C. A. WENDELL.

VALVE FOR COAL WASHING JIGS.

APPLICATION FILED MAR. 8, 1915.

1,194,583.

Patented Aug. 15, 1916.

2 SHEETS—SHEET 1.

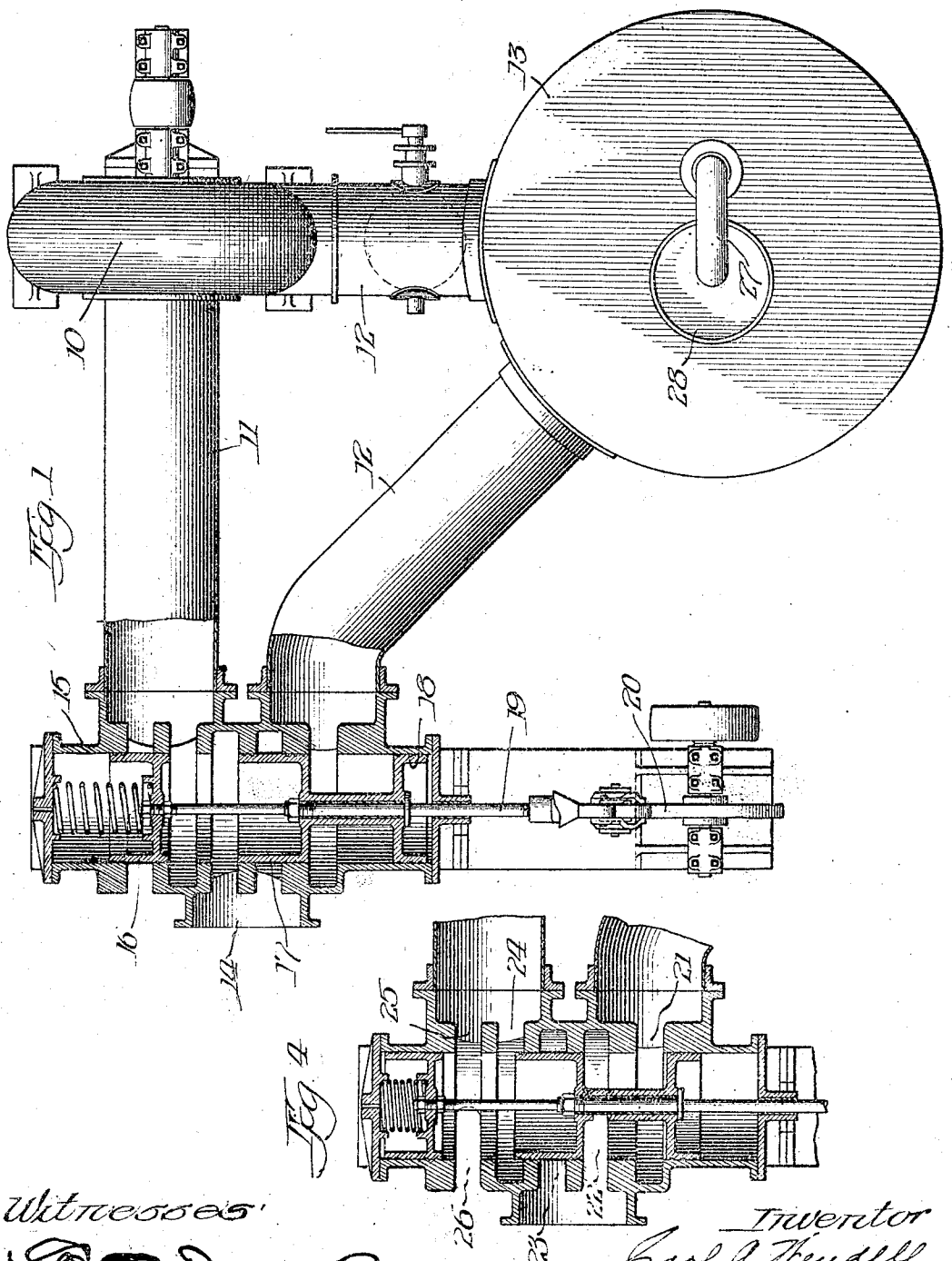


Fig. 1

Fig. 4

Witnesses:

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2 SHEETS—SHEET 2.

