

(No Model.)

2 Sheets—Sheet 1.

C. MÜSSEL.

APPARATUS FOR FILLING VESSELS WITH FERMENTED LIQUORS.

No. 333,081.

Patented Dec. 22, 1885.

Fig. 1.

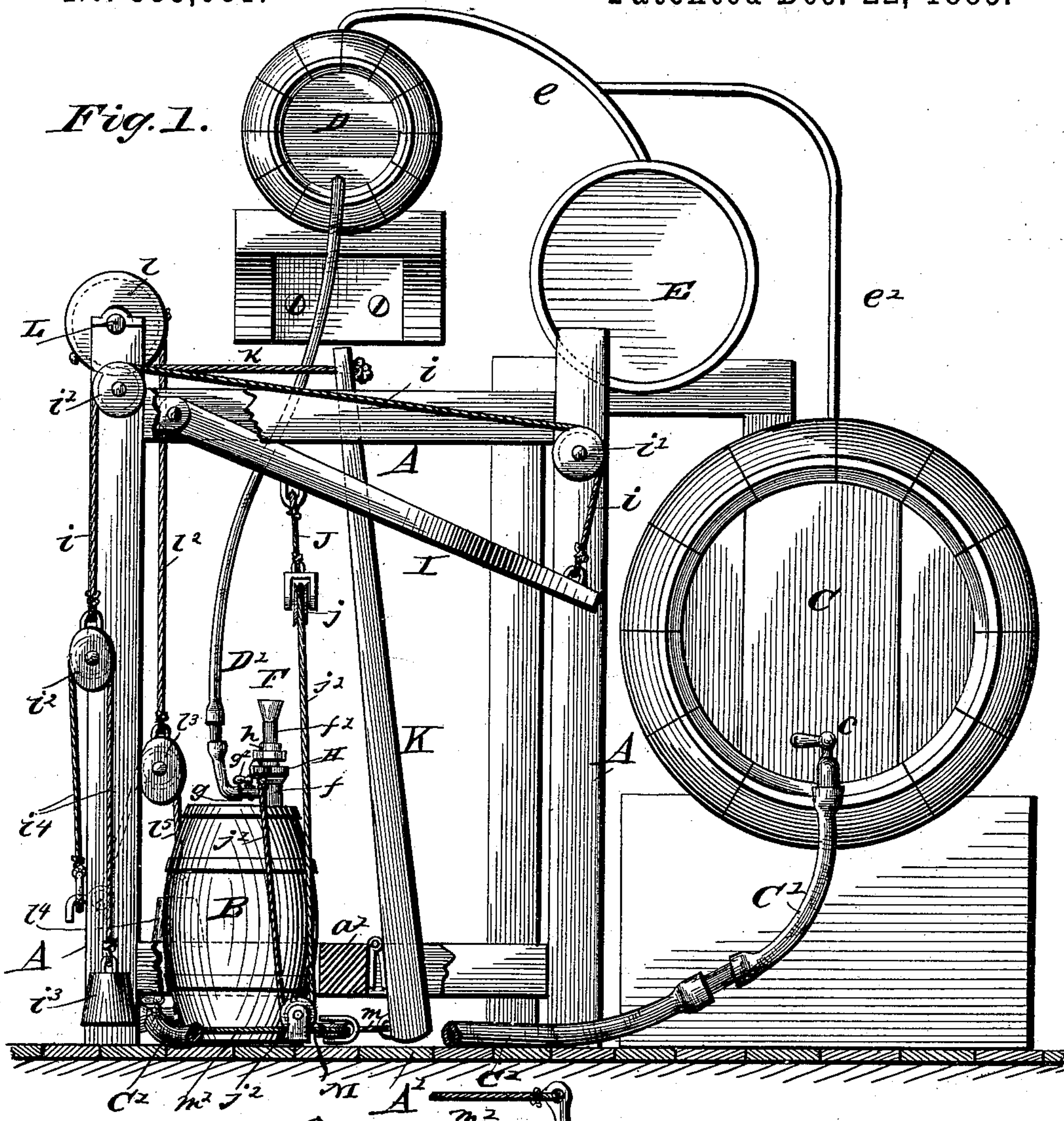
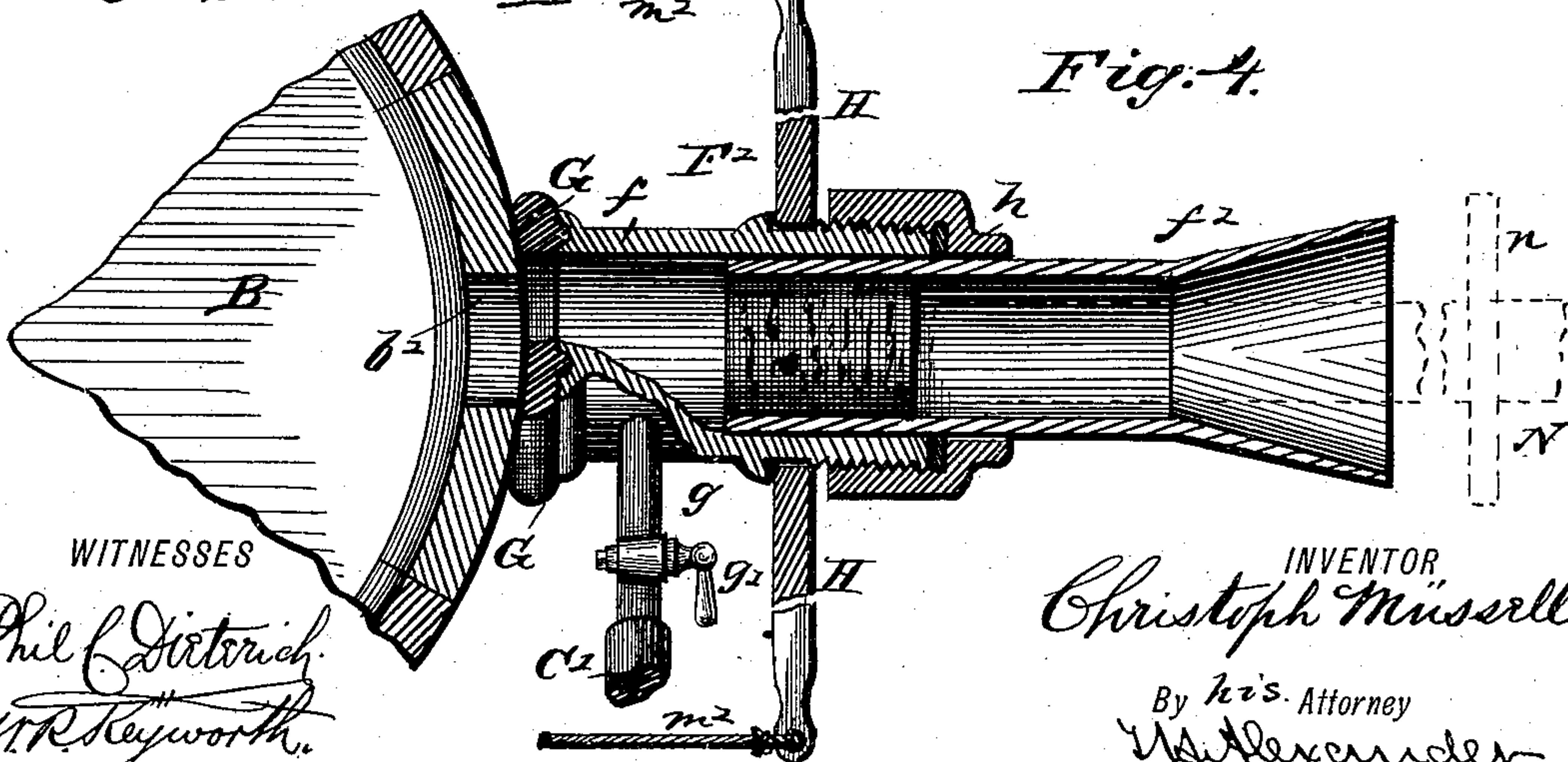


