

F. X. Manahan,

Cheese Vat.

N^o 34,511.

Patented Feb. 25, 1862.

Fig 2.

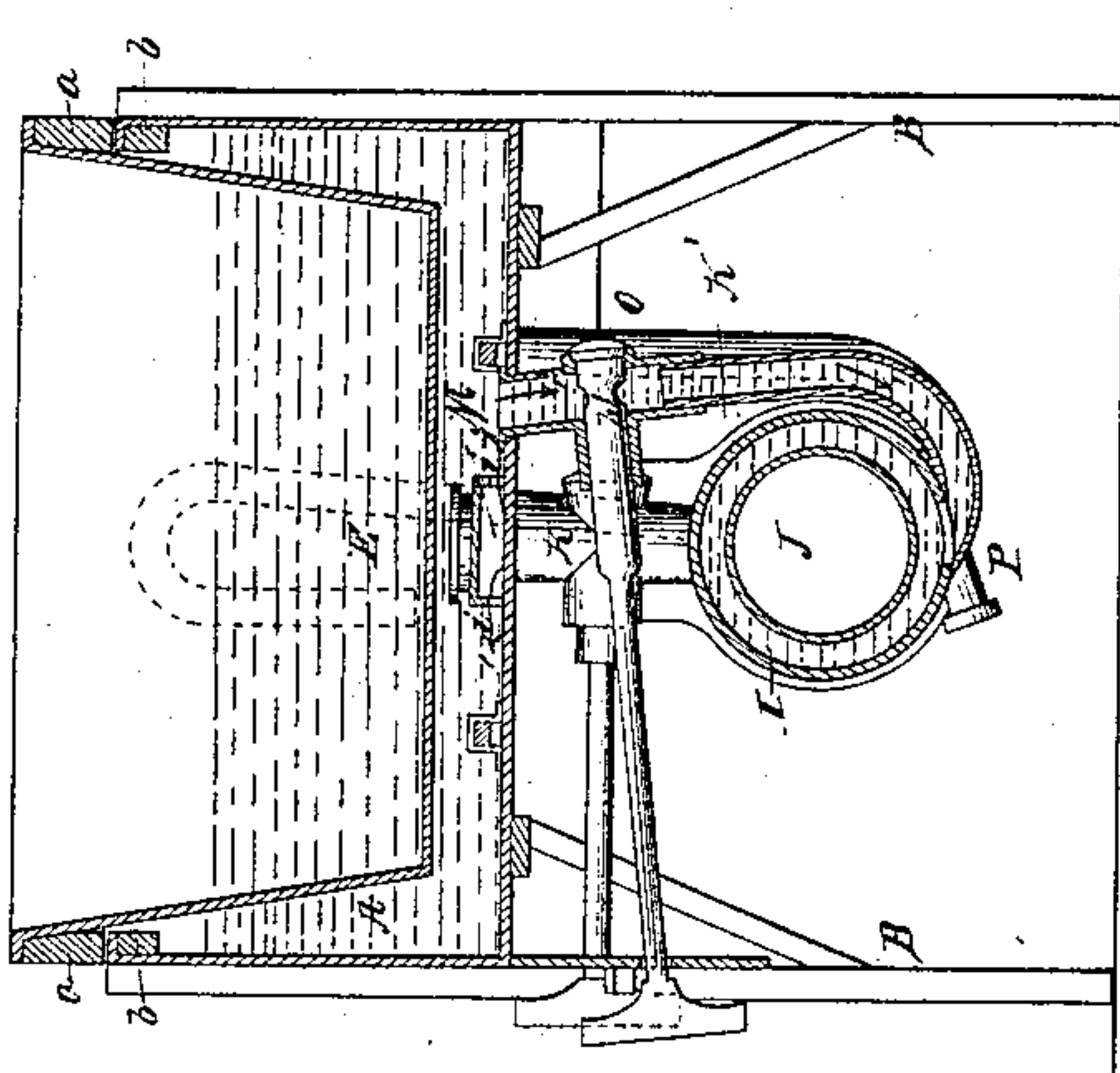


Fig 1.

