Oct. 30, 1962 F. B. FISHBURNE 3,060,977

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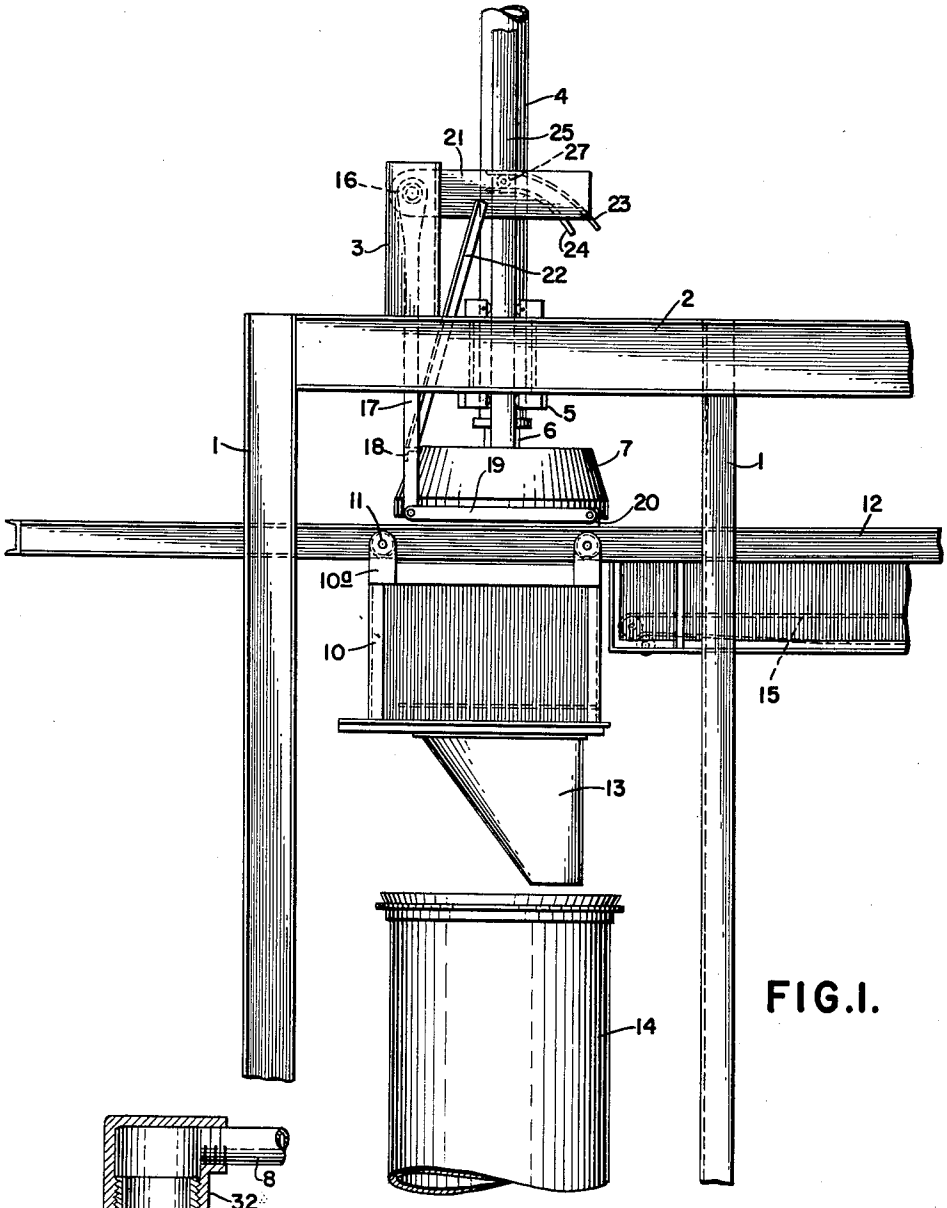


FIG. 1.

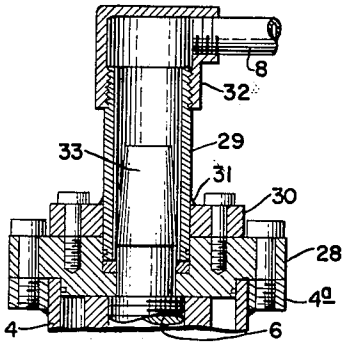


FIG. 4.

INVENTOR

Francis B. Fishburne

BY J. Hanson Boyden,

ATTORNEY

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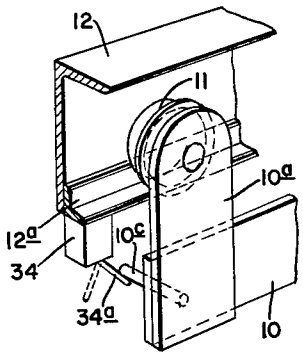


FIG.5.

FIG.2.

