J. A. & V. O. CAMPBELL.

SYRUPING AND PACKING MACHINE.

APPLICATION FILED JAN. 23, 1917.

1,260,636.

Patented Mar. 26, 1918.

2 SHEETS—SHEET 1.

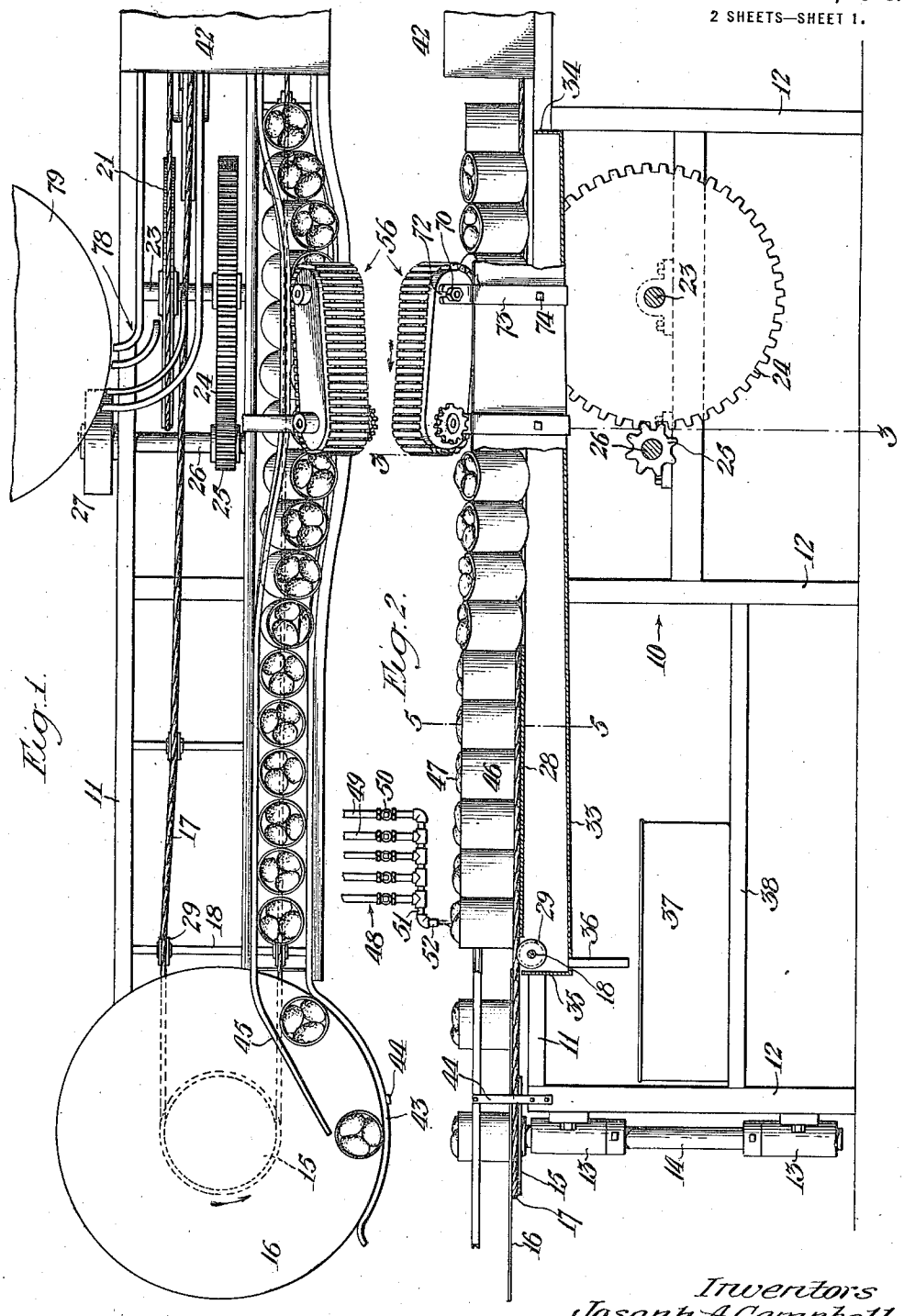


Fig. 1.

Fig. 2.

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Fig. 3.

