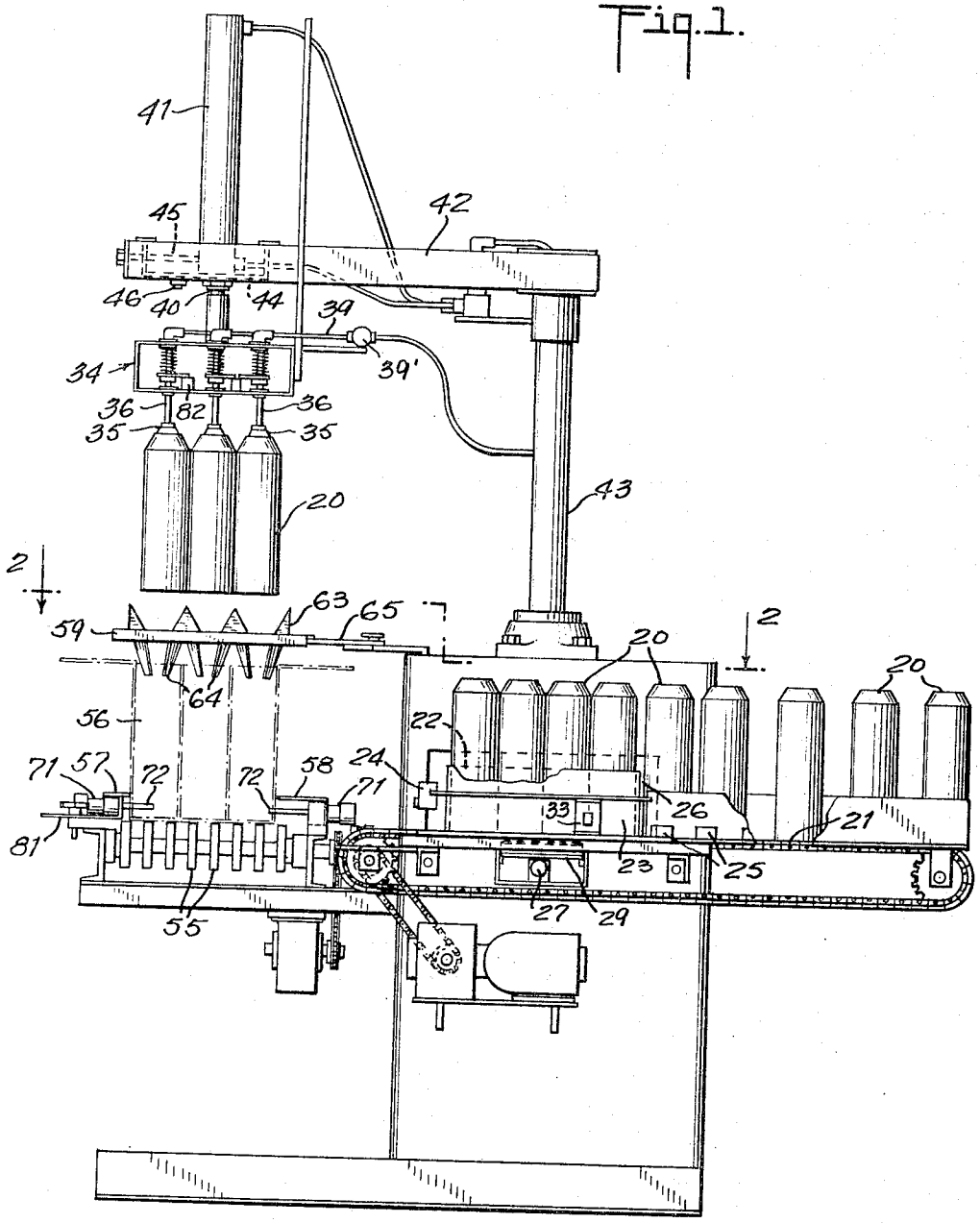
June 27, 1967 T. L. CARTER 3,327,450

CASE PACKER

Filed Aug. 12, 1964 7 Sheets-Sheet 1

Fig. 1.



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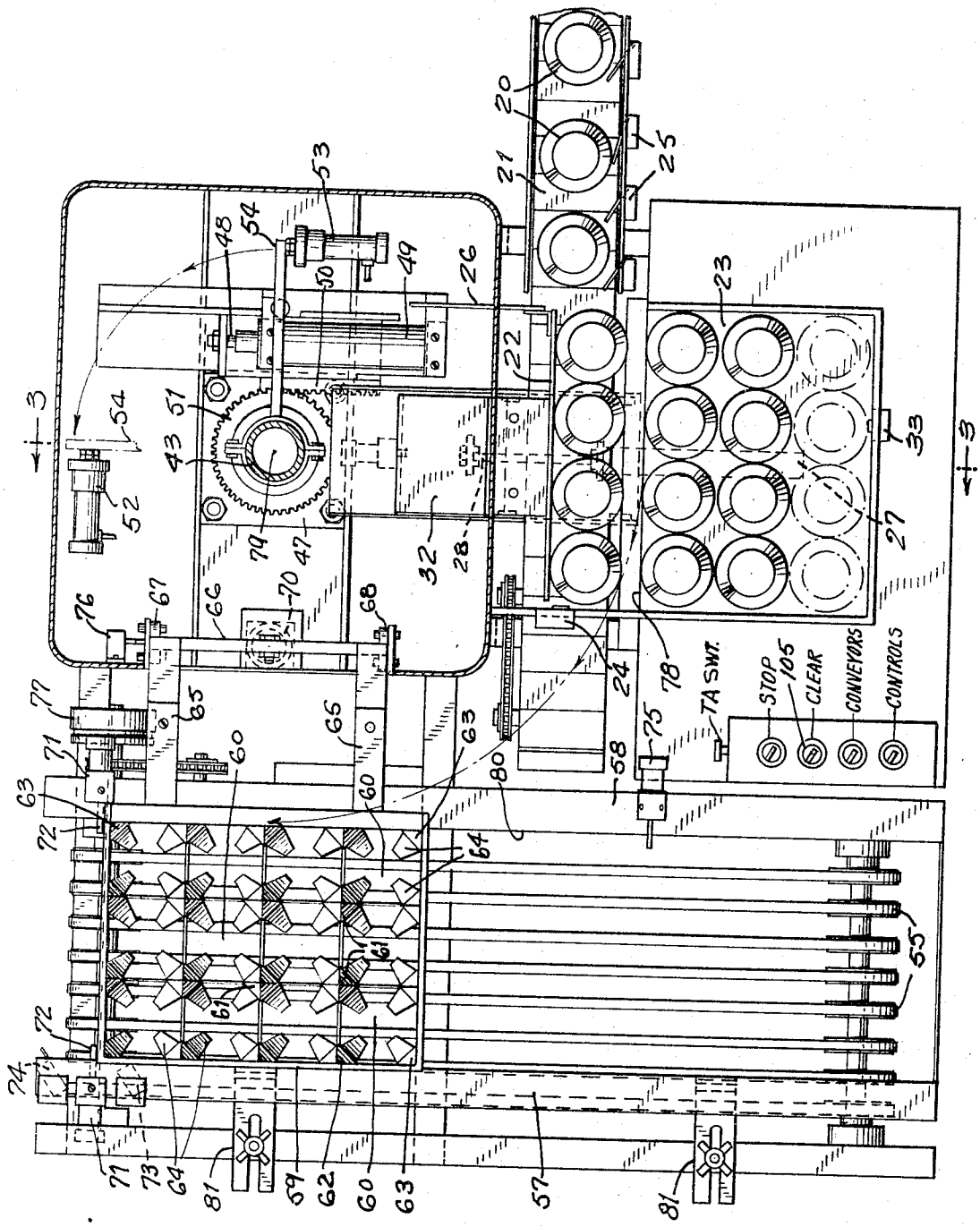


