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UNITED STATES PATENT OFFICE.

JAMES BANTA, JR., OF UTICA, NEW YORK.

MACHINE FOR PACKING FLOUR.

Specification of Letters Patent No. 1,271, dated August 2, 1839.

To all whom it may concern:

Be it known that I, JAMES BANTA, Jr., of the city of Utica, county of Oneida, and State of New York, have invented a new and useful Machine for Packing Flour in Bar-

5 rels, which is called by me a "Flour-Packing Machine;" and I do hereby declare that the following is a full and exact description of the same.
10 This machine consists of four upright posts either connected by ties or secured to the frame work of the building, so as to form a rectangular frame of about 10 feet in height 5 feet in length and 3 feet in
15 breadth, which dimensions may be varied to suit circumstances or convenience. This frame supports the other parts of the machine, and is represented in Figure 1 of the drawing by F R A M. Within the frame
20 above mentioned is a similar formed frame, of the same length; four feet or any other convenient height; and so wide as just to slide vertically between the upright posts of the exterior frame, being guided in its verti-
25 cal motion by projections upon the posts or upright timbers of the inner frame working in the grooves *g g* in the posts of the outer frame.

Near the center of the upper part of the
30 inner frame is a cranked shaft (*s s*) passing lengthwise, which by its revolutions gives a vertical motion to the packing piston *p p*. At each end of this shaft is a bevel toothed wheel *a a'* of 1 foot or any convenient di-
35 ameter, by one of which (*a*) the shaft is driven, and the other (*a'*) serving to drive the vertical shaft *v v'*, which by means of the band or strap *b* communicates a revolving motion to the packing piston *p p*. Upon
40 the cranked shaft *s s* is a drum or band wheel *d*, which by means of the bands *c c*, the one direct and the other crossed, communicates opposite motions to the pulleys
45 *q q*, which by being alternately, and at pleasure coupled with the cylindrical shaft *t t*, upon which they turn, give it a motion in either direction and thereby elevate or
50 lower the inner frame of the machine by means of the rope *r r' r''*. This rope, at the upper end *r*, is made fast to a beam passing nearly through the center of the upper part of the exterior frame. Thence it passes
55 downward and under the pulley wheel *w'*, which is hung near the center of the upper part of the interior frame, thence upward and over the wheel *w*, which is hung in the

outer frame nearly over the wheel *w'*, thence it passes downward and is attached to the shaft *t t* at *r''*. Now the shaft *t t* to which the end *r''* of the rope is attached, 80 and the pulley wheel *w'*, being connected with the interior and movable frame, and the other end *r* of the rope, as also the pulley wheel *w*, being connected with the exterior and immovable frame it may easily
85 be seen, that by a revolving motion of the shaft *t t*, the rope *r r' r''* will be wound up on the shaft *t t* thereby causing the movable frame to which the shaft *t t* and the wheel *w'* are attached to rise and approach
90 the fixed end *r* of the rope and the pulley wheel *w*. The contrary motion of the shaft *t t* will suffer the rope to unwind therefrom, and permit the movable frame to descend by the force of its own weight. 95

The pulleys *q q* are so adapted to the shaft *t t* that, by being slid thereon in the direction of its length, both at the same time and in the same direction, either may at pleasure be made to take hold of a tooth 30 or cog upon the shaft, by means of a corresponding tooth or cog in the pulleys, thus giving the shaft *t t* a rotary motion in the same direction with the pulley wheel with which it is for the time connected. 35

The pulleys *q q* are slid upon the shaft *t t* by means of the rod *e e'* placed over and parallel with the shaft *t t* and confined to a motion in the direction of its length, and movable with the hand by means of the 30 lever *l l'* or by such other means as may be convenient. This rod is furnished with two pins or processes projecting downward, one on the outside of each pulley, by means of which, when the rod *e e'* is moved either 35 way in the direction of its length, a corresponding and simultaneous motion is communicated to the pulleys *q q*. This rod *e e'* has its end *e'* in the form of a wedge or inclined plane for the purpose hereafter de- 100 scribed. The dog or catch *k* attached to the inner frame and working into the toothed rack *f f* upon the outer frame prevents the inner frame from dropping down when the elevating rope is slack. When the rod *e e'* 105 is thrown in the direction from *e* to *e'* (to give the lowering motion to the shaft *t t*) the wedge formed end *e'* is thrust under the arm of the dog *k* throws it out of the rack and keeps it so till the motion of the shaft 110 *t t* is changed to the elevating motion.

The packing piston consists of a cylindri-

cal rod $p p$ passing through two holes in the frame work, one directly over the other so as to confine it to a vertical position and permit it to revolve. Upon the lower end
 5 of this rod is a piston head or follower consisting of a circular rim and arms the spaces between the arms being alternately open and closed by wing-like valves, $x x x$ open downward and closing in the direction op-
 10 posite to that in which the piston revolves. The machine is propelled by the shaft and driving wheel $m n o$, the shaft being furnished with a universal joint J, permit-
 15 ting the end (n) to rise and fall with the inner frame of the machine. The end n of the driving shaft runs in a box furnished with journals allowing it to turn on the same axis as the cranked shaft $s s$. Thus
 20 when the end n of the propelling shaft $m n$ is raised or lowered, with the rising and falling of the interior frame of the machine, its axis is maintained in the same plane with the axis of the shaft $s s$ as is necessary for the proper working of the bevel gearing.
 25 The movable box of the driving shaft $m n$ is mounted in the upper part of a forked standard $y y'$, a separate and enlarged view of which is shown in Fig. 2, in which a and b represent the two branches of
 30 the fork; c the journal of the shaft $s s$ hung in the branch a of the fork, d and e the journals of the box in which runs the journal of the driving shaft $m n$ which is at right angles with the propelled shaft $s s$. The lower
 35 end y of this standard being hung upon a

pin, whose axis is parallel with the axis of the shaft $s s$ the upper end y' forming the support for the shafts $m n$ and $s s$ is suffered to describe a small arc of a circle about the center of the universal joint J as
 40 the interior frame is lowered and elevated.

To use this machine, the barrel is placed under the piston, and the machine lowered till the piston comes near the bottom of the
 45 barrel. The flour is then thrown into the barrel, and as the piston rises by the crank motion, the valves $x x x$ open and suffer the flour to fall through; as the piston falls the revolving motion causes the valves to close
 50 and the elevating rope being slack the whole weight of the machine comes upon the piston and thereby upon the flour. When the flour becomes so hard as to sustain the
 55 weight thus brought upon it, the movable frame will be raised, and held up by the dog k while the piston rises lets the flour through, closes and presses as before. The operation is continued till the barrel is filled when it is removed and replaced by another.

What I claim as my invention and desire
 60 to secure by Letters Patent is—

The mode herein described of packing flour by means of the piston head with valves, and having a vertical reciprocating and horizontal rotary motion, all as herein
 65 described.

JAMES BANTA, JR.

Witnesses:

E. B. WHEELER,
 A. OAKLEY.