

No. 729,278.

PATENTED MAY 26, 1903.

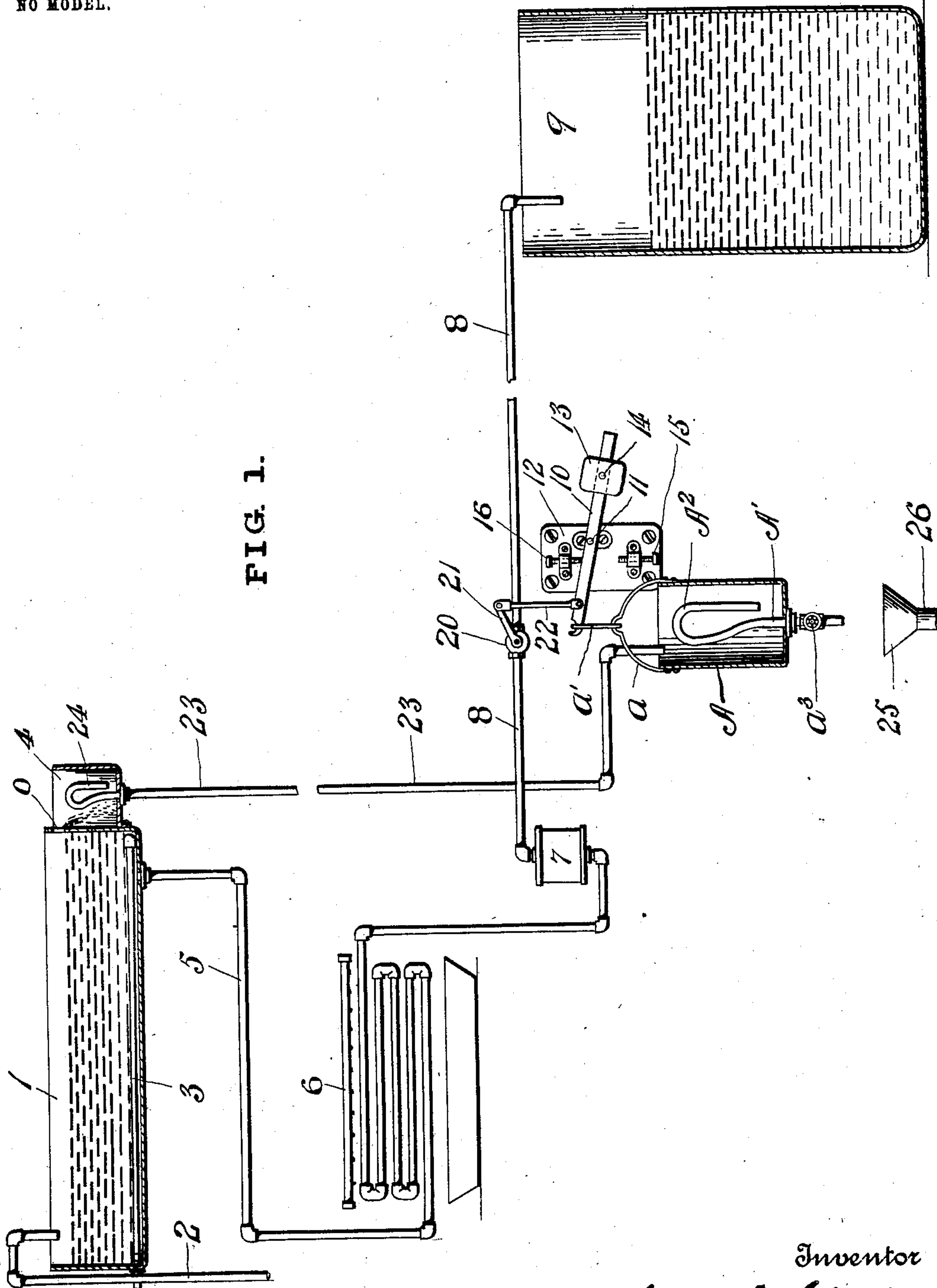
C. S. CLARK.