INVENTOR

Francis B. Fishburne

BY J. Hanson Boyden

ATTORNEY

Oct. 30, 1962 F. B. FISHBURNE 3,060,977

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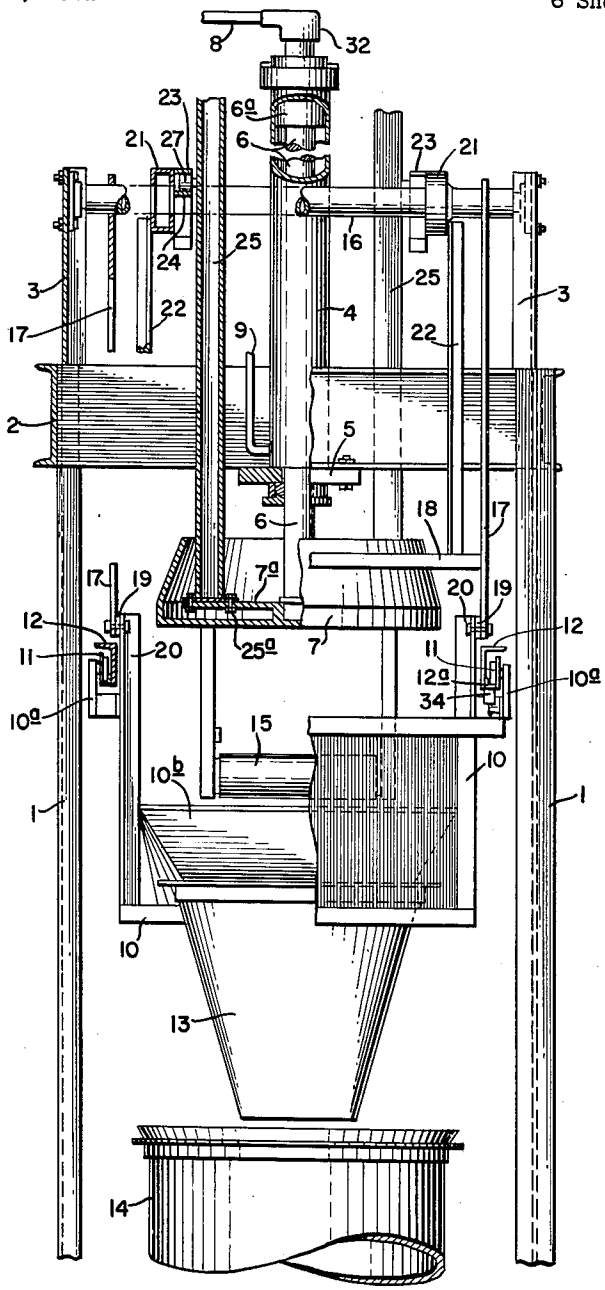


FIG. 3.

INVENTOR
Francis B. Fishburne

BY J. Hanson Boyden

ATTORNEY

Oct. 30, 1962 F. B. FISHBURNE 3,060,977

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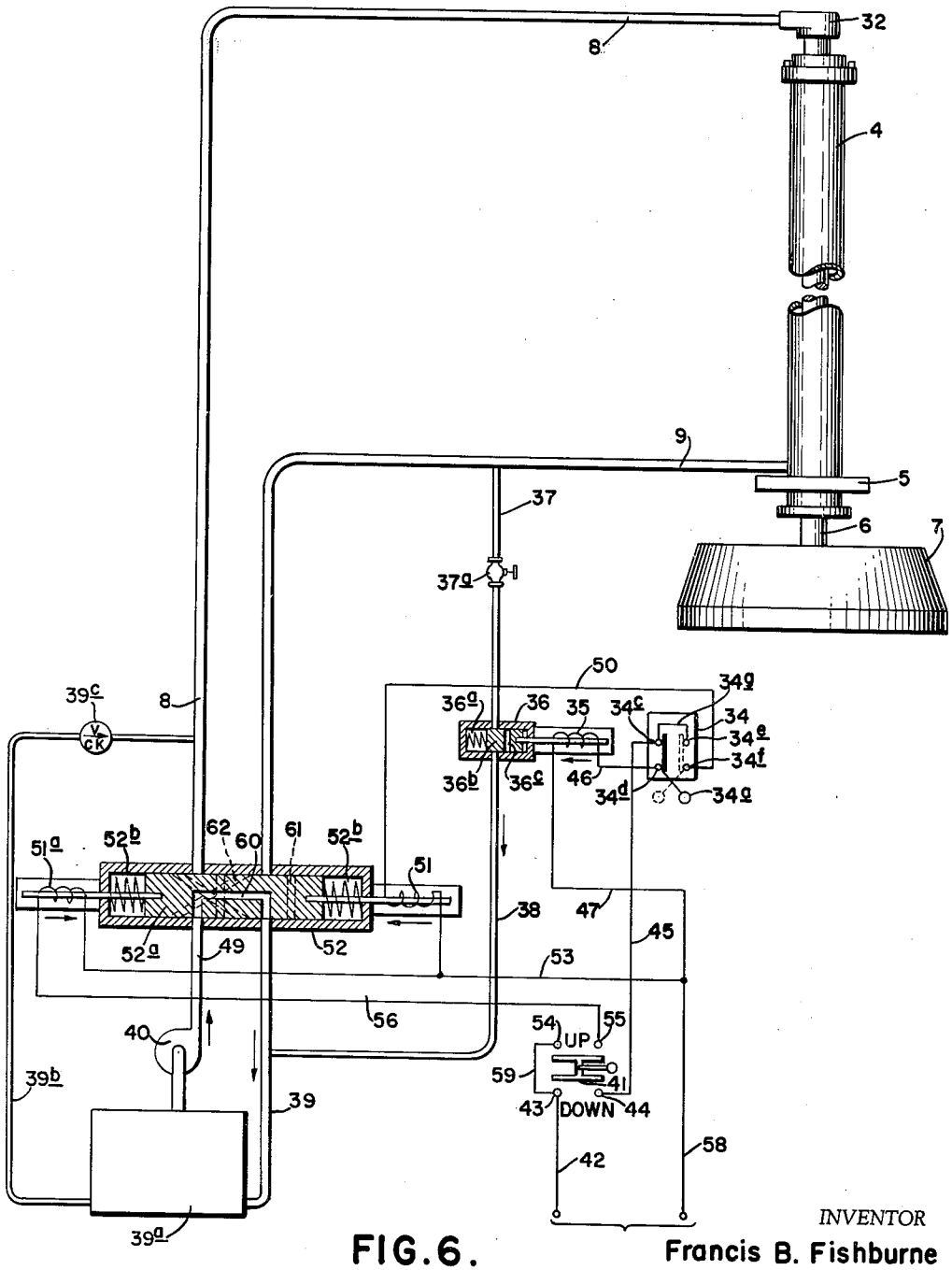


FIG. 6.

