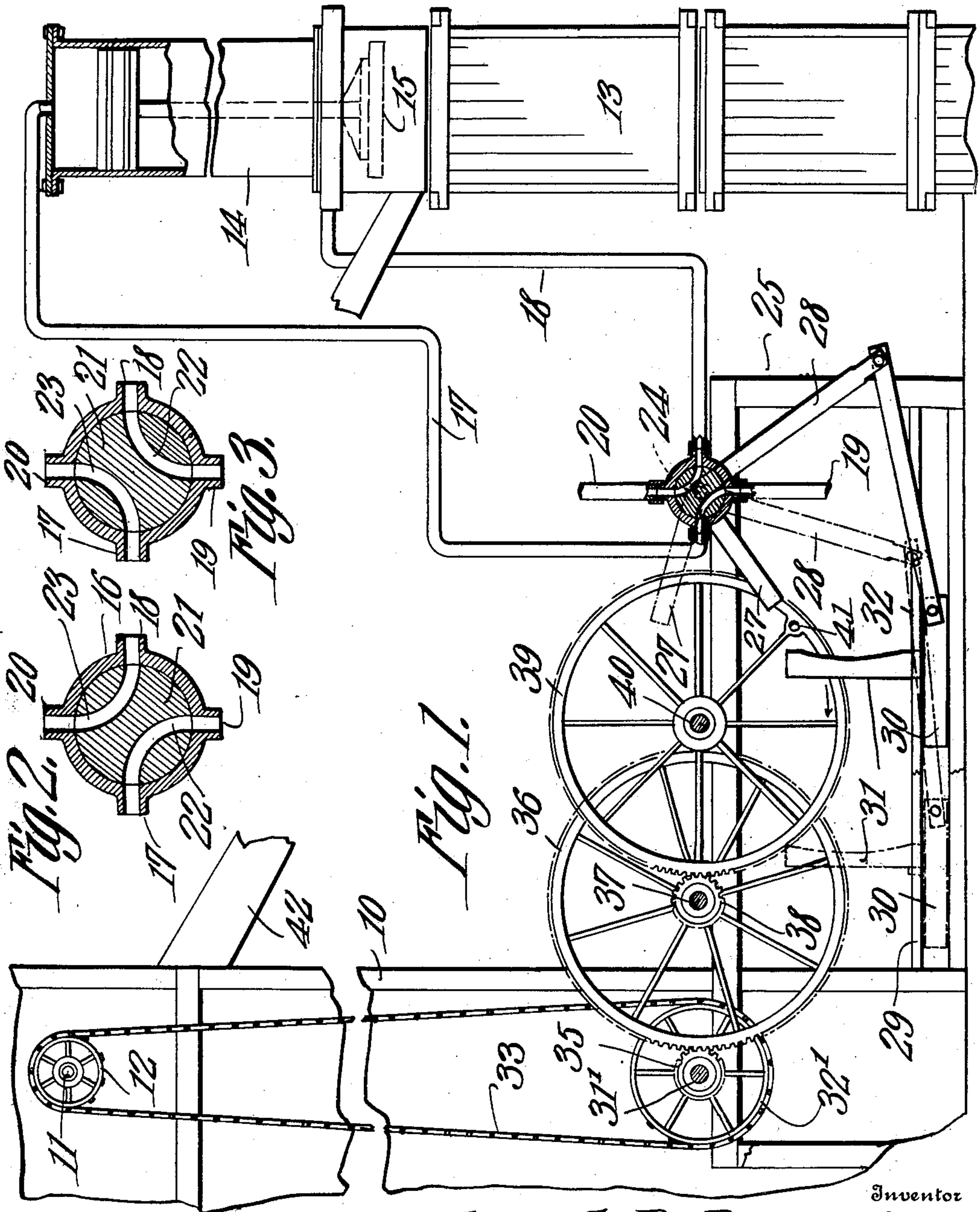


J. R. BROWNING.
VALVE OPERATING MECHANISM FOR PRESSES.
APPLICATION FILED JUNE 25, 1908.

969,457.

