J. C. THOMPSON.

PARAFFINING MACHINE.

APPLICATION FILED OCT. 26, 1908.

951,293.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 3.

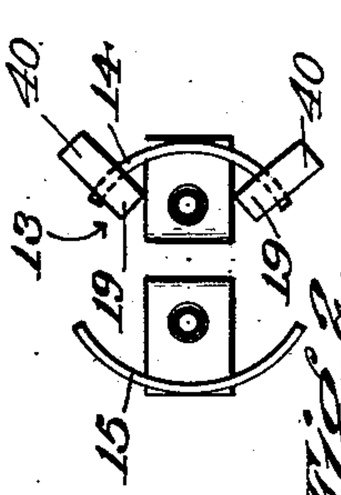


Fig. 2.

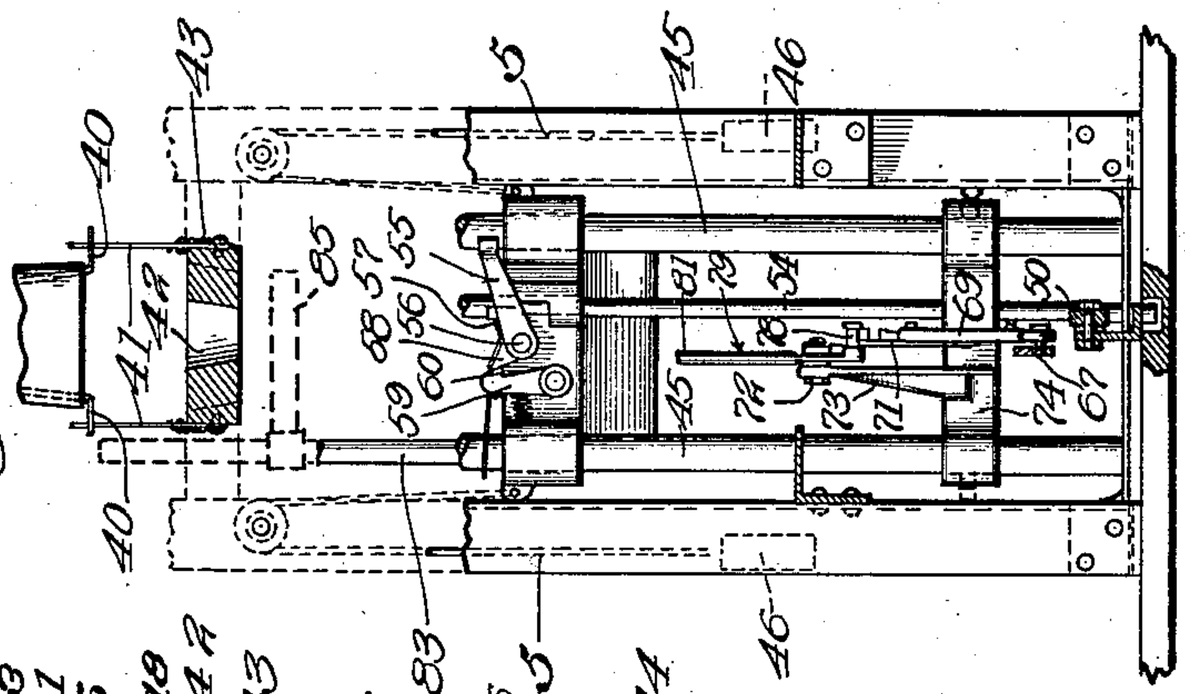
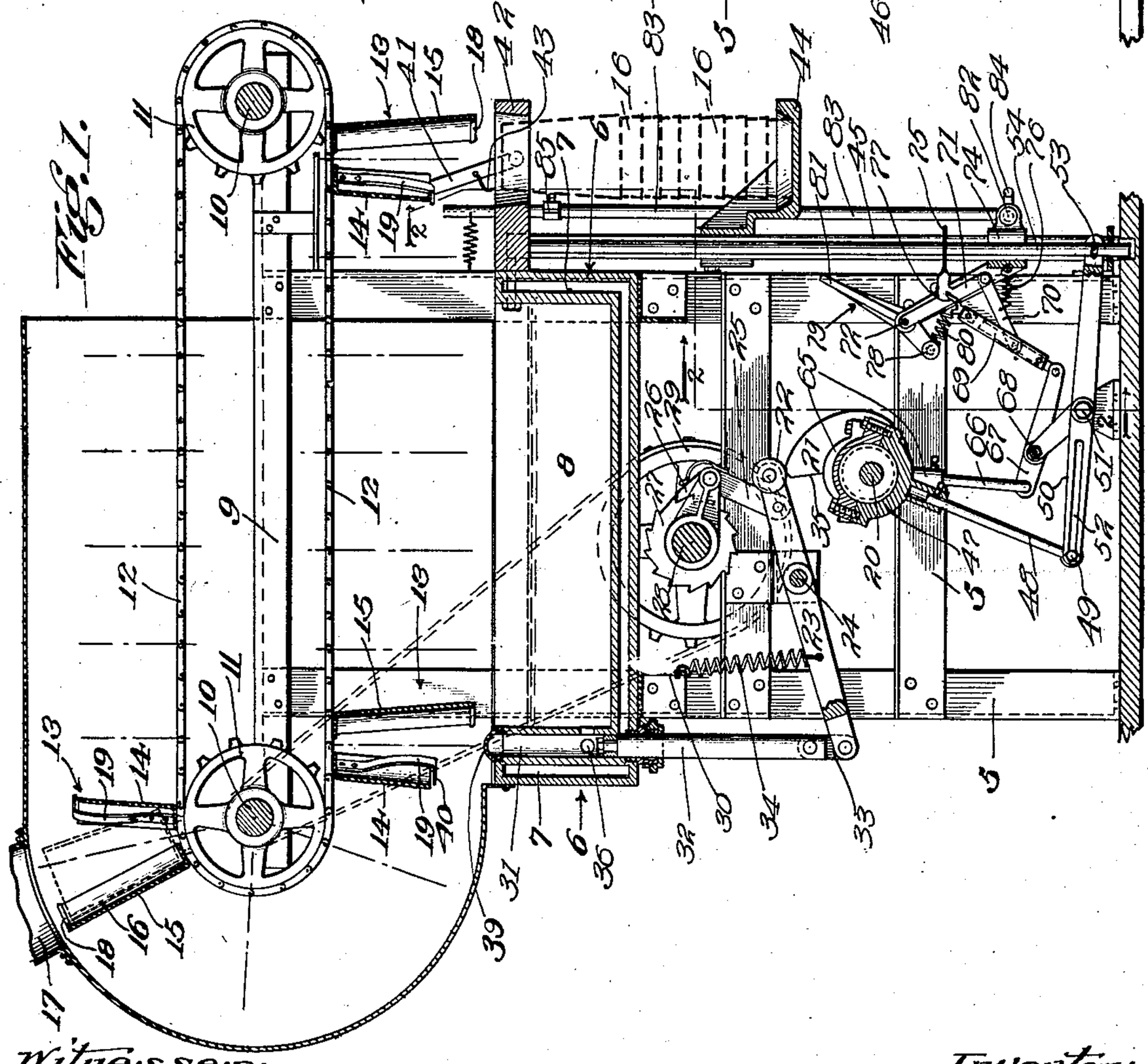


