S. TAGGART.

Flour and Sugar Packer.

No. 162,118. Patented April 13, 1875.

FIG II

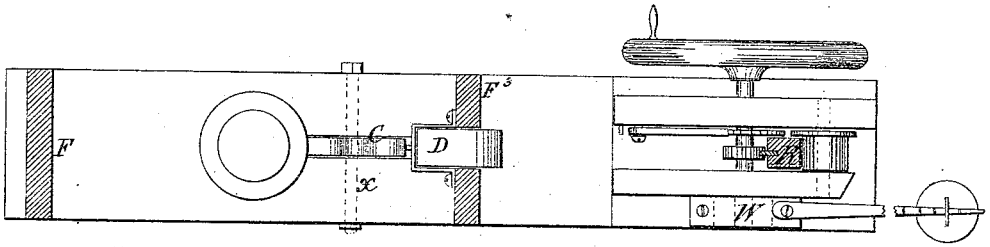


FIG III

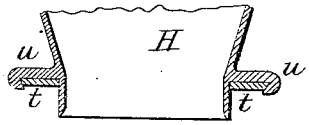


FIG I

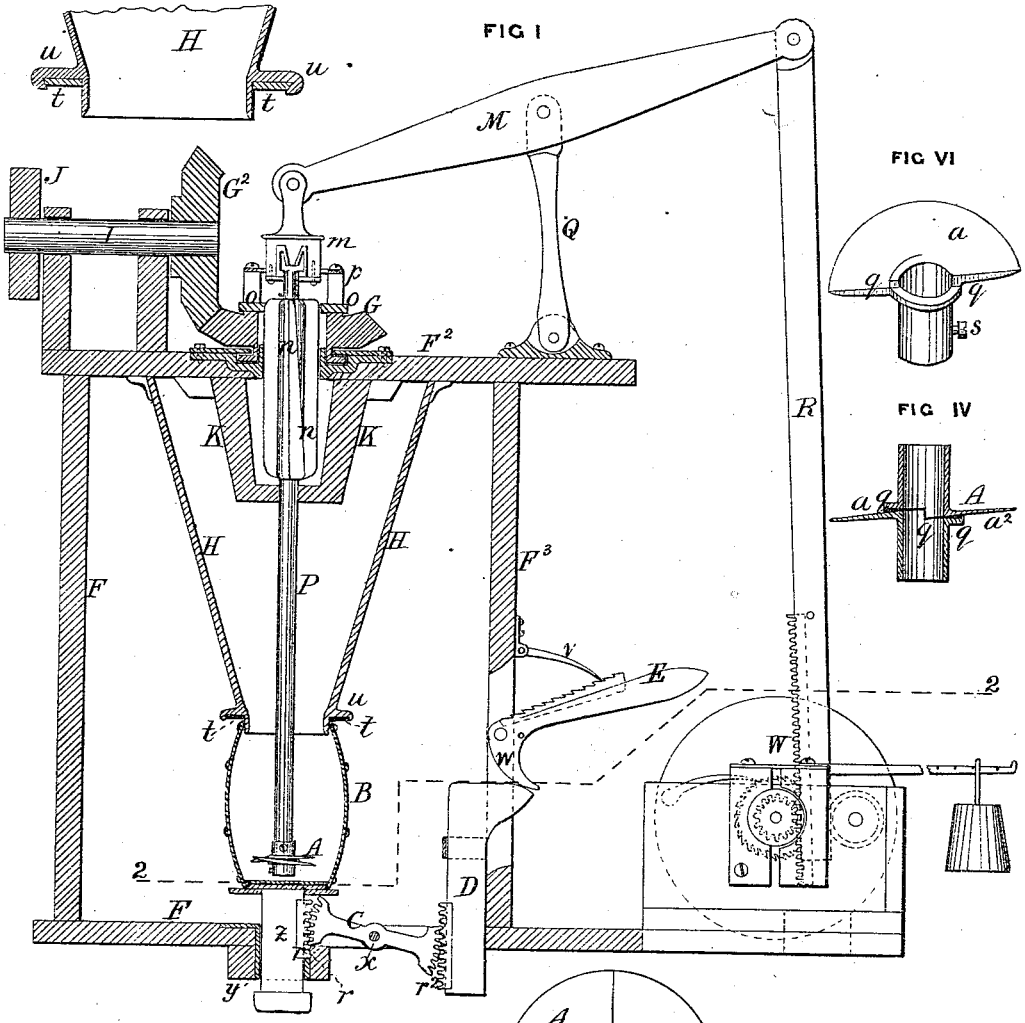
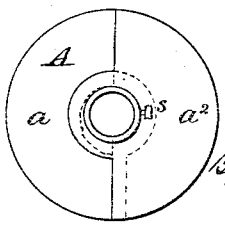


FIG VI

FIG IV

FIG V



WITNESSES

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SAMUEL TAGGART, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN FLOUR AND SUGAR PACKERS.

