

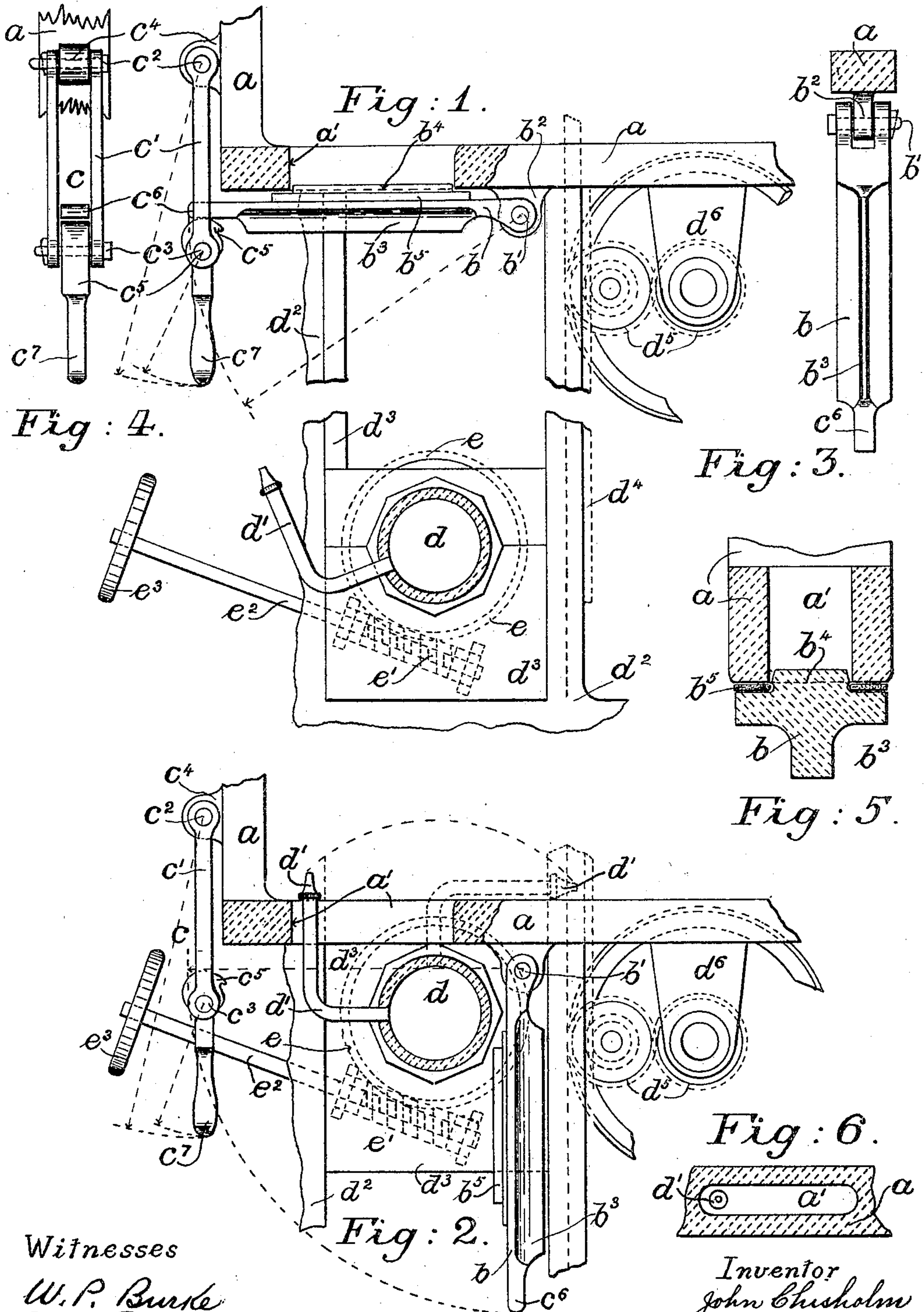
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PATENTED MAY 29, 1906.

J. CHISHOLM.

SLUICE DISCHARGE CONSTRUCTION OF FILTER PRESSES.

APPLICATION FILED AUG. 4, 1905.



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JOHN CHISHOLM, OF KALGOORLIE, WESTERN AUSTRALIA, AUSTRALIA.

SLUICE-DISCHARGE CONSTRUCTION OF FILTER-PRESSES.

No. 822,100.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed August 4, 1905. Serial No. 272,792.

To all whom it may concern:

Be it known that I, JOHN CHISHOLM, a citizen of the Commonwealth of Australia, residing at Kalgoorlie, Western Australia, Commonwealth of Australia, have invented certain new and useful Improvements in Sluice-Discharge Construction of Filter-Presses, of which the following is a specification.

This invention relates to presses used principally for the filtration of gold-bearing slimes; and its object is to provide effective means for the rapid discharge of the filtered residue or cake and without necessitating, and so obviating, the opening and closing of the filter-press as a whole when the residue or exhaust is required to be discharged from one or all of the hollow frames of the filter.

A further object of the invention is the obtainment of an effective and simultaneous clean-out of each of the frames by a water scouring or sluicing process in which a stream of water is introduced into the frames by the employment of an upwardly and radially movable nozzle.

