

2 Sheets—Sheet 1.

Patented Nov. 24, 1885.

Fig. 1.

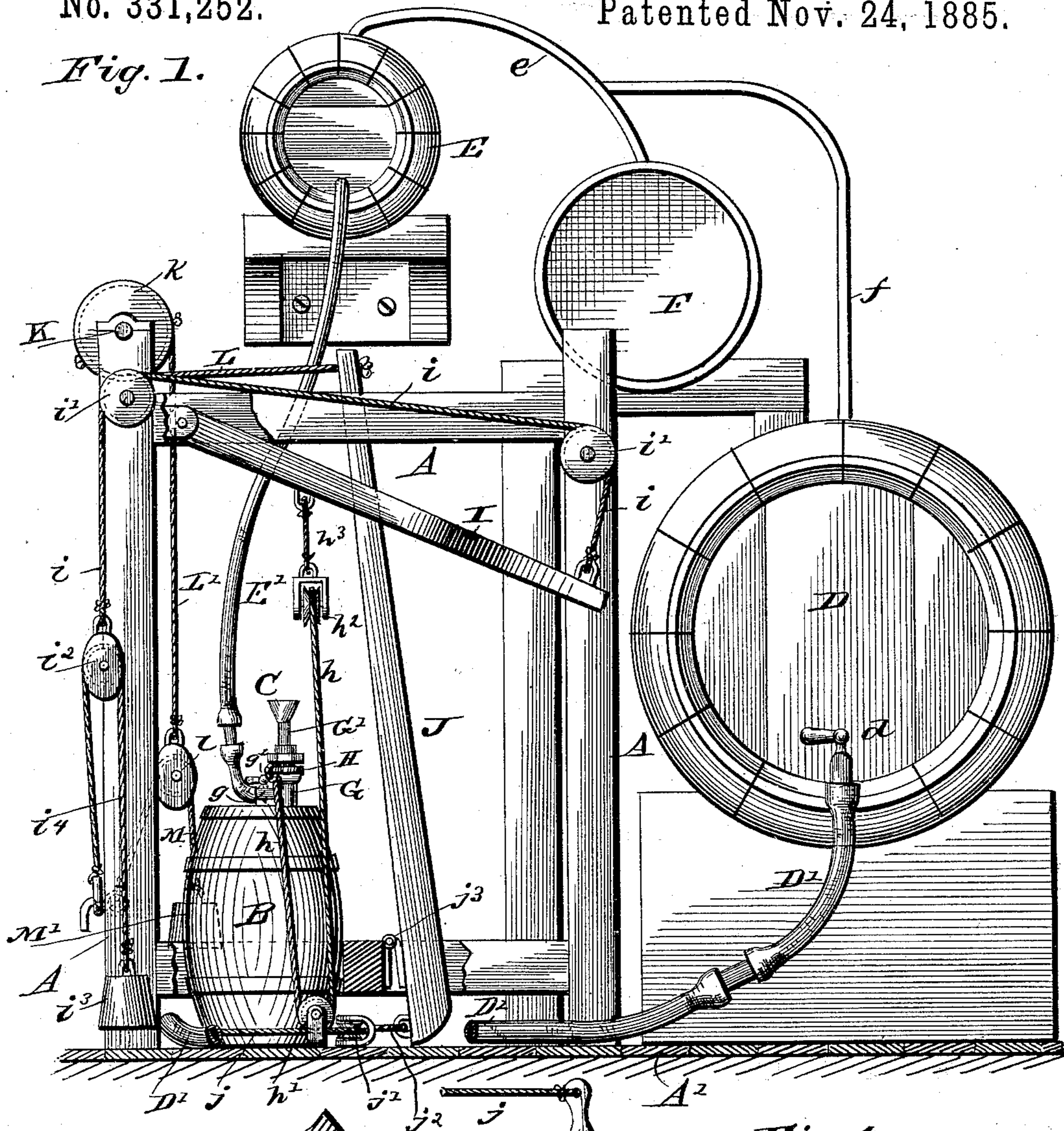
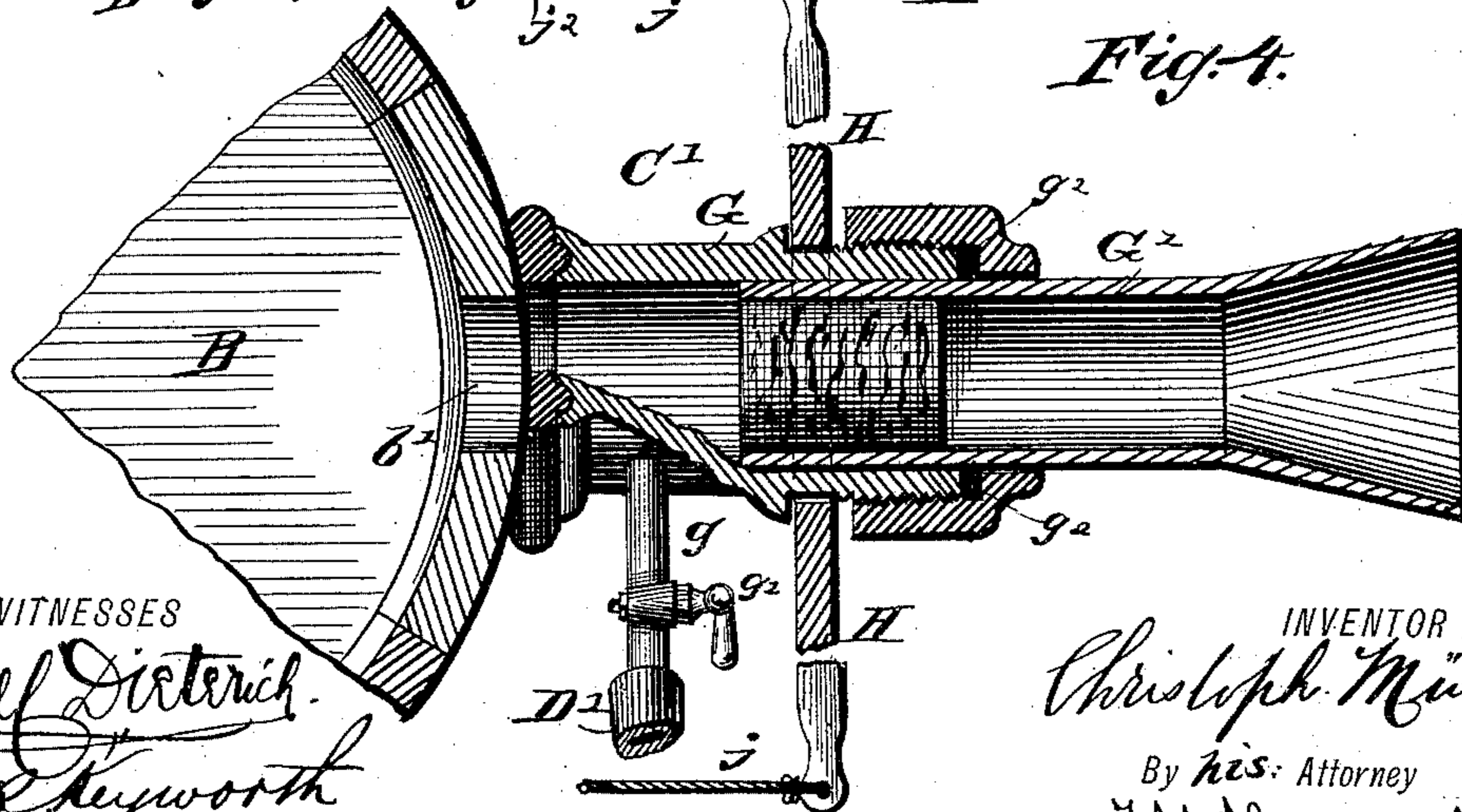


