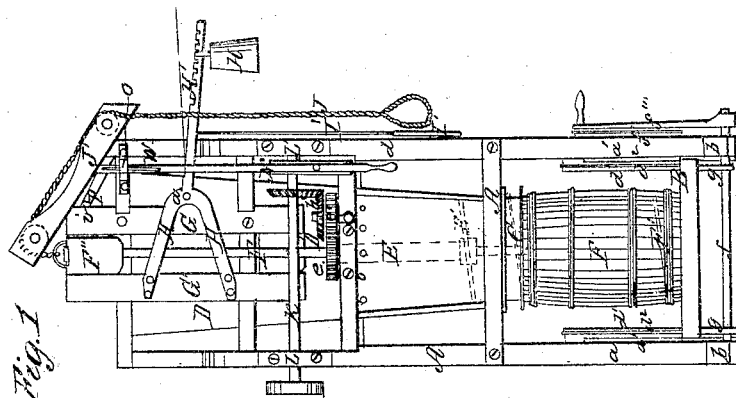
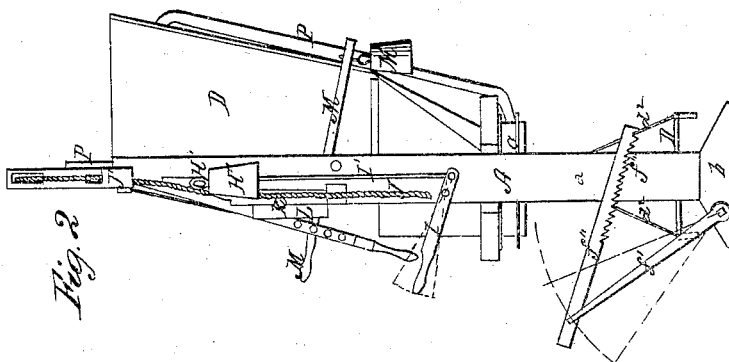
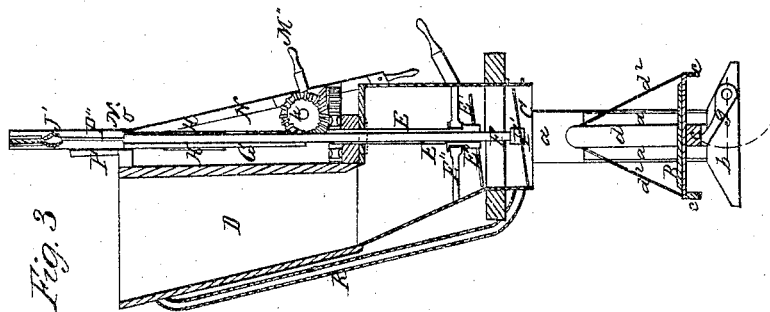


I. COOK.
 FLOUR PACKER.

No. 49,859.

Patented Sept. 12, 1865.



Witnesses:
 M. Randolph
 A. Wagner

Inventor:
 Isaac Cook

UNITED STATES PATENT OFFICE.

ISAAC COOK, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN FLOUR-PACKERS.

Specification forming part of Letters Patent No. 49,859, dated September 12, 1865.

To all whom it may concern:

Be it known that I, ISAAC COOK, of the city of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and useful Flour-Packer; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letter of reference marked thereon, similar letters of reference indicating corresponding parts.

Figure 1 of the annexed drawings is a front elevation of one of the improved machines. Fig. 2 is a side elevation of the same, and Fig. 3 is a vertical section through its center.

This invention relates, first, to the platform on which the barrel rests while being filled, and to the manner of raising and lowering the said platform and securing it in position while the barrel on it is being filled.

This invention relates, secondly, to the device for pressing the flour into the sack or barrel, which device consists of two augers, one of which has a rotary motion only, while the other auger, which is attached to an arbor working within the hollow arbor of the first, receives a vertical as well as a rotary motion, its office being to descend into the barrel and commence packing the flour at the bottom first, and from thence upward, during which process its arbor will gradually rise up through the hollow arbor of the first auger until the barrel or other package is filled, at which point the two augers will be in close proximity to each other, and they will both be simultaneously stopped by suitable automatic gearing arranged for that purpose. The rotary motion is imparted first to the arbor of the upper auger, and by it transmitted to the other by means of a tongue, which fits into a vertical groove in the other arbor, so that both arbors will revolve in harmony with each other. The office of the first or upper auger is threefold in its nature. First, while it is stationary it holds the flour above it up out of the barrel until the other auger is lowered to the proper place for it to begin packing; then, when the rotary motion of the augers commences, it feeds the flour through between its blades just as fast as the lower auger can properly dispose of it, and no faster; and, lastly, when the lower auger has risen nearly to the top of the barrel, and it becomes desirable or

necessary to increase the weight upon it to make it press the flour more firmly, the compressed flour between the two augers will produce such pressure upon the lower auger, and render unnecessary the device of a deep hopper above filled with flour to give weight upon the auger—a device which is in common use, but which is both expensive and troublesome to millers. The arrangement of the two augers is such that the faster the lower auger packs the flour away the faster will the other auger feed down the flour to it, and vice versa.