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 4.

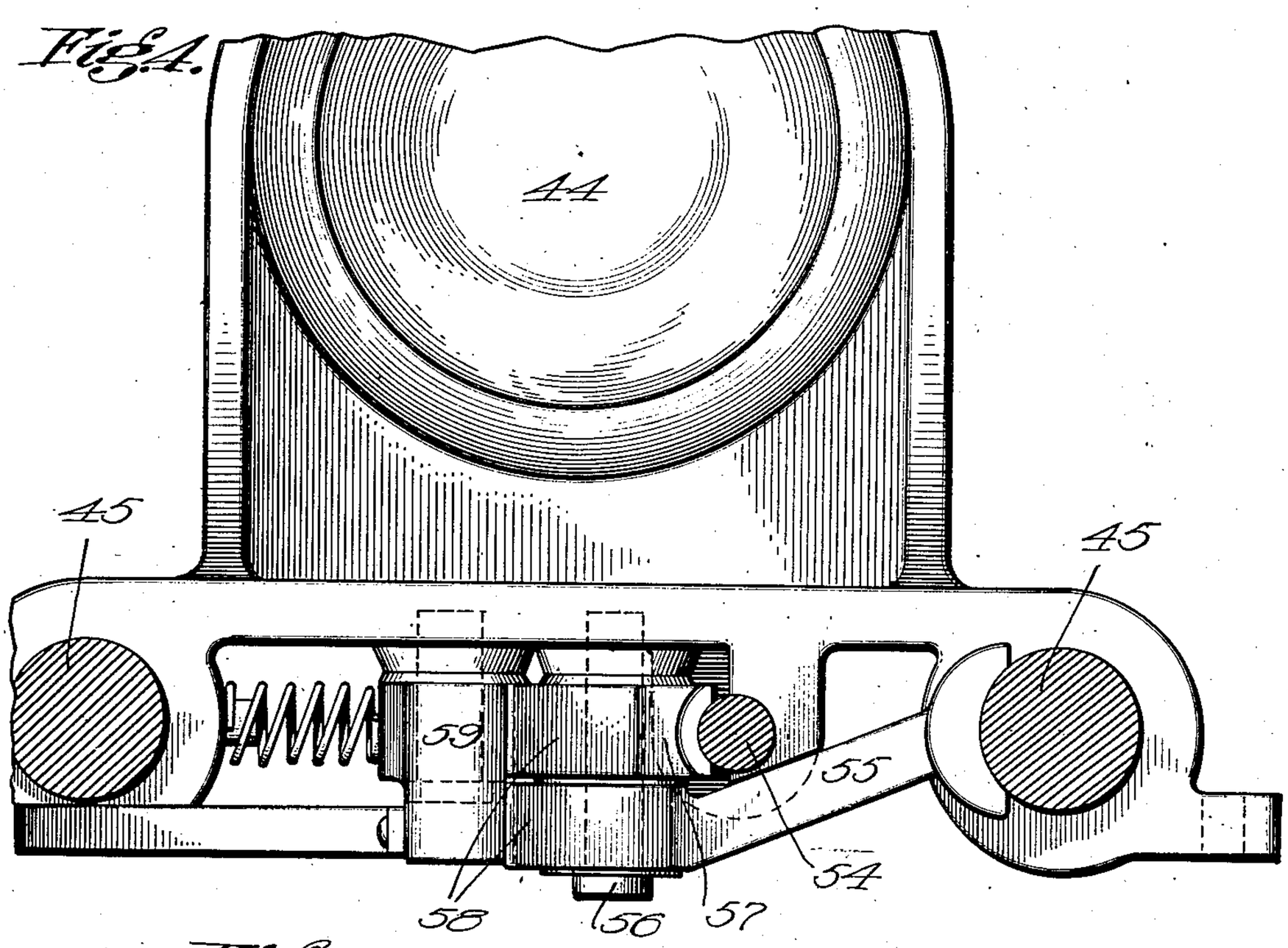
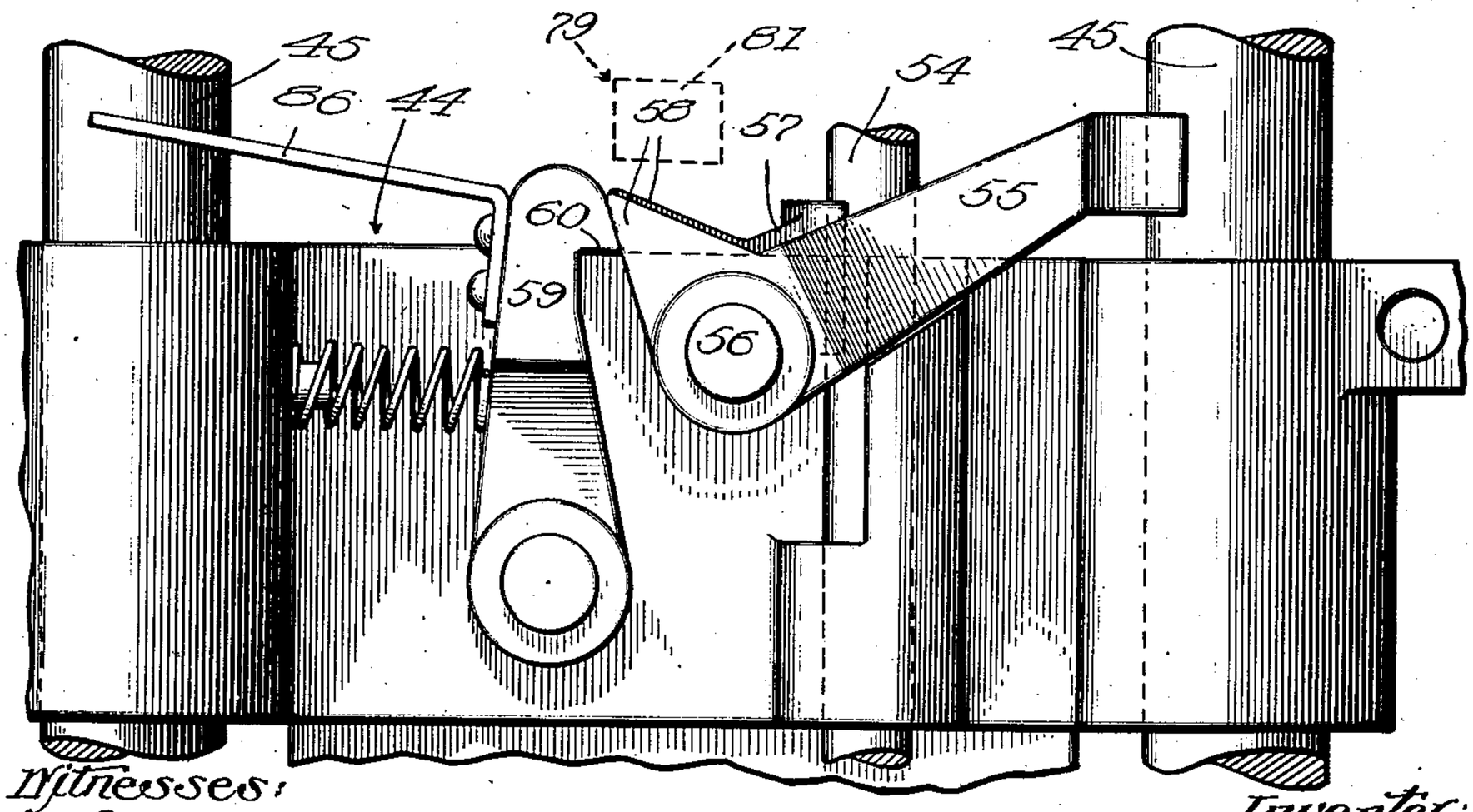


