No. 614,501. Patented Nov. 22, 1898.

A. M. RANDOLPH.

PNEUMATIC CONCENTRATOR.

(Application filed Dec. 2, 1896.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

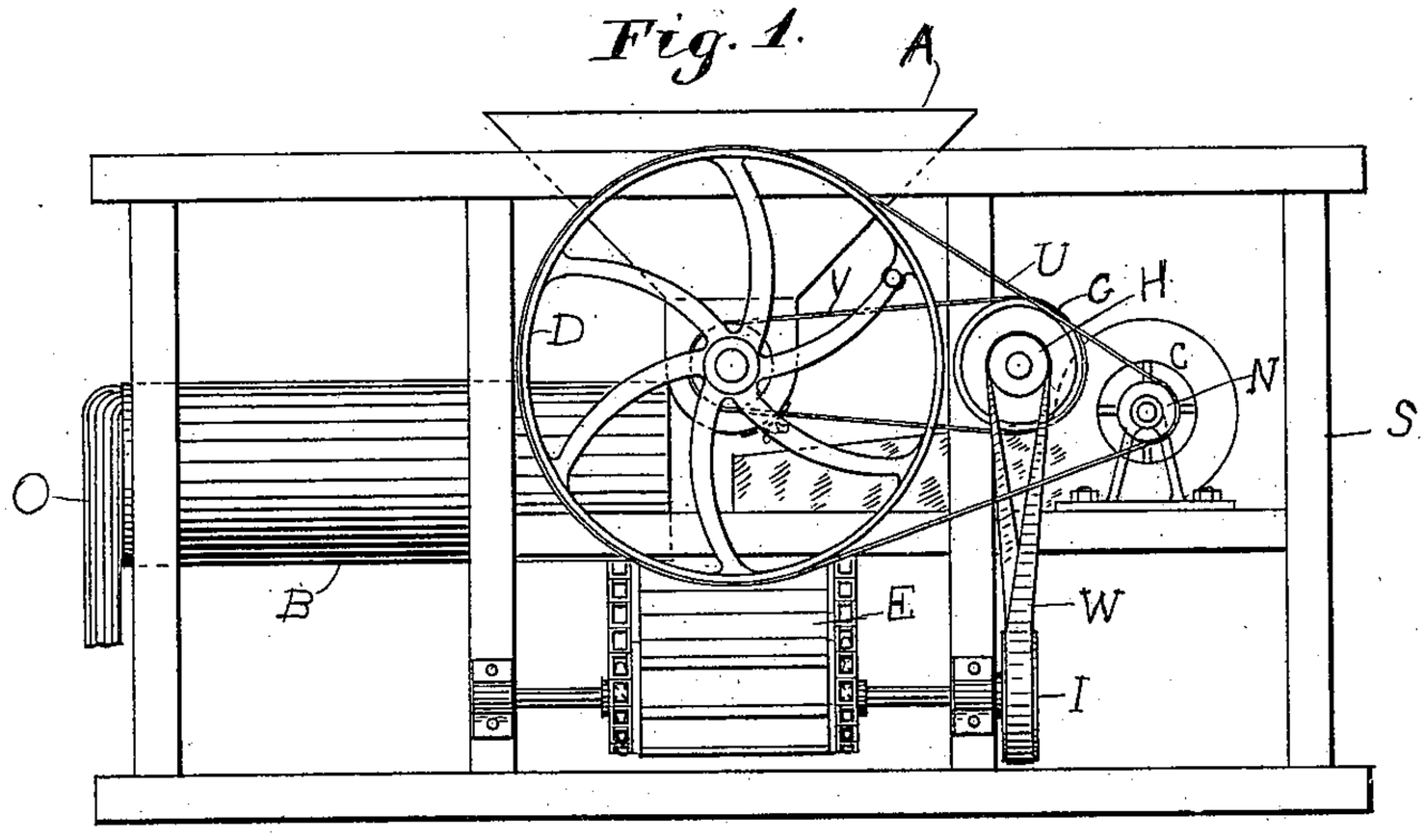


Fig. 2.

