

June 21, 1955

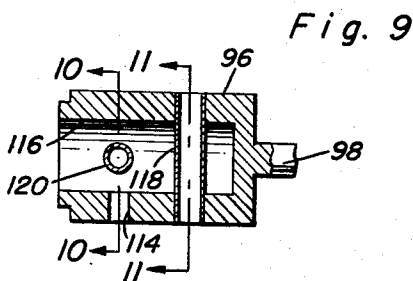
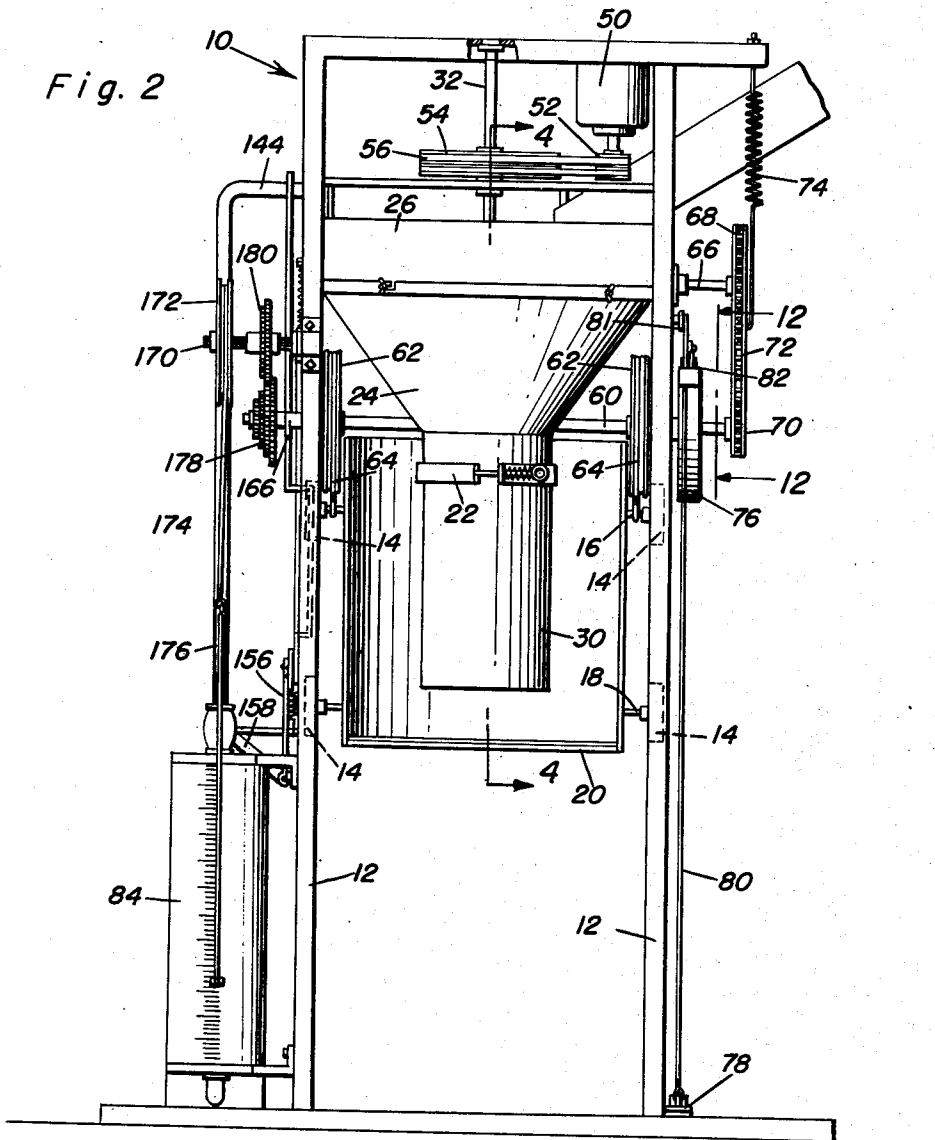
T. H. RIZA

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DISPENSING AND MIXING APPARATUS

