

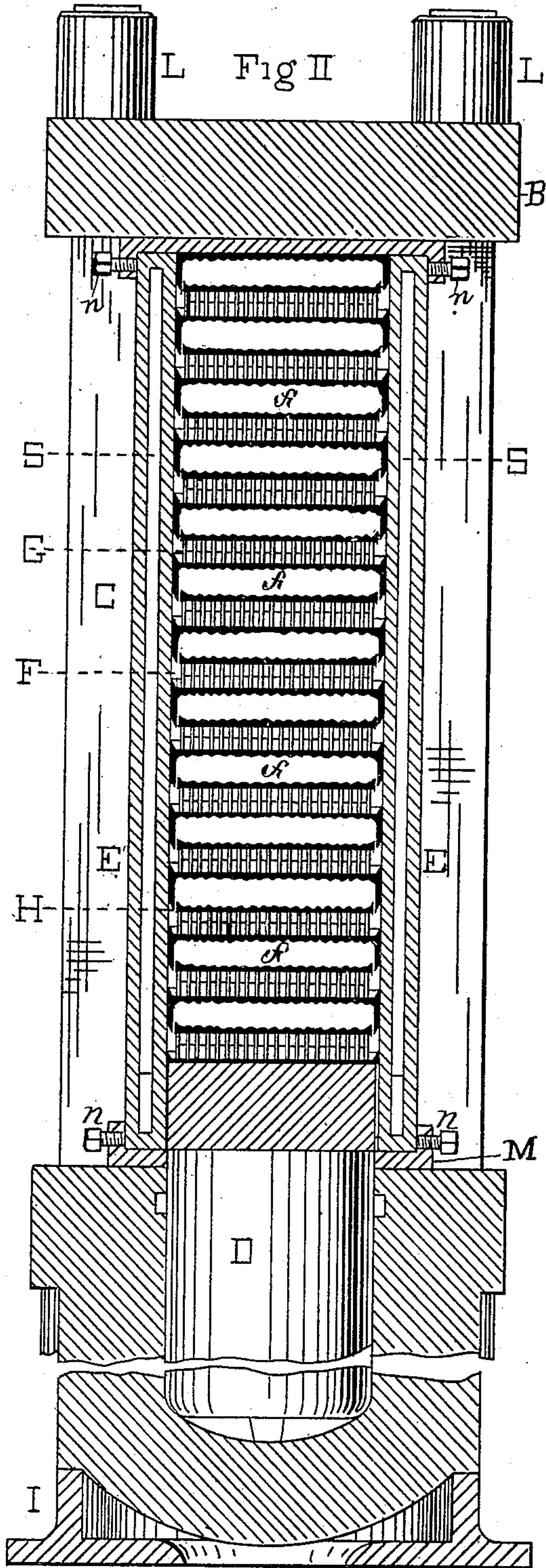
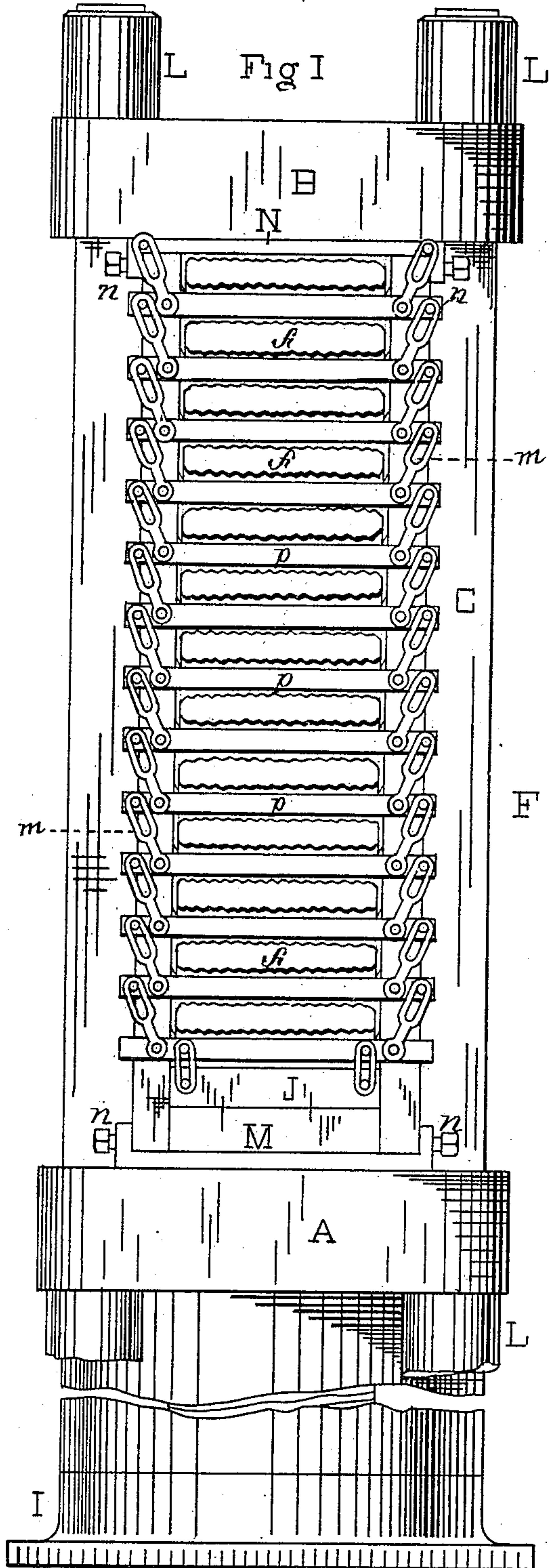
(No Model.)

