

H. M. HARTSHORN.
Press for Expressing Liquids from Substances.

No. 218,879.

Patented Aug. 26, 1879.

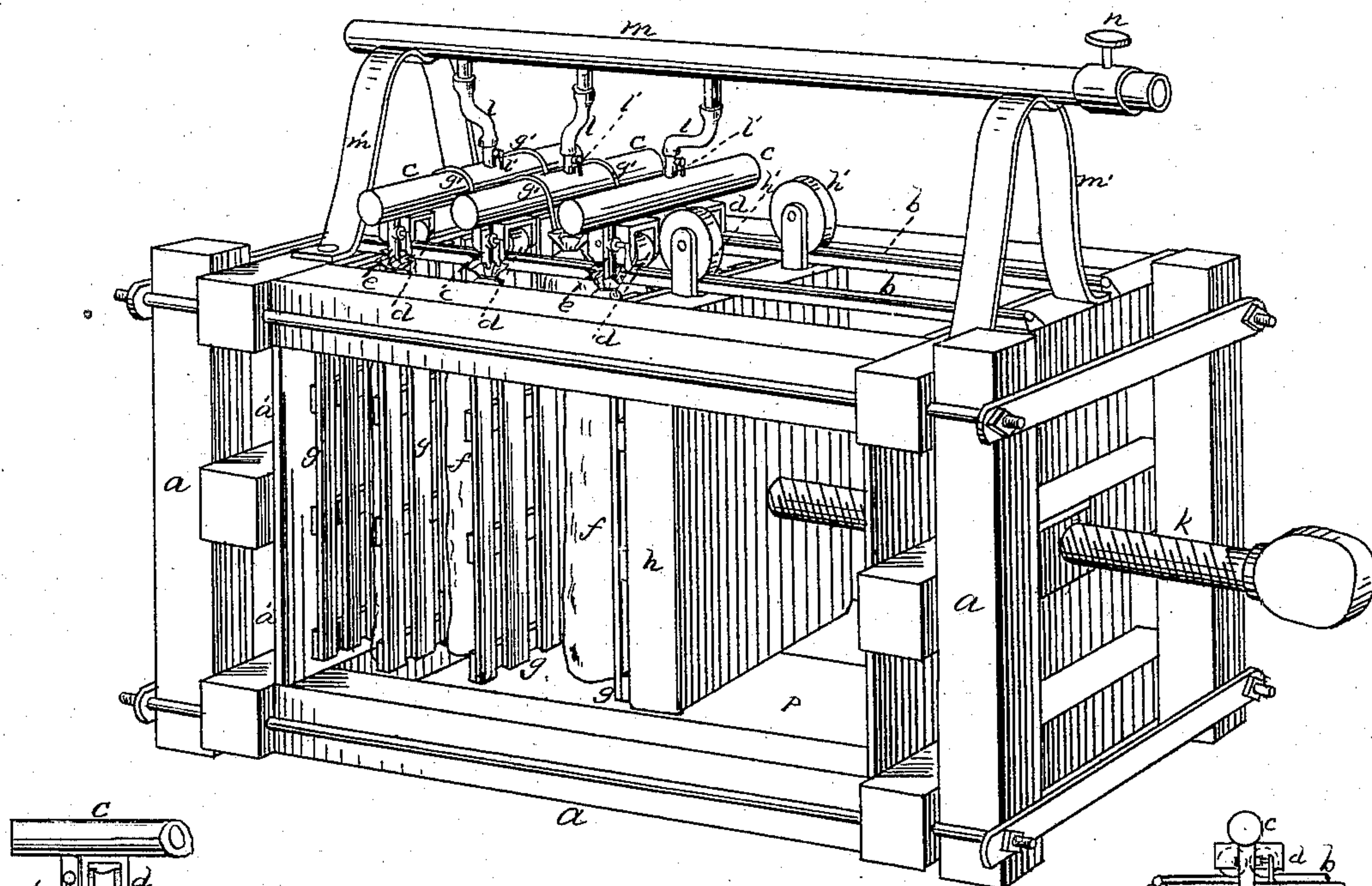


Fig. 1.

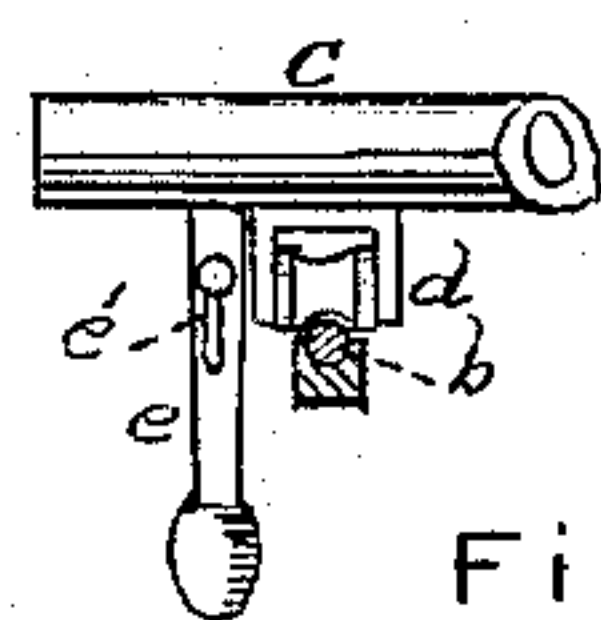


Fig. 4.

