

(No Model.)

3 Sheets—Sheet 1

G. W. HATFIELD.
OIL PRESS BOXES AND PANS.

No. 272,134.

Patented Feb. 13, 1883.

Fig. 1.

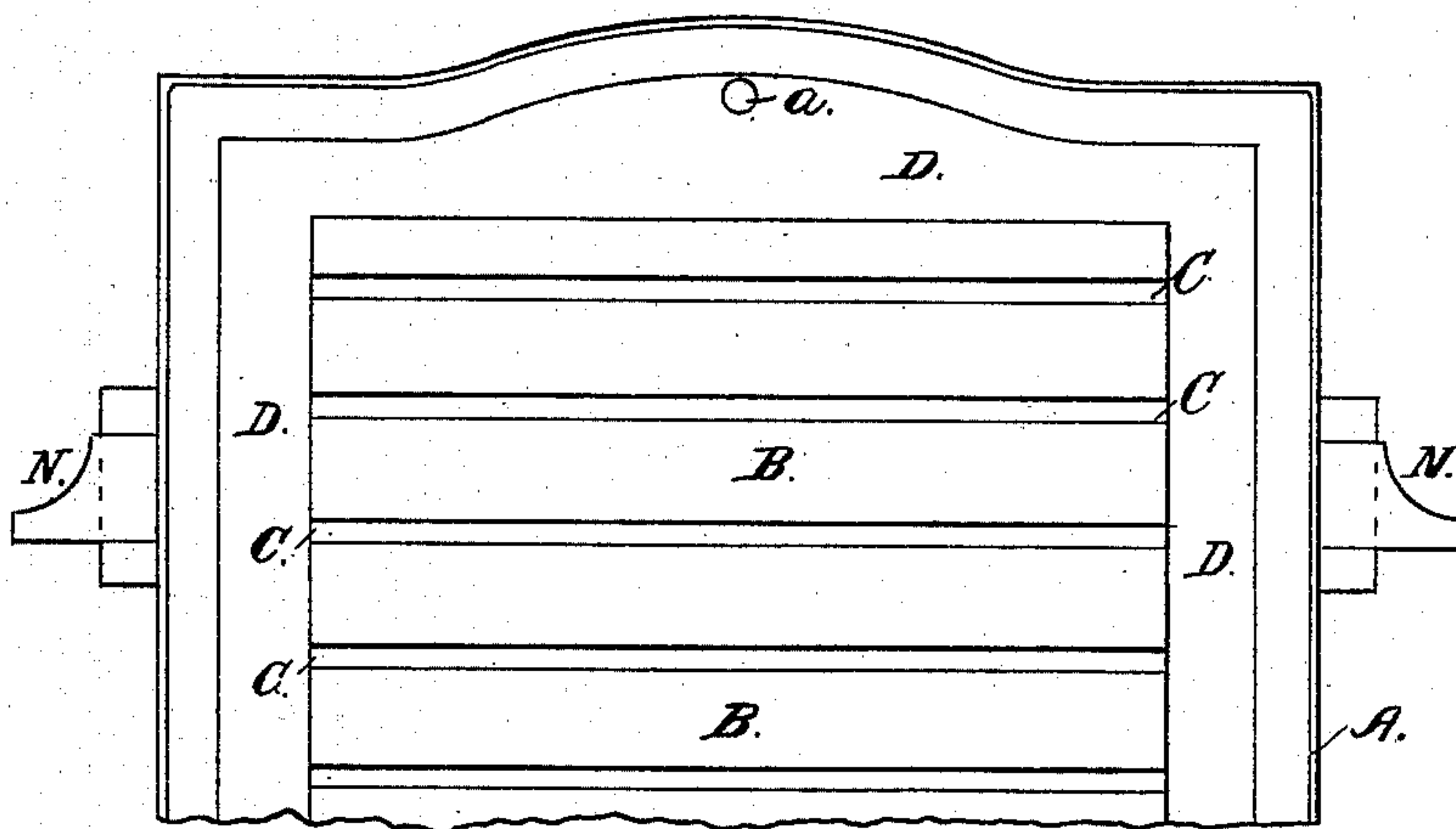


Fig. 2.

