H. H. TAYLOR.

HOPPER FOR FILLING CARTONS WITH RAISINS AND SIMILAR ARTICLES OF MERCHANDISE.

APPLICATION FILED FEB. 3, 1919.

1,327,644.

Patented Jan. 13, 1920.

3 SHEETS—SHEET 1.

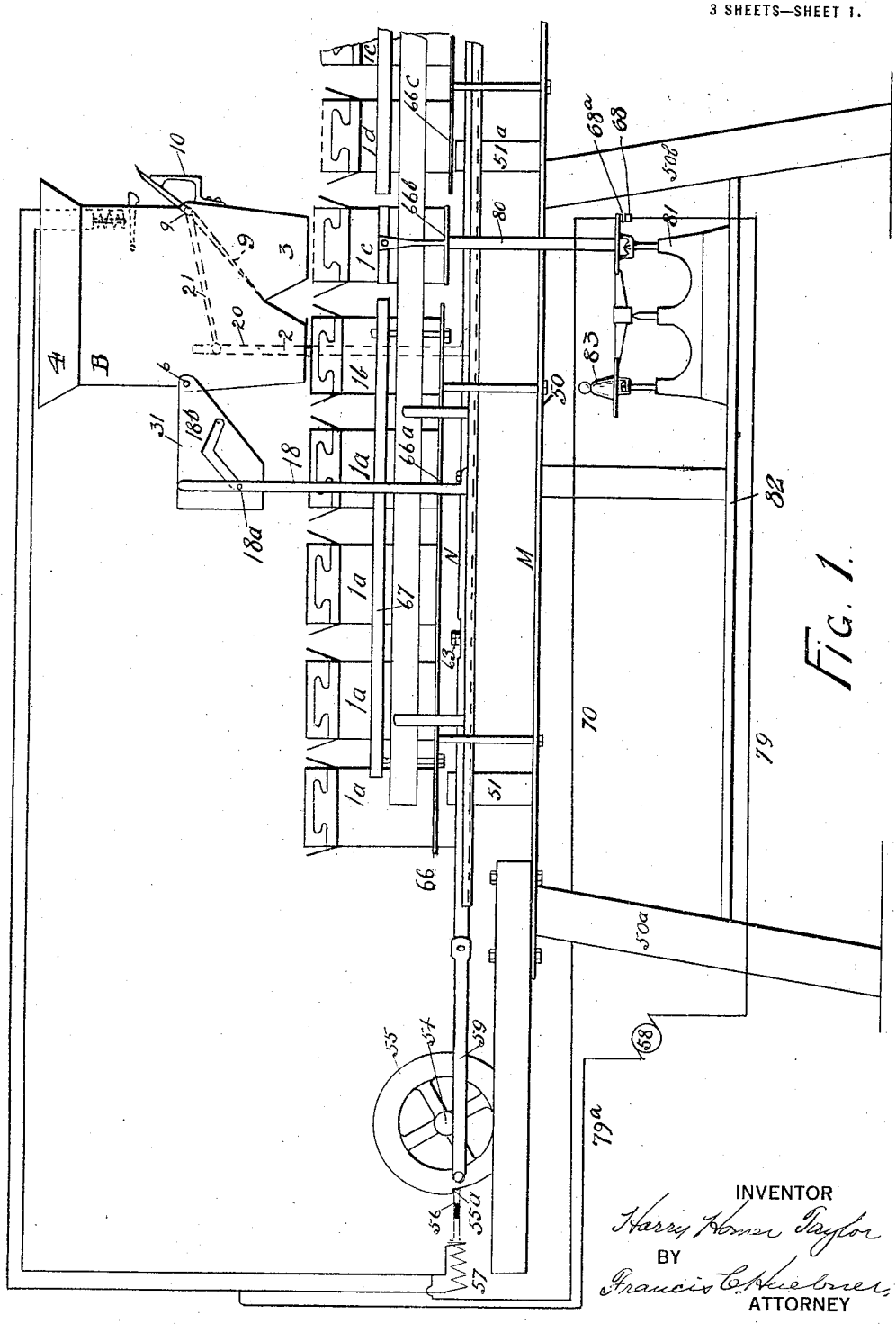

FIG. 1.

