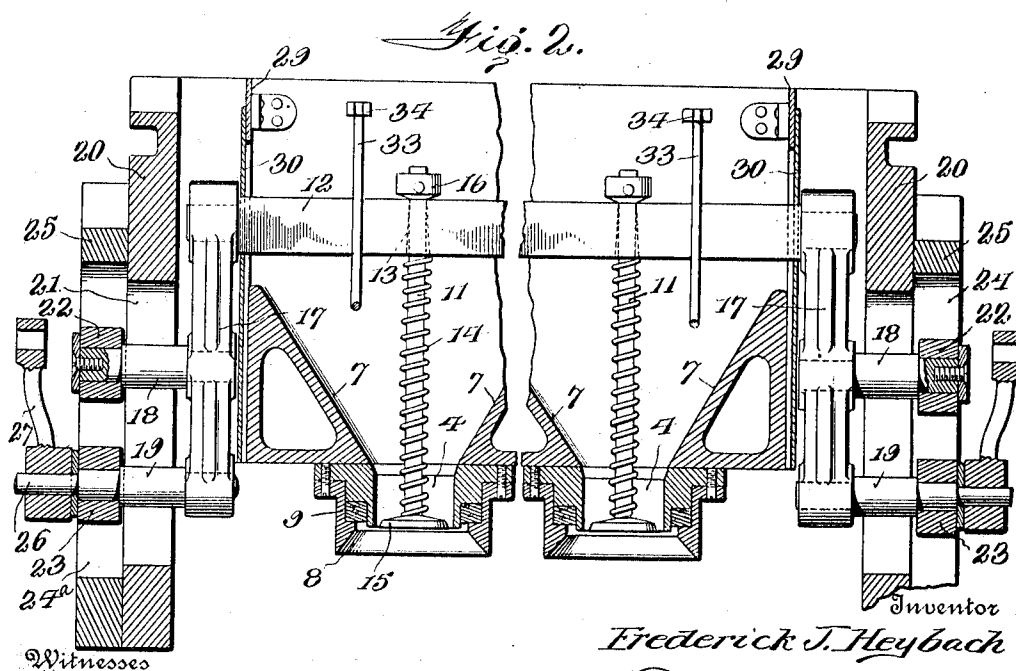
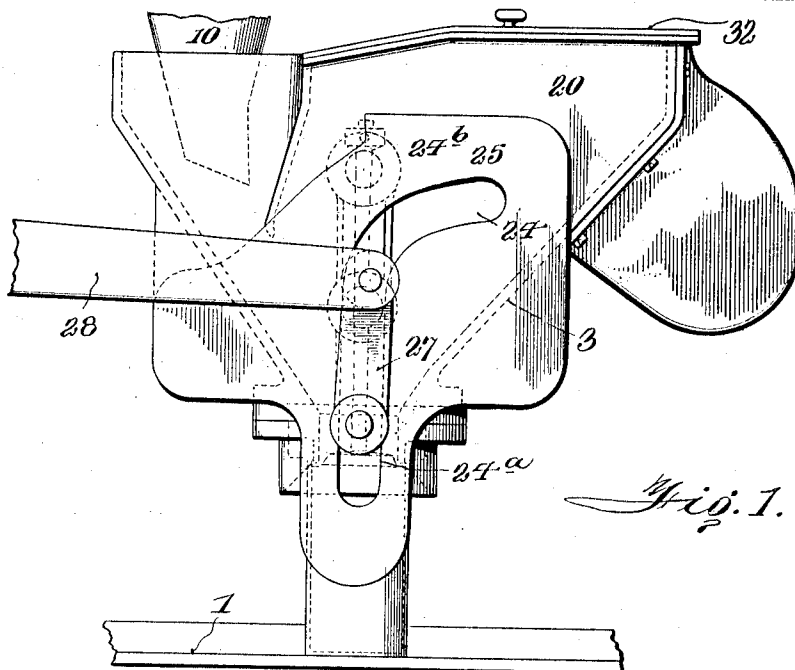


1,040,946.