Filed March 6, 1953

4 Sheets-Sheet 2



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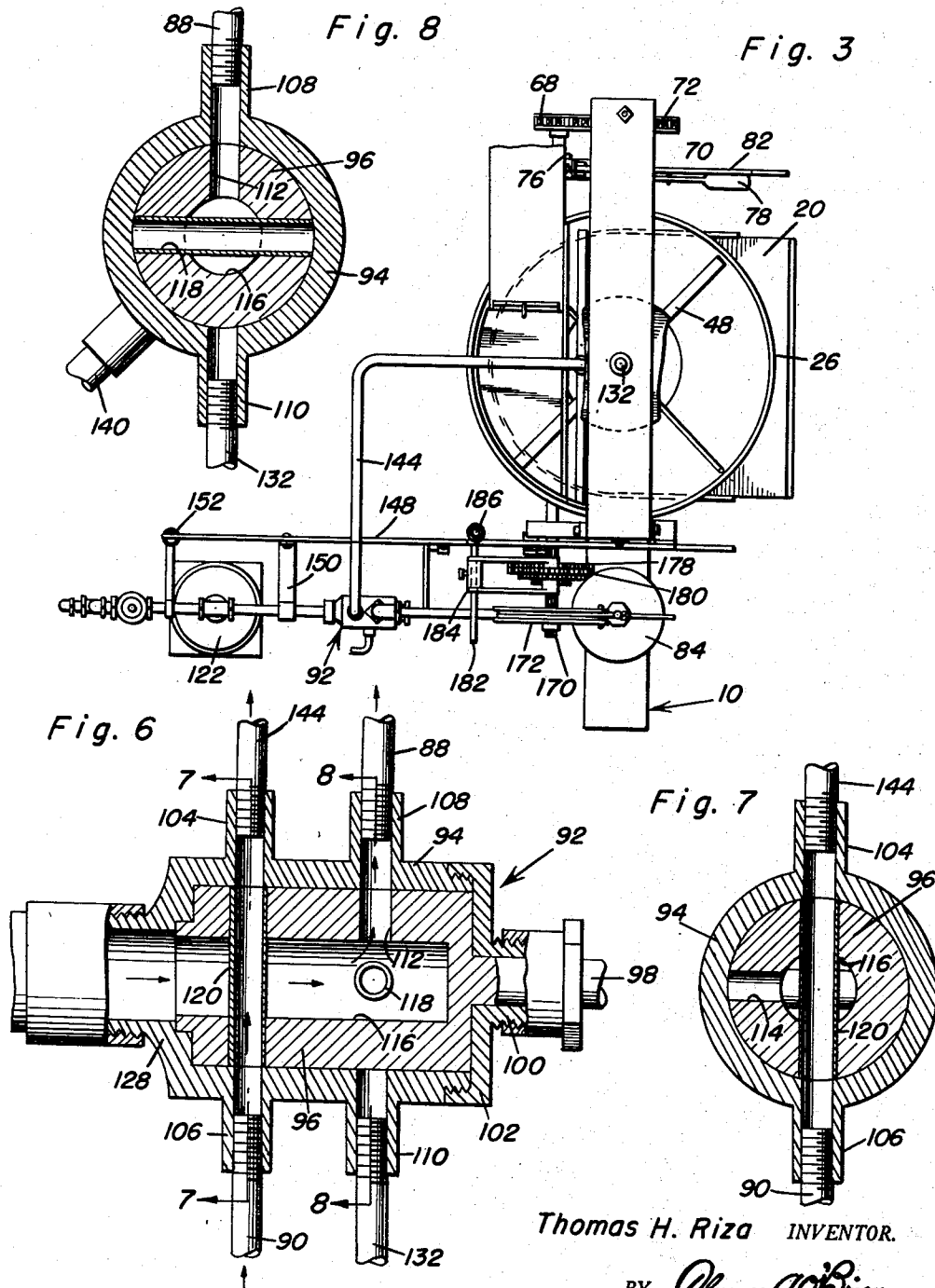
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DISPENSING AND MIXING APPARATUS

