(No Model.)

M. C. BARDEN.

APPARATUS FOR AUTOMATICALLY SUPPLYING SAP TO EVAPORATING PANS.

No. 263,839. Patented Sept. 5, 1882.

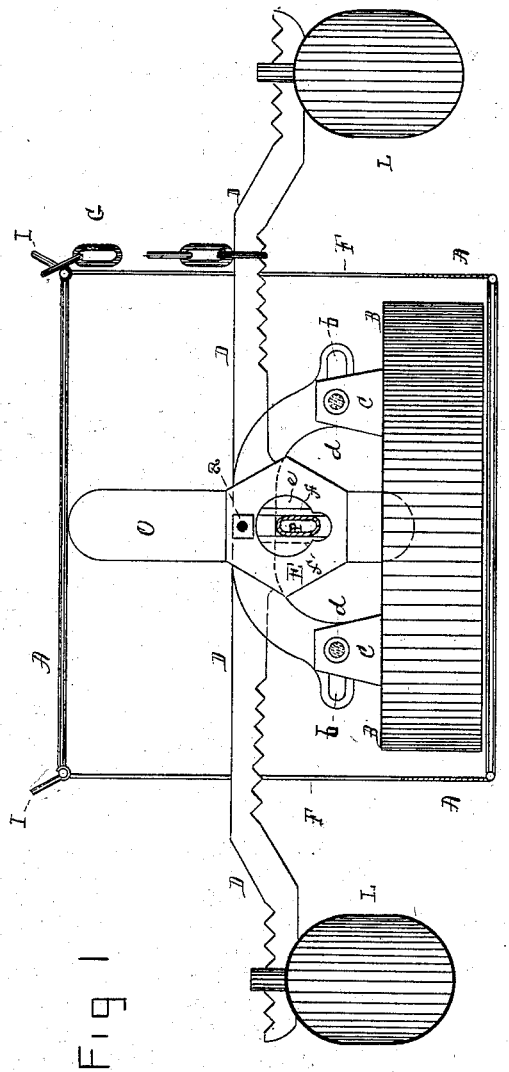

Fig 1

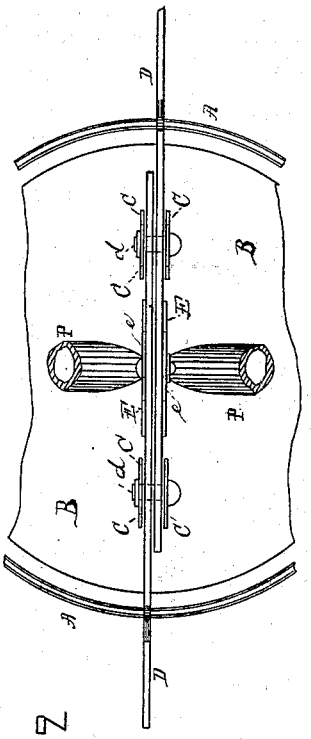

Fig 2

Witnesses
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UNITED STATES PATENT OFFICE.

MERRITT C. BARDEN, OF WEST PAWLET, VERMONT.

APPARATUS FOR AUTOMATICALLY SUPPLYING SAP TO EVAPORATING-PANS.

SPECIFICATION forming part of Letters Patent No. 263,839, dated September 5, 1882.

Application filed April 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, MERRITT C. BARDEN, a citizen of the United States, residing at West Pawlet, in the county of Rutland and State of Vermont, have invented certain new and useful Improvements in Apparatus for Automatically Supplying Sap to the Evaporating-Pan, of which the following is a specification.

My invention consists in certain improvements upon the apparatus for which Letters Patent were allowed me upon the 27th day of October, A. D. 1881, said letters to bear date and issue the 28th day of March, A. D. 1882.

Referring to the drawings forming part of this specification, Figure 1 is a view partly in section and partly in elevation. Fig. 2 is a view in plan, part of the apparatus being broken away or omitted.

A in said drawings represents a cylindrical casing, open at top and at bottom, and constructed of tin or any other suitable material. Within this casing is placed a float, B, of such size as to nearly fill the lower portion of the case A, and at the same time permit the float to move vertically. Upon the upper flat surface of the float A are placed uprights C, for a purpose hereinafter described.

