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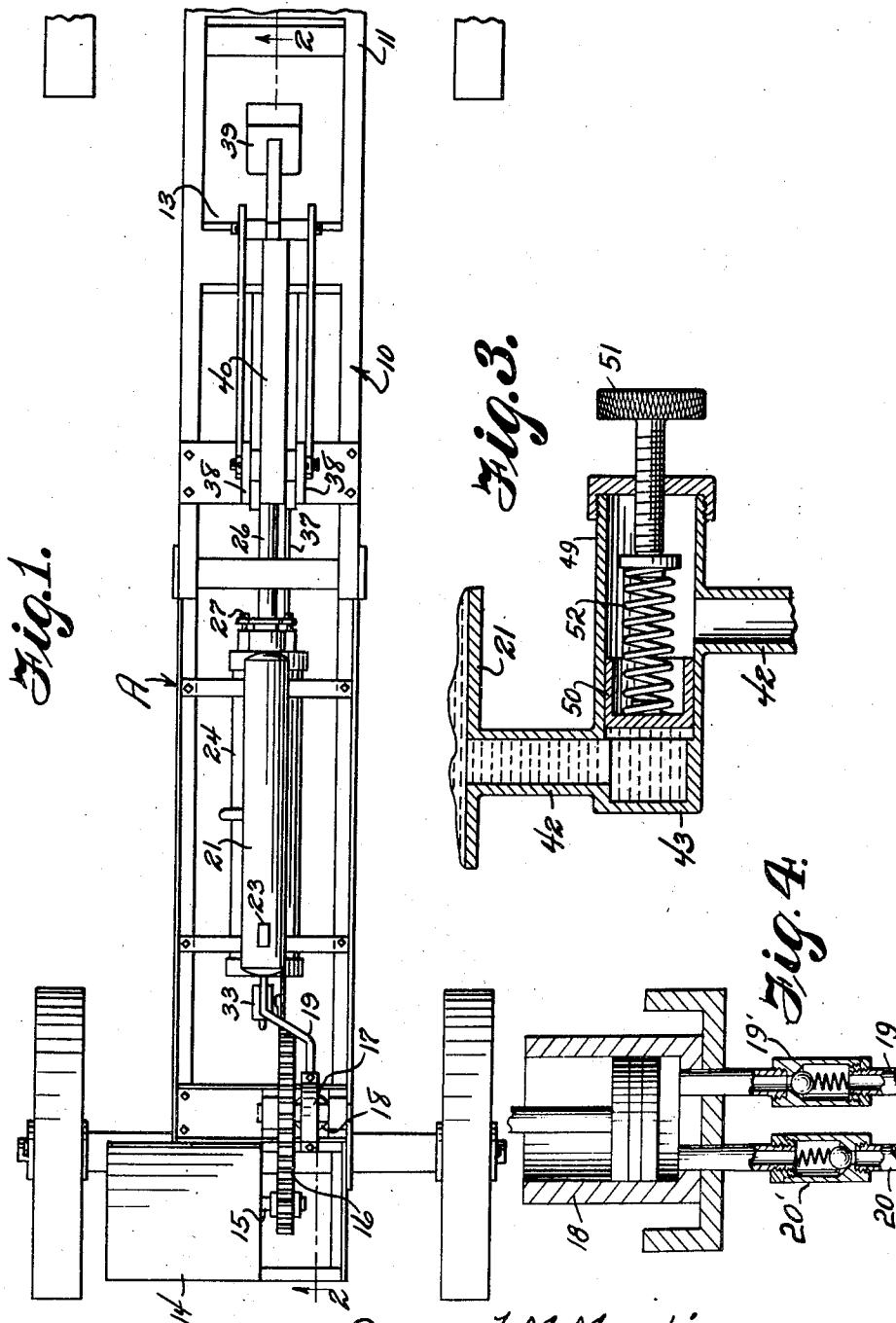
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HYDRAULIC BALING PRESS

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2 Sheets-Sheet 1



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UNITED STATES PATENT OFFICE

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HYDRAULIC BALING PRESS

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2 Claims. (Cl. 100-19)

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The invention relates to baling presses, and more particularly to vehicular hydraulic baling presses.

The primary object of the invention is the provision of a press of this character, wherein hay, cotton and other fibrous material will be compressed into bales automatically and through the medium of hydraulic mechanism, thereby relieving hand power for this purpose.

Another object of the invention is the provision of a press of this character, wherein the mechanism is mounted on a wheeled carriage, so that the press can be brought into working position at any desired locality, the baling operation being automatically effected.

A further object of the invention is the provision of a press of this character, wherein the hydraulic arrangement is unique and novel, it being under control at all times.

A further object of the invention is the provision of a press of this character, which is simple in construction, thoroughly reliable and efficient in operation, strong, durable, easy of operation, perfectly controlled, requiring one man's attention, and inexpensive to manufacture and install.

With these and other objects in view the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a top plan view of the press constructed in accordance with the invention.

Figure 2 is a sectional view taken on the line 2-2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a fragmentary detail sectional view through the pressure relief valve.

Figure 4 is an enlarged detailed sectional view of the check valves incorporated in the supply leads.

Figure 5 is an enlarged detailed sectional view of the bracket hangers for the control rods, and

Figure 6 is an elevational view of Figure 5, on the line 6-6 thereof, looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail A designates generally a wheeled carriage for the press constituting the present invention and hereinafter fully described.