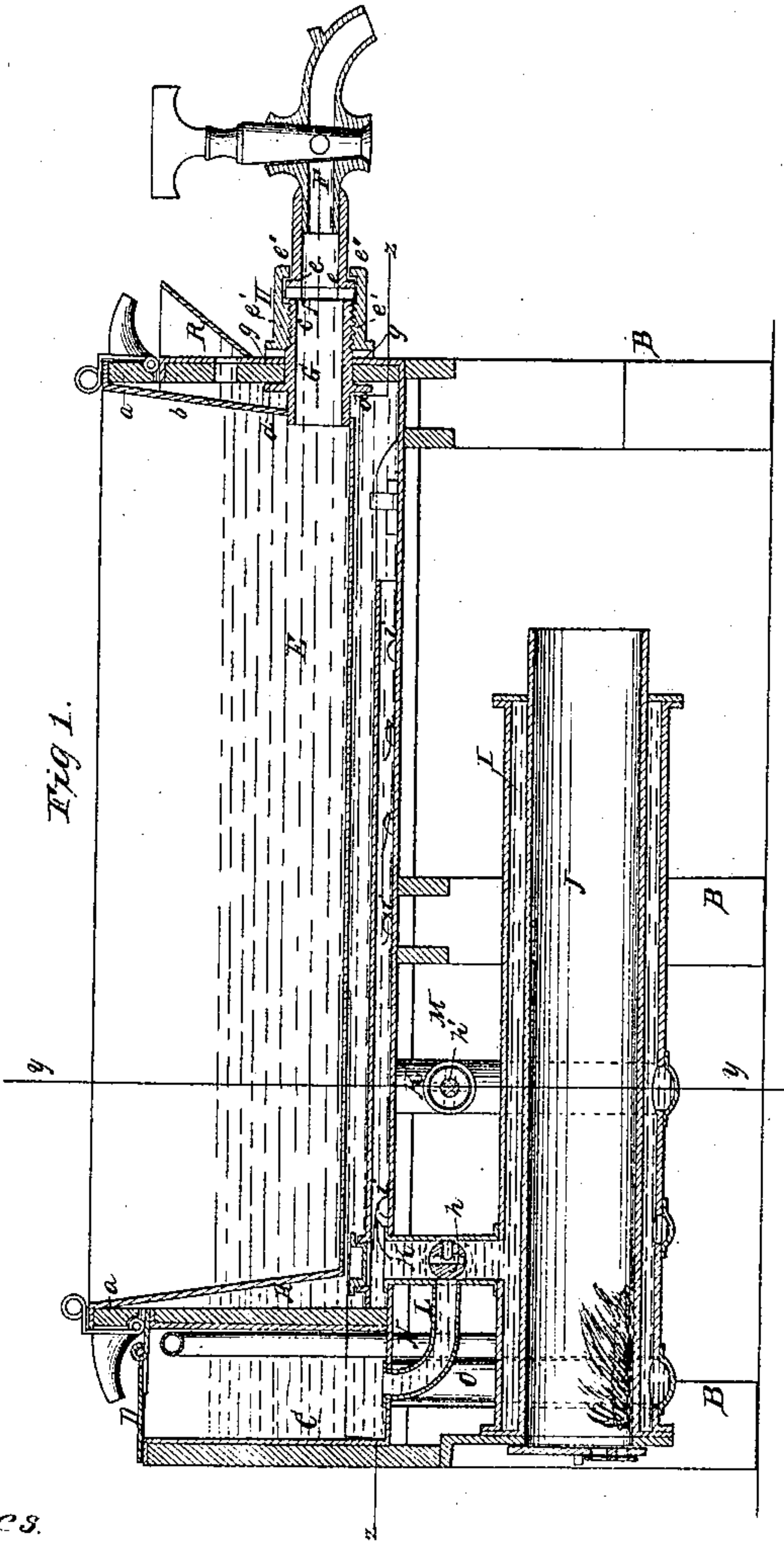
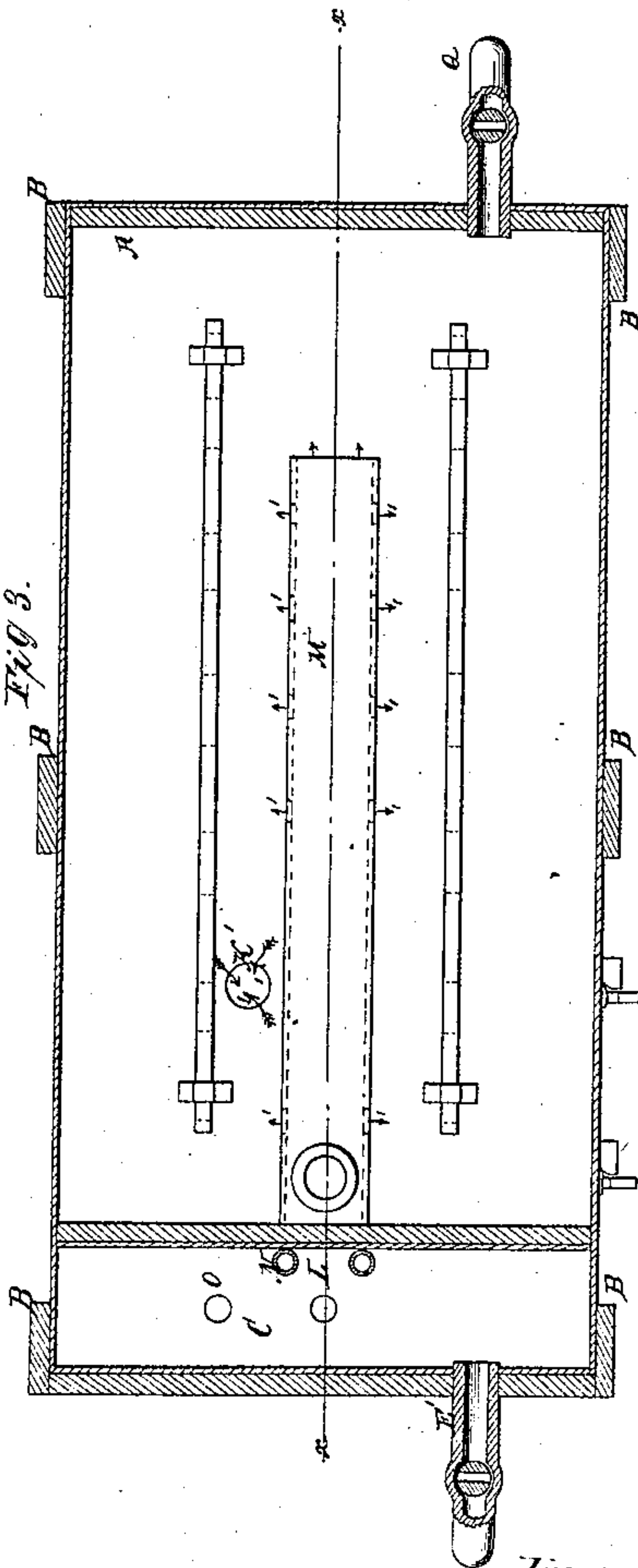


