Oct. 2, 1923. 1,469,398

W. L. STREET

AUTOMATIC CAN OPENING MACHINE

Filed April 10, 1922 2 Sheets-Sheet 1

Fig. 1.

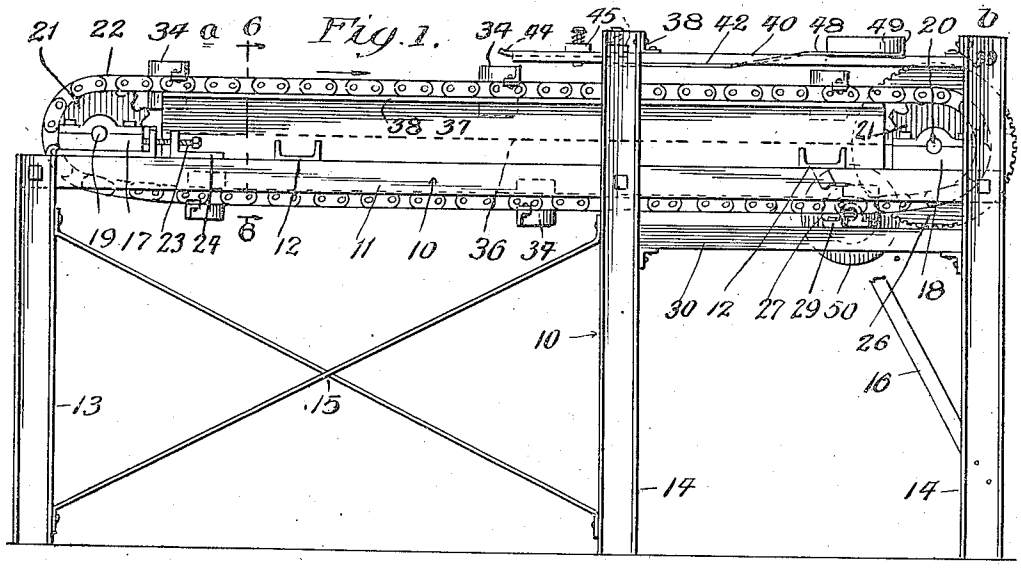
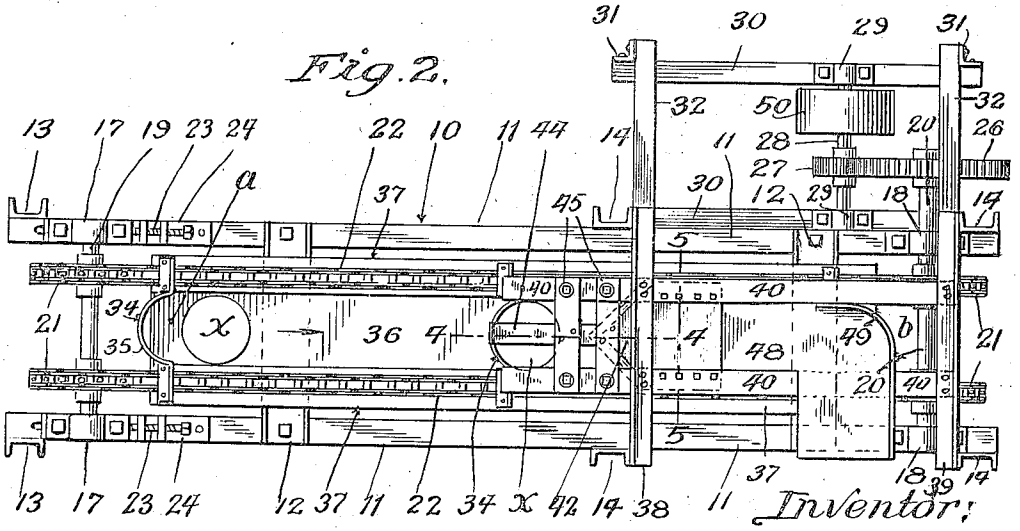


Fig. 2.



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Fig. 3.

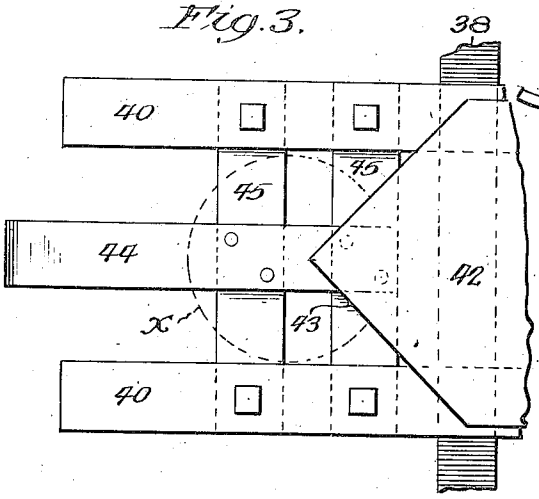


Fig. 4.