Patented Sept. 6, 1910.



Witnesses

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JOSEPH R. BROWNING, OF SPRINGHILL, LOUISIANA.

VALVE-OPERATING MECHANISM FOR PRESSES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH R. BROWNING, a citizen of the United States, residing at Springhill, in the parish of Webster and State of Louisiana, have invented a new and useful Valve-Operating Mechanism for Presses, of which the following is a specification.

This invention relates to valve operating mechanism for presses and has a special reference to valve operating mechanism for presses of the trampet type used for baling cotton, hay or the like.

The object of the invention is to provide a valve actuating mechanism which shall admit steam to the cylinder of the press at predetermined intervals of time.

The invention consists in general of an improved form of mechanism whereby the press plunger may be automatically controlled, and the necessity of manually operating the pressure valve obviated.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a side elevation of a valve operating mechanism constructed in accordance with this invention, the figure showing diagrammatically the arrangement of a press and cotton gin used in connection with this device. Fig. 2 is a section through the valve taken in the position in which that valve is during the compression of material held in press chamber. Fig. 3 is a similar view showing the position of the valve during retraction of the plunger head.

In the present manner of illustrating the invention, there is shown at 10 a cotton gin whereof 11 is one of the operating shafts, being driven in any manner suitable to a cotton gin. Mounted upon the shaft 11 is a sprocket 12 for purposes hereinafter to be described.

At 13 is indicated a press chamber above which is mounted a cylinder 14 provided with the usual piston and rod the latter carrying at the lower end a plunger 15. Leading from one side of a valve casing 16 is a pipe 17 extending to the upper end of the cylinder and a similar pipe 18 leads from the valve casing to the lower end of the cylinder.

A pipe 19 connects the valve casing 16 with any suitable source of supply and a pipe 20 is also connected to the valve casing to form the exhaust pipe. Within the valve casing 16 is a 4-way valve 21 provided with ports 22 and 23. The valve 21 is further provided with a stem 24.

Suitably positioned adjacent the valve just described is a frame 25 which may be made of either metal or wood as desired, and forms the support whereon the elements proper of this invention are mounted. The valve stem 24 is carried in suitable bearings on the frame 25 and has rigidly attached thereto at the inner end a double armed rock shaft the arms of which are indicated by the numerals 27 and 28. Upon the frame 25 is formed a cross head guide 29 whereon is slidably mounted a cross head 30 provided with an upwardly extending cross head arm 31. A pitman 32 is pivotally connected to the cross head and to the arm 28 of the two armed rock lever. By this means it will be seen that if the arm 27 of the rock lever be depressed the parts will assume the position shown in the full lines in Fig. 1, while if the cross head arm be moved to the left of that figure, the parts will assume the position shown in the dotted lines. A shaft 31' is mounted in suitable bearings on the frame 25 and carries at one end thereof, a sprocket 32' which is connected by a sprocket chain 33 with the sprocket 12 before mentioned. The shaft 31 also carries a pinion 35 which meshes with a gear 36 mounted on a shaft 37 also supported in suitable bearings on the frame 25. A second pinion 38 is mounted on the shaft 37 and meshes with a gear 39 carried on a shaft 40, the latter being supported in suitable bearings on the frame. A pin 41 forming a rotating member is mounted on the gear 39 to project laterally therefrom. The gear 39 is so positioned on the frame that the paths of the pin, the oscillating rock arm 27, and the reciprocating cross head arm 31 will intersect. A chute 42 preferably extends from the gin 10 to the press chamber 13.