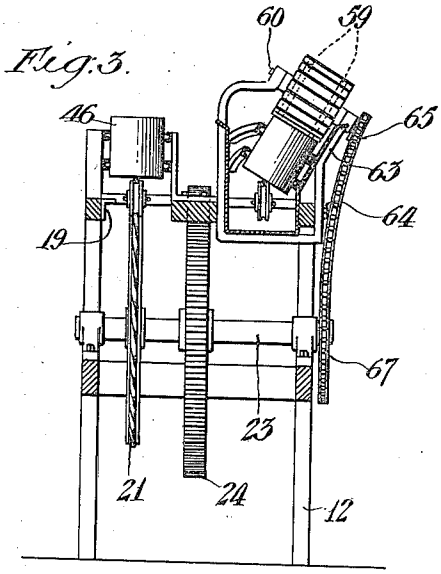


Fig. 7.

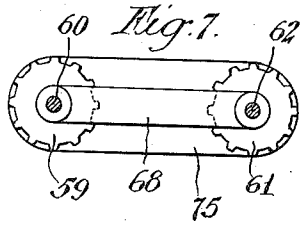


Fig. 4.

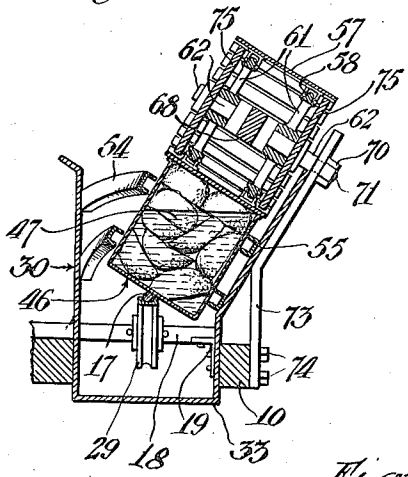


Fig. 5.

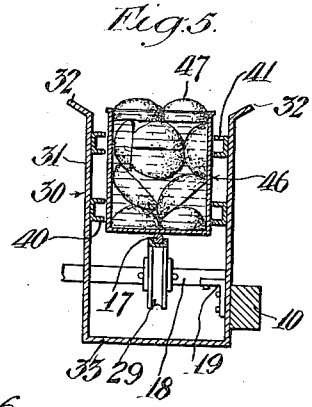
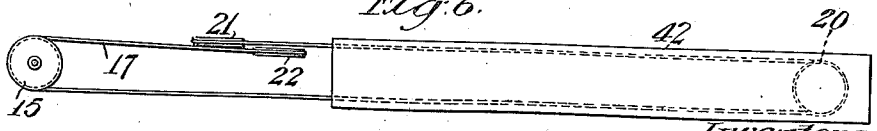


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH A. CAMPBELL, OF ONTARIO, AND VERNON O. CAMPBELL, OF FRESNO, CALIFORNIA, ASSIGNORS TO CALIFORNIA GROWERS ASSOCIATION, OF FRESNO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

SYRUPING AND PACKING MACHINE.

1,260,636. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed January 23, 1917. Serial No. 144,079.

To all whom it may concern:

Be it known that we, JOSEPH A. CAMPBELL and VERNON O. CAMPBELL, both citizens of the United States, the former residing at Ontario, in the county of San Bernardino and State of California, and the latter residing at Fresno, in the county of Fresno and State of California, have invented a new and useful Syruping and Packing Machine, of which the following is a specification.

Our invention relates to the art of canning fruit, relating more particularly to the syruping and packing operation. It is a common practice to pack the fruit in cans by hand, after which a quantity of syrup is added, which is ordinarily done by comparatively complicated machinery for measuring a certain amount of syrup for each can, but such devices are unsatisfactory, as the fruit in the can is not always of exactly the same volume and the fruit being packed by hand in most cases stands above the top of the can, and when the cap is placed thereon by a capping machine, the superfluous juice is splashed from the can over the machinery, not only gumming the machines, but by such operations a considerable amount of syrup is lost.

With our invention the machines may be speeded up to approximately 50% above the capacity of the machines under old methods, which is possible by virtue of the fact that the fruit is placed in the cans by hand, regardless of careful packing, and the cans placed on a conveyer which passes under a syrup delivering device, after which the can is tilted up on the conveyer and at the same time the fruit pressed into the can, and the syrup in the can, above a certain level determined by the degree of tilting of the can, runs out of the cans into a receptacle in which the syrup is collected. After such packing operation the can is righted on the conveyer and passes into a heating chamber preparatory to placing the cap on the can. These operations result in the syrup in each can being at a certain level in the can and the principal objects of our invention are to produce a machine of the class described capable of great capacity and which will attain the advantages above mentioned by simple and economical means.