Fig. 2.

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CASE PACKER

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Fig. 3.

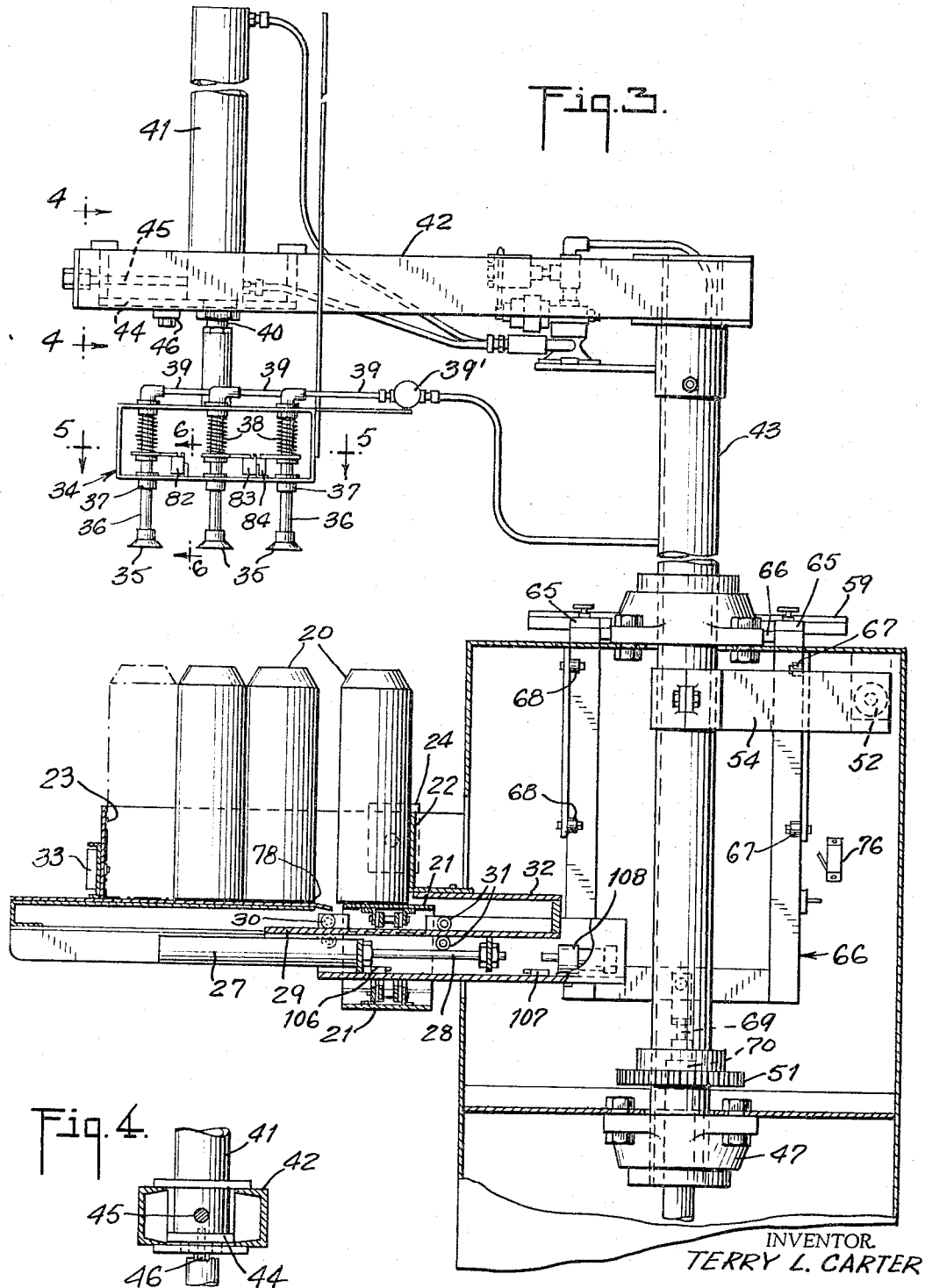


Fig. 4.

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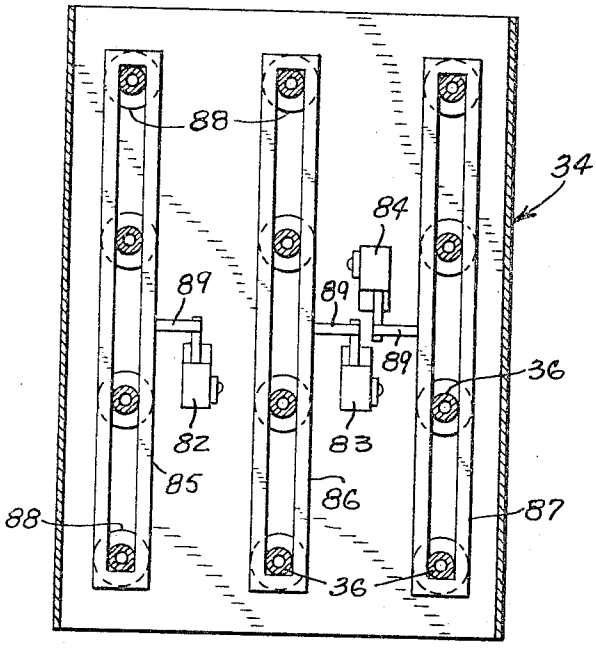
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June 27, 1967 T. L. CARTER 3,327,450

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Fig. 5.



