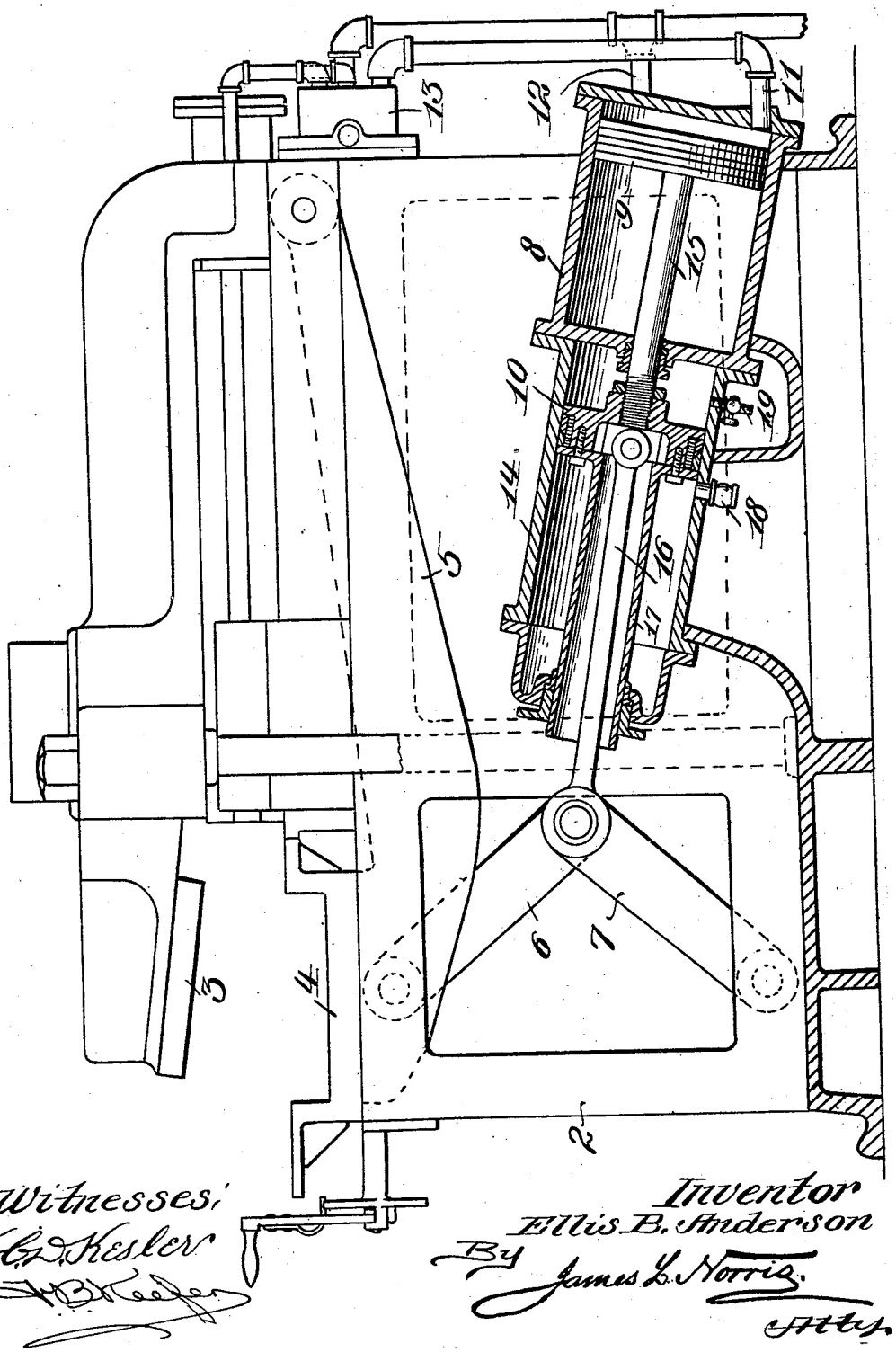
No. 872,885. PATENTED DEC. 3, 1907.

E. B. ANDERSON.

CAKE FORMING MACHINE.

APPLICATION FILED JUNE 28, 1906.