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4 Sheets-Sheet 3



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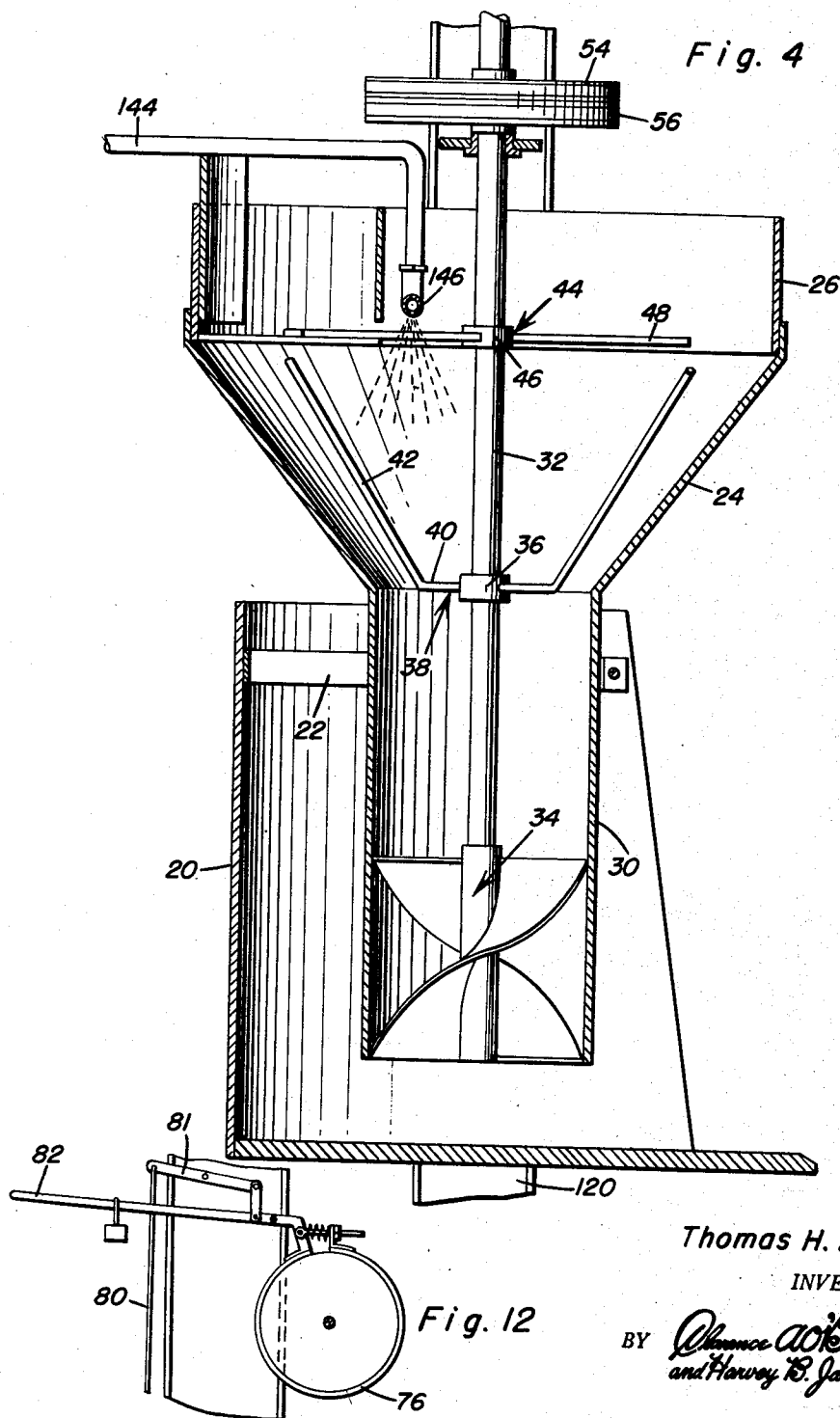
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4 Sheets-Sheet 4



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2,711,277

DISPENSING AND MIXING APPARATUS

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Application March 6, 1953, Serial No. 340,848

12 Claims. (Cl. 226—25)

This invention relates to new and useful improvements in dispensing and mixing apparatus and the primary object of the present invention is to provide an apparatus for spraying and mixing molasses with animal feed at a determined ratio or percentage.

Another important object of the present invention is to provide a dispensing and mixing apparatus that will thoroughly dispense and mix molasses with animal feed and deliver the mixed ingredients into a sack.

Yet another object of the present invention is to provide a sacking apparatus involving a vertically moving carriage that may be raised with a sack thereon to a position where the sack will be filled with a mixture of molasses and feed.

Another feature of the present invention is to provide a dispensing and mixing apparatus including fluid driven means operatively connected to the carriage so that the carriage may be moved downwardly at a predetermined rate whereby sacks of various lengths may be filled using the present dispensing and mixing apparatus.

Another feature of the present invention is the provision of a fluid system including a valve that is actuated into one position when the carriage is raised so that a liquid will be sprayed into material being sacked and which valve is actuated into a second position after a sack has been filled in order to reduce to a minimum a liquid being sprayed into the animal feed.

A further object of the present invention is to provide a dispensing and mixing apparatus of the aforementioned character including a valve operating means that is also connected to an electric motor so that a power driven feed agitating mechanism will be in operation only when a sack is being filled with feed or the like.

A still further aim of the present invention is to provide a dispensing and mixing apparatus that is extremely simple and practical in construction, strong and reliable in use, and efficient and durable in operation, inexpensive to manufacture, service and maintain, and otherwise well adapted for the purposes for which the same is intended.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the present invention with the carriage raised and a spraying liquid being directed into the hopper as a sack on the carriage is filled with processed feed;

Figure 2 is a front elevational view of Figure 1;

Figure 3 is a top plan view of Figure 1;

Figure 4 is an enlarged detail longitudinal vertical sectional view taken substantially on the plane of section line 4—4 of Figure 2;

Figure 5 is a fragmentary perspective view of Figure 1 showing the manner in which the lever holding arm is

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engaged with the frame and released from engagement with the frame;

Figure 6 is an enlarged detail vertical sectional view of the valve unit used in the present invention;

Figure 7 is a transverse vertical sectional view taken substantially on the plane of section line 7—7 of Figure 6;

Figure 8 is a transverse vertical sectional view taken substantially on the plane of section line 8—8 of Figure 6;

Figure 9 is a longitudinal vertical sectional view of the valve member;

Figure 10 is an enlarged transverse vertical sectional view taken substantially on the plane of section line 10—10 of Figure 9;

Figure 11 is an enlarged transverse vertical sectional view taken substantially on the plane of section line 11—11 of Figure 9; and

Figure 12 is a diagrammatic view showing the brake means and balance scale therein, used in the present invention.

