

No. 729,348.

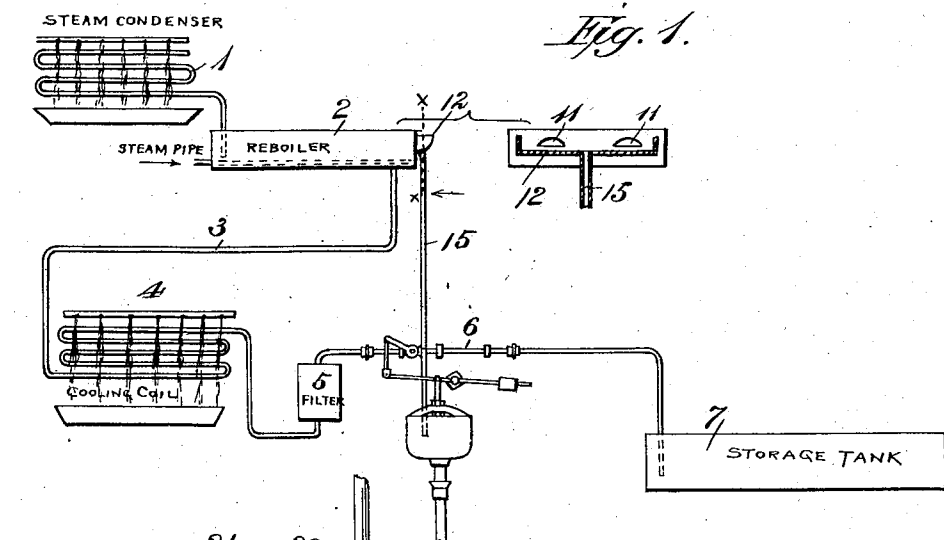
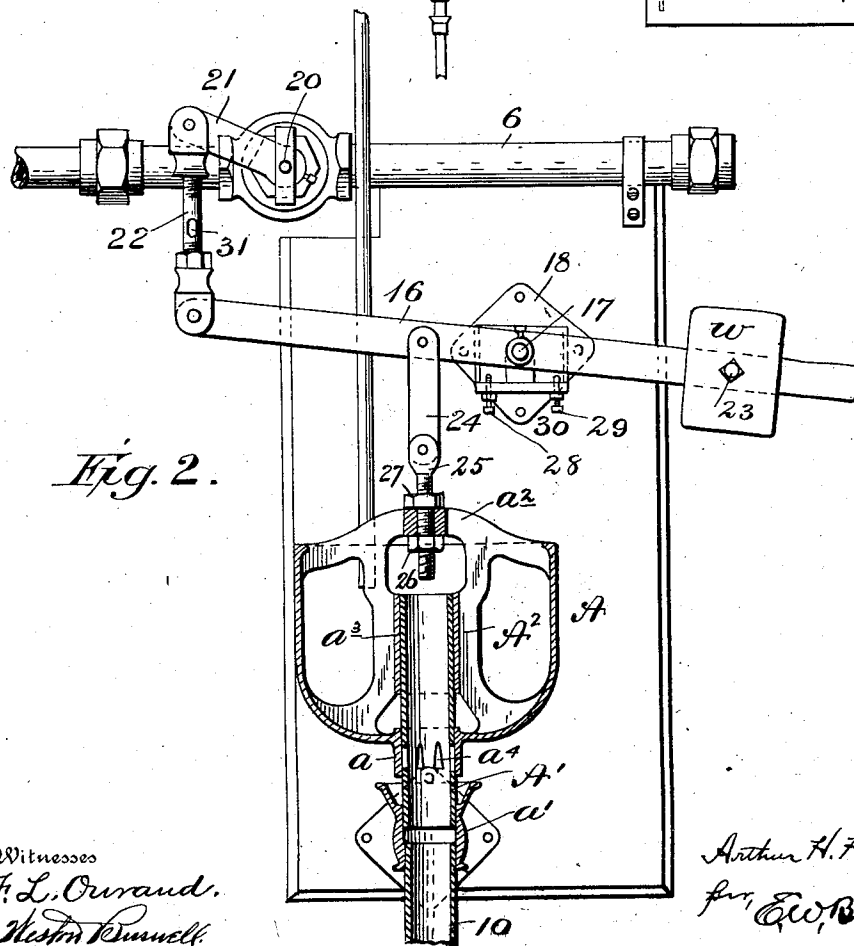
PATENTED MAY 26, 1903.