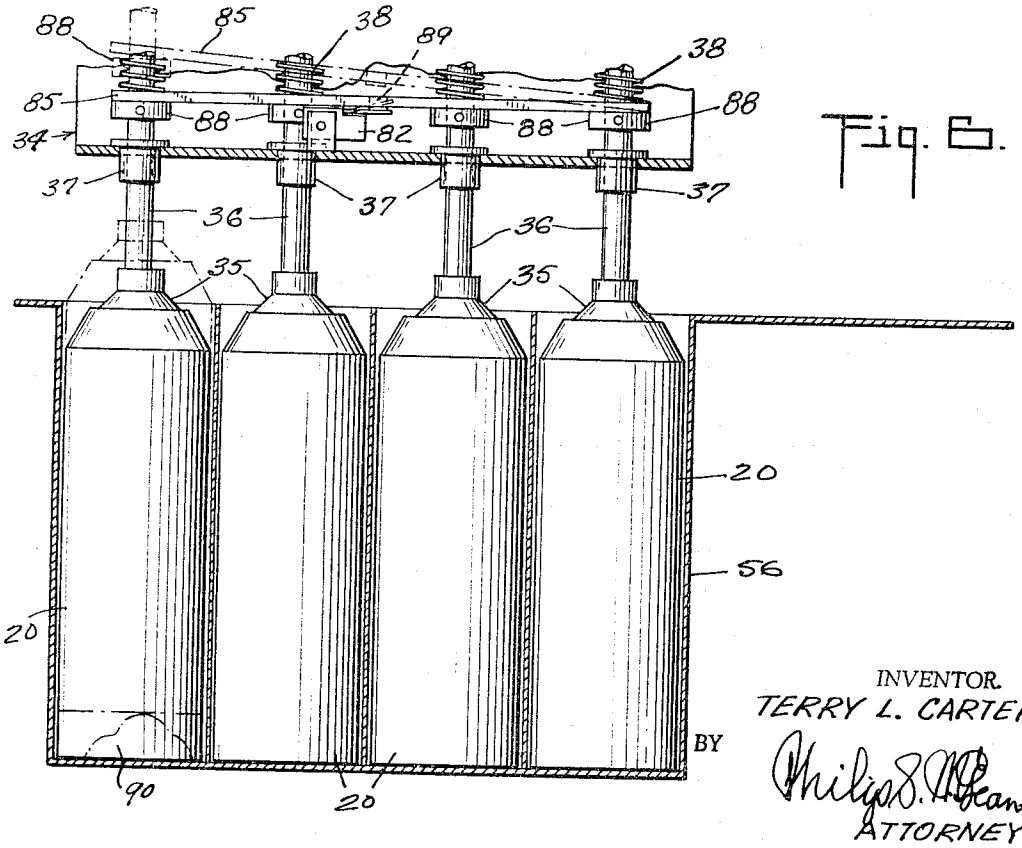


Fig. 6.

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Fig. 7.

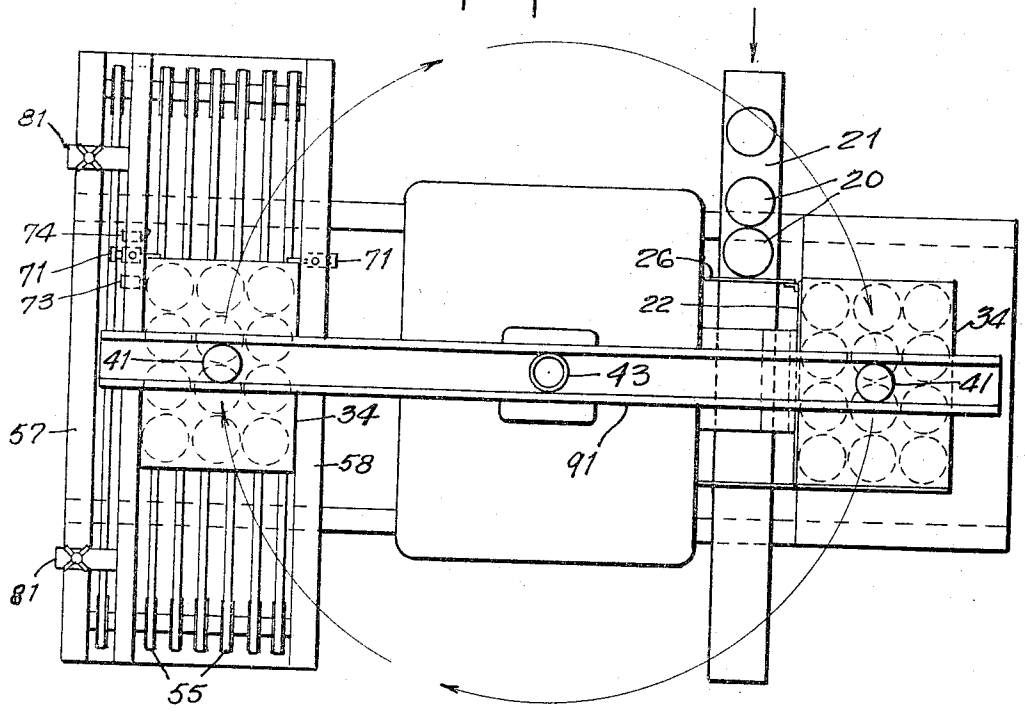
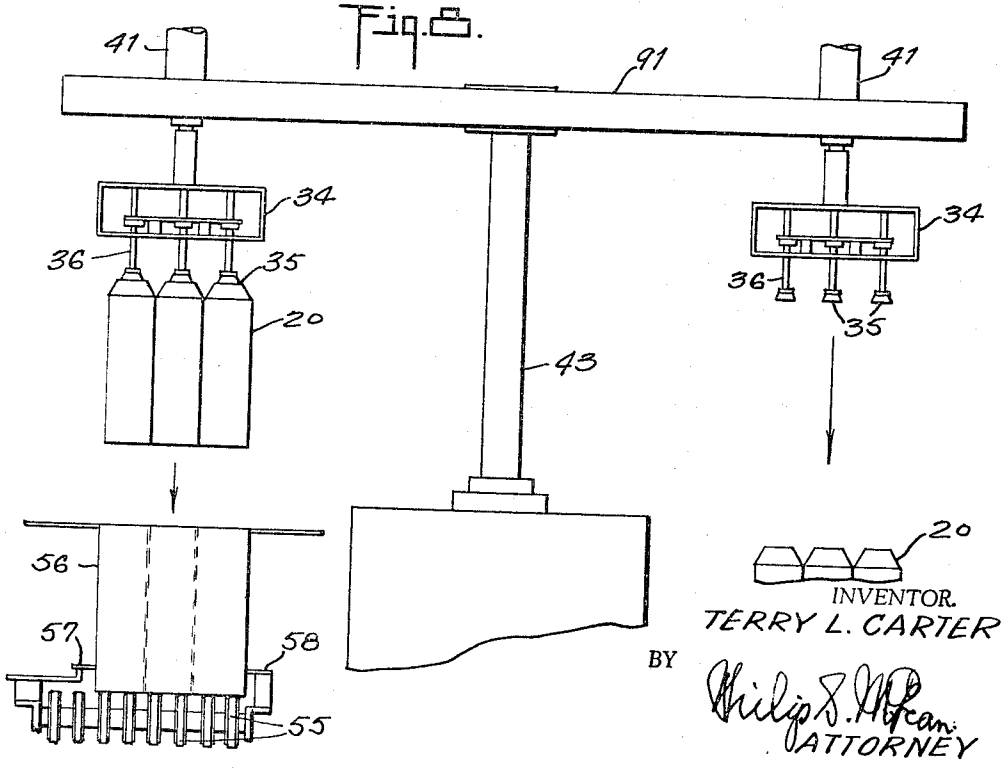


Fig. 8.