2 Sheets—Sheet 1.

W. KRUTZSCH.
OIL PRESS AND OIL PRESS BOX.

No. 266,373.

Patented Oct. 24, 1882.



WITNESSES

*J. A. Rutherford &
Robert Everett*

INVENTOR

*William Krutzsch.
By James L. Norris, Atty.*

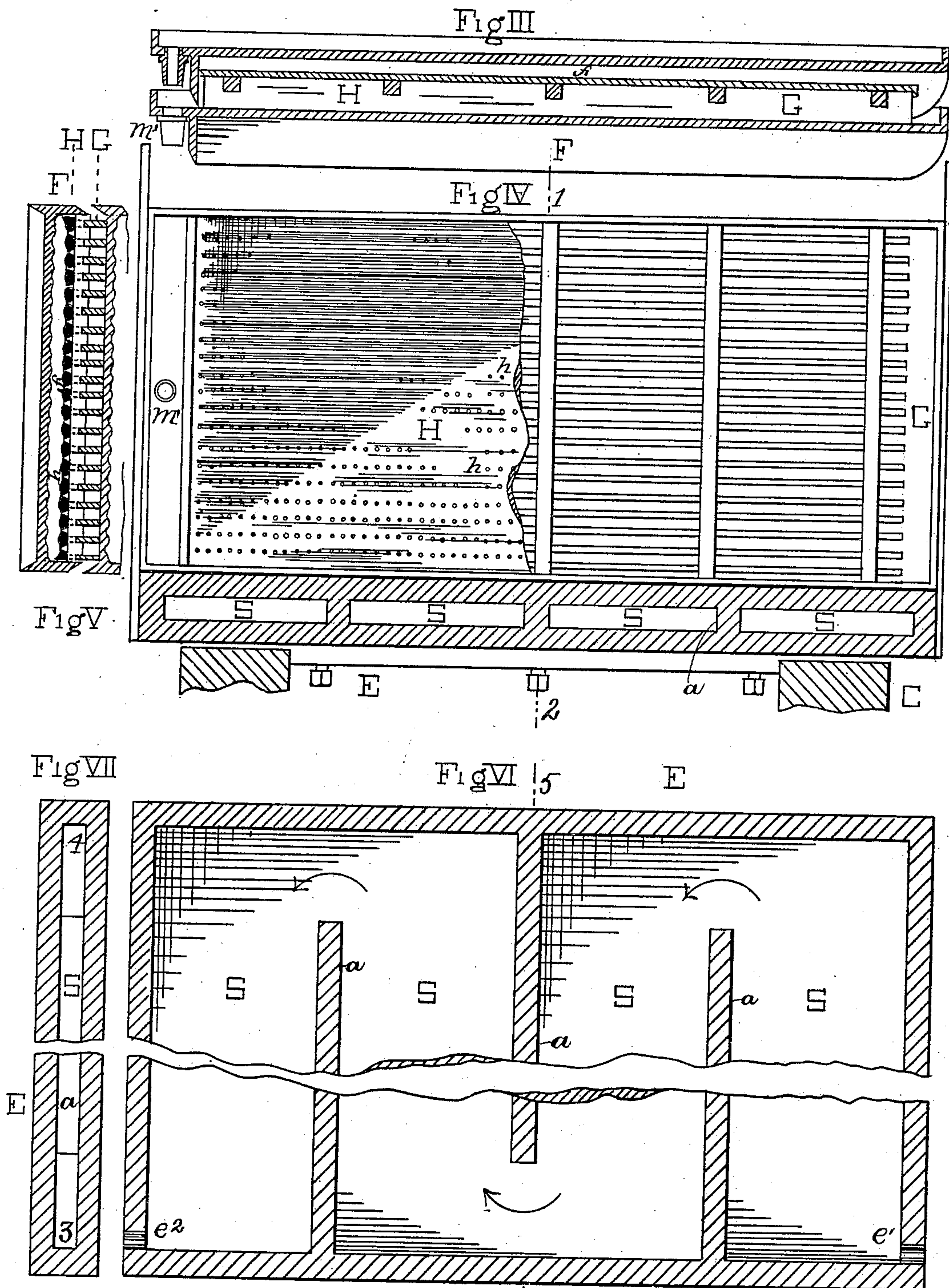
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By James L. Norris. *Atty.*

UNITED STATES PATENT OFFICE.

WILLIAM KRUTZSCH, OF DAYTON, OHIO, ASSIGNOR TO THE BUCKEYE IRON AND BRASS WORKS, OF SAME PLACE.

OIL-PRESS AND OIL-PRESS BOX.

SPECIFICATION forming part of Letters Patent No. 266,373, dated October 24, 1882.

Application filed September 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KRUTZSCH, a citizen of the United States, residing at Dayton, Montgomery county, Ohio, have invented new and useful Improvements in Oil-Presses and Oil-Press Boxes, of which the following is a specification.

The object of my invention is to provide such improvements in the construction of oil-presses as will effect a great saving in the wear and tear of the bags, cloths, or mats used in pressing seeds or meal, so as to carry away the oil from the oil-cake more freely after it has been expressed, thereby reducing the margin of waste and increasing the facility and permitting a greater degree of cleanliness in handling the press.

To this end my invention consists in a novel construction of metallic corrugated press-box, and in the combination therewith of a perforated division-plate and grating, all so constructed and arranged as to prevent the meal or oil cake from spreading laterally while under pressure, and at the same time affording ample means for the exit of oil from the press; also, in the manner of arranging and suspending the press-boxes so as to be acted on simultaneously; also, in the combination, with such boxes, of hollow guide-plates, forming passages for the circulation of heat in contact therewith; and, further, in certain details of construction, as hereinafter more fully set forth.