In the operation of the device, let it be supposed that the valve is in the position shown in Fig. 3, and the valve operating element in the position shown in the dotted lines in Fig. 1. Thus, when the steam is turned on, it will pass through the pipe 18 into the cylinder 14 and raise the plunger, and at the same time, through the sprocket

12, sprocket 32' and sprocket chain 33, the chain of gears will be set in motion, and the pin will pass around in the direction of the arrow in Fig. 1. The arm 27 lies directly
 5 in the path of this pin and will be swung downward thereby and bring the valve to the position shown in Fig. 2 and in full lines in Fig. 1; thus reversing the course of the steam and permitting it to enter the
 10 cylinder 14 through the pipe 17, forcing the plunger down. Shortly after passing the rock arm 27 the pin moves against arm 31, and the cross head 30, arm 27 and other parts take the positions indicated in dotted
 15 lines in Fig. 1, thus returning the valve to its original position as shown in Fig. 3. Steam will then pass from the pipe 19 through the port 22 and the pipe 18 into the cylinder, causing the plunger to be
 20 forced upward and the steam contained in the cylinder to be exhausted through the pipe 17 and the port 23 into the exhaust 20. The pin will pass through a considerable arc of a circle before again contacting with the
 25 rock arm 27, and this period of rest or quiescence may be regulated at will by the proper proportions of the gears and sprockets actuating the pin. In this interval of rest more cotton flows down the chute into
 30 the press chamber and the operation is again repeated at the end of the period of quiescence.

It has been found that for a one gin stand, the interval between reciprocations should
 35 be about three minutes while for a two gin stand sufficient cotton will be fed down the chute in about two minutes. These time intervals, however, may be regulated with reference to the style and number of gins in the
 40 stand so that the device may be used with any desired style or number of gins.

It is to be noted that by the movement of the pin, the cross head arm 31 and rock shaft arm 27 are alternately brought into and
 45 forced out of the path of said pin.

It is obvious that many minor changes may be made in the form and construction of this device without departing from the material principles thereof. It is not there-
 50 fore desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as properly come within the scope of the invention.

Having thus described the invention, what
 55 is claimed is:—

1. In a device of the kind described, a valve, a valve stem, a rotating member, means to rotate said member, a rocker arm connected to the valve stem and adapted to
 60 line in the path of the rotating member, and

means connected to the rocker arm to replace said rocker arm when moved out of the path of said rotating member.

2. In a device of the kind described, a frame, a valve adjacent the frame, provided
 65 with a stem carried by the frame, an oscillating element rigidly connected to the valve stem, a reciprocating element slidably mounted on the frame, a rotating member, and a connection between the oscillating and
 70 reciprocating elements to cause these elements to alternately move in and out of the path of the rotating member.

3. In a device of the kind described, a frame, a valve provided with a stem, and
 75 means for operating said valve at predetermined intervals comprising a gear train mounted on the frame, means to operate said gear train, a pin projecting laterally from one of the gears, a two-armed rock lever
 80 mounted on the valve stem one arm of which has a path intersecting the path of said pin, a guide on the frame, a cross head held to move in the guide, a pitman connecting the second arm of the rock lever and the cross
 85 head, and an upwardly projecting cross head arm having a path intersecting that of the pin.

4. In a device of the kind described, a cylinder provided with a piston therein and rod
 90 projecting therefrom, a valve casing, a 4-way valve provided with a stem held in said casing, pipes connecting said casing with the upper and lower ends of said cylinder, a steam supply pipe connected to said casing,
 95 an exhaust pipe connected to the casing, and means for operating said valve at predetermined intervals comprising a frame, a gear train mounted thereon, means to operate said gear train, a pin projecting laterally
 100 from one of the gears, a two-armed rock lever mounted on the valve stem one arm of which has a path intersecting the path of said pin, a guide on the frame, a cross head held to reciprocate in the guide, a pitman
 105 connecting the second arm of the rock lever and the cross head, and an upwardly projecting cross head arm having a path intersecting that of the pin, said cross head arm and rock lever arm being arranged to move
 110 alternately in and out of the path of said pin.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH R. BROWNING.

Witnesses:

G. L. COBB,

I. B. DICKEY.