INVENTOR
Francis B. Fishburne

BY J. Hanson Boyden,

ATTORNEY

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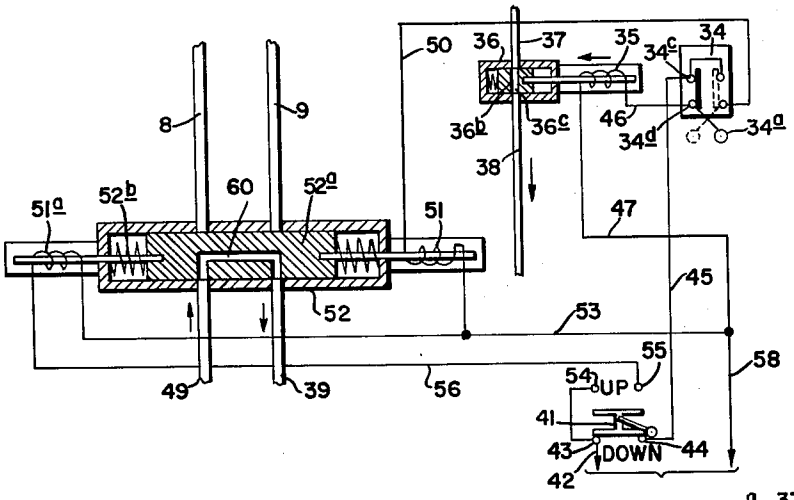


FIG.7.

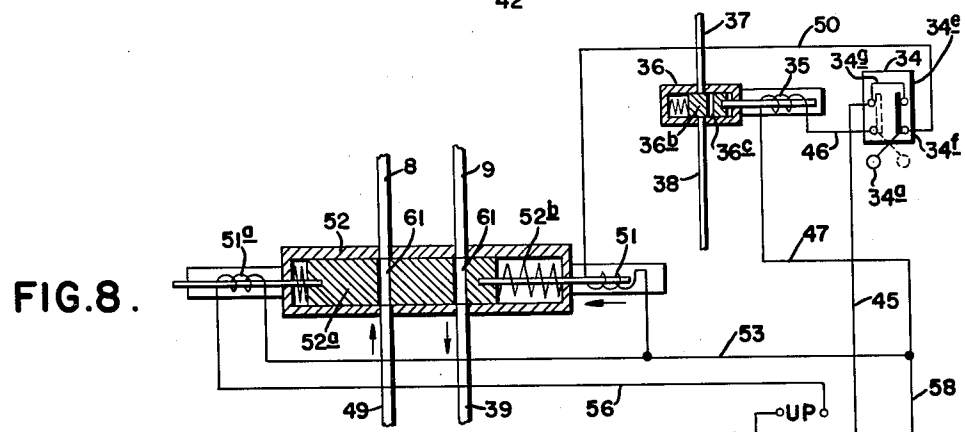


FIG.8.

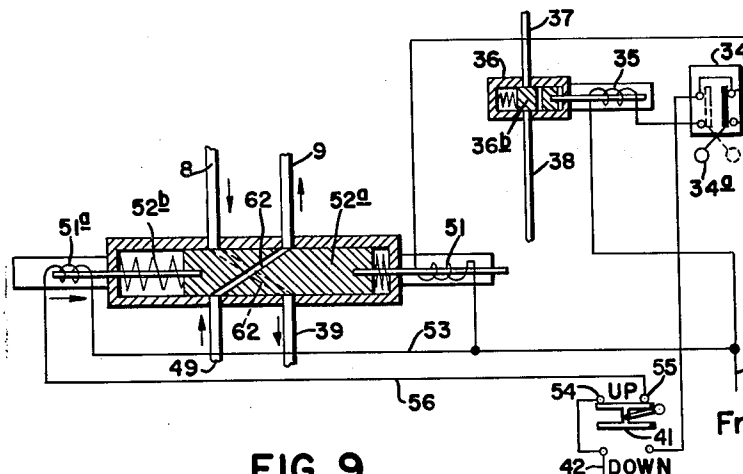


FIG.9.

INVENTOR

Francis B. Fishburne

BY J. Hanson Boyden,

ATTORNEY

Oct. 30, 1962 F. B. FISHBURNE 3,060,977

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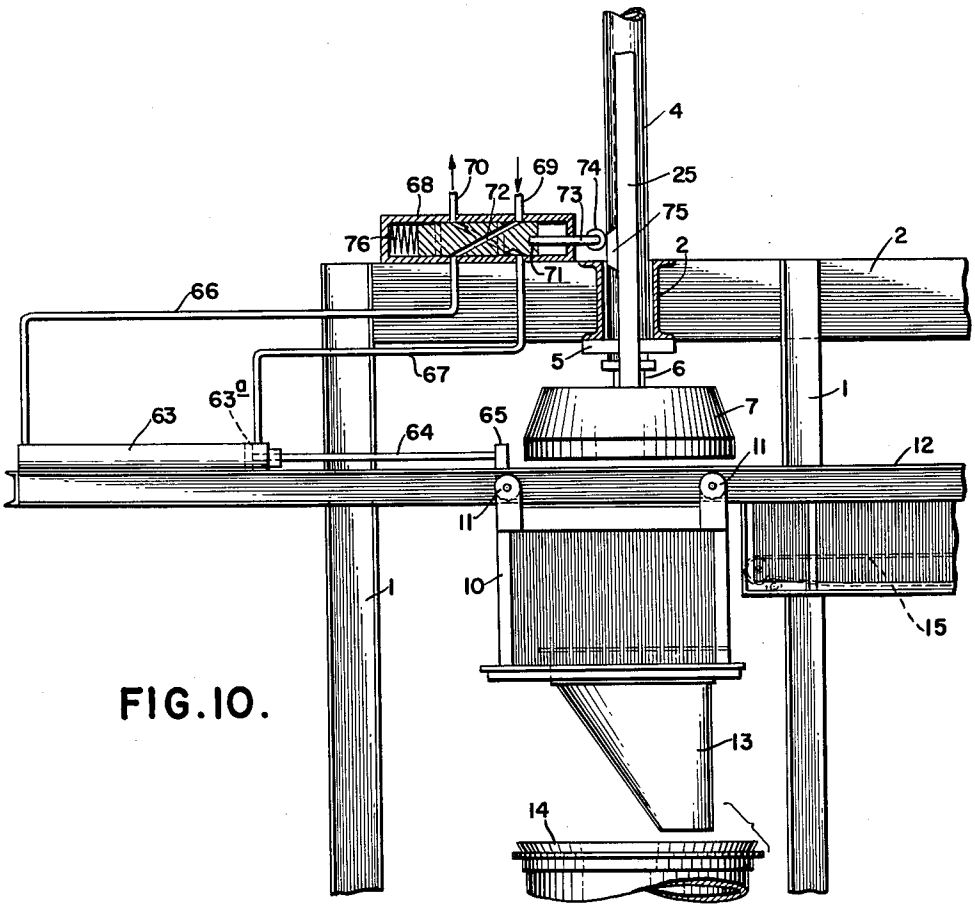


