

S. A. MITCHELL.
Evaporating Pan.

No. 63,925.

Patented April 16, 1867.

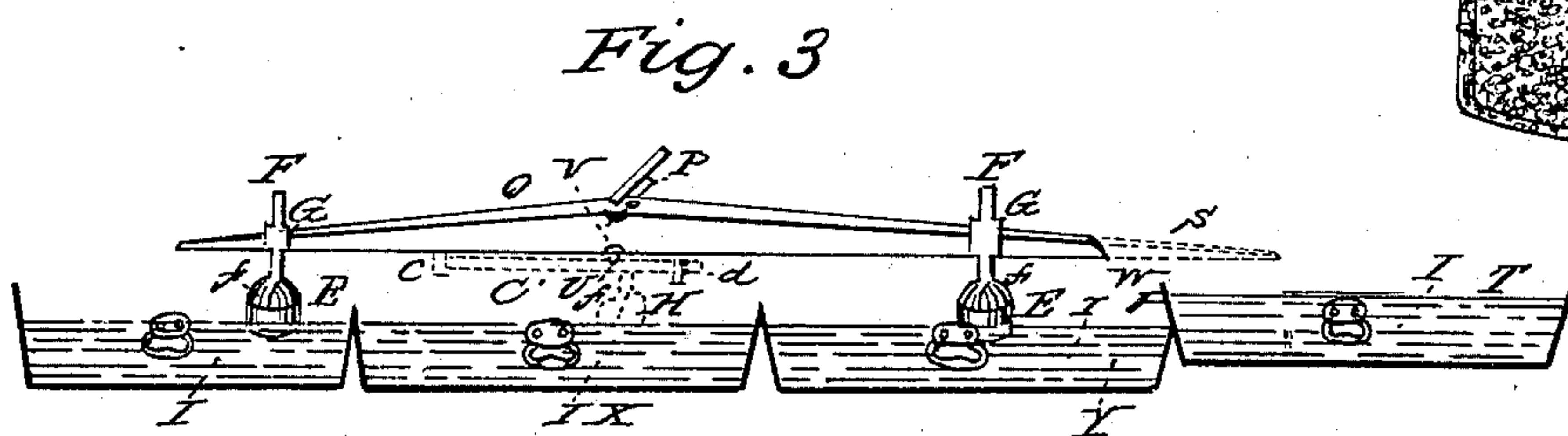
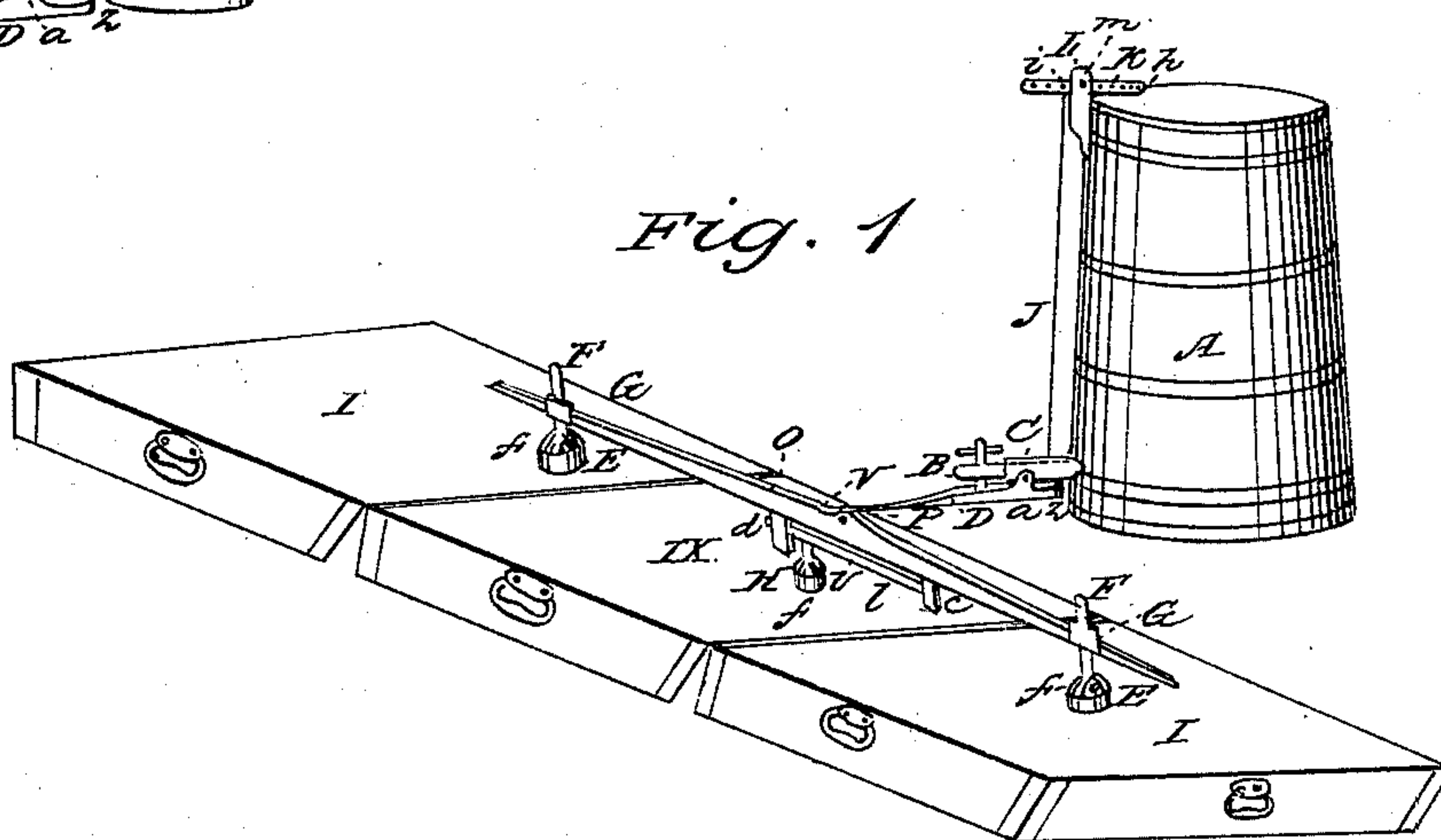
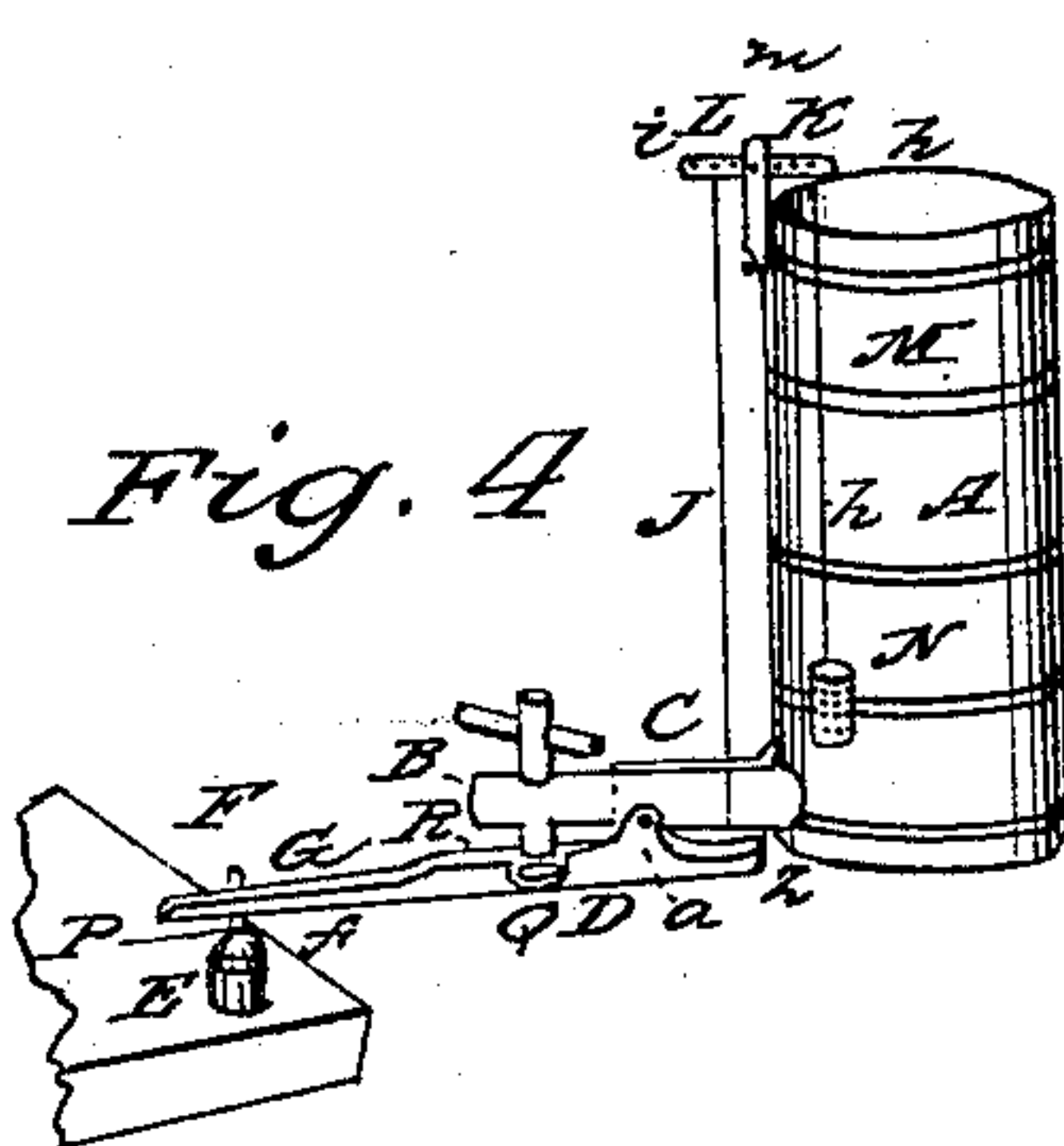
