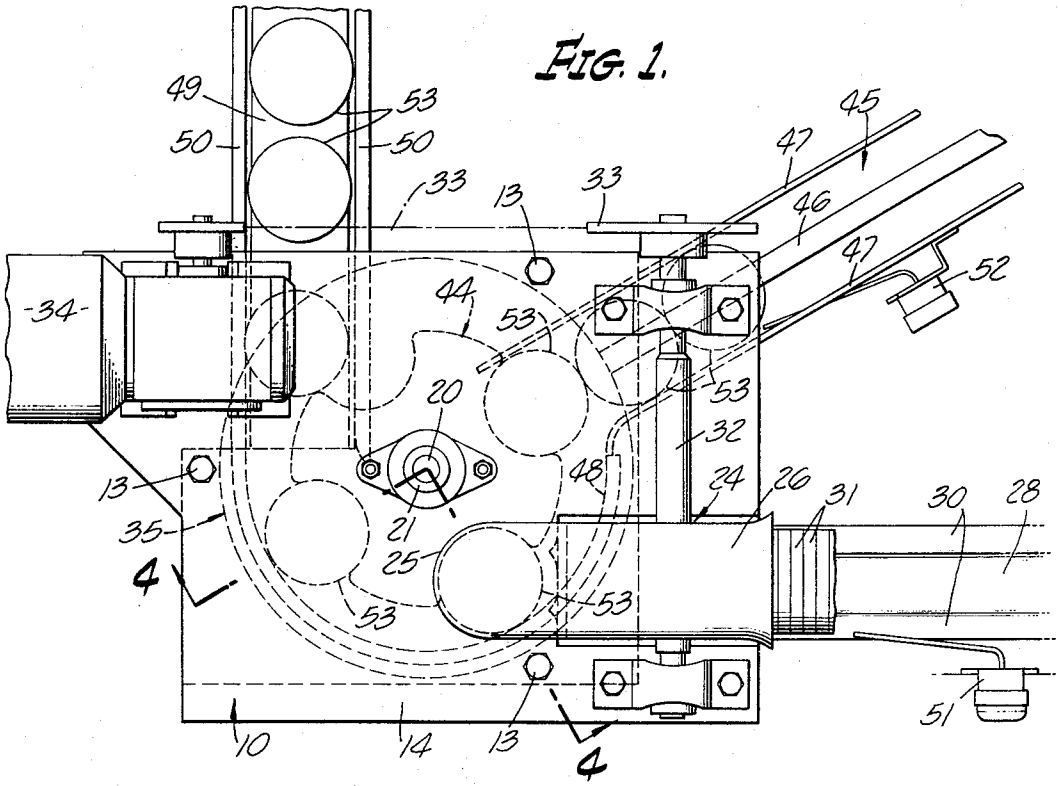
April 14, 1970 MASATO TSUTSUMI 3,505,777

CAN LOADER

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FIG. 1.



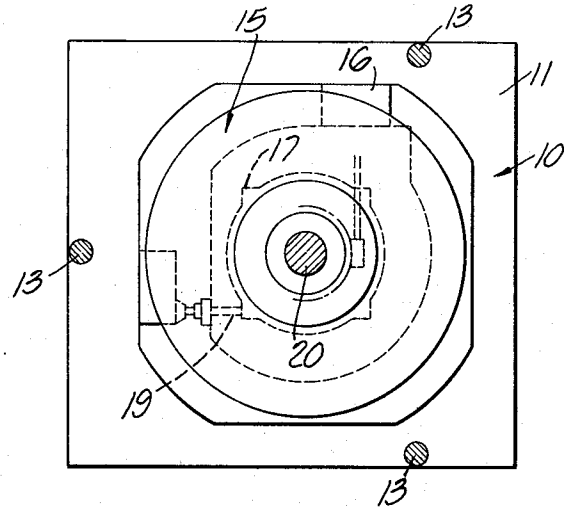




FIG. 2.