Fig. 4.



WITNESSES

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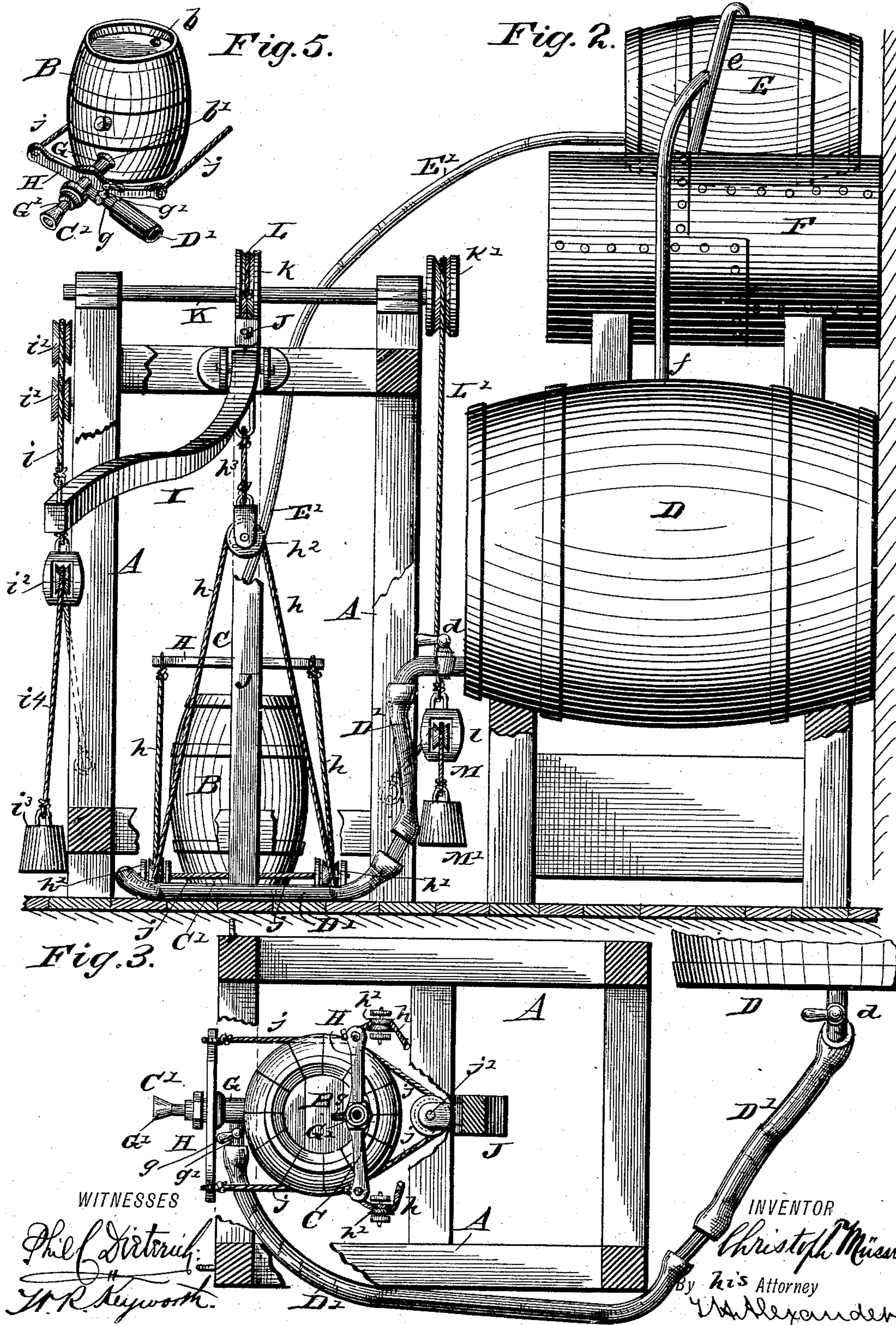
By *his* Attorney

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2 Sheets—Sheet 2.

METHOD OF FILLING VESSELS WITH FERMENTED LIQUORS.

Patented Nov. 24, 1885.



UNITED STATES PATENT OFFICE.

CHRISTOPH MÜSSEL, OF SOUTH BEND, INDIANA.

METHOD OF FILLING VESSELS WITH FERMENTED LIQUORS.

SPECIFICATION forming part of Letters Patent No. 331,252, dated November 24, 1885.

Application filed August 29, 1885. Serial No. 175,666. (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 Methods of 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 a side elevation of an apparatus by which my improved method of filling beer-vessels can be made use of. Fig. 2 is a rear elevation of the apparatus complete. Fig. 3 is a horizontal section of the same, partly broken away. Fig. 4 is a section of the corking and filling device. Fig. 5 is a perspective view of the corking device applied to the lower bung-hole of a keg.

The invention is an improved method of kegging or barreling beer or other liquid containing a fixed gas, its main object being to handle the liquid in such manner that it will not foam, or will foam very little; and the following description will, taken in connection with the annexed drawings, enable others skilled in the art to make use of said method.

Referring by letter to the drawings, A designates a rectangular frame-work having a flooring, A', upon which the kegs rest when being filled.

B is a keg having the openings *b* and *b'*, respectively, in one head, and in its side near the opposite end from that head. The holes have secured over them, so as to form air-tight joints, removable corking devices C C', respectively, which are hereinafter more fully described.

D is a cask or hogshead considerably larger than the kegs to be filled, and resting upon higher supports than the same, so that the beer or other liquid may gravitate from it through the tube D', preferably of rubber, to the keg, the said tube being connected to the device C', so that the liquid can pass through the latter into the keg. The tube D' is controlled by the valve *d* near the cask D. The device C, secured over the hole in the upper head of the keg, connects, by means of the tubing E',

with a relief-vessel, E, the tubing E' being of much smaller caliber than the tube D', and the vessel E is placed upon supports at an equal or a somewhat greater height than the cask D.

F is a reservoir containing air under equal or a little greater compression than the expansive force of the carbonic-acid gas in the liquid to be kegged. The reservoir F is supported at a height between those of the cask D and the vessel E, and connects with the latter by the tubing *e*, from which a branch, *f*, runs to the cask D.

