

(No Model.)

A. E. RICH.

SIRUP PUMP FOR SODA WATER APPARATUS.

No. 327,593.

Patented Oct. 6, 1885.

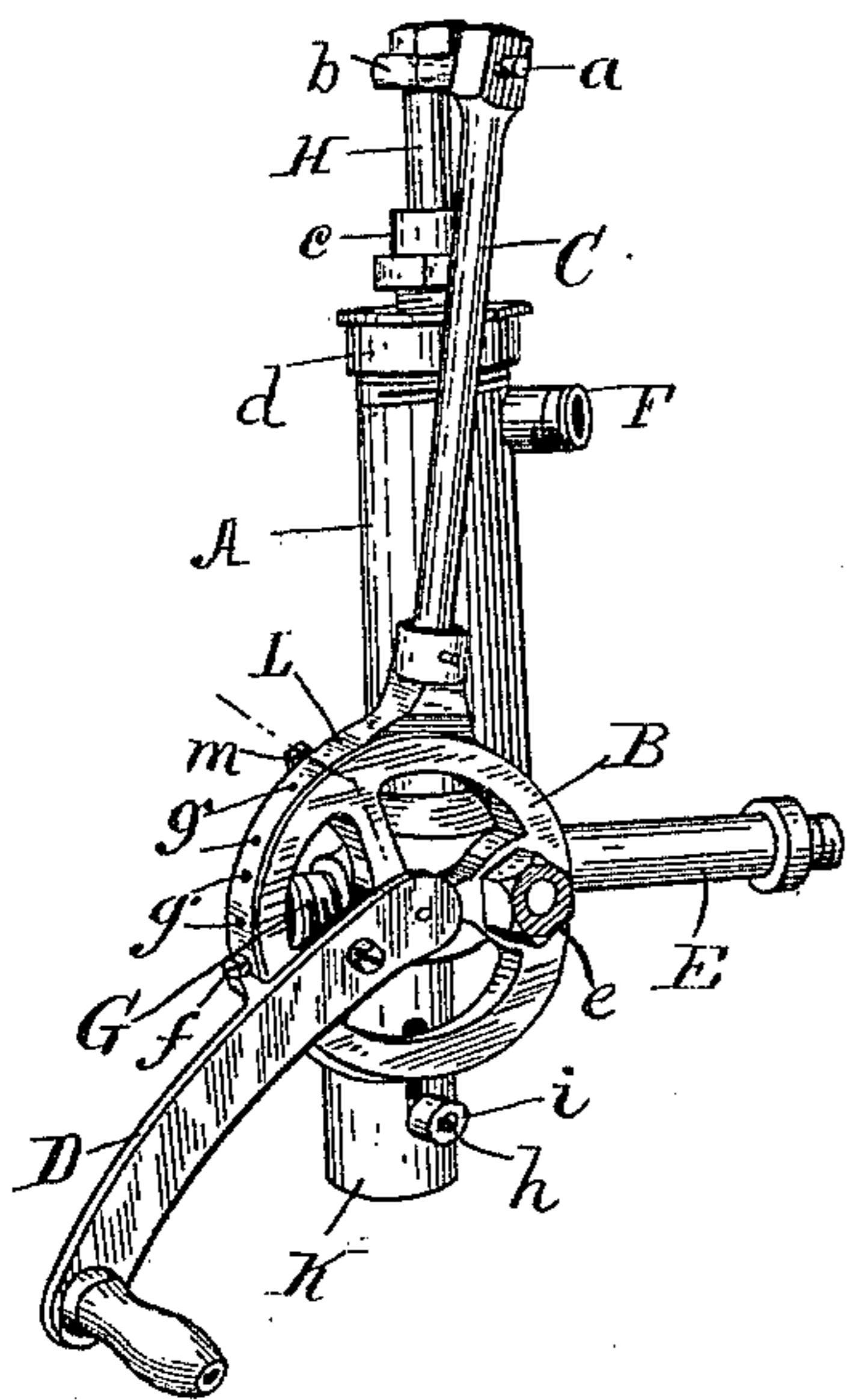


Fig 1.

