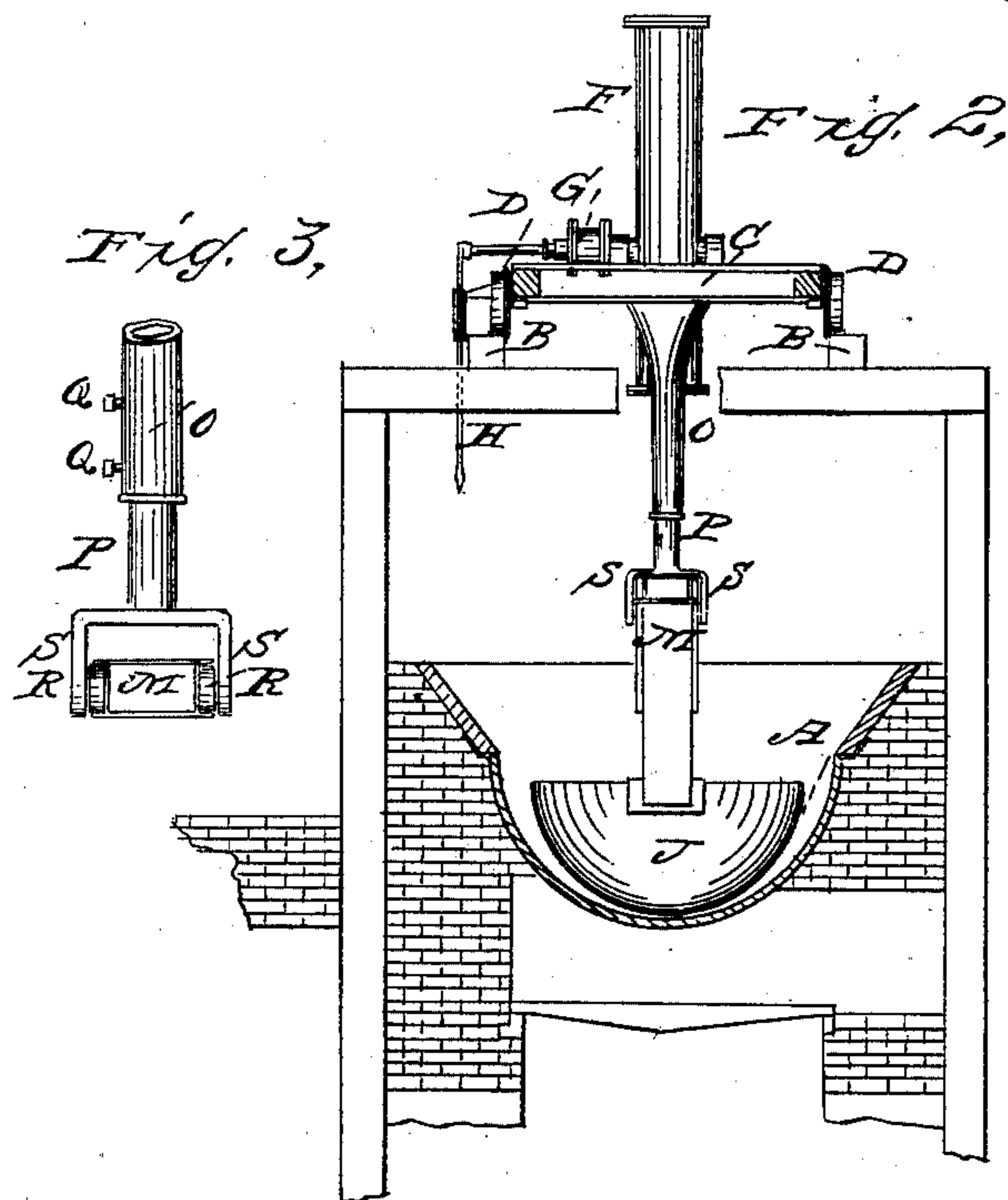
