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CAN FILLING MACHINE.

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920,250. Patented May 4, 1909.

Fig. 1.

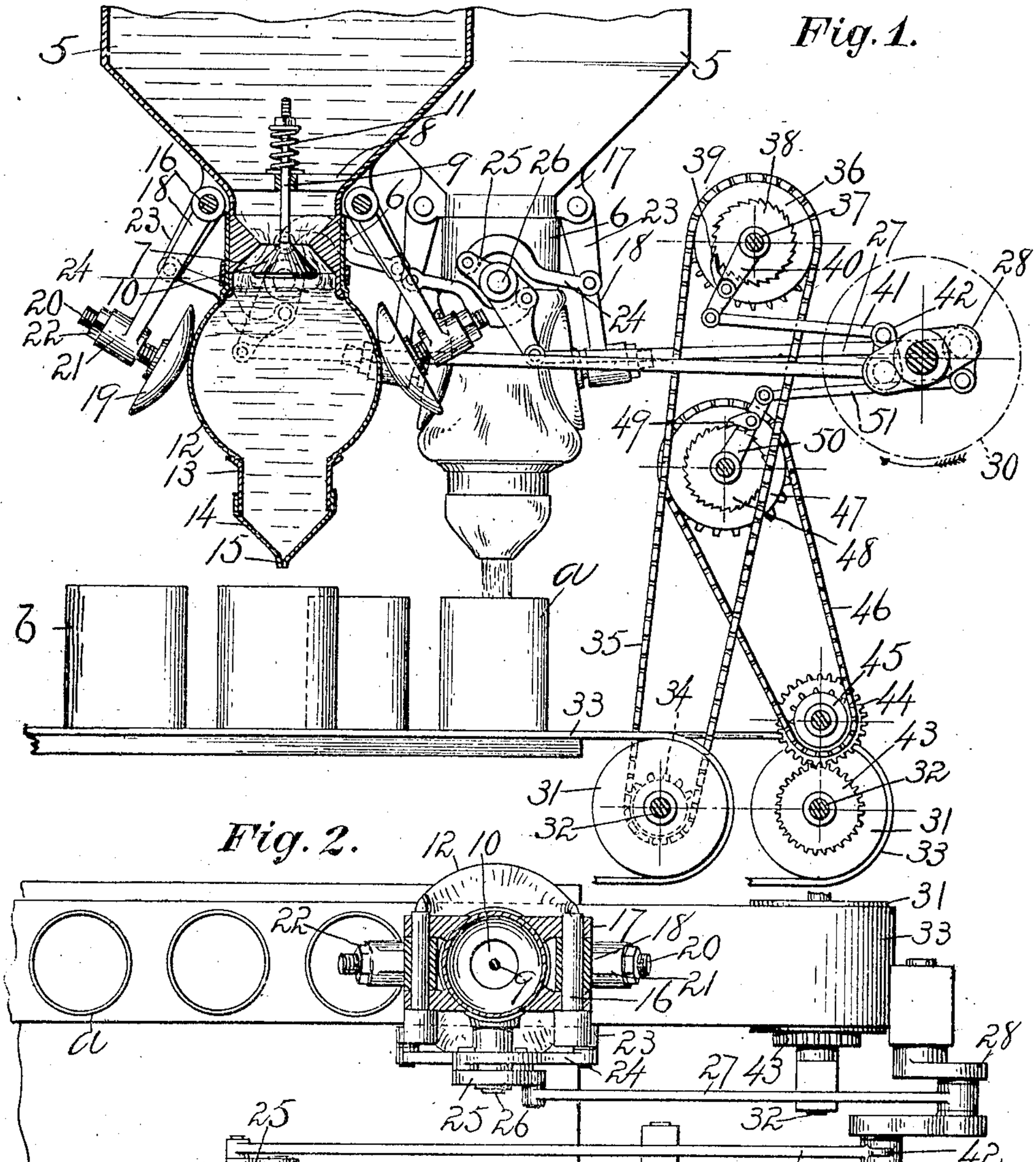

Fig. 2.

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CAN-FILLING MACHINE.

No. 920,250. Specification of Letters Patent. Patented May 4, 1909.

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To all whom it may concern:

Be it known that I, HAVILAH ANSON BLAKESLEE, a citizen of the United States, and residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and Improved Can-Filling Machine, of which the following is a specification.

My invention, as its name indicates, relates to the class of devices used for filling cans.

While the device is especially adapted for use in supplying gritty material in a more or less liquid or plastic form, yet it is not limited to such use.