SKIMMING REGULATOR FOR ICE MACHINES.

APPLICATION FILED JAN. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.

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Inventor

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2 SHEETS—SHEET 2.

FIG. 2.

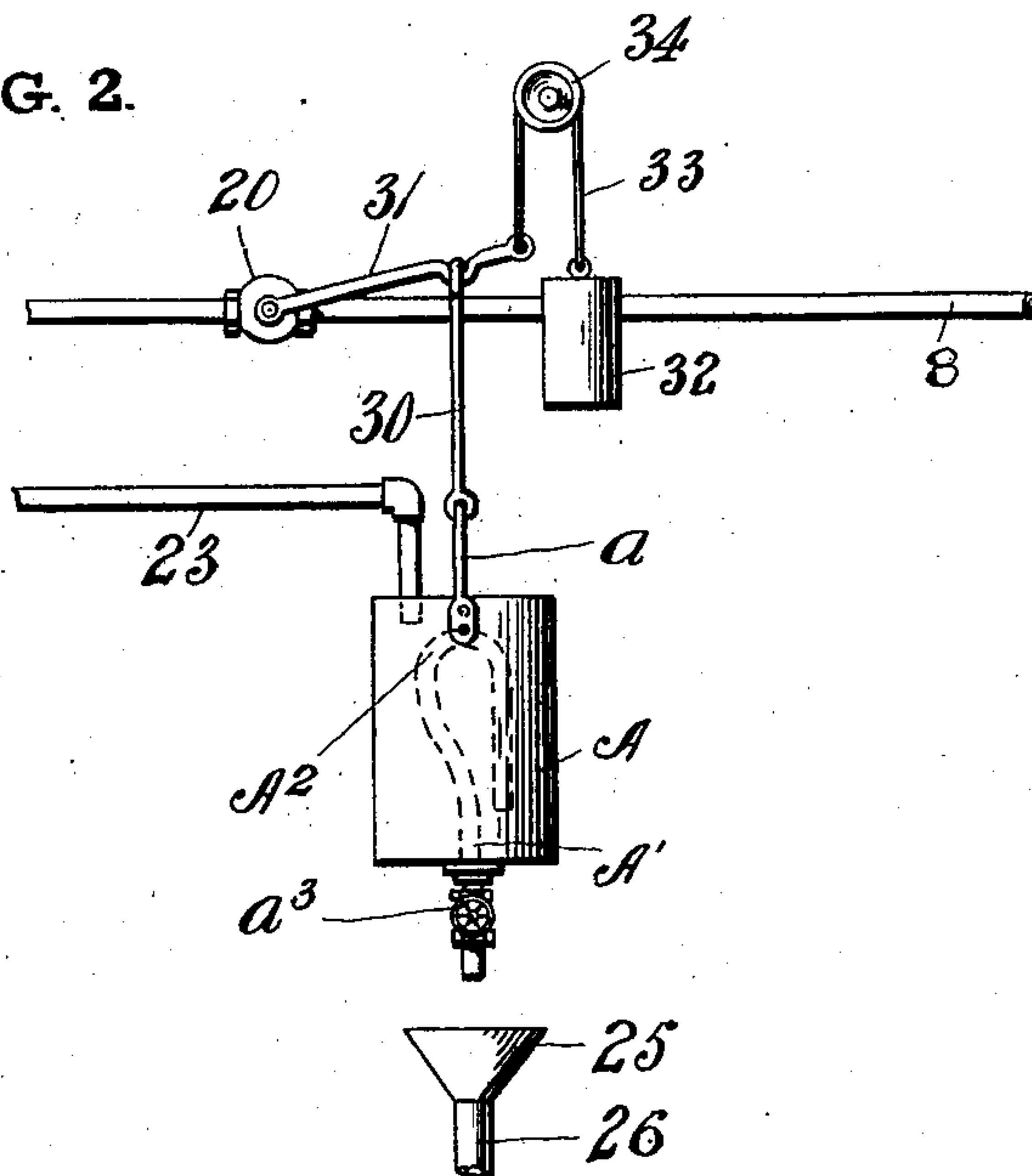
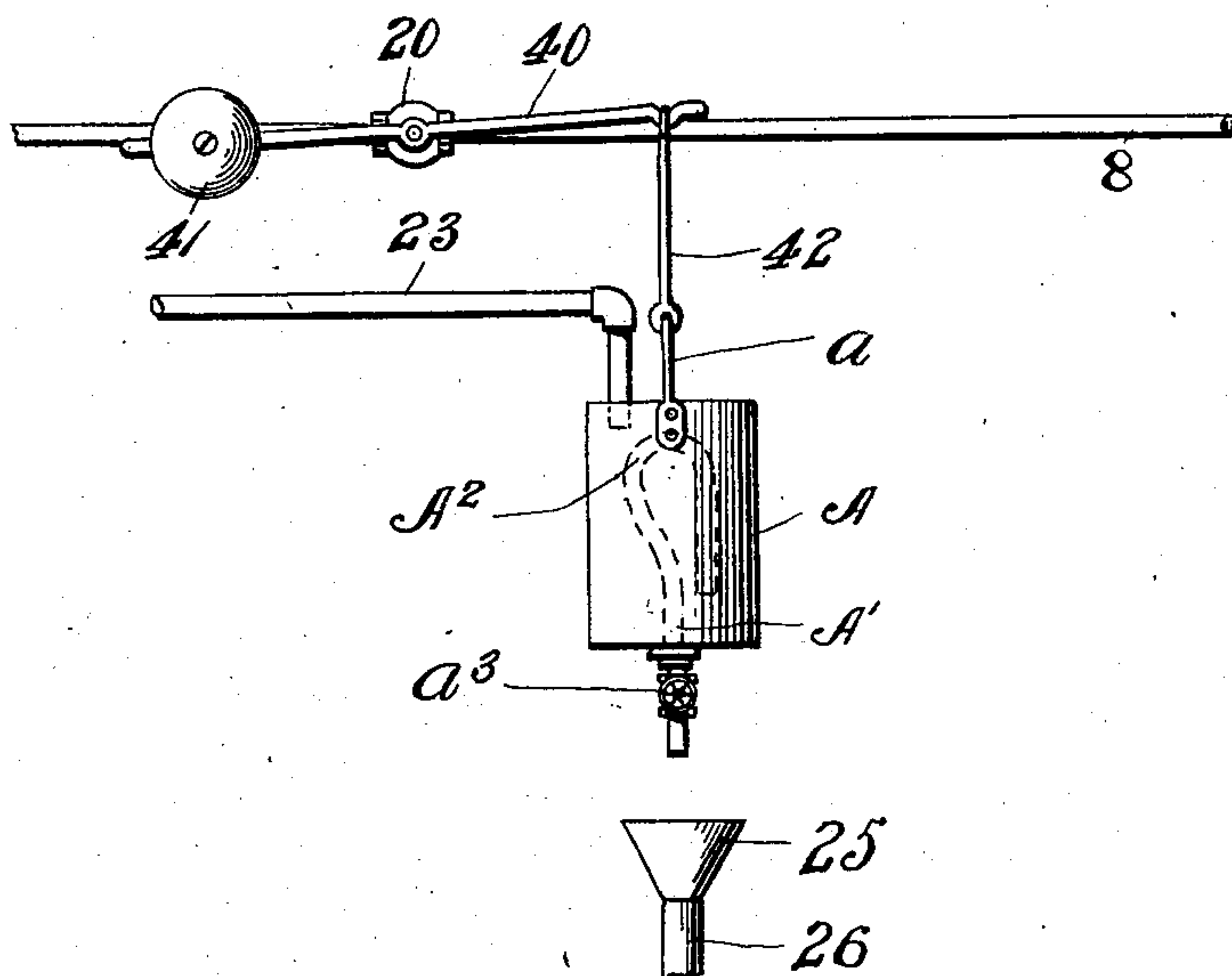


FIG. 3.