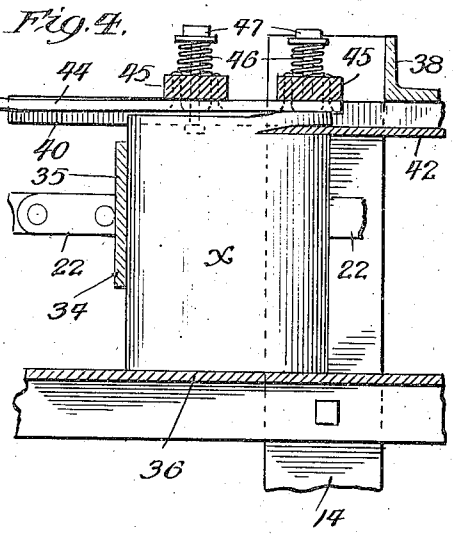


Fig. 5.

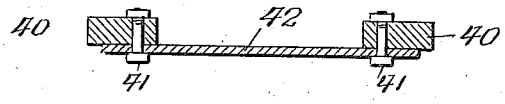
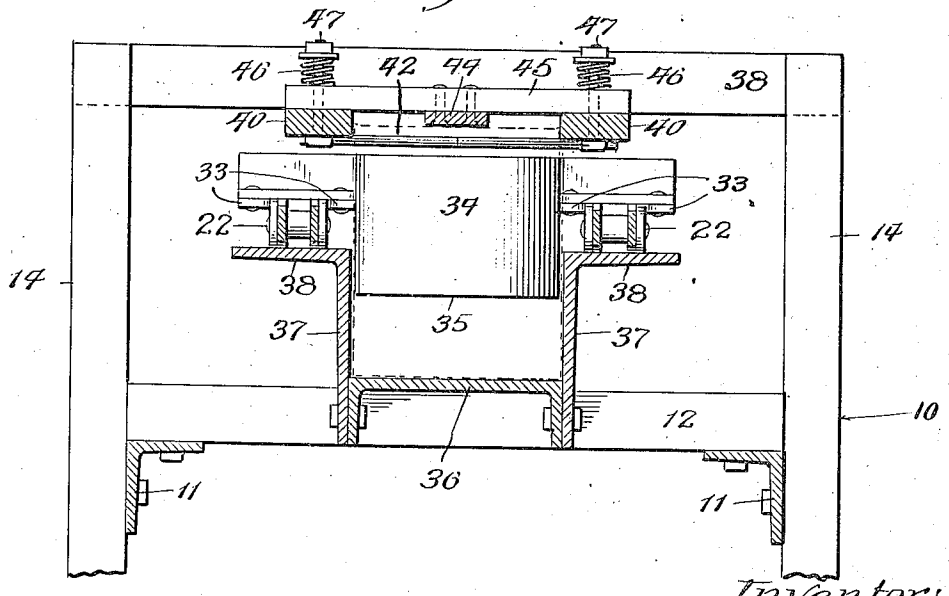


Fig. 6.



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Patented Oct. 2, 1923. 1,469,398

UNITED STATES PATENT OFFICE.

WADE L. STREET, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE T. A. SNIDER PRESERVE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

AUTOMATIC CAN-OPENING MACHINE.

Application filed April 10, 1922. Serial No. 550,969.

To all whom it may concern:

Be it known that I, WADE L. STREET, a citizen of the United States, and a resident of Chicago, Cook County, and State of Illinois, have invented certain new and useful Improvements in Automatic Can-Opening Machines, of which the following is declared to be a full, clear, and exact description.

This invention relates to automatic can opening machines and its principal object is to provide power operated mechanism of strong, substantial and practical construction, for automatically severing the tops or top portions of tin cans from the remainder thereof, whereby the contents may be discharged from the cans.

In many large establishments, great quantities of canned vegetables, fruits and the like are used in certain seasons of the year, particularly when fresh vegetables and fruit are not obtainable, and the task of opening the tin cans, containing the vegetables, fruits, etc., is a laborious and tedious one, requiring the time of several workmen in a plant of any considerable capacity.

With a machine embodying the present invention, the cans are automatically opened, and the contents discharged as quickly as one or two men can feed the cans to the machine. The invention consists in the several novel features hereinafter fully set forth and claimed.