Referring now to the drawings in detail wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, and the numeral 10 represents a frame structure including a pair of facing channel shaped uprights 12 and 12a that slidably receive rollers 14 on the ends of upper and lower horizontal shafts 16 and 18 fixed to a vertical slidable carriage 20. The carriage 20 is provided with an open top and open front and supports a suitable holding clamp 22 so that the sack or bag (not shown) may be readily applied to or removed from the carriage and held extended within the carriage.

The upper major end of an inverted conical hopper 24 is telescoped over a mounting ring 26 and is removably secured to the ring 26 by fasteners 28. Ring 26 is suitably removably secured to and between the upper end portions of the uprights 12 and 12a to hold the hopper directly over the carriage 20 with the cylindrical discharge neck portion 30 of the hopper parallel to and spaced an equal distance from the uprights 12 and 12a.

A vertical agitator shaft 32 is rotatably supported by suitable bearings on the frame 10 and extends axially through the hopper 24 and the neck portion 30. The lower end of shaft 32 carries a double spiral bladed packer 34 which is located within the neck portion 30. The shaft 32 also supports the hub 36 of a spider-like agitator 38 having radially projecting wire arms 40 that are bent upwardly and outwardly to form agitator fingers 42 which are located in the conical portion of the hopper 24. An additional spider-like agitator 44 has its hub 46 suitably fixed on shaft 32 over agitator 38. The agitator 44 is provided with radially projecting spreader arms 48 that will rotate in ring 26 to spread material entering the hopper from a suitable discharge chute C.

An electric motor 50 is suitably mounted on the upper end of frame 10 with its armature shaft parallel to the shaft 32. The armature shaft of motor 50 fixedly carries a multigrooved pulley 52 that is connected to a multigrooved pulley 54, fixed on shaft 32, by pulley belts 56. The motor 50 is provided with a spring urged switch button 58 that is mounted on the upright 12 (Figure 1) for a purpose presently to be described.

Means is provided for urging the carriage 20 to its raised position so that a sack held by clamp 22 will be telescoped upwardly over the cylindrical portion 30 of hopper 24. This means comprises a horizontal spring tension shaft 60 that is journaled for rotation in suitable bearings carried by the uprights 12 and 12a. Shaft 60 fixedly supports pulleys 62 about which cables or ropes 64 are wound. The upper ends of the ropes 64 are fixed to the pulleys 62 and the lower ends of the ropes 64 are

fixed to the carriage 20, preferably to the upper shafts 16 of the carriage 20, as shown in Figure 2.

A horizontal stub shaft 66 is suitably rotatably supported by a bearing on the frame 10 over the shaft 60 and fixedly supports a sprocket 68 that is connected to a sprocket 70 fixed on one end of shaft 60, by an endless sprocket chain 72. A coil spring 74 has its upper ends suitably adjustably secured to the upper end of frame 10 and its lower end eccentrically pivoted to sprocket 68 to constitute the means tensioning shafts 66 and 60 in order to urge the shaft 60 to its carriage raising position.

Brake means is provided for retaining the carriage 20 in its raised position until a predetermined amount of feed has been discharged into the sack on the carriage. The brake means comprises a brake band or ring 76 engaged over the periphery of a wheel fixed on shaft 60. The brake band may be tightened or loosened about the wheel and a foot pedal 78 is connected by a flexible element 80 and pivot lever 81 to the brake band to contact the latter about the wheel as the pedal is depressed. A scale beam 82 pivoted on the frame is connected to the brake band and the lever 81 to retain the brake band contracted and in its brake applying position until a predetermined amount of feed has been placed in the sack on the carriage.

Means is provided for spraying a liquid, such as molasses, into the hopper when the carriage is raised so that the liquid can be mixed with material placed in the hopper. This means comprises a vertical cylinder 84 supported at the lower end of the frame and having a piston 86 slidably therein. Conduits 88 and 90 extend from the upper and lower ends of the cylinder 84 and are connected to a valve unit 92 whose detail structure is shown in Figures 6-11 inclusive.

Valve unit 92 includes a cylindrical casing 94 and a cylindrical valve member 96 rotatable in the casing and provided with a rigid stem 98 that projects outwardly through a packing gland 100 on the removable end wall 102 of casing 94. Casing 94 is formed with upper and lower pairs of diametrically opposed nipples 104, 106, and 108, and 110; the conduit 88 being engaged with nipple 108 and the conduit 90 being engaged with nipple 106.

Valve member 96 is provided with longitudinally spaced radial ports 112 and 114 that are disposed at right angles to each other and which communicate with the blind axial bore 116 in the valve member 96. These ports are so located that when port 112 is in registry with nipple 108 (Figure 6) port 114 will be closed by the casing 94 (Figure 7) and when port 114 is in registry with nipple 106 then port 112 will be closed by the casing 94.