In the annexed drawings, Figure 1 is a front elevation of an oil-press embodying my invention. Fig. 2 is a vertical section of the same on the line 1 2 of Fig. 4. Fig. 3 is an enlarged longitudinal section of two adjacent press-boxes with interposed division-plate and grating. Fig. 4 is a plan of a press-box, looking down on the perforated division-plate, which is partly broken away to allow a view of the grating on which it rests, one of the contiguous heating-chambers being also shown. Fig. 5 is a transverse section of press-box, division-plate, and grating. Fig. 6 is a section on the line 3 4 of Fig. 7 of one of the two guide-plates with steam passages or chambers for heating the contiguous press-boxes, and Fig. 7 is a vertical section of the guide-plate on the line 5 6 of Fig. 6.

Like letters of reference are used to indicate the same parts in the several views.

The press illustrated in the drawings, Figs. 1 and 2, consists of a cylinder, A, head-block B, columns C C, connecting the head-block and cylinder, nuts L L, placed on said columns above the head-block, a plunger, D, working in the cylinder, and a ram-block, J, which extends up from the ram to receive the press-boxes, these parts being arranged generally in a manner similar to other hydraulic presses. The lower part of the press is provided with a supplementary base, I, which adds materially to the solidity of the machine. Tie-bars M and N are arranged above and below, as shown, to hold between them the guide-walls or heating-surfaces E E', and are provided with lugs that are fitted in the set-screws *n n*, or other means, to adjust the guide-walls to a bearing on the boxes F, thereby forming a guide for the boxes, as well as affording a more complete means of communicating heat thereto by actual contact. These guide-walls E are hollow, and have partitions *a*, arranged as shown in Figs. 4, 6, and 7, for the purpose of effecting a circulation of steam or heated air, which enters at *e'*, and, after passing through the spaces S, in the direction indicated by arrows in Fig. 6, finally escapes through the opening *e*².

A wooden casing (not shown in the drawings) incloses the whole press and throws the heat from the walls in through the boxes from both sides, thus enabling the meal or seed to be kept at a uniform temperature while the oil is being expressed, which is a very important point in the economical extraction of oils.

The boxes F (shown in Figs. 3, 4, and 5) may be made of brass, steel, malleable or wrought iron, or other suitable material, and consist of a plate having raised ledges or flanges on all sides, thus forming a pan on the top of the plate. On the under side of the plate its edges are projected down or formed into walls which end in chamfered edges that match the chamfered ledges of the box next below it, as shown more particularly in Fig. 5, in which view the boxes are represented as closed together, with the oil-cake pressed in the space *f* between said boxes. If the edges of the boxes were

squared instead of being chamfered, it is obvious that the wall of the upper box would strike the ledge of the next lower box and stop all motion. By chamfering the edges, however, an important advantage is gained, as I am thereby enabled to close in the rear end of the box as well as the sides.

In the pan on top of the box F is placed a grating, G, consisting of parallel longitudinal bars and suitable cross-bars, composed of wrought-iron or other appropriate material interlocked and jointed together, so as to allow a passage of the oil between the bars and beneath the cross-bars along the box to an opening, *m'*, at one end, whence it is conducted to the oil-tank by any suitable means.

The grating G may be readily removed and the flat top of the box F be scraped and cleansed of all meal-slush, whenever necessary, after which the grating is replaced. This construction is a decided advantage over the old system of grooves formed in the solid block or box.

On the top of the grating G is placed a division-plate, H. The meal or seed rests in the space between the bottom of the box F and the plate H, the latter having suitable perforations, *h*, to allow the oil to escape to the grating beneath, and thence away, as before described. The plate H, on its top, and the box F, on its under side, are provided with longitudinal corrugations. These corrugations are rounded, so as to end in a quarter-circle on the sides and at the back, and the plate H and box F, when under pressure, come almost together at these points, thus allowing the smallest possible amount of surface of meal to be exposed to the sides of the box, and thereby preventing it from squeezing from beneath or between the plates, or from bursting the bags or cloths in which it is usually inclosed. By providing the boxes and division-plates with these longitudinal corrugations a cheaper construction is attained, the material under pressure is prevented from spreading laterally, and the cake may be more easily withdrawn after the oil is expressed, thus effecting a saving in the labor of preparing and packing oil-cake for shipping.