The invention is clearly illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of an automatic can opening machine embodying one form of the present invention; Fig. 2 is a plan thereof; Fig. 3 is a view of the knife mechanism looking at the underside thereof; Fig. 4 is a detail, vertical, longitudinal section taken on line 4—4 of Fig. 2; Fig. 5 is a detail vertical cross section taken on line 5—5 of Fig. 2, and Fig. 6 is a detail, vertical, cross section taken on line 6—6 of Fig. 1.

Referring to said drawings, which illustrate a simple embodiment of the invention, the reference character 10 designates a main frame of strong and substantial construction, upon which the working parts are mounted. Conveniently, the frame may comprise horizontal lengthwise extending frame members 11, horizontal crosswise extending frame members 12, legs 13, 14, and braces 15, 16, all bolted or securely fastened together, to provide a rigid framework.

Journalled in bearing boxes 17, 18, that are secured upon the frame members 11, are two shafts 19, 20, upon which are mounted sprocket wheels 21, that are arranged in pairs, one pair on each shaft, and those on each shaft being in alignment with those on the other shaft, and around the aligned sprocket wheels are trained link belts or sprocket chains 22. The bearing boxes 17 are adjustably mounted and are provided with adjusting screws 23, mounted in brackets 24, whereby they may be adjusted to take up slack in the sprocket chains 22.

The shaft 20 projects beyond the side of the main frame, and is connected to and driven from any suitable source of power, and, as shown, a gear wheel 26 is mounted on the end of the shaft 20, and meshes with a pinion 27 mounted on a pulley shaft 28 which is journalled in bearing boxes 29 secured to frame members 30, the latter being secured to and supported by legs 31, connected to the main frame by frame members 32. Upon the shaft 28 is a belt pulley 50 which may be belted to the drive pulley of a motor or other drive mechanism.

At equidistant places on the sprocket chains 22 certain oppositely disposed links are provided with lugs 33 to which are rigidly secured can propelling heads 34 which extend from one chain to the other. Said can propelling heads 34 may have semi-circular or U shaped portions 35, of such size and shape as to fit partly around a tin can, X, of a given size. The chains 22 and heads 34 provide an endless can conveyer, of strong and substantial construction, capable of positively propelling the cans past the can opening knife mechanism, which will be presently described. A table or platform 36 supported by the members 12 of the framework 10 extends between the shafts 19, 20, at a suitable distance below the upper bights of the conveyer chains 22, and receives and supports the tin cans, X, while they are being moved from the receiving end of the machine (lettered *a*) to the discharge end (lettered *b*). Chain supporting and guiding rails 37 are secured to the table and have flanges 38 (see Fig. 6) that underlie the upper bights of the chains and carry the weight thereof. They also act to guide the chains to move in a horizontal plane parallel with

the table. The table 36 and rails 37 form a trough through which the cans are propelled by the conveyer chains.

The legs 14 extend up above the upper bights of the chains and support the can opening knife mechanism. Secured to and connecting the upper ends of the opposing legs 14 are cross frame members 38, 39, and secured to the latter are two horizontal knife carrying bars 40 that extend lengthwise of the machine. Removably secured to said knife carrying bars 40 as by bolts and nuts or screws 41, (see Fig. 5) is a knife blade 42 which extends in a horizontal direction, across and above the top of the trough, and in a plane slightly below the tops or upper ends of the cans to be operated on. The forward or cutting edge 43 of the knife blade 42 is preferably made V shaped and said edge is beveled and sharpened.

The knife carrying bars 40 project beyond the cutting edges of the knife blade 42 and support a pressure bar 44, which overlies the trough immediately in front of the knife blade and prevents the cans from being tilted back when they encounter the knife blade. The pressure bar 44 is capable of yielding slightly in an upward direction to accommodate slight inequalities in the bights of the cans. It is secured to and supported by two cross bars 45 (see Figs. 6, 3 and 4) which rest on the knife bars 40. Coiled compression springs 46 confined between the upper faces of the bars 45 and heads of bolts 47 that are secured to the knife bars 40 and extend through the bars 45, act to hold the pressure bar 44 down upon the cans, while passing thereunder, whereby they are prevented from being tilted when encountering the knife blade 42.

Beyond the knife blade 42 is a cover receiving chute or guide 48, which leads off to one side of the machine and has a vertical flange 49 for guiding the severed tops of the cans to one side of the machine where they fall into a suitable receptacle. The chute or guide 48 is secured to the bars 40 in any suitable manner.