A. H. HUTCHINSON.
SKIMMING REGULATOR FOR ICE MACHINES.

APPLICATION FILED OCT. 18, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
F. L. Orvand.
Hester Russell.

Inventor
Arthur H. Hutchinson,
per E. W. Bradford.
Attorney.

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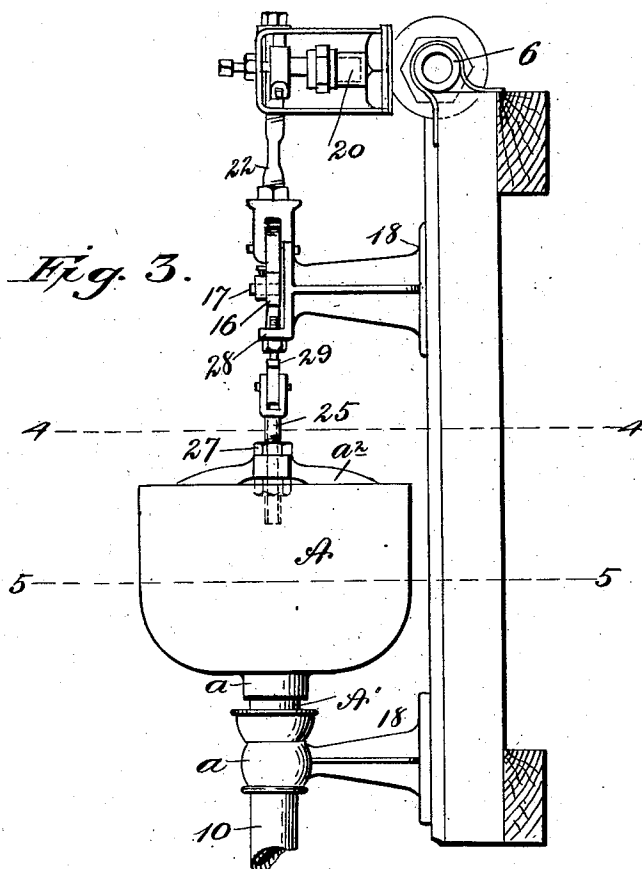
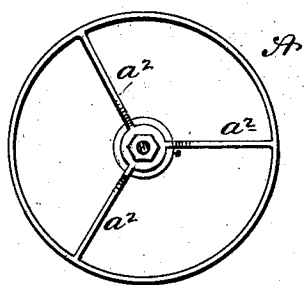


Fig. 4.

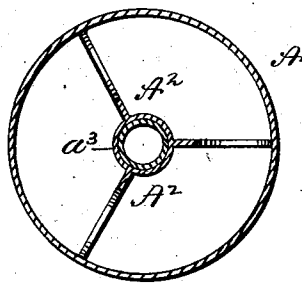


Fig. 5.

Witnesses
F. L. Orrand.
Wesley Russell.

Inventor
Arthur H. Hutchinson,
per *E. A. Bradford*
Attorney.

UNITED STATES PATENT OFFICE.

ARTHUR H. HUTCHINSON, OF WAYNESBORO, PENNSYLVANIA, ASSIGNOR TO
FRICK COMPANY, OF WAYNESBORO, PENNSYLVANIA, A CORPORATION.

SKIMMING-REGULATOR FOR ICE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 729,348, dated May 26, 1903.

Application filed October 18, 1902. Serial No. 127,892. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR H. HUTCHINSON, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Skimming-Regulators for Ice-Machines, of which the following is a specification.

