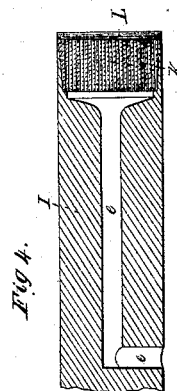
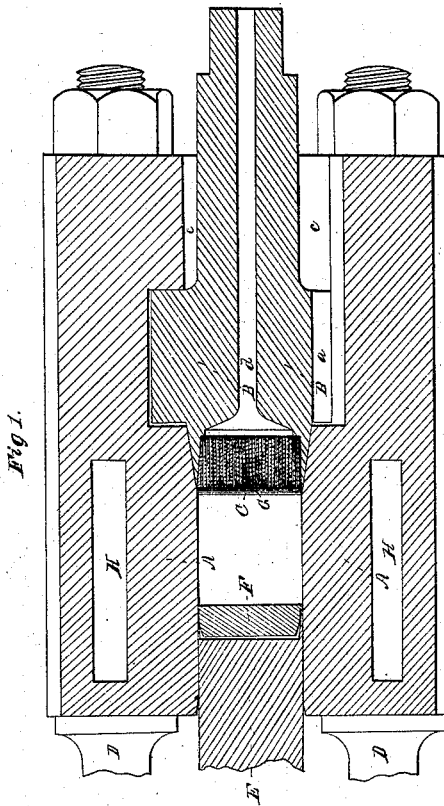
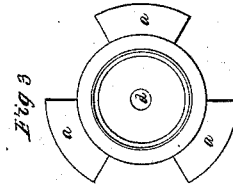
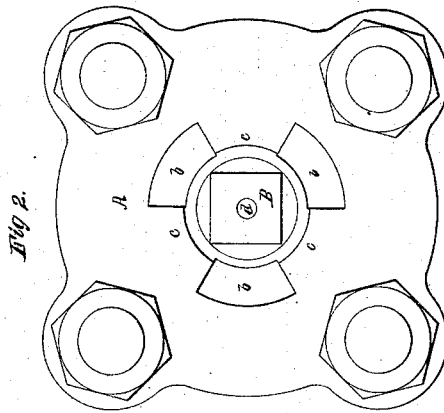


J. Marshall,

Oil Press,

Nº 48,140,

Patented June 6, 1865.



Witnesses
Sam'l Highman
Michael Riggs

Inventor
J. Marshall
per Henry B. Perkins, attorney

UNITED STATES PATENT OFFICE.

JOHN MARSHALL, OF PENTONVILLE ROAD, LONDON, ENGLAND.

IMPROVEMENT IN OIL-PRESSES.

Specification forming part of Letters Patent No. **48,140**, dated June 6, 1865.

To all whom it may concern:

Be it known that I, JOHN MARSHALL, of Pentonville Road, London, civil and mechanical engineer, have invented Improvements in the Expression of Oil from Oil-Yielding Substances and in the Production of Oil-Cake and other Residuary Matters; and I do hereby declare that the following is a full and exact description thereof, reference being had to the drawings hereunto annexed, and to the figures and letters marked thereon—that is to say:

Hitherto it has been the practice to express oils from seeds and other substances by screw or hydraulic presses, the oil escaping at the sides of the presses.

Now, my invention consists in expressing oil from seed and oil-yielding substances, and at the same time straining or filtering the oil by means of hydraulic or other power made to act upon a ram or piston and exert its pressure upon the seed or other oil-yielding substance contained in a vessel, by preference a cylinder, the seed or substance resting or being pressed against a resisting medium formed by a hollow plug, the face of which carries a perforated block which is furnished at front with layers of wire-gauze, perforated metal, textile or porous fabric, or other suitable straining or filtering material, all as hereinafter described with reference to the accompanying drawings.

For the purposes of my invention I prefer to use seed which has been simply "cracked" or bruised, in contradistinction to the employment of seed which has been previously crushed by edge runners or otherwise, and in all cases I prefer to use the seed cold, and I dispense with steam or other heat, as I find that when seed has been steamed or heated the steam or other heat liberates certain elements or matters injurious to the oil. By my cold process I express the oil only, consequently obtain it pure or purer than heretofore.

In the drawings, Figure 1 is a section of a press intended for hydraulic power, showing all those parts necessary to the comprehension of my invention. Fig. 2 is a view showing the upper end of the press, and Fig. 3 is a false view of the inner end of the hollow plug.