FIG. 10.

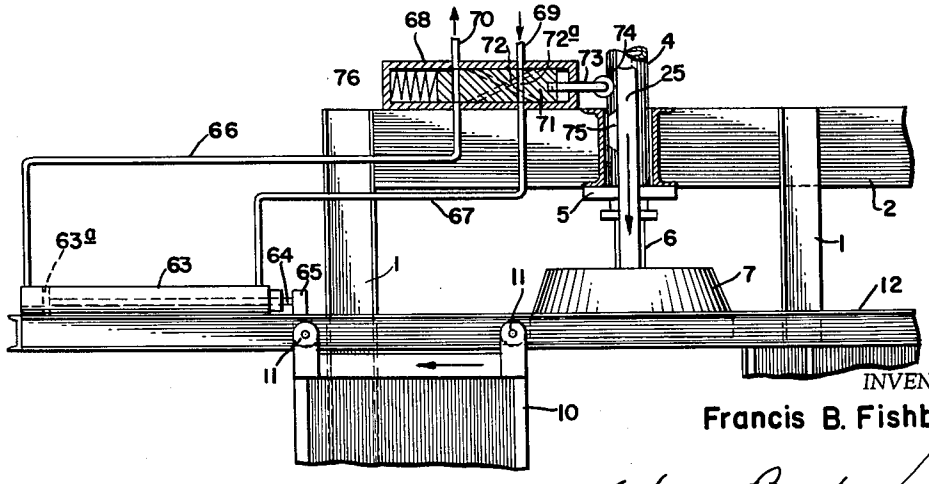


FIG. 11.

INVENTOR

Francis B. Fishburne

BY J. Hanson Boyden

ATTORNEY

United States Patent Office 3,060,977 Patented Oct. 30, 1962

3,060,977

HYDRAULIC PRESS

Francis B. Fishburne, P.O. Box 1927, Asheville, N.C.

Filed Apr. 10, 1961, Ser. No. 101,720
17 Claims. (Cl. 141—71)

This invention relates to hydraulic presses, and more particularly to presses of the type used for packing loose, compressible material in containers.

In my prior Patent No. 2,675,154, dated April 13, 1954, there is shown a press for packing tobacco in containers, such as hogsheads, the hogshead being placed beneath a charger into which a vertically movable power-operated plunger is arranged to enter. The material to be packed is fed into the upper end of the charger by means of a spout or chute located below the uppermost position of the plunger, and the patent discloses the idea of shifting this chute laterally back and forth in a horizontal plane to either an operative position, directly over the charger, or an inoperative position to one side of the charger. In this inoperative position the chute lies out of the path of movement of the plunger, so that the plunger may freely descend to compress the material delivered into the charger by the chute when in its operative position.

In said patent, the movements of the plunger and the shifting of the chute were independently manually controlled, and it was necessary to provide a suitable interlock to avoid the possibility of the plunger making a down stroke while the chute was in its path beneath it.

The general object of the present invention is to eliminate manual control of the chute and provide automatic means, controlled by the plunger, for shifting the chute laterally out of the way into inoperative position simultaneously with the downward movement of the plunger.

More specifically, an object of the invention is to provide means actuated by the initial downward movement of the plunger for automatically shifting the chute clear of the path of the plunger.

Another object is to devise means for causing the initial downward movement of the plunger to take place at an abnormally slow rate, and then, after the chute has been shifted, for automatically increasing the speed of travel to normal. The advantages of such an arrangement will hereinafter clearly appear.

A further specific object of the invention is to provide an elongated upright member mounted on the plunger and to devise means partly carried by said member for automatically shifting the chute.

A still more specific object of the invention is to devise improved cam means and roller means for shifting the chute, one of said means being carried by said upright member.

It will be further understood that the invention contemplates not only shifting the chute to inoperative position by the initial downward movement of the plunger, but also returning the chute to operative position over the charger as the plunger approaches the upward limit of its movement.

With the above and other objects in view, and to improve generally on the details of such apparatus, the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawings, forming part of this specification, and in which:

FIG. 1 is a side elevation of one embodiment of the invention, parts being omitted or broken away;

FIG. 2 is a similar view, but on a larger scale, showing, in broken lines, a different position of the several parts;

FIG. 3 is a view on the same scale, but looking in a direction at right angles to that of FIG. 2, parts being shown in section;

FIG. 4 is a fragmentary view, on a still further enlarged scale, showing in vertical section the upper end of the hydraulic cylinder;

FIG. 5 is a fragmentary perspective view, showing on an enlarged scale a detail of the traveling carriage and rail on which it rides, and also illustrating the position of the limit switch actuated by said carriage;

FIG. 6 is a diagrammatic view illustrating my improved means for retarding the initial downward movement of the plunger and thereafter automatically causing the plunger to travel at normal speed;

FIGS. 7, 8 and 9 are fragmentary diagrammatic views, embodying parts of FIG. 6, and showing the successive positions occupied by the control valves during one complete stroke of the press;

FIG. 10 is a view similar, on a smaller scale, to FIG. 2, but showing a different embodiment of the invention; and

FIG. 11 is a fragmentary view, conforming with FIG. 10, but showing the parts in a different position.