My said invention relates to an improved construction of apparatus for regulating the skimming of the reboiler of an ice-machine; and it consists in the novel construction and arrangements of parts whereby a perfectly-operating apparatus of the character is provided and one which will be inexpensive to construct and maintain in repair, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a diagrammatic view of that portion of an ice-making plant directly connected with the reboiler and controlled by the operation of my said invention; Fig. 2, a view, on an enlarged scale, of that part of the apparatus constituting my present invention partly in front elevation and partly in vertical section; Fig. 3, an edge view of the same, the parts being shown in elevation; Fig. 4, a view looking downwardly from the dotted line 4 4 in Fig. 3, and Fig. 5 a cross-section on the dotted line 5 5 in Fig. 3.

The general arrangement of the ice-making apparatus is well known and needs only a general description. The steam from any source enters the steam-condenser 1, is condensed, and passes from there to the reboiler 2, where it is violently boiled in the well-known manner. By this means the oil and other impurities are thrown to the surface and the air and foreign gases expelled from the water. The purified water passes from said reboiler through the pipe 3 to the cooling-coil 4, from there to the filter 5, and from thence through pipe 6 to the storage-tank 7. The pipes remain full of water at all times, and thus prevent the accumulation of air or gases therein.

In the skimming-regulator apparatus proper, A represents a bowl or receptacle formed with a central aperture in its bottom and mounted to slide upon a tubular stem or

conductor A', which is connected by a suitable coupling with a waste-pipe 10, leading to the sewer or other suitable point of discharge. Said bowl A is provided with a bracket-like brace A², extending from one wall to the other and having a top bar a² with a central perforation, which serves as a means for connecting said bowl with the valve-operating mechanism, as will be presently described. The central portion a³ of said bracket is tubular and serves as a guide for said bowl upon the tubular stem A'. Around the central opening in the bottom of said bowl is formed a wide flange a, and in the tubular stem A' is formed a series of openings a⁴, which when the bowl is in its highest position, as shown in the drawings, are covered and closed by said flange a. Skim-holes 11 are formed in the end of the reboiler 2 and a skim-dish 12 is mounted on the end of said boiler beneath said skim-holes. (Shown in a detail view attached to Fig. 1.) Said skim-holes are formed on a line with the level which it is desired that the water shall attain in said reboiler for skimming purposes. A pipe 15 leads from the bottom of said skim-dish 12 to discharge within said bowl A. A lever 16 is pivoted between its ends on a suitable pivot 17, provided on an adjacent portion of the framework, preferably on a specially-constructed fulcrum-stand 18. A valve is provided in pipe 6, and its stem 20 is connected by means of a crank-arm 21 and a link 22 to one end of the lever 16. A weight W is mounted to slide upon the opposite end of said lever 16, being adjustably connected therewith by a set-screw 23. The bowl A is hung on said lever 16 between its pivot 17 and its connection with the valve 20 by means of a link 24, pivoted at one end to said lever 16 and its other end pivoted to a bolt 25, connected with the cross-bar a² of said bowl by being inserted through the central perforation therein and provided with a nut 26 upon one side and a nut 27 upon the other side of said cross-bar.

In operation when the water rises in the reboiler slightly above the lever of the skim-holes the skimmings, consisting of grease and other impurities, upon the surface of said water will run through said skim-holes into the skim-dish and through pipe 15 into the

bowl A. When a sufficient quantity of said skimmings has passed into said bowl to overbalance the weight W on the lever 16, said bowl will slide down the tubular stem or conductor A' and through said lever 16 and the connections 21 and 22 operate to open the valve 20 in pipe 6. The water in pipe 6 will then pass therefrom into the storage-tank 7, drawing from the bottom of the reboiler 2 until the level of the water therein is below the level of the skim-holes. At the same time the apertures in the tubular conductor A' are uncovered by the downward motion of the bowl A, and the skimmings contained in said bowl are thus permitted to pass through said apertures into the pipe 10 and be discharged. The gravity of said bowl and its contents being thus reduced, the weight W will operate to lift said bowl and close the valve 20 in pipe 6 and the apertures a^1 in the conductor A'. The water being constantly fed to the reboiler A² again rises to the skimming level and the operation is repeated, and it continues repeatedly and automatically as long as the apparatus may be in operation. As will be noticed by an examination of the drawings, the link 22 is connected to suitable fittings on the ends of lever 16 and crank-arm 21 by right and left hand screw-threads. It is provided with a flattened portion 31, on which a wrench or other suitable device may be used for turning it. By this means its length may be adjusted as desired to open and close valve 20 to secure the proper operation of the apparatus. By means of the nuts 26 and 27 the bowl A may also be adjusted on bolt 25, so as to cover and uncover a greater or less area of the apertures a^1 . By this means the volume of water permitted to flow through the pipe 6 and the volume of skimmings discharged through said apertures may be regulated as desired. By a proper adjustment of weight W the frequency of the skimming operation may be regulated by requiring a greater or less quantity of skimmings in the bowl to overbalance said weight. Set-screws 28 and 29 are mounted in a flange 30 on plate 18 beneath the lever 16 on each side of the pivot 17 for limiting the extreme movements of said lever at the proper points.