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PACKER.
APPLICATION FILED FEB. 7, 1912.

Patented Oct. 8, 1912.
2 SHEETS—SHEET 1.



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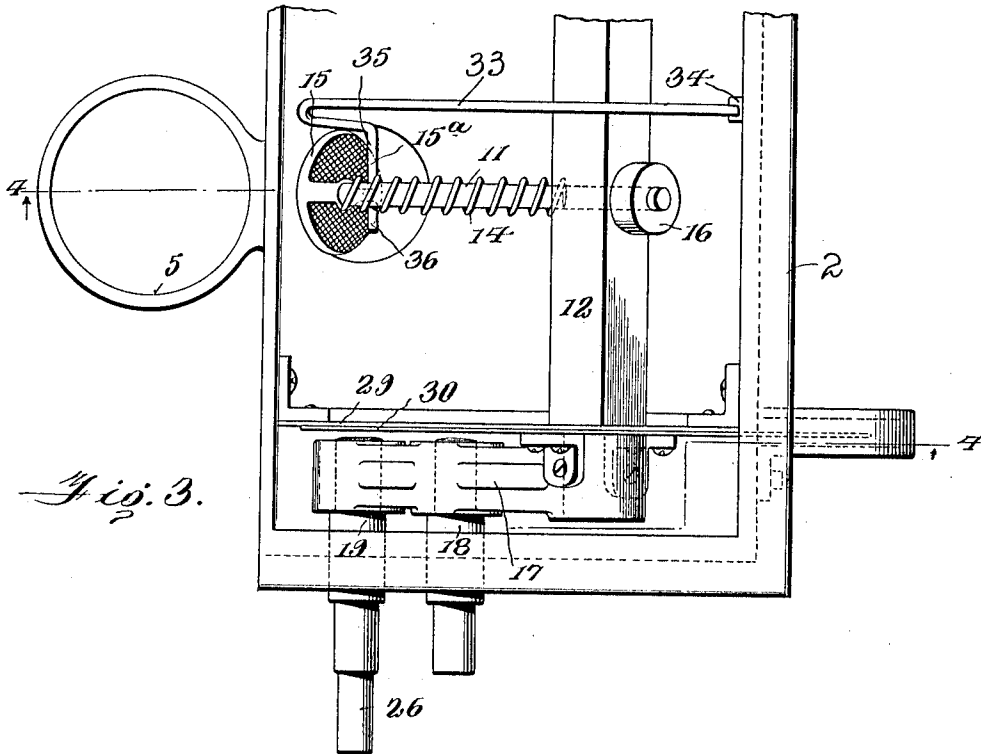


Fig. 3.

