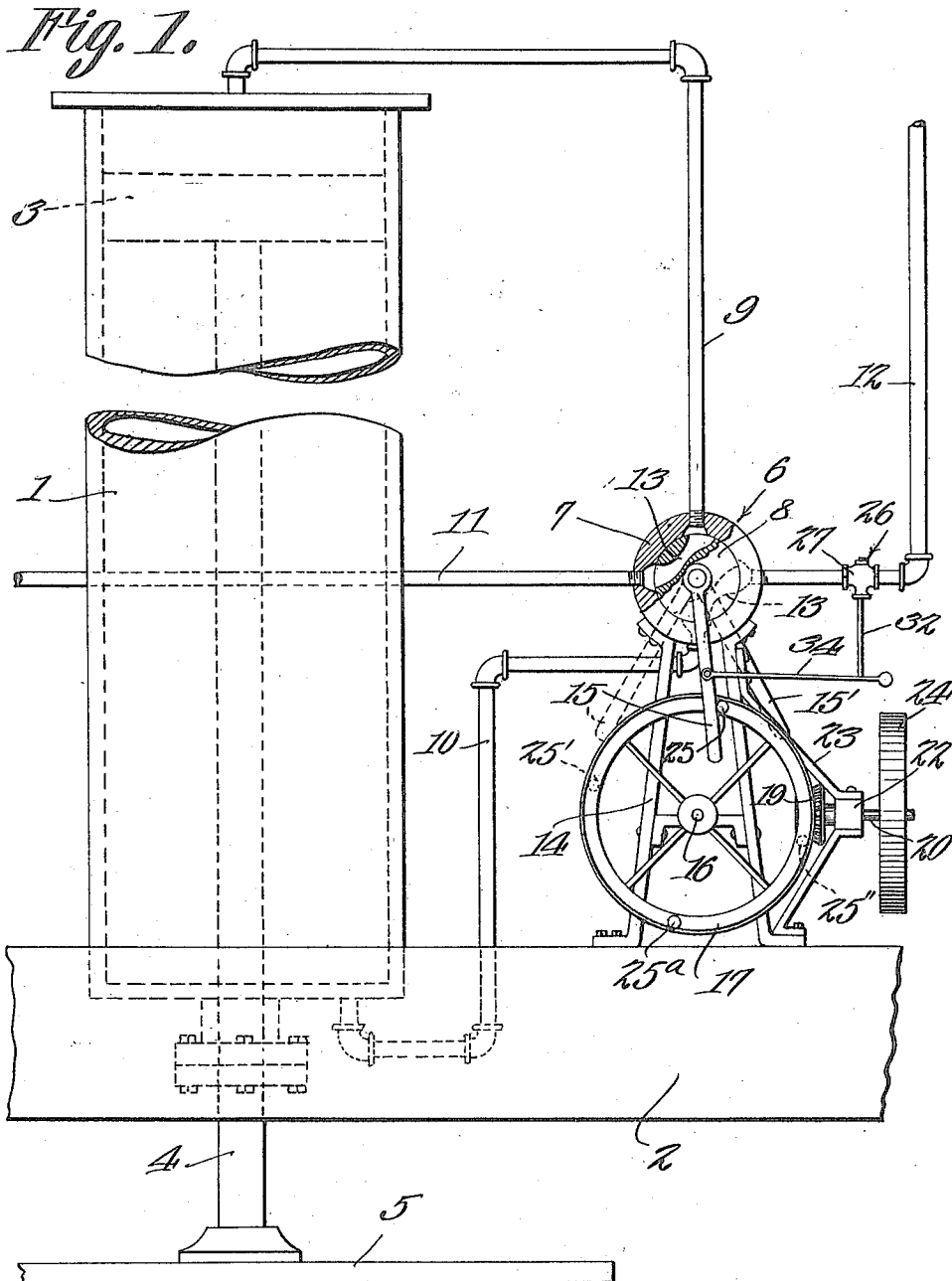


T. W. SPARKS.
 AUTOMATIC CONTROLLER FOR COTTON TRAMPERS.
 APPLICATION FILED NOV. 7, 1914.

1,141,218.

Patented June 1, 1915.
 2 SHEETS—SHEET 1.



Witnesses

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Fig. 2.