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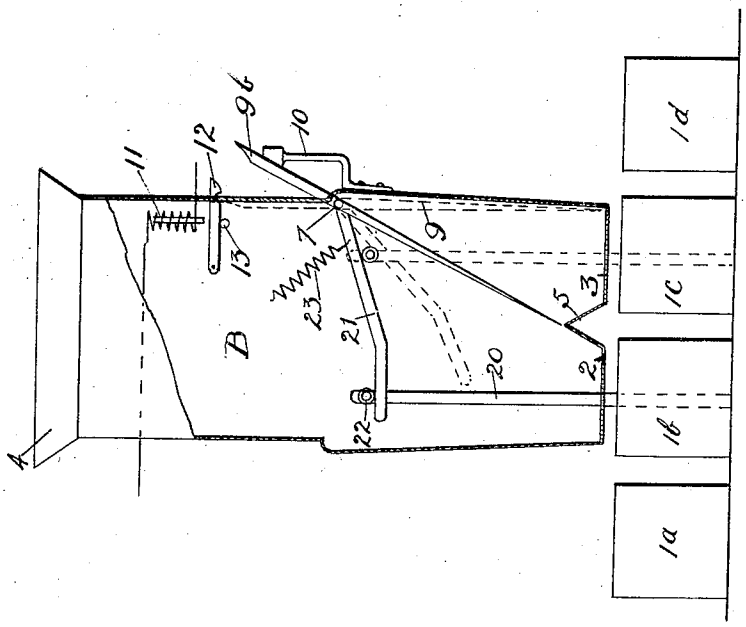

FIG. 3.

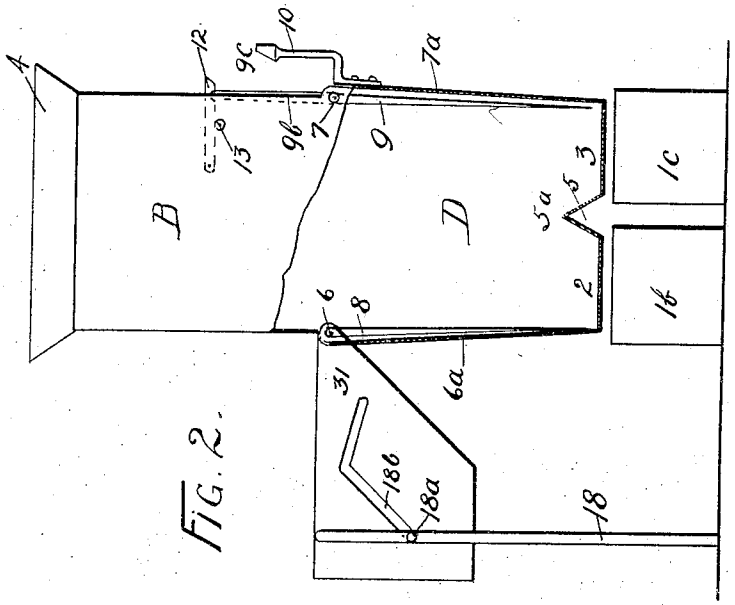

FIG. 2.

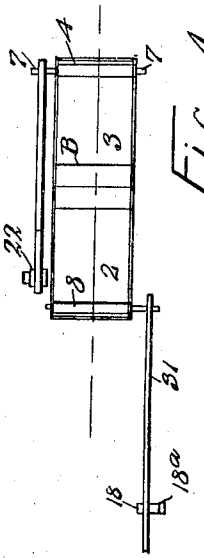

FIG. 4.

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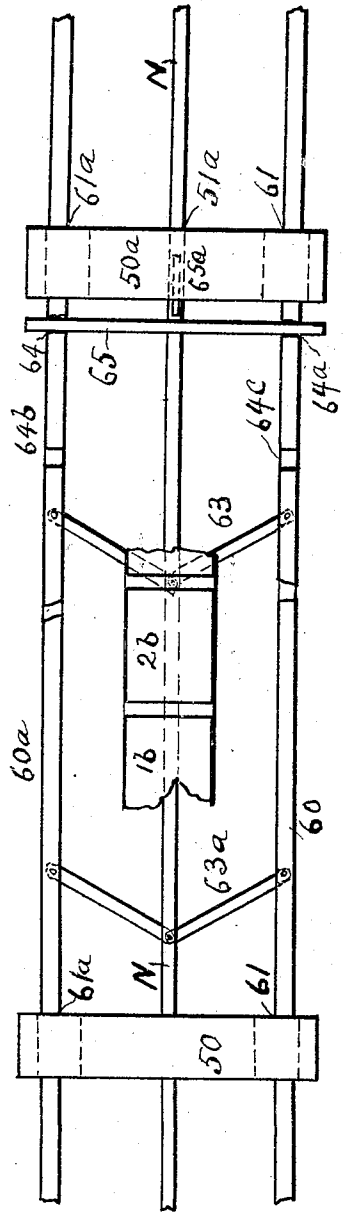