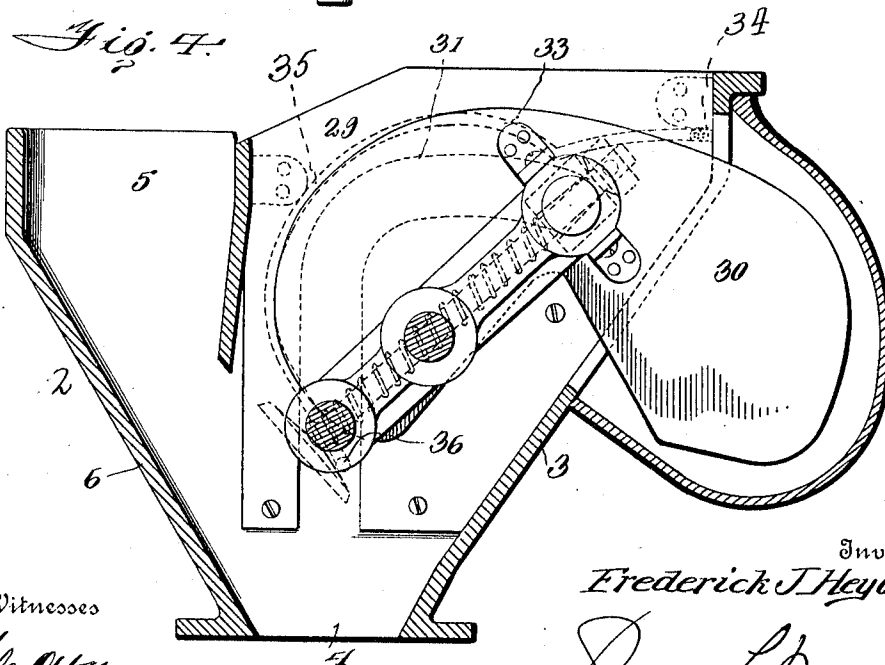


Fig. 4.

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PACKER.

1,040,946.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed February 7, 1912. Serial No. 675,924.

To all whom it may concern:

Be it known that I, FREDERICK J. HEYBACH, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented new and useful Improvements in Packers, of which the following is a specification.

The present invention relates to improvements in apparatus for filling cans or other receptacles, and the primary object of this invention is to provide a simple and improved packer for forcing the charges of material into the receptacles, thereby insuring a full charge of material in each receptacle, avoiding spilling and waste of the material, and facilitating the application of caps or the closing of the receptacles, the present invention being used to particular advantage in connection with filling machines embodying a plurality of units, and this invention is also well adapted to the packing of powdery or free-flying materials such, for example, as yeast powder which materials contain a large percentage of entrained air which ordinarily renders it difficult to properly compact charges of such materials in receptacles, although the packer provided by the present invention is capable of packing such material rapidly and with no appreciable loss thereof.

To these and other ends, the invention consists in certain improvements, and combinations and arrangements of parts, all as will be hereinafter more fully described, the novel features being pointed out particularly in the claims at the end of the specification.

In the accompanying drawing:—Figure 1 represents an elevation of a packer constructed in accordance with the preferred embodiment of the invention, one of the cans or receptacles being shown in filling position beneath the packer; Fig. 2 represents a central vertical section through the packer, the middle portion thereof being omitted or broken away; Fig. 3 is a top plan view of one end of the packer, the cover and other parts being removed and one of the packing elements being retracted; and Fig. 4 represents a transverse section on the line 4—4 of Fig. 3.

Similar parts are designated by the same reference characters in the several views.

Packing apparatus embodying the present invention is applicable generally to machines

of different types and may be used in the packing of materials of different kinds. I have found it to be well adapted to the packing of powdery or free-flying materials and it may be used advantageously in connection with a receptacle filling machine of the multiple unit type as shown for example in my prior Patent, No. 935,506. It is to be understood, however, that the construction shown in the present drawing and which will be hereinafter described in detail represents but one embodiment of the invention and that modifications and changes may be made in adapting the packer to different uses without departing from the essential features of the invention.

In the accompanying drawing, the cans or other receptacles for each unit of the filling machine are fed along a runway 1 by any suitable means such, for example, as that shown in my prior patent above referred to and means such, for example, as shown in that patent may be used to elevate the packer bodily to enable a set of cans or receptacles to be positioned beneath it and then lowered so as to rest upon and form a proper joint with the mouths of the receptacles. The packer in the present instance embodies generally a casing 2 which may be of different lengths according to the number of filling units with which it is to operate. Preferably, one side wall 3 of the casing is inclined to form a regular slope to each outlet 4 in the bottom of the casing, while the opposite wall of the casing is provided with a spout 5 the wall 6 of which slopes toward and leads to the respective outlet 4, there being an inlet spout 5 for each filling unit employed. The bottom of the casing is also preferably provided with transversely extending walls which are interposed between and arranged beyond the ends of the discharge or outlet openings 4, these walls forming the sloping surfaces 7 one pair of which leads to each discharge or outlet opening, each outlet opening being further provided in effect with an individual hopper which receives the charge of material for each receptacle and the flow of the charges to and through the outlet openings is facilitated and made certain. Suitable means is provided for producing a joint between the mouth of each receptacle and the outlet opening from which it is to receive its charge of material. In the present instance, a flared