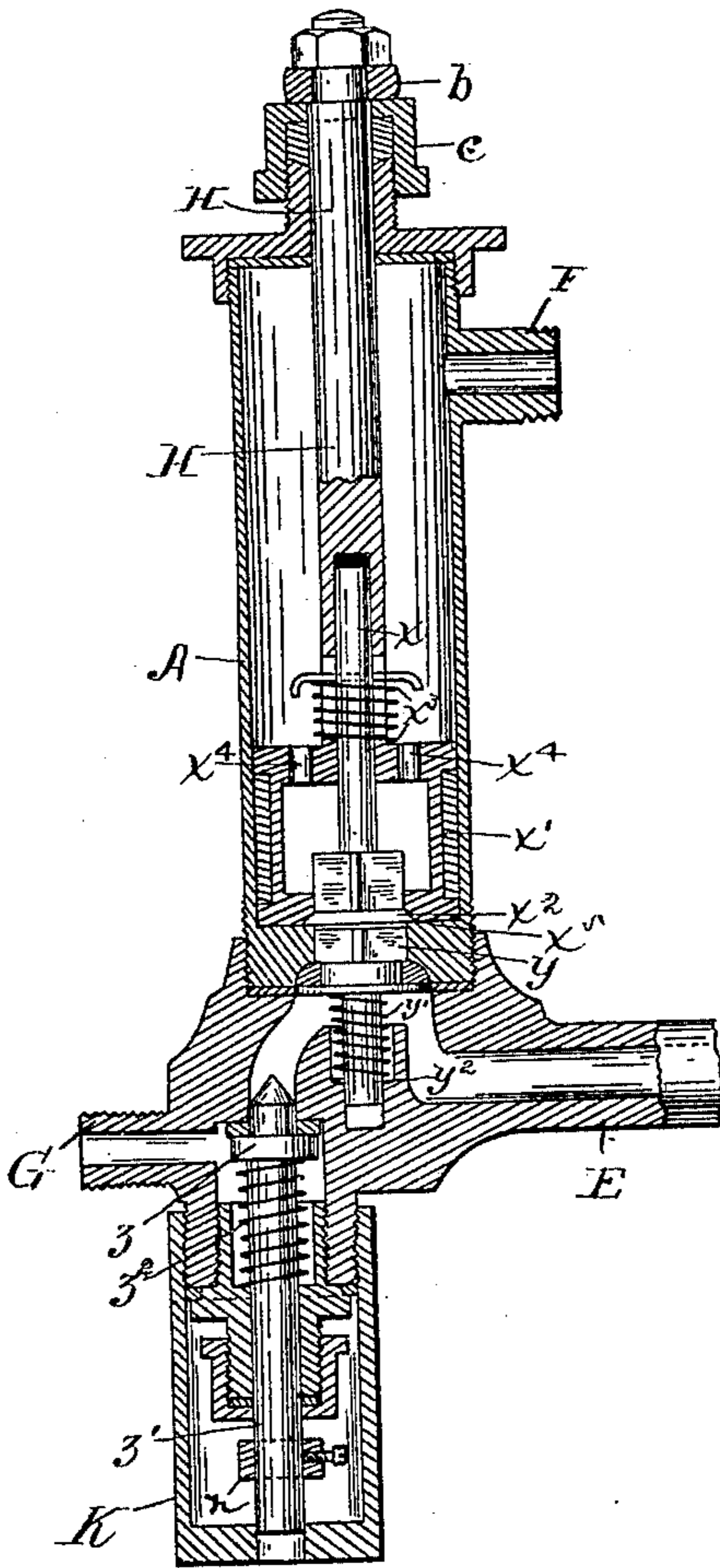


Fig. 2.