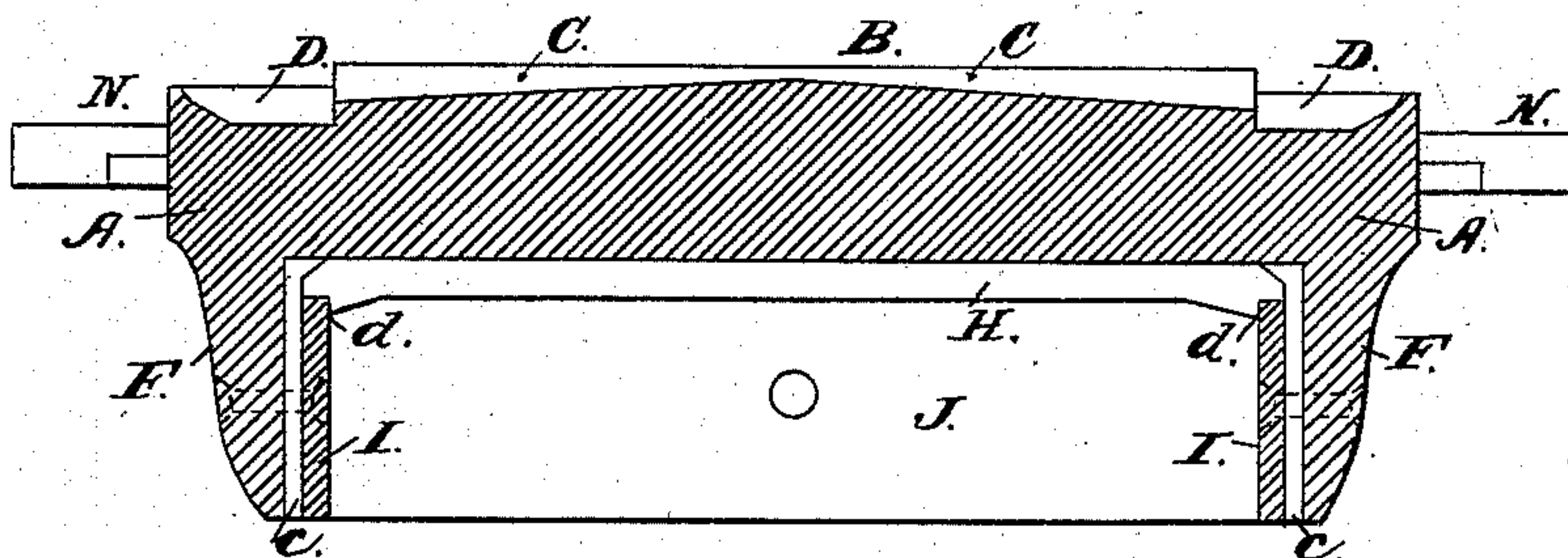
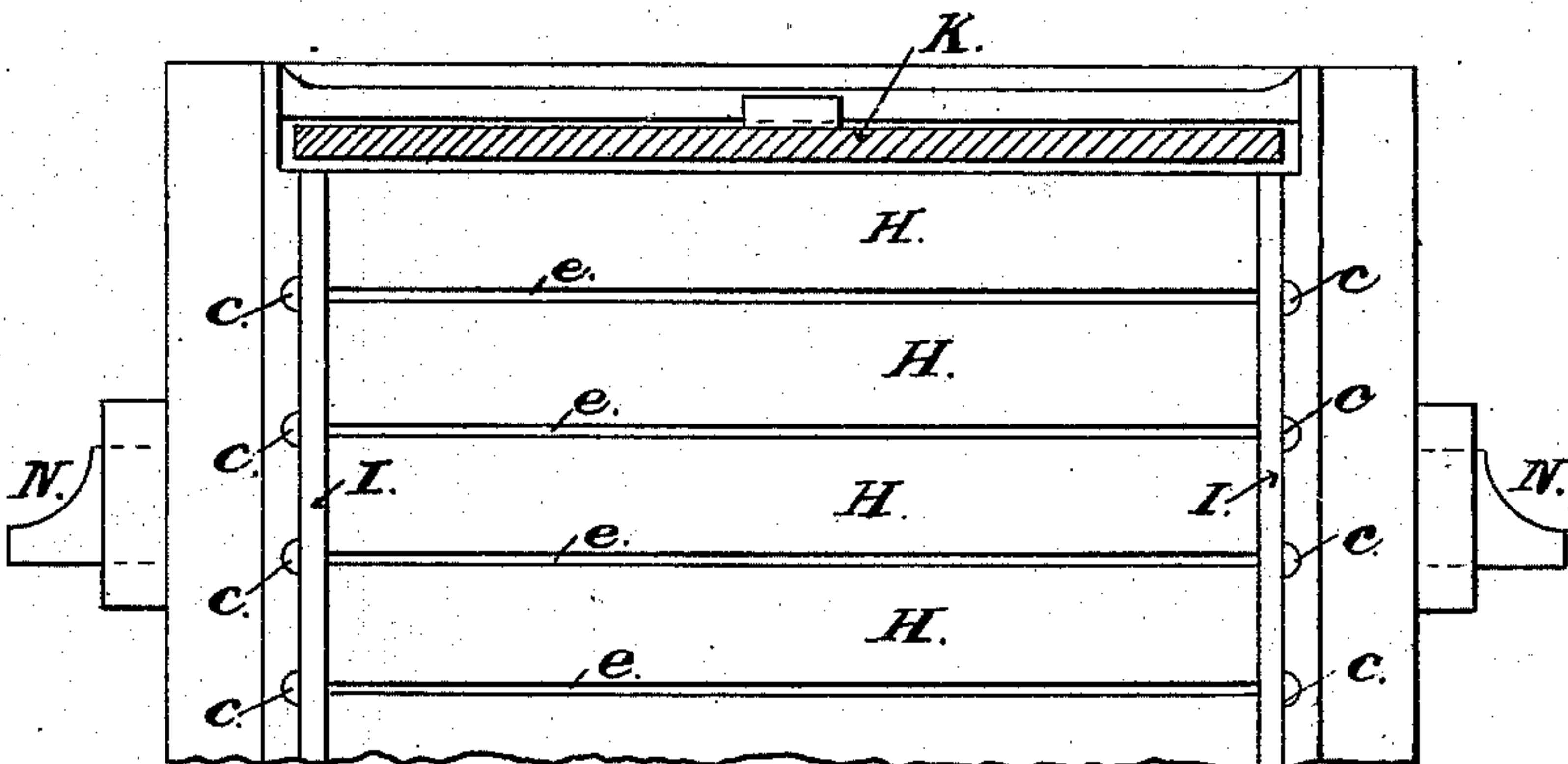