A pair of tubes 118 and 120 extend diametrically through the valve member 96 and are disposed at right angles to each other and to the ports 112 and 114, respectively. When port 112 is in registry with nipple 108, then tube 120 will be in registry with nipples 104 and 106, and the ends of tube 118 will be closed by casing 94 (Figure 6). However, when the valve member 96 is rotated, one-quarter turn, to register port 114 with nipple 106, then tube 118 will be in registry with the nipples 108 and 110.

A pump 122 is mounted on the frame 10 and its outlet 124 is connected to a conduit 126 that is coupled to the sleeved end 128 of casing 94. The pump reservoir 130 is connected to a conduit 132 that is attached to nipple 110 and to a liquid supply pipe 134 having a branch line 136 that is coupled to conduit 126. A manually operated valve 138 is disposed in conduit 126 and a bleed conduit 140 extending from the valve unit 92 is also provided with a manually operated valve 142 which is opened in order to bleed the valve 92.

The valve member 96 has two positions, one position being when port 112 is in registry with nipple 108 and tube 120 is in registry with nipples 104, 106, as shown in Figure 6, and the second position being when port 114 is in registry with nipple 106 and tube 118 is in registry

with nipples 108 and 110. When valve member 96 is positioned as shown in Figure 6, liquid directed from pump 122 will pass through bore 116, port 112, conduit 88, and into the upper end of cylinder 84 to move piston 86 downwardly so that the liquid in cylinder 84 under piston 86 will be forced through conduit 90, nipple 106, tube 120, nipple 104, and then through a conduit 144 attached to nipple 104. The outer end of conduit 144 is coupled to a spray head 146 which is supported in any suitable manner within ring 26 to spray a liquid downwardly into the hopper to be mixed with feed or the like placed into the hopper (Figure 4).

When the valve member 96 is rotated to its second position with tube 118 in registry with nipples 108 and 110, and with port 114 in registry with nipple 106, then the liquid (molasses) directed by pump 122 will pass through conduit 126, bore 116, nipple 106, and conduit 90 into the lower end of cylinder 84, raising piston 86 so that liquid in cylinder 84 over the piston 86 will be forced through conduit 88, nipple 108, tube 118, nipple 110, conduit 132, and into reservoir 130.

Means is provided for rotating the valve member 96 to one or the other of its two aforementioned positions. This means comprises a vertically swingable lever 148 pivoted intermediate its ends to a bracket 150 clamped on conduit 126.

The forward end of lever 148 is urged to a raised position by a spring 152 terminally attached to the rear end of the lever 148 in a clamp 154 on conduit 126. A pitman link 156 carried by lever 148 is pivoted to a rigid link 158 fixed to stem 98 so that when the lever 148 is raised by spring 152, the valve member 96 will be in the non-spring position or its position whereby liquid from the pump will enter the lower end of the cylinder 84. However, when the lever 148 is lowered (Figure 1) then the valve member 96 will be disposed as shown in Figure 6 or its spraying position so that liquid from pump 122 will enter the upper end of the cylinder 84.

The lower end of an operating arm 160 is pivoted to the lever 148 to be raised and lowered with the lever 148. The arm 160 fixedly supports a dog 162 that will engage under a dog 164 fixed to upright 12 in order to retain the lever 148 lowered. A cam 166 (Figure 5) fixed to shaft 60 will ride against the offset upper end of arm 160 to urge the dog 162 from dog 164 as the shaft 60 rotates to the carriage lowering position so that spring 152 may urge the lever 148 upwardly.

A vertically swinging mount arm 168 is pivotally secured to upright 12 above the shaft 60 and supports a shaft 170 having a spring tensioned pulley 172 thereon. One end of a cable or rope 174 is fixed to the pulley 172 and the other end of the rope 174 is attached to the upstanding rod 176 of piston 86. A stepped series of juxtaposition gears or gear unit 178 is fixed on shaft 60 under a series of juxtaposition gears or a gear unit 180 splined on shaft 170.

Arm 168 supports a horizontal rod 182 (Figure 3) on which a bifurcated gear adjuster 184 is slidably adjustably carried for moving a selected one of the gears 180 into engagement with a selected one of the gears 180 whereby the speed which the shaft 170 is driven by shaft 60 may be controlled.

A rod 186 is pivoted to the lever 148 and extends upwardly through a sleeve pivoted to arm 168. A coil spring 74 embraces the upper end of rod 186 and is biased between sleeve and abutment nut on the upper end of rod 186 to urge the arm 168 downwardly and the gear unit 180 into engagement with the gear unit 178. As the lever 148 is swung upwardly, the rod 186 will also move upwardly to raise the arm 168 and disengage gear unit 180 from gear unit 178, whereupon the spring acting on pulley 172 will rotate pulley 172 to wind rope 174 thereon.