Referring to the drawings in detail, I have shown a conventional supporting framework comprising vertical members **1** and horizontal members **2**.

In a vertically disposed double-acting hydraulic cylinder **4**, supported by the framework by means of a mounting plate **5**, is a piston rod **6** having at its upper end a piston **6***a* and at its lower end a ram or plunger **7**.

Motive fluid is supplied to the two ends of the cylinder **4** by means of pipes **8** and **9**.

A horizontally disposed angle iron **12** is secured to the framework at a point below the uppermost position of the plunger, and secured to the lower edge of the angle **12** is an angular track **12***a* on which travel rollers **11** supporting a carriage or hopper **10**, as by means of hangers **10***a* on which the rollers **11** are mounted.

Depending from the bottom of the hopper **10** is a rotary distributor or chute **13**, which may be similar to that shown in Patent No. 2,596,018, issued May 6, 1952, to Fishburne, Hinnant and Ricks. This distributor or chute may be rotated in any suitable way by means of a motor (not shown) and its purpose is to properly distribute the tobacco or other material in the charger **14**. The tobacco or other material is delivered to the hopper by means of an endless conveyor **15**, in a manner similar to that shown in my said prior Patent No. 2,675,154. As shown in FIG. 3, the wall of the hopper on the side adjacent the conveyor is made much lower than the walls on the other three sides, as indicated at **10***b*, so that the material may be delivered by the conveyor over the top of this low wall.

Journalled in bearings supported by a pair of vertical members **3** is a horizontal shaft or torque tube **16**. A pair of downwardly extending arms **17** are rigidly secured at their upper ends to this torque shaft and are pivotally connected at their lower ends to a pair of links **19** which in turn are pivotally connected to a pair of upstanding members **20** secured to or forming a part of the hopper **10**. By reference to FIG. 3, it will be seen that these members **20** are disposed just inside of the pair of angle members **12** on which the rollers **11** carrying the hopper are supported. It will be noted that the upper flange of the angle members **12** is relatively wide and overhangs the rollers **11**. This is for the purpose of preventing loose tobacco or other material from accumulating on the track **12***a* and interfering with the travel of the rollers.

Also rigidly secured to the torque tube or shaft **16** are a pair of swing arms **21**, each of which is shown in FIG. 3 as hollow and of rectangular section. A pair of diagonally extending brace members **22** are secured at one end to the swing arm **21** and at the other end to a cross bar **18** connecting the arms **17**, thus tying the elements **17**, **18** and **21** together to constitute a rigid structure.

Secured as by welding to the opposite inside faces of each of these swing arms is a pair of spaced cam tracks **23** and **24**. By reference to FIGS. 1 and 2, it will be seen that these cam tracks **23** and **24** comprise an upper portion which extends substantially parallel with the swing arm **21** and are then curved downwardly and extend at a sharp angle. It will be particularly noted that the lower portions of the cam tracks **23** and **24** are preferably not strictly parallel but flare somewhat apart, the track **23** preferably extending at about 40 degrees to the horizontal while the track **24** extends at 50 degrees.

Rigidly secured at their lower ends to the plunger **7** is a pair of elongated upright members or control tubes **25**, spaced apart and disposed one at each side of the piston rod **6**. They are preferably rectangular in cross section and may be secured to the plunger **7** as by means of a welded flange secured by bolts **25***a* to a plate **7***a* inside of the plunger **7**, which is shown as hollow (see FIG. 3). These control tubes or upright members **25** extend upward approximately as far as the top of the cylinder **4**, and may be suitably guided at their upper ends. At their lower ends they may be guided between pairs of rollers **26**, as shown in FIG. 2.

It will be understood that the cam tracks **23** and **24** are spaced apart a sufficient distance to receive between them a roller **27** carried by the upright member or control tube **25**.

In FIG. 4 I have illustrated the details of construction of the upper end of the cylinder **4**. From this it will be seen that a ring **4***a* is welded to the upper end of the cylinder and that a cylinder head **28** is secured to this ring as by means of bolts. A tubular extension **29** is welded as at **31** to a plate **30** secured to the cylinder head **28** by means of bolts. To the upper end of the tubular extension **29** is secured an angular fitting **32** adapted to receive the end of the pipe **8**.

Secured to the piston rod **6** and working within the tubular extension **29** is a tapered plug **33**, the lower end of which fits the tubular extension **29** fairly closely. The main purpose of this is to cushion the upper movement of the piston as it approaches its uppermost position. It also has a tendency to somewhat retard the initial movement of the piston on its downward stroke since, because of the tapered plug **33**, motive fluid from the pipe **8** does not have free access to the inside of the cylinder when the piston is at the upper limit of its stroke, but, as the tapered plug **33** moves downwardly, a passageway of progressively increasing size for the motive fluid is provided.

It will be understood that in practice a pair of chargers **14** and a pair of plungers **7** would be provided as in my said prior Patent No. 2,675,154 and that the conveyor **15** extends between the upper ends of the chargers as in my said patent. It will also be understood that the conveyor **15** is reversible and that the tobacco or other material to be packed is continuously fed to it by means of a supply conveyor (not shown) but arranged substantially as in my said prior patent.

The operation of the mechanism so far described will now be explained.

