Nov. 30, 1926. 1,609,154

P. A. CARTERET

EXPRESSING PRESS

Filed Dec. 16, 1925

Fig. 1.

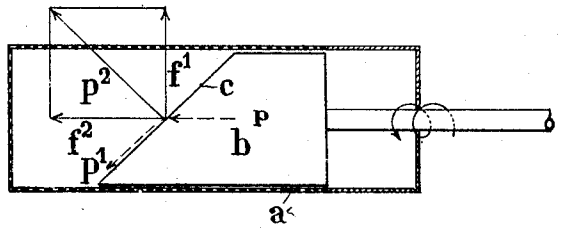
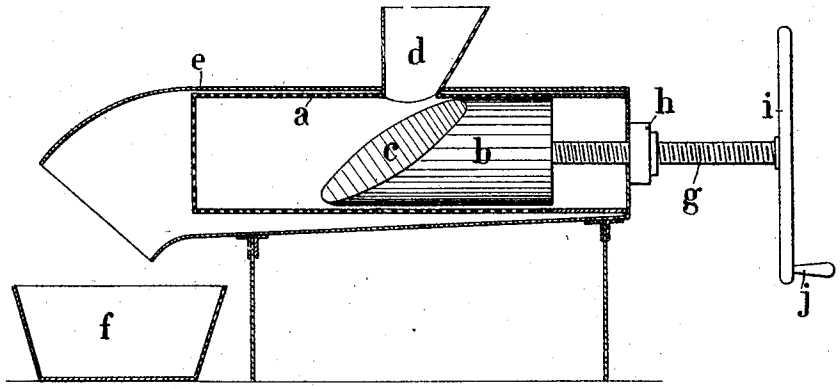


Fig. 2.



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UNITED STATES PATENT OFFICE.

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EXPRESSING PRESS.

Application filed December 16, 1925. Serial No. 75,819.

This invention has for object an improvement in expressing presses for the treatment of any fluid or semi-pasty materials.

In the existing apparatus, the pressure is badly used, as it is exerted in a single direction, and it is used for the greater part to push the material against the solid portions of the perforated walls against which it is pressed. Moreover, the material is not renewed opposite the perforations which become very rapidly obstructed. Consequently these apparatus are very tiring to operate and the results they give are not in proportion to the work effected.

In the new apparatus, the piston presents a face which is oblique relatively to its axis this having for effect:

1. To produce pressures directed towards the side walls of the strainer and towards the bottom;

2. To permit of constantly renewing the material in front of the perforation by moving it by means of the piston which is caused to rotate on itself.

The invention is illustrated, but by way of example only, in the accompanying drawing in which:

Fig. 1 is a diagrammatic view showing the principle.

Fig. 2 is a sectional view of a form of construction.

As shown in the drawing, Fig. 1, the apparatus is essentially composed of a cylinder a, the bottom and sides of which are perforated. In this cylinder can move a piston b which can be actuated in any suitable manner. The end c of this piston is obliquely cut, so that it constitutes a kind of wedge.

If an axial stress P is exerted on the piston, this stress can be decomposed in two stresses: p^1, p^2; the first p^1 tends to cause the material treated to slide along the wall which is touched by the point of the wedge; the other p^2, component perpendicular to the oblique face of the piston can itself be decomposed in two other stresses f^1 and f^2 perpendicular, one to the wall, the other to the bottom of the cylinder. In these conditions the material is pushed as well against the side walls as against those of the bottom.

If at the same time as pressure is exerted, the piston is caused to rotate about its axis, the plane face c drives the material with it and brings the non filtered portions opposite the holes. The edges of the oblique section scrape the wall of the cylinder and remove the portions too large for filtering through which tend to obstruct the orifices.

Instead of presenting a single oblique plane, the piston can have two oblique planes, symmetrical or not.

In this case, at the end of the operation, the edge common to these two planes scrapes the bottom of the cylinder, by producing on the bottom the same advantages as those which have just been indicated for the walls. If the oblique planes are symmetrical, the bottom of the cylinder is touched by the end on its entire surface.

It is to be understood that the bottom of the cylinder can be more or less rounded; the piston is cut accordingly.

The piston is provided with handles and the cylinder with lugs or with feet according to circumstances. They can be connected together by a screw device, so that the rotation imparted to the piston produces at the same time its advance.

The form of construction of Fig. 2 is a realization of this latter arrangement.

The perforated body or cylinder a is provided with a filling hopper d; it is surrounded by a casing e serving to collect the filtered materials and to lead them into a vessel f.

The piston is actuated by means of a screw g passing through a fixed nut h and provided with an operating hand wheel i having a handle j.

For permitting the piston to be rapidly brought rearward, the nut h can be arranged so as to open for releasing the screw-threaded rod.

The invention is applicable to the treatment of materials of any nature the consistency of which permits the separation of

certain elements by passage and filtration through perforated walls or surfaces such as sieves.

The above arrangements are given by way of example only; the forms, dimensions, materials used and all detail arrangements can be varied without departing thereby from the principle of the invention.

Claim:

In expressing presses, a perforated body, a piston in this body, an oblique face formed on the piston, means for causing the piston to rotate and to move forward.

The foregoing specification of my "Improvement in presses and filtering apparatus" signed by me this 30th day of November, 1925.

PAUL ADOLPHE CARTERET.