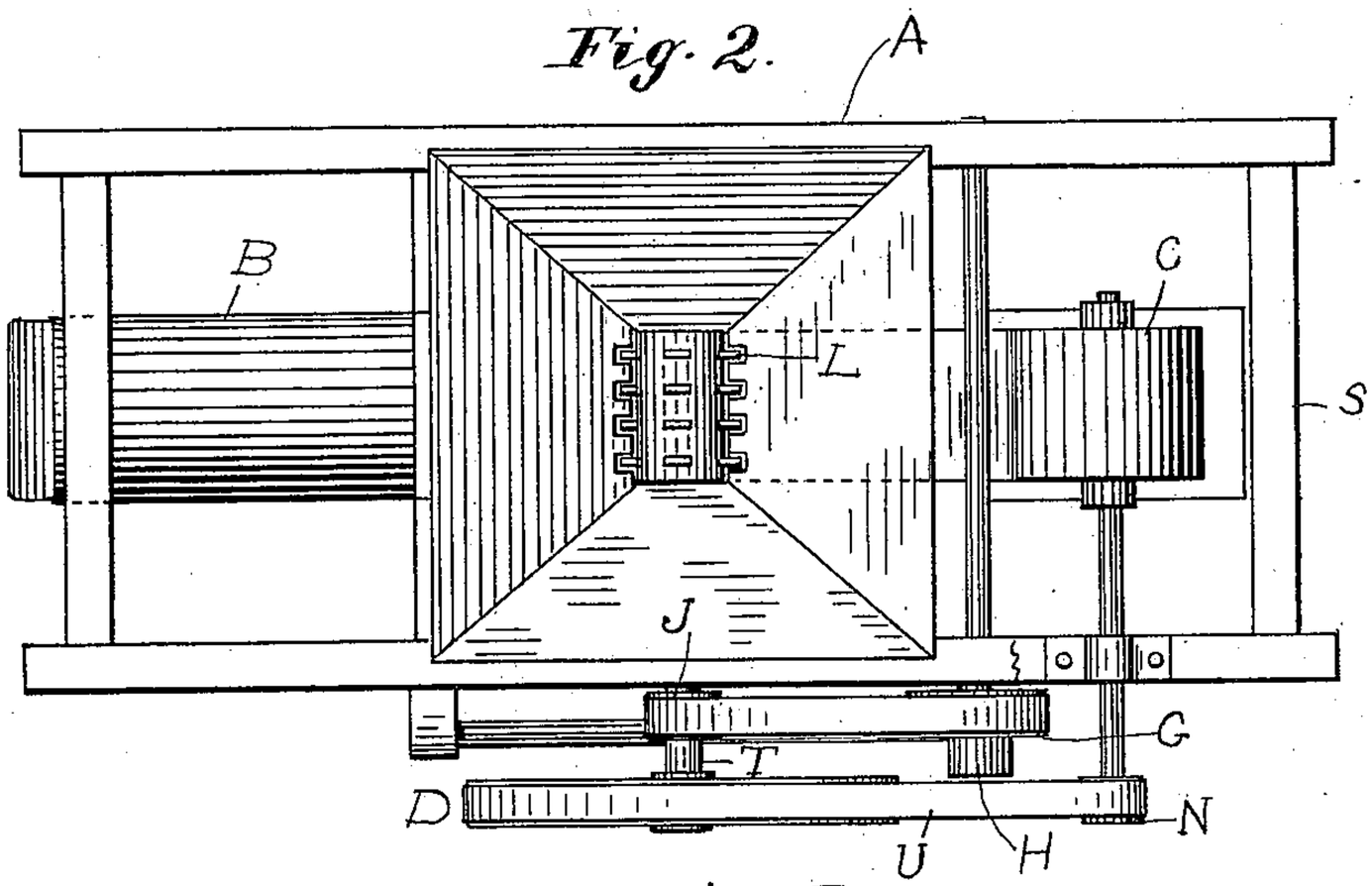
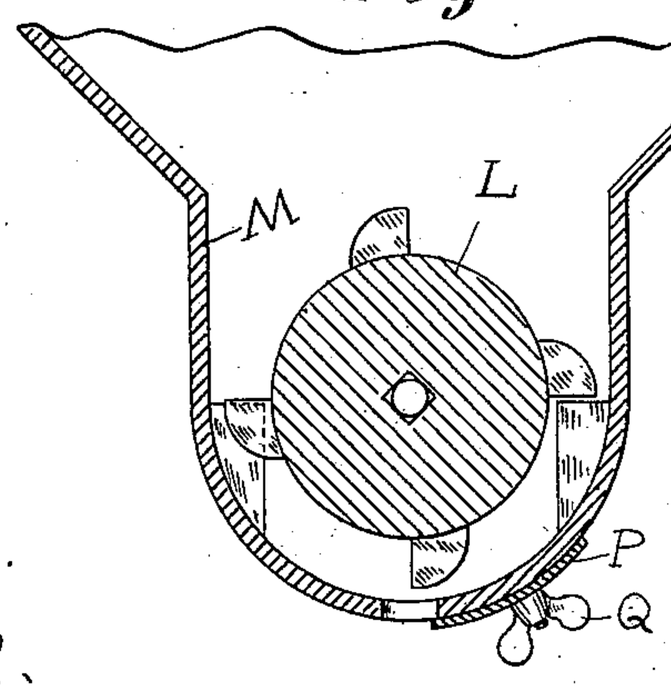


