No. 752,644. PATENTED FEB. 23, 1904.

L. BENSON & R. DE FOREST.

BRIQUETING MACHINE.

APPLICATION FILED MAY 7, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

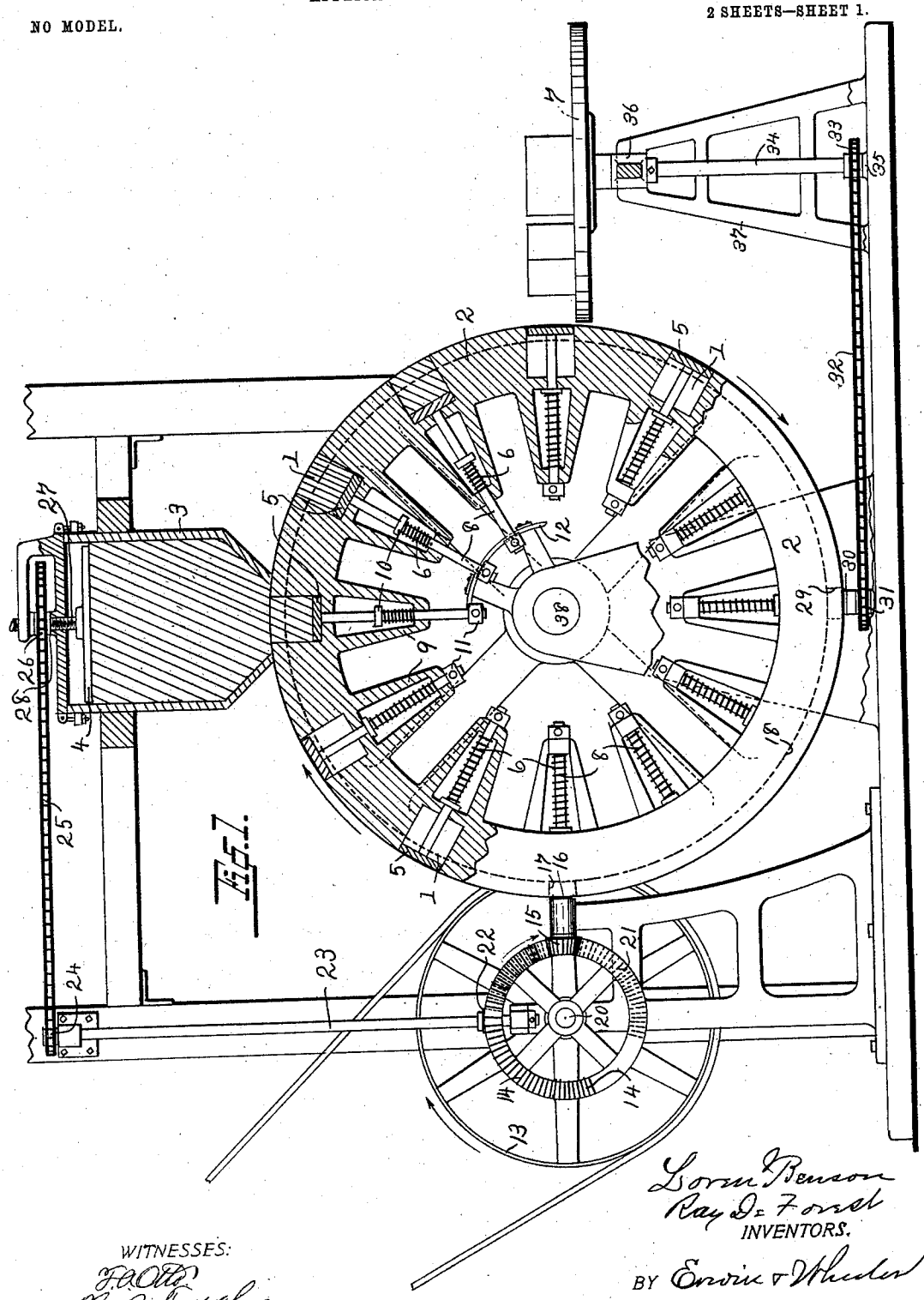


FIG. 1.