When the carriage is forced downwardly during filling of the sack thereon, shaft 60 will be rotated and as gear

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unit 178 is in mesh with gear unit 180, shaft 170 will be rotated so that the rope 64 will unwind from the pulley 172. Carriage 20 will move downwardly rather slowly as the sack on the carriage is filled with feed.

Arm 168 is disposed directly under the switch button 58 aforementioned, so that as arm 168 is swung upwardly, it will press the switch button to a circuit open position to stop motor 50. However, as the arm 168 is lowered and when the dog 162 is engaged under dog 164, the switch button will be spring urged to a circuit closing position to permit operation of the motor 50. Obviously, the switch button 58 could be applied to the frame to be engaged by the arm 160 or the lever 148 to function in a similar capacity.

In practical use of the present invention, it being assumed that the carriage 20 is lowered and that the lever 148 is raised, also the arm 168 is raised and the motor 50 is not in operation. The pump 122 is operating but the valve 96 is turned so that a liquid is being directed into the lower end of the cylinder 84 from pump 122 with the excess liquid being forced back to the reservoir 130 through conduits 126, 136, and 134. Also in the starting position, cable 174 is wound on pulley 172 and piston 86 is raised.

After a sack has been placed on carriage 20 and engaged with holder 22, the operator releases pedal 78 to expand brake ring 76 whereupon spring 74 will cause shaft 60 to rotate and ropes 64 will be wound on pulleys 62 and carriage 20 will be pulled upwardly so that the upper end of the sack will engage upwardly over hopper portion 30. Then the lever 148 is lowered by the operator until dog 162 engages under dog 164. As the lever 148 is lowered, arm 168 is pulled downwardly to release switch button 58 and permit the motor 50 to drive shaft 32.

Also, as the lever 148 is lowered, valve member 96 is rotated to the position shown in Figure 6 so that liquid directed by pump 122 would be forced into the upper end of cylinder 84 to lower piston 86. As the piston 86 moves downwardly, the liquid in the cylinder under piston 86 will be forced through conduit 90, nipple 106, tube 120, nipple 104, conduit 144, and outwardly from spray head 146.

During downward movement of the piston 86, the pulley 172 and shaft 170 are rotated gradually by shaft 60, to unwind the rope 174, shaft 60 being rotated during descent of the carriage in order to drive shaft 170 through gear units 178 and 180. During lowering of the carriage 20, the shaft 60 is rotated and cam 166 rides against arm 160 to swing arm 160 and dog 162 out of engagement with dog 164 and spring 152 urges the lever 148 upwardly changing the valve member 96 to its initial position whereupon the piston 86 will be moved upwardly and the rope 174 wound upon the pulley 172, the latter being spring tensioned. The operator then depresses pedal 78 and the brake band 76 will hold the carriage in the lowered position until the filled sack is removed and replaced by an empty sack.

Obviously, any suitable means may be employed in conjunction with the chute C so that a predetermined quantity of feed or the like will be discharged into the hopper when the carriage is raised and a sack is disposed about the lower discharge end of the hopper. For example, a slide valve may be applied to the discharge end of the chute C which can be actuated by an operator standing in front of the apparatus. When the feed or material leaving chute C is discharged into the hopper 24, it is thoroughly mixed and agitated and the molasses or liquid sprayed into the hopper is also mixed with the feed so that the feed entering the sack will have a mixture of feed and molasses. The proportion of molasses mixed with the feed may be regulated by the valve unit or by a location of the cam 166 so that it will release the arm 160 after a predetermined quantity of liquid has been discharged into the hopper. The length of the piston

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stroke (piston 86) is adjusted by the gear unit 180 being adjusted with respect to gear unit 178 and by correlating the piston 86 with graduations on the outer force of cylinder 84 so that the ratio of molasses and feed may be proportioned. The flow of molasses into the cylinder 84 can also be regulated by valve 138.

Dry feed may be placed into the sack on the carriage by merely closing valve 138 when it is desired to sack dry feed.

What is claimed as new is as follows:

1. A dispensing apparatus comprising a frame, a carriage vertically slidably carried by the frame and having an upper and a lower position, means operatively connected to the carriage for raising the same to its upper position, a hopper supported on the frame over the carriage and adapted to supply a bag on the carriage with material when the carriage is in its upper position, a spray system including a spray head disposed in the hopper and a valve having a first position when liquid is directed through the spray head and a second position when liquid is not being directed through the spray head, a lever attached to the valve for moving the valve to its first or second positions, and means operatively connecting said lever to said carriage raising means for actuating the valve to its first position when the carriage is in its upper position and for actuating the valve to its second position as the carriage moves downwardly from its upper position.

