

(No Model.)

2 Sheets—Sheet 1.

G. ROTH.

MILK PRESERVING MACHINE.

No. 385,013.

Patented June 26, 1888.

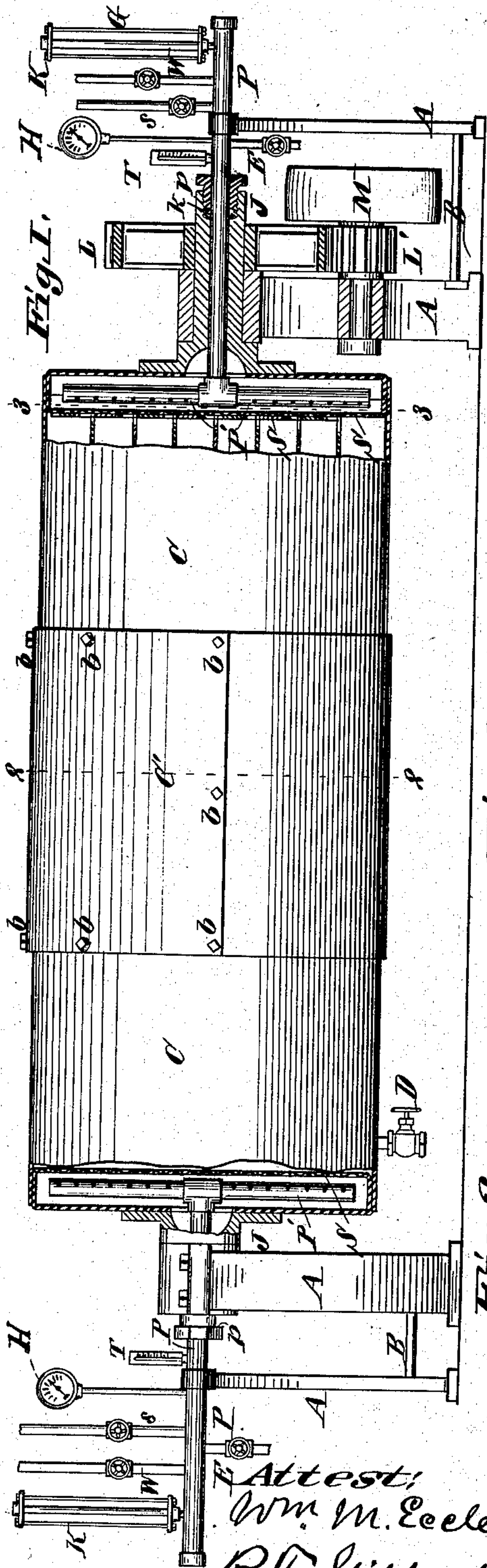


Fig. 1.

Fig. 4.