Fig. 4.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

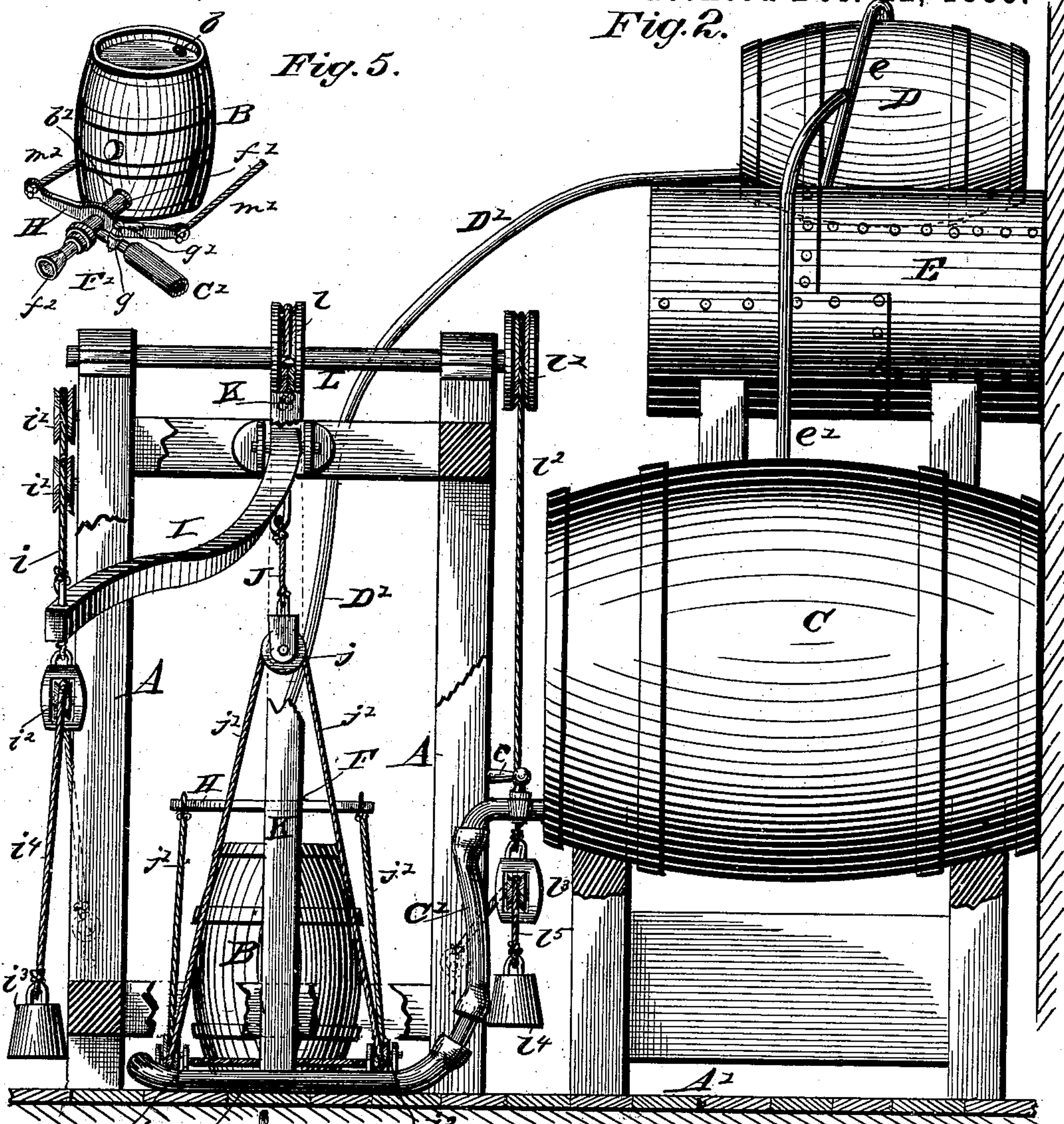
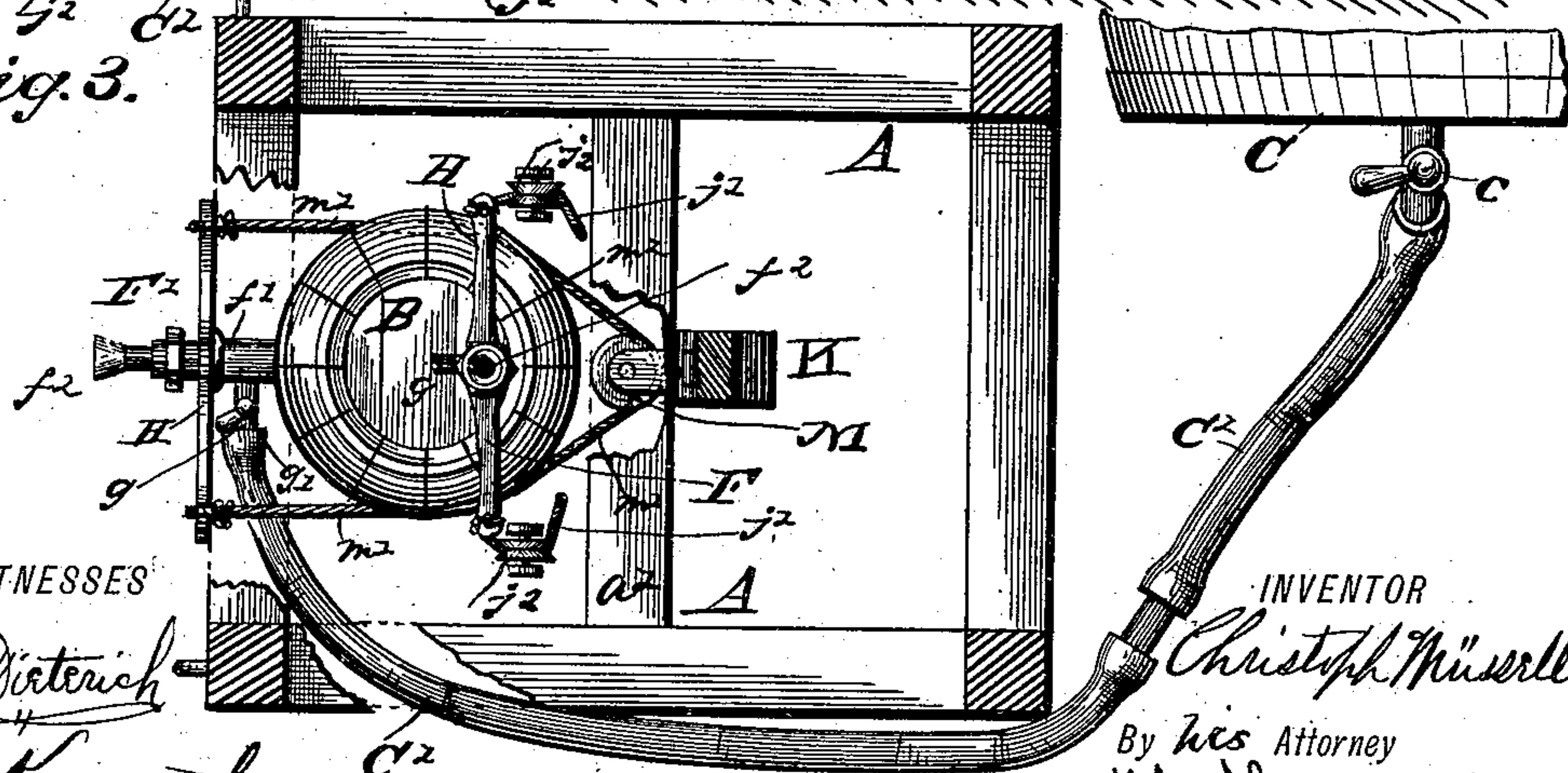


Fig. 5.