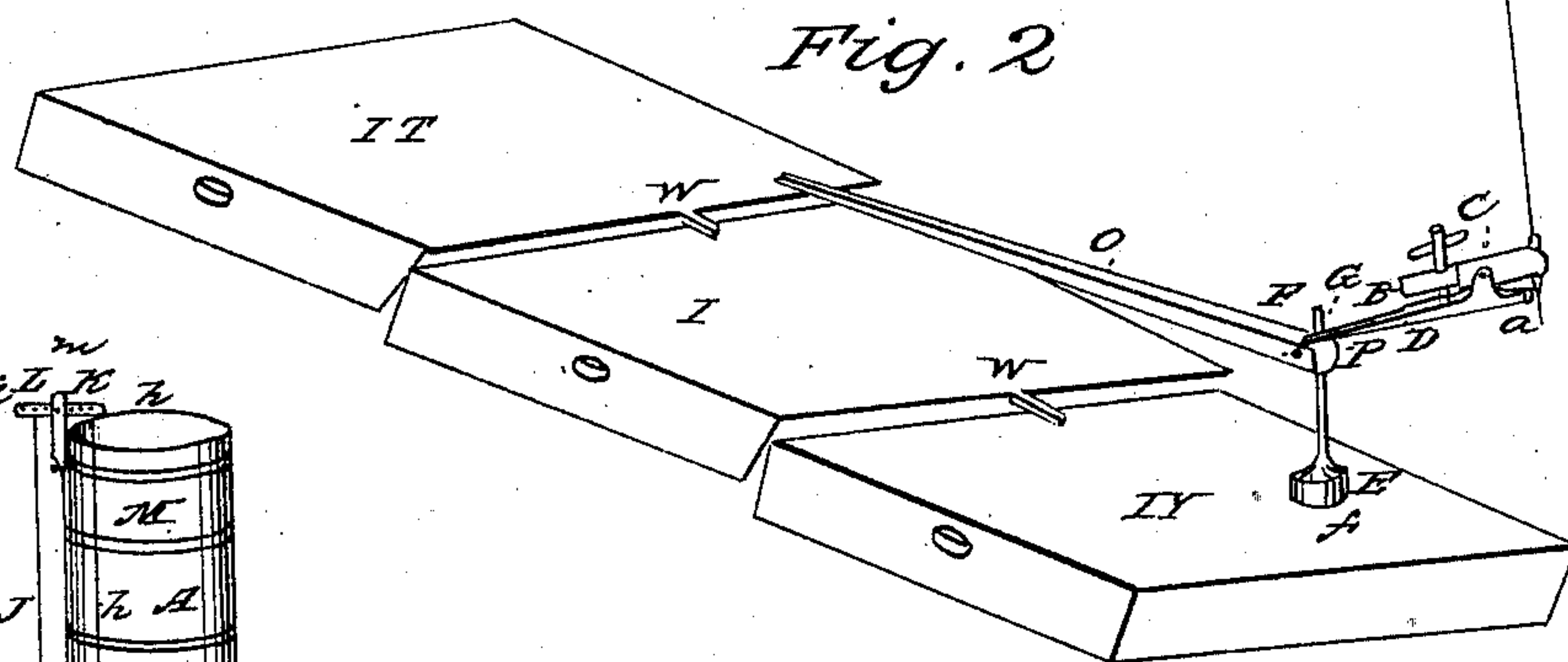
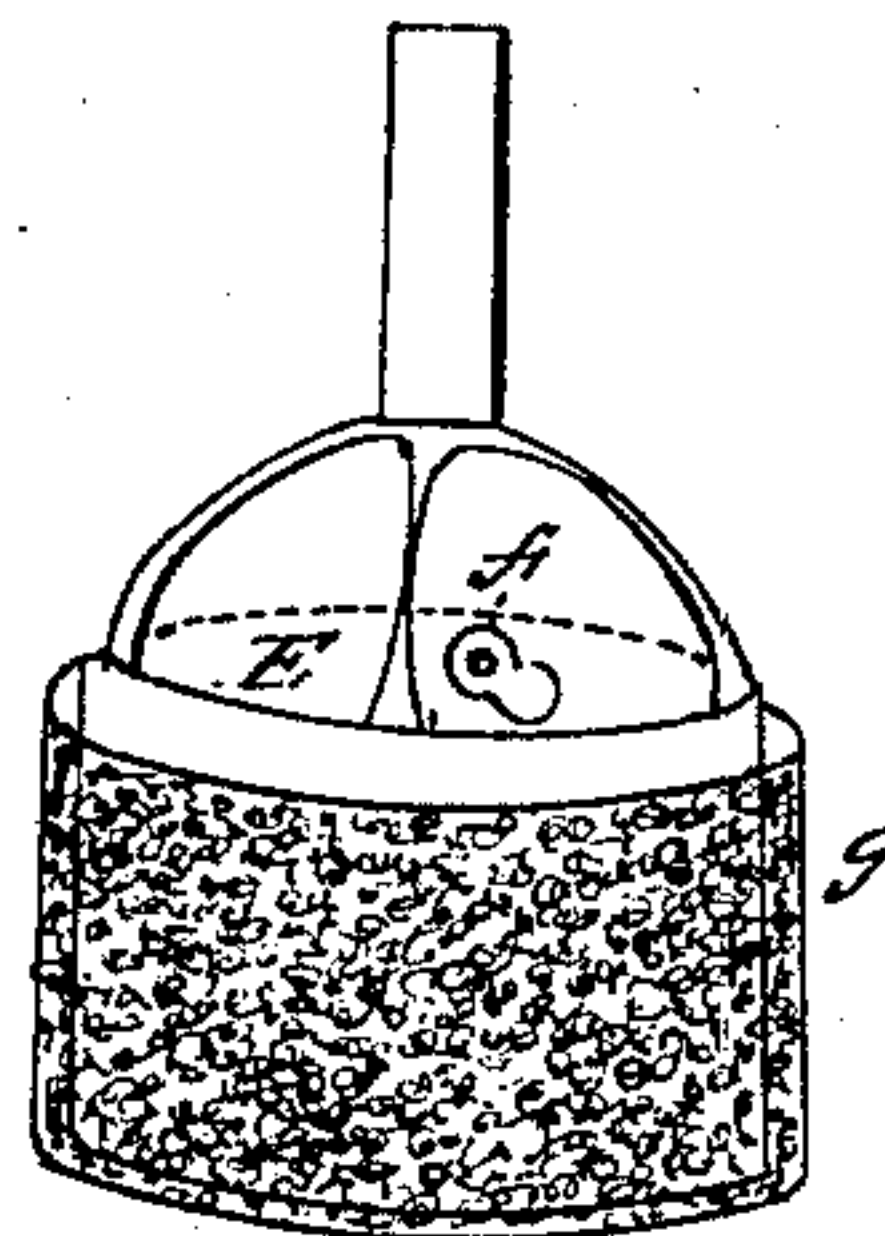