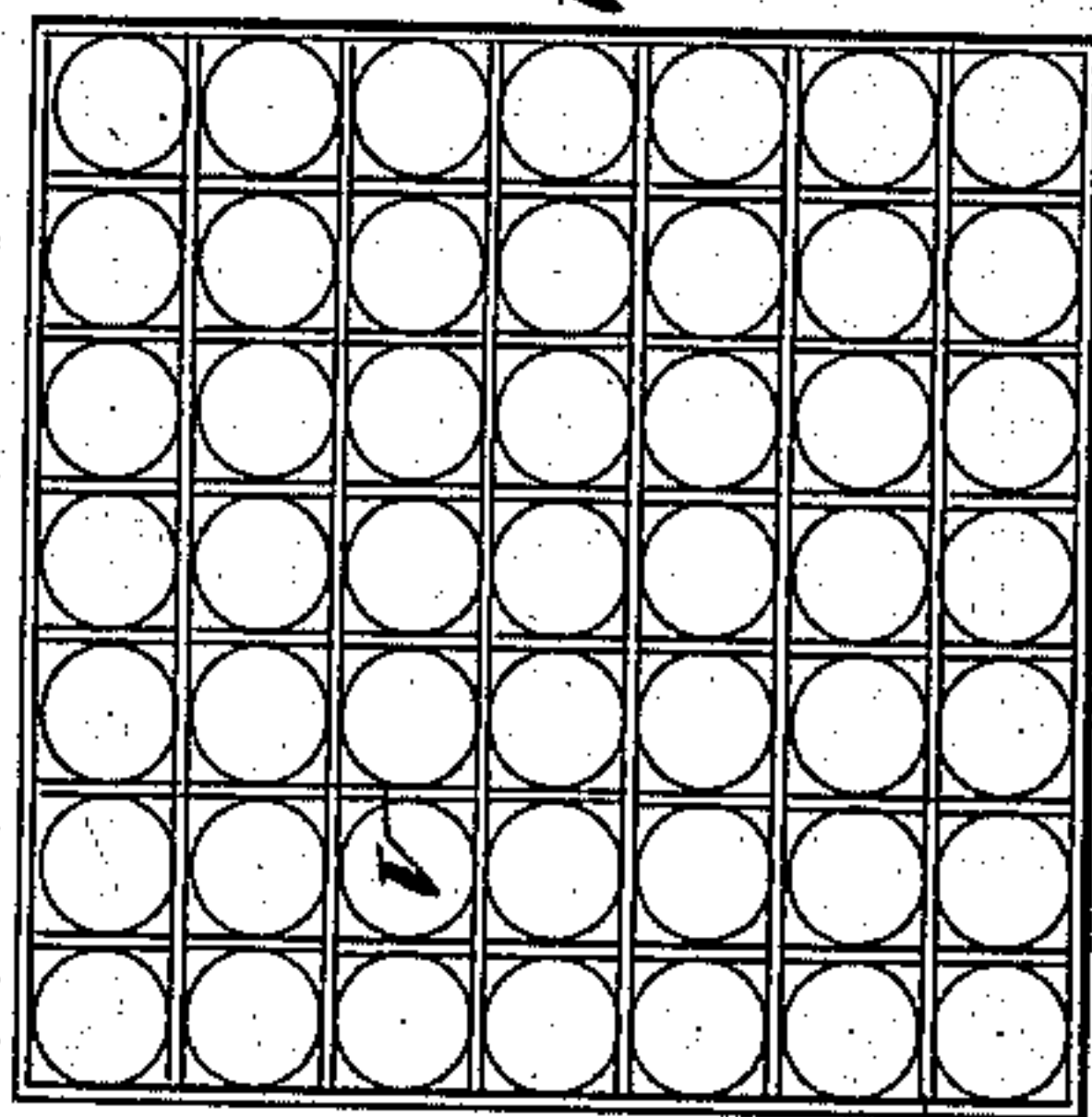


Fig. 3.

