

(No Model.)

2 Sheets—Sheet 1.

T. McCORMICK & K. B. FLETCHER.
CLEAN-OUT VALVE.

No. 554,344.

Patented Feb. 11, 1896.

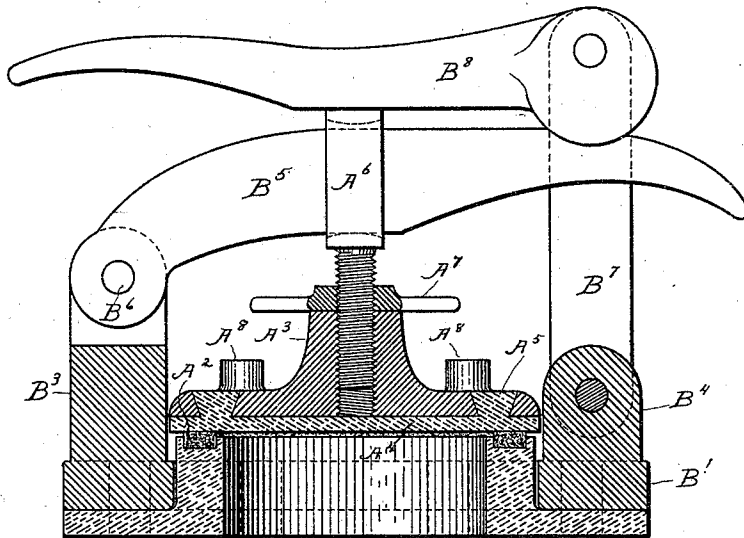


Fig:2.

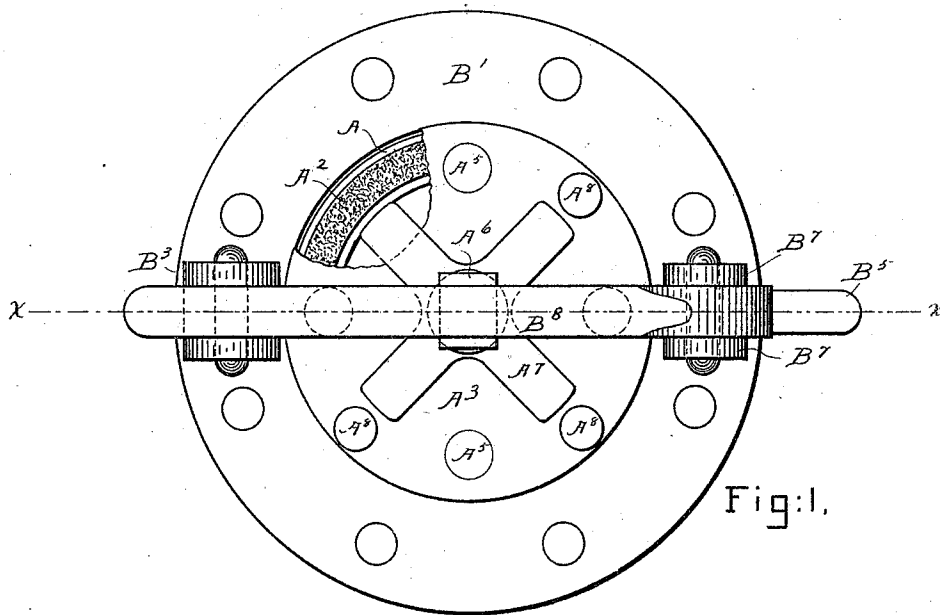


Fig:1.

Witnesses.

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Attorney

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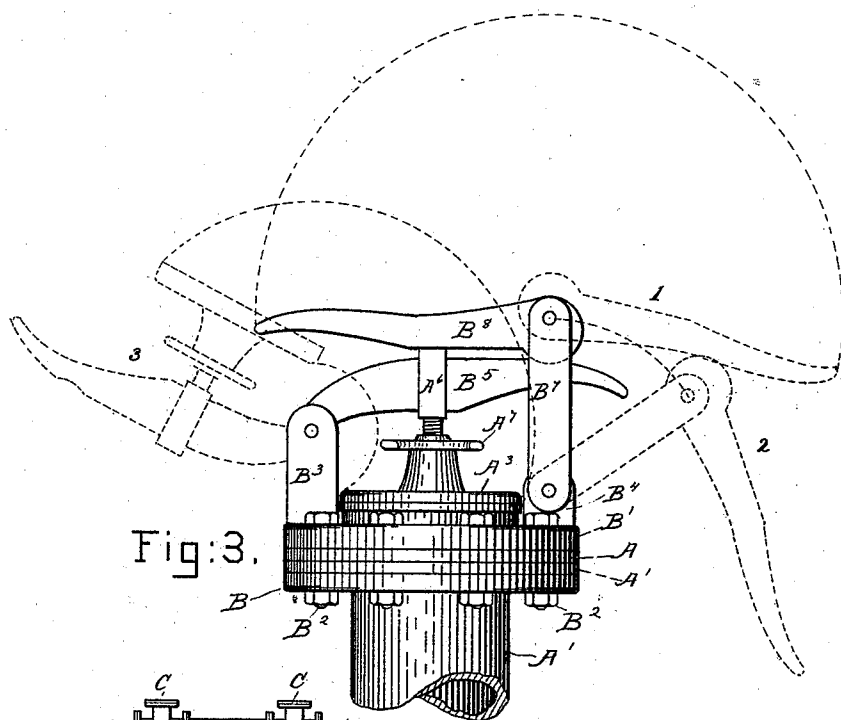