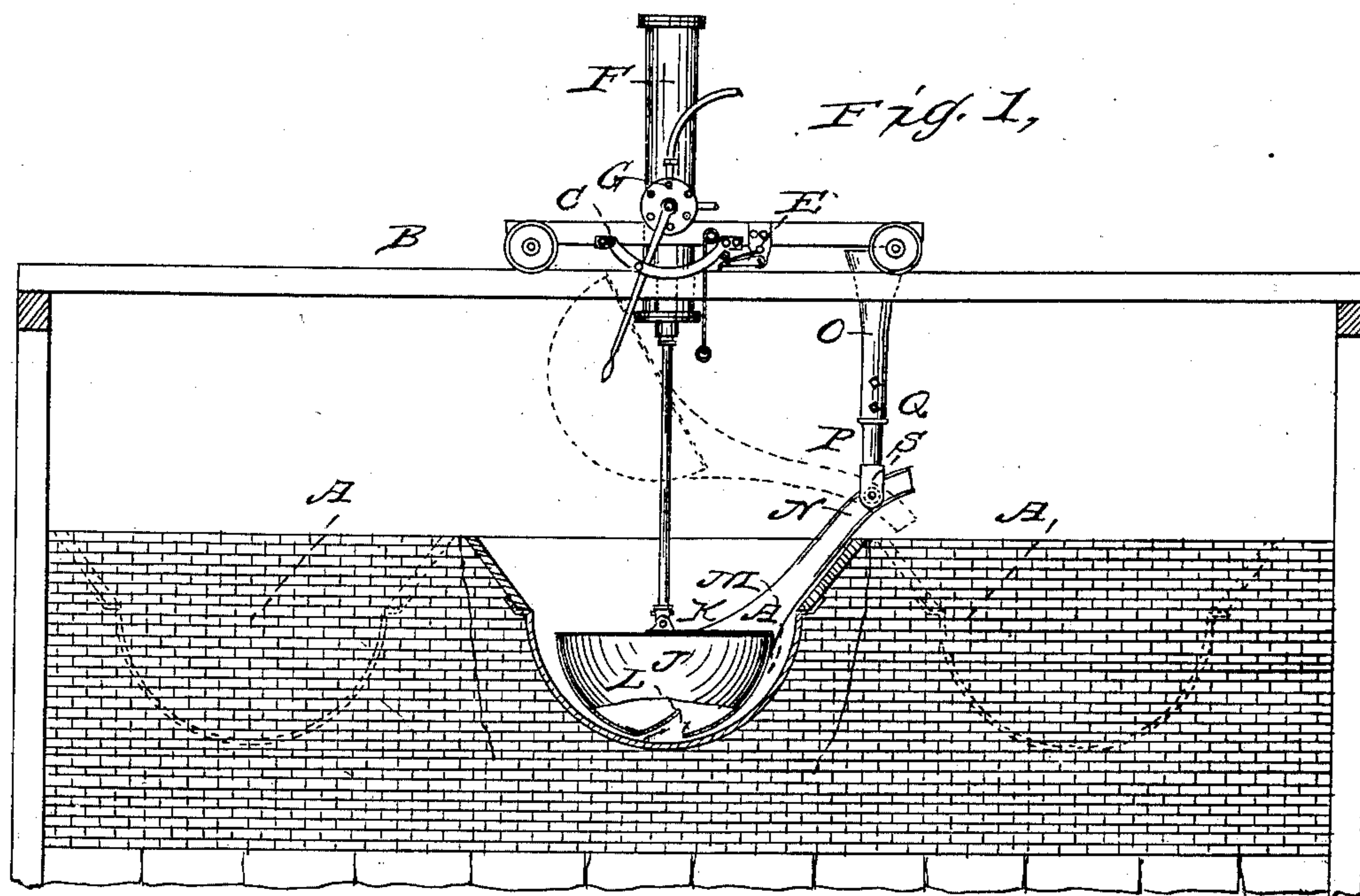