guide 8 is attached to the under side of the casing in axial alinement with the respective outlet opening and in the construction shown, this guide contains a ring or packing 9 of rubber or other suitable material which will yield when engaged by the upper edge of the can or receptacle, thereby producing a powder-tight fit therewith and avoiding mutilation of the can mouth. In the arrangement shown, a row of cans is positioned at each operation so as to receive charges of material from the respective outlet openings of the packer casing, these cans being carried to and from the filling point by a movement in a horizontal direction along the runways 1. The packer casing may be bodily elevated and lowered to permit the row of cans to enter beneath it and to form filling connections therewith by any suitable means such, for example, as that shown in my prior patent aforesaid. It is to be understood that the weighed or other predetermined charge of material for each can or receptacle is supplied to the respective hopper in the packer casing by a suitable funnel 10 which discharges into the corresponding spout 5.

The packing means for forcing the charges of material into the respective cans or receptacles comprises, according to the present invention, a plurality of compression plungers or members which correspond to the respective outlet openings of the packer casing, and simple and efficient means is provided for operating the compression plungers in a manner to insure the introduction of the full charges of material in all the receptacles, the present construction being well adapted to handle powdery or free-flying materials without appreciable waste. In the present instance, a set of compression members in the form of plungers 11 are employed, these plungers being of a number corresponding to the number of receptacles to be filled at each operation, and all of the plungers of the set are connected to a common operating bar or member 12. In the construction shown, operation of the packing apparatus will not be interfered with nor will the apparatus be injured should one or more of the plungers encounter an obstruction to its movement such, for example, as would be produced should a can be presented in inverted position to the plunger, the corresponding plunger in such an event being able to yield relatively to the operating member whereby the latter may continue its movement and injury to the obstructed plunger is avoided. To this end, the stem of each plunger extends loosely through an opening 13 in the operating bar or member 12, a compression spring 14 is coiled about the stem of the plunger between the head 15 of the plunger and the under side of the operating bar 12, and the stem

of the plunger above the operating bar 12 is provided with a collar or nut 16 which limits the movement of the plunger under the action of the spring 14 and serves to yieldably hold the respective plunger in correct operative relation to the operating bar.

The present invention provides simple and improved means for imparting the necessary packing and return strokes to the packing plungers whereby these plungers will occupy a position above and at one side of the path of movement of the material while the latter is being introduced into the receptacle and after the receptacle has received a charge of material, the plunger will move downwardly and in a direction substantially in alinement with the receptacle, thereby pressing the entire charge of material directly and evenly into the receptacle. Such operating means in the present instance comprises a pair of arms 17 which are rigidly connected at their upper ends to the respective ends of the common operating bar 12, and these arms 17 are provided at intermediate points and toward their opposite ends with pairs of studs 18 and 19 which are attached rigidly to and project outwardly from the respective arms. The ends of the packer casing are closed by walls 20 and these walls are formed with slots 21 in which the studs 18 and 19 on the respective arms 17 operate, the arms 17 being contained within the packer casing. The outer ends of the studs 18 and 19 are provided with rollers 22 and 23, and these rollers operate in cam slots 24 which are formed in cam plates 25, the latter being fixed to the outer sides of the end walls 20 of the packer casing. Each cam 24 has a lower straight section 24^a and an upper laterally curved section 24^b whereby a lateral inclination or tilt will be given the packing plungers when the rollers 22 and 23 reach the upper laterally curved section 24^b of the cam slot, as shown in Figs. 3 and 4, and when the rollers 22 and 23 operate in the lower or straight section 24^a of the cam slot, the packing plungers will be in vertical position and will then operate in alinement with the receptacles positioned beneath them, as shown in Figs. 1 and 2. Any suitable means may be provided for imparting the necessary reciprocating movements to the operating bar 12, the studs 19 in the present instance being formed with extensions 26 which receive a pair of links 27 arranged at the opposite ends of the packer casing, and an arm 28 which is preferably actuated at appropriately timed intervals by a cam as shown and described in my prior patent aforesaid is connected to each link 27 and serves to impart the packing and return movements to the plungers.