The improvements have been designed so as to be readily applicable for the "Dehne" type of filter-press, although they can be employed in conjunction with all other existing types and also with presses for filtering other wet or partly-wet material.

The improvements essentially consist in forming the under side of each hollow frame of the filter-press with an opening or port for the downward discharge of the residue, such port being opened or closed by a hinged door, which latter is controlled by locking-lever.

The invention further consists in the water-supply pipe being adapted to be raised, rotated, and lowered so as to effect the sluicing process.

The improvements will now be described in conjunction with the attached drawings, in which—

Figure 1 shows the application of same to the hollow frame of a filter-press, and in this view the discharge-port is shown closed, as during the filling operation for the frames, while the water-supply pipe is at its lowest or idle position. Fig. 2 is a similar view, but showing the discharge-port open and the door hanging down, while the water-pipe is at its elevated position, as in action, while the dotted lines show the branch nozzle at the extreme limit of its travel. Fig. 3 is a detail view showing the door as attached to the frame, while Fig. 4 is a front view of the lock-

ing appliance. Figs. 5 and 6 are sectional views of the door and port.

In the drawings, *a* is the hollow frame of the filter-press, made or formed on its under side with the discharge-port *a'*, said port being controlled by the door *b*. This door is constructed as shown and is hinged at *b'* to the lug-piece *b²*, which latter is made one with the frame *a*. This door is made with the strengthening-web *b³* and taper or spigot projection *b⁴* for the better fitting of the port *a'* and is further provided with the rubber or other washer *b⁵*, so as to effect a water-tight joint. The door is locked and released by means of the drop-levers *c*, which are made of the bridle pieces or links *c'*, suitably secured to each other by the pins *c²* and *c³*. This lever is pivoted at *c²* to the lug *c⁴*, also cast on the frame *a*, as shown, while on the pin *c³* is mounted the locking-cam *c⁵*, which latter tightly engages with the lip *c⁶* of the door *b*, said cam being formed or made one with its operative handle *c⁷*.

The pipe, as *d*, for carrying the sluice-water under pressure is placed beneath and has a nozzle, as *d'*, for each of the hollow frames. This pipe is mounted on the supports, as *d²*, which are suitably secured to each end of the filter-press. On these supports *d²* are mounted the sliding frames *d³* for carrying the sluice-pipe *d* and nozzles, said pipe being made vertically movable by means of a rack *d⁴*, operated by the hand gear-wheels *d⁵*, suitably secured to the body-frame of the filter-press by the brackets *d⁶*. The pipe *d* is rendered rotatable by its worm-wheel *e* engaging with the pinion *e'*, mounted on the spindle *e²* and operated by the hand-wheel *e³*.

It is obvious that alternate mechanism may be employed for the raising and lowering of the pipe *d*, as such may be effected by hydraulic or other equivalent means; but that as shown I find to be good and practicable for general use.

The manner of using my invention is mainly as follows: As soon as the slimes or other matter has been pressed and otherwise treated to the desired degree the locking-cams *c⁵* are released in quick succession by pulling over their handles *c⁷*, so causing the doors *b* to rapidly fall open and hang downward, as shown in Fig. 2.

The nozzles *d'* being in a vertical position, the pipe *d* is elevated on its sliding frame *d³*, by means of the rack and gear *d⁴* and *d⁵*, until

the nozzles are brought up to the now open ports a' . The sluice-water is now turned on and the pipe d elevated to its extreme position, as shown in Fig. 2. To thoroughly sweep or scour the whole of the interior of the hollow frames a , a partial or quarter rotation is given to the sluice-pipe by means of its hand-operated gear e to e^3 , while the issuing sludge will be carried away by suitable launders.

10 It is therefore seen that the discharge of the residue is accelerated and made rapid, while any of the residue which would otherwise adhere to the interior of the hollow frames or filter-cloths is effectively sluiced or scoured away, and, further, if found necessary, any number of back and forward turns may be given to the pipe d and nozzle d' .

As soon as the hollow frames are emptied and sluiced out the water is turned off and the pipe d rotated to bring the nozzle to the vertical position, so that it may drop clear of the opening a' , whereupon the pipe is lowered and resumes its position, as shown in Fig. 1. The doors are then lifted and made secure by the locking-levers, so that the hollow frames are again made ready and the filling, emptying, and sluicing process is proceeded with, as herein described.

In the sluicing process care is to be taken that both ends of the pipe d are raised in a

uniform manner, such being obtained by a duplication of the end supports d^2 and operative gear d^3 to d^5 , while the pipe d would be suitably connected to the pressure-main either by flexible connection or hydraulically-packed union parts, so as to allow of its needful elevation, rotation, and depression.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with filter-press frames having openings therein, of a sluice-pipe d having nozzles thereon, means for raising and lowering said pipe, and means for rotating the same so as to cause the nozzles to enter the opening.

2. The combination with filter-press frames having openings therein, of a door for each opening, a link and a cam carried thereby for locking the door, a water-pipe provided with sluicing-nozzles, means for raising and lowering the pipe, and means for rotating the same to cause the nozzles to enter the openings.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN CHISHOLM.

Witnesses:

M. J. McNAMARA,
F. B. ALLEN.