Fig. 5.



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UNITED STATES PATENT OFFICE.

JESSE C. THOMPSON, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO THE AMERICAN SANITARY PAPER CUP COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF ARIZONA TERRITORY.

PARAFFINING-MACHINE.

951,293. Specification of Letters Patent. Patented Mar. 8, 1910.

Application filed October 26, 1908. Serial No. 459,571.

To all whom it may concern:

Be it known that I, JESSE C. THOMPSON, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Paraffining-Machines, of which the following is a specification.

This invention relates to a machine for coating the inner surfaces of containers with paraffin, the object being to render the containers sanitary, and impervious to liquids.

As indicated above, the object of the invention is to provide a machine which will paraffin the containers on the inside alone, as it is unnecessary to paraffin the outside for ordinary purposes. A stacking and counting device is also provided so that the containers may be delivered in counted lots.

In the accompanying drawings:—Figure 1 is a central longitudinal section of the complete machine. Fig. 2 is a vertical cross section taken on line 2—2 of Fig. 1. Fig. 3 is a bottom plan view of one of the container clamps. Fig. 4 is an enlarged plan view of the container tray and the mechanism mounted thereon. Fig. 5 is an enlarged detail of the back side of the container tray.

Referring to the drawings, 5 designates a supporting frame in the upper end of which a paraffin tank 6 is mounted. This tank is provided with a steam jacket 7 to keep paraffin 8 therein in a liquid condition. Above the tank a horizontal frame 9 is supported and two transverse shafts 10 are journaled thereon. Sprockets 11 are mounted on shafts 10 and a chain 12 passes over the sprockets. On chain 12 is mounted a plurality of container clamps 13, these clamps being spaced around the chain at a distance of three links apart. In the drawings only three of the clamps are shown, the positions of the remainder being indicated by the dot and dash center lines. These clamps are each composed of two members 14 and 15, the separate members being mounted on adjacent links; as shown, so that they are thrown into a divergent position upon passing over the sprockets.