2. A dispensing apparatus comprising a frame, a carriage vertically slidably carried by the frame and having an upper and a lower position, means operatively connected to the carriage for raising the same to its upper position, a hopper supported on the frame over the carriage and adapted to supply a bag on the carriage with material when the carriage is in its upper position, a spray system including a spray head disposed in the hopper and a valve having a first position when liquid is directed through the spray head and a second position when liquid is not being directed through the spray head, a lever attached to the valve for moving the valve to its first or second positions, and means operatively connecting said lever to said carriage raising means for actuating the valve to its first position when the carriage is in its upper position and for actuating the valve to its second position as the carriage moves downwardly from its upper position, said carriage raising means including a spring tensioned shaft, said shaft being spring tensioned as the carriage is moved downwardly.

3. A dispensing apparatus comprising a frame, a carriage vertically slidably carried by the frame and having an upper and lower position, means operatively connected to the carriage for raising the same to its upper position, a hopper supported on the frame over the carriage and adapted to supply a bag on the carriage with material when the carriage is in its upper position, a spray system including a spray head disposed in the hopper and a valve having a first position when liquid is directed through the spray head and a second position when liquid is not being directed through the spray head, a lever attached to the valve for moving the valve to its first or second positions, and means operatively connecting said lever to said carriage raising means for actuating the valve to its first position when the carriage is in its upper position and for actuating the valve to its second position as the carriage moves downwardly from its upper position, said carriage raising means including a spring tensioned shaft, said shaft being spring tensioned as the carriage is moved downwardly, and a foot operated brake means engaging said shaft to retain the carriage in its lower position.

4. A dispensing apparatus comprising a frame, a carriage vertically slidably carried by the frame and having an upper and lower position, means operatively connected to the carriage for raising the same to its upper position, a hopper supported on the frame over the carriage and adapted to supply a bag on the carriage with material

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when the carriage is in its upper position, a spray system including a spray head disposed in the hopper and a valve having a first position when liquid is directed through the spray head and a second position when liquid is not being directed through the spray head, a lever attached to the valve for moving the valve to its first or second positions, and means operatively connecting said lever to said carriage raising means for actuating the valve to its first position when the carriage is in its upper position and for actuating the valve to its second position as the carriage moves downwardly from its upper position, said carriage raising means including a spring tensioned shaft, said valve actuating means including a spring raised lever, an arm pivoted to said lever and extending upwardly beyond said shaft, a dog on said arm, a complementary dog on said frame engaging the dog on the arm to retain the lever lowered and a cam on said shaft for riding against said arm to release the dogs whereupon the lever will be raised.

5. A dispensing apparatus comprising a frame, a carriage vertically slidably carried by the frame and having an upper and lower position, means operatively connected to the carriage for raising the same to its upper position, a hopper supported on the frame over the carriage and adapted to supply a bag on the carriage with material when the carriage is in its upper position, a spray system including a spray head disposed in the hopper and a valve having a first position when liquid is directed through the spray head and a second position when liquid is not being directed through the spray head, a lever attached to the valve for moving the valve to its first or second positions, and means operatively connecting said lever to said carriage raising means for actuating the valve to its first position, an agitator in the hopper, an electric motor operatively connected to said agitator and having a switch actuated to circuit opening and closing positions by said valve actuating means.

6. The combination of claim 1, wherein said spray system includes a cylinder having upper and lower ends both of which are connected to said valve, a piston in said cylinder that is urged downwardly as liquid under pressure enters the upper end of said cylinder and which piston is urged upwardly as liquid under pressure enters the lower end of the cylinder, said spray head being in communication with the lower end of said cylinder when the valve is in its first position and when liquid under pressure is directed into the upper end of said cylinder so that as the piston is forced downwardly, liquid in the cylinder under the piston will be forced through the spray head.

7. A dispensing apparatus comprising a frame, a vertically slidable bag holding carriage carried by the frame and having an upper position and a lower position, a hopper supported on the frame over the carriage for delivering material to a bag on the carriage when the latter is in its upper position, a spring tensioned shaft carried by the frame and connected to the carriage for urging the carriage to its upper position, a valve having a first position and a second position, a cylinder having upper and lower ends connected to the valve, a pump operatively connected to the cylinder through the valve, said pump directing a liquid into the upper end of the cylinder through the valve when the valve is in its first position and said pump directing a liquid into the lower end of the cylinder when the valve is in its second position, a spray head in the hopper and connected to the valve to be in communication with the lower end of said cylinder when the valve is in its first position, a piston in the cylinder for directing a liquid in the cylinder under the piston through the valve and spray head when the valve is in its first position, means connected to the valve for moving the valve selectively to its first and second positions, and means operatively connecting said shaft to said last named means for moving said valve to its first position when the carriage is in its upper position and for actuating said

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valve to its second position as the carriage moves downwardly from its upper position.

