W. B. CHRISTOPHER.

VALVE ACTUATING GEAR FOR STEAM TRAMPING PRESSES.

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1,071,701. Patented Sept. 2, 1913.

Fig. 1.

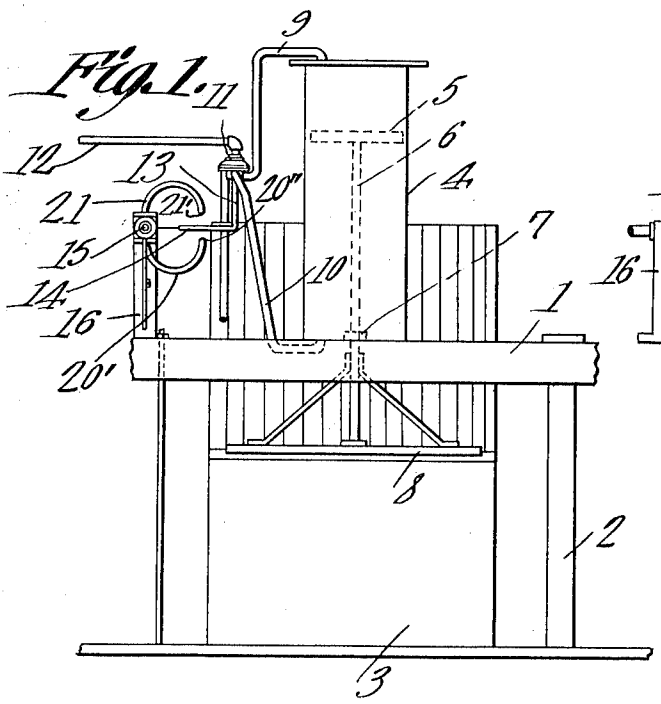
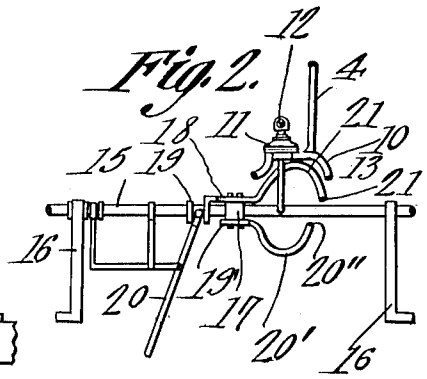


Fig. 2.



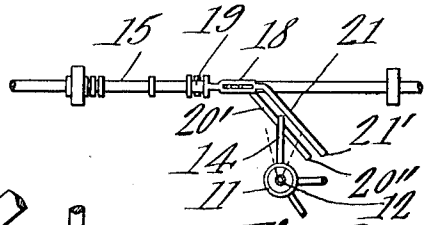
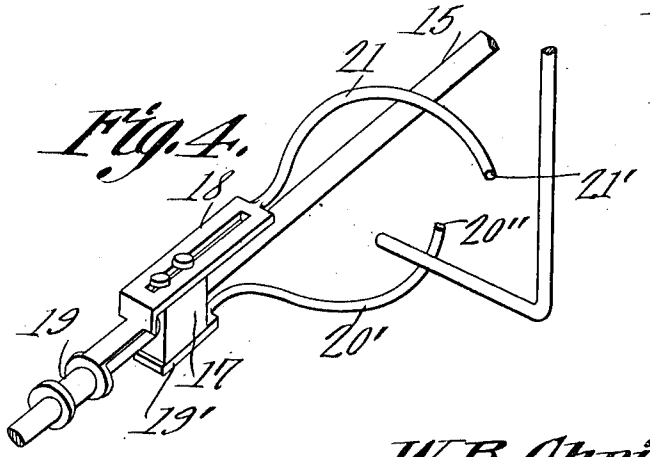


Fig. 3.

Fig. 4.



Witnesses

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VALVE-ACTUATING GEAR FOR STEAM TRAMPING-PRESSES.

1,071,701. Specification of Letters Patent. Patented Sept. 2, 1913.

Application filed March 19, 1913. Serial No. 755,460.

To all whom it may concern:

Be it known that I, WHORNNER B. CHRISTOPHER, a citizen of the United States, residing at Lone Wolf, in the county of Kiowa and State of Oklahoma, have invented a new and useful Valve-Actuating Gear for Steam Tramping-Presses, of which the following is a specification.