Witnesses:
G. D. Kesler
H. B. Keesler

Inventor
Ellis B. Anderson
By James L. Norris.
Atty.

THE NORRIS PETERS CO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

ELLIS B. ANDERSON, OF MEMPHIS, TENNESSEE.

## CAKE-FORMING MACHINE.

No. 872,885. Specification of Letters Patent. Patented Dec. 3, 1907.

Application filed June 28, 1906. Serial No. 323,968.

*To all whom it may concern:*

Be it known that I, ELLIS B. ANDERSON, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented new and useful Improvements in Cake-Forming Machines, of which the following is a specification.

This invention relates to cake forming machines and it is in the nature of an improvement upon the machine disclosed in Letters-Patent Number 822,568, granted to me June 5, 1906, and to which reference may be had. The machine shown in said Letters-Patent involves cake forming mechanism having a movable member, a toggle associated with said movable member and a cylinder containing a fluid operable piston to actuate the toggle in a direction for causing the working stroke of said movable member to secure the formation of a cake.

In the drawing accompanying and forming a part of this specification I have shown in sectional elevation a form of embodiment of the machine in which is incorporated my invention and the same comprises the elements outlined. In the present instance I provide pneumatic means for causing a return stroke of said movable member and this pneumatic means is of a novel and advantageous character, it being preferably rendered effective by the said fluid operable piston on the working stroke thereof. The organization is such that said fluid operable piston on its working stroke straightens said toggle to cause the working stroke of said movable member and during this period of operation the pneumatic means is caused to compress air which is utilized for flexing or breaking said toggle to cause positively a retraction of said movable member. The improvement is of an effective nature and by it there is no necessity of using a spring or springs for breaking said toggle.

The invention includes other advantageous features which with the foregoing will be set forth at length hereinafter, while the novelty of such invention will be included in the claims.

I have stated that my invention is in the nature of an improvement upon the machine covered in the Letters-Patent hereinbefore referred to for the reason that the improvement is of particular adaptability to such machine; it may be employed with equal facility, however, in connection with other kinds of machines or presses.

I will briefly describe certain of the parts in the drawing which appear in said Letters-Patent and will also describe the improvement in connection therewith.

The framework for supporting the different parts of the machine is denoted in a general way by 2 and associated rigidly therewith is a platen as 3. The platen is the stationary member of the cake forming mechanism, while the other member of said cake forming mechanism is composed of a movable member as 4 and is made in the form of a box or tray. This box or tray is represented as attached to the forward end of a carrier shown as consisting of a lever 5 fulcrumed at its rear end to the framing 2 of the machine.

I have shown in the drawing an upper toggle member 6 and a lower toggle member 7, the two toggle members being connected together. The upper toggle member is joined to the box or tray 4, while the lower toggle member is similarly associated with the framing of the machine. In the drawing the toggle composed of said two members is represented as flexed. When said toggle members are caused to aline, the box or tray 4 will approach the platen 3 in order to compress a cake between said platen and tray, the formation of the cake being concluded when the toggle is straight.

A cylinder is shown at 8 and this cylinder contains a piston 9, the rod of which extends through the forward head of said cylinder through a stuffing box therein, said piston being represented as connected at its extreme forward end with an air piston 10. The piston 9 is advanced positively by steam acting thereagainst and which enters the cylinder 8 by way of the supply pipe 11, the exhaust steam leaving the cylinder by way of the discharge pipe 12, the supply and exhaust of steam being controlled by a valve located in the casing 13 exactly as in the Letters-Patent referred to. In the said Letters-Patent the cylinder is mounted for oscillation. In the present case the cylinder 8 is stationary.

The piston 10 travels in a cylinder 14 and the rod 15 which extends from the steam piston 9 may be tapped into the air

piston 10. To the forward or outer side of the said air piston I have illustrated as jointed a rod 16, the extreme forward end of the rod 16 being united with the toggle members 6 and 7 at their junction, by virtue of which I can apply the same effect to the toggle as is done in the Letters-Patent referred to by mounting the steam cylinder therein for swinging motion. A tube is shown at 17, this tube extending through a stuffing box in the forward head of the air cylinder 14 and being connected at its rear to the air piston 10. The rod 16 works in the tube 17.