Fig. 3.



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UNITED STATES PATENT OFFICE.

CHRISTOPH MÜSSEL, OF SOUTH BEND, INDIANA.

APPARATUS FOR FILLING VESSELS WITH FERMENTED LIQUORS.

SPECIFICATION forming part of Letters Patent No. 333,081, dated December 22, 1885.

Application filed August 29, 1885. Serial No. 175,667. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPH MÜSSEL, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Apparatus for Filling Vessels with Fermented Liquors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is an elevation of my improved beer-filling apparatus. Fig. 2 is a rear elevation of the same, partly in section; Fig. 3, a horizontal section of the machine, having parts broken away. Fig. 4 is a horizontal section of the filling and corking device. Fig. 5 is a perspective view of the keg, having the lower corking device attached.

This invention relates to improvements in apparatus for filling kegs or barrels with a liquid—such as beer—containing carbonic acid or other gas in solution, the object being to perform the operation without producing what is called “foaming,” and it consists in the construction and novel arrangement of parts hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings by letter, A designates the frame-work of the machine, of general rectangular shape, and provided with the floor A', upon which the keg rests during the operation of filling.

B is a keg, having an opening, *b*, on its upper head, and an opening, *b'*, near its lower end.

c is a cask containing beer or other similar liquid, which connects with the lower opening, *b'*, of the keg B by means of the tubing C', controlled by the valve *c*, near the cask, and a corking device, hereinafter described. The cask C is placed on supports higher than the keg. The opening *b* of the keg connects by a similar device, and by a tube, D', with an empty relieving-vessel, D, situated as high or a little higher than the cask C.

E is a reservoir containing air under greater compression than the expansive force of the gas in the liquid, and connecting with the relieving-vessel by the tube *e*.

e' is a branch tube from the tube *e*, that runs and opens into the cask C. If desired, the tubes *e* and *e'* may arise at separate points from the reservoir E. The said reservoir is connected with a force-pump to renew the air it may lose, or to increase the compression of the air within it.

F F' are the devices respectively attached over the openings *b b'* of the keg. They are of similar construction, and the description of one only is necessary. The device F is composed of the tubular portions *ff'*, the latter sliding within the former. The former has on its end adjacent to the keg a circumferential groove, in which the flange of a rubber washer, G, fits and secures the washer to the said end, so as to make a tight joint over the opening *b*.

g is a branch pipe standing outward from the portion *f*, and provided with the valve *g'*. The tube D' is secured to this branch of the device F, and the tube C' is secured to that of the device F'. The part *f* is funnel-shaped at its upper end, and has the bore of its lower straight end slightly tapering inwardly and downwardly, to compress the corks or bungs when driven inward.

H is a yoke having openings in the ends on its arms, and a central opening which passes around the part *f* and rests against a shoulder thereon, as shown.

h is a packing ring or box, which screws upon the threaded end of the part *f* and makes the joint between the same and the part *f'* air-tight.

The yokes H, and consequently the devices F F', are pressed inward on the keg by the hereinafter-described mechanism attached to the frame-work.

I is a lever pivoted at one end to a cross-beam, *a*, of the frame A, and having a rope or cord, *i*, secured to its other end, which rope or cord passes over the pulleys *i' i'*, attached to the frame, and has the block *i''* secured to its depending end.

i''' is a weight secured to the depending end of a cord or rope, *i''*, which passes over the sheave of block *i''*, and has its other end secured to a staple or hook on the main frame, as shown.

J is a rope or cord, which is secured to the

lower edge of the lever I at a proper point, and, running thence downward, has its lower end fastened to a pulley, *j*, over which passes cords *j' j'*, which pass under the pulleys *j² j²*, made fast to the floor A' on each side of the keg, and have their other ends secured to the ends of the yoke H of the corking device F. It is evident that the pull of the weight *i³* on the lever I will force, through the intervening cords and bars, the device F' down on the head of the keg. The rubber washer G on the end of the part *f* makes the joint air-tight.