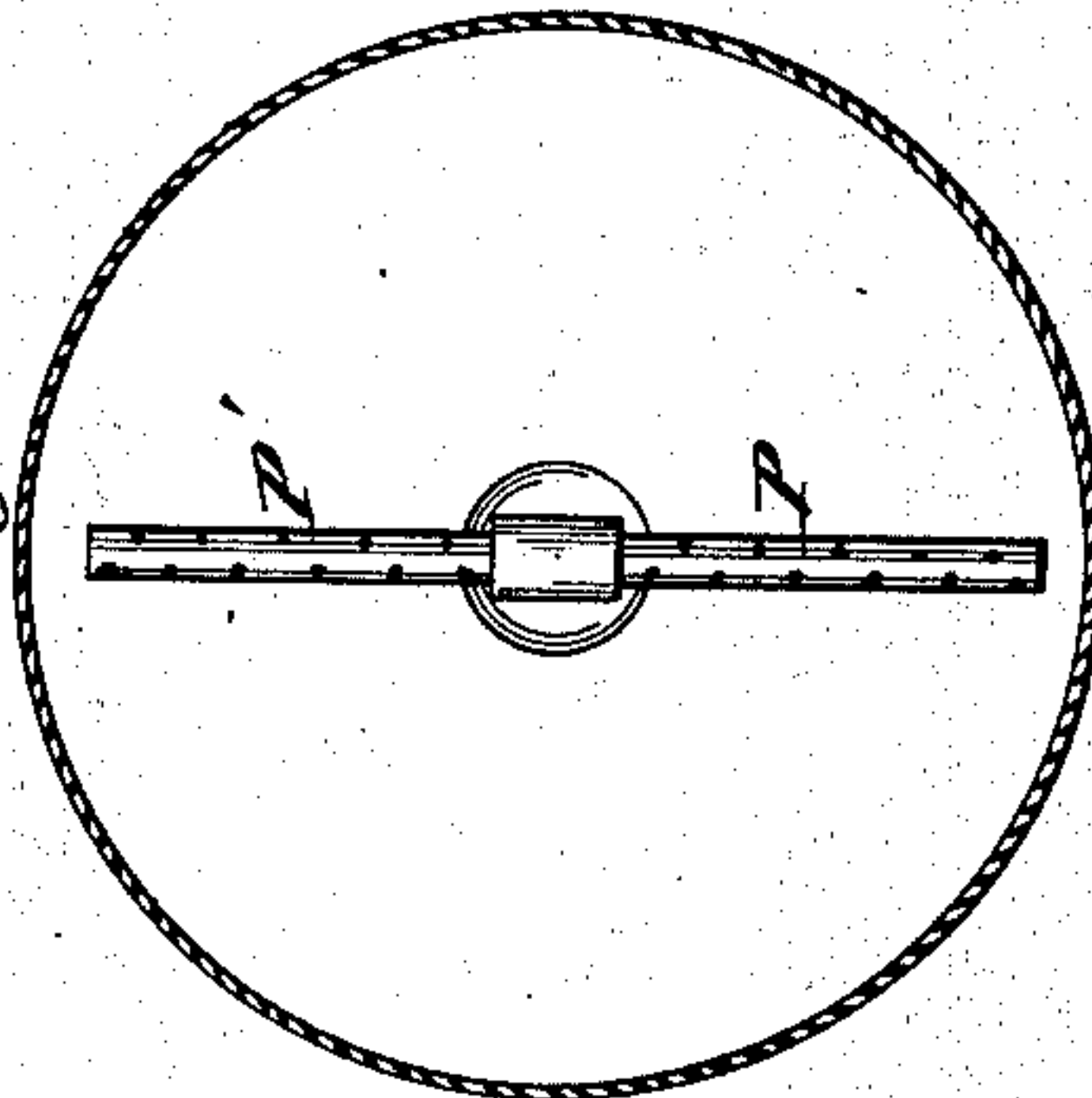
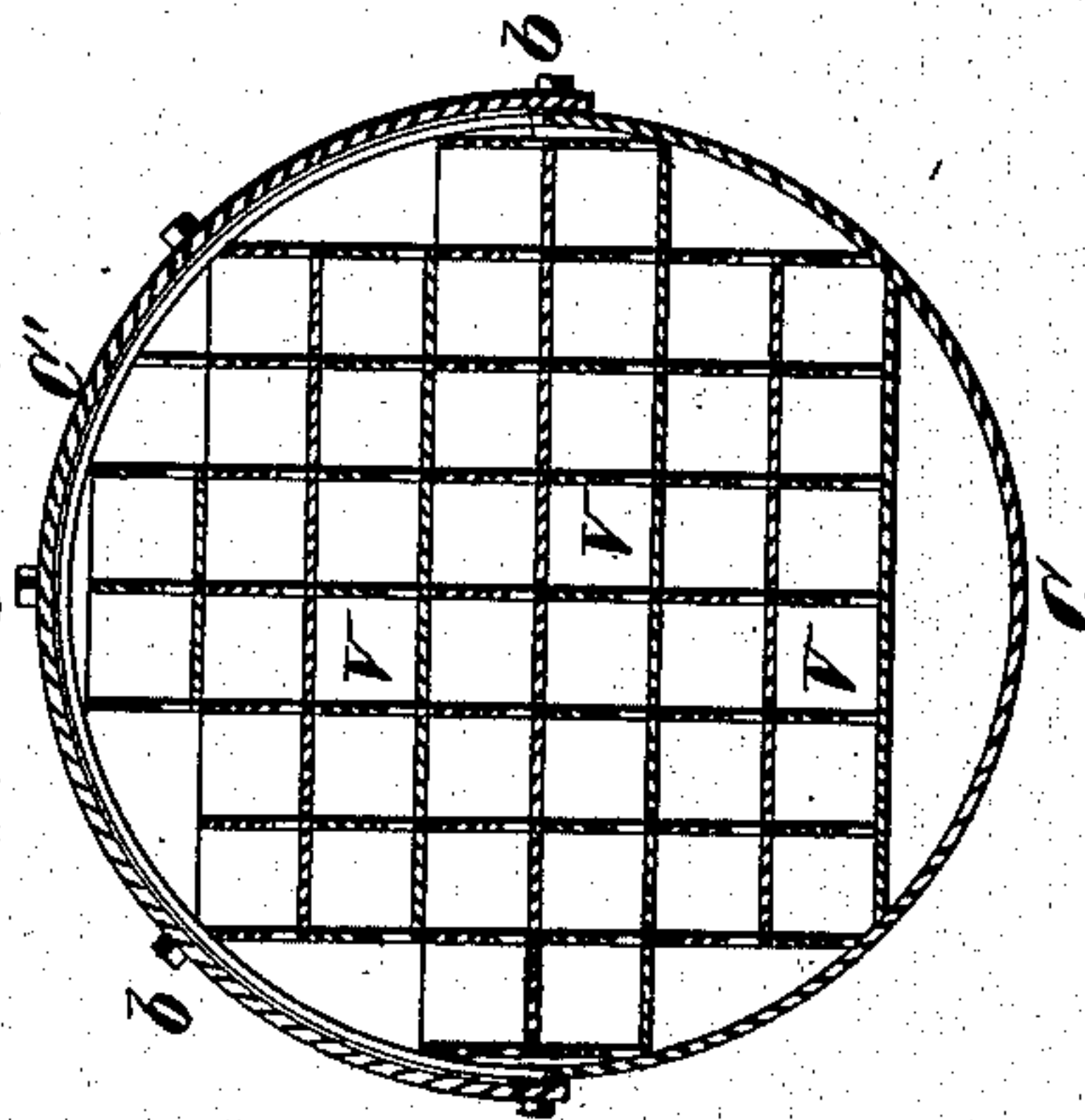