Fig. 3.

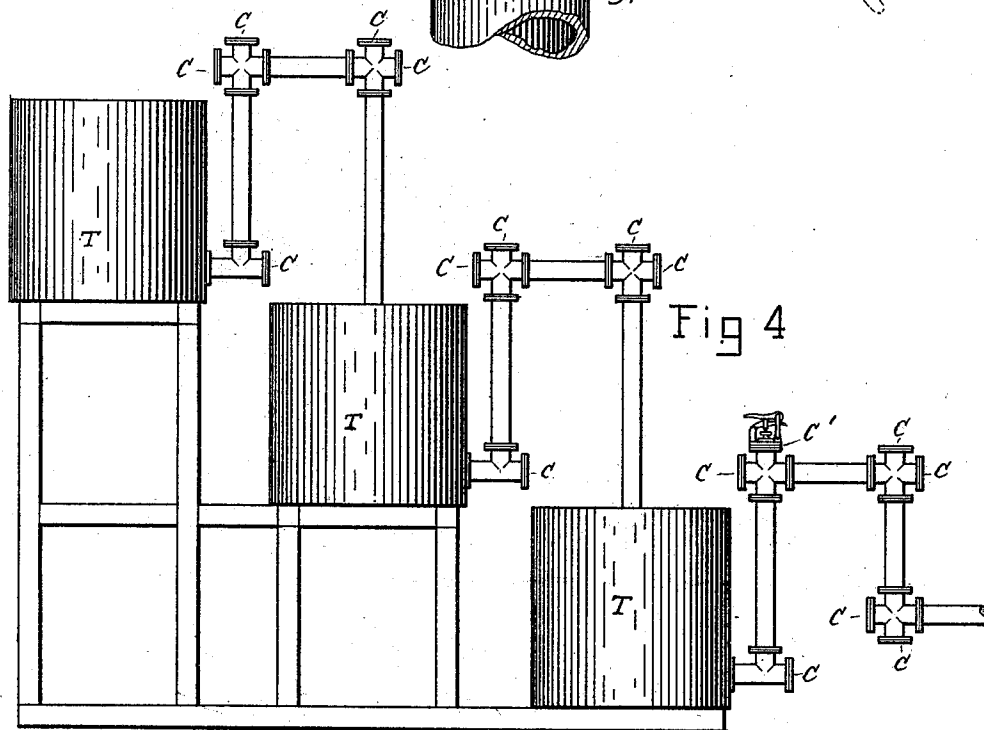


Fig 4

Witnesses.

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UNITED STATES PATENT OFFICE.

THOMAS McCORMICK, OF BERLIN, AND KIMBALL B. FLETCHER, OF
LANCASTER, NEW HAMPSHIRE.

CLEAN-OUT VALVE.

SPECIFICATION forming part of Letters Patent No. 554,344, dated February 11, 1896.

Application filed June 10, 1895. Serial No. 552,261. (No model.)

To all whom it may concern:

Be it known that we, THOMAS McCORMICK, residing at Berlin, and KIMBALL B. FLETCHER, residing at Lancaster, in the county of Coos, State of New Hampshire, citizens of the United States, have invented a new and useful Clean-Out Valve, of which the following is a specification.

In preparing the bisulphite of lime used in the manufacture of wood-pulp by what is known as the "sulphite process" sulphur is burned in a retort and the fumes (sulphurous gas) are drawn by a vacuum-pump through a cooling apparatus and then forced through a series of tanks partly filled with lime-water. The gas enters the bottom of each tank, and in passing upward through the lime-water a portion of the gas unites chemically with the lime, forming a solution of bisulphite of lime. The remaining portion of gas is collected at the top of the tank and led to the bottom of the next tank in the series, and so on, until all the gas is absorbed. During the process the gas-pipes, which are made of lead, frequently become clogged with a sublimate of sulphur and have to be cleaned out.