The object of the invention is to provide a can filling machine that shall be extremely durable and efficient in operation and not subject to undue wear by reason of the presence of gritty material being operated upon; and a further object of the invention is to provide a device of this class arranged to successively supply the required quantity of material to the cans to be filled; and a further object of the invention is to provide means whereby the proper quantity of material may be supplied to cans of different capacity.

A form of device in the use of which these objects may be attained is illustrated in the accompanying drawings in which—

Figure 1 is a view in elevation, partially in section, of a machine embodying my invention. Fig. 2 is a view in section through the same on a plane passing through the axes of pivots of the compressor arms.

I have found from extended experiment that in the employment of machines for handling gritty substances, and especially such substances in a more or less liquid or plastic form, that where parts are in movable contact with each other and also in contact with the substances operated upon, such parts soon become worn from the action of the grit to an injurious extent, and in the device herein illustrated and described I have so constructed the parts that there is no movable contact between the parts immediately in contact with the material operated upon, the wear having thus been reduced to a minimum.

In the accompanying drawings the numeral 5 indicates delivery spouts located at the lower end of a reservoir adapted to contain the material to be supplied to the cans being filled. This reservoir may be constructed of any suitable material and form and any number of spouts may project therefrom, two only, however, being shown herein, and the description in general, for sake of brevity, while referring to only one spout will be considered as applying equally to both. A neck 6 projects from the lower end of the spout and in this neck a valve seat 7 is formed facing downward. A valve support 8 extends across the lower end of the spout and a valve stem 9 bearing a valve 10 is mounted in this support. A spring 11 thrusting against a shoulder on the valve stem holds said valve against its seat.

A measuring device is operatively located with respect to the lower end of the spout and neck, this measuring device consisting briefly of a holder and compressors with their operating mechanism. The holder 12 is preferably formed to be flexible and non-elastic. It may be constructed of a material having non-elastic qualities and properly lined to be impervious to the material to be contained therein, or as shown may be formed of webbing closely woven to be impervious to said material. This holder is secured to the neck 6 in any suitable manner and depends therefrom. A mouth secured to the lower end of the holder affords means for outflow of the material from the holder. This mouth is constructed so that the lips are normally closed against each other with a force sufficient to resist the natural pressure of the material within the reservoir and holder. In the form of construction herein shown a throat piece 13, preferably constructed of comparatively thin metal, and of rectangular form, is secured to the open end of the holder and a mouth piece 14 tapering in one direction to the lips 15 is secured to the throat piece. This mouth piece is so constructed that the lips 15 are normally forced in contact each with the other.

Compressor arm pivots 16 are mounted in bearings or ears 17 projecting from the spouts 5 and compressor arms 18, secured to said pivots, extend downward supporting compressors 19. In the form of construction herein shown each compressor has a threaded shank 20 engaging a threaded opening through a compressor bearing 21 on the end of the arm 18, a lock nut 22 being employed to hold the parts in position. From this construction it will be noted that the

compressors may be so arranged as to compress the holder to a greater or less extent, thus graduating the amount of material which will be delivered from the holder in each movement of the compressors toward each other, and thus accommodating the machine to the filling of cans of different capacity.

It will be noted that the compressors appurtenant to the spout at the right of Fig. 1 are arranged in closer proximity than are the compressors appurtenant to the spout at the left of said figure, this being determined by the distance between the back of the compressors and the edge of the bearing 21. The result will be that less material will be supplied from the holder appurtenant to the spout at the right of said figure to fill the cans *a* of smaller capacity than will be supplied from the spout at the left of the figure to fill the cans *b* of larger capacity.

A compressor lever 23 is secured to the pivot 16 and is connected by a link 24 with an actuator 25 mounted on a pivot 26. There are two of the links 24, these links being adapted to operate the compressors on opposite sides of a holder. A connecting rod 27 extends between the actuator 25 and a crank 28. This crank is a double crank, as shown in Fig. 2, mounted in bearings 29, a connecting rod 27 extending from each crank to an actuator 25. These cranks may be operated from any suitable source of power, a gear 30 having been shown here as the means for receiving such power to transmit it to the crank.

Shafts 32 are suitably mounted in the frame of the machine, these shafts bearing drums 31 supporting carriers 33. These carriers are arranged to support the cans *a* and *b* and deliver them at proper intervals to receive materials from the holders. A sprocket 34 is employed for imparting movement to the drum 31 supporting the carrier on which are mounted the cans *b* and a sprocket chain 35 extends to a sprocket 36 carried by a shaft 37 properly mounted in the frame of the machine. This shaft also carries a ratchet 38 in connection with which a pawl 39 secured to a pawl lever 40 is arranged. The pawl lever is operated by a rod 41 secured to an arm 42 upon the connecting rod 27 appurtenant to the holder for filling the larger cans. The drum 31 mounted upon the shaft 32 and supporting the carrier 33 for delivering the smaller cans *a* has a gear 43 secured to the shaft 32, this meshing with a gear 44 upon a shaft carrying a sprocket 45. A sprocket chain 46 extends to the sprocket wheel 47 mounted to rotate with a ratchet 48 having a pawl 49 mounted on a pawl arm 50. A rod 51 connects the pawl arm 50 with the connecting rod 27 for operating the compressors for filling the smaller cans *a*.