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UNITED STATES PATENT OFFICE.

CHARLES S. CLARK, OF ALTOONA, PENNSYLVANIA, ASSIGNOR TO FRICK COMPANY, OF WAYNESBORO, PENNSYLVANIA, A CORPORATION.

SKIMMING-REGULATOR FOR ICE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 729,278, dated May 26, 1903.

Application filed January 28, 1903. Serial No. 140,821. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. CLARK, a citizen of the United States, residing at Altoona, in the county of Blair 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 and arrangement of parts of an apparatus for automatically regulating the discharge from the boil-tank of an ice-machine, whereby a very convenient and perfectly-operating apparatus for the purpose is provided, 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 view, partly in elevation and partly in section, of that portion of an ice-making apparatus directly connected with the boil-tank and related to the operation of my said invention; and Figs. 2 and 3 are views of a portion of said apparatus, illustrating slight modifications in the arrangement of parts.

The general arrangement of the ice-making apparatus is well known and needs only a general description. The water from the pump or other source enters the boil-tank 1 through pipe 2 and is there violently boiled, by means of a stem-coil 3 in the bottom of said tank, in the well-known manner. The skimmings flow through openings *o* in the end of tank 1 at the proper level into skim-box 4, the purified water is discharged through a pipe 5, which passes under the cooler 6 to a filter 7, and from thence through the pipe 8 to a storage-tank 9.

In the skimming-regulator proper, A represents a receiving-bucket having a bail *a*, by which it is hung through a link *a'* upon one end of the lever 10, which is mounted on a fulcrum 11 on the fulcrum-block 12, suitably located. A counterbalancing-weight 13 is mounted to slide on the opposite end of said lever 10 and may be held in the desired position by the set-screw 14. Adjustable screw-stops 15 and 16 are mounted in suitable bosses on opposite sides of the said le-

ver 10 and may be adjusted to limit its vertical movement as desired. A valve 20 is mounted in pipe 8 for controlling the flow of water. A lever 21 extends from the end of the stem of said valve and is connected by a link 22 with lever 10 at a point near one end thereof. The bucket A is provided with a discharge-pipe A' having a siphon-head within said bucket. Its lower end extends through the bottom of said bucket and is adapted to discharge into a funnel 25 on the upper end of a discharge-pipe 26, which leads to the sewer or any suitable point of discharge. A valve *a*³ is provided in discharge-pipe A' for the purpose of controlling the volume of discharge and regulating the time required therefor. A pipe 23 leads from skim-box 4 to discharge into bucket A. The upper end of said pipe 23 is provided with a siphon-head 24, located within said box, the upper end of the siphon being just below the level of the skim-holes *o* in the end of boil-tank 1.

The operation is as follows: The water coming through pipe 2 into the boil-tank 1 is violently boiled, causing the oil and other impurities to rise to its surface. When the level of the water reaches the skim-holes *o*, it begins to flow over into the skim-box. When said box fills to the level of the upper end of siphon 24, the skimmings will begin to flow through pipe 23 into bucket A and will continue to flow by reason of the siphon-head 24 and the well-understood principle governing its operation until the skimmings in box 4 are lowered to the level of the entrance of said siphon-head. As soon as the weight of the skimmings in the bucket A is sufficient to overbalance weight 13 lever 10 will fall from the position shown in Fig. 1, resting against stops 16, to rest upon stop 15, which operates to open valve 20, through the connecting parts, and permit the water to flow from the bottom of tank 1 through pipes 5 and 8 into the storage-tank 9. Said valve 20 will be held open until the skimmings in bucket A reach the level of the upper end of the siphon A² therein. When said level is reached, the skimmings will begin to flow through said siphon and out of discharge-pipe A' into the discharge-pipe 26 and will continue to flow until the level is lowered to the entrance to