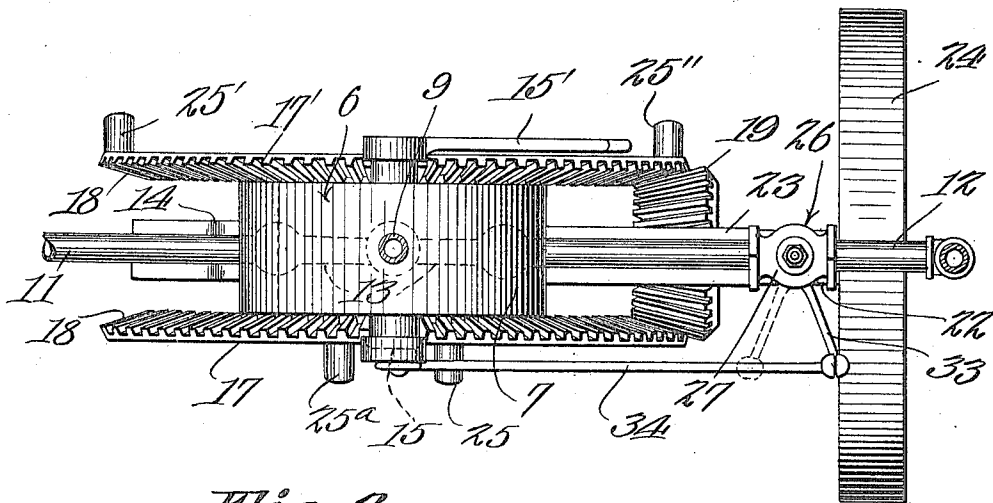
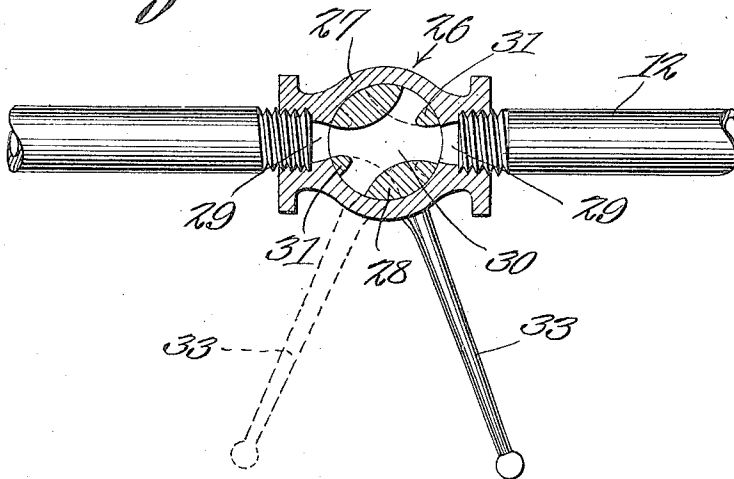


Fig. 3.



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UNITED STATES PATENT OFFICE.

TROY W. SPARKS, OF EDEN, TEXAS.

AUTOMATIC CONTROLLER FOR COTTON-TRAMPERS.

1,141,218.

Specification of Letters Patent.

Patented June 1, 1915.

Application filed November 7, 1914. Serial No. 870,850.

To all whom it may concern:

Be it known that I, TROY W. SPARKS, a citizen of the United States, residing at Eden, in the county of Concho and State of Texas, have invented a new and useful Automatic Controller for Cotton-Trampers, of which the following is a specification.

The present invention appertains to cotton trampers or pressers, and relates more particularly to an automatic controller therefor.

It is the object of the present invention to provide in combination with the steam or fluid pressure cylinder of the trumper or presser, a controlling valve for the steam or pressure fluid, and novel means for automatically actuating or reversing the valve to thereby cause the piston carrying the trumper plunger to be reciprocated properly, and without the attention of the attendant or operator.

A further object of the invention is to provide novel means for cushioning or arresting the movement of the piston at the ends of its strokes to avoid a jarring or shocking of the apparatus.

It is also within the scope of this invention, to provide an automatic controller for the purposes set forth, which will be comparatively simple, non-encumbering and inexpensive in construction, and which will be convenient, practical and efficient in operation.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in its preferred embodiment in the accompanying drawings, wherein:—

Figure 1 is a fragmental side elevation of a cotton trumper or press having the present controller applied thereto, parts being broken away. Fig. 2 is an enlarged plan view of the improved controller. Fig. 3 is an enlarged sectional view of the supplemental or auxiliary valve for cushioning

or arresting the movement of the piston at the ends of its upward and downward strokes.

