Sept. 30, 1941. A. MARCHANT 2,257,470

DEVICE FOR CLEANING SWEET CORN

Filed Feb. 21, 1938 4 Sheets-Sheet 1

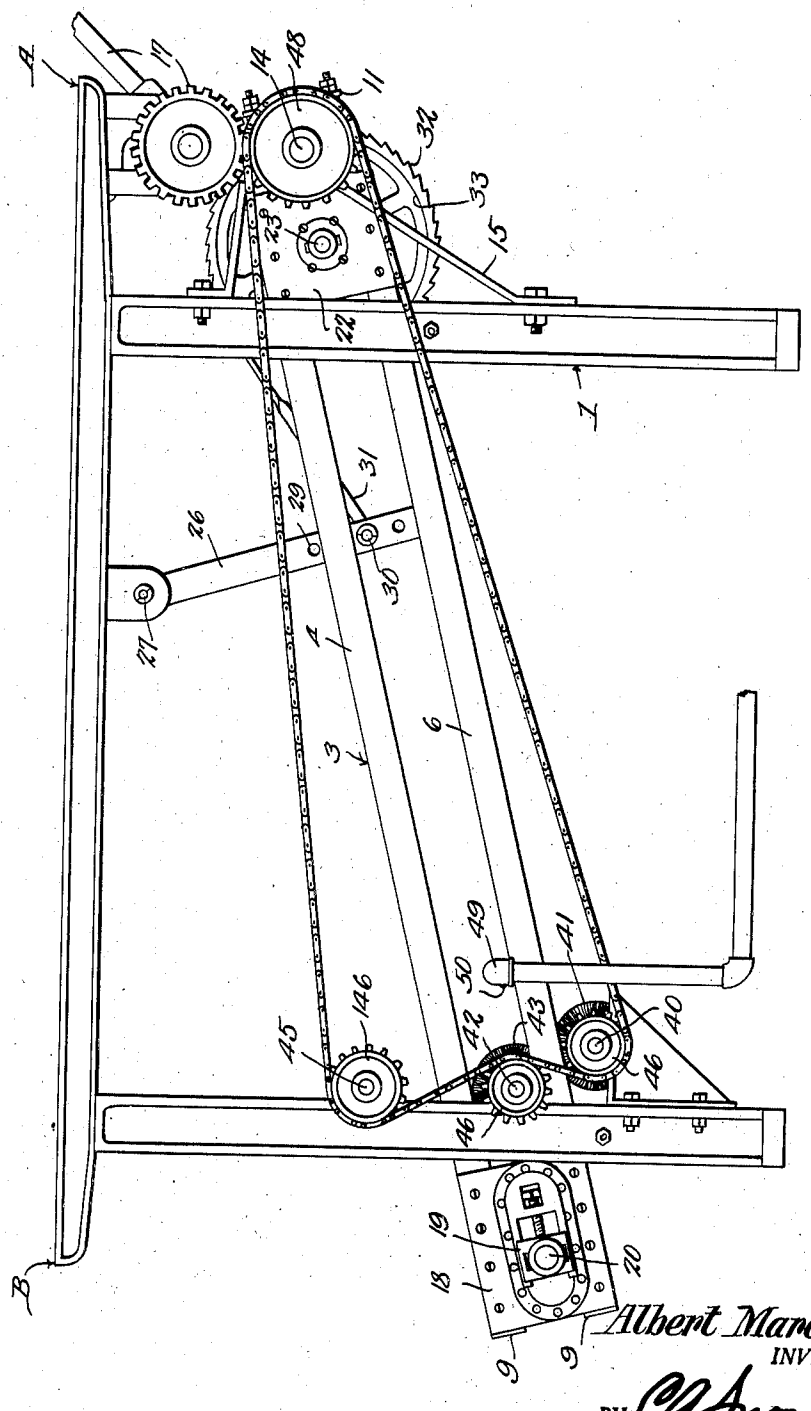


Fig. 1.

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BY C. A. Snow & Co.