Fig. 5



Witnesses:
A. C. Field
H. B. Field

Inventor:
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S. A. MITCHELL, OF ALSTEAD CENTRE, NEW HAMPSHIRE.

Letters Patent No. 63,925, dated April 16, 1867

IMPROVED APPARATUS FOR FEEDING LIQUID TO EVAPORATING PANS OR BOILERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, S. A. MITCHELL, of Alstead Centre, in the county of Cheshire, in the State of New Hampshire, have invented a new and improved Mode of Feeding one or more Boilers from the same Faucet or Feed Pipe; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figures 1 and 2 are an angular sectional view of my invention as applied to three boilers.

Figure 3 is a detached front view of my invention with extension of conductor O.

Figure 4 is a detached side view of my invention as applied to one boiler, also showing the immersed buoy N in cistern A.

Figure 5 represents a buoy surrounded with a perforated guard.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct my cisterns in any of the ordinary forms, and locate them little above the level of the boilers, and apply thereto the feed pipe or faucet near the base of said cistern. My boilers I construct in the common forms, and if not upon the same level with each other, I connect them with feed spouts, and thereby supply the lower boiler or boilers from the contents of the upper, which is fed by means of conductor O, controlled or regulated by a buoy placed in the lower boiler, as shown in the accompanying drawing.