Fig. 3.



Attest;
Edward H. Pector
Geo. A. Meyer.

Inventor
Geo. W. Hatfield
by *Stewart & Co.*
his attys;

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Fig. 4.

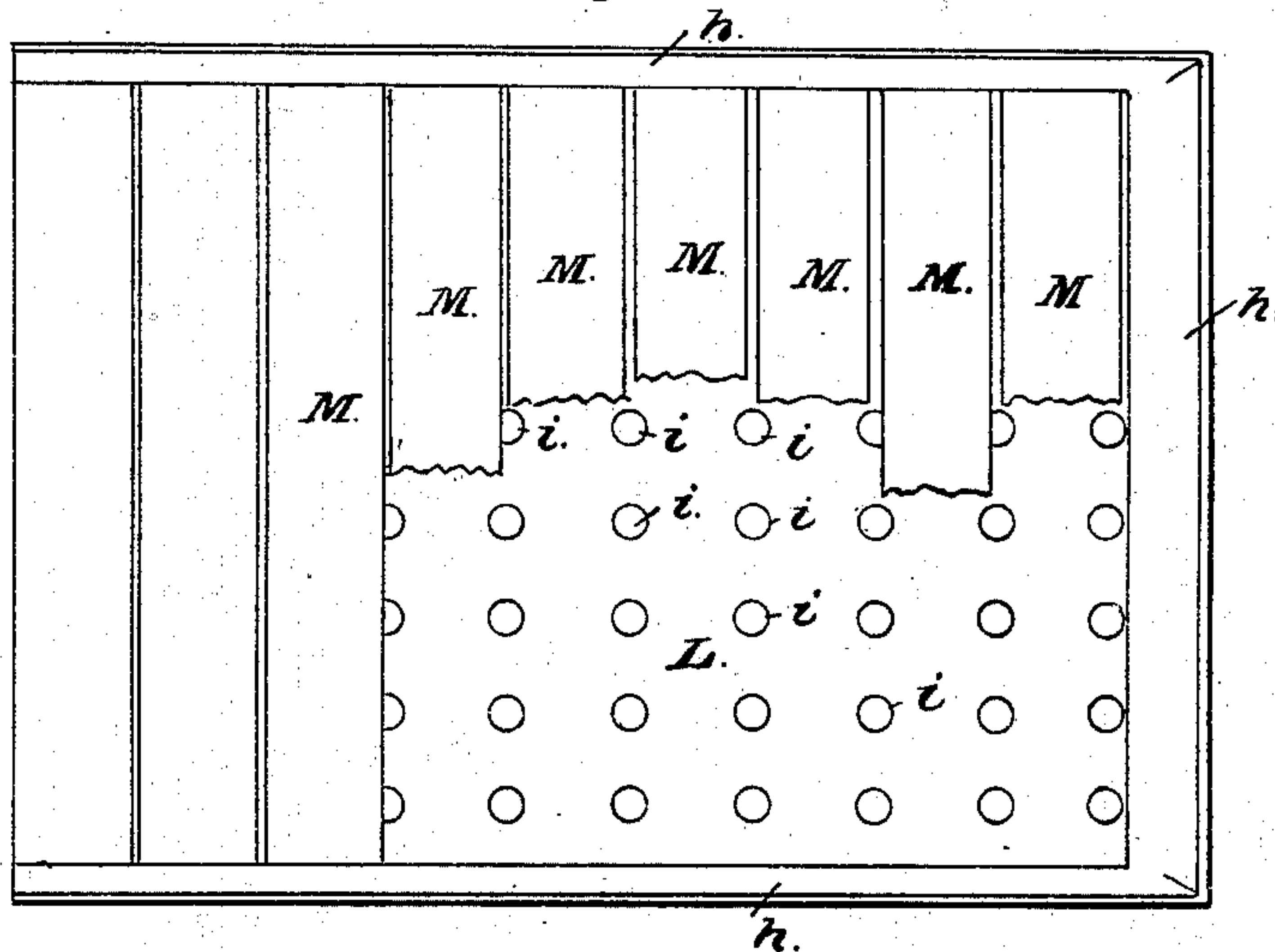
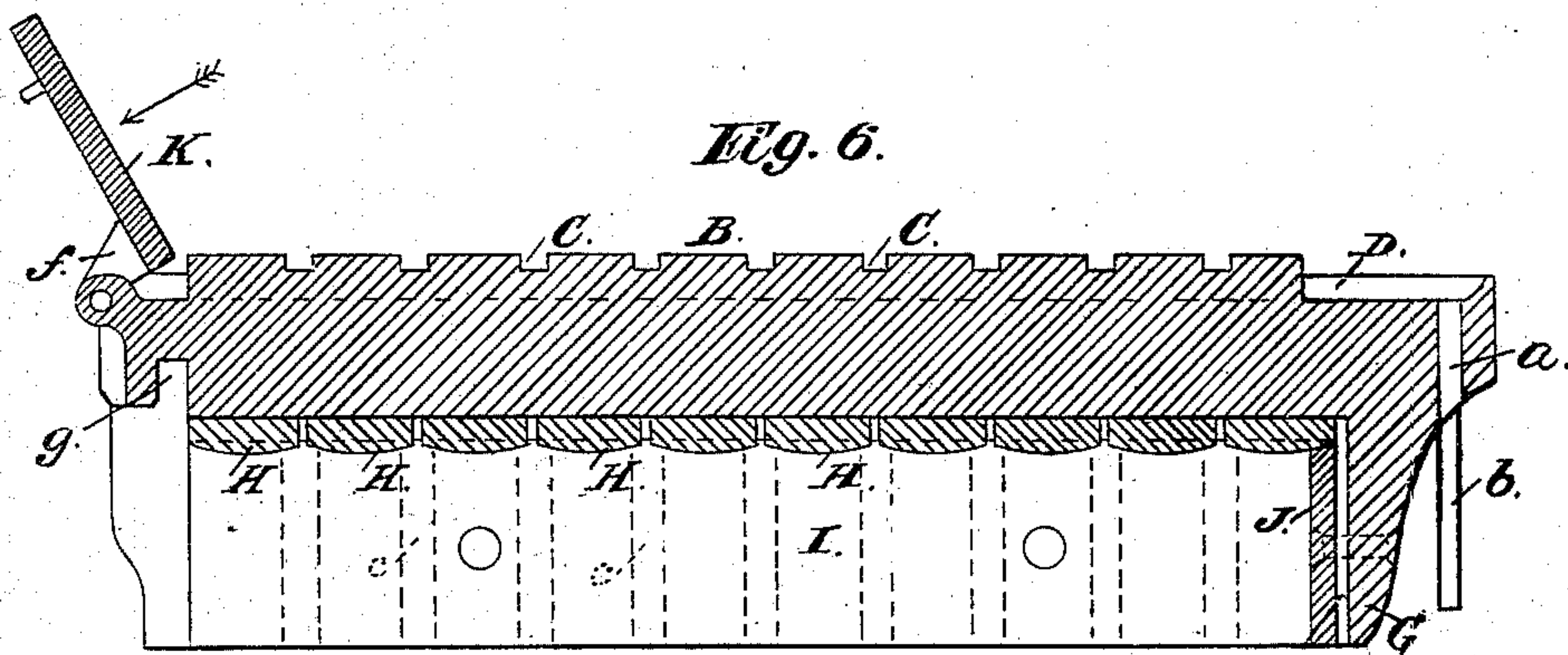


Fig. 5.



Fig. 6.