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

1. A skimming-regulator for ice-machines comprising a reboiler, a pipe leading therefrom for the pure water, a conduit for the skimmings leading to a receptacle, said receptacle mounted to move vertically upon a tubular conductor, which conductor has an aperture in its side normally closed by a part on said receptacle, means for supporting said receptacle in its normal position, and a connection between said receptacle and a valve in the pipe leading from the reboiler, whereby, when the contents of said receptacle reaches a predetermined quantity, its weight will overbalance said supporting means and

move the receptacle to open said valve and at the same time uncover said aperture and permit the contents to discharge, whereupon, said receptacle being relieved of the weight of said contents, the supporting means will restore the parts to their normal positions, substantially as set forth.

2. In a skimming-regulator for ice-machines, the combination, of the reboiler provided with a skim-dish, a pipe leading therefrom to a receptacle, said receptacle mounted to slide upon a tubular conductor formed with apertures normally covered by a part carried on said receptacle, a pipe leading from said reboiler to a storage-tank, a valve in said pipe connected with a weighted lever, and a connection between said receptacle and said weighted lever, whereby said receptacle and said weight are opposed to each other, substantially as set forth.

3. In a skimming-regulator for ice-machines, the combination with the reboiler of an overflow-pipe leading therefrom to a receptacle, said receptacle mounted to have a vertical movement upon a tubular conductor, said conductor formed with apertures normally covered by a portion carried by said receptacle a lever connected with said receptacle and provided with a weight for supporting the same, and a connection between said lever and a valve in the pipe leading from said reboiler, substantially as set forth.

4. In a skimming-regulator, for ice-machines, the combination of the overflow-pipe leading to a receptacle, said receptacle connected with a lever provided with a counterbalancing-weight, and a connection between said lever and the controlling-valve in the pipe leading from the said reboiler, said connection being formed adjustable as to length, substantially as set forth.

5. In a skimming-regulator for ice-machines, the combination of the overflow-pipe leading to a receptacle, said receptacle mounted on a tubular conductor having apertures normally covered by a portion on said receptacle, a lever pivoted adjacent to said receptacle and provided with a counterbalancing-weight, a connection between said lever and receptacle provided with means for adjusting the elevation of said receptacle, and a connection between said lever and the controlling-valve in the pipe leading from the reboiler, substantially as set forth.

6. A skimming-regulator for ice-machines comprising a reboiler, a receptacle arranged to receive an overflow from said reboiler and mounted to slide upon a discharge-pipe, a counterbalance to support said receptacle until its contents reach a predetermined quantity, said pipe and receptacle being formed with discharge-openings and closures therefor which openings are covered and uncovered by the movements of said receptacle, and a connection between the said receptacle and the controlling-valve in the pipe leading from the reboiler, substantially as set forth.

7. A skimming-regulator for ice-machines comprising a reboiler, a reciprocating receptacle connected with a controlling-valve in the pipe leading from the reboiler and arranged to be operated when its contents reach a certain quantity, substantially as set forth.
In witness whereof I have hereunto set my

hand and seal, at Waynesboro, Pennsylvania,
this 10th day of September, A. D. 1902.

ARTHUR H. HUTCHINSON, [L. s.]

Witnesses:

EZRA FRICK,
W. H. MANNS.