The devices C C' are each made of a tube, G, having secured to the end that meets the keg a rubber ring-washer to make an air-tight joint, and a tubular part, G', that slides within the part G, and through which the cork or bung is forced, the interior being slightly conical to compress the bung as it is driven in. *g* is a branch of the part G, having the tubing D' or E' secured thereto, and provided with a valve, *g'*, as shown. *g*² is a packing-ring secured around the two parts G and G', and H is a yoke having the edge of its central opening resting upon a shoulder on the part G. The ends of the yoke H of the upper device, C, have ropes *h* descending from them, then passing under pulleys *h'*, secured to the flooring A' on each side of the keg, and ascending thence run over the pulley *h*², from the center of which a rope, *h*³, ascends, to be secured to the lever I, one end of which is pivoted to a cross-beam of the frame-work A, and the other end has attached to it a rope, *i*, which passes over the pulleys *i'* *i'*, attached to the frame-work, and has secured to its descending end a block, *i*², which supports a weight, *i*³, attached to the depending end of a rope, *i*⁴, which passes over the sheaf of the pulley and has its other end secured to a hook or staple secured to the frame-work. It is evident that the pull of the weight on the lever I will, by means of the ropes *h* *h*, the pulley, and the yoke, force the device C sufficiently against the keg to make the joint air-tight, and that the arrangement of the ropes and lever will accommodate itself to different heights of kegs. The lower device, C', has on it a yoke, H, secured to the lower arm of a lever, J, by the side rope, *j* *j*, which runs over the pulley *j'*,

and a rope, j^2 , which connects the center of the pulley to the said lever. The lever is hinged at j^3 upon a cross-beam of the frame-work.

K is a horizontal shaft journaled in bearings secured to the top of the frame-work, and having upon it the pulleys or drums k k' .

L is a rope that connects the drum k to the end of the upper arm of the lever J, and L' is a rope descending from the drum k' and having a block, l , attached to its lower end. The ropes L and L' are wound in opposite directions on their respective drums.

M is a rope which has one end secured to a block or staple on the frame-work, thence passes over the sheaf of the block l , and has a weight, M', secured to its depending end. The action of the described mechanism will evidently pull the device C air-tight against the opening b of the keg. To release the devices C C' their levers are pulled in a direction opposite the pull of the weights.

When the keg is in position and the valve d and the valves g' are all open, the liquid will gravitate from the cask D into the keg, and the air-pressure on each side of the liquid will be the same as the pressure in the receiver F. The compressed air passes through the tubes D' and E', and through the vessel E and into the top of the keg and through the tubes e f into the cask D; hence the liquid cannot foam, as the air-pressure on each side is greater than the expansive force of the carbonic acid in the liquid. If the air-pressure should decrease slightly below said expansive force for a moment, foaming would take place in the top of the keg and would rise through the tube E' into the vessel E, and when the air-pressure was properly increased the foam would be condensed and would be driven back from said vessel into the keg when the valves g' of the devices C C' were opened to fill the succeeding keg, so that the kegs would be filled with clear liquid. The air in the keg is equally condensed by the pressure of that in the reservoir and escapes out of the top of the keg and replaces that which escapes out of the reservoir into the cask D when a keg is filled.

As soon as a keg is filled, the air and liquid are cut off by the valves g' and the corks are driven by a proper rod into the openings b b' . Another keg can then be filled by the apparatus.

Having described my invention, I claim—

1. The herein-described method of filling a keg with a liquid containing carbonic-acid or other gas in solution, which method consists in connecting the lower part of the keg, by valve-controlled tubing, with a vessel containing the liquid larger than the keg, and placed higher than the same, connecting, by valve-controlled tubing, the upper part of the keg with an empty vessel placed as high or slightly higher than the cask, connecting by tubing the empty vessel and the cask each with a reservoir containing air under greater compression than the expansive force of the gas in the liquid, and allowing the liquid in the cask to be forced by gravity to fill the keg, substantially as specified.

2. The herein-described method of filling a keg with a liquid containing carbonic-acid or other gas in solution, which method consists in connecting the lower part of the keg to a higher-placed larger vessel or cask containing the liquid by means of a tube and device whereby the opening in said lower part can be corked before the tube and device are removed from the keg, connecting the upper part of the keg to an empty vessel placed as high as the cask by a similar tube and corking device, connecting both the empty vessel and cask with a reservoir containing air under greater compression than the expansive force of the gas in the liquid, allowing the keg to fill by gravity from the cask, and corking the keg and detaching it from the tubing of the cask and of the empty vessel, substantially as 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.