Attest:
Edward H. Pector
Geo. A. Meyer

Inventor
Geo. W. Hatfield
by Stearns & Beck
his Attys;

(No Model.)

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Fig. 7.

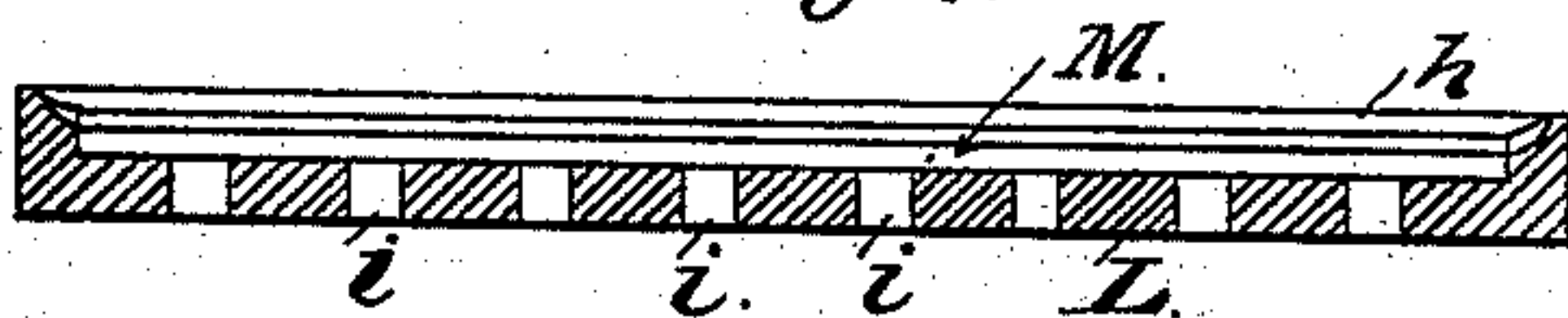


Fig. 8.