Referring to the drawings which are for illustrative purposes only:

Figure 1 is a plan view of a portion of a machine showing an embodiment of a form of our invention.

Fig. 2 is a side elevation partly in section of the machine shown in Fig. 1.

Fig. 3 is a vertical sectional view on line 3—3 of Fig. 2.

Fig. 4 is an enlarged sectional view of a portion of the machine showing the can in tilted position.

Fig. 5 is an enlarged cross-sectional view on a line 5—5, Fig. 2.

Fig. 6 is a diagrammatical plan view of the table conveyer.

Fig. 7 is an enlarged sectional elevation of a part of the pressing device.

10 designates a frame or support formed of horizontal members 11 and legs 12. Mounted in bearings 13, secured to the frame 10 in any suitable manner, is a shaft 14, having secured at its upper end a sheave or pulley 15. To the upper face of the sheave is secured a circular plate or disk 16 constituting a feeding table for delivering the cans of fruit into the machine. The sheave 15 and disk 16 are driven by means of a flexible wire cable 17 which constitutes a conveyer for the cans of fruit. The cable 17 passes around the sheave 15 in the direction of the arrow in Fig. 1, and passes over a series of supporting rollers 29 which are freely rotatable on shafts 18 which shafts 18 are fixed to the frame by means of brackets 19. The cable 17, at its outer end, extends around a sheave 20 and on its return run passes around a sheave 21, thence, around an adjustable sheave 22 which sheave 22 serves as a tightening device for taking up any slack in the cable. The cable is driven through the sheave 21 which is mounted on a shaft 23 driven by means of a gear 24 mounted thereon, which in turn is driven by a spur 25 mounted on the shaft 26, which in turn is driven by a pulley 27 from any source of power not shown.

28 designates a channel forming a support for the cable 17 between the rollers under a portion of its length.

30 designates a casing supported in the frame of the machine in any suitable manner having side-walls 31 which terminate at the upper ends in outwardly extending flanges 32 and having an inclined bottom 33 forming a trough under the cans as they travel through a portion of the machine, one end of the trough being partially closed by a wall 34, the other end partially closed by a wall 35; the contents of the trough being delivered through a discharge pipe 36 into a pan or receptacle 37 supported on bars 38 on the frame 10. Secured on the inner sides of the side-walls 31 of the casing 30 are inner and outer tracks or guides 40 and 41 which in the present instance are formed of channel bars, the distance between the inner and outer tracks being sufficient to permit a can in upright position to pass freely therebetween, the tracks serving as guides to keep the cans in proper position while passing through the machine. The tracks 40 and 41 extend into a preheating chamber 42 of any suitable form or construction wherein the cans are heated preparatory to the capping operation. The tracks at the feeding end of the machine extend beyond the front end of the casing 30, the outer track 41 being curved and extending around a portion of the disk 16 as indicated at 43, which extension is supported by means of a bar 44 on the frame of the machine and the inner track 40 extending over the table as indicated at 45 for the purposes hereinafter described.

46 designates a series of cans having fruit 47 therein. Arranged above the cans and over the casing 30 is a syrup delivering device 48 consisting of a series of vertical pipes 49 each having a valve 50, all of the pipes 49 discharging into a discharge pipe 51 one end of which is provided with a downward extension 52 forming a spout for delivering the syrup into the cans.

54 and 55 designate curved portions of the tracks 40 and 41 respectively being arranged to tilt the cans as shown in Figs. 3 and 4 and while the cans are in such tilted positions the fruit which may extend above the top of the cans is pressed or packed into the cans level with the upper face thereof by means of a pressing device 56. The pressing device as shown, consists of a series of articulated wooden slats 57 forming a flexible belt secured on their under face to sprocket chains 58 running over sprockets 59 on a shaft 60 and over sprockets 61 on a shaft 62. The shaft 60 is mounted in a frame 63 which is fixed to the frame of the machine by means of bolts 64 or in any other suitable manner. The sprocket wheels 59 are secured to the shaft 60 which is driven by means of a sprocket wheel 65 secured on shaft 60 driven from a sprocket wheel 67 on the shaft 23. The shaft 62 is supported on a bar or swinging frame 68 which is pivotally mounted on the shaft 60, the shaft 62 being fixed on the bar 68 and the sprocket 61 being freely rotatable on the side shaft 62. The pressing device when adjusted to the proper position with relation to the cans may be secured in such position by means of a nut 70 on the reduced end 71 on a shaft 62 which extends through a slot 72 formed in a bar 73 secured by means of bolts 74 to a part of the frame 10.

