(No Model.) 2 Sheets—Sheet 1.

H. STOCKHEIM.

BEER FILLING APPARATUS.

No. 487,790. Patented Dec. 13, 1892.

Fig. 2.

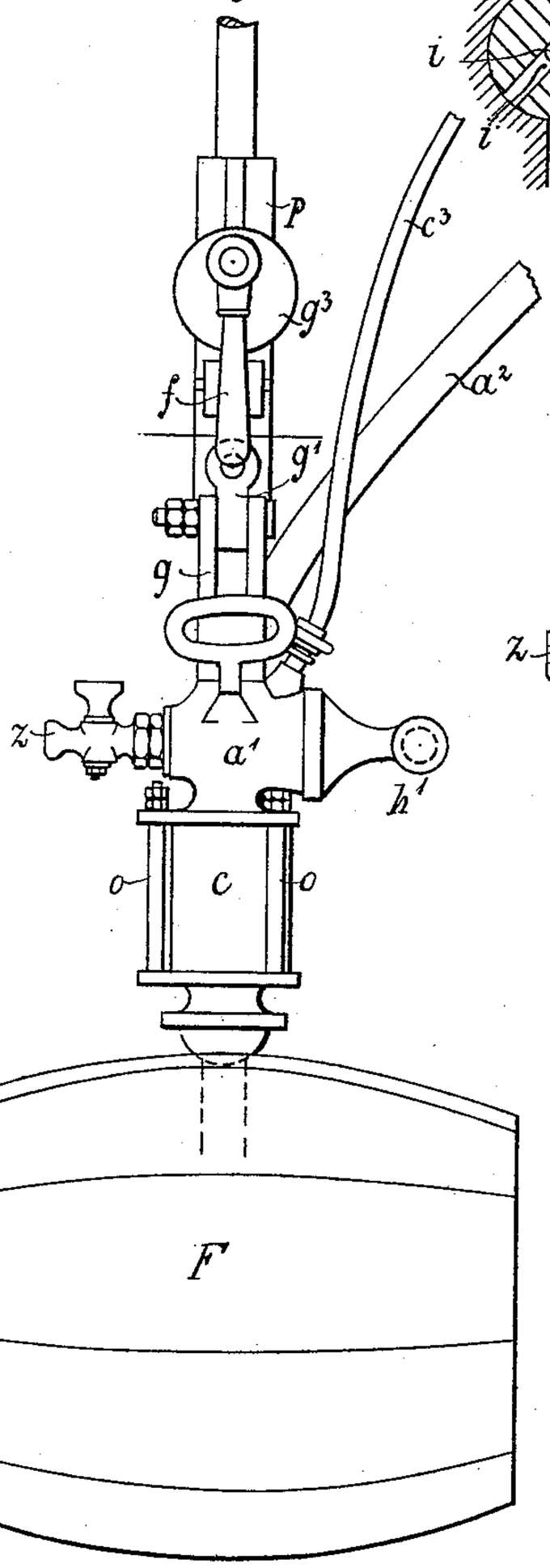


Fig. 4.