When the plunger **7** is in its uppermost position as shown in FIGS. 1 and 3, and in full lines in FIG. 2, the hopper **10** and distributor **13** are disposed immediately over the charger **14** so as to deliver material into it from the conveyor **15**. When the charger is sufficiently full and it is desired to compress the material therein, motive fluid is admitted to the upper end of the cylinder **4** and the plunger begins its downward stroke. This admission of fluid is usually accomplished by means of a solenoid operated valve which may be controlled by a manual switch, or the control switch may be automatically operated in response to the weight of the material accumulated in the charger, as described and claimed in my copending application Serial No. 123,008, filed July 10, 1961. The rollers **27** are normally positioned between the upper ends of the pairs of cam tracks **23** and **24** as shown in FIG. 1 and in full lines in FIG. 2. As the plunger begins to move downward, the upright members or control tubes **25** of course move with it and the rollers **27** operate to swing the arms **21**, and with them the torque tube **16** and the arms **17**, around the axis of the torque tube as a pivot. As the arms **21** swing, the arms **17** also swing toward the left as viewed in FIGS. 1 and 2, and these arms **17** through the links **19** shift the carriage or hopper **10** along the supporting track to the left to a position in which it is disposed to one side of the path of travel of the plunger **7**, the final position of the parts being shown in dotted lines in FIG. 2. It will be observed by reference to this figure that the arms **21** swing to a final position in which the lower flared ends of the pairs of cam tracks **23** and **24** are disposed substantially vertically so that the rollers **27** can escape from between them. Thus, the chute is completely shifted by the initial movement of the plunger as it begins its downward stroke. Also it will be seen that although the shifting mechanism is permanently connected to the chute, it is connected with the plunger only during initial movement of the latter, and is then disconnected. This is necessary because of the fact that the stroke of the plunger is may times the distance through which the chute travels. The delivery of material by the conveyor having been stopped and the hopper having been shifted to one side as shown in dotted lines in FIG. 2, the plunger is free to descend and compress the material accumulated in the charger **14**.

After the compression stroke, the plunger of course is again raised and, as it approaches the upper limit of its movement, the rollers **27** again enter between the flared lower ends of the cam tracks **23** and **24** and thus carry the swing arms **21** back to full line position, in which the hopper **10** is again positioned over the charger to deliver additional material thereto from the conveyor **15**.

In other words, instead of having to shift the hopper laterally into and out of operative position, as in my said prior patent, the present invention provides means for automatically shifting the hopper back and forth as the plunger moves upwardly and downwardly. Thus, no interlock between the plunger and the hopper is required, since my improved cam and roller mechanism insures that the hopper will always be shifted out of the path of movement of the plunger, before the plunger travels down far enough to strike the hopper.

Obviously, if the full force of the motive fluid were admitted to the top of the cylinder **4** to force the plunger downwardly, the mechanical shock on the hopper shifting elements would be tremendous, if not even destructive. I have found in practice that, even with the tapered plug arrangement shown in FIG. 4, an undesirable shock is still not avoided. In other words, I have found that in most cases the tapered plug arrangement shown in FIG. 4 does not slow the initial downward movement of the plunger sufficiently to avoid objectionable shock.

Therefore, whether or not the structure of FIG. 4 is employed, I find it desirable to provide additional means specifically designed to substantially slow down the initial movement of the plunger. This special arrangement is shown in FIGS. 5–9 inclusive.

The arrangement includes a limit switch **34**, shown mechanically in FIGS. 2 and 5 and diagrammatically in FIGS. 6–9. This limit switch is preferably mounted in such a position that the operating lever **34***a* thereof can be engaged and actuated by a projection, such as a pin **10***c*, carried by the hopper **10** when the hopper reaches the position shown in dotted lines in FIG. 2.

By reference to the diagrammatic views, it will be seen that this switch **34** comprises two pairs of fixed contacts **34***c*, **34***d*, and **34***e*, **34***f*, and a movable element actuated by the lever **34***a* for bridging either pair of such contacts. In connection with this switch **34**, I have shown a valve **36** biased in one direction by a spring **36***a* and moved in the other direction by a solenoid **35**. This valve contains a piston **36***b* having a transverse port **36***c* there-

through, the normal position of the piston 36*b* being as shown in FIG. 6 in which the valve is closed.

From the lower end of the cylinder 4 extends a pipe 9 to which is connected a branch pipe 37 extending to the valve 36, from which valve another pipe 38 extends to a pipe 39 leading to the reservoir 39*a* for motive fluid. A constantly driven pump 40 draws fluid from this reservoir and delivers it to the hydraulic cylinder 4 when required, as hereinafter described.

In connection with the valve 36 and another main valve hereinafter referred to, I have shown a manually operated switch 41 normally biased to neutral position as shown in FIG. 6. This switch, when operated, is adapted to bridge either the pair of contacts 43, 44, or the opposite pair of contacts 54, 55, the contacts 43 and 54 being tied together as by a conductor 59.

The two sides of a circuit supplying current to the valves are designated at 42 and 58. A wire 45 connects the contact 44 with the contact 34*c* of the switch 34 and a wire 46 connects contact 34*d* of this switch with one side of the solenoid 35, the other side of this solenoid being connected by wire 47 with the line 58. From this it will be seen that, when the control element of the switch 34 is in the position shown in full lines in FIG. 6, a circuit will be established through the solenoid 35. The pipe 37 preferably contains an adjustable needle valve 37*a* by means of which the rate of flow can be controlled.

In addition to the auxiliary or drain valve 36, the system comprises a main valve 52. This valve contains a block or piston 52*a* which is normally centered by springs 52*b* and is constructed to be shifted one way or the other from this central position by means of solenoids 51 and 51*a*.

The valve 52 is shown as having a passageway 60 normally connecting the pipe 49 from the pump 40 to the pipe 39 discharging into the tank, so that with the valve in idle or central position as shown in FIG. 6, motive fluid from the pump may circulate freely through the valve and back to the tank.

The piston 52*a* of this valve is provided with a pair of spaced transverse ports 61 and with a pair of oppositely inclined, diagonally extending ports 62 in a manner well known in connection with four-way valves.

With the parts in full line position as shown in FIGS. 2 and 5, the contacts 34*c* and 34*d* of the switch 34 are bridged. The circuit to these contacts however is open at the manually operated switch 41, and therefore no current flows.