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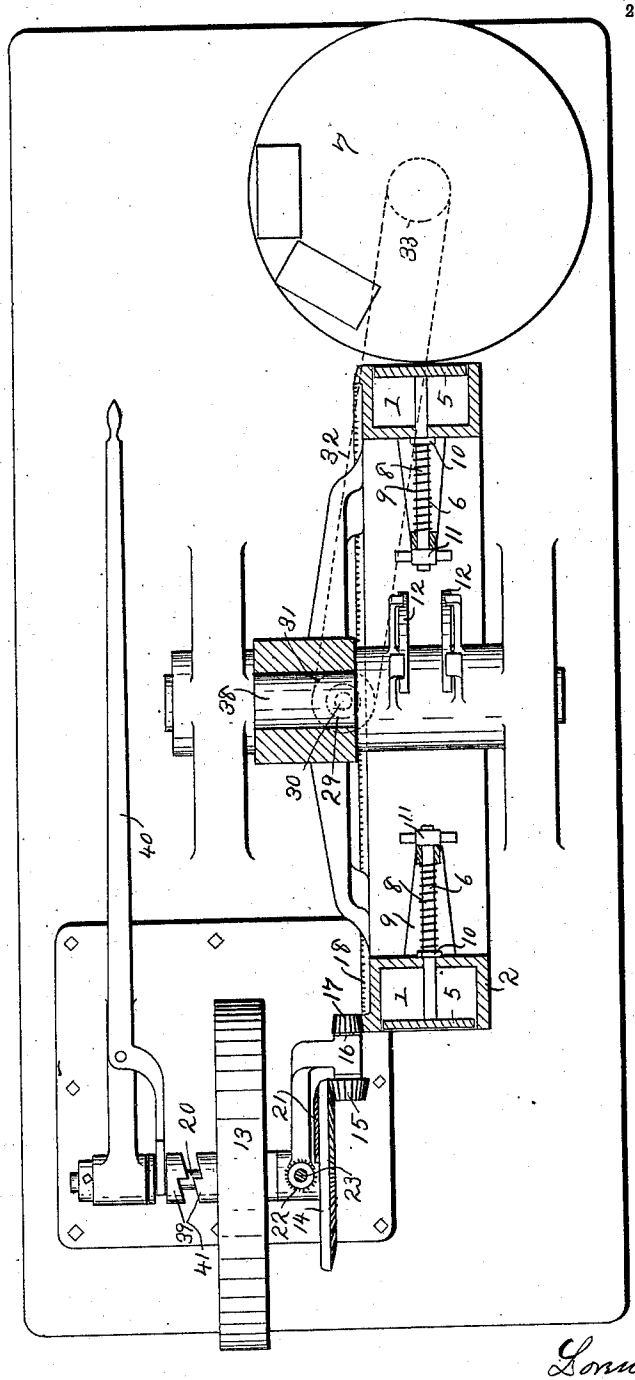
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BRIQUETING MACHINE.

APPLICATION FILED MAY 7, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.



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No. 752,644. Patented February 23, 1904.

UNITED STATES PATENT OFFICE.

LOREN BENSON AND RAY DE FOREST, OF FORT ATKINSON, WISCONSIN.

BRIQUETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 752,644, dated February 23, 1904.

Application filed May 7, 1903. Serial No. 156,044. (No model.)

To all whom it may concern:

Be it known that we, LOREN BENSON and RAY DE FOREST, citizens of the United States, residing at Fort Atkinson, county of Jefferson, and State of Wisconsin, have invented new and useful Improvements in Briqueting-Machines, of which the following is a specification.

The object of our invention is to provide a device for automatically pressing butter, soap, and other similar substances into blocks or cakes of convenient size for handling; and it pertains, first, to the device for supporting a plurality of butter-receiving dies and bringing them successively beneath a supply-tank; second, to means for automatically discharging the cakes when formed; third, to the device for automatically actuating the piston by which the butter is forced into the dies intermittingly while said dies are at rest and for moving said dies while said piston is at rest; fourth, to the device for moving the platform upon which the blocks of butter have been discharged intermittingly as each block is forced thereon from its die.