Fig. 3

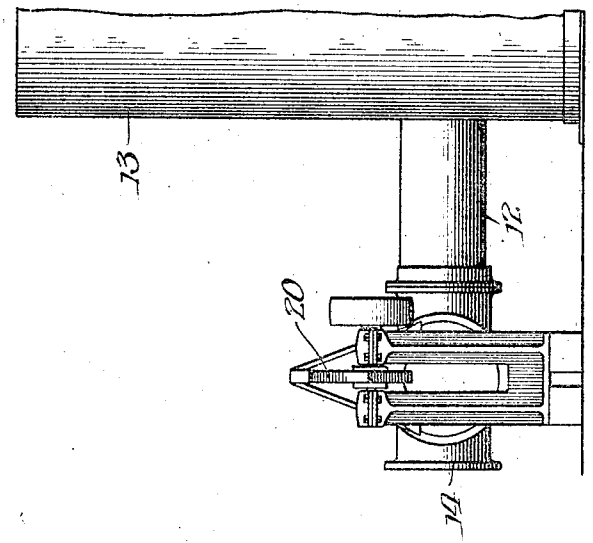
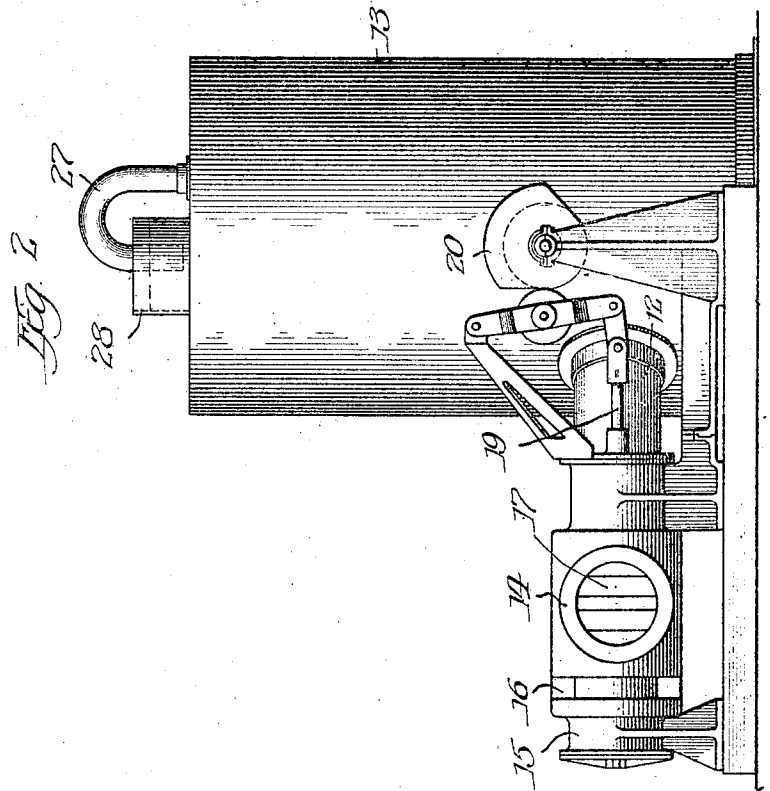


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

CARL A. WENDELL, OF JOLIET, ILLINOIS.

VALVE FOR COAL-WASHING JIGS.

1,194,583. Specification of Letters Patent. Patented Aug. 15, 1916.

Application filed March 8, 1915. Serial No. 12,920.

To all whom it may concern:

Be it known that I, CARL A. WENDELL, a citizen of the United States, and resident of Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Valves for Coal-Washing Jigs, of which the following is a specification.

My invention relates to apparatus for use in connection with coal washing and has particular reference to a novel valve and associated apparatus for producing a rapid alternation in the air pressure acting upon a jig such as disclosed in my Patent No. 1,165,734 of December 28, 1915 and Reissue No. 14,121 of April 25, 1916.

In the operation of a jig such as disclosed in my copending applications, it is essential that mechanism should be provided for producing the required rapid alternation in the direction of flow or pressure of the air acting upon such apparatus. Mechanism for securing this result should, of course, be relatively simple and inexpensively operated. This assumes a minimum number of parts and therefore relative absence of complexity.

The mechanism which I have devised and which is shown herein is very simple, the alternation in the flow of air being secured by the use of a single movable part, the different ports being covered and uncovered in proper sequence by this single mechanism.