Specification forming part of Letters Patent No. **162,118**, dated April 13, 1875; application filed March 24, 1875.

To all whom it may concern:

Be it known that I, SAMUEL TAGGART, of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Flour and Sugar-Packers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates primarily to apparatus for packing flour into barrels with superior uniformity, as well as rapidity, so that each barrel, whether large or small, shall be filled with one hundred and ninety-six pounds, or thereabout. The invention is also applicable to apparatus for packing flour and other substances in sacks, and especially to apparatus for packing barrels with sugar and like heavy compressible material.

The improved packer is a simple and compact apparatus, adapted to be set upon one floor of a mill, and it may be portable. A barrel-lifter is arranged beneath the barrel tube or funnel. A vertical auger distributes and condenses the flour or other material within the barrel or sack. The shaft of this auger is adapted to slide longitudinally, and its yielding motion in this direction is governed through a connecting-rod and walking-beam by a weighing or pressure-controlling brake. The present invention consists, first, of a rack-connecting device for operating the sliding barrel-lifter; second, in means for insuring a perfectly tight or complete joint between the top of the barrel and the funnel; third, in a packing-auger, made in sections in a peculiar manner, so as to combine simplicity of construction with facility for casting and polishing the auger and for renewing the same; fourth, in a combined internal bearing and shield for the winged-clutch and auger shaft within the hopper; fifth, in a swinging fulcrum-post for the walking-beam, in combination with the pressure-controlling brake to relieve the auger-shaft and brake-connection from lateral strain, and generally to prevent friction-strain and obstruction, all as hereinafter more fully set forth.

Figure 1 represents a vertical section of a flour-packer, illustrating this invention, the movable parts being shown in the positions which they occupy at the commencement of the operation of packing; Fig. 2, a horizontal section on the line 2 2, Fig. 1, showing a plan of the lower portion of the apparatus; Fig. 3, a detail section, on a large scale, showing more clearly the construction of the lower end of the funnel; Fig. 4, an axial section of the packing-auger; Fig. 5, a plan thereof, and Fig. 6 a view of one section of the auger.

This improved packing apparatus, as illustrated in the accompanying drawing, has a main supporting-frame, F F^2, of any approved construction. From the upper timber F^2 of the frame, a barrel tube or funnel, H, of suitable dimensions, depends, being adapted to receive the flour through a spout at top, and to deliver the flour at the bottom into a barrel placed for its reception. The barrel B is adjusted and supported beneath the funnel by a lifter, which has a central vertical stem, *z*, sliding in ways *y*, attached to the floor F of the frame, so as to afford a solid and axial support at the center of gravity. For operating the sliding barrel-lifter, a double spur-sector, C, is mounted in a vertical recess in the bottom timber or floor F, by means of a central horizontal fulcrum-rod or shaft, *x*. A rack, *r*, on the stem of the lifter, meshes with one end of this sector, and the other end is engaged by a rack, r^2, on a vertical slide, D, working in the same recess and in an extension thereof, within an upright, F^3, of the frame. This slide is depressed to elevate the barrel by a cam, *w*, at the fulcrum end of a hand-lever, E. A pawl, *v*, engaging a ratchet-flange on the hand-lever, retains the parts in position, with the barrel supported against the face of an abutment-flange, *u*, on the funnel. This barrel-lifting mechanism, as a whole, it is believed, can be built cheaper and will be more durable than any other. The substitution of a hand-wheel shaft and pinion for the slide D and lever E, with its retaining-pawl and ratchet-flange, has been contemplated. To form a tight or complete joint between the top of the barrel and the abutment-flange on the funnel, an annular elastic gasket of rubber, *t*, is provided, the same being inserted and held in a groove in the flange, as clearly shown in Fig.

3. The rubber may be inserted in an independent case, and attached to the funnel, if preferred. In either case the displacement of the rubber is prevented, and the ends of the staves are embedded in the rubber, so as to preclude the escape of flour with the atmosphere when the filling begins. This provision takes the place of a bulky and unsatisfactory cushion of sheepskin, with wool on, commonly improvised, and which has been attached by strings. A central vertical auger, A, of peculiar construction, distributes and packs the flour within the barrel. The improved auger is made in halves or sections a a^2, as clearly shown in Figs. 4 and 5, and its division is transverse instead of longitudinal; each section comprising a complete blade or lip, and one hub or one complete hub to each blade. The sections are attached independently by set-screws s, tapped into the hub or into the shaft. To insure the required solidity of the auger, and the proper relation between the blades, the sections are interlocked by means of shoulders q on their contiguous faces, as illustrated in Figs. 4 and 5.