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CAN LOADER

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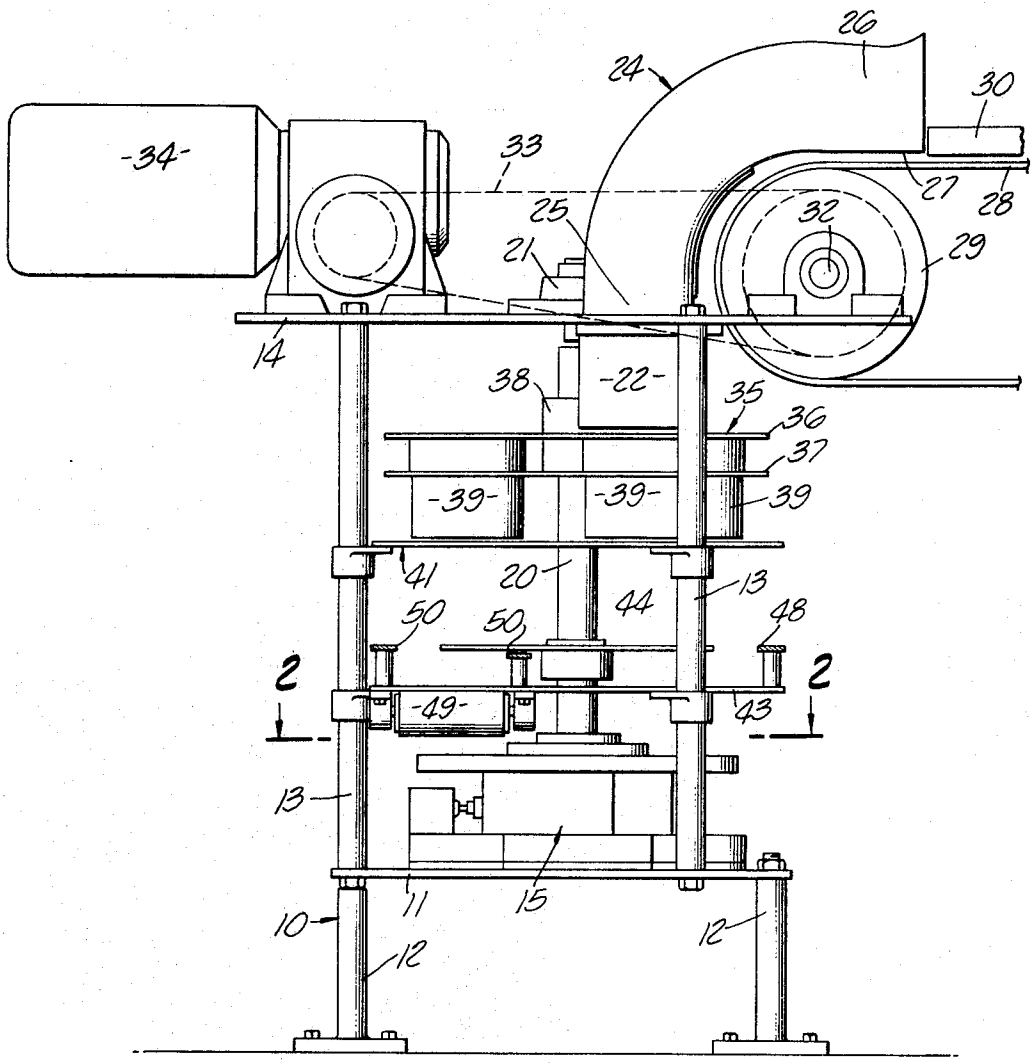



FIG. 3.

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April 14, 1970 MASATO TSUTSUMI 3,505,777