In the operation of the machine, the conveyer is propelled in the direction of the arrows in Figs. 1 and 2. An attendant places the filled cans on the table 36 at the receiving end, *a*, one can only being placed in front of each can propelling head 34. When the head engages the can, it moves it forward toward the knife blade 42 and, as it encounters it, the pointed end of the blade penetrates the wall of the can adjacent its upper end, as seen in Fig. 4, and severs the top portion from the remainder of the can, said severed portion passing over the knife blade, and remaining in a position where the following severed top will engage it and move it upon the chute 48 from which it will finally be discharged. The opened can is propelled under the knife blade and chute and is discharged from the machine at the discharge end, *b*, as the conveyer passes over the sprocket wheels 21. Conveniently, the can is discharged into a receptacle or chute (not shown) located at the discharge end of the machine, and having a wire mesh screen at its upper end upon which the cans fall, when discharged from the machine. The contents pass through the screen into the receptacle or chute, and an attendant removed the empty cans.

The machine is automatic in operation, is positive in action, separates the tops from the can bodies and requires practically no attention. Two attendants, one for feeding the cans to the machine, and one for removing the empty cans, are able to handle a great number of cans which it would otherwise require many other workmen to do the same amount of work.

More or less variation of the exact details of construction is possible without departing from the spirit of this invention; I desire, therefore, not to limit myself to the exact form of the construction shown and described, but intend in the following claims to point out all of the invention disclosed herein.

I claim as new and desire to secure by Letters Patent:

1. A can opening machine comprising, a table, a can deheading knife blade parallel with said table and stationarily supported thereabove, said blade being unobstructed from front to back, and can propelling mechanism for moving filled cans along said table and past said knife blade, the latter being placed in position to be encountered by the upper ends of the cans.

2. A can opening machine comprising, traveling can propelling mechanism and a can deheading knife blade parallel with said conveying mechanism and stationarily mounted along the path of movement of said can propelling mechanism in position to be encountered by the upper ends of the cans.

3. A can opening machine comprising, traveling can propelling mechanism, a can deheading knife blade parallel with said conveying mechanism and stationarily mounted along the path of movement of said can conveyer in position to be encountered by the upper ends of the cans, and a spring pressed pressure bar for engaging the tops of the cans, and located in advance of the knife blade.

4. A can opening machine comprising, traveling can propelling mechanism, a can deheading knife blade parallel with said conveying mechanism and stationarily mounted along the path of movement of said can conveyer in position to be encountered

by the upper ends of the cans, a spring pressed pressure bar for engaging the tops of the cans, and located in advance of the knife blade, and a chute for receiving the severed can ends located behind the knife blade.

5. A can opening machine, comprising, a table, an endless power driven can conveyer, traveling over said table, and a can deheading knife blade, parallel with said table and stationarily supported thereabove in unobstructed condition from front to back, in position to be encountered by the upper ends of cans propelled by the can conveyer.

6. A can opening machine comprising, a table, an endless power driven can conveyer, traveling over said table, a can deheading knife blade, parallel with said table and stationarily supported thereabove in position to be encountered by the upper ends of cans propelled by the can conveyer, and a spring pressed pressure bar for engaging the tops of the cans and located in advance of the knife blade.

7. A can opening machine comprising, a table, an endless power driven can conveyer, traveling over said table, a can deheading knife blade, parallel with said table and stationarily supported thereabove in position to be encountered by the upper ends of cans propelled by the can conveyer, a spring pressed pressure bar for engaging the tops of the cans, and located in advance of the knife blade, and a chute for receiving the severed can ends located behind the knife blade.

8. A can opening machine comprising, a table, a shaft at each end of said table, one of which is power driven, a pair of sprocket wheels on each shaft, sprocket chains trained around opposite the sprocket wheels on said shafts, can propelling heads secured to and connecting said sprocket chains, and a knife blade, parallel with said table, stationarily supported therebove in position to be encountered by the upper ends of said cans, when propelled by said heads.

9. A can opening machine comprising, a table, chain supporting rails at the sides thereof, and forming therewith, a trough, a shaft at each end of said table, one of which is power driven, a pair of sprocket wheels on each shaft, sprocket chains trained around opposite the sprocket wheels on said shafts, and supported in part by said rails, can propelling heads secured to and connecting said sprocket chains, and a knife blade, parallel with said table, stationarily supported thereabove in position to be encountered by the uper ends of said cans, when propelled by said heads.

10. A can opening machine comprising, a framework, a table supported thereon, an endless can conveyer traveling over said table, knife supporting bars mounted on said frame work, a can deheading knife blade parallel with said table and secured to said bars in position to be encountered by the upper ends of the cans when propelled by said can conveyer, and a spring pressed pressure bar carried by said knife supporting bars in advance of said knife blade.

WADE L. STREET.