This is the cheaper way of making a packing-auger, owing to the facility it gives for grinding, smoothing, and polishing, and if one blade or lip breaks it can be restored with one-half the expense of a new auger. The auger is carried by a vertical shaft, P, termed the packing-shaft, which is adapted to rotate and to slide longitudinally. It receives its rotary motion through a clutch-wheel, G, having bevel-teeth, which are meshed by a bevel-gear, G^2, on a horizontal shaft, I, to the other end of which a driving-pulley, J, is applied. This receives motion from a driving-pulley on a convenient rotary shaft. The stopping and starting of the packer are done by the automatic clutch-wheel G or clutch within the wheel. The horizontal shaft I is mounted in bearings in the upper frame F^2, and the clutch-wheel G is similarly located, and is furnished with a suitable step-bearing to keep it lubricated and to prevent the escape of the oil into the flour, as in my extended patent. A sleeve, p, carried by the clutch-wheel and slotted longitudinally, confines a disk, o, laterally, and carries the same therewith in its rotations, and this disk, having an orifice corresponding with an enlarged and spirally winged portion, n, of the packing-shaft, carries the latter. The packing-shaft has its upper bearing in connection with the clutch-wheel G, and is provided with a bearing within the funnel, while the access of floating flour to the bearing or orifice of the clutch-wheel is prevented by a combined support shield or case, K.

The box of the latter fits the smaller metallic portion of the packing-shaft, its location being such as not to obstruct the longitudinal movement of the auger.

This arrangement obviates any necessity for a bridge at the lower end of the funnel, and relieves the apparatus from this obstruction to fast packing.

The auger rises automatically as the filling of a barrel progresses and forces the packing-shaft longitudinally through the clutch-wheel G. It is connected above the latter by a swivel-clevis, m, to one end of a walking-beam, M, the other end of which is connected by a rod, R, to a weighing or pressure-controlling brake, W, which takes the place of a long packer-shaft, and provides for regulating the quantity of flour which will be packed in a barrel by the auger A with the greatest nicety.

In the illustration this brake mechanism comprises a rotary shaft provided with a hand-wheel at one end and the disk of the brake proper at the other, with an intermediate spur-wheel meshing with a rack on the connecting-rod and a ratchet-wheel, by which to support the auger in elevated position, and the flour within the funnel by means thereof. A pawl engages with this, and anti-friction-roller holds the rack of the rod in mesh with the pinion. A pair of jaws embrace the brake-disk. One of these is pivoted at its lower end to the frame of the mechanism. The other is simply attached to the first at top by a spring-plate tending to open the jaws. A bar or lever, similar to a steelyard arm, extends from that end of the coupling-plate most distant from the fulcrum, and is provided with a removable weight which operates to close the brake-jaws, and by shifting which the resistance to the yielding motion of the auger may be regulated, as before stated, with the greatest nicety. This mechanism is clearly illustrated in Figs. 1 and 2. It may be replaced with any approved substitute possessing the necessary functions.

To support the walking-beam M, so as to permit it to move horizontally as required, so that its end attached to the packing-shaft shall move in a truly vertical line, a swinging fulcrum-post, Q, is employed having a pivot at each end. This gives perfect freedom of movement without complication of parts, and by avoiding friction and strain it renders the governing action of the brake mechanism more positive, unremitting, and reliable.

When a barrel is full, the auger being in elevated position, the shaft P is stopped and the pawl v is lifted, permitting the operator to lower the barrel by means of the hand-lever E. The filled barrel is removed to the scales and an empty one is immediately placed on the lifter, and so the operation proceeds.

It is obvious that two gear-wheels upon separate short shafts may be substituted for the cogged sector and perform the same function.

The following is claimed as new in the invention, namely:

1. The combination, with the barrel-support, of the double spur-sector C, the racks r r^2, the vertical slide D, the cam-lever E, or its equivalent, arranged and operating substantially as described, for raising, supporting, and lowering a sliding barrel-lifter, in the manner set forth.

3. The rubber-gasket t, applied to the abut-

ment-flange *u* of the barrel tube or funnel, and held in a groove, so as not to be accidentally displaced, substantially as herein described, for forming a tight or complete joint at the top of the barrel during the packing operation.

3. A packing-auger, constructed in two sections, each having a blade and an attaching hub or collar, with shoulders *q* complete in themselves for locking the sections together on the packing-shaft, substantially as herein illustrated and described, for the purposes set forth.

4. The combined support and shield or case K, constructed and operating in combination with the packing-shaft P, and its winged-clutch section *n*, substantially as described, to form an inclosed bearing for the latter, and to exclude floating flour from the bearing of its driving-wheel.

5. The swinging fulcrum-post Q, having a pivot at each end, in combination with the walking-beam M, packing-shaft P, and brake-rod R, for permitting the former to yield horizontally, so as to avoid binding or undue friction between the packing-shaft and the weighing or pressure-controlling brake in the manner set forth.

In testimony that I claim the foregoing as my own, I have affixed my signature in presence of two witnesses.

SAML. TAGGART.

Witnesses:
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R. E. HARRISON.