CAN LOADER

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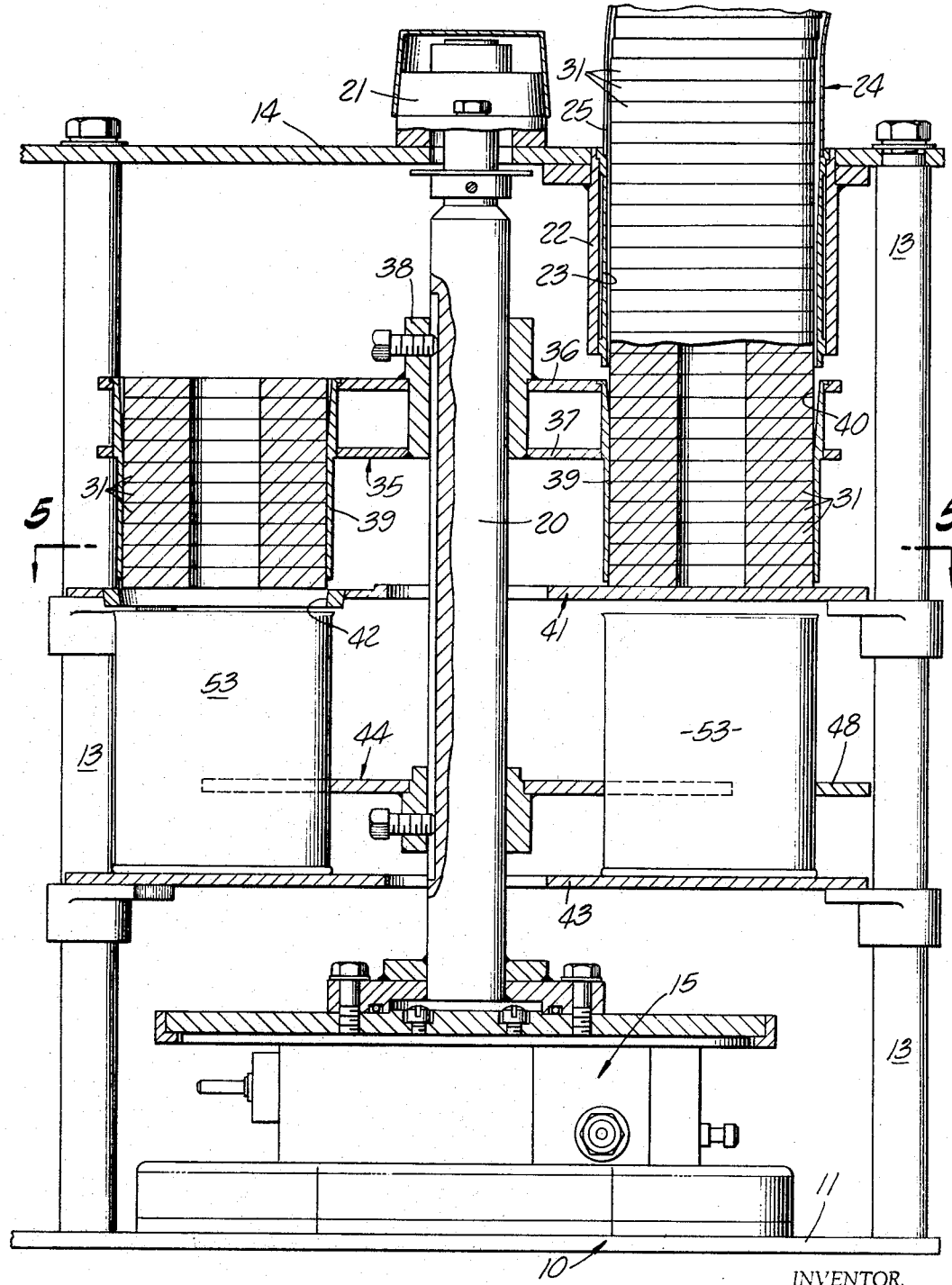



FIG. 4.

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CAN LOADER

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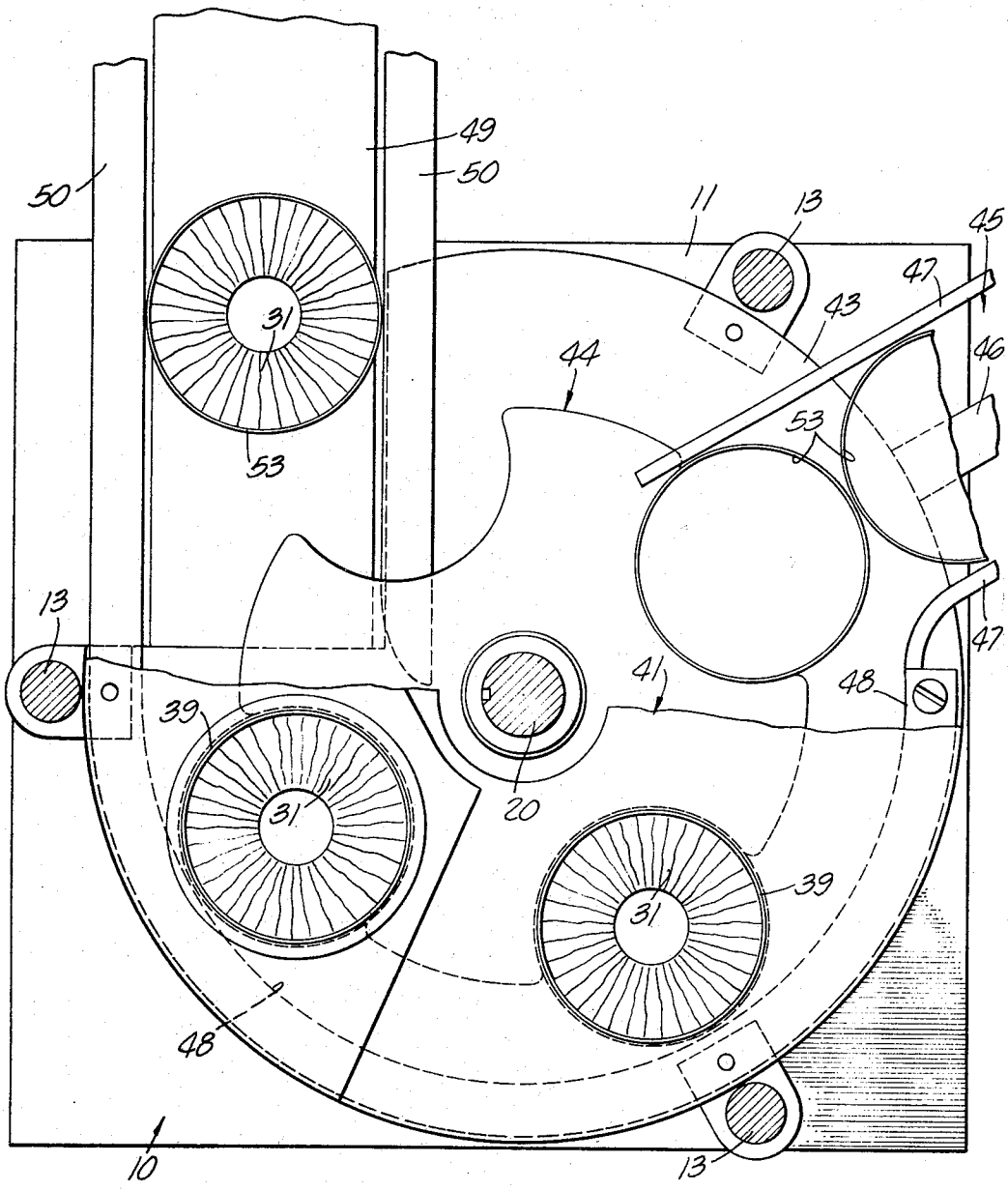