Fig. 5.

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UNITED STATES PATENT OFFICE.

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HOPPER FOR FILLING CARTONS WITH RAISINS AND SIMILAR ARTICLES OF MERCHANDISE.

1,327,644. Specification of Letters Patent. Patented Jan. 13, 1920.

Application filed February 3, 1919. Serial No. 274,784.

To all whom it may concern:

Be it known that I, HARRY HOMER TAYLOR, a citizen of the United States, and a resident of the city of Fresno, in the county of Fresno and State of California, have invented a new and useful Improvement in Hoppers for Filling Cartons with Raisins and Similar Articles of Merchandise, of which the following is a specification.

My invention relates especially to a machine adapted for filling cartons, or packages with a predetermined weight of articles of merchandise, especially such articles as seeded raisins and those having a sticky surface. The primary object of the invention is to provide a hopper which will permit the raisins, or merchandise to flow freely and continuously into cartons directly under the hopper or which may be moving under it.

To facilitate an understanding of the detailed description which follows, it is now stated that three distinct mechanical steps are combined to effect the result desired, to-wit: First, an endless delivery of cartons, automatically and intermittently moved along a track running directly under the hopper.

Second, a hopper having two outlet openings and having shifting fans within the hopper which can be moved to direct the flow of the merchandise from one outlet opening to the other or partly through both.

Third, a scales directly connected with a portion of the track upon which the carton will rest when directly under one of the outlet openings of the hopper, and so arranged that when a predetermined weight is placed in the carton over the scales, it will trip certain described mechanism which will simultaneously shift the entire flow of raisins from the filled carton to the carton next in line, and automatically the cartons will all move one space, the filled carton moving off the scales and the next adjacent carton moving on the scales. Common means for moving the cartons intermittently on the track and for shifting the fans in the hopper may be used. For the purpose of assisting the raisins, or similar merchandise having a sticky surface, to flow freely through the hopper, the raisins should be first processed by heating them to a predetermined degree. I desire to have the fact of record that a patent for this process will be applied for.

In the drawings which accompany this specification, Figure 1 is a side view of the device complete. Fig. 2 is a side view of the hopper with parts thereof in section showing the shifting fans inside, and in a position where both of the outlet openings are directly over cartons and unobstructed. Fig. 3 is a side view of the hopper with parts cut away showing one of the shifting fans in a position to close one of the duplicate outlet openings and shunt the entire flow of merchandise through the other opening. Fig. 4 is a top plan view of the hopper. Fig. 5 is a top plan view of a portion of the device.

In said drawing B is the main hopper which by preference is constructed approximately rectangular in form, having an enlarged opening at the top into which the raisins or merchandise is introduced. The bottom of hopper B is divided into two approximately equal openings, 2 and 3. These openings should be spaced apart, and there should be an upright partition between them for a portion of the distance. I have accomplished this by means of an inverted V partition shown on the drawing as 5. This partition runs from one wall to the opposite wall inside of the hopper. The apex of this partition is designated 5^a. By means of having the partition in this form any merchandise will readily slide off its sides through the openings.