Fig. 3



Witnesses
A. H. Opsahl.
Carl Park.

Inventor
Arthellow M Randolph
By his Attorney
T D Merwin.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 614,501. Patented Nov. 22, 1898.

A. M. RANDOLPH.

PNEUMATIC CONCENTRATOR.

(Application filed Dec. 2, 1896.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

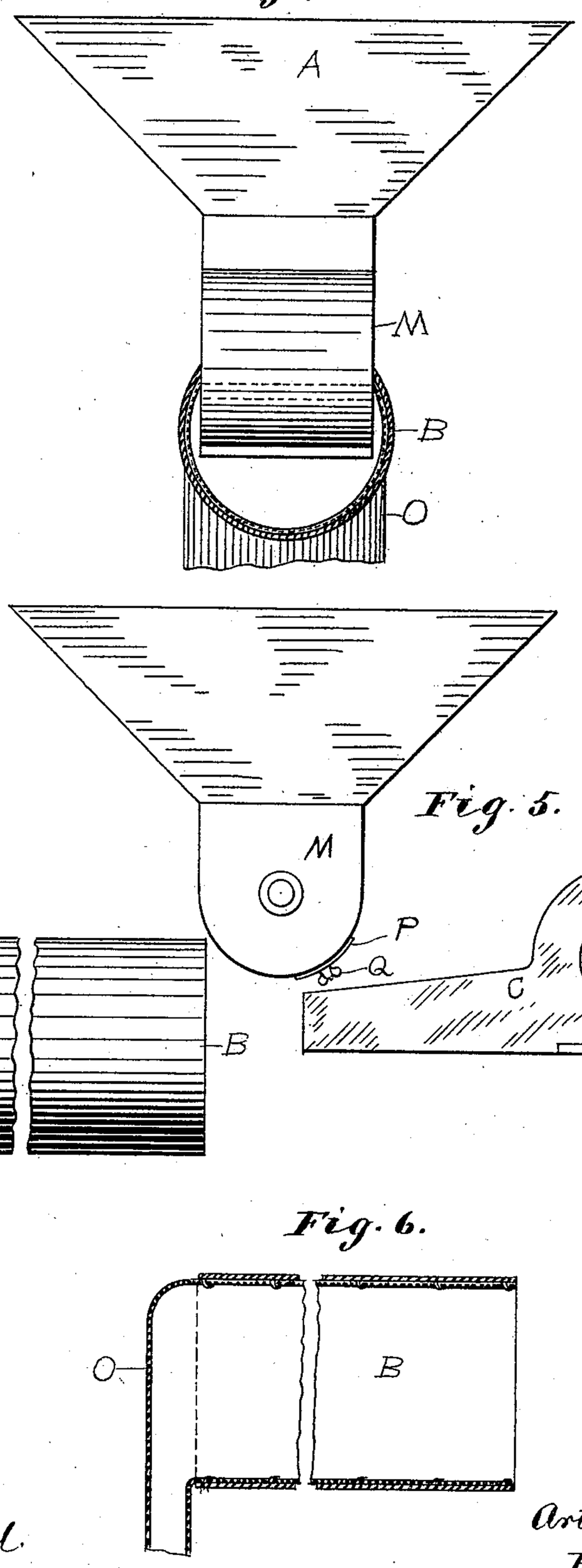


Fig. 5.

Fig. 6.

Witnesses
A. H. Opsahl.
Carl Park.

Inventor.
Arthellow M. Randolph
By his Attorney.
F. D. Merwin

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHELLOW M. RANDOLPH, OF ELGIN, ILLINOIS, ASSIGNOR OF ONE-THIRD TO DANIEL POOL, OF ST. PAUL, MINNESOTA.