The construction of our invention is further explained by reference to the accompanying drawings, in which—

Figure 1 represents a side view, and Fig. 2 a plan view, part of both views being in section.

Like parts are identified by the same reference characters throughout both views.

Our invention comprises a plurality of butter-receiving dies 1, revolubly supported from the periphery of a wheel 2 in such a manner that as said wheel revolves they are successively brought beneath the butter-supply tank 3 preparatory to being filled with butter. The butter-supply tank 3 is provided with a piston 4, by which the butter is forced from the supply-tank into the dies. The respective dies are provided with pistons 5, which are retained at the mouth of the dies when not filled by the springs 6. When, however, the butter is forced into the dies, said pistons 5 are forced inward by the pressure of the butter against them, as indicated in Fig. 1, and said pistons are retained in such position by the mechanism hereinafter described until the dies are brought from the vertical to the horizontal position, as indicated by the arrow, preparatory to discharging the butter therefrom upon the platform 7. When, however, the dies are successively brought to the horizontal position immediately above the platform 7, as indicated, said pistons are released from the retaining mechanism, when they are thrown outward by the recoil of the springs 6, whereby the butter is discharged from the dies upon the platform. The device for retaining the pistons 5 at the inner end of the dies against the recoil of the spring 6 consists in the piston-rod 8, bracket 9, collars 10 and 11, and the circular flanges 12 12. The collar 10 is rigidly affixed to the piston-rod between the piston 5 and the bracket 9, and the spiral spring 6 is interposed between the bracket 9 and said collar 10.

It will be understood that when the piston 5 is forced down by the pressure of the butter as it is forced into the die 1 said spring 6 will be compressed and the collar 11 will be brought within the line described by the circular flanges 12, whereby as the wheel 2 is revolved the collars 11 will engage the inner surface of said circular flanges 12, and thus prevent the piston from being thrown outward by the recoil of said spring 6 until the dies 1 are brought to the horizontal position, that when said dies are successively brought to the horizontal position, as indicated upon the right in Fig. 1, said collars 11 are released from engagement with said flanges 12, when said pistons 5 are thrown out by the recoil of said spring 6, as stated, and the butter is forced from said dies upon the platform 7, as indicated. Thus it will be understood that each die is successively filled as they pass beneath the supply-tank. The pistons of said dies are successively retained in their inward position by the action of said flanges 12 while passing from the vertical to the horizontal position, and said pistons are successively thrown outward and the butter discharged from said dies, respectively, as they reach the horizontal position above the platform 7.

An intermittent motion is communicated from the driving-wheel 13 to the die-supporting wheel 2 through the shaft 20, segmental gear-wheel 14, pinion 15, shaft 16, pinion 17,

and the gear-wheel 18, which gear-wheel 18 is rigidly connected with the side of the wheel 2. Thus it is obvious that while the teeth of the segmental gear-wheel 14 are passing the pinion 15 said pinion and the parts actuated thereby will be revolved and that while the blank or untoothed portion of said wheel is passing beneath the pinion 15 said pinion 15 and the parts connected therewith remain at rest, whereby an intermittent movement is communicated to said die-supporting wheel 2 from said driving-pulley 13, while the latter is continuously revolved.

To provide for actuating the piston 4 while the wheel 2 is at rest, we have provided the opposite side of the segmental gear-wheel 14 with a similar segmental gear 21, which operates the pinion 22. (Shown in Fig. 2.) Motion is communicated from said pinion 22 to the piston 4 through the shaft 23, sprocket-wheel 24, sprocket-chain 25, sprocket-wheel 26, and screw-threaded shaft 27. The shaft 27 has screw-threaded bearings in the bracket 28, whereby as the segmental gear 21 moves in contact with the pinion 22 said screw-threaded shaft 27 is revolved in its bearings and said piston 4 is forced downwardly against the butter in the supply-tank 3. It will of course be understood that the teeth of the segmental gear 21 are so arranged that they are brought in contact with the pinion 22 just at the same instant that the gears 14 cease to act upon the pinion 15 and that the gears 14 will commence to act on the pinion 15 just the instant that the gears 21 cease to act upon the pinion 22, whereby said piston 4 and die-supporting wheel 2 will be alternately moved and brought to rest, when the dies will remain at rest as they are being filled, and the piston will remain at rest as the filled dies are being moved to the place of discharge.