This invention relates to a valve actuating gear for a tramping press.

An object is to provide a machine of the class described in which there will be a minimum number of parts and therefore the likelihood of the machine getting out of order is considerably reduced.

A further object is to provide a tramping machine wherein the valve gear operating the tramping piston rod comprises outstanding wiping fingers adapted to move a throttle valve to thereby successively supply the pressure above and below the piston of the tramping apparatus and for the actuation thereof.

Another object is to provide means whereby the plunger or packing head will be maintained in a raised position during the greater part of the time.

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.

In the drawings accompanying this specification and forming a part thereof, the preferable form of my invention is illustrated, in which:—

Figure 1 is a view in elevation of my improved steam tramping press. Figs. 2 and 3 are side and top views in elevation of the valve actuating gear. Fig. 4 is a view in perspective of my improved gear which is especially adapted to be used in connection with a steam tramping press.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 is a platform supported by the uprights 2—2, beneath which platform is positioned the packing chamber or press box 3, the front portion of which has been removed in Fig. 1, in order to more clearly illustrate the plunger reciprocating therein.

Mounted above the platform 1 and supported thereby is the somewhat elongated cylinder 4 in which is disposed for reciprocating movement, the piston head 5 and rod 6. The lower end of the piston rod 6 passes through a suitable stuffing box 7 in the cylinder head and has attached to its extreme end the plunger or packing head 8. This plunger or packing head 8 is disposed for movement within the packing chamber or press box and is adapted to pack or press material inserted therein.

In order to admit steam or compressed air above and below the piston head, suitable pipe connections 9 and 10 are connected to the upper and lower ends of the cylinder. A three-way or throttle valve 11 is located in this pipe and communicates with a suitable steam or compressed air supply pipe 12. Connected to and adapted to operate the valve 11 is a valve stem 13 which extends downward from the valve 11 in a substantially vertical manner. This valve stem 13 has secured to the lower extremity thereof an arm 14 projecting at right angles thereto the said arm being positioned in the path of rotating cams whereby the said arm and therefore the stem are oscillated to thereby automatically admit steam or compressed air above and below the piston head and thereby reciprocate the latter, it being understood in this connection that the throttle valve 11 upon admitting the steam or air through the pipe 9 to the upper end of the cylinder will open the pipe 10 connected to the lower end of the cylinder to the atmosphere, and in a like manner will operate to connect the pipe 9 to the atmosphere when the lower end of the cylinder is connected to the pressure supply. As illustrated in Fig. 1 of the drawings, a shaft 15 is journaled in a suitable standard 16, which latter is securely fastened to the platform 1. This shaft which is supported in a horizontal manner is adapted to be rotated by an outside source such as by connecting the same with a rotating shaft or prime mover, from which it will be apparent that the shaft 15 is intended to be continuously rotated and the valve actuating gear which is secured thereon thrown in and out of engagement with the valve rod arm 14.

The valve actuating gear which forms the

subject matter of this application comprises a metallic block 17 which is journaled upon the shaft 15 and adapted to move longitudinally thereof. Upon one of the upper faces of the block is the slotted plate 19 one end of which is bent downward and is secured to the spool 19, the said spool being also slidably mounted upon the shaft 15 and provides means whereby a lever 20 may be connected to the said block 17 for the longitudinal shifting thereof, the action being that the wiping fingers which are secured to the block 17 and which contact with and actuate the valve 11 may be brought into engagement with the valve actuating arm 14 or may be moved from engagement therewith as more clearly illustrated in Figs. 2 and 3 of the drawings. Secured to the block 17 and diametrically opposite from the plate 18 is a plate 19′ from which projects the wiping finger 20′, a somewhat similar finger formed integral and projecting from the upper plate 18 as illustrated at 21. The exact action of the wiping fingers 20′ and 21 is taken up in detail as more fully hereinafter explained.