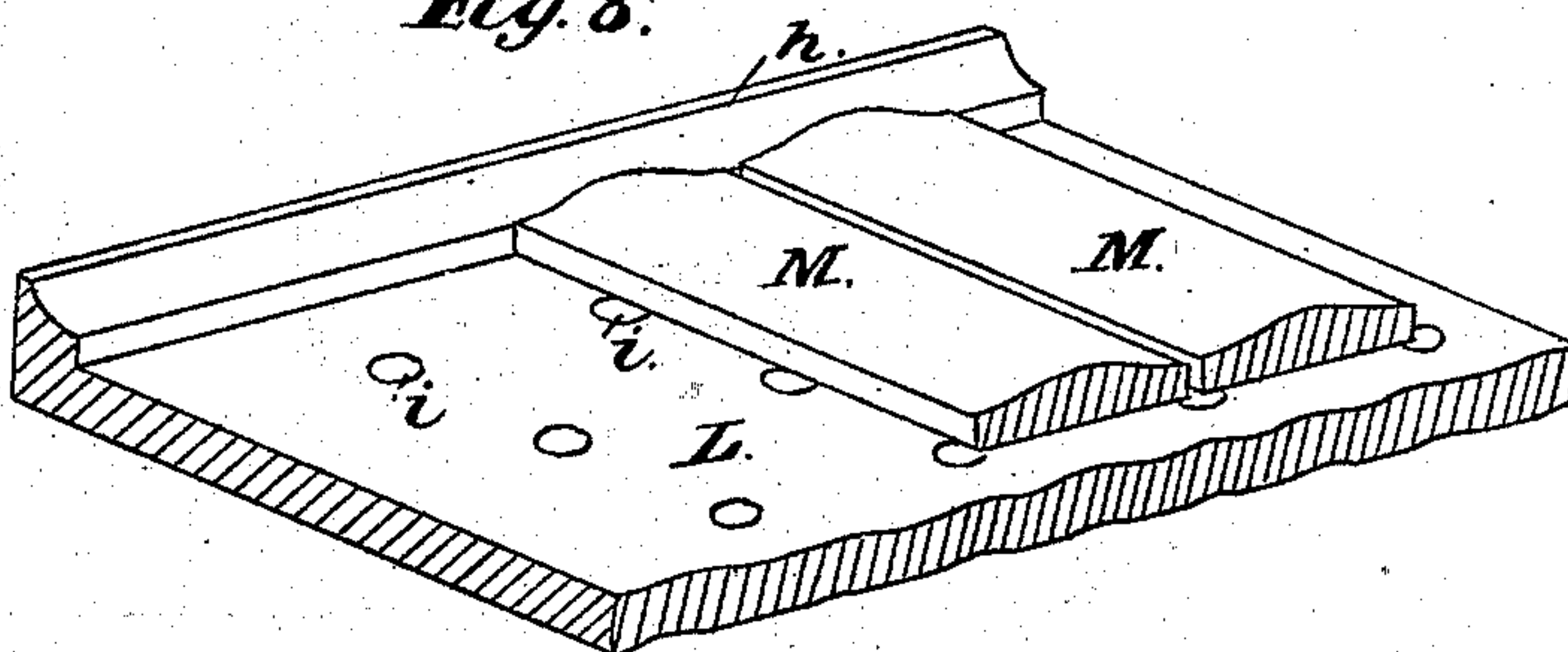
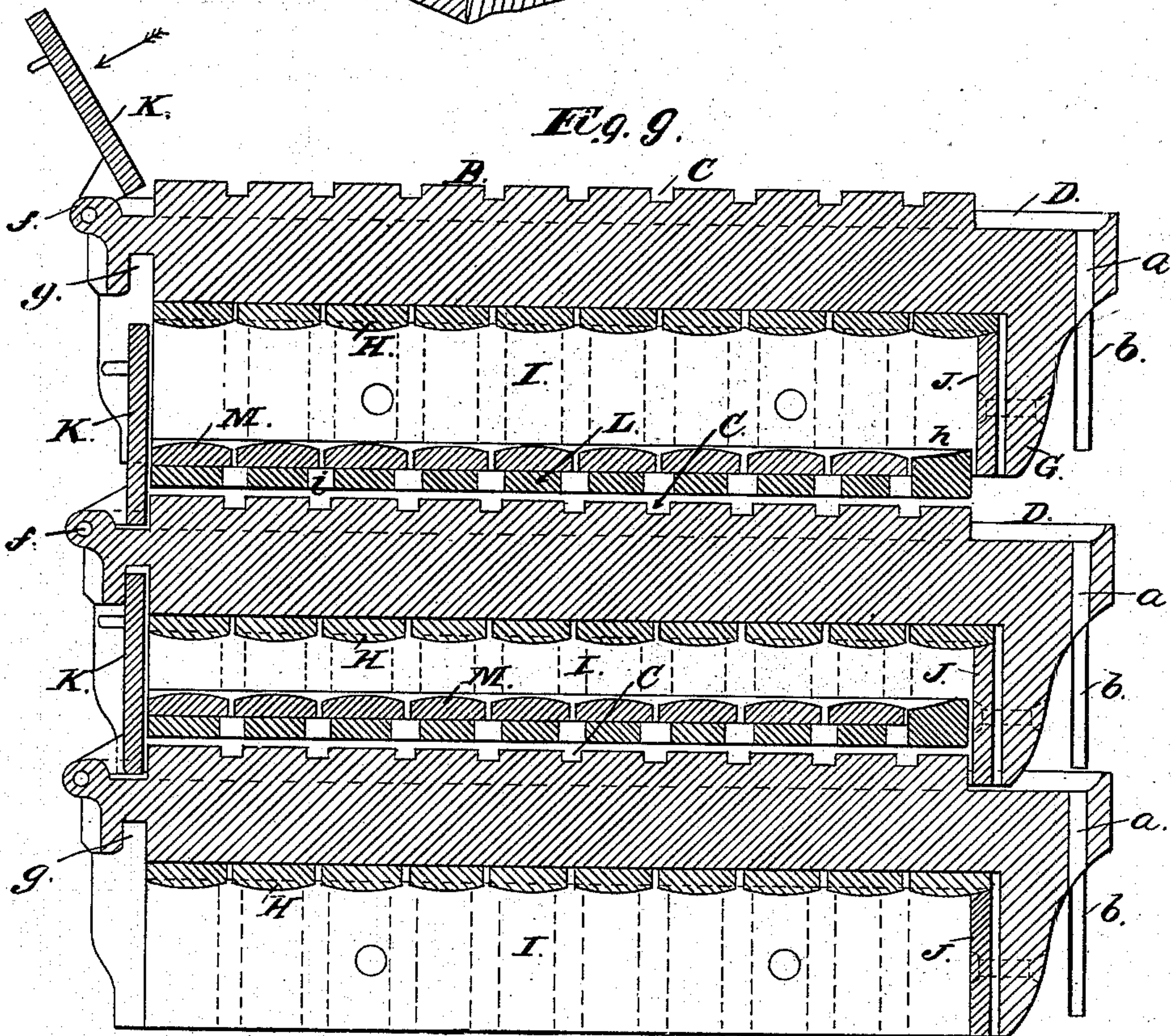


Fig. 9.