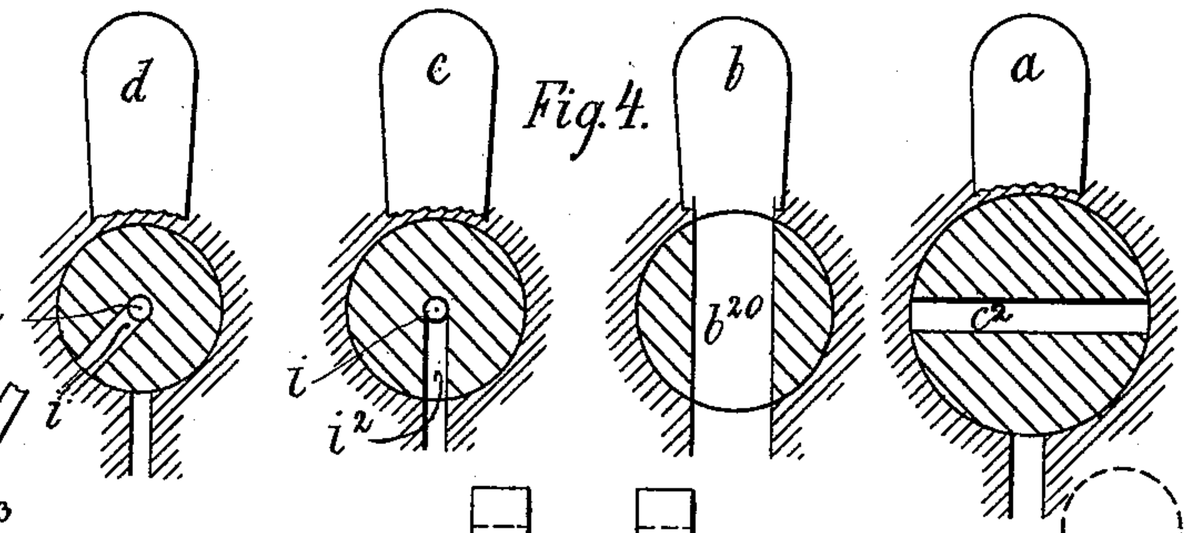
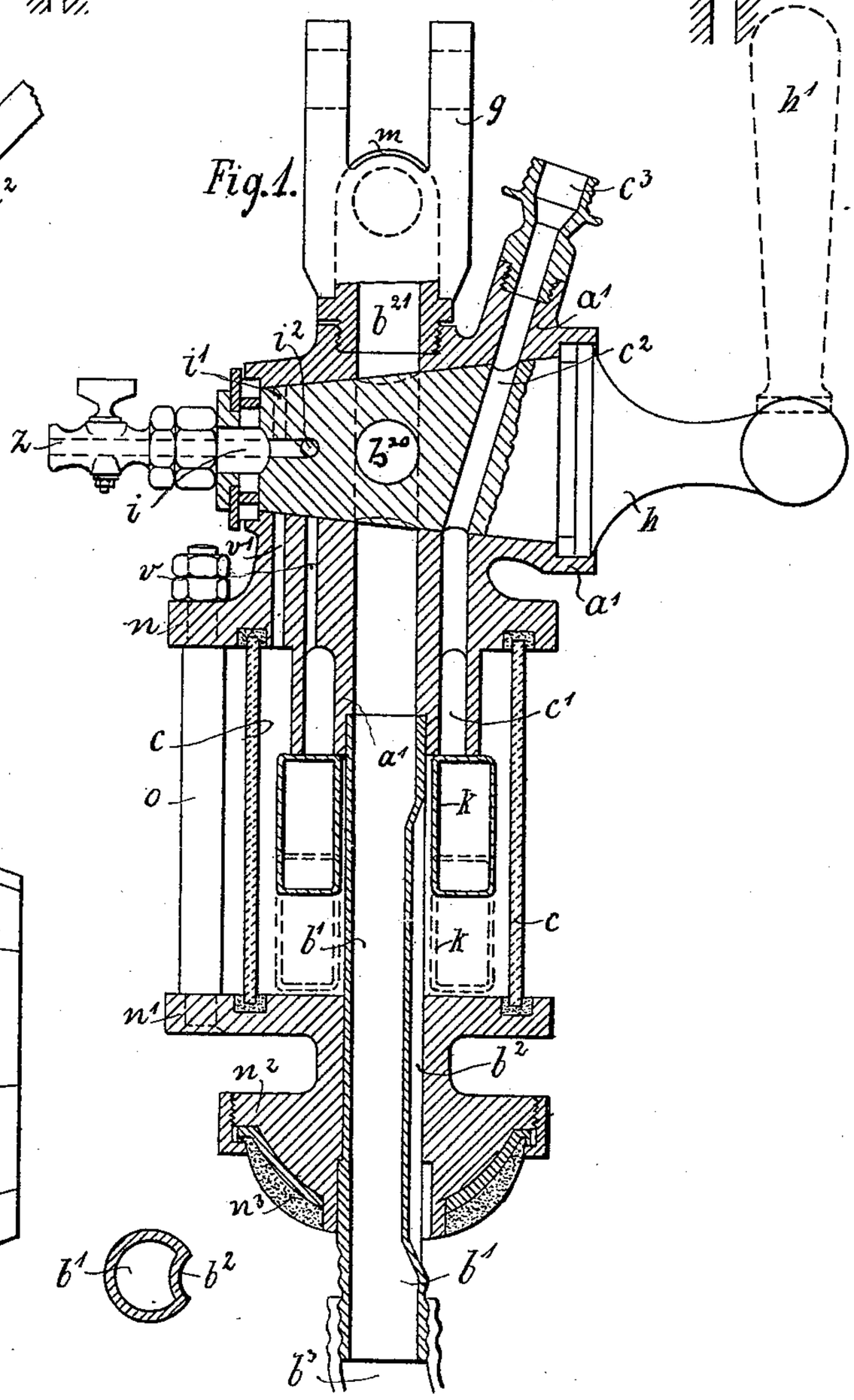


Fig. 1.



Witnesses:
R. F. Jansen
Carl Rossbach

Inventor:
Heinr. Stockheim.
by Robert Pitsch
Attorney.