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DEVICE FOR CLEANING SWEET CORN

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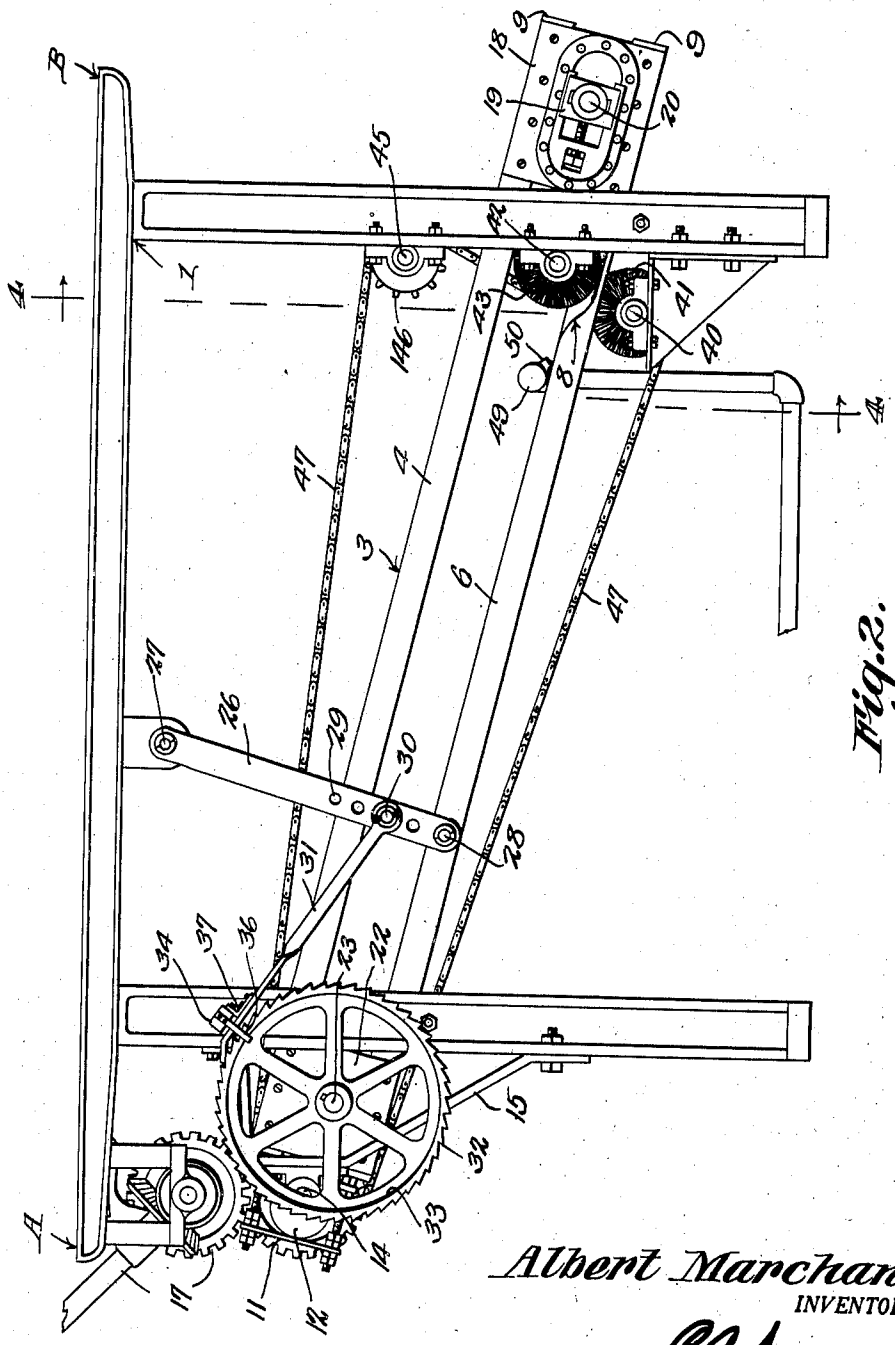


Fig. 2.