Means is shown to prevent escape of the powdery or free-flying material to the exterior of the packer casing through the cam

slots, a partition plate 29 extending across the packer casing at the inner side of each arm 17, these partition plates being secured in stationary position, and a shutter plate 30 is attached to each end of the operating bar 12 so as to move with this bar, the shutter plate serving to cover the slot 31 in the partition plate 29 which slot permits the operating bar 12 to project therethrough. The top of the packer casing is closed by a lid or cover 32.

In the handling of free-flying powdery materials, there is a considerable amount of entrained air which must be removed in order to form a compact charge in the receptacle, and in such cases, it is preferable to employ a plunger head 15 having a gauze or other foraminous covering 15^a whereby upon descent of the plunger, a pressure is imposed upon the mass of material, this pressure serving to force the entire charge into the receptacle and to expel the air from the charge, the expelled air being permitted to escape into the packer casing through the foraminous covering of the plunger head without carrying with it any appreciable amount of the material and, hence, accuracy in weight of the charges is insured.

If desired or necessary, a knocker may be provided for each plunger for the purpose of dislodging therefrom any material that may adhere thereto after each packing operation, each knocker in the present instance embodying a rod 33 which has one end fixed at 34 to a wall of the packer casing and the opposite end of the rod is curved at 35 and terminates in a laterally bent end 36 which is arranged to engage the under side of the stem of the respective plunger as the latter rises and thereby jar the plunger head sufficiently to dislodge any material that may adhere to the upper side thereof.

I claim as my invention:—

1. A packer comprising a casing having a passage for the flow of the material there-through and an outlet for discharging the material into a receptacle, a packing member operative in said casing, and means embodying a cam for guiding said packing member from a position at one side of said passage into alinement with said outlet.

2. A packer comprising a casing having a passage for the flow of the material and an outlet for discharging the material into a receptacle, a reciprocatory packing member in the casing, means for reciprocating said member, and a cam guiding the packing member for movement in alinement with said outlet during the packing operation and carrying said member out of said passage when retracted.

3. A packer comprising a casing having an outlet for discharging material therefrom into a receptacle, a packing plunger in the casing and having a stem, an operating member yieldably connected to the plunger and guiding said stem, and means connected to said member for reciprocating it and said plunger.

4. A packer comprising a casing having a plurality of outlets for discharging material therefrom into receptacles, a packing plunger for each outlet, and a reciprocatory operating member common to the plungers movable transversely and also axially of said outlets and having means individual to each plunger for forcing it toward its respective outlet during the packing movement of said member, said plungers and operating member being inclosed by said casing.

5. A packer comprising a casing having a plurality of outlets and a charge-receiving hopper in the casing individual to each outlet, each hopper having an inlet leading into one side thereof, a packing plunger for each hopper and outlet, a common operating member for the plungers, the plungers and operating member being inclosed by said casing, and means for guiding said member to cause each plunger to move laterally of the inlet and then axially of the outlet of its respective hopper.

6. A packer comprising a casing having an outlet for the discharge of material therefrom into a receptacle, a packing plunger for forcing material through said outlet and into a receptacle, an operating bar connected to said plunger, a pair of arms fixed to the opposite ends of said bar, a pair of cams fixed to the opposite ends of said casing, projections on said arms engaging the respective cams, and means connected to said arms for reciprocating them.

7. A packer comprising a casing having an outlet for the discharge of material therefrom into a receptacle, a packing plunger for forcing material through said outlet and into a receptacle, an operating bar connected to said plunger, means located exteriorly of the casing for guiding and operating said bar, partition plates toward the opposite ends of the casing having slots through which said bar projects, and shutter plates movable with said bar and closing said slots.

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

FREDERICK J. HEYBACH.

Witnesses:

EDWARD P. HILL,
CHARLES RÜFFEL.