The press comprises a carriage body 10 having

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at its rear a baling frame structure 11 affording a baling chamber therein in which works a compression ram 12, the top of the frame structure being provided with a feed hopper 13 for the loose material to be baled within the chamber of such structure.

At the fore of the body 10 is a power motor 14 which is supported thereon in any suitable manner and its horizontal drive shaft 15 through meshing gears 16 and eccentric connections 17, respectively, operates a pressure pump 18, which through leads 19 and 20, respectively, supplies pressure to the upper fluid tank 21, and the lower fluid tank 22, the upper tank 21 being fitted with a pressure gauge 23. The leads 19 and 20 have check valves 19' and 20' respectively interposed therein. Therefore when fluid is being drawn from tank 22 through lead 20 the check valve 19' is closed and when the fluid is forced into tank 21 by means of lead 19 the check valve 20' is closed. Thus the pressure in the pressure tank 21 is created.

Intermediate of these tanks 21 and 22 is a fluid operated piston cylinder 24, its piston 25 reciprocally mounted therein having its connecting rod 26 joined with the ram 12 for actuating the same. The rod 26 works through a packing gland 27 fitted to the cylinder 24. The tank 22 is what may be termed a supply for fluid to the cylinder, while the tank 21 is the operating fluid tank, or pressure tank.

The tank 22 has the leads 28 and 29 opening into the opposite ends, respectively, of the cylinder 24 and these leads are equipped with alternately opening and closing plug valves 30 and 31, respectively, while the tank 21 has the lead 32 to a two-way plug valve 33, the two-ways 34 and 35, leading to the cylinder 24 directly, and to the lead 29, as is clearly apparent from Figure 2 of the drawings, so that fluid is controlled fore and aft of the piston 25 for the reciprocation thereof within the said cylinder.

The valves 30, 31 and 33 are timed and operated by controls 36 and 37, respectively, automatically actuated in the following manner. The controls 36 and 37 being connected at their respective ends by a link 48 which is connected at its medial point 44 to the rod 26 reciprocate simultaneously with the rod 26. The opposite ends of the controls 36 and 37 are connected to pivoted hangers 45 to which are also connected valve operating rods 46 which operate valves 30, 31 and 33. On the forward stroke of the piston 25 fluid from tank 21 enters cylinder 24 through leads 32 and 34 forcing the piston forward and thus expelling

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the fluid from the cylinder 24 by means of lead 47 and the fluid can enter the tank 22 by means of valve 31 which is now open or it can return to the valve 33 by means of lead 35, valve 30 now being closed since the valves 30 and 31 are opened and closed alternately. When the piston moves forward the rods 36 and 37 slide in hangers 45 until the nut heads 36^a and 37^a respectively, on their respective rods engage the hangers, at which time the rods 46 are moved forward to operate the valves to permit the flow of liquid as previously described. When the piston 25 returns the fluid leaves the cylinder 24 by means of lead 34, and valves 30 and 33 which have been actuated by the returning rod 26 actuating the controls 36 and 37, and the fluid then returns to the cylinder 24 by means of lead 35, just the reverse of the forward stroke of piston 25. When the piston returns the action is similar to that previously described except that the collars 36' and 37' on their respective rods 36 and 37 engage the hangers 45 to return the rods 46 and permit the flow of liquid previously described. At the top of the frame structure 11 is a support 38 for a packer 39, the latter being operated through suitable connections 40 and 41, respectively, with the rod 26, this being conventional.

Coupling the tanks 21 and 22 together is a safety valved pipe 42, the safety valve being indicated at 43 which allows fluid to flow back into supply tank 22 when the pressure in the pressure tank 21 becomes too high, this valve 43 being indicated in detail in Figure 3 of the drawings. The valve 43 comprises the housing 49 in which is mounted the slide valve 50, the valve 50 being tensioned by means of the tensioning screw 51 and the spring 52 interposed between the valve and screw to regulate the valve in accordance with the pressure in the tank 21. Thus the valve will operate to permit circulation of the fluid from the pump 18 into the tank 21, then to tank 22 and back to the pump 18. Thus when the power motor 14 is started the pump 18 will be operated to cause the fluid to flow through the system as previously described and when the motor is stopped the system becomes idle. The starting and stopping of the motor causes the operation or stopping of the baling press.

In explanation of the Figures 4 to 6 inclusive, it will be seen that the check valves 19' and 20'

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are conventional ball check valves which control the flow of liquid as previously described.

In Figures 5 and 6, each of the hangers 45 comprises the bracket 53 on which is pivoted at 54 the lever 55. The lever has the rounded apertured end 56 to slidably receive the rod 36 or 37, and has the rod 46 pivoted thereto at 57. A snap action spring 58 connected at 59 to the bracket 53 and to the pivot 57 causes the lever 55 to snap past the center position when actuated by the rod 36 or 37.

What is claimed is:

1. A press of the kind described, comprising baling means, including a baling frame, a ram reciprocably mounted therein and operated by a fluid operated piston and cylinder, a piston rod for said piston connected to said ram, a wheeled carriage supporting said baling means, a pressure tank and a supply tank located on opposite sides of said cylinder, means for connecting said tanks to said cylinder, valve means interposed in said last named means, motor means for supplying fluid under pressure to said fluid operated piston and cylinder, and means connected to said piston rod and to said valve means to actuate said valve means for controlling the flow of fluid within said cylinder.

2. The invention as described in claim 1, wherein said motor means is connected to the pressure tank and the supply tank for said fluid operated cylinder.

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