Fig 3.



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UNITED STATES PATENT OFFICE.

FRANCIS X. MANAHAN, OF UTICA, NEW YORK.

IMPROVEMENT IN CHEESE-VATS.

Specification forming part of Letters Patent No. 34,511, dated February 25, 1862.

To all whom it may concern:

Be it known that I, FRANCIS X. MANAHAN, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Cheese-Vats; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *xx* of Fig. 3; Fig. 2, a transverse vertical section of the same, taken in the line *yy* of Fig. 1; and Fig. 3, a horizontal section of the same, taken in the line *zz* of Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improved arrangement of means for heating the milk-vat, or rather its contents, to a proper temperature by means of a boiler or heater so arranged in connection with pipes and cocks and a supplemental or hot-water chamber that the contents of the milk-vat may be heated and graduated with great exactness or nicety, and the result attained with the least possible expenditure of time and fuel.

The invention also relates to an improved means employed for keeping the hot-water chamber tight around the cock or faucet through which the whey is drawn from the milk-vat.

To enable others to make and use my invention, I will proceed to describe it.

A is a rectangular box, which may be constructed of sheet metal, of any proper size, and supported at a suitable height by legs B. The box A has a smaller box C at one end of it, the box C being provided with a cover or lid D and having a cock E' at its lower part, as shown in Fig. 3.

Within the box A there is fitted a milk-vat E, which has inclined sides and is provided at its upper edges with strips *a*, which rest on strips *b* at the upper edges of the box A. The milk-vat E may be constructed of sheet metal like the box A, although sheet-iron galvanized would probably be a better material. The milk-vat E is sufficiently smaller than the box A to allow of the latter holding a requisite quantity of water, and the vat E has a cock F fitted to one end of it in a novel way, as follows: The vat E has a tube G attached

to one end of it, said tube communicating with the interior of the vat and having a screw-thread *c* cut on its outer surface. The tube G is provided with a flange *d*, which, when the vat E is adjusted in proper position, abuts against the inner side of the box A, as shown clearly in Fig. 1.