said siphon. The time required for this operation may be regulated by an adjustment of valve a^3 , which will regulate the speed at which said skimmings will discharge. As soon as the weight of bucket A and its contents is sufficiently reduced to be overbalanced by weight 13 the parts will be returned automatically by said weight to the position shown in Fig. 1, closing valve 20 and shutting off the flow of water from the boil-tank. The boil-tank refills and the operation is repeated continuously and automatically, as will be readily understood. By the adjustment of screw-stops 15 and 16 the swing of the lever 10 may be regulated so as to open and close valve 20 to secure the desired volume of flow through pipe 8 from tank 1. By this arrangement, as will be readily seen, the time between operations may be regulated as desired and the level of the water in tank 1 lowered to the desired point at each operation, thus discharging from said tank all that portion of the contents which has been sufficiently boiled for the purpose.

In Fig. 2 the bucket is connected directly, by means of a link 30, with a lever 31 on the stem of the valve 20. The extreme upper end of lever 31 is connected with a weight 32 by means of a cord 33, which runs over a sheave 34, mounted on a point above. In Fig. 3 a lever 40 is connected with the stem of valve 20 midway its length. On one end is mounted an adjustable weight 41 and at its other end the bucket A, through a link 42. In each of these modifications the operation is the same as in the preferred construction shown in Fig. 1, as will be perfectly understood.

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 boil-tank, a skim-box thereon, a pipe leading from said boil-tank to the storage-tank, a controlling-valve therein, a pivoted lever connected with said valve, a bucket mounted upon one end of said lever, a counterbalance connected with the other end, a discharge-pipe in said bucket provided with a siphon-head and a pipe leading from the skim-box to discharge into the said bucket also provided with a siphon-head within said box, substantially as set forth.

2. A skimming-regulator for ice-machines comprising a boil-tank, a skimming-receptacle connected therewith, a conduit leading from said tank and containing a controlling-

valve, a bucket connected with said valve to operate it in one direction, a counterbalance for operating it in the reverse direction, a siphon-discharge for said bucket, and a pipe leading from the skimming-receptacle to said bucket provided with a siphon-head within said receptacle, substantially as set forth.

3. A skimming-regulator for ice-machines comprising mechanism for operating the valve in the discharge-pipe leading from the boil-tank, which mechanism is operated by intermittent discharge of the skimmings, the skimming discharge-pipe being provided with a siphon-head, substantially as set forth.

4. The combination, in an ice-machine, of the boil-tank, the discharge-conduit leading therefrom, the valve therein, the bucket hung upon a lever connected with said valve, the siphon-discharge, a valve for regulating the size of the discharge-opening thereof and a pipe leading from the skim-box of the boil-tank to said bucket, substantially as set forth.

5. In an ice-machine, the combination, of the boil-tank, the conduit leading therefrom, the valve therein, the bucket connected with said valve for operating it in one direction, means for operating it in the reverse direction, and the pipe leading from the skim-box to said bucket provided with a siphon-head within said box, substantially as set forth.

6. In an ice-machine, the combination, of the boil-tank, the conduit leading therefrom, the valve therein, the bucket connected with said valve for operating it in one direction, means for operating it in the reverse direction, a discharge-pipe for said bucket provided with a siphon-head, and a pipe leading from the skim-box to said bucket, substantially as set forth.

7. In an ice-machine, the combination, of the boil-tank, the conduit leading therefrom to the storage-tank, a valve in said pipe, the lever connected with said valve, stops for limiting the movement of said lever, a bucket hung upon one end of said lever, a counterweight upon the other end, a siphon-discharge for said bucket and a pipe leading from the skim-box to said bucket, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Altoona, Pennsylvania, this 13th day of January, A. D. 1903.

CHARLES S. CLARK. [L. S.]

Witnesses:

JOSEPH STEVENS,
JOSEPH GOSS.