(No Model.) 2 Sheets—Sheet 1.

E. M. THOMPSON.

PACKING MACHINE.

No. 487,355. Patented Dec. 6, 1892.

Fig. 1.

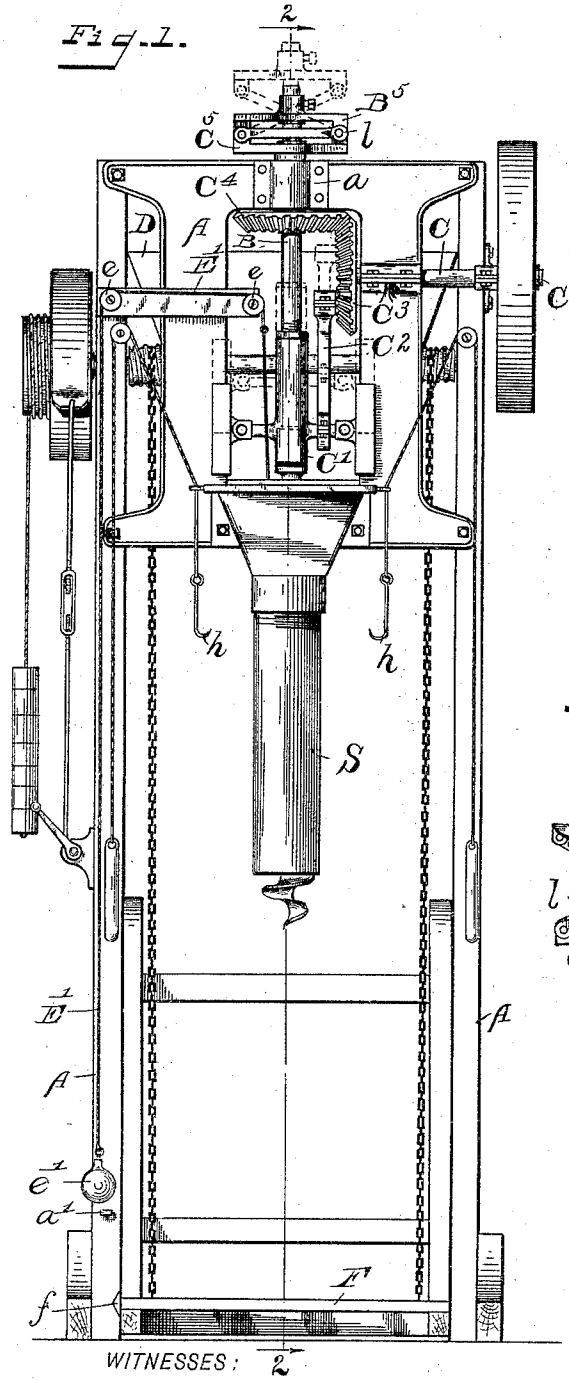

Fig. 2.

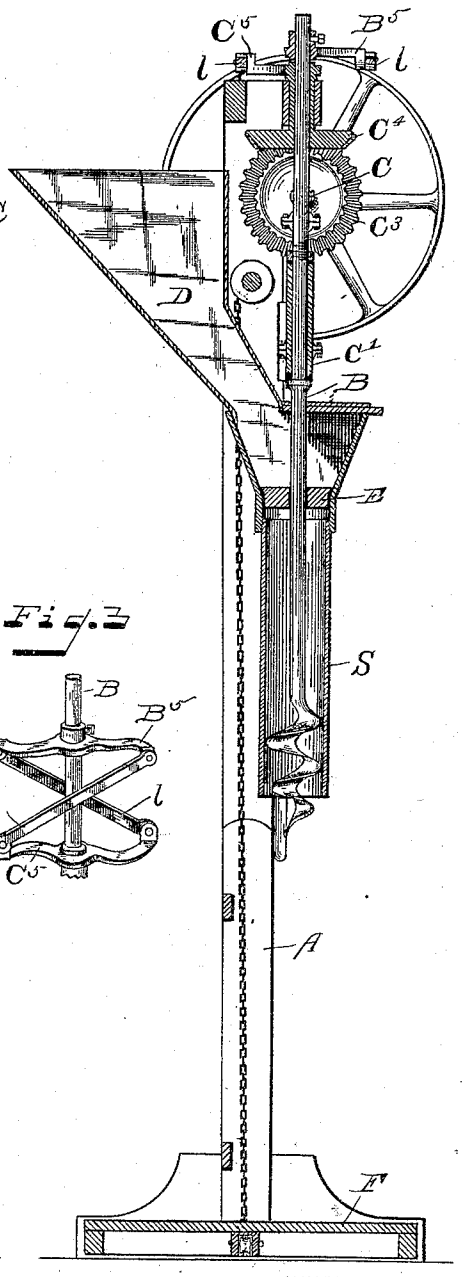

Fig. 3

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

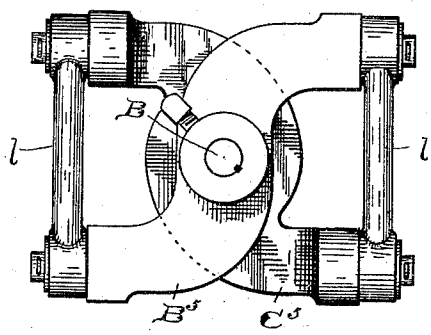


Fig. 5.