A is a cylinder, constructed to form the head of a hydraulic press.

B is a hollow plug, accurately coned and fitted into the cylinder A.

C is a minutely perforated block, also accurately coned and fitted into the face of the plug B.

D are the columns of an ordinary hydraulic press.

F is a conical piece of metal inserted in the conically-chambered face of the ram E. Upon pressure being applied this piece F is driven into the face end of the ram, and the thin edge of the ram is driven into close metallic contact with the sides of the cylinder A, and this is the form of packing which I prefer.

G is a strainer or filter, composed of one or more disks or layers of metal gauze, perforated metal, textile or porous fabric, or other suitable straining or filtering material, the layers of which may be all of the same material or of different materials combined and placed alternately or otherwise parallel with the head of the perforated block C.

H is a jacket or casing forming one continuous space or two or more spaces round the cylinder A into which steam or other heating agent may be admitted to heat the cylinder should any particular substance require heat.

The mode of operation is as follows, viz: The ram E is drawn back to the front of the cylinder A, and the seed or substance to be acted upon is inserted therein. The plug B, with the perforated block C and the filter G thereon, are then placed in the farther end of the cylinder A. The projecting lugs *aaa*, Fig. 3, on the plug pass through the spaces *bbb*, Fig. 2, in the end of the cylinder until the conical end of the plug becomes firmly seated in the conical chamber made for its reception in the cylinder A, when by turning the plug one-sixth of a turn the projections *aaa* on the plug B, which are cut with inclined surfaces, lock under the lugs *ccc*, Fig. 2, on the cylinder A, which are also cut with inclined surfaces, thereby forcing the conical end of the plug B into intimate contact with the sides of the cylinder A. On the application of the power the ram E proceeds toward the plug B, gradually compressing the seed or other substance contained in the cylinder A and forcing the oil out therefrom through the strainer or filter, the perforated block, and the hollow

plug, when by means of a connecting-pipe it is led into tanks or receivers, while the concrete and non-fluid matters remain behind in the cylinder. In order to remove the concrete residuary matters, I simply turn the plug B back one-sixth of a turn, whereby the projections *a a a* are unlocked from the lugs *c c c*, and I draw out the plug, together with the perforated block and strainer or filter. By continuing the power on the ram E the residuum is forced out at the farther end of the cylinder A.

Instead of applying the power to a traversing ram in a fixed cylinder, I sometimes apply it to a traversing cylinder against a fixed ram or piston, in which case, in order to remove the residuum, I unlock the plug, as before described, and continue the power on the cylinder until the ram forces the residuum out of the cylinder. I sometimes use, instead of a solid ram, as hereinbefore described, a hollow piston, I, Fig. 4, and fit the entering end thereof with the perforated block K, Fig. 4, similar to the perforated block C, Fig. 1, and also with a strainer or filter, L, Fig. 4, similar to the strainer or filter G, Fig. 1. I make the plug B, Fig. 1, solid instead of hollow, and the block C, Fig. 1, also solid instead of perforated, and then the fluid matters, upon expression, are forced backward through the strainer or filter L and passage *e*, Fig. 4, in the piston I, Fig. 4, and out through a connecting-pipe into tanks or receiving-vessels, and I remove the concrete

residuary matters in the same way as stated in regard to Fig. 1. Again, I sometimes use the hollow plug B, Fig. 1, and strainer or filter G, Fig. 1, conjointly with a hollow piston, I, Fig. 4, and filter L, Fig. 4, whereby the fluid matters, when expressed, escape both through the passage *d* in the plug B, Fig. 1, and through the passage *e*, Fig. 4, in the piston I, Fig. 4, leaving the concrete and residuary matters behind in the cylinder, to be afterward withdrawn, as hereinbefore explained.

Having now fully described the nature of this my said invention and the manner in which I believe the same can be best carried into practical effect, I declare that I do not confine myself to the precise details of the construction hereinbefore described, as the same may be considerably varied, without, however, departing from the nature and purport of my said invention; but

What I claim is—

The expression of oil from oil-yielding substances and the production of oil-cake and other residuary matter by means of a chamber, in combination with a ram and plug and a strainer or filter, these parts being constructed and acting substantially as described.

JOHN MARSHALL.

Witnesses:

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