(No Model.) 2 Sheets—Sheet 2.

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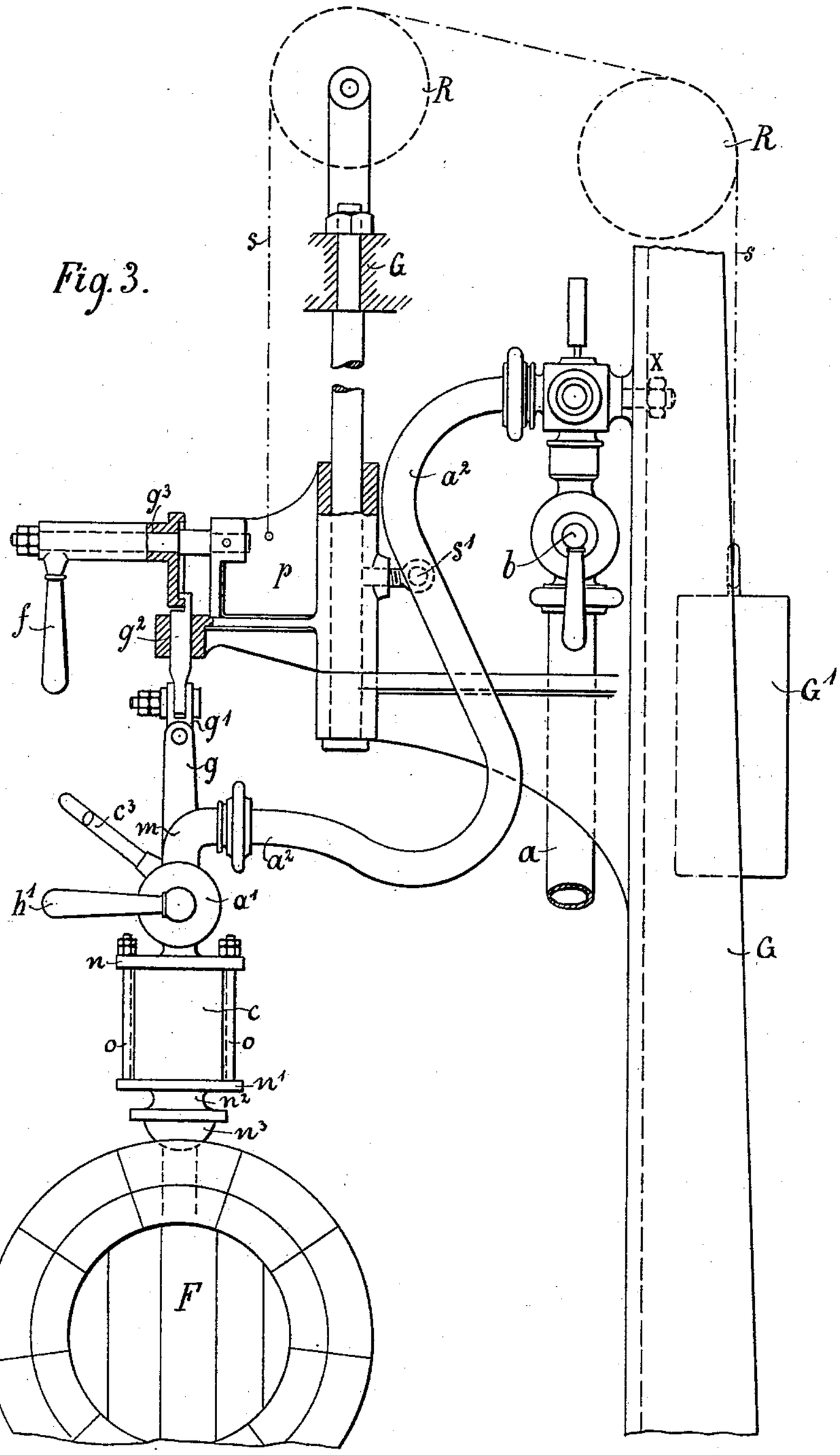
Fig. 3.



Witnesses:
R. F. Janssen
Carl Rossbach

Inventor:
Heinr. Stockheim.
by Robert Dubler
Attorney.

UNITED STATES PATENT OFFICE.

HEINRICH STOCKHEIM, OF MANNHEIM, GERMANY.

BEER-FILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 487,790, dated December 13, 1892.

Application filed May 31, 1892. Serial No. 435,051. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH STOCKHEIM, a subject of the Grand Duke of Baden, and a resident of Mannheim, in the Grand Duchy of Baden, in the German Empire, have invented a new and useful Beer-Filling Apparatus, of which the following is an exact specification, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of the apparatus. Figs. 2 and 3 are a side elevation and a front elevation, respectively, of the same, drawn to a reduced scale. Fig. 4 represents the different bores of the five-way cock a'.