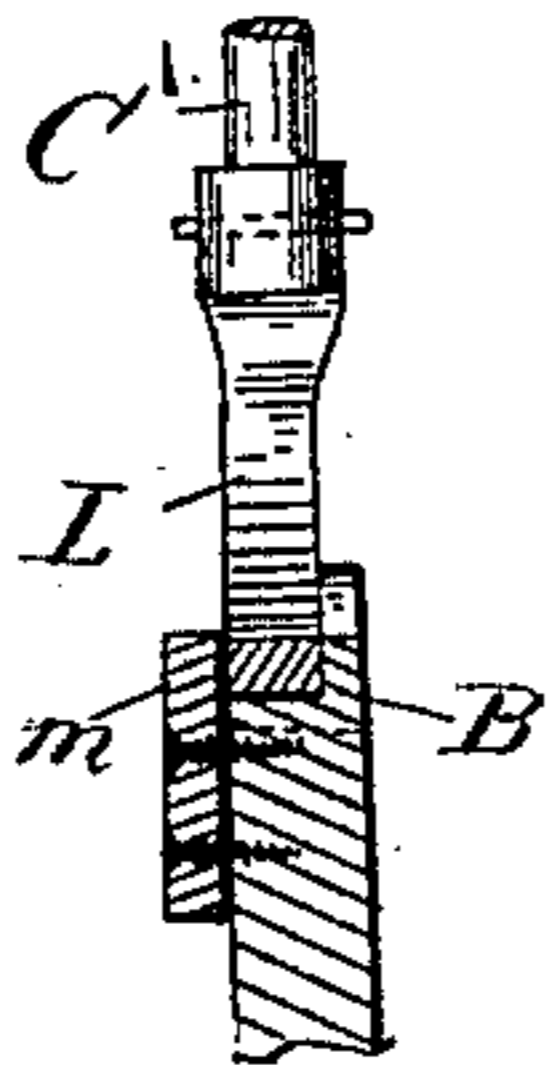


Fig. 3.

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# UNITED STATES PATENT OFFICE.

AUGUSTUS E. RICH, OF FALL RIVER, MASSACHUSETTS.

## SIRUP-PUMP FOR SODA-WATER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 327,593, dated October 6, 1885.

Application filed September 6, 1884. Serial No. 142,344. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTUS E. RICH, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented a certain new and useful Improvement in Sirup-Pumps, of which the following, with the drawings accompanying and forming a part of this specification, is a full, clear, and exact description.

The object of my invention is to form a sirup-pump more easily operated than those now in use, and to provide certain novel features for measuring or graduating the quantity of sirup to be used, and also arrange for its introduction into the bottle, with minor important details of construction hereinafter more fully described.

Figure 1 is a perspective elevation of the complete pump. Fig. 2 is a vertical sectional elevation, in which the valves and conduits are shown. Fig. 3 is a section showing attachment of cam and eccentric.

The pump herein shown and described is used in connection with suitable attachments for measuring and introducing into the interior of bottles sirup which constitutes a portion of the ingredients in various aerated drinks, which ingredients are forced into the bottles under considerable pressure.

Referring to the drawings, A is the barrel of the pump. B is an eccentric. C is a rod connected with the eccentric strap or band L at one end, and with the plunger H at the other end, *a* being a connecting pin or carrier by which the rod C moves the plunger H up and down. *c* is a stuffing-box for the plunger; *d*, a cap upon the top of the barrel A. D is an arm or crank provided with a suitable handle, by which motion is given to the eccentric, and through it communicated to the rod and plunger. The eccentric is secured to the pump by a pivot and nut, *e*.

Upon the lower end of plunger H is placed a compound valve, *x'*, the exterior of which fills the interior of the barrel. This is made hollow, with orifices opening into the spaces in the barrel above the same, and represented by *x<sup>4</sup> x<sup>4</sup>*. There is also fitted within this valve the stem *x*, carrying at its lower end the valve *x<sup>2</sup>*, which has its seat on *x<sup>5</sup>*. Below this com-

pound valve described is placed another valve *y*, with its stem *y'*. This is supported in its place by the spring *y<sup>2</sup>*.

In the lower section of the pump is placed a third valve, *z*, with its stem *z'*, and which is supported by the spring *z<sup>2</sup>*. The lower valve, with its parts, is protected by the case K, which is screwed to the bottom of the pump.

In connection with the valve stem *z'* a stud or guide may be used, which projects through the side of case K, and to which a screw-bolt, *h*, is attached. Underneath the head of *h* is preferably placed a small collar or wheel adapted to revolve when pressed by the cam-stud *m* when the eccentric is pressed down. The bolt *h* may be attached to stem *z'* and act as the stud or guide, as shown.