A represents cistern; B, faucet or feed pipe; C represents brace to faucet B, and fastened to cistern A; D represents conductor fastened by pivot *a* to brace C; E represents larger buoys; F the standard of buoys, attached to conductor O at the sockets G, by means of screws or otherwise; H represents smaller buoys secured to beam *b*, which is fastened by pivot in socket *c*, and slides in socket *d*, both of which are attached to conductor O; I, IT, IX, IY, respectively represent boilers; J represents rod connecting conductor D with beam K, which plays on pivot *m* in standard L, which is secured to cistern A; M represents rod connecting the immersed buoy N to beam K, and held in place by eye-bolt *n*; N represents immersed buoy in cistern A; O represents conductor hinged upon the pivot P, nearly at right angles with conductor D; P, pivot attached to conductor D; Q represents stopper attached to conductor D, and acting upon the aperture R; R represents aperture or outlet of faucet or feed pipe; S represents an extension of the conductor O, feeding the additional boiler IT; U, valve fastened to the beam *b*, acting upon the aperture V; W represents spouts connecting boilers for equalizing height of fluid in said boilers; *f* represents air-valves of the buoys for the escape of expanded air; *g* represents the guard to the buoys, the function of which is to prevent the agitation of the buoys by the ebullition of the fluid in boilers.

Operation.

When the various parts are properly adjusted and secured, as heretofore described, and boilers filled to the height desired, the buoy or buoys E, resting or floating upon the surface, should be so adjusted in their relation to the stopper Q as to entirely close the aperture R. When the fluid in the said boiler or boilers becomes heated and lowers by evaporation, the buoy or buoys become accordingly depressed, and effect a corresponding depression of the stopper Q, and thereby allowing a flow of fluid from the aperture R into the conductors D and O, and thence to boiler or boilers, as the case may be, keeping them constantly supplied in proportion to evaporation, or feeding each one in proportion to the amount evaporated in each. Whatever change in the amount evaporated, there will be produced a corresponding change in the amount fed. The small buoy H acts directly upon the aperture V by the valve U attached to beam *b*, which is pivoted at *c*, and plays in the socket *d*, thus controlling the flow of fluid to the boilers IX from conductor O through aperture V. The design of immersed buoy N in cistern A is to obviate an unequal pressure upon stopper Q through aperture R, which it does by an upward bearing upon the rod M, which, acting upon the beam K at the point *h*, gives a corresponding downward pressure upon the rod J, which is hinged upon beam K at the point *i*, and acting upon conductor D at the point *z*, with a force in proportion to pressure of fluid at aperture R corresponding to the amount of fluid in cistern A, and thereby producing a uniform action of the buoys E with different heights of fluid in cistern. When faucets or feed pipes of different magnitude are required to admit more or less fluid, the

corresponding pressure produced thereby upon the stopper Q will be obviated or regulated by hinging the rods J and M at different and relative points upon beam K, which plays on pivot *m* in standard L.

The object of my invention is to obtain a self-adjusting feeder from one faucet or feed pipe to boilers of any required number, feeding each in proportion to the amount of fluid evaporated therein, and thereby not only save labor, but also obviate the frequent loss by undue evaporation.

I do not claim the cistern A, the faucet or feed pipe B, nor the boilers I, II, IX, and IY, as my invention, they being old and well-known devices; but I do claim as new, and wish to secure by Letters Patent—

1. The invention of a self-adjusting feeder to any number of boilers required, from one faucet or feed pipe, by means of a buoy or buoys E, acting on the flow of fluid by means of a stopper, Q, or any similar device.

2. The immersed buoy N, connecting-rod M, the beam K, standard L, the pivot *m* in standard L, the connecting-rod J, the eye-bolt *n* in cistern A, operating on conductor D as herein set forth.

3. The small buoy H, acting by means of the beam *b* upon the valve U, for the purpose of controlling the flow of fluid in the aperture V, as herein described.

4. The combination of the buoys E, H, and N, conductors D and O, the standards F and L, sockets G, *e*, and *d*, the beams K and *b*, the connecting-rods J and M, the pivots P, *m*, *a*, and *c*, the brace C, stopper Q, valves U and *f*, the eye-bolt *n*, and the perforated guard *g*, arranged and operated as herein set forth, or in a manner practically the same, for the purpose specified.

S. A. MITCHELL.

Witnesses:

A. C. FIELD,

H. E. FIELD.