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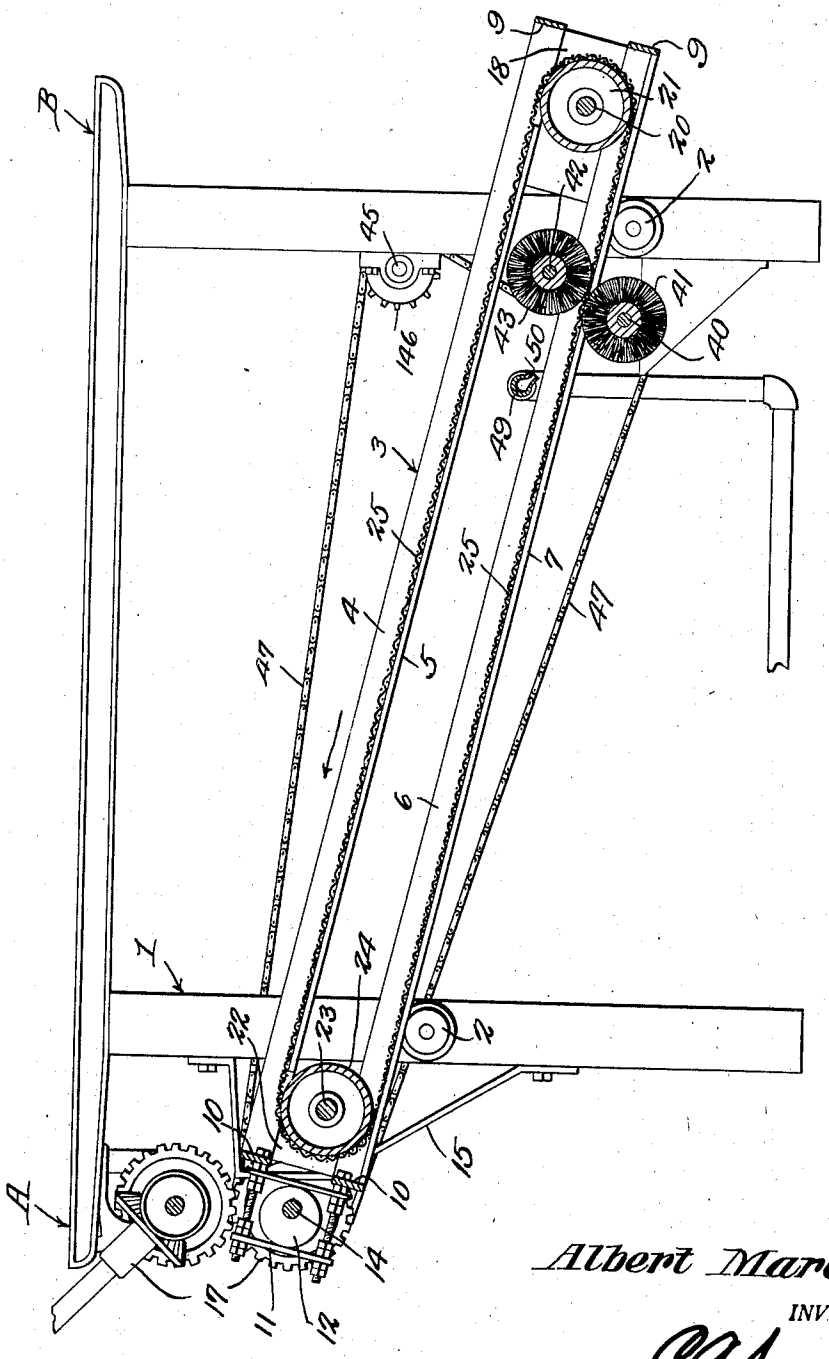


Fig. 3.