FIG. 5.

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United States Patent Office 3,505,777 Patented Apr. 14, 1970



3,505,777

# CAN LOADER

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Filed June 1, 1967, Ser. No. 642,918
Int. Cl. B65b 35/32, 5/10, 33/06
U.S. Cl. 53—168 1 Claim

## ABSTRACT OF THE DISCLOSURE

A machine particularly intended to load pineapple slices into cans wherein a right angle tube receives pineapple slices sharing a horizontal axis and guides the slices through a 90° arc until they share a vertical axis. A gage sleeve and plate then transfers a preselected stack of pineapple slices to a dispensing aperture through which they fall by gravity into a can.

## BACKGROUND OF THE INVENTION

A search of the prior art has developed the following patents: Hoyt, 1,565,648; Taylor, 2,034,160; Peters, 2,672,991; De Back et al., 2,765,829; McFaull, Jr., 2,856,097; Bainbridge et al., 3,151,644; and Farmer, 3,244,209.

## SUMMARY

This invention is directed to can loaders, more particularly to machine for loading sliced pineapple into a can.

A primary object of the invention is to cause the transfer of a row of pineapple slices defining a common horizontal axis into a column of slices defining a vertical axis; the slices being received in a measuring sleeve and then transported for deposit in a can.

A further object of this invention is to provide a machine utilizing a simple guide tube defining a 90° arc which insures a smooth transition of each slice through a 90° arc without damage thereto.

A still further object is to provide on the whole a novelly arranged machine which facilitates previous inspection of the sliced pineapple.

## DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a fragmentary plan view of the pineapple loader.

FIGURE 2 is a sectional view thereof taken through 2—2 of FIGURE 3.

FIGURE 3 is a side view thereof with the pineapple supplying conveyor shown fragmentarily.

FIGURE 4 is an enlarged sectional view taken through 4—4 of FIGURE 1.

FIGURE 5 is an enlarged sectional view taken through 5—5 of FIGURE 4.

## SPECIFICATION

The can loader includes a base frame **10** comprising a base plate **11** and posts **12**. Other posts **13** extend upwardly from the base plate **11** and support a top plate **14**.

An indexing table **15** is mounted on the base plate **11** and includes a drive unit **16** which intermittently turns an indexing member **17** the positions of which are determined by stop faces engaged by a reciprocable stop pin **19**. The indexing table is conventional. A shaft **20** extends upwardly from the indexing table through the top plate **14** and its upper end is guided by a top bearing **21**.

Depending from the top plate **14** is a vertical guide tube **22** having a liner **23** therein which is interchangeable to accommodate pineapple slices of different diameter.



Supported by the top plate **14** is an elbow tube **24** having a vertical discharge end **25** disposed in alignment with the liner **23** and a horizontally extending entrance end **26**. The underside of the entrance end is slotted as indicated by **27** to clear the discharge end of a conveyor belt **28** and its pulley **29**. The conveyor belt is provided with side supports **30** so as to support pineapple slices **31** in mutual contacting relation and defining a horizontal axis.