K is a lever hinged near its lower end to a cross-bar, *a'*, of the frame-work. The upper end of said lever is connected by a cord, *k*, to a drum, *l*, on a shaft, L, which turns in bearings secured to the top of the frame-work.

l' is a similar drum on the same shaft, and *l²* is a cord or rope secured thereto, and having on its depending end a block, *l³*.

l⁴ is a weight attached to the depending end of a cord or rope, *l⁵*, which passes over the sheave of the block *l³*, and has its other end secured to a block or staple fixed upon the frame-work.

The lower end of the lever K is connected by a rope or cord, *m*, to a pulley, M, around which pass cords *m' m'* to the ends of the yoke H of the corking device F', which covers the opening *b'* near the lower end of the keg. As the cords *k* and *l²* are wound in opposite directions on their respective drums, the pull of the weight *l⁴* on the lever K pulls the device F' up against the keg, upon which its rubber washer G makes it fit air-tight.

The manner of using the apparatus is as follows: The cask, relief-vessel, and condensed-air reservoir being arranged in proper position with respect to each other, and the frame-work A and the keg being in proper position on the floor A', the corking devices F F' are secured in position over the openings *b b'* by the described mechanism, and the parts *f f'*, with corks or bungs in their lower ends, are drawn outward in the parts *f* to points beyond the branch pipes *g*. The valves *g'* and *c* are then opened and the beer flows by gravity out of the cask C into the lower end of the keg and fills the the same, the beer being clear and not foaming, because of the air-pressure from the reservoir E on each side of it. Should the air-pressure become slack momentarily and the beer begin to foam, the foam would rise into the relief-vessel, and, the air-pressure being re-enforced, would condense there and fall back into the next keg that was filled when the device F' was attached thereto and opened. When the keg

is filled, the parts *f'* are shoved close into the keg in the parts *f*, cutting off the tubes *c'* and D' from the keg. The valves *g'* and *c* are closed and the corks *x* driven into the openings *b b'* by means of a rod, N, which has a shoulder, *n*, upon it, to engage against the edge of the part *f* and prevent the rod from forcing the cork too far.

Having described my invention, I claim—

1. In an apparatus for filling kegs with a liquid containing carbonic acid or other gas in solution, the combination of the cask holding the liquid, situated above the keg to be filled and joined thereto by a suitable tube and corking device secured over an opening near the lower end of the said keg, the relief-vessel situated above the keg to be filled and connected thereto by a suitable tube and corking device secured over an opening in the upper head of said keg, and the condensed-air reservoir connected both to the cask and relief-vessel by proper tubing, all substantially as specified.

2. In a apparatus for filling kegs with a liquid holding carbonic acid or other gas in solution, the combination of the cask C, the relief-vessel D, the condensed-air receiver E, the corking devices F F', secured, respectively, over openings in the top and bottom of the keg to be filled, the tube C', connecting the device F' to the cask, the tube D', connecting the device F to the relief-vessel, the tube *e*, connecting the relief-vessel and condensed-air receiver, and the tube *e'*, connecting said tube to the top of the cask, all substantially as specified.

3. The combination, with the cask, relief-vessel, condensed-air receiver, corking devices F F', and tubes C', D', *e*, and *e'*, of the lever I, drawn upward by means of the cords *i i⁴*, pulleys *i' i²*, and weights *i³*, the rope *j'*, passing over the pulleys *j j²*, and connected by means of the pulley *j* and cord J to the lever I, the lever K, having its upper arm drawn forward by means of the cords *k l² l⁵*, shaft L, pulleys *l l' l³*, and weight *l⁴*, the cord *m'*, pulley M, connected to the lower arm of the lever K by the cord *m*, and the yokes H H, which connect the cords *m'* and *j'* with the corking devices F' and F, respectively, all constructed and arranged substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHRISTOPH MÜSSEL.

Witnesses:

JAMES DU SHANE,
J. GEO. ROTH.