The valve 11 and the means whereby the same is actuated provides that the packer or packing head 8 will remain in a raised position for the greater period of the time of a single rotation of the shaft 11 to thereby provide ample time wherein the material may be disposed within the press box or taken therefrom during the continuous rotation of the shaft 15. Furthermore by providing a valve such as shown at 11 and the valve actuating gear as illustrated it will be apparent that the valve actuating rod 14 may be readily grasped and moved manually to either one of its extreme positions regardless of the position of the actuating or wiping fingers 20 and 21 provided only however that they be moved longitudinally of the shaft 15 and out of engagement with the said rod. Thus it will be apparent that should the motive power whereby the shaft 15 is rotated be incapacitated it will be apparent that an operator may manually oscillate the valve rod 14 and furthermore the packing head may be maintained in a raised or lowered position or may be maintained in any intermediate position. The valve actuating fingers 20′ and 21 are illustrated in side elevation in Fig. 1 of the drawings in which the valve actuating rod is shown disposed between the ends 21′ and 20″ of the said fingers. As illustrated in Fig. 4 of the drawings the ends 20″ and 21′ are not disposed in alinement but are so disposed that the outer wiping finger 21 is adapted to take up the valve actuating rod 14 at that point where it is left by the wiping finger 20′. In Fig. 1 of the drawings the shaft 15 is adapted to rotate in an anti-clockwise direction which in Fig. 2 of the drawings provides that the upper finger 21 is moving forwardly and downwardly and that the end 21′ thereof will contact with the valve actuating rod 14 and move the same from the position wherein it was left by the finger 20′ and return the same to its original position. The valve stem 13 is rotated back and forth through about 30 to 50 degrees, the exact swing being immaterial. Considering that portion of the fingers 20′ and 21 facing the left hand portion of Fig. 2 as being the inner surfaces as the said fingers rotate, the valve actuating rod 14 will bear against the inner surface of the valve actuating finger 21 and be moved thereby. It will be moved to its extreme left position as illustrated in Fig. 3 of the drawings and steam will thereby be admitted to the cylinder 4 to actuate the piston rod therein. A further rotation of the shaft 15 brings the finger 20′ into contact with the rod 14 and in this instance it is to be noted that the rod 14 bears against the outer surface of the finger 20′ and will thereby move the said rod to an extreme right position as illustrated in Fig. 3.

From the foregoing it will be apparent that one of the wiping fingers moves the rod in one direction and leaves it there until the other finger comes into contact with the said rod and returns it to its original position. A complete cycle of the valve will take place during the rotation of 180 degrees of the shaft 15 which will insure the fact that the piston will move up and down during 180 degrees of rotation of the shaft 15 and will remain stationary during the remaining 180 degrees of the complete circle of rotation of the shaft 15. The valve actuating finger 21 is secured to the plate 18 which is provided with a longitudinal slot which provides that the position of the finger 21 may be changed with relation to the finger 20′ thus insuring that the finger 21 will pick up the valve actuating rod 14 where the same is left by means of the valve actuating finger 20′.

Having thus fully described the invention what I claim to be new and original with me is:—

1. The combination with a cylinder and a piston reciprocatingly mounted therein, of a controlling valve, a rotatable shaft, an arm projecting from said controlling valve, wiping fingers secured to the said shaft and arranged with the paths of movement thereof intersecting the line of movement of the said valve actuating arm, said wiping fingers adapted to oscillate the said valve actuating arm for a controlling of the pressure to the said cylinder.

2. In a device of the class described, a cylinder, a piston reciprocatingly mounted therein, a pressure and exhaust controlling valve communicating with said cylinder and

provided with a valve actuating arm extending therefrom, a rotating shaft, valve actuating fingers secured to said shaft and movable longitudinally thereof, said fingers adapted to actuate said valve arm.

3. In a device of the class described the combination with a cylinder, a piston reciprocally mounted therein, of a controlling valve, a valve arm extending therefrom, a continuously rotating shaft, valve actuating fingers mounted thereon and longitudinally slidable with respect thereto, said arms adapted to contact with said valve rod to actuate the same through a complete cycle during the rotation of 180 degrees of the said shaft.

4. The combination, of a cylinder and a piston reciprocatingly mounted therein, a controlling valve communicating with said cylinder, a valve stem extending therefrom, a valve rod secured to said valve stem, a continuously rotating shaft, wiping fingers secured thereto and longitudinally movable thereof, means for controlling the longitudinal movement of said fingers, said fingers adapted to oscillate said valve stem, said fingers adapted to complete the oscillation of said stem during 180 degrees of rotation of the continuously rotating shaft, one of said fingers adjustable with respect to the other.

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

WHORNNER BROWN CHRISTOPHER.

Witnesses:

L. S. LAWRENCE,

WM. T. JOHANNDLER.

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