The invention will be more readily understood by reference to the accompanying drawings wherein:

Figure 1 is a plan view partly in section showing an apparatus constructed in accordance with my invention, Fig. 2 is a side elevation of the same, Fig. 3 is an end elevation thereof, and Fig. 4 is a fragmentary detail showing the valve in a different position to that shown in Fig. 1.

Referring more particularly to the drawings, it will be seen that I provide an exhaust fan 10, or other suitable blast producing means, this fan having a supply conduit 11 and an exhaust conduit 12. In the exhaust conduit I locate an equalizing tank 13. A main 14 communicates with the coal washing jig, such as shown in my copending applications referred to. Interposed at the junction of the main and the supply and exhaust conduits is a valve which may consist in a casing 15 within which is mounted a three part piston 16, 17, 18, all actuated by a single stem 19, the same being caused to reciprocate by a cam 20, best shown in Fig. 2, which cam is connected to a suitable source of power. The casing 15 is provided with a port 21 communicating with the exhaust conduit 12, ports 22, 23 communicating with the main, ports 24, 25 communicating with the supply conduit, and port 26 communicating with the atmosphere. In the position shown in Fig. 1, air is being drawn out of the main 14 into the exhaust fan 10, for the reason that the ports 23, 25 are in communication. The pressure developed at this stage by the fan is accommodated by the equalizing tank 13, the outlet from the tank being closed by the position of the piston 17. In the position of Fig. 4 the port 23 is closed and the ports 21, 22 are in communication, whereby the pressure accumulated in the equalizer tank is directed into the main and not only restores the pressure in the main to atmospheric, but preferably raises the pressure slightly thereabove. In this position of the parts the supply conduit is open to the atmosphere, because the ports 25, 26 are in communication, thus furnishing a supply of air at atmospheric pressure to the blower which is forced into the equalizing tank in readiness for further use. If desired, in order to maintain a constant pressure in the tank, I may locate on top of the tank a water seal consisting in a gooseneck 27 which terminates within a water container 28.

Inasmuch as the reciprocations of the valve member are intended to be comparatively rapid, the changes in pressure conditions in the main will vary correspondingly and the necessary pulsating action secured.

It will be noted that the piston is positively moved in one direction and returned to its original position by spring means such as shown at 29. This and other elements may be changed without departure from the spirit of my invention.

I claim:

1. In a device of the class described, the combination of means for producing a continuous blast of air, a pressure equalizer, and a valve in the pressure line, said valve being provided with means for periodically interrupting the passage of air through one conduit and substantially simultaneously

placing the pressure line in communication with a second air space, substantially as described.

2. In a device of the class described, the combination of blast producing apparatus, conduits for supplying air to and discharging the same from said apparatus, a leading conduit, a valve at the junction of said three conduits, and means periodically and alternately actuating said valve to place said leading conduit in communication with said supply and discharge conduits, substantially as described.

3. In a device of the class described, the combination of blast producing apparatus, conduits for supplying air to and discharging the same from said apparatus, an equalizing tank in one of said conduits, a leading conduit, a valve at the junction of said three conduits, and means periodically and alternately actuating said valve to place said leading conduit in communication with said supply and discharge conduits, substantially as described.

4. In a device of the class described, the combination of blast producing apparatus, conduits for supplying air to and discharging the same from said apparatus, a leading conduit, a valve at the junction of said three conduits, and means periodically and alternately actuating said valve to place said leading conduit in communication with said supply and discharge conduits and for placing one of said conduits in communication with the atmosphere when the other conduit is connected to said leading conduit, substantially as described.

5. In a device of the class described, the combination of an exhaust fan, supply and discharge conduits therefor, an equalizing tank in one of said conduits, a main, a valve at the junction of said conduits and main, and means for rapidly and alternately connecting said main to said supply and exhaust conduits, substantially as described.

6. In a device of the class described, the combination of a blower having supply and exhaust conduits, a main, and means for alternately connecting said main to said exhaust and supply conduits, said alternations occurring with relative rapidity, substantially as described.

Signed at Joliet, Illinois, this third day of March, 1915.

CARL A. WENDELL.

Witnesses:
THOMAS J. SAMPSON,
WILBUR C. FRY, JR.