Assuming the plunger to be in its uppermost position as indicated in FIGS. 2 and 6, and it is desired to have the plunger make its downward stroke, the operator throws the switch 41 to "Down" position as shown in FIG. 7. This connects contacts 43 and 44, and current then flows from line 42 through these contacts and wire 45 to contact 34*c*, then through the switch 34 to contact 34*d*, thence through wire 46 and solenoid 35 to wire 47 connected to the other side of the line 58. This energizes the solenoid 35 and thereupon the piston 36*b* of the valve 36 is moved over until the port 36*c* registers with the pipes 37 and 38, thus establishing a fluid connection between the bottom of the cylinder 4 and the storage tank 39*a*. Motive fluid is then drained off from the bottom of the cylinder through pipes 9 and 37, while fluid is drawn from tank 39*a* into the top of the cylinder above the piston through pipe 8, pipe 39*b* and check valve 39*c*. As the motive fluid is drained off, the plunger begins to move downwardly by gravity at a relatively slow rate. During this initial slow downward movement the cam and roller mechanism shown in FIGS. 1–3 is brought into action and the carriage or hopper 10 is gently shifted over to dotted line position. As the hopper reaches this dotted line position, the pin 10*c* (FIG. 5) engages the operating lever 34*a* of the switch 34 and swings it over to dotted line position, thus shifting the movable contact of the switch from the position shown in full lines in FIG. 6 to that shown in full lines in FIG. 8. This breaks the circuit through solenoid 35, and thereupon the spring 36*a* moves the piston 36*b* over until it blocks passage between the pipes 37 and 38, and seals them off as shown in FIG. 8. At the same time, when the switch 34 is thrown over to the full line position shown in FIG. 8, it establishes a circuit from wire 45, jumper 34*g* to contact 34*e*, contact 34*f*, wire 50 through solenoid 51 of the main valve 52, and thence to wire 53 which is connected with the other side of the line 58. This energizes solenoid 51 and causes it to push the piston 52*a* over to the left until the transverse ports 61 are brought into alinement with the pipes 8 and 49, on the one hand, and pipes 9 and 39, on the other hand. Motive fluid in full volume is then immediately delivered through pipe 8 to the upper end of cylinder 4 and causes the plunger to complete its downward stroke at normal speed.

Assuming then that the plunger is at the bottom of its stroke and it is desired to raise the plunger again, the operator throws the switch 41 to the "Up" position as shown in FIG. 9. A circuit is then established through contacts 54 and 55 and wire 56 to the solenoid 51*a* which, upon being energized, forces the piston 52*a* over to the right as shown in FIG. 9, thus connecting the pump delivery pipe 49 through one of the diagonal ports 62 with the pipe 9 communicating with the bottom of the cylinder while, at the same time, the other diagonal port connects the pipe 8 with the return pipe 39, thus permitting motive fluid to be exhausted from the upper end of the cylinder.

Meanwhile, as the plunger moves upward, the hopper is shifted back to full line position in FIG. 2 and the pin 10*c* disengages the switch lever 34*a*, thus permitting the switch 34 to go back to the position shown in full lines in FIGS. 6 and 7, under the influence of a suitable spring. The apparatus is then ready for another cycle of operation.

It will be noted that the initial downward movement of the plunger by gravity can be made as slow as desired by adjusting the needle valve 37*a* and, in this way, its rate of movement can be made such that there is substantially no shock to the hopper shifting mechanism.

While I have shown a solenoid operated valve controlled by a manual switch for causing the upward and downward movements of the plunger, it will be understood that I may control this solenoid operated valve by means of an automatic relay system as shown in my said copending application Serial No. 123,008, filed July 10, 1961.

While in the preceding figures I have shown an arrangement mechanically operated by the plunger as it begins its downward stroke for shifting the carriage or hopper out of the way, in FIGS. 10 and 11 I have illustrated a modified arrangement in which, instead of a mechanical connection, I provide a separate source of power for shifting the hopper.

Referring to these figures, it will be seen that I employ a power cylinder 63 which, for the sake of simplicity, may be operated by compressed air. The cylinder 63 has a piston 63*a* and the piston rod 64 is connected to a member 65 rigid with the hopper 10. From the opposite ends of the cylinder 63 extend pipes 66 and 67 to a four-way valve 68. This valve is of the usual construction except that the block or piston 71 is biased toward the right by means of a spring 76. From the side of the valve 68 opposite the pipes 66 and 67 extend pipes 69 and 70, the pipe 69 being connected to a source of compressed air, while the pipe 70 constitutes the exhaust.

Connected with the block or piston 71 is a rod 73 carrying at its end a roller 74 which bears upon a cam 75 carried by the upright member or control tube 25.

In FIG. 10, where the plunger is shown at the upper limit of its movement, the roller 74 bears against the cam 75, thus holding the valve 68 in such a position that pressure is admitted through pipe 69 and the diagonal port 72 to the pipe 66 leading to the left hand end of the

cylinder 63, thus causing the piston 63*a* and rod 64 to force the hopper into normal position, as shown in FIG. 10, and hold it in this position. When, however, motive fluid is admitted to the upper end of the hydraulic cylinder 4 by means, for example, of a solenoid operated valve such as shown in FIG. 6, and the plunger begins to move downward, the cam 75 passes out from under the roller 74, as shown in FIG. 11, and the spring 76 then forces the valve piston 71 over to a position in which the transverse port 72*a* admits fluid from pipe 69 through pipe 67 to the right hand end of cylinder 63, thus forcing the piston and the hopper toward the left, out of the way of the plunger, the left hand end of the cylinder 63 being connected through the valve 68 to exhaust.

It will thus be seen that in both modifications I provide means operated by the plunger for automatically shifting the hopper out of its path as the plunger begins its downward movement, and it will be further noted that in both modifications the control of the hopper is effected by a cam and roller mechanism, part of which is carried by the control tube or upright member mounted on the plunger.