Fig. 2.



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Fig. 5.

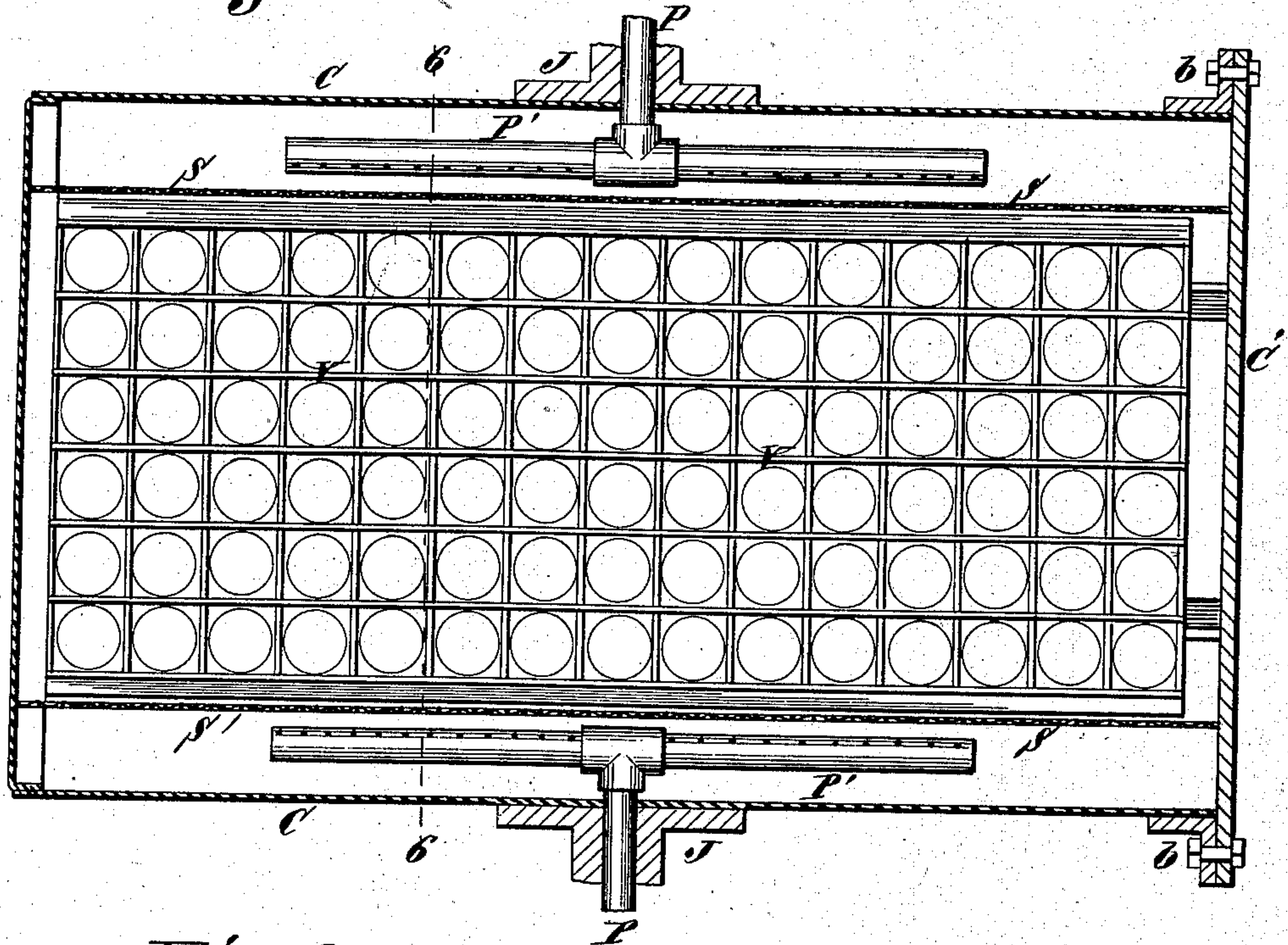
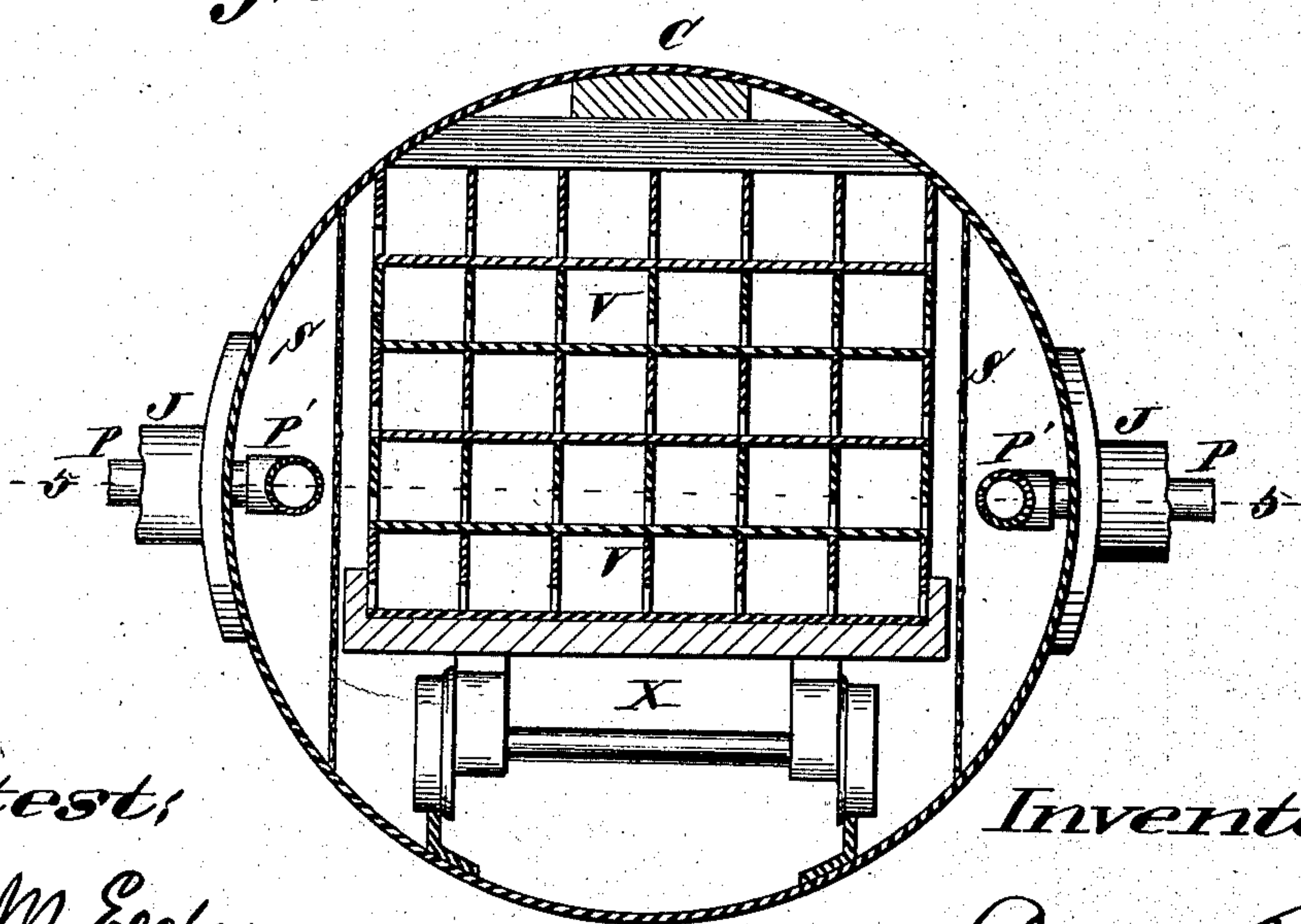