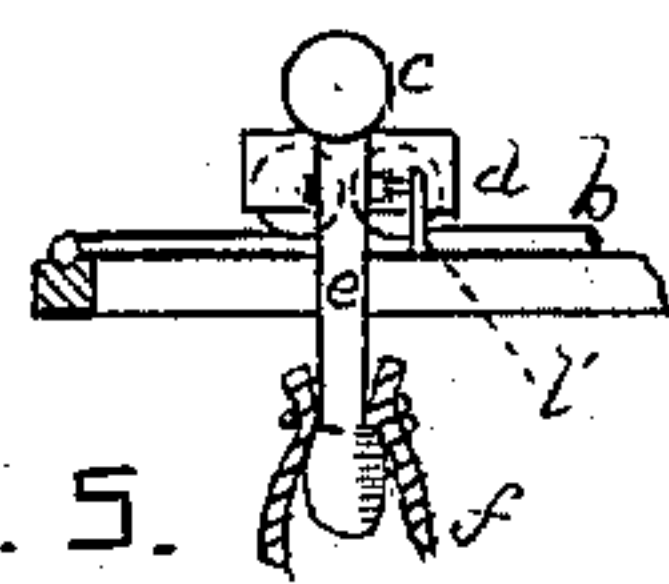


Fig. 5.