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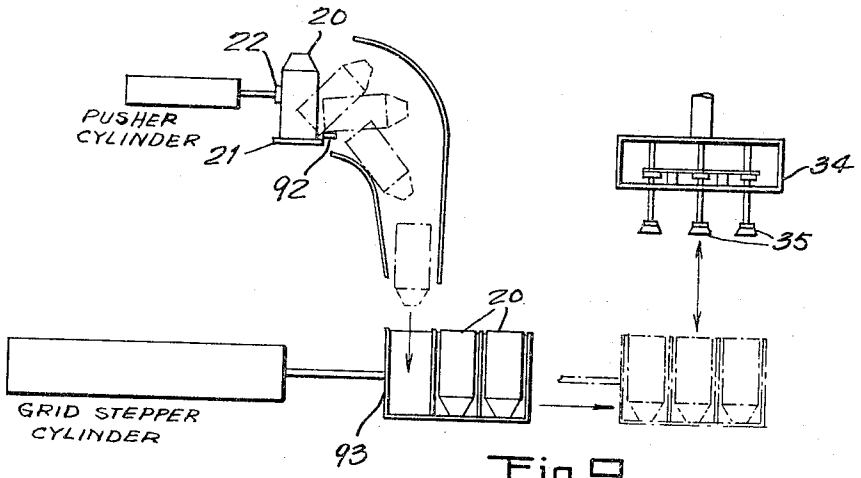


Fig. 9.

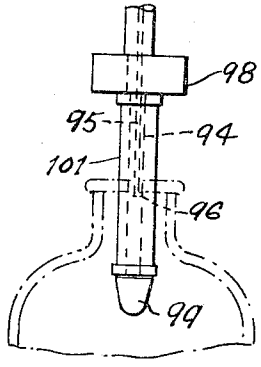


Fig. 10.

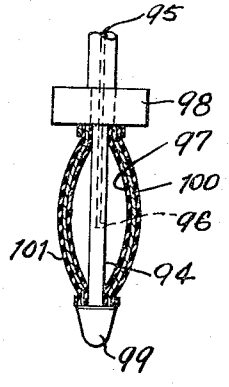


Fig. 11.

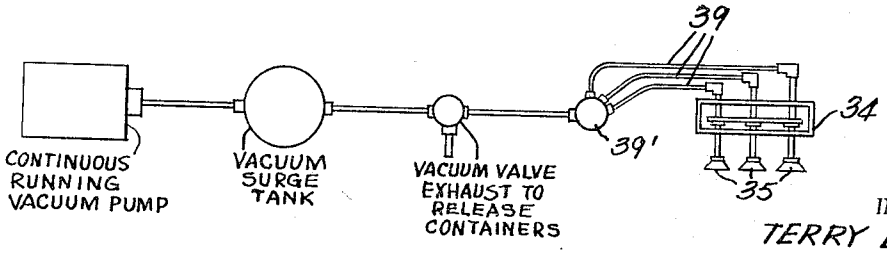


Fig. 13.

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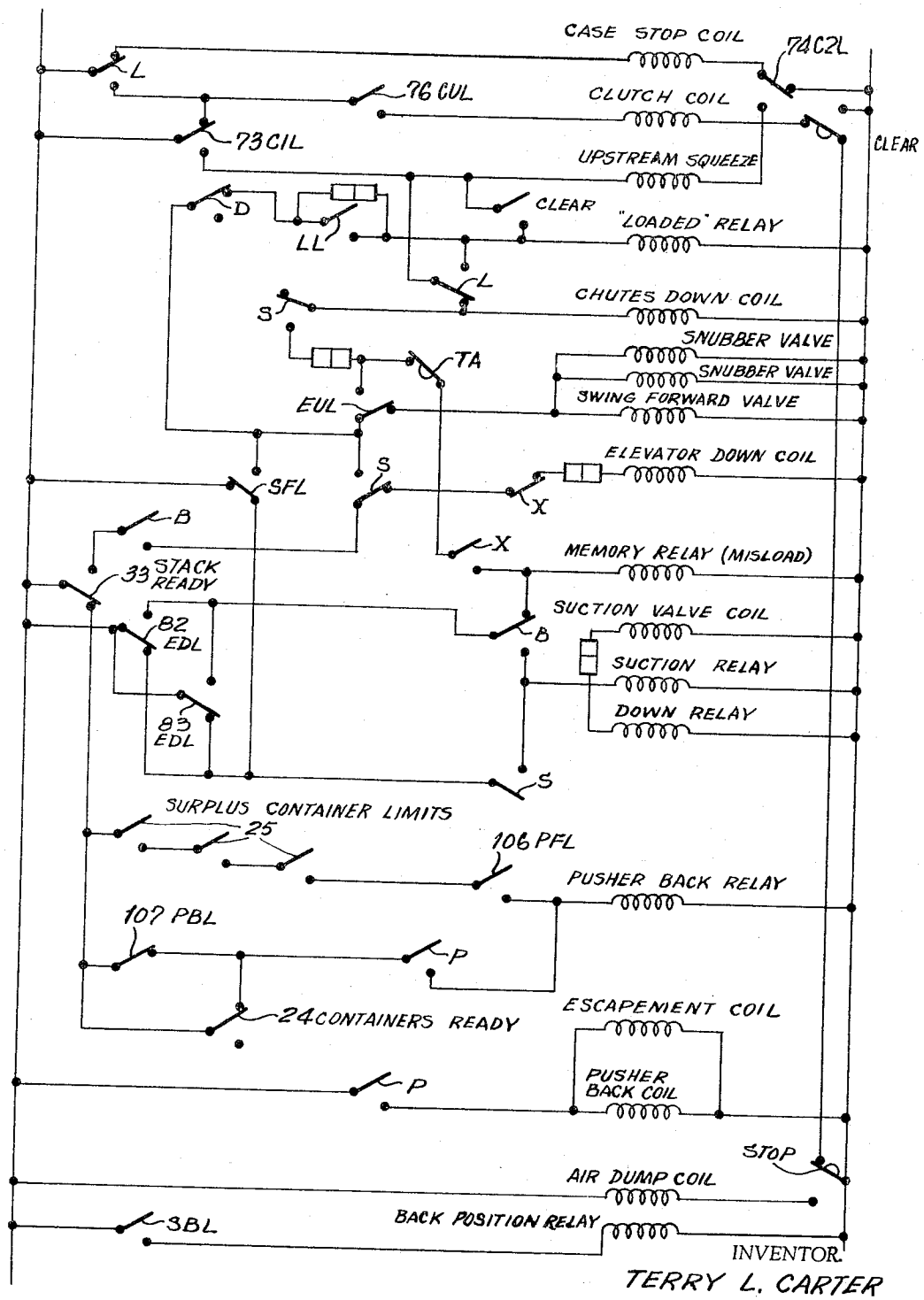


Fig. 12.