Fig. 6.



Attest;

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UNITED STATES PATENT OFFICE.

GEORGE ROTH, OF HIGHLAND, ILLINOIS.

MILK-PRESERVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 385,013, dated June 26, 1888.

Application filed October 15, 1887. Serial No. 252,503. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROTH, a citizen of the United States, and residing in the town of Highland, in the county of Madison, in the State of Illinois, have invented a new and useful Machine for Preserving Milk, of which the following is a specification.

My invention relates to improvements in machines for preserving milk; and the objects of my invention are, first, to construct a machine that will be light and at the same time durable, and in which the cans can be easily inserted and removed, and, second, to dispense with the separate revolution of the crates holding the cans of milk and make the crates and outside drum or cylinder revolve together, and thus be more able to secure the crates in place and be better able to distribute both the heat and cold to the cans to be treated.

My invention consists in the construction and combination of parts herein described and claimed.

To attain these objects I have constructed the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my machine, showing parts in vertical section and the ends of the outside drum broken away. Fig. 2 is a transverse section of a part of the machine on the line 2 2 in Fig. 1. Fig. 3 is a transverse section of a part of the machine on the line 3 3 in Fig. 1. Fig. 4 is a detached view of a part of the machine called the "crate" filled with cans ready to be inserted in the cylinder, Fig. 1, or piled on top of the car in Fig. 6. Fig. 5 is a longitudinal section of a modified form of the machine, showing the outside drum or cylinder and the crates holding the cans. Fig. 6 is a transverse section of a part of the modified form of the machine on the line 6 6 in Fig. 5.

Similar letters refer to similar parts throughout the several views.

The standards A A A and the connecting-pieces B B constitute the frame-work of the machine. These standards are provided with proper footings, with which they are secured to the floor of the building or to a plank upon which they rest.

C is a large cylinder or outside drum made of metal sufficiently strong for the purpose, and is provided with a lid or door, C', which is

fitted to appropriate base-plates, and is provided with set-bolts *b b b b b*, which permit the lid or door to be readily removed and screwed on tight again when the crates containing the cans are put into the cylinder. This lid or door is placed on the end of the cylinder or outside drum in the modified form seen in Fig. 5, and can be removed in the same manner and the car holding the crates run into the outside drum and fastened down by ordinary wedging, and then the lid or door put on and screwed up tightly and the cylinder set in motion. This outside drum or cylinder is provided on the inside with crates and crate-supports, said crates adapted to be removed through the opening when the lid or door is removed and held tightly against the inside walls of the cylinder when the crates are filled and put into the cylinder, so that when the lid or door is closed they will revolve with the outside drum or cylinder and agitate the milk contained in the cans as the drum revolves. This outside drum or cylinder is provided with journals which engage appropriate bearings in the frame-work, and which serve to support the outside drum or cylinder, and upon which it may revolve. These journals are each provided with longitudinal openings running through the center from end to end of each journal, through which passes a steam or water pipe, P, passing from the outside to the interior of the drum or cylinder. At a place where this pipe passes through these journals is an appropriate packing, *p*, adjusted by a screw surrounding the pipe P, and which packing operates to prevent the steam escaping outside of the cylinder C, yet allows the pipe P to turn in the journal J. The inside end of this pipe P is provided with a sectional pipe, P', forming angles therewith, which has perforations along its side and is open at each end, and its inner portion forming an open connection with the inside of the pipe P, operating to allow the steam and water to pass into it from the pipe P and be distributed along the whole of its length. Directly opposite this pipe P', and attached to the inner part of the cylinder C, is a gauze or screen, S, which separates the pipe P' from the cans in the cylinder and revolves with the cylinder and operates to distribute the steam escaping from the pipe P'

