No. 702,075. Patented June 10, 1902.

M. PINK.

LIQUID PRESSURE REGULATOR.

(Application filed Jan. 30, 1902.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

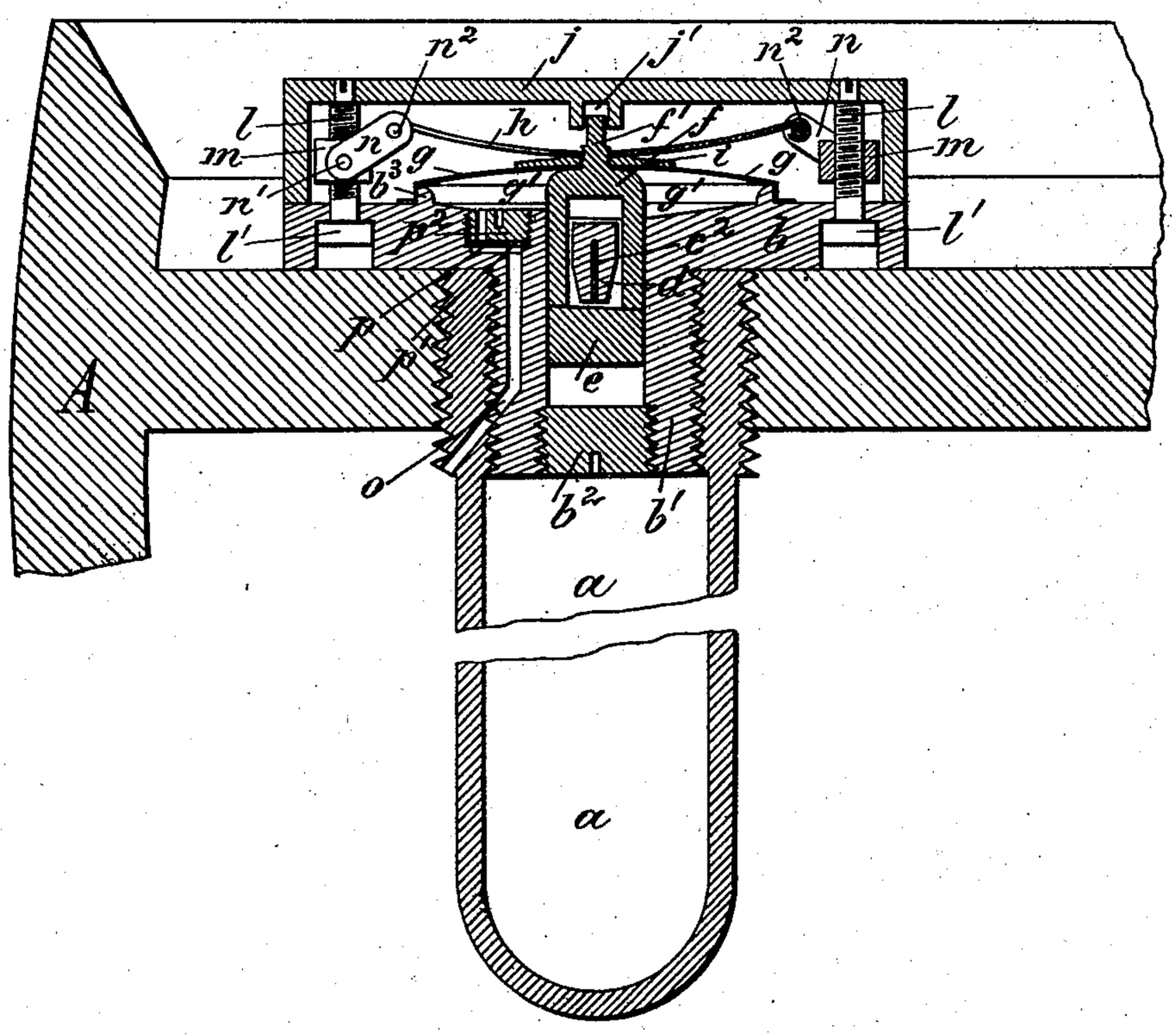
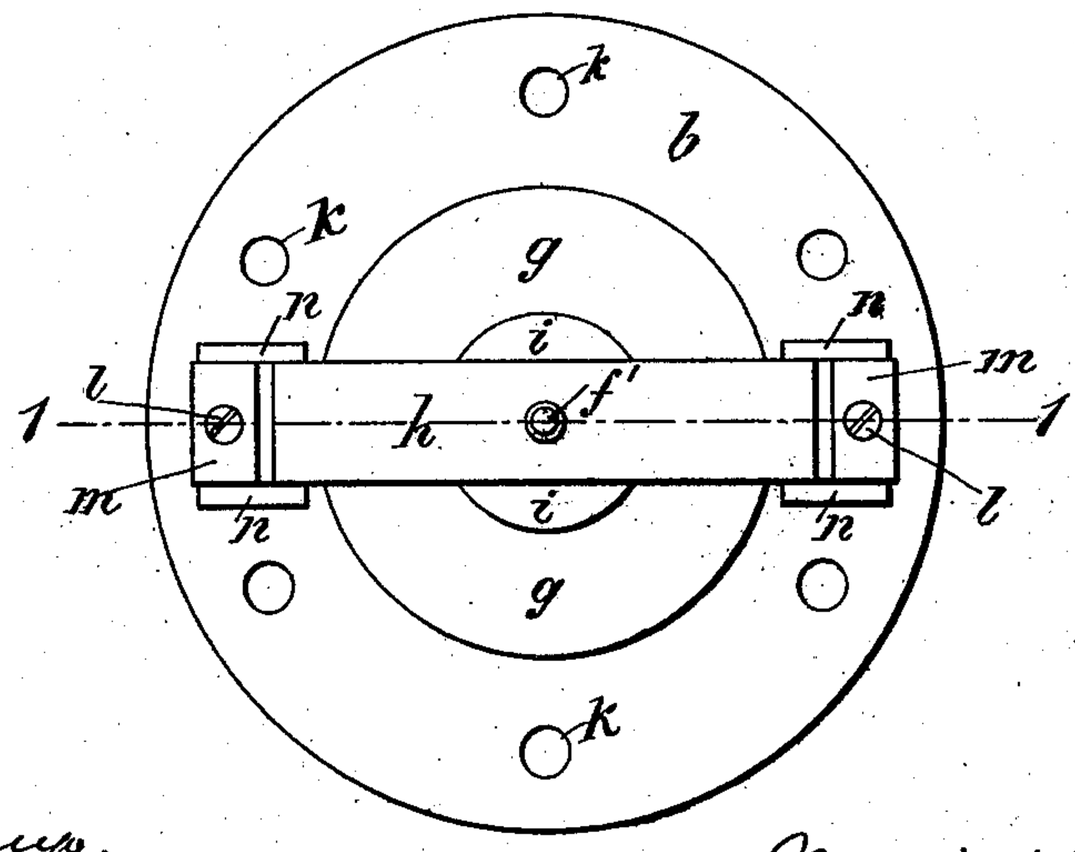