The cock F may be of usual construction, with the exception that its back end is provided with a flange *e*, that is fitted within a socket H, which has an internal screw *e'* and a lip *e''* at its outer end, said lip fitting over the flange *e*. By screwing this socket H on the tube G the socket is snugly adjusted to the tube, packing *f* being interposed between the tube G and the inner end of the cock F, as shown clearly in Fig. 1. Packing *g* may also be interposed between the socket H and the side of box A. By this arrangement it will be seen that the cock F may be readily detached from the vat E to admit of the latter being removed from the box A, and also readily attached when necessary, so as to be perfectly water-tight and prevent all leakage from box A.

I represents a boiler, which is of cylindrical form and placed longitudinally underneath the box A. The flue J of the boiler passes centrally through it, and K K' are two pipes which form a communication between the boiler I and the box A. The pipe K communicates with the upper part of the boiler and the pipe K' with its lower part, and each pipe is provided with a cock, which are designated by *h h'*. The cock *h* of the pipe K is a three-way cock and is fitted in K at the junction of a pipe L, which forms a communication between K and the box C. The upper end of the pipe K' communicates directly with the interior of the box A; but the pipe K communicates with a longitudinal pipe M, which is of flat form and perforated at its sides, as shown at *i*, and extends nearly the whole length of box A.

N is a pipe, which extends upward from the front part of the boiler I into box C, and is bent therein in siphon form. This pipe N admits of the escape of air from boiler I when the latter is being filled. O is a pipe, which communicates with the lower part of boiler I and box C. P is a discharge-pipe at the lower part of the boiler. Q is a cock at one end of the box A.

The operation is as follows: The boiler I is filled with water by pouring the same through a funnel R at one end of box A, the cock *h'* of pipe K' being open and the cock *h* so adjusted that the pipes L and K are in communication. The boiler I is filled and the water allowed to extend to a proper height in A and C, the water of course being on a level in both. The fire is then kindled in the fire-chamber of boiler I and the cock *h* adjusted so that the pipe K will communicate with the boiler I and box A. The milk is then poured into the vat E and the water heated to 86° Fahrenheit, the rennet added, and the separation of the whey and curd effected. During this heating of the milk the circulation of water through the boiler I, box A, and pipes K K' is indicated by the arrows 1. After the separation of the curd and whey in vat E the operator turns the cock *h* of the pipe K so that the pipes L and K communicate with each other, and the cock *h'* of pipe K' is closed. This affords a circulation of water through box C, pipes O, L, and K, and the boiler I. Additional water is put in box C, and the water in C will be heated while the operator is cutting up the curd in vat E. During this operation it will be perceived that the fire is not idle, as the water in C is being heated for the purpose of the subsequent operation of "scalding"—that is to say, the subjecting of the contents of the vat E to a much higher temperature than before, 104° Fahrenheit. After the curd is cut up and the contents of vat E mixed the cocks *h h'* of pipes K K' are turned to their former position and the water in C of course raises the height of the water in A and increases its temperature, so that it will be quickly raised to the desired temperature—104° Fahr-

enheit—for scalding. After the scalding operation is completed the whey is drawn from the vat E through cock F.

The perforated pipe M is an essential feature of the invention, as it causes the hot water from pipe K to be equally distributed over the bottom of the box A, as will be understood by referring to Fig. 3. The arrangement of the pipes K K', O L, and cocks *h h'* is important, as the operator has perfect control over the water so far as the directing of its course is concerned through the boxes A and C. The adjustment of the cock F to the vat E is also important, as it effectually prevents any leakage between the vat E and box A, and at the same time admits of the vat being readily removed from box A when required.

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

1. The perforated pipe M, placed longitudinally at the bottom of the box A and communicating with the pipe K, substantially as shown, for the purpose of equally distributing the ascending hot water from boiler I, as set forth.

2. The arrangement of the pipes K K', cocks *h h'*, and pipes O L with the boiler I, water-boxes A C, and milk-vat E, as herein shown and described.

3. Securing the cock F to the milk-vat E through the medium of the pipe G and screw-socket H, arranged substantially as shown and described.

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Witnesses:

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