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DEVICE FOR CLEANING SWEET CORN

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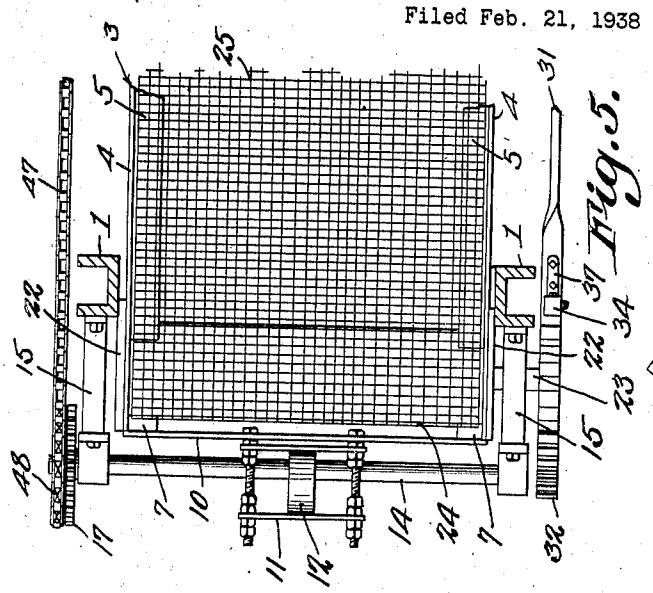


Fig. 5.

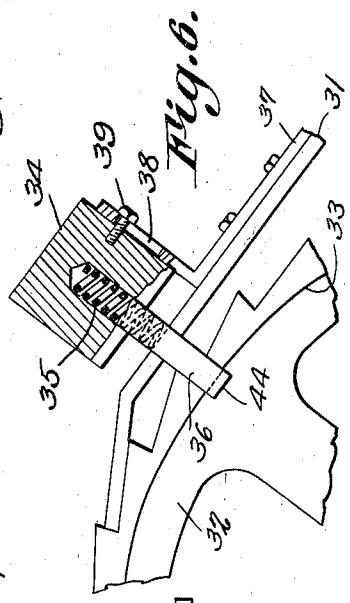


Fig. 6.

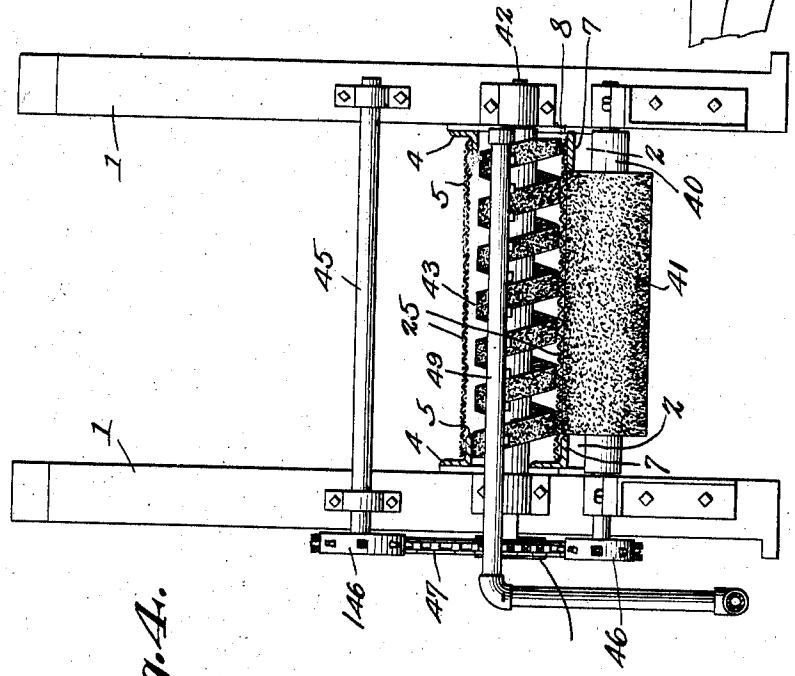


Fig. 4.