FIG. 2.



Witnesses:
Arthur Timyn.
Edward Ray.

Inventor:
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by his attorneys
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(No Model.) 2 Sheets—Sheet 2.

FIG. 3.

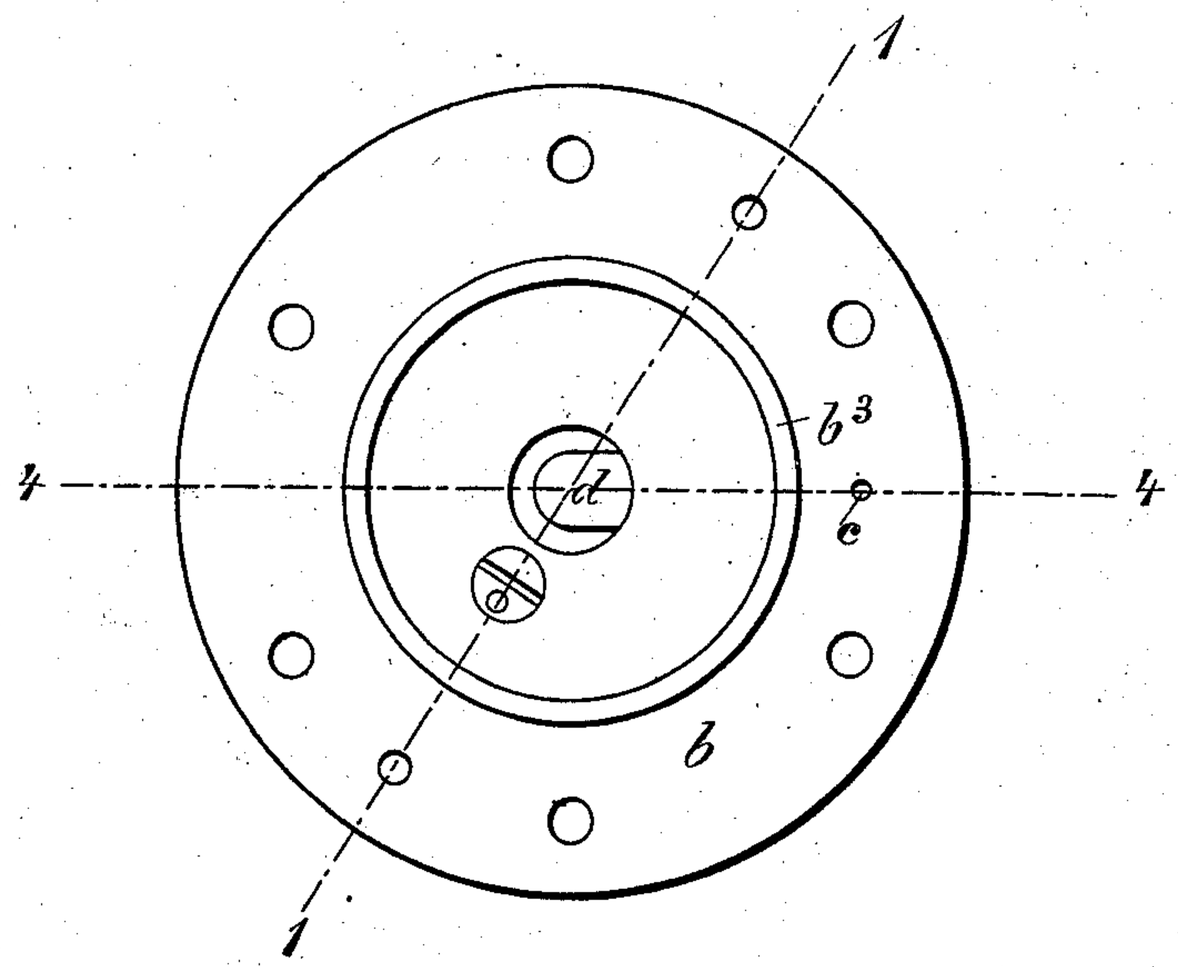
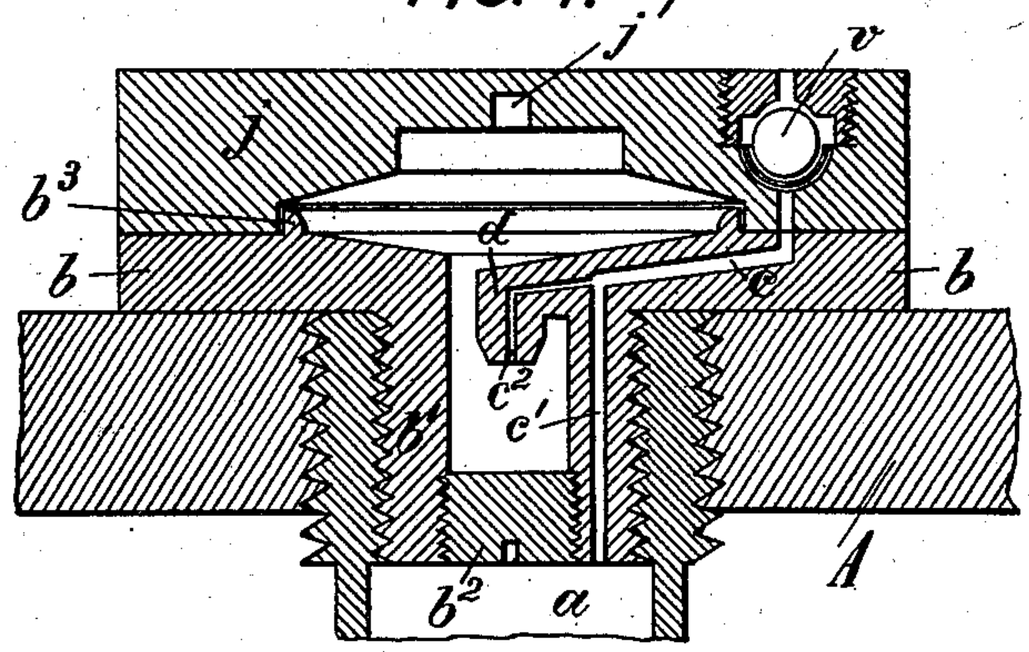


FIG. 4.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

MAXIMILIAN PINK, OF NEW YORK, N. Y.