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United States Patent Office 3,327,450 Patented June 27, 1967

3,327,450

CASE PACKER

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Filed Aug. 12, 1964, Ser. No. 389,146
6 Claims. (Cl. 53—61)

The invention herein disclosed relates to the assembling of containers or the like in case loads and the packing of these loads in cases or cartons supplied for the purpose.

Objects of the invention are to assemble containers or other articles in orderly loads predetermined to the size of the cases and when cases are in place to accurately center the loads and lower then quietly without dropping or shock into the respective cases.

Special objects of the invention are to provide a machine suitable for packing in either partitioned or non-partitioned cases and to enable this machine to operate either with suction or with pressure pickup fingers depending on the character or type of containers being handled.

A special object in this connection is to provide proper pickup fingers of improved construction which will firmly grip without breaking or injuring the containers and which will not become worn or injured by gripping engagement with the articles being handled.

Another special object of the invention is to provide for inversion of empty containers where it is desired to handle such articles.

Further important objects of the invention are to effect the necessary cooperative operations of the machine accurately and in closely coordinated relation and without delay or loss of time.

For the latter purpose the machine is constructed in one embodiment with lifting heads at opposite ends of a rotatable elevator arm so that while one head is lowering to pick up an assembled load, the head at the opposite end is lowering to deposit a previously assembled load in a case positioned beneath that head so that there is no loss of time between pickup and lowering operations.

Other novel features and desirable results accomplished are set forth and will appear in the course of the following specification.

The drawings accompanying and forming part of the specification illustrate present practical embodiments of the invention but structure may be modified and changed as regards the immediate illustrations, all within the true intent and scope of the invention as hereinafter defined and claimed.

FIG. 1 is a broken front elevation of one of the new packers, showing containers feeding in at the right of the load assembling station and the arm carrying a previous load swung into loading position over a case on the conveyor at the left.

FIG. 2 is a broken plan view, with parts in section on a larger scale on substantially the plane of line 2—2 FIG. 1.

FIG. 3 is a broken vertical sectional view on substantially the plane of line 3—3 of FIG. 2 with the carrier head in raised position over the containers being assembled at the load forming station.

FIG. 4 is an enlarged cross sectional detail on substantially the plane of line 4—4 of FIG. 3, illustrating the adjustable mounting of the pickup head on the swinging supporting arm.

FIG. 5 is an enlarged horizontal sectional view of the pickup head on substantially the plane of line 5—5 of FIG. 3.

FIG. 6 is a broken sectional view on substantially the plane of line 6—6 of FIG. 3, illustrating in broken lines how failure of one container to reach seated position in a case will act to signal or stop packing operation.

FIGS. 7 and 8 are schematic views of the double ended form of machine in which pickup heads at opposite ends of a rotating beam will operate alternately to pick up a load at one end of the beam and to deposit a preceding load at the opposite end of the beam, FIG. 7, being a general plan view and FIG. 8 a general front elevation of the machine.

FIG. 9 is a diagrammatic view of an adaptation of the invention for packing containers in inverted relation.

FIGS. 10 and 11 are elevation and sectional views of a "pressure" type of pickup finger for handling empty containers.

FIG. 12 is a wiring diagram.

FIG. 13 is a diagrammatic representation of the vacuum connections for the pickup head.

FIGS. 1 and 2 show the articles being packed, illustrated as containers **20**, being advanced by a conveyor **21**, in a single row to a position in front of a pusher **22** at one side of the conveyor and of a length approximately that of a row of articles to be packed and which operates to push just that row of articles off the conveyor, on to a makeup or load pan **23** at the far side of the conveyor.

The leading container in the feed line engages a stop switch **24**, FIG. 2, and switches **25** are provided in the feed line to signal presence of necessary containers in this line.

The pusher **22** is shown in FIG. 2 as having a rearward extension **26** at the infeeding end to cut off containers in the feed line on the forward or infeeding stroke of the pusher.

FIG. 3 shows more fully details of the pusher **22** including actuating means in the form of air cylinder **27** having piston rod **28** connected with a slide **29** operating between guide rollers **30** and **31** and carrying an overstanding bracket **32**, bridging over the conveyor **21** and carrying the pusher plate **22**.

Each row of containers, as it advances, pushes the finished row in front of it on to the make-up pan or table **23** and when the load is complete, as with three rows in place, in the illustration, a load completed switch **33** is actuated by a container in the front row to effect the lowering of the pickup head **34**, FIG. 3, then in position over the makeup pan.

This pickup head is equipped with a number of pickup devices shown in the form of vacuum cups **35** on sliding stems **36**, equal in number and position to the containers in the load on the makeup pan.

The hollow stems **36** of the vacuum cups are slidably mounted in the supporting head **34** at **37**, FIG. 3, and spring pressed downwardly at **38** so as to yieldingly engage the containers or other articles, suction being applied by flexible connections **39** from manifold **39'**.

The complete pickup head is carried by piston rod **40** of air cylinder **41** on the radial arm **42** mounted on the upper end of the rotatable column or post **43**.

The pickup lowering and raising cylinder **41** is mounted in radially adjustable relation on the supporting arm to enable it being properly centered over the makeup pan and case conveyor, in the illustration by being carried by a base **44**, FIGS. 3 and 4, radially adjustable in the supporting arm by means of screw **45** and secured in adjusted relation by clamp nut **46**.

The swinging column **43** is shown as journalled in the base of the machine at **47** in back of the feed conveyor and between this conveyor and the case conveyor, FIG. 2, and as rotated by the piston rod **48** of a power cylinder **49**, through the medium of a rack **50** engaged with a gear **51** on the column.

Swinging movement of the carrier is cushioned, and this is important where filled containers are being handled,

by the provision of dash pots or air snubbers 52, 53, FIG. 2, engageable by a projecting radial arm 54 on the column.

A special feature of these snubbers is that in the present illustration they are connected with the air source to exert a reverse cushioning force when engaged by the arm 54 and thus to first cushion and to then help to quickly start the column back on its return stroke.