In the drawings, there is illustrated an upright power cylinder 1 of a cotton trumper or press, which is mounted, as usual, upon a beam or support 2, so as to project upwardly therefrom. The piston 3 is mounted for reciprocation within the cylinder 1, and the plunger rod 4 which is secured rigidly at its upper end to the piston 3 passes slidably through the lower end of the cylinder 1, and carries the trumper or packer head 5 at its lower end. The present invention relates to the means for controlling the inlet and exhaust of steam or pressure fluid into and out of the cylinder 1, and for automatically reversing the inlet and exhaust of steam, to reciprocate the piston and plunger carried thereby.

In carrying out the present invention, there is provided a main controlling valve structure 6, embodying the cylindrical casing 7 in which is mounted for oscillatory movement the valve proper 8. A pipe 9 connects the top of the valve casing 7 with the upper end of the cylinder 1, while a pipe 10 connects the bottom of the casing 7 with the lower end of the cylinder. The steam or pressure fluid supply pipe 11 is attached to one side of the casing 7, and the exhaust pipe 12 is attached to the opposite side of the valve casing. The valve 8 is provided with a pair of passages 13 there-through, which at one position of the valve 8, are adapted to establish communication between the pipes 9 and 11, and 10 and 12, respectively, and at the other position of the valve, are adapted to establish communication between the pipes 10 and 11, and 9 and 12, respectively. In other words, when the valve 8 is oscillated to its two positions, it will alternately bring the steam or pressure supply pipe 11 into communication with the pipes 9 and 10 leading to the ends of the cylinder, and bring the exhaust pipe 12 into reversed or alternate communication with the said pipes 9 and 10. The main valve structure 6 is preferably disposed above the beam or support 2, and carried by the stand or frame 14 mounted upon the beam.

An actuating mechanism for the valve 8 is provided, whereby the valve will be automatically reversed or swung back and forth

to its opposite positions. To this end, the valve 8 is provided at its opposite sides with downwardly projecting arms 15 and 15' which are arranged angularly relative to one another, as seen in Fig. 1 and whereby when the arms 15 and 15' are alternately brought to a predetermined position they will reverse the valve 8.

A shaft 16 is carried by the stand 14 below the valve structure 6 and wheels 17 and 17' are mounted loosely upon the ends of the shaft at the opposite sides of the stand 14, or between the arms 15 and 15' and the stand. Thus, the arms 15 and 15' hang over the outer or remote sides of the wheels 17 and 17' to be actuated thereby. In order to rotate the opposite wheels 17 in opposite directions, the inner or adjacent sides of the rims of the wheels 17 and 17' are provided with beveled gear teeth 18 intermeshing with a relatively small beveled driving gear 19 disposed therebetween. The driving gear 19 is secured upon the inner end of a short shaft 20 which is journaled through a bearing 22 carried by a bracket 23 secured to the stand 14, and a pulley wheel 24 is secured upon the outer end of the shaft 20 for connecting the shaft 20 with the condenser (not shown) of the cotton gin with which the tramper or press is associated, although the pulley wheel 24 may be connected by a belt to any other suitable actuating or driving mechanism or prime mover. The shaft 20 is rotated in such a direction, as to rotate the wheel 17 at the near side of Fig. 1, in a counter clockwise direction, while the remote wheel 17' is rotated in a clockwise direction.

The rims of the wheels 17 and 17' are provided with outwardly projecting tappet pins or lugs coöperable with the arms 15 and 15' respectively. Thus, the outer side of the wheel 17 is provided with a pair of tappet pins or lugs 25 and 25^a projecting therefrom, while the outer side of the other wheel 17' is provided with tappet pins or lugs 25' and 25'' projecting therefrom. The tappet pins 25 and 25^a and 25' and 25'' are arranged in such a manner as to alternately engage the respective arms 15 and 15' of the valve 8.

In order to provide a cushioning or arresting action for the piston 3 when it approaches the ends of its strokes, the supplemental or secondary valve structure 26 is interposed in the exhaust pipe 12, and embodies a casing 27 to which the sections of the exhaust pipe 12 are secured, and an oscillatory valve 28 mounted within the casing 27. The casing 27 is provided with the ports 29 communicating with the sections of the exhaust pipe 12 and the valve 28 is provided with the passage 30 coöperable with the ports 29 for establishing communication therebetween. The valve 28 is also provided with portions 31 at the ends of the passage

30 for partially closing the ports 29 when the valve 28 is at a neutral position, but so as not to interfere with the flow of steam or pressure fluid through the exhaust pipe 12 when the valve 28 is at its reversed open positions indicated by full and dotted lines in Fig. 3.