The present machine is designed for a conical container, one being shown in dotted lines at 16. The containers are dropped into the machine through a chute 17 at proper intervals so that they fall into the clamp in the position shown. Member 15 of the clamp is provided with a bead 18 around its outer edge and the container top rests below this bead, springs 19 on member 14 pressing the container into engagement with member 15. When the clamp has turned to its lower position on its passage around the sprocket the container is held tightly from falling out.

The sprocket chain is driven intermittently by a ratchet and pawl mechanism. Mounted in the lower part of the frame is a shaft 20 to which power is supplied in any convenient manner. This shaft is provided with a cam 21 which operates a cam follower 22 mounted on a lever 23 pivoted to the frame at 24. A link 25 connects lever 23 with a pawl 26 which engages with a ratchet 27 on shaft 28, the proportions being such that shaft 28 is moved through a distance corresponding to one ratchet tooth upon each movement of the cam follower and each rotation of shaft 20. A sprocket wheel 29 is mounted on shaft 28 and a chain 30 connects with one of shafts 10, this arrangement providing for the intermittent movement of chain 12 through a distance equal to the length of three links upon each rotation of shaft 20. Thus the successive containers held in the clamps are always moved to the same position.

At one end of the paraffin tank a pump cylinder 31 is arranged, a plunger 32 projecting below the tank and being connected to the end of lever 23 as at 33. Upon each movement of the lever the pump plunger is operated, cam 21 moving the plunger downwardly and spring 34 moving it upwardly when portion 35 of the cam reaches the cam follower. The plunger is thus given a quick upward movement, and the paraffin which has entered the pump cylinder through ports 36 is forced upwardly through nozzle 39 and is sprayed into the container directly above. It will be seen that the spraying of the paraffin takes place while the lever is operated by the spring, the containers moving while the lever is operated to draw the pump plunger back to take a fresh charge of paraffin. As the operation of paraffining the successive containers goes on the containers move from their position over the pump to the position shown at the right of

Fig. 1 where they are released and stacked up in counted lots suitable for packing.

Each of springs 19 is provided with a transversely projecting end 40 with which a trip finger 41 is adapted to engage. The trip fingers are mounted on a stacking guide 42 secured to the end of the paraffin tank, the fingers being held in the position shown by springs 43. When the clamp with its container comes to a position directly over the stacking guide the trip fingers engage with the springs and they are held back so that the container is allowed to fall from the clamp. The containers fall through the stacking guide and the first one falls on to tray 44 with its large end down, this being the open end. The following containers pile up on and over the lower one as is shown in dotted lines. Tray 44 is moved down a space each time a container is placed thereon so that the upper part of the top container is always within the stacking guide, thus holding the pile of containers in an upright position.