8. A dispensing apparatus comprising a frame, a vertically slidable bag holding carriage carried by the frame and having an upper position and a lower position, a hopper supported on the frame over the carriage for delivering material to a bag on the carriage when the latter is in its upper position, a spring tensioned shaft carried by the frame and connected to the carriage for urging the carriage to its upper position, a valve having a first position and a second position, a cylinder having upper and lower ends connected to the valve, a pump operatively connected to the cylinder through the valve, said pump directing a liquid into the upper end of the cylinder through the valve when the valve is in its first position and said pump directing a liquid into the lower end of the cylinder when the valve is in its second position, a spray head in the hopper and connected to the valve to be in communication with the lower end of said cylinder when the valve is in its first position, a piston in the cylinder for directing a liquid in the cylinder under the piston through the valve and spray head when the valve is in its first position, and means connected to the valve for moving the valve selectively to its first and second positions, means engaging said valve moving means to retain the valve in its first position, and means carried by the shaft engaging said valve moving means to release the retaining means as the carriage moves downwardly.

9. A dispensing apparatus comprising a frame, a vertically slidable bag holding carriage carried by the frame, and having an upper position and a lower position, a hopper supported on the frame over the carriage for delivering material to a bag on the carriage when the latter is in its upper position, a spring tensioned shaft carried by the frame and connected to the carriage for urging the carriage to its upper position, a valve having a first position and a second position, a cylinder having upper and lower ends connected to the valve, a pump operatively connected to the cylinder through the valve, said pump directing a liquid into the upper end of the cylinder through the valve when the valve is in its first position and said pump directing a liquid into the lower end of the cylinder when the valve is in its second position, a spray head in the hopper and connected to the valve to be in communication with the lower end of said cylinder when the valve is in its first position, a piston in the cylinder for directing a liquid in the cylinder under the piston through the valve and spray head when the valve is in its first position, a vertically swingable lever operatively connected to the valve and having a raised position to move the valve to its second position and a lowered position to move the valve to its first position, spring means urging the lever to its raised position, means retaining the lever in its lower position against action of said spring, and means carried by the shaft releasing said retaining means as the carriage is lowered.

10. A dispensing apparatus comprising a frame, a vertically slidable bag holding carriage carried by the frame, and having an upper position and a lower position, a hopper supported on the frame over the carriage for delivering material to a bag on the carriage when the latter is in its upper position, a spring tensioned shaft carried by the frame and connected to the carriage for urging the carriage to its upper position, a valve having a first position and a second position, a cylinder having upper and lower ends connected to the valve, a pump operatively connected to the cylinder through the valve, said pump directing a liquid into the upper end of the cylinder through the valve when the valve is in its first position and said pump directing a liquid into the lower end of the cylinder when the valve is in its second position, a spray head in the hopper and connected to the valve to be in communication with the lower end of said cylinder when the valve is in its first position, a piston in the cylinder for directing a liquid in the cylinder under the piston

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through the valve and spray head when the valve is in its first position, a vertically swingable lever operatively connected to the valve and having a raised position to move the valve to its second position and a lowered position to move the valve to its first position, spring means urging the lever to its raised position, an upwardly extending arm pivoted to the lever, a dog fixed to said arm, a complementary dog fixed to the frame engaging the dog of the arm when the lever is in its lowered position, and means carried by said shaft engaging the arm, during rotation of the shaft in response to lowering of said carriage, to urge the dog of the arm out of engagement with the dog on the frame, whereupon the lever will be urged by said spring to its raised position.

11. The combination of claim 10 and an agitator in the hopper, an electric motor operatively connected to the agitator and having a switch actuated to circuit opening and closing positions as the arm is selectively raised and lowered with said lever.

12. A dispensing apparatus comprising a frame, a vertically slidable bag holding carriage carried by the frame and having an upper position and a lower position, a hopper supported on the frame over the carriage for delivering material to a bag on the carriage when the latter is in its upper position, a spring tensioned shaft carried by the frame and connected to the carriage for urging the carriage to its upper position, a valve having a first

position and a second position, a cylinder having upper and lower ends connected to the valve, a pump operatively connected to the cylinder through the valve, said pump directing a liquid into the upper end of the cylinder through the valve when the valve is in its first position and said pump directing a liquid into the lower end of the cylinder when the valve is in its second position, a spray head in the hopper and connected to the valve to be in communication with the lower end of said cylinder when the valve is in its first position, a piston in the cylinder for directing a liquid in the cylinder under the piston through the valve and spray head when the valve is in its first position and means connected to the valve for moving the valve selectively to its first and second positions, a rod attached to said piston and extending upwardly through the cylinder, a spring tensioned pulley having a cable thereon attached to the rod, an arm vertically swingably attaching the pulley to the frame, means operatively connecting the arm to the valve moving means to raise the arm when the valve is in its second position and for lowering the arm when the valve is in its first position, and means operatively connecting the pulley to the shaft when the arm is in its lowered position so that the pulley will rotate with the shaft to unwind the cable from the pulley during lowering of the carriage.

No references cited.