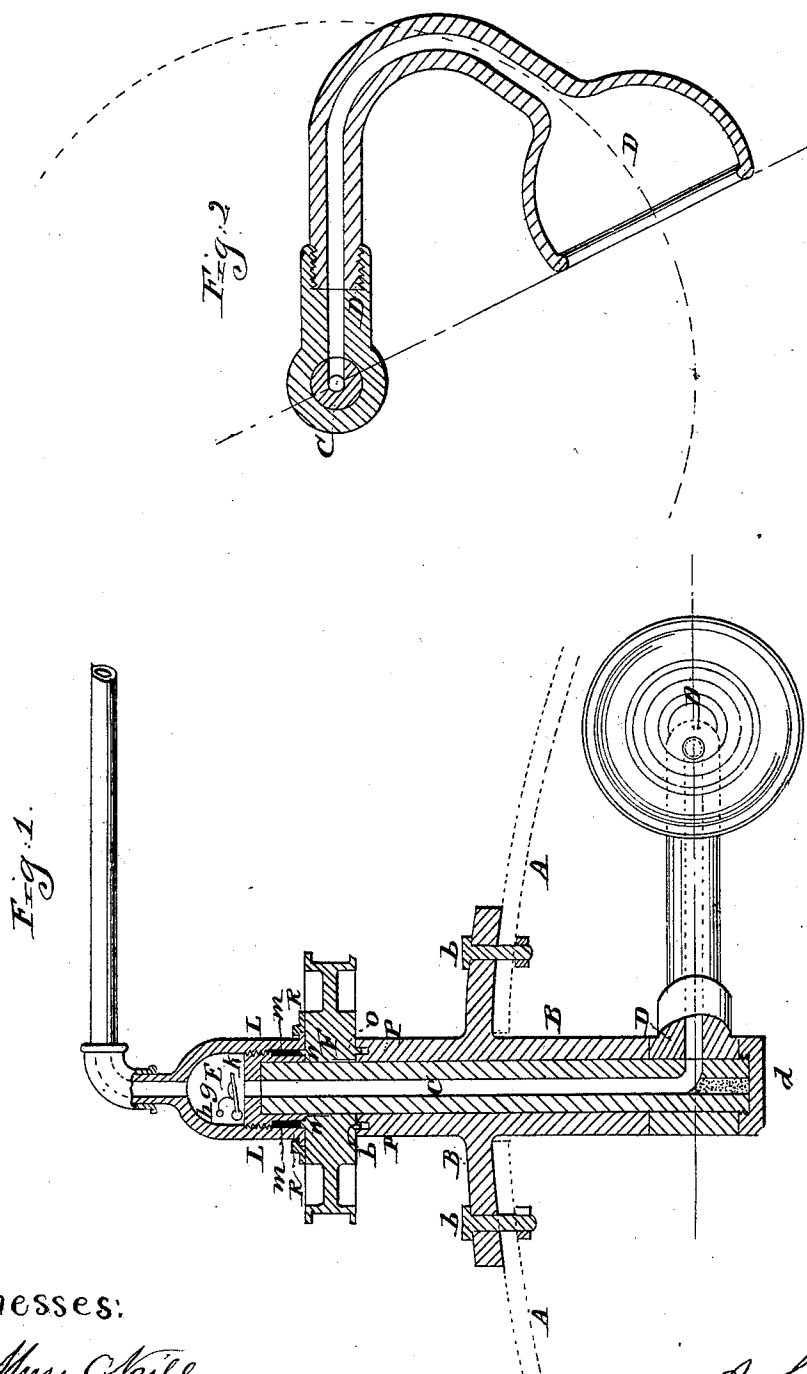


J. F. Collins,

Punch.

No. 86213.

Patented Jan. 26. 1869.



Witnesses:

Arthur Keill
H. A. Ayres

Inventor;

John F. Collins



JOHN F. COLLINS, OF NEW YORK, N. Y.

Letters Patent No. 86,213, dated January 26, 1869.

IMPROVEMENT IN PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN F. COLLINS, of the city, county, and State of New York, have invented a new and useful Improvement in Pumps for exhausting or forcing air, and for elevating fluids; and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, of which—

Figure 1 represents a vertical section, and

Figure 2, a horizontal section of my invention.

This invention relates to a novel device for withdrawing the vapors from sugar, molasses, glue, dyes, dye-woods, &c., while being boiled under a partial vacuum, for the purpose of crystallizing or refining, (the withdrawal of the aqueous vapors being requisite for a proper concentration;) and consists of a hollow trumpet, placed within the vacuum-pan, still, or other vessel, and attached to a hollow shaft, on whose outer end are fixed a driving-pulley and an air-valve, so that, as the trumpet is revolved within the vacuum-pan, the air and vapors contained therein are forced or drawn into the trumpet, driven up the hollow shaft, and expelled, the air-valve preventing their return, and hence, a vacuum or partial vacuum is created.

In the said drawings—

A denotes the vacuum-pan;

B, a stand, bolted on the pan by bolts; *b b*.

This stand extends downward into the pan or other vessel, and projects above and outside the same, and embraces a rotary, hollow shaft, C, near the inner end of which is fastened the hollow trumpet D, held in place by a nut, *d*, on the end of said rotary shaft, while, on the outer end of said rotary shaft, are placed the valve E and driving-pulley F. (See fig. 1.)

This valve E is a balanced valve, having a curved rod, *g*, on which a ball, *h*, slides, so that the ball or weight may be slid near to or away from the centre of the valve, as more or less weight is required over said centre.

The seat, *k*, of this valve, is screwed into its case, L, leaving a packing-space, *m*, between the valve-seat and its case.

Both valve-seat *k* and case L rest on the pulley F, and are stationary, while the pulley revolves.

The driving-pulley F is splined on the hollow driving-shaft C, and has a projection, *n*, on the upper surface of its hub, extending up into the packing-space *m*, and has also another projection, *o*, on the lower surface of its hub, extending down into the packing-space *p*, in the top of the stand B. And

R is a loose collar, screwed on to the pulley F, and overlapping the base of the case L, for the purpose of holding the said case (which is stationary) in position while the pulley F revolves.

The operation of my invention is very simple, and as follows:

Power being conveyed through a belt on the pulley F, which is fastened on the hollow driving-shaft C, and the hollow trumpet D splined on the inner end of said shaft, as the pulley is rotated the hollow trumpet will be driven rapidly around within the vacuum-pan, the vapors in the vacuum-pan drawn or forced into the hollow trumpet, driven up the hollow shaft, and expelled from the said pan, the valve E preventing their return. And thus I produce an improved pump for withdrawing the vapors from sugar, glue, dyes, dye-woods, &c., while being boiled, for the purpose of crystallizing or refining, as well as for the evaporation of whiskey, rum, alcohol, and other similar liquids, usually concentrated by boiling or distilling, in which cases the volatile spirit is withdrawn, while the water remains. And my improved pump may also be employed, with profit, as an air and fluid force-pump, by reversing the device in the former case.

Having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The hollow trumpet D, the hollow driving-shaft C, and air-valve E, combined and operating together, substantially as and for the purposes described and set forth.

In testimony whereof, I have hereunto set my signature, this 20th day of May, 1868.

JOHN F. COLLINS.

Witnesses:

ARTHUR NEILL,
F. A. AYRES.