The air cylinder has an inlet 18 for atmospheric air into the forward portion of the air cylinder, said inlet when the air piston 10 is at the rear end of the stroke being located forward of said air piston. This inlet, which may consist of a nipple or pipe section, has therein an inwardly opening check-valve and it serves to permit the entrance of air at atmospheric pressure into the forward chamber of the air cylinder. It will be assumed that the parts are in the positions represented in the drawing, both pistons 9 and 10 being back, the toggle composed of the members 6 and 7 being flexed and the box or tray 4 being down. Atmospheric air will, of course, fill the space in the cylinder 14 forward of the piston 10. It will be assumed that steam is admitted into the cylinder 8 by the way of pipe 11. When this takes place the piston 9 is driven forward in order to positively advance the piston 10 through the intermediate rod 15 and thereby thrust the rod 16 forward for the purpose of alining the toggle members 6 and 7, and therefore elevating the box or tray 4. When the piston 10 commences its forward movement, the valve in the inlet 18 is closed and following this the air in the cylinder 14 forward of the piston 10 is compressed as said piston 10 is advanced, whereby such compressed air can be utilized to positively move the said piston 10 backward. It will be further assumed that the cylinder 8 is exhausted. As soon as exhaust commences the compressed air forward of the piston 10 becomes effective for returning said piston 10 to its original position, so that such piston can move the toggle members 6 and 7 out of line and thereby cause positively the return motion of the box or tray 4. The tube 17 and stuffing box associated therewith effectually shut off the forward side of the cylinder 14 from the atmosphere.

I have shown as opening into the rear portion of the air-cylinder 14, a cock 19 which is of advantage in connection with the check-controlled inlet 18. The cock 19 serves to permit the escape from the said cylinder 14 of any air beyond that required to check or cushion the piston 10 on its backward movement. The air used in thus cushioning the piston 10 flows into the rear of the cylinder 14 through the inlet 18. The cylinder 14 therefore has two longitudinally separated openings, one of which serves to admit air to opposite sides of the piston 10 and the other of which serves as a vent opening.

What I claim is:

1. The combination of cake forming mechanism involving a movable member, a toggle connected with said movable member, a cylinder, a piston in said cylinder, the cylinder having openings at longitudinally separated points, one opening being for the admission of air to opposite sides of the piston, and the other constituting a vent opening, and means for positively operating the piston to compress the air forward of the same, the air at the opposite side of said piston serving to check the same on the backward motion thereof under the action of compressed air thereagainst.

2. The combination of cake-forming mechanism, a cylinder, a piston, in said cylinder, the cylinder having openings at longitudinally separated points, one opening being for the admission of air to opposite sides of the piston and the other constituting a vent opening, means for positively operating the piston to compress the air at one side of the same, the air at the opposite side of said piston serving to check the motion of said piston when operated by the air thus compressed, and means for transferring the effect of said piston to said cake-forming mechanism.

3. The combination of cake-forming mechanism, a cylinder, a piston in said cylinder, the cylinder having openings at longitudinally separated points, one opening being for the admission of air to opposite sides of the piston, and the other constituting a vent opening, a second cylinder, a piston in said second cylinder, means for transferring the effect of the second piston to the first piston to cause the latter to compress the air forward of the same, the air at the opposite side of said first piston serving to check the same on the backward motion thereof under the action of compressed air thereagainst, and means for transferring the effect of the first piston to said cake-forming mechanism.

4. The combination of cake-forming mechanism, a cylinder, a piston operable in said cylinder, a tube open at its outer end extending through one head of said cylinder and connected with said piston, a rod connected with the latter and disposed in said tube, and means for transferring the effect of said rod to said cake-forming mechanism.

5. The combination of cake-forming mechanism, a cylinder, a piston in said cylinder, a tube open at the outer end extending through one head of said cylinder and connected with the piston, a rod extending through said tube

and connected with said piston, means for transferring the effect of the rod when operated by said piston to said cake-forming mechanism, a second cylinder, a piston in said second cylinder, and means for transferring the power of the second piston to said first piston to operate the latter.

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

ELLIS B. ANDERSON.

Witnesses:
WM. HEMINGWAY,
R. F. YOUNG.