

D. PRAY.  
Sugar-Train.

No. 208,693.

Patented Oct. 8, 1878.

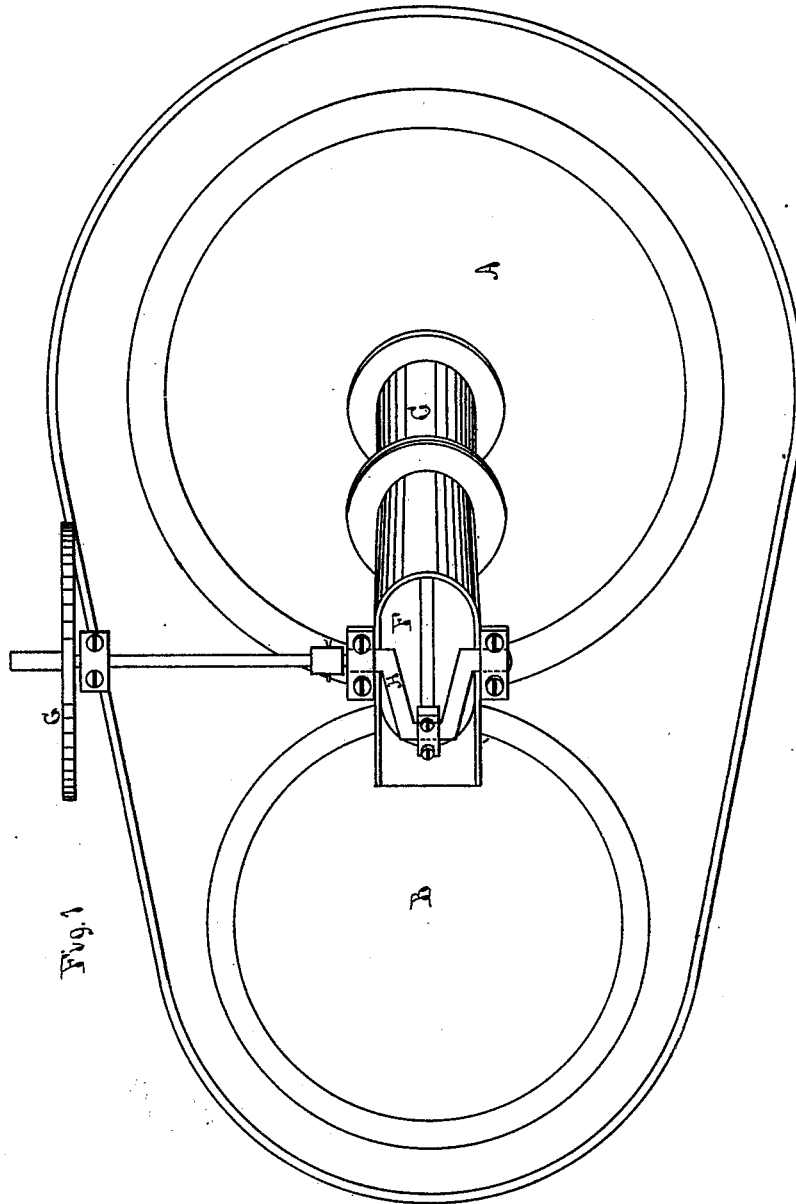


Fig. 1

Witnesses.