LIQUID-PRESSURE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 702,075, dated June 10, 1902.

Application filed January 30, 1902. Serial No. 91,830. (No model.)

To all whom it may concern:

Be it known that I, MAXIMILIAN PINK, a citizen of the United States, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Liquid-Pressure Regulators, of which the following is a specification.

This invention relates to an improved apparatus for charging fermented beverages, such as beer and ale and also non-alcoholic drinks, with carbonic-acid or other gas under a uniform pressure which may be accurately regulated.

In the accompanying drawings, Figure 1 is a longitudinal section, partly in elevation, of my improved liquid-pressure regulator on line 1 1, Figs. 2 and 3. Fig. 2 is a plan with the cover removed; Fig. 3, a plan of the disk; and Fig. 4 a section on line 4 4, Fig. 3, with some of the parts omitted.

The letter *a* represents a gas-cylinder adapted to be introduced into the barrel or other receptacle A, that contains the beverage to be placed under gas-pressure. Into the upper threaded end of cylinder *a* is fitted the threaded sleeve *b'* of an annular disk *b*, which is placed upon the head of the barrel. The disk *b* is provided with an inlet-duct *c*, controlled by valve *v* and communicating with the interior of cylinder *a* by means of a duct *c'* of sleeve *b'*. This duct *c'* in turn communicates with an outlet-duct c^2 of a nozzle *d*, that is formed upon the disk *b* and projects into the central opening of said disk. Below the nozzle *d* the sleeve *b'* is closed by a screw-plug b^2. Within the sleeve *b'* is free to move a valve *e*, Fig. 1, arranged beneath the nozzle *d* and adapted to close the duct c^2. This valve is connected by a yoke or arm *f* with an elastic diaphragm *g*, made, preferably, of copper and seated upon a flange b^3 of disk *b*, to which it is soldered. The yoke *f* is influenced by a spring *h*, between which and the elastic diaphragm is interposed a collar *i*, fitted around the upper threaded shank *f'* of yoke *f*. This shank is guided in a socket *j'* of a cover *j*, which is screwed to disk *b*, the screw-holes *k* of the disk being shown in Fig. 2.

In order to regulate the tension of spring *h*, and consequently the gas-pressure, I provide a pair of screws *l*, the heads *l'* of which are countersunk in disk *b*. Each of the screws is engaged by a nut or threaded trunnion-block *m*, to which are pivoted at *n* the outer ends of a pair of links *n*, the inner ends of which are connected by pivots n^2 to the ends of spring *h*. Thus it will be seen that by turning the screws *l* the nuts *m* will be moved up or down, and thus the tension of spring *h* may be regulated in a simple and accurate manner.

Below the diaphragm *g* is formed a gas-chamber *g'*, which communicates with the interior of the barrel by a duct *o*. Within this duct is arranged a check-valve *p*, which prevents back pressure and which consists, preferably, of a perforated rubber diaphragm. Under back pressure the portion containing the perforation *p'* of this diaphragm is forced against a plug p^2, and in this way the valve is closed.

The operation is as follows: The liquid carbonic acid is introduced into the cylinder *a* through ducts *c c* from a suitable receptacle. Within the cylinder *a* the liquid carbonic acid gasifies, and the gas passes through duct *c'* and duct c^2 of nozzle *d* into the gas-chamber *g'*. From chamber *g'* the gas enters the barrel through open check-valve *p* and duct *o*. If the gas-pressure in the barrel and beneath diaphragm *g* exceeds the pressure to which the spring *h* has been set, the diaphragm will be raised against the action of the spring to correspondingly raise the valve *e* against nozzle *d* by yoke *f*. In this way the supply of gas will be correspondingly diminished or entirely cut off, so that an even pressure is maintained.

What I claim is—

In a liquid-pressure regulator, the combination of a nozzle with a coacting valve, a diaphragm connected to the valve, a spring influencing the diaphragm, a pair of screws, nuts embracing the screws, and links that pivotally connect the nuts with the spring, substantially as specified.

Signed by me at New York city, county and State of New York, this 28th day of January, 1902.

MAXIMILIAN PINK.

Witnesses:
FRANK E. WOODIN,
BERNHARD HERNHUTLY.