The deposit of sublimate is not uniformly distributed throughout the whole length of the pipes, but may accumulate rapidly at any point. It is impossible to determine just where a pipe may be clogged without an examination, and to facilitate such examinations and cleanings the pipes are usually arranged in a series of short lengths placed at right angles to each other and connected by "T's" or "crosses," as shown in Figure 4, so that any length of pipe may be examined or cleaned by removing the flange-cover at each end of the section. When these flange-covers are removed, the sulphurous gas escapes rapidly into the room from the open pipe, as well as from the retort, and would, in a short time, make it impossible for men to remain at work. The gas also injures all ironwork in the room by its corrosive effect. It is therefore imperative that all examinations and cleanings be made as expeditiously as possible, not only as a matter of economy in labor, but to prevent waste of gas and its injurious effect upon the men and the machinery.

The objects of our invention are, first, to

provide in the place of the usual flange-cover a valve that may be quickly opened and closed without loosening any bolts or screws; second, to provide means for adjusting the pressure of the valve upon its seat without the use of a wrench or other tool; third, to provide means for preventing the gas in the pipes from coming directly in contact with any of the ironwork of the valve or its hangings while the valve is closed. We accomplish these objects by means of the device illustrated in the accompanying drawings, in which—

Figure 1 is a plan of our invention. Fig. 2 is a section taken on line *xx*, Fig. 1. The levers and yoke, however, are not shown in section, but are a side view. Fig. 3 is a reduced side view of our invention with position of ports when valve is open shown by dotted lines. Fig. 4 is a side view of tanks and connecting-pipes, showing application of our invention.

Referring to Figs. 1, 2, and 3, A is a lead flange or valve-seat designed to fit against the flanged end of a lead pipe or pipe-fitting A' and provided with an annular recess in which is placed a rubber packing-ring A².

A³ is the valve, and is provided with a lead face A⁴, which is held in place by projecting pins A⁵, which are cast into tapered holes in the valve A³.

A⁶ is a threaded yoke fitted to valve A³, and A⁷ is a star-shaped hand-nut which acts as a jam-nut upon the valve A³. The yoke A⁶ and nut A⁷ are preferably of phosphor-bronze.

A⁸ A⁸ are pins projecting from the valve A³ to enable the operator to turn the valve upon the threaded yoke by taking hold of the pins with his hands, using the pins as a fulcrum for a lever.

B is an iron ring encircling the lead pipe A', and B' is an iron ring encircling the valve-seat A and resting upon the flange of the same. The rings B B', the flange of the valve-seat A, and the flange of the pipe A' are drilled through to receive suitable bolts B², by which lead valve-seat A and the flange of pipe A' are pressed tightly together.

The lead face of the valve A³, resting upon packing-ring A², prevents the escape of gas

from the pipe and leaves no iron exposed to the action of the gas in the pipe.

The ring B' is provided with projecting ears B³ B⁴, the ear B³ being slotted to receive a lever B⁵ which is pivoted to a pin B⁶, and passes through the yoke A⁶.

B⁷ B⁷ are straps connecting the ear B⁴ to a hand-cam B⁸, which rests in a suitable depression in the lever B⁶ and locks the said lever in position.

The pressure of the valve upon its seat is regulated by screwing the valve up or down upon the yoke A⁶.

To open the valve the operator seizes the hand-cam B⁸ and swings it around to position 1, Fig. 3, then moves it to position 2, both positions being shown by dotted lines. The lever B⁵ will then be free and may be swung around its pin B⁶, carrying the valve with it to position 3.

Fig. 4 shows tanks T T T with pipes as usually arranged, with ordinary flange-covers C C, one of our clean-out valves being shown at C'. These valves are designed to be used in any of the positions occupied by the covers C C.

It is not absolutely necessary to follow the

exact construction of parts as described in order to secure good results.

The valve seat and face A⁴ of the valve may be of rubber, wood, pressed wood-pulp, bronze, or any material not readily attacked by sulphurous-acid gas, and such construction would be no departure from the spirit of our invention. We, however, prefer the construction shown and described, such construction being more durable, convenient and easier to apply.

What we claim as our invention, and desire to secure by Letters Patent, is—

In a clean-out valve; the valve A³ provided with pins A⁸, A⁸, the screw-threaded yoke A⁶ fitted to the valve and the hand-nut A⁷, combined with the lever B⁵ passing through the yoke, the cam B⁸ acting upon the lever B⁵ to press the valve against its seat, and means for supporting the lever B⁵ and cam B⁸, all substantially as described, and for the purpose set forth.

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KIMBALL B. FLETCHER.

Witnesses:

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