Thirdly, this invention relates to the friction-ways which guide the head of the arbor of the lower auger, and which are so arranged that more or less friction may be applied, as may be necessary to pack the flour properly in large or small barrels.

Fourthly, the subject-matter of this invention consists in connecting the mouth-piece to which the barrel fits with the hopper above by means of a tube or tubes, through which the confined air in the barrel may escape into the hopper above without blowing the flour out between the staves of the barrel. Other devices which have been invented for this purpose—such, for instance, as the hollow shaft—have proved failures, because their orifice is only open while the auger is descending into the barrel, after which it is closed by the flour, and is consequently useless.

To enable others skilled in the art to make and use my improved packers, I will proceed to describe their construction and operation.

I construct a frame, A, of wood, or other suitable material, said frame consisting of two upright posts, *a*, which are connected together by various cross-beams, the bottom ends of the posts resting on short sills or foot-pieces *b*, to which they are securely fastened.

The platform B, on which the barrel is placed, to be filled, consists of a platform of boards, built on the three beams *c c' c''*, and of the upright posts *d d'*, which are erected on the outer ends of the beam *c'* perpendicular to its axis. The stay-rods *d''* pass over the upper ends of the posts *d d'*, and thence down in a diagonal direction on either side to the ends of the beams *c c''*, into which they are fastened, and which they serve to support. The distance between the outer sides of the posts *d d'* is such that

they will just pass loosely between the posts *a* of the frame A, which posts and the guides *a'* form a groove in which the posts *d d'* are made to slide easily up or down.

Just beneath the platform B is placed a rock-shaft, *f*, which has its bearings in the two foot-pieces *b*. There are two cams, *g g'*, placed upon this shaft in such a position that when the shaft is revolved forward the long ends of the cams will strike against the bottom of the beam *c'* and raise it and the platform upon it. The rock-shaft *f* is operated by means of a lever, *f'*, attached to one of its ends, and is held in position by the toothed pawl *f''*, attached to said lever at one end by a pivot-joint, while the teeth of the pawl take hold on the pin *f'''*, which is fastened on the outside of one of the posts *a*.

The metallic wing or mouth-piece C is fastened to the bottom side of the bottom beam of the frame A, the said beam having a circular aperture through it of the same diameter as the inner diameter of the mouth-piece. The hopper or spout D, which is on the back side of the frame A, conveys the flour to the mouth-piece C. The lower end of this spout or hopper should be made of sheet metal, and circular in form, so that it will fit nicely the circular opening in the beam of the frame A, on which it rests. The upper end of the spout may be made of wood or any other suitable material, and may be of any desired or convenient form.

Within the lower end of the hopper or feed-spout, and in the prolongation of the vertical axis of the mouth-piece C, is the hollow auger-arbor E, which is provided with a packing-auger, *E'*, at its lower end, and at its upper end with a cog-wheel, *e*, through the medium of which motion is imparted to it. A shoulder near the bottom end of this auger-arbor rests on the step *E''* and prevents the whole from sliding downward. A tongue projecting from the cylindrical opening in the center of this arbor fits into a groove in the arbor F. The object of this arrangement is to communicate a rotary motion from the arbor E to the arbor F through the medium of this tongue and groove and at the same time permit the arbor F to be moved easily up or down, for the purpose hereinafter mentioned.