It will be understood that I contemplate using in connection with FIGS. 10 and 11 the same arrangement as has been described in connection with the other figures for slowing down the initial movement of the plunger. While in the other figures this slowing down was for the purpose of avoiding shock to the mechanism, in the modification of FIGS. 10 and 11 the slowing down would perform a useful function in insuring allowance of a sufficient time interval to permit the power cylinder 63 to operate satisfactorily and to avoid any chance of the plunger coming in contact with the hopper before the latter has moved out of the way.

What is claimed is:

1. In a press for packing loose, compressible material, the combination with a charger, of a vertically extending plunger disposed above said charger and constructed to enter the same to compress material therein, power means for moving said plunger upwardly and downwardly, a distributor mounted above said charger and movable horizontally to either one of two positions, in the first of which positions it lies directly over said charger so as to deliver material into the same, and in the second of said positions it lies to one side of said charger out of the path of said plunger, and means operating simultaneously with said plunger as it begins its downward stroke for shifting said distributor completely to said second position.

2. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container to be packed, of a chute mounted above said charger and movable horizontally through a relatively small distance to either an operative position, in which it lies directly over said charger so as to distribute material into the same, or to an inoperative position to one side of said charger, a vertically disposed plunger located above said charger and chute, power means for moving said plunger upwardly and downwardly through a distance many times greater than the travel of said chute, said plunger being constructed to enter said charger when said chute is in its inoperative position, to compress the material previously delivered into said charger, and means operated by the initial part only of the downward movement of said plunger for completely shifting said chute laterally to said inoperative position, out of the path of said plunger.

3. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container to be packed, of a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger so as to distribute material into the same, or to an inoperative position to one side of said charger, a vertically disposed plunger located above said charger and chute, power means for moving said plunger upwardly and downwardly, said plunger being constructed to enter said charger when said chute is in its inoperative position, to compress the material previously delivered into said charger, and mechanical means connected with said chute and connected with said plunger only during the initial part of its downward movement for shifting said chute laterally to said inoperative position, out of the path of said plunger.

4. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container to be packed, of a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger so as to distribute material into the same, or to an inoperative position to one side of said charger, a vertically disposed plunger located above said charger and chute, power means for moving said plunger upwardly and downwardly, said plunger being constructed to enter said charger when said chute is in its inoperative position, to compress the material previously delivered into said charger, and cam and roller means operating only during the initial part of the downward movement of said plunger for shifting said chute laterally to said inoperative position, out of the path of said plunger.

5. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container to be packed, of a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger so as to distribute material into the same, or to an inoperative position to one side of said charger, a vertically disposed plunger located above said charger and chute, power means for moving said plunger upwardly and downwardly, said plunger being constructed to enter said charger when said chute is in its inoperative position, to compress the material previously delivered into said charger, and means actuated by the initial part only of the downward movement of said plunger for shifting said chute laterally to said inoperative position, and actuated by the upward movement of said plunger, as it approaches its uppermost position above the plane of said chute, for shifting said chute back into operative position.

6. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a power cylinder extending vertically upward above said charger, an upwardly and downwardly moving plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position to one side of said charger, and means partially carried by said upright member for shifting said chute laterally to inoperative position upon initial downward movement of said plunger.

7. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position to one side of said charger, and means partially carried by said upright member for shifting said chute laterally to inoperative position upon downward movement of said plunger, and for shifting

said chute back to operative position upon upward movement of said plunger as it approaches its uppermost position above the plane of said chute.

8. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position to one side of said charger, mechanism for shifting said chute laterally back and forth, and means carried by said upright member for actuating said shifting mechanism as said plunger moves upwardly and downwardly.

9. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position to one side of said charger, mechanism for shifting said chute laterally back and forth as said plunger moves upwardly and downwardly, and cam means and roller means for actuating said shifting means, one of said cam means and roller means being carried by said upright member.

10. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position to one side of said charger, independent power means for shifting said chute laterally back and forth, and means carried by said upright member for controlling said power means as said plunger moves upwardly and downwardly.

11. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position to one side of said charger, and cam and roller means for shifting said chute back and forth as said plunger moves upwardly and downwardly, said roller being carried by said upright member.

12. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position to one side of said charger, mechanical connecting means between said plunger and chute for shifting the latter back and forth as the former moves upwardly and downwardly, and means for producing a relatively slow initial movement of said plunger as it begins its downward stroke, whereby sudden application of force to said chute is avoided.

13. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, a distributor mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position, to one side of said charger, means operated by said plunger for shifting said distributor from one position to the other, and means for producing a relatively slow initial movement of said plunger as it begins its downward stroke.

14. A press arrangement according to claim 13, in which the power cylinder is of the hydraulic type, and the means for producing a relatively slow initial movement of the plunger includes a restricted conduit for draining off motive fluid from the lower end of the cylinder, whereby the plunger moves downwardly by gravity.

15. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position, to one side of said charger, means operated by said plunger for shifting said chute from one position to the other, means for causing an initial downward movement of said plunger through a predetermined distance at relatively slow speed, and automatic means for thereupon completing such downward movement at normal speed.

16. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger, or an inoperative position, to one side of said charger, means operated by said plunger for shifting said chute from one position to the other, means for causing an initial downward movement of said plunger at relatively slow speed, and means governed by the movement of said chute to its inoperative position for thereafter completing such downward movement at normal speed.

17. In a press for packing loose, compressible material in containers, the combination with a charger disposed above the container being packed, a double acting power cylinder extending vertically upward above said charger, a plunger constructed to enter said charger and having a piston rod and piston working in said cylinder, an elongated upright member secured at its lower end to said plunger and extending upwardly therefrom parallel with and spaced from said piston rod, a chute mounted above said charger and movable horizontally to either an operative position, in which it lies directly over said charger,

or an inoperative position to one side of said charger, and means including a cam and roller for shifting said chute back and forth as said plunger moves upwardly and downwardly, said cam being carried by said upright member.

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