The operation of the pump is as follows: The sirup enters the pump-barrel at F and flows downward, filling the chamber above the compound valve. Upon the raising of the plunger H the sirup flows through the orifices *x<sup>4</sup> x<sup>4</sup>* and opens the valve *x<sup>2</sup>*, it being simply balanced in place by spring *x<sup>2</sup>*. Now, by moving the handle D downward the plunger is forced to descend, the valve *x<sup>2</sup>* is closed and the valve *y* is opened and the sirup is forced into the lower conduits of the pump. When the plunger is down, the eccentric has carried the stud *m* so that it engages the wheel *i* upon the bolt *h*, and the lower valve, *z*, is opened, and the gas or air entering by the passage G closes the valve *y* and forces the sirup out through E, where the pump is connected with the bottling-machine.

By this construction the valves are fully protected, and no part is exposed. It is impossible to have any of the sirup forced back into the upper chamber of the pump, and the quantity entering the bottle connected with the bottling-machine is therefore uniform.

By the employment of the eccentric device I obtain at least double the power of the ordinary direct leverage and the added advantage of a full downward pressure of the arm. These points are important, as the strength required to operate a pump of this character is considerable.

The eccentric strap or band L is secured in position upon the eccentric proper, B, by a

set-screw, *f*. Now, by placing a series of screw-holes, *g g g*, in said band *L*, I provide ready means of accurately measuring the quantity of sirup used, which quantity varies with the size of bottle to be filled. For convenience I mark the holes *g g g* with the number of ounces of sirup required. It is manifest that the change of the set-screw *f* from one hole to another must vary the length of the stroke of the plunger, and the quantity of sirup forced downward will be in exact ratio to the distance the plunger carrying the compound valve is raised in the body of the pump.

It will thus be seen that no error can possibly be made in the proper quantity of sirup to be used, and that such quantity will always be uniform relatively to the size of bottles to be filled.

My invention may be used with a plunger having a solid valve instead of the compound valve shown.

In case it is not desired to introduce sirup with the gas, my construction provides for introducing the latter without the former and without actuating the plunger.

By removing the set-screw *f* the cam-stud can be operated in connection with the wheel *i* by simply turning the handle attached to the eccentric back and forth from the vertical line of the wheel *i*; or the valve *z* can be opened without removing the set-screw *f*, as the slight movement of the eccentric required to press the cam-stud *m* against wheel *i* is insufficient to introduce sirup through the valve *x'* into the lower passages of the pump.

The cam-stud *m* is intended to press the wheel *i*, immediately after the eccentric passes the center, downward. The opening of the valve *z* is regulated by the collar *h* on stem *z'*, which is secured by a set-screw, as shown. The collar is movable on the valve-stem.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a sirup-pump, of the body *A*, plunger *H*, provided with a compound valve, *x'*, the valve *z*, provided with the screw-bolt *h*, attached to its valve-stem, the valve *y*, eccentric *B*, rod *C*, having the eccentric-strap *L*, with cam-stud *m* and lever *D*, all arranged and adapted to operate substantially as and for the purposes set forth. 45 50

2. In a sirup-pump, the combination of the eccentric *B*, provided with the cam-stud *m*, the eccentric-band *L*, and the rod *C*, adapted to operate the plunger *H*, the said cam-stud *m*, adapted to operate the valve *z* by means of the bolt *h*, all substantially as and for the purposes set forth. 55

3. In a sirup-pump, the valve *z*, provided with the stem *z'*, guide screw-bolt *h*, and wheel *i*, and spring *z''*, arranged to be operated substantially as and for the purposes specified. 60

4. In a sirup-pump, the combination of the eccentric *B*, provided with the stud *m* and the crank *D*, and adapted to operate with the independent valve *z*, provided with the stem *z'* and guide-bolt *h*, substantially as and for the purposes set forth. 65

5. In a sirup-pump, the independent valve *z*, in combination with a projection attached to the stem of said valve and a suitable eccentric provided with a cam, all adapted to operate substantially as and for the purposes set forth. 70

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Witnesses:

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