Any convenient number of boxes may be arranged in the press. Fig. 2 shows a section of a press of thirteen boxes, the press being represented as standing idle, or with the boxes open.

The seed from which the oil is to be extracted is ground, heated, and prepared in suitable cakes, which are wrapped in cloths and inserted into the opening between the boxes F, after which the press is started, the plate H and grating G of each box acting on the meal-cake as a pressure-platen, so as to force it against the bottom of the box next above. The press-boxes F, as shown in Fig. 1, are suspended from each other, the top one being hung from the upper tie bar, N, by means of links *m*, attached to straps or bars *p*, run-

ning across the front and back of the boxes, as shown, which bars also prevent the box from slipping out from between the two guide-plates or sides of the press. These links stand in oblique directions relative to the boxes, and each has one end fixed to one box by a pivot on which it can turn, the other end of each link having a slot fitting over a pin on the box adjacent to it. By arranging these links obliquely, as shown, they are enabled to pass each other when the press is in operation, thus bringing the boxes in contact and causing them to be raised simultaneously.

What I claim is—

1. In an oil-press, the combination, with a series of press-boxes, of hollow vertical guide-plates adapted to bear against the press-boxes, and having chambers or passages for the circulation of hot air or steam in contact with the boxes, substantially as described.

2. In an oil-press, the combination, with the boxes and vertical guide-plates, of the blocks arranged at the top and bottom of the press, and means for adjusting the guide-plates or walls against the sides of the boxes, substantially as described.

3. In an oil-press, the combination of two press-boxes arranged one above the other, with a grating resting on the lower box and a division-plate resting on the grating, substantially as described.

4. In an oil-press, a press-box having all its four sides provided with chamfered edges, which match with the chamfered edges of the adjacent box, combined with an interior grating and a division plate resting on the grating, substantially as described.

5. In an oil-press, a series of press-boxes arranged vertically one above the other, and each having the upper and lower edges of all its sides chamfered, whereby such edges will match and the entire series be brought together in the manner and for the purpose described.

6. In an oil-press, the combination of two press-boxes, one adapted to enter the other, a grating resting on the lower box, and a perforated division-plate having longitudinal corrugations and resting on the grating, substantially as described.

7. In an oil-press, the combination of the press-box, having on its under side the longitudinal corrugations, with the under press-box, the grating and the division-plate having longitudinal corrugations on its upper side, substantially as described.

8. In an oil-press, the combination, with the press-frame and a series of boxes arranged therein, of the obliquely-arranged links, each having one end fixed to a box by a pivot on which it can turn, and the other end having a slot loosely fitting a pin on the adjacent box, substantially as described.

9. In an oil-press, the combination, with a series of press-boxes, of hollow imperforate walls, forming guide-plates for the boxes and

serving for the circulation of a heating medium, substantially as described.

5 10. In an oil-press, the combination of a press-box provided with ledges on its upper and under surfaces and longitudinally corrugated on one side, a perforated division-plate of similar construction, and a loose grating removably arranged between the box and its plate, substantially as described.

10 11. In an oil-press, the combination, with a vertical series of press-boxes and interposed division-plates and gratings, of hollow walls or guide-plates provided with chambers or passages for the circulation of heat adjacent
15 to the press-boxes, substantially as described.

12. In an oil-press, in combination with the press-boxes thereof, one or more hollow verti-

cal walls inclosing chambers or passages formed by interlapping partitions, substantially as described.

20 13. In an oil-press, a box having on its upper and lower faces walls or ledges provided with chamfered edges, said plates being corrugated longitudinally and provided at the end with an opening for the passage of oil, substantially
25 as described.

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

W. KRUTZSCH.

Witnesses:

JAMES L. NORRIS, -

JAMES A. RUTHERFORD.