J. SOUTHER.

Apparatus for Evaporating Saccharine Juices.

No. 26,794.

Patented Jan'y 10, 1860.



UNITED STATES PATENT OFFICE.

JOHN SOUTHER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR EVAPORATING SACCHARINE JUICES.

Specification forming part of Letters Patent No. 26,794, dated January 10, 1860.

To all whom it may concern:

Be it known that I, JOHN SOUTHER, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented a new and useful improvement in a machine or combination of machinery for the purpose of bailing out sugar-cane juice from one kettle to another in a train of sugar-kettles, and for bailing out finished sugar into the coolers by steam-power; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation. Fig. 2 is an end elevation, and Fig. 3 is an end view of the handle or spout to the ladle, showing the manner in which it is held.

The same letters refer to like parts in all the figures.

The nature of my invention consists in the application of steam-power to an improved ladle, to facilitate bailing out hot cane-juice from one kettle to another, and the finished sugar to the coolers, by attaching a steam-cylinder to a car which is mounted on a track raised above a train of sugar-kettles, with a ladle suspended to the lower end of the piston-rod.

In the drawings herein referred to, A A A represent a train of sugar-kettles standing in a direct line.

B B is a track raised above the train of kettles.

C is a car mounted on four wheels, D D, which is made to travel back and forth on the track.

E is a dog for holding the car in the place required.

F is a steam-cylinder attached to the car in a vertical position.

G is a steam-valve which admits the steam into the lower end of the cylinder.

H is a lever to open or shut the steam-valve.

I is a piston-rod which is attached to a piston within the cylinder above the steam-opening. This rod extends through the bottom head only.

J is a ladle suspended to the lower end of the piston-rod, with a joint at K to allow the ladle to tip as it is drawn up.

L is a valve in the bottom of the ladle to admit the juice as the ladle sinks in the kettle.

M is a hollow handle or spout leading from the top of the ladle over to the next kettle, through which the contents of the ladle is emptied.

N is a longitudinal groove on either side of the spout.

O is a round tube attached to one end of the car and extending downward.

P is a rod the upper end of which is round and fitted to slide up and down in the tube, and secured in any required position by set-screws Q Q. The lower end of this rod has two prongs, S S, with a friction-roller, R, attached to the inside of each. These rollers are fitted to the groove on either side of the spout, and are a sufficient distance apart to admit the spout between them and hold it in its proper position.

In order to convey steam to the cylinder in the different positions in which the car is to be placed, I use a flexible steam-pipe made of vulcanized rubber.

When it is designed to operate this machine, the steam is let on by moving the lever H, which admits the steam into the lower end of the cylinder and forces up the piston together with the piston-rod, and the ladle, being attached to the lower end of the rod, is drawn up with it. The car, being mounted on a track, is readily placed over the kettle to be emptied, and held in that position by the dog E, which drops into a hole made in the track. Then by reversing the lever the steam-port is closed and the exhaust-port opened, allowing the steam to escape from the cylinder and the piston to descend, dropping the ladle gradually into the kettle. As the ladle sinks in the liquid, the valve L in the bottom opens and allows the ladle to fill, taking up the whole or nearly the whole contents of the kettle. Then by applying steam, as before, of a sufficient pressure to raise the ladle filled with hot sugar or cane-juice, the valve in the bottom is closed by the pressure of the liquid, and as the outer end of the spout is suspended at a fixed height when the ladle rises it cants over and discharges the contents of the ladle through the spout into the next kettle, or over the side of the kettle to the coolers, as is required. The dog is then raised and the car run along over

the next kettle and again secured by the dog. The steam is then exhausted as before, allowing the ladle to drop gradually into the kettle. The contents of this kettle is thus transferred to the one last emptied, and so on throughout the whole train of kettles. When it is not convenient to use steam-power, this ladle may be operated by hand-power by constructing a suitable arrangement of machinery for that purpose.

Having thus fully described the construction and operation of my improvements, I will now proceed to point out the parts which I claim as my invention and desire to secure by Letters Patent—

1. A portable steam-ladle for bailing hot sugar-cane juice from one kettle to another or

the finished sugar to the coolers, as herein described.

2. The ladle constructed with a valve in the bottom to receive the cane-juice or sugar, and a hollow handle or spout through which the contents of the ladle is discharged, the outer end of said spout being suspended at a fixed height, substantially in the manner and for the purpose herein described.

3. The combination of mechanism herein described, substantially in the manner and for the purpose set forth.

JOHN SOUTHER.

Witnesses:

CHAS. W. HAWKES,

CHAS. W. PLACE.