The case conveyor is shown as made up of a series of parallel V belts 55, FIGS. 1 and 2, running at right angles to the feed conveyor, in the first, single arm form of the machine, designed to forward the cases 56, FIG. 1, between side guides 57, 58 into position beneath the load swung from makeup to the packing station.

FIG. 1 illustrates this relation and shows a guide 59 at the packing station for directing the containers accurately down into the properly positioned cases.

This guide is shown in FIG. 2 as made up of a frame having cells 60 equal in number and position to the containers in the load and defined in part by pyramids 61, located at meeting corners of the cells and semi-pyramids 62 at meeting corners on the sides of the frame and triangular segments 63 at the corners of the frame.

These pointed angular guides are shown as having dependent flexible fingers 64 to yieldingly position and guide the containers down into place in the cases.

To provide a maximum guiding effect, the guide frame is shown as carried by brackets 65 on the upper end of a plate or frame 66 sliding vertically between guide rollers 67, 68 and attached to the piston rod 69 of a vertically disposed cylinder 70, FIGS. 2 and 3.

This cylinder is signalled to lower the guide 59 after a case has reached position beneath the same and to raise the guide clear of the case after a load of containers has been deposited in a case.

When power is turned on, two small cylinders 71, FIG. 2, project piston rods 72 to operate as stops, holding the case in correct loading position. These stop cylinders are slidably adjustable on the side guides of the case conveyor for cases of different length.

A "CASE READY" switch 73 signals the machine when a case is in position ready for loading.

When a case is loaded, the stop cylinders withdraw their pistons permitting the loaded case to pass and a switch 74 located downstream signals the stop cylinders to return their pistons to the out position to stop the next incoming case.

An upstream squeeze cylinder 75, FIG. 2, holds back succeeding cases until the case that is being loaded has been discharged, thus to guarantee space between cases for the stop pistons to project without puncturing the sides of the cases.

The case handling operation is thus an automatic escapement permitting one case at a time to be loaded.

A switch 76 at the case packing station, operated by chutes "not up" position, FIG. 3, controls the clutch 77 to stop the case conveyor while a case is being loaded.

An important feature of the case system is that the front edge 78, FIG. 2, of the load pan is the same distance from the center 79 of the column as the edge 80 of the inner side guide of the case conveyor, thus to locate the inner row of articles on the load pan the same distance away from the column as the case to be packed.

These two fixed positions mean that only one guide rail, the outer guide rail 57 of the case conveyor be adjusted for different case widths, to save changeover time.

The outer guide rail 57 is shown carried by laterally adjustable supporting brackets 81.

When the load pan is full, the front row of articles operates the "stack ready" switch 33 which prevents the pusher from pushing more rows into the pan until the finished load is removed and signals the pickup head to lower down to the load.

When the pickup head has reached bottom position with all fingers in contact with the containers forming the load, "elevator down" switches 82, 83, 84, FIG. 5, one for each row of fingers will operate, if the load is correct, to turn on the vacuum and signal the elevator to lift the head holding the containers.

In order that one switch will serve for all the containers in each row, the construction shown in FIGS. 5 and 6 is provided, consisting of a bar 85, 86, 87, one for each row, and each supported by shoulders 88 on the vacuum stems in that row and having a side projection 89, FIG. 5, positioned to close the switch for that row if the bar reaches lower position provided by all containers in place in that row.

FIG. 6 shows in broken lines the container at the left end of a row out of place as by striking an obstruction 90, thus leaving the switch actuating bar in an upraised position, permitting the switch to remain open.

All "elevator down" switches must operate together if the load is to be evenly picked up or discharged.

When these switches operate together, the elevator is signalled to be returned to up position.

This is particularly important when the load is being lowered into a case.

If all containers go to "bottom," the vacuum is released and the head returns upward empty.

But if there is an obstruction such as a dropped container or bent partition preventing operation of one or less than all "elevator down" switches the elevator will return to top position without releasing the vacuum and lowering the containers into the case.

The machine will then stop and wait, until the operator, after removing the obstruction, presses the TA switch to cause the elevator to again lower and release the load and then continue on the normal cycle.

With the load lifted from the makeup pan and the elevator holding the load at top position, the load swinger will not swing over to the loading position until there is a case there in position to receive the load.

There is also in the present machine a built in "memory" (loaded relay) that will prevent two loads being deposited in the same case.

The machine is designed to operate with either partition or non-partitioned cases.

FIGS. 7 and 8 show how by duplicating the elevator heads the machine may be made to pick up one load at the makeup station while depositing the previously made up load into a case positioned to receive it.

This involves the extension of the radial pickup arm into a double ended beam as indicated at 91, FIG. 7, and the provision of elevators 41 at both ends of the beam and connected to operate, the one at the right, FIGS. 7 and 8, to engage and take hold of the load of containers at the makeup station while the head at the left is lowering the previously assembled load in the case positioned below the same.

Then on the upstroke the head at the right will pick up and swing that load over into position above the case while the head which has just been relieved of its load will travel back empty to the makeup position.

This arrangement practically doubles the output of the machine since while a case is being loaded at one end of the swinging pickup, a second load is being made up at the opposite end.

FIG. 9 shows in diagrammatic fashion how the machine may be adapted to loading articles such as empty plastic containers upside down into reshippers.

This view shows the containers received in front of the pusher 22 standing upright. It is also possible, if so desired to receive the containers lying down.

Opposite the pusher is a low trip rail 92 over which the containers are tipped so that they will fall down into one row of a partitioned grid 93 positioned beneath the same and which grid is stepped forward, one row at a time, until all rows have been loaded with containers upside down.

The last position of the grid signals the "load ready" in

position beneath the elevator, which then loads the inverted containers into the case, picking them up by the bottom with the vacuum cups.

The inverted container mechanism may be an extra load attachment for the standard single or double machine disclosed and is important because of the number of plastic and glass containers manufacturers who load their products upside down.

FIGS. 10 and 11 illustrate a "pressure" pickup finger which may be used on the machine to handle empty containers.

This finger is shown as consisting of a tubular stem **94** having a central passage **95** adapting it to be connected with a pressure source on the machine and provided with a side outlet **96** open to an inflatable sleeve **97**, confined on the stem between the shoulder **98** and an end head **99** which inflatable sleeve is protected against over-expansion by a surrounding sleeve **100** of nylon or other non-stretchable fabric.

On top of the protecting sleeve **100** there is provided a sleeve or surrounding material **101** of rubber or other frictional wear surface.

These pressure type pickup fingers are thus adjustable to fit and grip different size containers without bursting from excessive pressure and without wearing from frictional engagement with the articles.

The wiring diagram, FIG. 12, is numbered and labelled in conformity with the above description and so will be understood without further description at this point.