The operating mechanism extending between the compressor operating mechanism and carriers has been omitted from Fig. 2 for sake of clearness.

In the operation of the cranks 28, through the means of the connecting mechanism, the carriers are timely operated in connection with the compressors to place a can underneath a mouth from a holder just before action of the compressors to force the material from the holder, and to remove the can from underneath such mouth during the backward movement of the compressors.

It will be noted that the mechanism as shown in the figures, and especially in Fig. 1, is in a position with the holder nearly but not quite filled, the material still running from the reservoir into said holder, thus maintaining the valve in its open position.

I claim:—

1. A reservoir having an outlet opening downwardly therefrom, a holder of flexible material arranged to receive the downward flow from said reservoir, means for closing the opening between the reservoir and holder, means for compressing the holder, and means closing the outlet from the holder but arranged to permit flow therefrom during compression.

2. A reservoir having an outlet opening downwardly therefrom, a holder of non-elastic flexible material to receive the downward flow from said reservoir, means for controlling the passage between the reservoir and holder, means for compressing said holder, and means for closing the outlet from the holder but arranged to permit outflow during compression.

3. A reservoir having an outlet opening downwardly therefrom, a holder of flexible material arranged to receive the downward flow from said reservoir, a valve controlling the passage between the reservoir and holder, means for compressing the holder, means closing the outlet from the holder but arranged to permit outflow during compression.

4. A reservoir having an outlet opening downwardly therefrom, a holder of flexible material arranged to receive the downward flow from the reservoir, means for controlling the flow between the reservoir and holder, means for compressing said holder, and a mouth from said holder having lips normally closed but constructed to yield under the force of compression of the holder.

5. A reservoir having an outlet opening downwardly therefrom, a holder of flexible material arranged to receive the downward flow from said reservoir, means for compressing the holder, means for controlling the passage between the reservoir and holder but to be closed under compression of the latter, and means closing the outlet from the

holder but arranged to permit outflow during compression.

6. A reservoir having an outlet opening downwardly therefrom with a valve seat opening downward, a holder of flexible material arranged to receive the downward flow from said reservoir, a valve appurtenant to said valve seat and arranged to open under pressure from the reservoir, means for closing the valve when a predetermined amount of material has been delivered to the holder, means for compressing the holder, and means closing the outlet from the holder but arranged to permit outflow during compression.

7. A reservoir having an outlet opening downwardly therefrom, a holder of flexible material to receive the downward flow from the reservoir, means for compressing the holder, and an outlet from the holder having lips normally closed but constructed to yield and permit outflow under compression.

8. A reservoir having an outlet opening downwardly therefrom, a holder to receive the downward flow from said reservoir, means for controlling the opening between the reservoir and holder, compressors arranged upon opposite sides of the holder, means for reducing the space between the compressors, and means for closing the outlet from the holder but arranged to permit outflow therefrom during compression.

9. A reservoir having an outlet, a holder to be supplied from the reservoir, means for controlling the opening between the reservoir and holder, compressors located upon opposite sides of the holder, means for reducing the space between the compressors, means for changing the relative position of a compressor with respect to its support, and means for closing the mouth of the holder but arranged to permit outflow therefrom under compression.

10. A reservoir having an outlet, a holder of flexible non-elastic material arranged to be supplied from said reservoir, means detached from the holder for compressing it, means for closing the opening between the reservoir and holder, and means for closing the outlet from the holder but arranged to permit flow therefrom during compression.

11. A reservoir having an outlet, a holder of flexible material arranged to receive the gravity operated flow from the reservoir, means for compressing the holder, and means for closing the outlet from the holder but arranged to permit outflow during compression.

12. A reservoir having an outlet, a holder of flexible material arranged to be supplied from said reservoir, a carrier arranged underneath the holder, means for moving the carrier, means timed with respect to the movement of the carrier for compressing the holder to cause outflow therefrom, and means for closing said outlet but arranged to permit outflow therefrom during compression.

13. A reservoir having an outlet, a holder of flexible material arranged to be supplied from said reservoir, a carrier having intermittent movement underneath the outlet from the holder, means for moving the carrier, means timed with respect to the movement of the carrier for compressing the holder to cause outflow therefrom, and means for closing the outlet from the holder but arranged to permit outflow therefrom during compression.

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