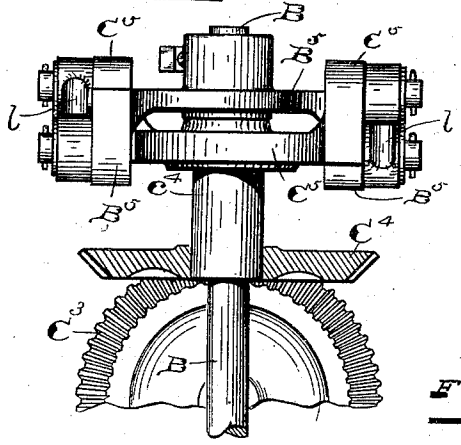


Fig. 6.

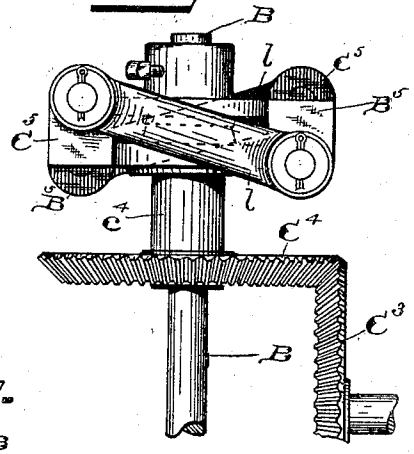
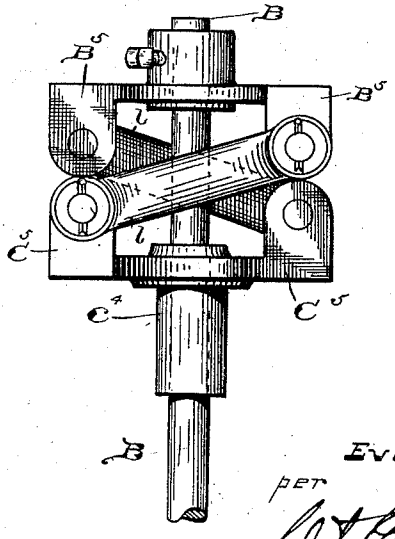


Fig. 7.



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UNITED STATES PATENT OFFICE.

EVERT M. THOMPSON, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO NORDYKE & MARMON COMPANY, OF SAME PLACE.

PACKING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 487,355, dated December 6, 1892.

Application filed February 27, 1892. Serial No. 423,055. (No model.)

To all whom it may concern:

Be it known that I, EVERT M. THOMPSON, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Packing-Machines, of which the following is a specification.

My present invention consists in certain improvements upon that for which Letters Patent of the United States No. 435,467 were granted me, dated September 2, 1890, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a front elevation of a bran-packer embodying my said invention; Fig. 2, a central vertical sectional view of the same; Fig. 3, a detail perspective view of the coupling, which is one feature of my present invention, on an enlarged scale; Fig. 4, a top or plan view, on an enlarged scale, of said coupling; Fig. 5, a side elevation of the same when in its lowest position; Fig. 6, a front elevation when in the same position, and Fig. 7 a front elevation when in its highest position.

In said drawings the portions marked A represent the framework of my machine; B, the auger-shaft; C, the driving-shaft; D, the hopper; E, a valve in said hopper, and F a platform on which the sacks to be filled rest.

As above indicated, this invention consists in improvements upon that shown in my patent referred to, and there are some features of the machine (not specifically referred to herein) which embody certain differences of construction from that of the corresponding devices shown in the drawings of said patent. Such differences, however, are regarded by me as mechanical only, and will not, therefore, be further described herein, except incidentally in describing the features of the present invention.

The frame A supports the mechanism of my machine, including bearings for the auger-shaft B, supports for the hopper, ways for the platform, (which has a limited movement similar to that of an elevator,) and other bearings and attachments which the nature of the invention and its work require.

The auger-shaft B is arranged in vertical position, and in operation is given both a rotary and reciprocating motion, as in the case of my former invention and as will be hereinafter more particularly explained. Its lower end terminates in a taper-pointed auger or screw, by which the packing is effected. This screw differs from that shown in my previous patent and in other packing-machines in the matter of its shape. It is necessary in packing bran that there shall be both a lateral and vertical displacement of the material by the packing device to secure the best results, and I have ascertained by experiment and actual test that the taper-pointed form accomplishes this much more completely than any other. Being pointed it will enter the mass and in revolving force it sidewise, while at the same time its screw shape will force it down. Its pointed shape also, as the auger descends in its reciprocal movement, permits it to enter the mass of bran more easily and with less shock than the ordinary square-ended form. The pointed form, therefore, is of great value in a machine having my peculiar operation.