Attest:

Lucas A. Meyer
Edward H. Pector

Inventor

Geo. W. Hatfield
by Stearns & Co.
his Atty's.

UNITED STATES PATENT OFFICE.

GEORGE W. HATFIELD, OF DAYTON, OHIO.

OIL-PRESS BOX AND PAN.

SPECIFICATION forming part of Letters Patent No. 272,134, dated February 13, 1883.

Application filed January 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. HATFIELD, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Oil-Press Boxes and Pans; and I do hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawings, making a part of this specification.

My invention relates to improvements in presses for extracting oil from seeds, and has for its object both the simplification and economy of the means employed, as well as the obtaining the maximum amount or yield of oil from any given quantity of meal or seed, and also the prevention of the reabsorption of the oil into the cake after it has once been expressed by capillary attraction or otherwise.

The novelty consists in the construction and combination of the devices employed, as will be herewith set forth, and specifically claimed.

In the accompanying drawings, Figure 1, Sheet 1, is a top plan view of the rear half of one of my improved boxes. Fig. 2, Sheet 1, is a transverse sectional view of the same. Fig. 3, Sheet 1, is a bottom plan view of the opposite or front half of the same, showing the door in section. Fig. 4, Sheet 2, is a top plan view of one of my improved meal-pans with portions of the transverse supplemental ribs broken away, disclosing the apertures or perforations in the plate of the pan. Fig. 5, Sheet 2, is a longitudinal central section of the meal-pan in elevation. Fig. 6, Sheet 2, is a longitudinal central sectional view of one of the boxes complete in elevation. Fig. 7, Sheet 3, is a transverse sectional view, in elevation, through one of the meal-pans. Fig. 8, Sheet 3, is an enlarged perspective view of portions of the meal-pan to illustrate its construction more clearly. Fig. 9, Sheet 3, is a longitudinal central sectional view, in elevation, of a series of three of my improved boxes and two of the pans, showing the relative positions of the relative parts at different stages of their operation.

The same letters of reference are used to designate like parts in all the figures.

Referring now particularly to Figs. 1, 2, 3, and 6, which illustrate my improved box, I would thus describe it.

A is a cast-metal plate, having on top a central raised flat platform of the shape and size required to be given to the meal-cake, which is usually rectangular and oblong. This platform is broken by transverse gutters or channels C in its face, parallel to each other, and whose bottoms slant from the center to the sides, as shown in Fig. 2. Surrounding this platform is a continuous gutter, channel, or run, D, so sloped as to convey the oil into a pocket at the rear end, from which it escapes through an aperture or vent, *a*, and connecting-pipe *b*, Figs. 1 and 6, to the next subjacent box, and, finally, by suitable connecting-pipes, to the storage-well. From the transverse or horizontal portion of the plate A are pendent side walls, F, and a rear end wall, G, forming a rectangular inclosure when two boxes are fitted together and the front doors closed, as will be presently explained. Upon the inner side of both the side walls, F, and end wall, G, are vertical channels or gutters *c*, extending from the top to the bottom, and connected, if desired, at their upper ends by a continuous gutter or channel extending around the whole series.

Lying transversely along the bottom of the plate A are a series of ribs, H, whose under sides are convex transversely, as seen in Fig. 6, and whose thickened and downwardly-sloping ends are mortised, as at *d*, Fig. 2, to form retaining-shoulders, in which the upper edges of the inner supplemental side walls, I, are fitted, as shown. These supplemental inner side and end walls, I and J, are bolted, screwed, or otherwise suitably secured against the side and end walls, F and G, respectively, and cover the gutters or ducts *c* at their upper ends, or into the continuous channel connecting all the ducts.

Upon the upper front end of each of the plates A is a door, K, Fig. 6, preferably attached by hinges *f*, so as to open outward and be let down. The lower edge of this door, when closed, fits into a groove or recess in the plate A, and its height is a little greater than that of the supplemental or inner wall-plates, I and J.

Now, by reference to Fig. 9, it will be seen how a number of these plates A, with their appurtenances, are fitted one upon the other to form telescopic boxes, in which the meal is placed to have the oil expressed, and each of these boxes has solid side and end walls extending up from the edge of the platform B. The doors K of each box close against shoulders or offsets formed in the supplemental side walls, I, as seen in Fig. 3, and the under front side of each of the plates A is recessed or grooved, as at *g*, to permit the upper edge of the door to slide therein and be locked while pressure is being applied to the meal.