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UNITED STATES PATENT OFFICE

2,257,470

DEVICE FOR CLEANING SWEET CORN

Albert Marchant, Storm Lake, Iowa

Application February 21, 1938, Serial No. 191,815

1 Claim. (Cl. 209—114)

This invention aims to provide a simple means for cleaning sweet corn, the construction being such that sweet corn and the cleanings will move in opposite directions, the cleanings being carried by the belt, and novel means being provided for removing cleanings from the belt. The invention aims, further, to provide novel means for imparting step by step movement, slowly, to the belt. A further object of the invention is to provide novel means for operating the instrumentalities which clean the belt.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Fig. 1 shows in side elevation, a device constructed in accordance with the invention;

Fig. 2 is an elevation in which is disclosed the opposite side of the machine from that depicted in Fig. 1;

Fig. 3 is a vertical longitudinal section;

Fig. 4 is an end elevation;

Fig. 5 is a fragmental top plan;

Fig. 6 is a detail of the means for imparting operation to the belt.

In the drawings, the numeral 1 marks a support or main frame of any desired construction. For the purpose of locating relative positions of parts, the front end of the frame 1 has been marked by the letter A, and the rear end by the letter B.

Supporting rollers (Fig. 3) are journaled in widely spaced relation on the main frame 1. On the supporting rollers 2, a shaker frame 3 is mounted for reciprocation at an angle to the horizontal. The shaker frame 3 embodies upper longitudinal bars 4 having inwardly projecting flanges 5, and lower longitudinal bars 6 having inwardly projecting flanges 7. The flanges 7 are the parts that rest immediately on the rollers 2, as shown in Fig. 3. As appears in Fig. 2, the upstanding flange of one of the lower longitudinal bars 6 is cut away to form a side outlet 8, near the lower end of the shaker frame 3. At their rear ends (Fig. 1) the upper bars 4 of the shaker frame 3 are connected by end pieces 9, and the lower bars 6 are connected by similar means. It is shown in Fig. 3 that the forward ends of the upper bars 4 are joined together by end pieces 10, the forward ends of the lower bars 6 being similarly joined.

Any desired number of eccentric-receiving head or strap structures 11 (Figs. 3 and 5) are secured to the forward end pieces 10 of the shaker frame 3. Reciprocation of the shaker frame 3 on the rollers 2 is secured by a corresponding number of eccentrics 12 (Fig. 3) operating within the head 11, but one eccentric and one head being shown. The eccentric 12 is secured to a shaft 14 (Fig. 5) journaled on bearing brackets 15 (Fig. 2) attached to the forward end of the frame 1. Rotation is imparted to the eccentric shaft 14 by a driving mechanism 17 (Figs. 2 and 3), which need not be described in detail because it is of standard construction. The bars 4 and 6 of the shaker frame 3 are connected at the rear end of the machine by first gusset plates 18. A belt tightener 19 operates in the gusset plates 18. A shaft 20 is journaled in the gusset plates 18, and to the shaft a roller 21 (Fig. 3) is secured. Figure 1 shows that the bars 4 and 6 of the shaker frame 3 are connected at the forward end of the machine by second gusset 22. In the gusset plates 22, a shaft 23 is journaled. The shaft 23 carries a roller 24 (Fig. 3). About the rollers 21 and 24 is engaged an endless conveyor belt 25 made of screen material. The upper run of the belt 25 (Fig. 3) rides on the flanges 5 of the bars 4, and the lower run of the screen belt rides on the flanges 7 of the bar 6.

Means is provided for advancing the upper run of the screen belt 25 slowly in the direction of the arrow in Fig. 3. That means embodies a link 26 (Fig. 2) pivoted at 27, at its upper end, to the frame 1. The lower end of the link 26 is pivoted at 28 to one of the lower bars 6 of the shaker frame 3. The link 26 is supplied intermediate its ends with longitudinally spaced openings 29 receiving a pivot element 30 carrying a pawl 31. The pawl 31 cooperates with a ratchet wheel 32 secured to the shaft 23. The ratchet wheel 32 has a lateral rim 33. In Fig. 6 there is shown a block 34 carrying a compression spring 35 which bears on the pawl 31 and constrains it to engage with the ratchet wheel 32. The spring 35 is made operative to exert pressure on the pawl 31, because the block 34 has an arm 36 engaged at 44 beneath the rim 33 of the ratchet wheel 32. The pawl 31 can swing up and down and cooperate with the

teeth of the ratchet wheel 32, since the block 34 carries a headed screw 39 or the like, movable in a slot 38 in an angle bracket 37, secured to the pawl 31.