Operation

When enough containers to form a single row are ready, as secured by actuation of all the surplus container switches **25**, FIG. 2, the pusher **22** retracts to admit this single row into position in front of the same and when the first container engages switch **24**, the pusher moves forward pushing this row on to the load pan **23**, excess containers being held back by the side plate **26** on the pusher head.

Thus the surplus switches assure "enough" containers and the pusher side plates assures "not too many."

The "container ready" switch, engaged by the first container in the row energizes the pusher to forward position pushing that row into place and this operation is repeated until the required number of rows is assembled on the load pan, each row pushing the previous row in front of it until the pan is full, whereupon a container in the front row operates the "stack ready" switch **33** which prevents the pusher from pushing more rows into the pan until the finished load is removed and signals the pickup head **34**, FIG. 3, to lower to the load.

When the pickup head reaches bottom position with all pickup fingers **35**, FIG. 1, in contact with containers and all "elevator down" switches **82, 83, 84**, FIG. 5, closed, as with all containers in place, suction will be applied by the fingers and the elevator **41** signalled to lift the head holding the containers.

When all "elevator down" switches operate together, as they do, if the load is evenly picked up or discharged, the elevator is signalled to return to up position. But if there is an obstruction so that one or less than all elevator down switches close as indicated by broken lines in FIG. 6, the elevator will return to top position without releasing suction and the machine will then stop and wait for the operator to remove the obstruction, after which the machine may be started again by manual operation of the TA switch, FIG. 2.

Continuing in the operation, with the elevator having lifted the load to top position and a case **56** having been fed by the case conveyor **55** into position against front stops **72**, FIG. 2, the compressed air cylinder **49** will be energized to rotate column **43** and thus swing the load into position over the case, **FIG. 1.**

The "case ready" switch **73** signals this loading condition and the snubber **53**, FIG. 2, engaged by projecting arm **54** on the column brings the swinging load, which may be quite heavy, to rest without shock.

The container guide **59**, FIGS. 1 and 2, lowers over the positioned case and the head **34** then lowers to pass the containers between the pyramidal projections **61**, semi-pyramidal projections **62** and triangular guides **63** down into the case.

The square shape bases and upwardly tapering sides of these pyramids, shown in FIG. 2, provide a maximum spacing at the top with gradually narrowing funnel effect to first accommodate and to then increasingly guide the containers into place.

With the containers loaded in the case and all on bottom, as evidenced by closure of all the elevator down switches **82, 83, 84**, the vacuum on the pickup fingers will be released and the elevator be free to rise and to swing back into the makeup position, where engagement of the arm **54** with the snubber **52**, will stop the column turning movement without shock.

The snubbers **52, 53** are of the hydraulic type with air pressure behind the oil. Air is exhausted to atmosphere at the moment of impact, allowing the oil to absorb the arriving force.

When the swinger starts in the opposite direction, the same signal that causes the cylinder **49** to turn it also signals the snubber to impart a starting push, by admission of compressed air in back of the oil.

This use of extra starting push at the beginning of each swing, added to regular rotating force, substantially increases the speed of swing, since starting a heavy mass is the slowest part of the swinging time.

There is thus combined "push" for starting with hydraulic snubbing in the same cylinder, at each end of the swinging stroke.

With a case loaded, the cylinders **71**, FIG. 2, withdraw stops **72**, permitting the loaded case to pass and a "down stream" switch **74** signals these pistons to return to "out" position to stop the next incoming case.

Succeeding cases are held back by upstream squeeze cylinder **75** until the case being loaded has been discharged.

An emergency "stop" switch within easy reach of the attendant operates a valve to shut off supply of compressed air and exhaust the pusher and swinger cylinders. The elevator automatically raises when the stop switch is operated and when any difficulty has been rectified, returning the stop switch to normal position, enables the machine to continue its normal cycle from wherever it stopped.

A "clear" switch **105** enables "running out" of the case, after raising the funnel forming guide chutes, which is important when a faulty case or partial load is present.

Another feature of the invention is a "manual control unit," a box or panel of switches for manually operating the vacuum on and off, the elevator up and down and the swinger forward and back.

This unit plugs into a socket wired into the electric system and is particularly useful in adjusting the machine for changes in size without "unwanted" automatic features interfering, each motion being controlled as indicated, individually, at will.

When the machine is in adjustment, ready for operation, this manual control unit is unplugged and a prepared "automatic" plug substituted, completing all circuits for required automatic operation of the machine.

There is also preferably a "relay test circuit" built into the control box of the machine, enabling quick test of relays used at any time.

Also of importance, the machine is designed all in "one piece," compact, relatively small and easily portable, adapting it to many unusual packing requirements.

The double headed machine illustrated in FIGS. 7 and 8 has the practical advantage of substantially double production rate operating to engage an assembled load with

one head, the one at the right in these views, while delivering a previously assembled load by the head at the other end of the beam.

The two pickup heads may be of the same construction but are connected in reverse order so that one will have suction applied to pick up a load while the other has suction released to leave the load in the case.

With this double head machine, the beam carrying the two heads is given a full 180 degree swing instead of just the 90 degree swing of the single head machine.

Because of the fact that when all elevator down switches operate together, the load is discharged, this permits the loading of "layers" into the cases.

When enough layers or "tiers" have been deposited to fill the case, either by count, or "top level full" switch, the case may be discharged and another positioned. Thus any predetermined number of layers can be loaded into the case.

The machine may be modified to load the containers upside down as shown in FIG. 9.

Pressure finger pickups may be used in place of the vacuum cup fingers first shown, as indicated in FIGS. 10 and 11.

In practice a continuously running vacuum pump is used as the vacuum source and a surge tank is interposed between this and the suction heads to assure fast action when the vacuum valve is operated to exhaust air for releasing the containers, as indicated in FIG. 13.

In FIG. 3 the front and back switches controlling operation of the pusher are indicated at **106** and **107** and a snubber for controlling this action is indicated at **108**.

What is claimed is:

1. A case packer comprising the combination of

an infeeding conveyor for delivering a single row of articles to be cased,

a front stop for the articles delivered by said conveyor,

a pusher at one side of said conveyor having a transversely operating head equal in length to the number of articles to be packed in each row,

said pusher head having a rearwardly extending guard at the infeeding end of the same for stopping articles in excess of those required to form a single packed row,

a load makeup pan at the opposite side of said conveyor from said pusher,

means for projecting said pusher head to extend the guard thereon into position to stop articles being fed by the conveyor in excess of those necessary to form a packed row and for retracting said pusher head when articles sufficient to form a row have arrived at said guard whereby to permit the articles necessary for one row to be forwarded by the conveyor in front of said pusher head and against said front stop and whereby said pusher head on the next projecting movement of the same will advance that one row of articles onto the load makeup pan, where one row may advance a row in front of the same until a full load is accumulated at the makeup pan,

a case conveyor at one side of said article conveyor,

an upright rotatable column between said conveyors,

a radially extending arm on the upper end of said column,

a pickup head mounted for vertical movement on the free end of said radial arm,

article gripping members on said pickup head positioned for alignment with the load of articles assembled on said makeup pan,

means for rotating said column to register said article gripping members with articles assembled on the makeup pan and with a case advanced by said case conveyor,

means for raising and lowering said pickup head when in alignment over said infeeding article conveyor and said case conveyor,

means for energizing said article gripping members to grasp the articles at the makeup pan when in alignment with said makeup pan and to release said articles when lowered in position over the case conveyor,

drive means connecting and correlating said parts in the relation described, and means for detecting engagement of said article gripping members with each of the articles in alignment therewith and for arresting operation of the machine on failure of any of said members to make gripping engagement with said articles.