75, 75 designate side plates carried on the shafts 60 and 62 for inclosing the sprockets and chains of the pressing device.

The machine operates in the following manner: Fruit having been placed in the cans, the cans are placed on the table 16 and by the rotation of such table are carried between the guides 43 and 45 onto the rope conveyer 17, the table or disk 16 being rotated at the same speed as the rope conveyer. The cans are carried by the conveyer under the syrup delivering device and as they pass thereunder each can receives a quantity of syrup therein. The cans having passed from under the syrup delivering device enter the curved portion of the tracks and are tilted sidewise as clearly illustrated in Figs. 1, 2, 3 and 4, and while in such curved portion of the track, pass under the pressing device the rear end of which is slightly lower than the forward end and flush with the tops of the cans. This pressing device is run at the same speed as the conveyer and as the cans pass thereunder the fruit projecting above the top of the cans is pressed into the cans and at the same time all of the juice in the can above the low top edge of the can runs out of the same between the cleats of the pressing device into the casing 33 which is drained through a pipe 36 into the receptacle 37. The cans passing out of the curved portion of the track are righted into upright position and pass into a preheating chamber 42 where the same are heated and brought out of the preheating chamber by the return run of the conveyer 17 to a point where the curved ends 78 of the tracks 40 and 41 deliver the same to the capping machine diagrammatically designated at 79.

With a machine constructed and operated as above described the syrup in all of the cans has approximately the same level regardless of any variation in the volume of fruit therein which object is attained by the tilting of the cans and the pressing of the fruit therein as above described. Further, economy of syrup is acquired, the necessity of complicated measuring syrup device is done away with, as all of the syrup spilling from the cans is saved, and a maximum

amount of speed is obtained in the canning operation, due to the fact that the final packing of the fruit is done by the machine and the cans may be passed more quickly under the syrup delivering device.

We claim as our invention:

1. In combination, a continuously moving endless cable adapted to convey open cans of fruit thereon, means for delivering syrup to said cans on the cable while said cans are in upright position, means for tilting said cans on the cable and returning said cans to upright position on the cable, and flexible belt means for engaging the open ends of said cans when in tilted position.

2. In combination, a continuously moving conveyer adapted to convey open cans of fruit thereon, means for delivering syrup to said cans on the conveyer while said cans are in upright position, means for tilting said cans on the conveyer, returning said cans to upright position on the conveyer, and means for pressing the fruit into the cans when in said tilted position, said pressing means consisting of a flexible belt adapted to approximately engage the open ends of the cans, means for supporting said belt and means for driving said belt.

3. In combination, a continuously moving conveyer, means for delivering open cans of fruit thereto, tracks for supporting said cans on the conveyer in vertical position, said tracks having a curved portion adapted to tilt the cans during a portion of their travel on the conveyer, means for delivering syrup to the cans in vertical position before entering the curved portion of said tracks, and flexible means for pressing the fruit level with the upper ends of the cans when in tilted position.

4. In combination a continuously moving rope conveyer having a straight run adapted to support open cans of fruit thereon, tracks at each side of said cans arranged to support the cans in vertical position on said conveyer, said cans having curved portions arranged to tilt the cans during a portion of their travel on the conveyer, means for delivering syrup to said cans on the conveyer when in vertical position, and means for pressing the fruit level with the upper ends of the cans when in tilted position, said pressing device consisting of a traveling belt moving substantially at the same speed as the cans.

5. In combination, a continuously moving endless cable, a rotatable table adapted to deliver open cans of fruit to the cable in contact with each other, tracks arranged to support the cans on the cable, extensions on said tracks adapted to guide the cans from the table to the cable, curved portions in said tracks adapted to tilt said cans during a portion of their travel on the cable, means for delivering syrup to the cans before entering the curved portion, and a flexible belt for pressing the fruit level with the tops when in tilted position.

In testimony whereof, we, the said JOSEPH A. CAMPBELL and VERNON O. CAMPBELL have hereunto set our hands this 13th day of January, 1917, at Ontario, California.

JOSEPH A. CAMPBELL.
VERNON O. CAMPBELL.