The driving-shaft C is arranged at right angles with the auger-shaft B and is connected, as will now be explained, to give said auger-shaft both a revolving and a reciprocating movement. A cross-head C′ is mounted on ways in the frame A and is connected by a pitman C^2 to the face of a combined crank and bevel gear-wheel C^3, secured to the inner end of said shaft C. The center of the cross-head is made in the form of a sleeve and surrounds the auger-shaft B and is so connected thereto as to cause it to move reciprocally therewith, but not to prevent said auger-shaft from revolving. A second bevel gear-wheel C^4 is mounted in a long vertical bearing *a* in the upper portion of the frame by means of a sleeve-like hub c^4, which extends through said bearing *a* to above it, which sleeve-like hub also surrounds the auger-shaft B, while the bevel gear-wheel C^4 engages with and is driven by the gear-wheel C^3. Upon the upper end of the sleeve-like hub is a yoke C^5, rigidly secured thereto, and upon the upper end of the auger-shaft B is a corresponding yoke B^5. These two yokes are connected by links *l*, and

there is preferably a slight looseness in the joints by which said links and yokes are connected, so that there shall be no binding or stiffness in their movements. As shown, especially by comparison of Figs. 6 and 7, this arrangement permits a vertical movement of the auger-shaft B through the sleeve-like hub of the wheel C^4, while at the same time, by the connection formed by the links *l* between the two yokes B^5 and C^5, both are made to revolve together, which gives a continual rotary as well as reciprocal motion to the auger-shaft B, which combined movement is essential to the successful operation of my invention. In my former invention, as shown in the patent above referred to, I employed a square shaft with a square opening through the hub of the wheel corresponding to the present wheel C^4. While this did the work, it did not do it in so satisfactory a manner, and it soon became too much worn for successful use. Thorough test of the present construction has shown that these defects are by it overcome.

The hopper D is conveniently arranged to receive the material to be packed and it terminates in a spout S, which surrounds the packing-auger.

At the upper end of the packing-spout I locate the valve E, which is shown in closed position in Fig. 2. This valve is operated by a rope E′, (see Fig. 1,) which passes over sheaves or pulleys *e* and terminates in a weight *e′*. A catch *a′* is provided on the frame A at a point near the bottom, underneath which this ball or weight is adapted to be swung and with which it will engage when pulled down to the proper point. So pulling this rope raises and holds the valve up to its upper position near the top of the space formed to contain it (shown in Fig. 2) until disengaged, as will be presently explained.

The platform F is mounted in ways in the frame A and moves vertically therein after the fashion of an elevator. Upon it are mounted the sacks or other receptacles to be filled. It is shown in the drawings in its lower position. In operation when a sack is to be filled such sack is hung on the hooks *h* (see Fig. 1) and the platform raised to near the lower end of the auger. As the packing proceeds it is forced downwardly, as will be readily understood. A projection *f* on the side of this platform when it has reached its lower position comes in contact with and forces the ball *e′* from under its catch *a′*, which permits the valve E to drop to the position shown in Fig. 2, closing the mouth of the hopper and thus automatically shutting off the flow of material into the sack. After the sack is removed and an empty one placed in position the valve is raised by pulling the rope E′ and securing it as before, and the packing proceeds. By this means an automatic shutting off of the material is secured at the right moment and any wasting or scattering thereof during the changing of the sacks is avoided.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the auger of a packing-machine, of a driving mechanism therefor consisting of a driven sleeve-like device surrounding said shaft but not rigid therewith and pivoted links connecting said shaft and said device, whereby both a rotary motion is secured and a vertical movement permitted, substantially as set forth.

2. The combination, in a packing-machine, of the auger-shaft, a driving-shaft at right angles therewith, a gear-wheel on said driving-shaft, a gear-wheel having a sleeve-like hub surrounding the auger-shaft and driven by said gear-wheel on the driving-shaft, and a link connection between said sleeve-like hub and said auger-shaft, substantially as shown and described.

3. The combination, in a packing-machine, of the auger-shaft, the driving-shaft set at right angles therewith, a cross-head attached to said auger-shaft, whereby it is given a reciprocating motion and driven by a pitman from a wheel on the driving-shaft, another wheel, also driven from said wheel on the driving-shaft and having a sleeve-like hub surrounding the auger-shaft, and a link connection between said wheel and said auger-shaft, whereby both a reciprocal and rotary motion are secured, substantially as set forth.

4. In a packing-machine, a packing-auger having a taper-point, in combination with mechanism whereby it is given both a reciprocal and a rotary movement, substantially as and for the purposes set forth.

5. The combination, in a packing-machine, of a hopper terminating in a spout, a valve E, located at the bottom of said hopper, a rope E′, running up through said hopper and over sheaves *e e* to the side of the machine, and thence down to near the bottom, where it is provided with a weight *e′*, adapted to engage with a catch, said catch *a′* on the framework, with which said weight will engage, and the traveling platform for carrying the receptacle to be filled, having a projection *f*, which will come in contact with and disengage the weight from the catch, thus releasing the gate and permitting it to close, all substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 22d day of February, A. D. 1892.

EVERT M. THOMPSON. [L. S.]

Witnesses:

CHESTER BRADFORD,

J. A. WALSH.