PNEUMATIC CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 614,501, dated November 22, 1898.

Application filed December 2, 1896. Serial No. 614,264. (No model.)

To all whom it may concern:

Be it known that I, ARTHELLOW M. RANDOLPH, a citizen of the United States, residing at Elgin, county of Kane, State of Illinois, have invented a new and useful Pneumatic Concentrator, of which the following is a specification.

My invention relates to improvements in ore-concentrating apparatus designed to be used in dry placer-mining, its object being to provide means for securing the microscopic or flake gold which is mixed with the sand and other foreign matter.

To this end my invention consists in the apparatus and features of construction hereinafter more particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a machine fitted with my improvement. Fig. 2 is a plan view of the same. Fig. 3 is a sectional detail of the crusher. Fig. 4 is an end elevation of the hopper, the blower-casing, and the receiving-cylinder. Fig. 5 is a detail side elevation of the hopper and blower and receiving-cylinder, and Fig. 6 is a vertical longitudinal section of the receiving-cylinder.

In the drawings, A represents the hopper, suitably supported in the frame S.

M is the crusher-box beneath the hopper, and E is the endless conveyer beneath the box.

P is the valve for adjusting the opening from the crusher-box, as determined by the set-screw Q.

Power is conveyed to the apparatus from the wheel D, mounted upon the shaft T, by the belt U, passing over the pulley N upon the shaft of the blower C, and by the belt V, running over the pulley J upon the shaft T, and thence over the pulley G, to which is attached the small pulley H, the belt W transmitting motion from said pulley H to the pulley I on the driving-shaft of the endless conveyer E.

The blower C has its vent arranged underneath the crusher and in substantially horizontal alinement with the adjacent open end of the receiving cylinder or receptacle B. This cylinder B is lined with flannel or equivalent material, which extends beyond the opposite end of the cylinder to form the loose bag portion O. In order to thoroughly pulverize any foreign matter, a crusher-roller L is arranged in the crusher-box M, as shown best in Fig. 3, said crusher-roller being actuated by the hand-wheel D, provided with a handle.

Operation: The sand or other substance containing the gold is fed into the hopper A and passes through the crusher, the outlet from the crusher being gaged by the sliding plate B and thrumb-screw Q. Motion is given to the crusher-roller by the hand-wheel D and is transmitted to the blower and endless carrier by the belt connections above described. Thus as the sand falls through the opening it is struck by a blast of air from the blower C and the microscopic or flake gold which would otherwise be wasted is driven into the cylinder B and is caught by the flannel or equivalent lining, the loose bag portion O at the end of the cylinder allowing the current of air to pass through, and any of the gold which is carried through the cylinder is caught and retained by the loose portion O, and thereby saved. The heavier portions drop from the crusher onto the endless carrier E, by which they are carried away and the contained gold separated by the use of mercury or in any other suitable manner. When the receiver B has received its maximum or desired amount of gold, the lining, which is detachably secured within the cylinder, is removed and burned over a suitable receptacle, the heat melting the gold, and thereby separating it from the foreign matter. The cylinder is then provided with a new lining and the operation repeated.

I claim—

1. In an apparatus of the class described, the combination with the hopper, provided with a suitable outlet, and the blower arranged adjacent to said outlet, of the open-end stationary cylinder arranged opposite said blower, the flannel or similar lining detachably secured within said cylinder adapted to catch and hold the dust being carried through the receiver by the current of air,

said lining then being adapted to be removed to secure the contained dust.

2. The combination with the hopper, provided with a suitable outlet, and the blower arranged adjacent one side of said outlet, of the open-end receiver arranged opposite said blower, the flannel or equivalent lining for said receiver, provided with a depending bag portion at one end, whereby the dust blown through said receiver by the current of air is caught and retained by said bag portion.

3. The combination with the hopper provided with a suitable outlet, the contained crusher, and the blower arranged adjacent said outlet, of the receiver arranged opposite said blower, the flannel or similar lining detachably secured within said receiver, and the open-end bag portion depending from the end of the receiver opposite from the blower, whereby any particles that would otherwise be carried by the current of air through and out of the receiver are caught and retained by said bag portion.

ARTHELLOW M. RANDOLPH.

Witnesses:
E. H. CAMPMEYER,
E. L. TOMPKINS.