A lower shaft 40 is journaled on the rear part of the main frame 1. The shaft 40 carries a cylindrical brush 41, shown in Fig. 4. An intermediate shaft 42 is journaled on the rear part of the main frame 1 and carries a spiral brush 43 shown in Fig. 4. The lower run of the screen belt 25 passes between the brushes 41 and 43, in engagement therewith. An upper shaft 45 is journaled on part of the frame 1. There are sprocket wheels 46 on the shafts 40 and 42 and a sprocket wheel 146 on the shaft 45. About the sprocket wheels 46 is engaged a sprocket chain 47 extended lengthwise of the machine. The sprocket chain 47 is engaged with a sprocket wheel 48 on the eccentric shaft 14, as shown in Fig. 2.

A conduit or pipe 49 extends crosswise of the machine, close to but ahead of the brushes 41 and 43, the pipe 49 being disposed between the upper and lower runs of the belt 25. The pipe 49 has nozzles 50 that discharge downwardly and upon the lower run of the screen belt 25, toward the brushes 41 and 43.

The sweet corn, having been separated from the cob and deprived most of its silk, by a known mechanism adapted for that purpose, is deposited on the upper run of the belt 25, near the forward end A of the machine. The machine may be made adaptable to handle whole kernel corn, or corn adapted for cream style canning, by substituting belts 25 having meshes of different sizes. The corn flows downwardly and to the right in Fig. 3 on the upper run of the belt 25 when the shaker frame 3 is reciprocated, and runs off the right hand end of the upper run of the belt 25. Fragments of undesirable material, pieces of silk and the like, adhere to the screen belt 25 and move upwardly with the screen belt, as the screen belt moves slowly in the direction of the arrow A in Fig. 3. The undesirable material, adhering still to the lower run of the screen belt 25, is washed off in part by the nozzles 50 of the pipe 49, but is removed completely by the rotary brushes 43 and 41 of Fig. 3, the spiral brush 43 (Fig. 4) carrying the detached material away, out of the side outlet 8 shown in Fig. 2.

The drives are as follows:

The shaft 14 is rotated by the mechanism shown at 17, and the eccentric 12, cooperating with the head 11, imparts longitudinal reciprocation to the shaker frame 3, the shaker frame moving back and forth at an incline, on the rollers 2 of Fig. 3, to cause the corn to run off the right hand end of the upper run of the belt 25. The upper run of the belt 25 moves very slowly in the direction of the arrow in Fig. 3, under the impulse of the roller 24 on the shaft 23. The shaft 23 gets a slow rotation from the ratchet wheel 32 and pawl 31, by way of the link 26, the link receiving a swinging motion from the shaker frame 3, since the link is pivoted to the shaker frame at 28. The throw of the pawl 31 with respect to the ratchet wheel 32 is regulated by placing the pivot element 30 in any selected one of the openings 29 in the link 26. The brushes 41 and 43 receive rotation from the sprocket chain 47 which, passing over the sprocket wheels 46, is driven by the sprocket wheel 48 on the shaft 23.

The machine is of simple construction, but will be found thoroughly efficient to clean sweet corn for any desired kind of canning.

What is claimed is:

In a corn silking machine, a shaker frame having an opening at one side thereof, an endless conveyer screen carried by said frame and comprising an upper inclined run and a lower return run, means for oscillating said frame and screen to cause kernels of corn deposited on the upper run of the screen to gravitate downwardly thereover, means for driving said screen to cause its upper run to move upwardly and carry adhering silks and waste material therewith, a rotary spiral brush cooperating with the upper surface of the lower run of said screen for brushing adhering material therefrom in a lateral direction and for discharging the same through said opening of said shaker frame, a second rotary brush cooperating with the lower surface of said lower run of the screen for removing foreign matter therefrom and positioned adjacent said spiral brush for cooperation with the same to thereby increase the cleaning action of said brushes, means for rotating said brushes in opposite directions, and means adjacent said brushes and lower run of said screen for discharging liquid downwardly through the screen to assist in cleaning the same.

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