It is to be understood that the arbor F is placed within the hollow arbor E. The lower end of the arbor F terminates in the packing-auger *F'* and its upper end in the friction-slide *F''*. The slide *F''* fits into grooves made in the edges of the guides *G G'* for that purpose. The guide *G* is securely fastened to the beams of the frame A; but the guide *G'* is not fastened to the frame A at all, but is only held in place by resting against those beams and by the iron straps *H*, which are V-shaped pieces of strap-iron, the open ends of which are bolted to the guide *G'*, while the closed ends of them embrace the guide *G*, which they overlap sufficiently to receive the journal *x* of the weighted lever *H'*. The inner or pivoted end of this

lever terminates in a cam, as is clearly shown by the dotted lines in Fig. 1 of the drawings. The upper edge of this lever has teeth or corrugations upon it, into which the ring of the weight *H''* may be adjusted at a greater or lesser distance from the fulcrum *x*, for the purpose of regulating the amount of friction which may be produced between the guides *G* and *G'* and the head *F*. When the weight *H''* is in the notch nearest to the outer end of the lever it will cause the cam end of that lever to press with greatest force against the guide *G*, and a corresponding pressure will be exerted through the medium of the journal *x* and the straps *H* upon the guide *G'* to bring it toward the guide *G*, and the friction upon the head *F''* will then be at its maximum, which friction may be gradually decreased at pleasure by sliding the weight *H''* toward the fulcrum on which it rests. While the auger is engaged in packing the flour in the barrel the requisite amount of pressure will be placed upon it by means of the friction which is thus brought to bear upon the head *F''*.

A lever, *I*, attached to one of the posts *a*, and connected by means of the connecting-rod *I'* with the lever *H'*, can be used by the operator to raise the outer end of the latter lever, and so remove entirely the friction from the head *F''* when it is necessary to lower the auger *F'* into the barrel. The lever *I*, being within easy access of the operator, can be used by him with great facility to let the auger down into the barrel just as easily as he wishes to, as he may by lowering the same with his hand increase the friction upon the head *F* at any moment that the same may become necessary.

A rope, *J*, fastened to the head *F''*, and passing thence over two pulleys in the timber-head *J'* and down alongside of the frame A, terminates in a loop within convenient reaching distance of the operator, by whom it may be employed when he wishes to raise the auger up, it being at the time down and not in use. The driving-shaft *K* is located across the front of the frame A, to which it is attached by means of the bearing-boxes *L L'*.

The bevel cog-wheel *h* on the driving-shaft *K* gears with the cog-wheel *h'*, to which it imparts motion, and which, in turn, transmits it to the counter spur-wheel *e'*, which gears into the spur-wheel *e*, and so communicates motion to the augers. The bearing-box *L* is firmly secured to the frame A, but the box *L'* is arranged to slide up and down in its bearings on the post *a*. When the box *L* is down to its lower limit the cog-wheel *h* will be in gear with the cog-wheel *h'*; but when the box *L'* is up as far as it is arranged to go the said wheels will be disconnected, and, although the driving-shaft may continue to revolve, the packing-augers will then remain stationary.

The lever *M* is pivoted to the post *a* and the box *L'*, and its back end is provided with a weight, *M'*, while its forward end projects in front of the box *L'* a few inches and termi-

mates in the handle M'' . The connecting-rod N is jointed to the lever M forward of the post a , from which point of connection it extends downward a few inches—say eight, more or less—and then terminates in a hand-piece, while the upper end of the rod extends upward to the top of the frame A , and, passing through a staple, O , terminates in a shouldered end, the shoulder fitting under the top beam of the frame A when the box L' is pressed down, so that the wheels h and h' are in gear. A spring, w , presses the rod N toward the frame, so as to keep the shoulder under the beam.

The lever P , hinged to the guide G at i , is so arranged that when the head F'' arrives at its highest point it will throw the outer end of said lever forward, and thereby push the shoulder of the rod N from under the beam and allow the weight M' to act upon the bearing-box L' , so as to raise it up and throw the wheels h and h' out of gear, thus making the machine automatically stop itself at the proper moment, the whole of the devices for doing which are precisely similar to those described in the patent allowed to myself for the same purpose on the 26th day of April, A. D. 1864, and are consequently not claimed in this application.

To prevent the confined air in the barrel from blowing out between the staves, I connect the

mouth-piece C with the upper part of the hopper or spout D by means of one or more tubes, R , through which the said confined air may pass out of the barrel.

Having described my invention, what I claim is—

1. The platform B , the rock-shaft f , the cams g g , the lever f' , the toothed pawl f'' , and the pin f''' , when constructed and operating as and for the purpose set forth.

2. A flour-packer constructed with two augers, one of which has a rotary motion only, while the other one has both a rotary and a vertical motion, so it may descend into the barrel, and as it revolves packs the flour beneath it, and can at the same time rise to the top of the barrel.

3. Passing the head F'' between the stationary guide G and the adjustable guide G' , for the purpose of producing the requisite amount of pressure on the auger F' , the guide G' being drawn toward the guide G with more or less force, as may be desired, by means of the weighted lever H' , as recited.

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