*Wm. D. Brown*  
*Henry D. Welch*

Inventor

*Dudley Pray*  
by *A. Garland*  
*att'y.*

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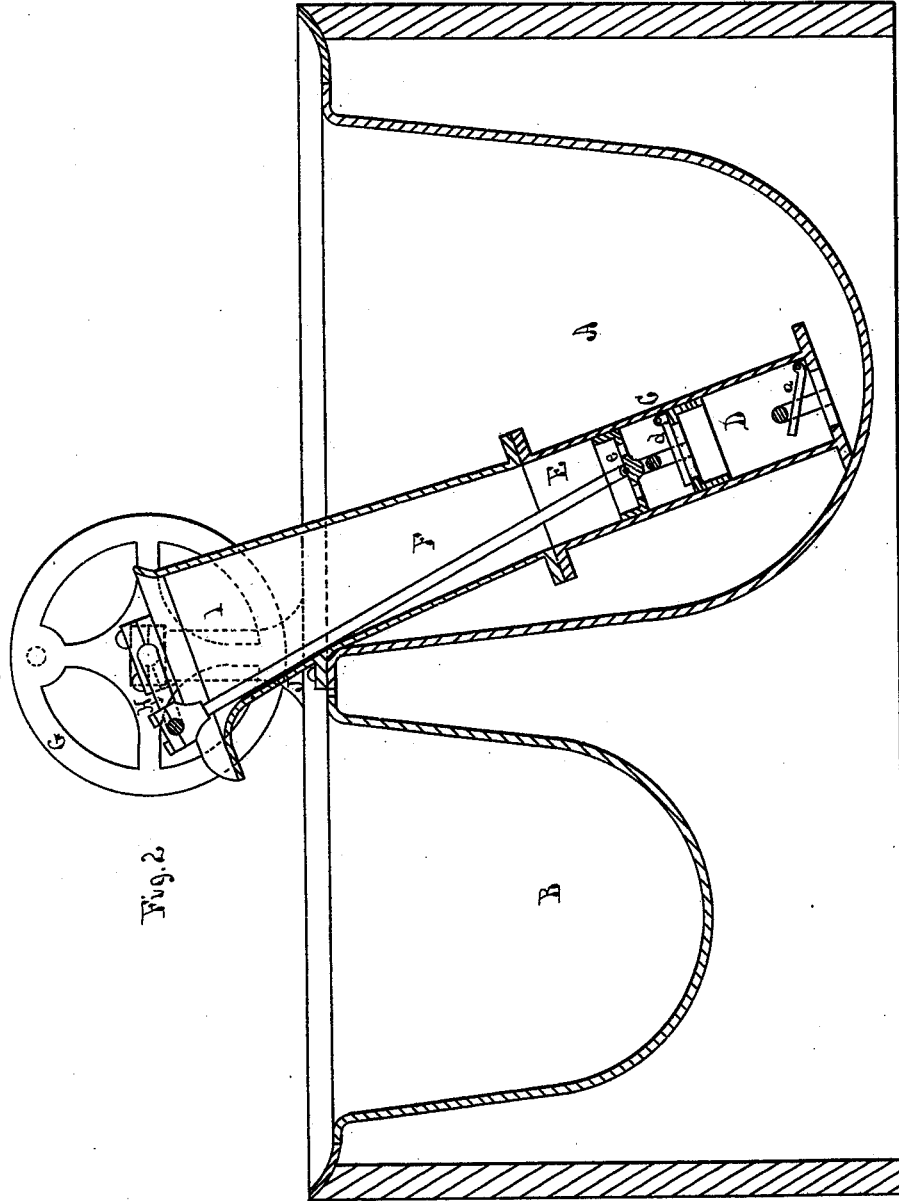


Fig. 2

Witnesses

*Wm. S. Brown*  
*Henry A. Welch*

Inventor

*Dudley Pray*  
by *A. Garland*

# UNITED STATES PATENT OFFICE.

DUDLEY PRAY, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN SUGAR-TRAINS.

Specification forming part of Letters Patent No. **208,693**, dated October 8, 1878; application filed June 6, 1878.

*To all whom it may concern:*

Be it known that I, DUDLEY PRAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sugar-Trains, of which the following is a specification:

My invention relates more especially to the device for conveying the liquid from one bowl to another; and consists in the application to the scumming-kettle of a portable lifting mechanism, as hereinafter more fully explained, so placed in the kettle as not to interfere with the operation of scumming the liquid, the object of my invention being to provide for the removal of the liquid from one kettle to another in a simpler, more effective, and more economical manner than has heretofore been done, and in such a way that the operation of scumming will not be interfered with.

This conveying of the liquid from one kettle to another has sometimes been done by means of a chain-pump placed at or near the middle of the bowl; but this method cannot be employed to any great advantage, as it is cumbersome and difficult to operate, and prevents scumming, or makes it much more laborious; nor is it practicable to use a closely packed and fitting pump, on account of the great heat of the liquid, and the consequent expansion of the working parts, and the destruction of all packing material, such as hemp, rubber, &c. My device is intended to overcome these difficulties.

In the drawings, Figure 1 represents a plan of the two bowls or kettles of a train. Fig. 2 represents a vertical section of the same.

A and B represent the kettles, the former being the scumming-kettle. C represents a cylinder having a common clack-valve, *a*, at its lower end. This cylinder is made a little longer than the depth of the bowl, and is attached to the latter by one or two screws or

bolts, J, and these bolts may be unscrewed and the cylinder easily and readily applied to another kettle. To this cylinder C, I fit as closely as practicable, but not water-tight, a plunger or bucket, D, having a clack-valve, *d*, opening upward. As the lifting force is not exerted on this plunger in a direct line upward, in order to provide against any turning or pressure of the plunger to one side, and consequent wear or gouging of the plunger or cylinder, I apply to the plunger D a guide, E, fitted as closely as practicable to the cylinder. The plunger is thus provided with two separate bearing-surfaces at some distance apart, and the plunger is operated much more smoothly and evenly than with a single bearing-surface, and all turning or gouging of the plunger in the cylinder is prevented, and consequently the plunger and cylinder last for a much longer time. This plunger is operated by means of a fly-wheel, G, bell-crank H, and connecting-rod F, which latter is attached to the plunger by a loose or toggle joint, *e*.

It will be observed that this device is attached to the top of the bowl or kettle at the side thereof, and thus is entirely out of the way, so that it does not interfere with the operation of scumming the liquor.

I claim as new and of my invention—

The combination, with the scumming-kettle of a sugar-train, of the lifting mechanism, consisting of the cylinder C, provided with the valve *a*, the bucket D, provided with valve *d*, and the guide E, and operated by the bell-crank H and connecting-rod F, substantially as described.

DUDLEY PRAY.

Witnesses:

A. K. GARLAND,  
HENRY FR. WELCH.