8 is a wing or flap attached at one end to a pivot 6, so that normally it will hang vertically, and parallel with wall 6^a of the hopper. 9 is a wing, or flap attached at one end to pivot 7 so that normally it will hang perpendicularly and parallel with wall of the hopper 7^a. Walls 6^a and 7^a are opposite to each other. In Fig. 3 I have indicated the flap 9 in varying positions. The flaps 8 and 9 are approximately the same width as the inside wall adjacent to them. These flaps are of such length that when they are swung toward the center of the hopper the lower ends will approximately reach apex 5^a. 9^b is an upper extension of flap 9. 10 is a stop placed in the line of travel of 9^b limiting the travel of flap 9 so that the lower end thereof cannot pass beyond the apex 5^a. 12 is a catch pivoted to the hopper in such po-

sition that when the flap 9 is upright, it will be held in that position until the catch 12 is released. The catch 12 is formed of iron or similar metal so that it can be attracted by a magnet. 11 is a solenoid placed directly above catch 12, the object being that when the solenoid is energized as hereinafter explained the catch 12 will be released from engagement with extension 9^b. 13 is an ordinary stop which limits the travel of catch 12.

In said drawing M represents a base which is attached to upright posts or legs 50^a and 50^b. N is the main shaft. 51 and 51^a are bearings attached to the base M through which the main shaft N can slide with a lateral motion. 54 is the main drive shaft through which power is transmitted to operate the mechanism herein described. 55 is an intermittent motion wheel attached to main shaft 54. 55^a is a notch in the periphery of wheel 55. 56 is a dog which normally engages with notch 55^a. 57 is a solenoid which, when energized will withdraw dog 56 from notch 55^a, thus permitting the wheel 55 to make one revolution when it is again engaged by dog 56. 59 is a connecting arm transmitting motion from wheel 55 to the main rod N. 60 and 60^a are rods running parallel with the main shaft N, the ends resting and sliding in bearings 61 and 61^a. These bearings are shaped so that rods 60 and 60^a can have a transverse motion and a lateral motion. 63 and 63^a are two pairs of toggle levers which connect rods 61 and 61^a with the main rod N. 64 and 64^a and 64^b and 64^c are two pairs of notches in rods 60 and 60^a into which the bar 65 will drop when rods 60 and 60^a are at the end of their limit of travel in either direction. 65^a is a raised key on main rod N and is so located that it will run under bar 65, raising it out of notches 64 and 64^a. Bar 65 is attached to the frame M so it can be moved parallel with rods 60 and 60^a and can have a vertical motion. The location of the key 65 on main shaft N is arranged so that when main rod N slides, by means of toggle levers 63 and 63^a it will draw rods 60 and 60^a slightly together before lock bar 65 is tripped so that rods 60 and 60^a can be moved lengthwise, and in the return of said rods 60 and 60^a to the first position described they are farther apart. 66 is a guide directly over main rod N and runs parallel thereto. 67 and 67^a are clamp jaws attached to rods 60 and 60^a and move with them. 1^b 1^c, 1^d and 1^e are cartons arranged to be moved on a guide 66 which is directly over main rod N, runs parallel thereto, and is attached to the main frame M. It will be noted that by the mechanism described the jaws 67 and 67^a will clamp the cartons in the forward movement of rods 60 and 60^a and will release them on the return of said rods to the position where the movement of main rod N is locked with dog 56. The crank pin 55^b on wheel 55 is such distance from the center of said wheel that the rods 60 and 60^a have a movement limited to a predetermined space. The grinding plate 66 consists of three portions which are spaced apart such portions being indicated on the drawings as 66^a 66^b and 66^c. The center portion, 66^b is directly under one opening in the hopper and is attached to a post 80 which rests upon the beam of a scales 81. This scales rests on a shelf 82 which is supported on the legs 50^a and 50^b. The portion of the guide 66^c is on a lower level than the portion 60^a. 83 is a weight on the scales beam opposite to the end supporting post 80. This weight should be predetermined and correspond with the amount of merchandise it is desired to place in the cartons. 58 is a generator.

79 is a wire connecting one pole of generator 58 with a contact point 68 adjacent to the platform of scales 81. 70 is a wire extending to and connecting one pole on each of solenoids 57 and 11, and one end of said wire is grounded to the platform of scales 81 at point 68^a. 79^a is a wire connecting the poles of solenoids 57 and 11 which are not attached to wire 70, and connecting thereto the pole on generator 58 not attached to wire 79. When the platform of the scales is depressed, the platform of the scales will come in contact with circuit point 68, the electrical circuit is completed, and the solenoids 57 and 11 are energized simultaneously, and perform the functions herein explained. When the scales platform arises, the circuit is broken, and the said solenoids are inactive.