and prevents it from accumulating or concentrating on any one can or set of cans in the cylinder and cooking the milk in the cans. These pipes P and P' are permanently fastened to each other and to the frame-work of the machine, and do not revolve with the cylinder, but remain stationary. They are placed at both ends or inlets of the cylinder to facilitate the more equal distribution of the steam and to render the temperature of the cylinder more uniform when the steam is admitted. This pipe P is furnished with an inlet steam-pipe, s, through which steam may be admitted into the cylinder. This steam-inlet pipe s is provided with appropriate valves with which to regulate the flow of steam. The pipe P is also provided with an inlet water-pipe, W, through which water may be admitted into the cylinder, which water-pipe is provided with an ordinary globe-valve with which to regulate the flow of water into the drum or cylinder C. The pipe P is also provided with a thermometer, T, communicating with the interior of the pipe P and operating to show the temperature of the interior of the pipe P. It is also provided with an ordinary water-gage, G, which communicates with the interior of the pipe P and shows the height of water in the cylinder C. This water-gage is a glass or transparent tube communicating with the interior of the pipe P at the bottom and closed at the top. It is surrounded by an ordinary protector, K, of metal, which is made with parallel bars and connected at the top and bottom by end pieces, and serves to protect the glass. This gage may, however, be an ordinary tube with water-cocks at intervals, with which to determine the height of the water in the cylinder.

E is an escape-pipe communicating with the interior of the pipe P, and is provided with an ordinary globe-valve operating to lower the water or steam in the cylinder C when it is opened. H is an ordinary steam-gage connected to the pipe P and communicating with its interior, operating to indicate the pressure of steam in the outside drum or cylinder.

On the journal J is permanently attached a spur-wheel, L, which engages a smaller spur-wheel, L', which smaller spur-wheel L' is attached permanently to a shaft, which shaft is journaled in the frame-work of the machine, and is provided with an ordinary pulley, M, by means of which the machine is propelled. D is waste-pipe provided with an ordinary globe-valve, through which the water is drawn from the cylinder. Now, after the milk has been con-

densed and put in cans and sealed up, I put these cans into crates and put the crates into the cylinder through the door C'. These crates are indicated in the drawings by the letter V, and are made so that the cans will stick in them when put into them. These crates I can stack upon each other on a truck, X, Fig. 6, and shove the whole load on the truck in the bottom of the cylinder and wedge it down on the top, thus holding the whole load (car and all) in a rigid manner to the inside of the cylinder while it revolves on its journals. When these crates holding the cans are securely put into the cylinder by either of those forms, the door C' is closed and tightly screwed shut. Then the machine is set in motion and the cylinder revolves slowly, and steam is let into it through the pipe s until the temperature reaches a sufficient height or degree of heat to destroy the last trace of fermentation remaining in the cans. Care should be taken not to raise the temperature to such a height as to endanger the cooking of the milk. When the steam has been let in and the machine caused to revolve long enough to insure every particle of the milk in the cans being acted upon by the heat, then the steam may be turned off and the waste-pipes opened and the steam allowed to escape from the cylinder. Then the escape-pipe is closed and the cold water is gradually let into the cylinder. All the time the cylinder is kept revolving to prevent the milk from jellying while being cooled by the water. This is continued until the milk is thoroughly cooled, when the water is all drawn off and the crates taken out or the truck pulled out and the cans taken out of the crates and set away in a cool place ready for shipment. This process may be repeated in like manner as the operator has cans to treat.

Now, what I claim, and for which I ask Letters Patent of the United States to be granted me, is—

In a milk-preserving machine, the combination of the revolving cylinder C, provided with hollow journals, pipes P, passing through the ends of the cylinder, perforated pipes P', secured to the inner ends of pipes P and forming angles therewith, crates V, rigidly secured within the cylinder C, and screens S, located between the perforated pipes and crates, substantially as described.

GEORGE ROTH.

Witnesses:

WM. M. ECCLES,
R. T. STILLWELL.