To provide for preventing the blocks of butter from being thrown in contact with each other as they are discharged from their dies upon the platform 7, said platform 7 is intermittingly revolved a slight distance after each cake is discharged upon it and remains at rest while the block of butter is being forced upon it. Motion is communicated to the platform 7 from the wheel 2 through the gear 18, pinion 29, shaft 30, sprocket-wheel 31, sprocket-chain 32, sprocket-wheel 33, and shaft 34. Shaft 34 is supported in journal-bearings 35 and 36, formed in the frame 37. The wheel 2 is revolubly supported from the frame 37 upon the shaft 38. To provide for starting and stopping the machine without interfering with the movement of the band-wheel 13, said band-wheel is preferably revolubly supported upon the shaft 20 independently of the movement of said shaft and is coupled with said shaft by an ordinary clutch 39, which is keyed to revolve with said shaft 20, while it is adapted to be moved longitudinally on said shaft by the action of the lever 40 into and out of engagement with a corresponding clutch or collar 41, which is formed integral with the hub of the pulley 13, all of which clutch mechanism is of the ordinary construction. Thus it is obvious that when the clutches 39 and 41 are thrown into engagement motion will be communicated from the pulley 22 to the shaft 20 and from thence to the machine, as heretofore described, and that by reversing the movement of the lever 40 the movement of the machine will be brought to rest without interfering with the movement of the band-pulley.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A machine for forming butter into blocks or cakes; comprising a plurality of butter-receiving dies supported upon a revoluble wheel or frame; a piston located in each of said dies; means for automatically forcing said pistons outward to the front end of said dies; a butter-supply tank supported in contact with the periphery of said wheel in front of said dies; means for communicating an intermittent motion to said wheel, whereby said dies are brought successively to, and stopped in front of the discharge end of said supply-tank; means for forcing the butter from said supply-tank into said dies against said pistons, whereby said pistons are forced to the inner end of their retaining-dies; means for retaining said pistons at the inner end of their movement while passing from the supply-tank to the place of discharge; and means for moving said pistons forward and forcing the butter from said dies when the latter has reached the point of discharge, substantially as set forth.

2. A machine for forming butter into blocks or cakes, comprising a plurality of butter-receiving dies supported from a revoluble wheel or frame; a butter-supply tank supported in contact with the periphery of said wheel in front of said dies; a piston located in said supply-tank; means for communicating an intermittent movement to said wheel, whereby said dies are brought successively beneath the discharge end of said tank; means for communicating motion from the source of power to said piston and forcing the contents from said supply-tank into said dies while the same are at rest; means for communicating motion from such source of power to said dies while said piston is at rest; means for retaining the pistons in said dies at the inner end of their movement, while passing from the supply-tank to the place of discharge and means for forcing said pistons outwardly and discharging the contents of said dies when released from their retaining mechanism, substantially as set forth.

3. A machine for forming butter into blocks or cakes, comprising a plurality of butter-receiving dies supported from a revoluble wheel or frame; a butter-supply tank sup-

ported in contact with the periphery of said wheel in front of said dies; a piston located in said supply-tank; means for communicating an intermittent movement to said wheel, whereby said dies are brought successively beneath the discharge end of said tank; means for communicating motion from the source of power to said piston and forcing the contents from said supply-tank into said dies while the same are at rest; means for communicating motion from such source of power to said dies while said piston is at rest; means for retaining the pistons in said dies at the inner end of their movement, while passing from the supply-tank to the place of discharge; means for forcing said pistons outwardly and discharging the contents of said dies when released from their retaining mechanism; a revolving platform located at the discharge end of said butter-forming dies and means operated by the driving mechanism of the machine for communicating an intermittent movement to said platform, all substantially as, and for the purpose specified.

In testimony whereof we affix our signatures in the presence of two witnesses.

LOREN BENSON.
RAY DE FOREST.

Witnesses:
C. C. MAY,
HARRY C. MAY.