D D are arms or levers having substantially the shape shown, pivoted together at the point *a*, the end of each arm being curved from their point of junction downward toward the supports or uprights C C. At the extremity of each arm is formed a slot, *b*, through which passes a pin or bolt, *d*, whereby the end of each arm is connected with the uprights C upon the float B.

To the pivot-bolt *a*, which unites the arms D D, are attached polygonal plates E, having formed in each plate an opening, *e*. Upon each arm D is formed a shoulder-piece or finger, *f*, at about right angles to the arm and passing below the lowest point of the opening *e*. The arms D D extend in opposite directions, passing through slots F in the casing A, and are connected with said casing by means of a linked support or chain, G, which is hooked upon a pin, I, placed at the top of the casing A. A weight, L, is placed upon each arm D, near its outer extremity, the arm being notched to allow adjustment of the weight, and notches may also be formed upon the lower edge to permit the adjustment of the supporting-chain G toward or from the pivotal point *a*.

The mode of operation is as follows: The sap as it is gathered from the sugar-orchard is poured into a large reservoir or tank raised high enough so that its bottom is upon a level with or somewhat higher than the bottom of the evaporating-pan. A flexible tube of suitable length leads from the one to the other and permits the discharge of sap from the tank or reservoir into the evaporating-pan. The feed-regulating apparatus shown in the drawings is placed in the pan, and the flexible tube leading from the sap-tank is passed through slots O in the casing A and through the central opening in the plates E, at which point it lies directly between the shoulders *f f*, formed upon the arms D. A portion of this pipe is shown at P in the drawings. The evaporating-pan being filled with sap to the required depth, the chains G are hooked upon the pins I at the proper point, supporting the arms D at such a height that they will compress the flexible tube P, the weights L being so adjusted as to balance the float with appurtenances, or nearly so, a preponderance of weight being allowed upon the other side of the chain-supports G, in order that the float may descend by its own gravity when it is not supported by the fluid in the pan. As the sap in the pan is evaporated and the surface of the fluid gradually descends to a lower level, the float B will move down in the casing A, causing the arms D D to turn upon the pivot *a* and separating the shoulders *f f*, thereby opening the tube P and permitting sap to flow from the tank or reservoir into the pan. The fluid in the latter rising the float is lifted, and as it regains its original position the pipe P is again closed and the flow of the sap arrested. The pan is thus supplied automatically with fresh sap whenever it is required.

The float B is connected to the arms D by pins or bolts *d*, which pass through the uprights C and through the slots *b* in the ends of the arms D, whereby the pivotal movement of the said arms is allowed. The slots may, however, be formed in the uprights C C, with pins rigidly secured or formed upon the extremities of the arms D and moving in said slots.

It is evident that by hooking the supports G upon the pins I at such a point as to raise the arms D nearer to the top of the casing the depth of the fluid in the pan will be proportionately increased, while by lowering the arms the apparatus will feed to a less depth. By this simple adjustment, therefore, the parts may be so arranged in an instant that the automatic feeder will retain the fluid in the evaporating-pan at any desired height.

The advantages of an automatic feeding apparatus in the manufacture of maple sugar are evident. Besides the economy secured thereby, as it dispenses with the constant watching and attendance, the frequent scorching of the sirup and the consequent loss or deterioration of large quantities of sugar are avoided.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a sap-feeding apparatus, of a float resting upon the surface of the liquid in the evaporating-pan and rising and falling therewith, two lever-arms pivoted to each other and having each a shoulder bearing against the flexible supply-tube, a supporting frame or casing to which said lever-arms are suspended by means of supports which have vertical adjustment, and a support for the flexible supply-pipe, said lever-arms being provided with adjustable weights, whereby the motion of the float is controlled when acted upon by the rise or fall of the fluid in the pan, all substantially as and for the purpose set forth.

2. The combination, with the casing A, of the float B, the pivoted arms D, the adjustable supports G, and the pipe-support E, all substantially as and for the purposes shown and described.

3. In an automatic sap-feeding apparatus, the combination, with lever-arms which are directly connected to a rising and falling float, of supports which are adjustable vertically upon a suitable frame, whereby said float, together with the lever-arms, may be raised or lowered to adjust the feed to different depths of fluid in the evaporating-pan, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MERRITT C. BARDEN.

Witnesses:
MARTIN D. COLE,
J. G. BLISS.