2. An insertable pressure finger form of container pickup, comprising

a tubular pressure stem having an outlet in the side of the same,

an expansible and contractible sleeve secured at opposite ends over that portion of the stem having the outlet therein,

a non-expansible flexible confining sleeve over said expansible sleeve, and

a wear resistant flexible frictional article gripping layer over said non-expansible sleeve.

3. The invention according to claim **1** in which said column is provided with a radially projecting arm and in which snubbers are located to be engaged by said arm at the end of each swinging movement of the same and in which means are provided for energizing said snubbers to impart a positive reverse movement to said arm to thereby aid said means for rotating the column in starting the swinging movement of the column in reverse directions.

4. A case packer comprising the combination of

an infeeding conveyor for delivering a single row of articles to be cased,

a front stop for the articles delivered by said conveyor,

a pusher at one side of said conveyor having a transversely operating head equal in length to the number of articles to be packed in each row,

said pusher head having a rearwardly extending guard at the infeeding end of the same for stopping articles in excess of those required to form a single packed row,

a front stop for the articles delivered by said conveyor, from said pusher,

means for projecting said pusher head to extend the guard thereon into position to stop articles being fed by the conveyor in excess of those necessary to form a packed row and for retracting said pusher head when articles sufficient to form a row have arrived at said guard whereby to permit the articles necessary for one row to be forwarded by the conveyor in front of said pusher head and against said front stop and whereby said pusher head on the next projecting movement of the same will advance that one row of articles onto the load makeup pan, where one row may advance a row in front of the same until a full load is accumulated at the makeup pan,

a case conveyor at one side of said article conveyor,

an upright rotatable column between said conveyors,

a radially extending arm on the upper end of said column,

a pickup head mounted for vertical movement on the free end of said radial arm,

article gripping members on said pickup head positioned for alignment with the load of articles assembled on said makeup pan,

means for rotating said column to register said article gripping members with articles assembled on the makeup pan and with a case advanced by said case conveyor,

means for raising and lowering said pickup head when in alignment over said infeeding article conveyor and said case conveyor,

means for energizing said article gripping members to grasp the articles at the makeup pan when in alignment with said makeup pan and to release said arti-

cles when lowered in position over the case conveyor,

drive means connecting and correlating said parts in the relation described,

said means for imparting rotary movement to said column including a fluid pressure snubber for arresting rotary movement of the column and means for applying pressure to said snubber in the direction for imparting reverse rotary movement to said column.

5. A case packer comprising the combination of

an infeeding conveyor for delivering a single row of articles to be cased,

a front stop for the articles delivered by said conveyor,

a pusher at one side of said conveyor having a transversely operating head equal in length to the number of articles to be packed in each row,

said pusher head having a rearwardly extending guard at the infeeding end of the same for stopping articles in execess of those required to form a single packed row,

a load makeup pan at the opposite side of said conveyor from said pusher,

means for projecting said pusher head to extend the guard thereon into position to stop articles being fed by the conveyor in excess of those necessary to form a packed row and for retracting said pusher head when articles sufficient to form a row have arrived at said guard whereby to permit the articles necessary for one row to be forwarded by the conveyor in front of said pusher head and against said front stop and whereby said pusher head on the next projecting movement of the same will advance that one row of articles onto the load makeup pan, where one row may advance a row in front of the same until a full load is accumulated at the makeup pan,

a case conveyor at one side of said article conveyor,

an upright rotatable column between said conveyors,

a radially extending arm on the upper end of said column,

a pickup head mounted for vertical movement on the free end of said radial arm,

article gripping members on said pickup head positioned for alignment with the load of articles assembled on said makeup pan,

means for rotating said column to register said article gripping members with articles assembled on the makeup pan and with a case advanced by said case conveyor,

means for raising and lowering said pickup head when in alignment over said infeeding article conveyor and said case conveyor,

means for energizing said article gripping members to grasp the articles at the makeup pan when in alignment with said makeup pan and to release said articles when lowered in position over the case conveyor,

drive means connecting and correlating said parts in the relation described,

said article gripping members being arranged on the pickup head in rows matching the single rows of the articles and consisting of vertically moveable stems carrying article gripping means and in which there is a control switch for each row of said stems and a switch control bar for each row positioned for operation by any item in that row.

6. A case packer comprising the combination of

an infeeding conveyor for delivering a single row of articles to be cased,

a front stop for the articles delivered by said conveyor,

a pusher at one side of said conveyor having a transversely operating head equal in length to the number of articles to be packed in each row,

said pusher head having a rearwardly extending guard at the infeeding end of the same for stopping articles in excess of those required to form a single packed row,

a load makeup pan at the opposite side of said conveyor from said pusher,

means for projecting said pusher head to extend the guard thereon into position to stop articles being fed by the conveyor in excess of those necessary to form a packed row and for retracting said pusher head when articles sufficient to form a row have arrived at said guard whereby to permit the articles necessary for one row to be forwarded by the conveyor in front of said pusher head and against said front stop and whereby said pusher head on the next projecting movement of the same will advance that one row of articles onto the load makeup pan, where one row may advance a row in front of the same until a full load is accumulated at the makeup pan,

a case conveyor at one side of said article conveyor,

an upright rotatable column between said conveyors,

a radially extending arm on the upper end of said column,

a pickup head mounted for vertical movement on the free end of said radial arm,

article gripping members on said pickup head positioned for alignment with the load of articles assembled on said makeup pan,

means for rotating said column to register said article gripping members with articles assembled on the makeup pan and with a case advanced by said case conveyor,

means for raising and lowering said pickup head when in alignment over said infeeding article conveyor and said case conveyor,

means for energizing said article gripping members to grasp the articles at the makeup pan when in alignment with said makeup pan and to release said articles when lowered in position over the case conveyor,

drive means connecting and correlating said parts in the relation described,

said column being provided with a radially projecting arm and,

snubbers located to be engaged by said arm at the end of each swinging movement of the same and means for energizing said snubbers to impart a positive reverse movement to said arm to thereby aid said means for rotating the column in starting the swinging movement of the column in reverse directions.

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