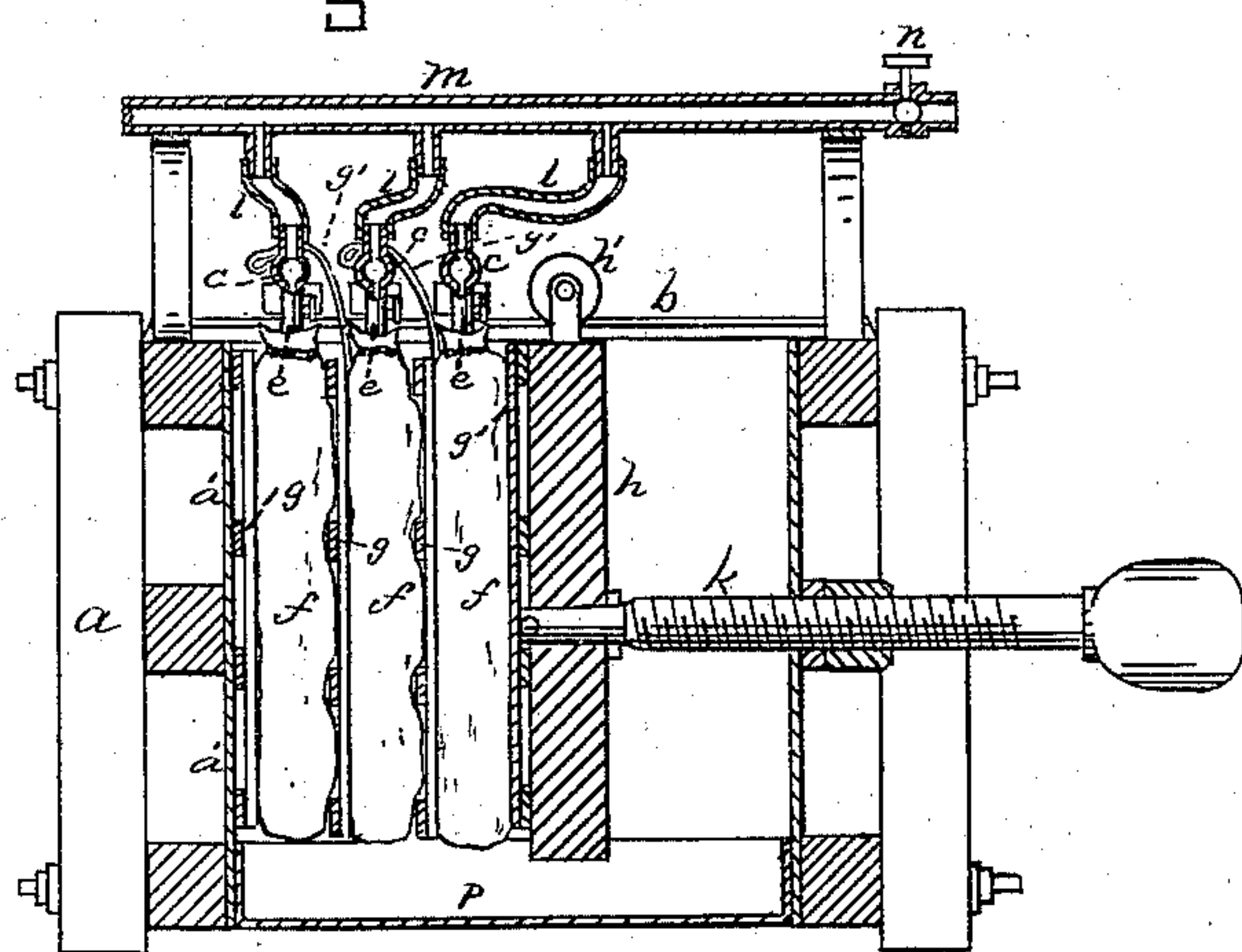


Fig. 2.

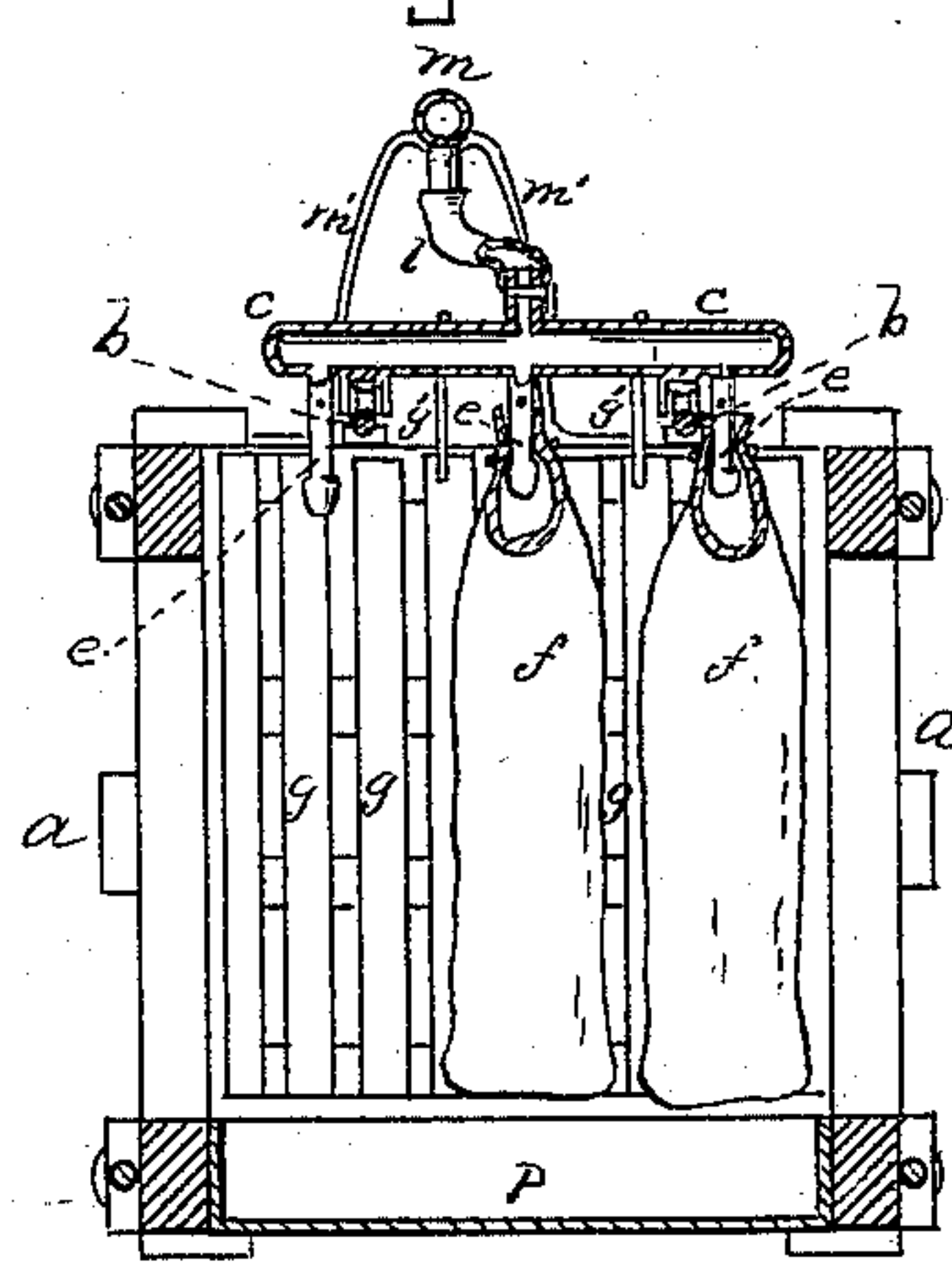


Fig. 3.