18 is an upright post attached to rod 60 and moves with said rod. 31 is a bell crank having a slot 18^b therein. 18^a is a roller attached to post 18 and is movable in slot 18^b. Bell crank 31 is attached to pivot 6, which is attached to wing 8. Slot 18^b is of such shape that it will give the wing 8 the movement hereinafter described. 20 is an upright post attached to rod 60^a. 21 is a cam attached to pivot 7. 23 is a spring which normally holds wing 9 in a position closing opening 3. 22 is a roller on post 20, and as the post 20 moves toward cam 21, roller 22 passes along the top of cam 21 which is cut at such an angle and shape that when post 20 reaches a predetermined point in its travel it will depress cam 21 and open discharge opening 3. When cam 21 is depressed sufficiently to place wing 9 in an upright position, it is locked in such position by catch 12, where it is held against the tension of spring 23 until the carton directly under opening 3 is filled sufficiently to depress the scales, when the electrical circuit is complete, solenoid 11 is thereby ener-

gized, catch 12 is tripped, and spring 23 is released thus closing opening 3 by means of wing 9 and spring 23. It should here be noted that the relative positions of posts 18 and 20, and the shape of bell crank 31, and the shape of cam 21 are such that as carton 1^c, when filled, starts to move from under discharge opening 3, opening 3 is closed by wing 9, and as carton 1^b starts to move toward the position of 1^c, the wing 8 moves toward the apex 5^a at the same rate of speed as the carton 1^b, thus diminishing the size of the opening by the movement of wing 8 toward apex 5^a so that the opening is directly over carton 1^b as it moves forward. As the carton 1^b passes under the opening 3, the wing 9 moves from apex 5^a, enlarging the opening proportionately as carton 1^b passes under opening 3 until it is directly under opening 3, when wing 9 will rest vertically against the wall 7^a of hopper B until carton 1^b is filled and depresses the scales, when the solenoid 11 is again energized, and wing 9 is moved by spring 23 to cut off the flow of merchandise through opening 3, and as wing 8 is operated by bell crank 31 which is operated by post 18, it will be noted that as soon as rods 61 and 61^a have reached their limit of forward travel wing 8 closes discharge opening 2, and as rods 61 and 61^a recede wing 8 also recedes and leaves the flow of merchandise through discharge opening 2 uninterrupted until the next forward movement of the cartons.

I claim as my invention and ask for Letters Patent upon—

1. In a device of the character described the combination of a track adapted to have a plurality of cartons arranged thereon, a generator, a solenoid, a weighing scales, a wire circuit connecting the generator, the solenoid and the scales, and arranged so that when the platform of the scales is depressed the electrical circuit will be completed and the solenoid will be energized, and when the platform resumes its normal position the circuit will be broken and the solenoid will be idle, means connected with the solenoid adapted to move the cartons a predetermined space forward at each impulse of the solenoid, together with a hopper having duplicate outlet openings in line with, and directly over said track, and spaced apart, an inverted V partition between the openings, one of said openings being directly over the scales platform, two wings within the hopper arranged to regulate the size of said openings, and means for automatically moving said wings synchronously with the movement of the cartons so that when a predetermined weight is placed in a carton on the scales, the outlet opening directly above said carton is closed and as the carton moves forward under said openings the wings limit the size of the openings so that the openings are at all times directly over a carton being filled until it contains a predetermined weight, substantially as described.

2. In a device of the character described, a track, a hopper having two outlet openings spaced apart, directly over and in parallel alinement with said track, means for moving cartons along said track with an intermittent motion, each of said cartons being held directly under the first opening in the hopper in line with said moving cartons, and on the next impulse moved forward under the second opening in said hopper, means for timing said intermittent movements by placing a predetermined weight into the carton under said second opening, in combination with two wings within the hopper depending from pivots, and disposed to hang perpendicularly against the inside opposite walls of the hopper and to be swung toward said partition so that the openings can be closed, means for moving one of said wings to a position to cover the second opening when a predetermined weight is placed within the carton directly underneath said opening, and means operable in connection with the movement of the cartons adapted to move said wings to close said openings except that portion directly over the carton moving from opening one to opening two, substantially as described.

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Witnesses:
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BEAKENEY HUGHES.