Tray 44 is mounted on rods 45 so as to slide vertically, being normally pulled upwardly by two weights 46, shown in dotted lines in Fig. 2. The mechanism to move the tray downwardly comprises an eccentric 47 mounted on shaft 20. A connecting rod 48 is adjustably secured at 49 to a lever 50 pivoted at 51, a slot 52 being provided so that the angular movement of the lever may be varied. The other end of the lever is connected by pin 53 to a vertical feed rod 54, this rod being reciprocated by the movements of the lever. Mounted on the back of tray 44, as is most clearly shown in Figs. 4 and 5, is a gripper arm 55, being pivoted at 56 to the tray. This arm binds against one of rods 45 in such a manner that the tray cannot be moved upwardly by weights 46. A second gripper arm 57 bears against feed rod 54 so that the tray must move downwardly whenever the feed rod moves downwardly, arm 57 being also pivoted to the tray at 56. Both of the gripper arms are provided with extensions 58 and a spring pressed pawl 59 presses against the under faces of these extensions and keeps the grippers in engagement with their respective rods. A shoulder 60 is provided on the pawl under which the extensions are adapted to be held when the tray is moved upwardly to its upper initial position when the previous stack of containers has just been completed. By the mechanism just described the tray is moved downwardly as the containers are placed thereon. After a certain desired number of containers has been piled up the upper part of the top one is still within the stacking guide and it is necessary to move the whole stack downwardly to remove it from the machine. This is accomplished by a separate mechanism which is adjustable to operate after any desired number of successive downward movements of the tray. An eccentric 65 is mounted on shaft 20 and is connected by rod 66 to a lever 67 pivoted at 68, the other end of the lever being connected to a push rod 69. The center portion of this push rod is pivoted to a connecting link 70 which is also connected to a controlling lever 71. This controlling lever is pivoted at 72 to arm 73 which forms an extension of frame 74 slidably and adjustably mounted on vertical rods 45. An extension 75 on the controlling lever projects into the path of tray 44 so that the tray must contact with it on its downward movement. When the tray engages extension 75 controlling lever 71 is forced toward the left, a spring 76 normally holding it in the position shown. Push rod 69 is thus moved to the left and its upper notched end 77 comes into contact with pin 78 on the rear end of lever 79, also pivoted at 72 to extension 73. The lever is normally held in the position shown by spring 80, the action of the push rod forcing its forward end 81 downwardly and into contact with the upper part of tray 44. It will be seen that the movement of the end of lever 79 is comparatively large, the movement of cam 65 being multiplied in both levers 67 and 79. The tray is therefore pushed down through a large distance, so much that the upper container is removed entirely from engagement with the stacking guide. Pivotally mounted at 82 on frame 74 is an ejector arm 83 extending upwardly alongside tray 44. This arm is provided with an extension 84 on its lower end with which tray 44 is adapted to contact during the last portion of its downward movement, the arm being thereby forced outwardly. On the upper end of the arm is mounted an adjustable finger 85 standing behind the stack of containers and tipping the stack over when the ejector arm is moved. End 81 of lever 79 comes down on tray 44 in the position shown in dotted lines in Fig. 5, coming into contact with extensions 58 of the gripper arms and forcing them downwardly so that they are caught and held by pawl 59. When this is done the arms no longer prevent the tray from moving upwardly and it does so as soon as lever 79 moves to its normal position and releases it. Upon reaching the top of the frame spring finger 86 on pawl 59 engages forcibly with stacking guide 42 and the pawl is removed from engagement with the gripper arms, the arms then resuming their normal functions.

I claim:—

1. A container coating machine, comprising a tank for the coating substance in liquid form, a pump arranged within the tank near one end thereof and adapted to discharge liquid therefrom upwardly, a conveyer belt wheel mounted on each end of the

tank, an endless conveyer belt passing over the wheels, a plurality of grippers spaced on the belt, each gripper comprising a pair of members secured to the belt independently of each other at points removed from each other longitudinally of the belt, and each of the members projecting outwardly from the belt in its plane of movement, a chute for feeding containers to the grippers while passing over one of the wheels, means to intermittently move the belt over the tank and pump, and means to actuate the pump to force liquid during the periods of rest of the belt.

2. A container coating machine, comprising a tank for the coating substance in liquid form, a pump arranged within the tank near one end thereof and adapted to discharge liquid therefrom upwardly, a pair of wheels mounted on the ends of the tank in a common vertical plane with the line of discharge of the pump, an endless conveyer link belt mounted on the wheels, a plurality of grippers spaced on the belt, each gripper comprising a pair of members mounted on adjacent links of the belt and projecting from the outer face thereof, a chute for containers located over one of the wheels, means to intermittently move the belt, and means to actuate the pump to force liquid during the periods of rest of the belt.

3. In a container coating machine, an endless link belt, a plurality of container grippers spaced on the belt, each gripper comprising a pair of opposed members adapted to receive and hold a container between them, the members of each gripper being secured to adjacent links of the belt and projecting from the outer face thereof, a pair of wheels over which the endless belt moves, means for feeding containers to the grippers while passing over one of the wheels, means for holding the containers in the grippers while passing over said wheel, means to move the belt intermittently, and means to spray the containers with a coating liquid during the period of rest of the belt.

In witness that I claim the foregoing I have hereunto subscribed my name this 19th day of October 1908.

J. C. THOMPSON.

Witnesses:

JAMES T. BARKELEW,

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