WITNESSES

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HENRY M. HARTSHORN, OF MALDEN, MASSACHUSETTS.

IMPROVEMENT IN PRESSES FOR EXPRESSING LIQUIDS FROM SUBSTANCES.

Specification forming part of Letters Patent No. **218,879**, dated August 26, 1879; application filed July 21, 1879.

To all whom it may concern:

Be it known that I, HENRY M. HARTSHORN, of Malden, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Presses for Expressing Liquids from Substances, of which the following is a specification.

In this improvement the bags for holding the substance from which the liquor is to be forced are so arranged that they can be filled while in position to be squeezed. This has decided advantages over the presses now in use, as in sugar-refineries, for example, where the bags, after being filled, must be uncoupled and placed in the press.

My improvement saves uncoupling and removing the bags to the press, and also allows more solid matter to be placed in the bags before emptying them than by the devices now in use, as, owing to their position in my improved press, they can be refilled again and again without removing any of the solid substance therein, or taking the bags out of the press.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a perspective view of a press embodying my improvement. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a transverse vertical section. Figs. 4 and 5 are detailed part-sectional views of the bag-connections.

a is the frame, built strongly enough for the purpose, and supporting a track, *b*, which extends longitudinally along the upper portion thereof.

c c c are feed-pipes supported by and running upon the track *b* by means of the carriages *d*. These feed-pipes not only feed, but also support, the bags *f* by means of the connecting-pipes *e*, to which the bags are coupled, and which are provided with cocks *e'*. (See Fig. 4.) From one to ten, or even more, bags may be hung to each feed-pipe *c*.

Racks *g* are suspended between each set of bags by means of the bent rods *g'* or other suitable means, the object of the racks being to force the liquor through the sides of the bags. Similar racks are also placed upon the end wall *a'* and the follower *h*. The follower is forced against the bags by means of the screw *k* or other suitable power.

l l l are flexible pipes (elastic or not, as desired) connecting the feed-pipes *c* with the main supply-pipe *m*. Suitable cocks *l'* are provided, and a similar cock or shut-off device, *n*, is attached to the supply-pipe *m*. *p* is the drip or drain pan. These flexible pipes or tubes are made long enough to accommodate the bags as they are forced forward by the follower *h*, or allowed to run back to be filled when the pressure is removed. Jointed pipes can be used instead of flexible pipes, if desired.

The operation of my improved press is as follows: The cocks *n l' e'* being open and the bags in position, the semi-fluid mass flows through the main supply-pipe *m*, the flexible tubes *l*, the feed-pipes *g*, and the connecting-pipes *e* into the bags, and more or less of the liquor drains into the drip-pan *p*. When the liquor ceases to flow the cocks *l'* are turned off, so as to stop the supply, and pressure is applied by means of the follower *h* and screw *k*, the flexible tubes *l* being long enough to allow it, and the liquor remaining in the bags is forced through the bottom and sides of the same into the receptacle *p* below. The pressure is then removed, the cocks *l'* turned on again, and more of the semi-fluid mass allowed to flow into the bags, which are then again subjected to pressure and the liquor forced out. This operation is repeated as many times as practicable, and then the cocks *e'* are turned off, and the bags uncoupled and emptied of the solid mass remaining therein, ready to be recoupled for another set of operations.

By the old method, where vertical pressure is applied to a pile of bags and racks, it is evident that the bags can be filled but once before being uncoupled, tied up, and taken to the press.

My improvement allows the bags to be filled up repeatedly before being emptied and untied, and this result is accomplished because the bags are filled in position for being pressed.

When the fact is remembered that the semi-fluid mass is often five-sixths liquor, the advantages of being able to refill the bags without being obliged to remove to press and empty them between each operation are apparent.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The hereinbefore-described press for expressing the liquid matter from substances, said press being adapted to both fill and press without removal the bags containing the matter from which the liquor is to be expressed.

2. A press for expressing the liquid matter from substances, in which the movable bags or sets of bags from which the liquor is to be expressed are connected with the main supply by means of flexible, extensible, or jointed tubes or pipes, substantially as and for the purposes set forth.

3. The combination of the vertically-suspended bags *f*, hung singly or in sets, the connecting-pipes *e*, and the feed-pipe *c*, provided

with the carriages *d*, with the track *b*, supported by the frame *a*, all arranged and constructed substantially as and for the purposes specified.

4. The combination, with the track *b*, feed-pipe *c*, having carriages *d*, and flexible, extensible, or jointed tubes *l*, of the vertically-hanging bags *f* and racks *g*, and the horizontally-moving follower *h*, all arranged and constructed substantially as specified, for the purpose set forth.

HENRY M. HARTSHORN.

Witnesses:

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