Referring now to Figs. 4, 5, 7, 8, and 9, I would thus describe the meal-pan, which is composed of a flat plate, L, with a raised rim or moulding, *h*, extending around three of its sides, as seen more particularly in Fig. 4. This plate has transverse rows of perforations *i* through it, which, when the pan is placed upon the platform B, open into the gutters or channels C, as will be seen in Fig. 9. Extending transversely across the plate L are a series of independent ribs, *m*, whose upper surfaces are convex in cross-section, and whose edges do not meet but form interstices directly over the rows of holes *i*, as shown in Figs. 4, 5 and 9. These supplemental ribs may be secured to the plate L by screws or rivets, or in any suitable manner. The pans are made to fit snugly in the boxes and can be slipped in or out through the front doors. N N are the usual guides, and the boxes are suspended in any suitable way.

Having given the construction of my improvements, I will now describe the operation and the advantages to be gained.

The meal may be put up in the usual or any suitable way and is placed upon the pans, which are slipped into the boxes, as shown in Fig. 9. The doors K are then closed by raising them to a vertical position, and pressure is applied. All of the oil which leaves the meal upon its under side passes down through the interstices of the ribs M, through the holes *i* into the gutters C, and thence into the main run or channel D, whence it passes off, as before described. Most of the oil passes in this way; but it has been found by practice that it is desirable to provide an outlet for the oil which escapes from the upper side of the meal, and in my case such oil will flow along and in the interstices *e* of the ribs H, and will pass into the ducts *c* behind the inner walls of the boxes and be discharged into the main run D, as will be clearly understood by reference to Fig. 2. In this way I am enabled to extract every particle of oil from the meal, or so nearly so that the waste is trifling, and, furthermore, by having solid side and end walls as boundaries for the meal during compression, in connection with the described formation of the tops and bottoms of the boxes, the cakes are of uniform and exact size without the necessity of trimming. Again, when the oil has been fully expressed from the cake,

and, in fact, at all times, the air has instant and free ingress to the boxes, and consequently there is no sucking back of the oil into the cake, nor can any find its way back by capillary attraction.

I do not propose to limit myself to the manner of attaching the doors to the boxes, as this could be done in a variety of ways, nor to the precise construction of the parts described; but,

Having thus fully described my invention, I claim—

1. In an oil-press having a series of telescopic boxes, the combination, with each of said boxes, of supplemental ribs forming the top walls thereof.

2. In an oil-press having a series of telescopic boxes, the combination, with each of said boxes, of supplemental ribs forming the top walls thereof, and of supplemental side and end walls.

3. In an oil-press having a series of telescopic boxes, the combination, with each of said boxes, of supplemental ribs, with openings or interstices between the same, communicating with ducts within or behind the side and end walls thereof, as and for the purpose specified.

4. In an oil-press having a series of telescopic boxes, the combination, with each of said boxes, of supplemental side and end walls secured to the main walls, with openings or apertures between said main and supplemental side and end walls, said apertures or openings communicating with the upper interiors of the boxes, substantially as described.

5. In an oil-press having a series of telescopic boxes in which the meal is compressed, the combination, with each of said boxes, of means, substantially as described, whereby the oil escaping from the upper side of the meal can be conveyed away by passage through the side walls without the necessity of passing through the meal to its under side.

6. In an oil-press box, the combination and arrangement of the supplemental ribs, with interstices between them, forming the top wall, of supplemental side plates, by which said ribs are supported and held in place, substantially as described.

7. In an oil-press box having supplemental ribs with interstices between them, and supplemental side plates with ducts behind them, the arrangement of said ribs and ducts, whereby the interstices between the ribs communicate with the ducts, substantially as described.

8. In an oil-press having a series of telescopic boxes in which the meal is compressed, the combination, with each box, of a front door, by means of which access is had to the interior of the box.

9. In an oil-press having a series of telescopic boxes in which the meal is compressed, the combination, with each box, of a front door, which, when closed, forms the front end wall of the box.

10. In an oil-press having a series of telescopic boxes in which the meal is compressed, the combination, with each box, of a front door, which, when closed, forms the front end wall of the box, and means whereby said door becomes automatically locked when pressure is applied to compress the meal.

11. In an oil-press having a series of telescopic boxes, with doors forming the front end walls thereof, the combination, with each box, of a removable meal-pan upon which the meal rests.

12. In an oil-press having a series of telescopic boxes, the combination, with each of

said boxes, of a removable perforated meal-pan resting upon the bottom of the box, which is provided with gutters whose bottoms slope from the center each way and communicate with the main channel or oil-run.

13. In an oil-press, the meal-pans composed of perforated plates and superimposed supplemental ribs, with interstices between them communicating with the perforations in the plate.

GEO. W. HATFIELD.

Witnesses:

CHAS. D. ADDINGE,
JOHN H. VAILE.