bag or other package is supported in the frame E. The bag, which is preferably of the valve type, is provided with an opening in its top and is positioned so that the discharge spout F extends into the opening. As material is discharged into the bag which is supported upon the scale, the scale beam is gradually depressed. The nozzle F, since it is supported from the frame E, moves with the frame. The nozzle F is located in a valve block F′, and about this block F′ and overlying the impeller casing is an apron F^2. The inner end of the nozzle tube F is chamfered so as to eliminate any possibility of the material being projected

against an abrupt edge whereby its discharge might be interfered with.

Supported together with the frame E are a pair of brackets G, which carry between them a locking lug G', notched on its lower end as at G^2. The upper end of this lug is split and is provided with a dog G^3. The operation of this dog will not be described in detail as it forms no part of the present invention. It is sufficient to say that the member G' serves by means of its notched end G^2 to engage the fabric of the bag which is being filled and prevent accidental displacement of the same.

H is an impeller formed of a split hub each half of which is provided with two laterally extending arms H' H'. The impeller is mounted upon a driven shaft H^2 which is driven from any suitable source of power. The two parts of the impeller hub are fastened together by the screws H^3 H^3. To each of the arms H' is fastened a blade H^4, which has a central corrugation H^5 seated in a corresponding groove H^7 in the arm H' of the hub. Thus each blade is prevented from twisting when the single bolt H^8 which holds it in position is tightened, and its position in or out may readily be adjusted by the manipulation of this single bolt. The central corrugation H^5 serves as a stiffening means as well as a positioning means for the blade. An elongated slot H^6 is provided for the passage of H^8, so that the blade may be adjusted in or out.

The impeller casing is provided with a lateral extension I, which adjoins a similar lateral extension I' from another impeller casing which forms part of the same machine. Since cement or other finely divided material is in the impeller casing it will circulate through the extension I, and in order to prevent its escape into the surrounding air or into the bearings of the machinery a readily applied flexible joint is used to connect the adjoining casing extensions. As here shown, this joint is made of flexible tape I^2, which may be of any suitable type and may or may not be painted or gummed. In any event it serves to make an air tight joint and one which may readily be applied and one which avoids the necessity of accurately aligned parts and carefully fitted and machined joints. The slide C^3 is provided with a manual control which includes the link J which is pivotally connected to the slide at one end and pivotally connected to the end J' of a lever arm J^2 at its other end. This arm is pivoted as at J^3 and provided with a controlling handle J^4.

The use and operation of my invention are as follows:

The bag or other package to be filled is positioned over the nozzle and is held against accidental displacement by the dog above described. The weight on the scale is set at a predetermined point to control the weight of material to be discharged into the package. Material may be fed into the hopper at that time or it may be previously fed to the same.

With the parts in the position shown in Figure 1 and the impeller in operation, the feed nozzle is opened and material will be discharged into the bag or other package, which, as above pointed out, is supported on the cradle which in turn rests upon the scale beam. As material is discharged into the package the scale beam will gradually be depressed and, the nozzle moving with it, the perforation therethrough will gradually move out of register with the perforation in the bottom of the impeller casing, and thus the amount of material discharged will be gradually reduced. When the predetermined amount of material has been discharged into the bag its weight will be sufficient completely to depress the scale beam and thus completely to close the nozzle opening and to prevent further discharge. The apron about the nozzle assembly, which is also mounted on the moving frame, is provided in order to prevent the lateral discharge of material which may escape during this operation due to leakage, and other causes. When the scale beam has come to rest the controlling handle is operated and the slide is moved across the nozzle opening so as to positively close the same. The filled package is now removed from the scale frame and the scale returns to its former position, the nozzle opening moving again into register with the opening in the bottom of the impeller casing; but since the slide has been moved across this opening no discharge can take place. Another package is placed in position on the nozzle and the operator then positively opens the slide valve and permits discharge into the package through the nozzle, and the cycle of operation is repeated. As the bag is filled and the scale beam is correspondingly depressed the depending lip on the casting C' covers the rear or inner opening of the nozzle, and a flat face on the casting F' extending above the inner opening of the nozzle prevents leakage or discharge of material from the impeller casing into the air as the scale beam descends.

Claims:

1. In a bag filling mechanism, a material impeller mounted about a rotary shaft and comprising a central hub provided with a plurality of laterally extending arms each having a longitudinal groove, in combination with a plurality of blades each provided with a longitudinal corrugation adapted to lie within one of such grooves, and a single bolt passing through each corrugation into the arm and fixing the blade in position.

2. In a bag filling mechanism, a material

impeller mounted about a rotary shaft and comprising a central hub provided with a plurality of laterally extending arms, each of of said arms having a longitudinal groove, in combination with a plurality of blades, each provided with a longitudinal corrugation adapted to lie within one of such grooves, and a single bolt passing through a longitudinal slot within the corrugation and adjustably securing the blade to the arm.

3. In a bag filling mechanism, a material impeller mounted about a rotary shaft and comprising two semi-annular members forming a hub, each having an arm extending radially outward along the line of division and another arm at right angles to the first said arm, bolts securing the two members to each other and upon the shaft, there being a longitudinal groove along one side of each arm and a blade having a corrugation lying in the groove and a bolt passing through each corrugation into the adjacent arm and fixing the blade in position.

4. In a material supply system, a rotary impeller and a casing therefor having a removable segment, means for adjustably securing said segment upon said casing, said means including an arm removably attached to the outside of said casing and provided with a set screw whereby said detachable side may be vertically adjusted, and a removable lining within a part of said casing, said lining being held in position by the main holding means for such removable arm.

Signed at Chicago county of Cook and State of Illinois, this 22nd day of May 1922.

ADELMER M. BATES.