The conveyor pulley **29** is mounted on a shaft **32** which is rotated by a drive unit **33** such as a pulley or chain drive unit. The drive unit in turn is operated by a motor **34**.

Mounted under the top plate **14** is a turntable **35** comprising an upper plate **36** and a lower plate **37** connected to a common hub **38** which in turn is secured to the vertical shaft **20**. The turntable is provided with a set of sleeves **39** open at their upper and lower ends and axially dimensioned to receive a predetermined number of pineapple slices **31**. Each sleeve is adapted to be indexed into alignment with the liner **23** so that pineapple slices may be discharged from the liner **23** into the corresponding sleeve **39**. The upper end of each sleeve is provided with a tapered entrance **40**.

A gage plate **41** is supported immediately under the sleeves **39** from the post **13**. The gage plate is provided with a discharge aperture **42**.

Supported from the post **13** below the gage plate **41** is a can supporting plate **43** and, supported from the shaft **20** between the plates **41** and **43**, is a can advancing wheel **44**. Extending radially toward the can supporting plate **43** is a can supply means **45** having a bottom rail **46** and side rails **47**.

Extending arcuately from one of the side rails **47** is a semicircular retainer rail **48** which is concentric with the axis of the shaft **20**. The can supporting plate **43** is notched to receive a tangential can discharge belt **49** bordered by a pair of side rails **50** one of which it tangential to the retainer rail **48**.

A sensing switch **51** is disposed above the conveyor belt **28** to sense the presence of pineapple slices at the discharge end of the conveyor belt. Similarly, a can sensing switch **52** is provided at the end of the can supply means **45** preceding the can supporting plate **43**.

Operation of the can loader is as follows: Pineapple slices are sorted and placed in contiguous relation on the conveyor belt **28**. The pineapple slices though free of excess pineapple juice, have sufficiently wet surfaces that they stick to each other so that they are readily maintained as a unit and when on the conveyor define a horizontal axis. The pineapple slices on entering the elbow tube **24** tend to separate at the radially outer sides but upon reaching the vertical discharge end of the elbow tube are rejoined and tend to adhere to each other in a vertical column, filling the liner **23** and resting on the gage plate **41**, when a sleeve **39** is in alignment with the liner, or on the top plate **36**, when the sleeves **39** are out of registry.

When the turntable **35** is indexed from the position shown at the right hand side of FIGURE 4 to the position at the left hand side thereof, the stack of pineapple slices in the liner remains fixed while the selected slices contained in the sleeve **39** move laterally from under the liner. When the next sleeve aligns with the liner, the vertical stack of pineapple slices drops from the surface of the plate **36** to the surface of the gage plate **41**. Simultaneously with this operation, the preceding sleeve **39** brings its contents of pineapple slices into alignment with the discharge aperture **42**.

Operating in synchronism with the movement of the pineapple slices, the can advancing wheel **44** brings cans **53** in sequence under the discharge aperture **42**, so that

the contents of the corresponding sleeve is deposited in the can. Thereafter, the loaded cans are moved on to the discharge belt **49**.

The adhesiveness of the pineapple juice causes the group of pineapple slices contained in the liner **23** and later contained in the sleeves **39** to act in each case as a unit, so that no tumbling or separation of the slices occurs. The sensing switches **51** and **52** are electrically connected in a conventional manner to the indexing table to stop the operation if the supply of pineapple slices or cans is depleted.

Having fully described my invention, it is to be understood that I am not to be limited to the details herein set forth, but that my invention is of the full scope of the appended claim.

I claim:

**1.** An apparaus for loading sliced pineapple into cans, comprising: a frame structure including a top plate, a gage plate and a can supporting plate; an indexing means including a pineapple transporting disk above said gage plate and a can advancing disk above said can supporting plate; an elbow tube having a vertical lower end mounted in and extending below said top plate and a horizontal upper end extending laterally with respect to said top plate; means for feeding pineapple slices along a horizontal axis into the upper end of said elbow tube for movement therethrough into a vertical column; said gage plate positioned to support said column and having a discharge aperture offset from said column; said pineapple transporting disk including a ring of sleeves movable in sequence into registry with said column to permit said column to descend to said gage plate, said sleeves being vertically dimensioned to select a predetermined number of pineapple slices for transport from said column to said aperture; and means for feeding cans to said advancing disk for movement thereby into registry with said aperture to receive said selected pineapple slices.




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U.S. Cl. X.R.

53—160, 247, 253; 93—93; 146—6