The valve structure 26 is operatively connected to the actuating means for the main valve structure 6, and to this end the valve 28 is provided with a depending stem 32 having a radially projecting arm 33 at its lower end, and a link 34 connects the arms 15 and 33. The last mentioned parts are so arranged and connected that the oscillation of the arm 15 will properly oscillate the valve 28.

In operation, supposing the shaft 20 to be rotated by any suitable means, then the relatively small gear wheel 19 intermeshing with the gears of the wheels 17 will rotate the wheels 17 at a relatively slower velocity than the shaft 20. With the parts in position as illustrated in Fig. 1, steam will be admitted from the supply pipe 11 into the pipe 9 leading to the upper end of the cylinder 1, while the pipe 10 extending from the lower end of the cylinder will be brought into communication with the exhaust pipe 12. As a result, the piston 3 will be depressed for depressing the tramper or plunger head 5. Now when the tappet pin 25 strikes the arm 15 of the valve 8, and continues in its rotary motion since it is carried by the wheel 17, the arm 15 will be swung to the dotted line position illustrated in Fig. 1, which will reverse the valve 8 so that the pipe 10 will be brought into communication with the supply pipe 11, while the pipe 9 will be brought into communication with the exhaust pipe 12. When the arm 15 is swung to the dotted line position illustrated in Fig. 1, the arm 15' will be swung downwardly to a position to be engaged by the tappet pin 25' of the wheel 17'. During the movement of the arm 15 as above indicated, the valve 28 which is operatively connected thereto will be oscillated from the full line position seen in Fig. 3, to the dotted line position, which will result in the portions 31 of the valve 28 partially closing off the flow of exhaust steam through the pipe 12, and as a result a cushioning effect will be provided for gently arresting the downward movement of the piston 3. Then after the arm 15 has been swung upwardly or to the left, as seen in Fig. 1, steam will be admitted into the lower end of the cylinder 1 for raising the piston, and the exhaust will pass off through the pipes 9 and 12. Then the tappet pin 25' of the wheel 17' will engage and swing the arm 15' of the valve 8 back to the full line position seen in Fig. 1, which will again reverse the valve to the full line position illustrated in the said figure. Since the

arms 15 and 15' are carried by the valve 8, the arm 15 will again be swung to the full line position as seen in Fig. 1, and during the movement of the arms 15 and 15', the valve 28 will again be operated so as to partially close off the flow of exhaust through the pipe 21, for providing a cushioning action upon the piston when it approaches the end of its upward stroke.

From the foregoing, taken in connection with the drawings, it should be obvious that as the wheels 17 and 17' are rotated in the opposite directions, the tappet pins 25—25^a and 25'—25'' will alternately engage and swing the respective arms 15 and 15' of the valve 8 for reversing the said valve automatically. The number of tappet pins upon the wheels 17 and 17' may be increased or decreased as is necessary or desirable for reversing the valve 8 faster or slower. The supplemental or auxiliary valve 28 is also operated or reversed when the main valve structure 6 is operated or reversed, to provide the cushioning effect at the opposite ends of the cylinder to prevent a jarring or pounding action of the piston as might otherwise result.

The present apparatus is comparatively simple and substantial in construction, and is not liable to get out of order, or to require special attention in its operation. The struc-

ture is of advantage also for other obvious reasons which need not be itemized.

Having thus described the invention, what is claimed as new is:—

1. An automatic controller embodying an oscillatory valve having a pair of arms, and a pair of wheels rotatable in opposite directions and having tappets for alternately engaging and swinging the said arms.

2. An automatic controller of the character described, comprising a frame, a controlling valve structure carried thereby including an oscillatory valve having arms at its opposite sides and arranged at an angle relative to one another, opposite wheels carried by the frame, the said arms projecting over the sides of the wheels, the wheels having tappet pins projecting therefrom for alternately engaging and swinging the respective arms to oscillate the valve to reversed positions, and a rotary driving member disposed between and operatively engaged to the said wheels and carried by the frame.

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

TROY W. SPARKS.

Witnesses:

J. W. FELPS,
J. C. MILLS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."