My invention relates to an apparatus for filling beer from large stationary casks into smaller ones; and it consists in the combination of a cock the plug of which is provided with five bores, in the manner stated hereinafter, with suitable channels in the cock itself, so that at first air may be driven into the cask to be filled and then the beer admitted into the same. The arrangement is such that during the filling of the cask the air may gradually escape, and when the cask is filled a suitable float stops the admission of beer.

Other features of my invention are more clearly shown hereinafter, and specified in the claims.

a is the pipe through which beer enters the apparatus when cock b is opened. The liquid then proceeds to the flexible pipe a^2, which is secured at x to a standard G and at its lower end to a bend m. The bore b^{21} of the latter is continued to the plug h of the five-way cock a' and in a certain position of this cock communicates with the bore b^{20} and, further, with the tube b' below the same. This tube b' has a lateral groove b^2, and is provided at its lower extremity with a pipe b^3, reaching into the cask F. The plug h, which may be turned by means of handle h', is provided with a second bore c^2, placed obliquely, as shown on the drawings. This bore c^2 in the position illustrated by Fig. 1 communicates above with the bore c^3 of cock a' and below with an annular bore c' of the same cock a'. The latter has a collar n, to which there are secured three uprights o, serving to hold another collar n', which is continued below by a cap n^2, provided with a suitable packing ring or washer n^3. Between the collars n and n', I place a glass cylinder c, and in the annular free space between this cylinder and the tube b', I insert an annular float k. This float in its upper position, as shown by full lines in Fig. 1, closes the under opening of the annular bore c' of cock a'. From the above-mentioned annular bore c' a small channel v' leads upward to a third radial bore i^2 of plug h. This bore communicates with an axial bore i of said plug h, this bore i being extended through the cock z. The plug h has a fifth bore i', which is also placed radially, and in a certain position communicates with a vertical channel v, leading into the free space between glass cylinder c and cock a'. To the bend m there is secured an upright fork g, which is linked to a second fork g', between the arms of which there is secured a bar g^2, guided in a suitable part of the frame p and having at its upper end a nose-like projection engaging with a similar projection on the eccentric g^3. The latter may be turned by means of handle f. The frame p may be placed along rod r, which is firmly secured to the standard G. A set-screw s' serves to lock the frame p. The latter is also held by a string s, passing over guide-rolls R, secured to standard G, a counterweight G′ being fixed to the other end of string s, so as to counterbalance the weight of the whole apparatus suspended from frame p.

The operation of the device is as follows: The handle f being turned so that eccentric g^3 has its highest position, the washer n^3 is brought over the bung-hole of cask F and the pipe b^3 inserted into the same. Then eccentric g^3 is lowered, and thus an air-tight fitting is effected between cap n^2 and cask F. Thereafter plug h is turned into position Fig. 1 by means of handle h' and compressed air flows in through $c^3\ c^2\ c'\ b^2$, the float k occupying the position indicated by dotted lines. When the necessary amount of air has thus been forced into the cask F, plug h is turned by ninety degrees, and now the beer may be let in through $a\ b\ a^3\ m\ b^{21}\ b^{20}\ b'\ b^3$, the position of the different bores of plug h being now as indicated on Fig. 4. It will be seen that the bore c^2 has no communication with the annular bore c'. Thus no more air is admitted to the cask. Now the air must escape from the

cask F, according to the entrance of beer. This escape of air takes place through groove b^2, annular bore c', small vertical channel v' at the top of the same, radial bore i^2, axial bore i, and cock z. According as the latter is opened, more or less, the escape of air is effected with smaller or greater difficulty, and thus I create the necessary counter-pressure to avoid the escape of carbonic-acid gas from the beer. When cask F is filled and the beer ascends in tube b' and in the groove b^2, it fills the space inside glass cylinder c, raises the float k, which latter automatically shuts the annular bore c', thereby preventing further escape of air from the cask and stopping the flow of the beer. The cylinder c serves at the same time as a gage-glass. When turning thereafter the plug h farther by about thirty degrees, the radial bore i' is brought in communication with the vertical channel v, all other bores of plug h being out of communication with the respective bores of the cock a'. The surplus of air may then escape from the interior of cylinder c through channel v, bores i' and i, and cock z. If any beer should follow the air, this beer may be led into a recipient or suitable pipe, and thus I avoid at the same time any waste of liquid and also any soiling of cask F. The cask being now filled, the filling apparatus may be removed from the same by turning the handle f and raising thereby the eccentric g^3.

The arrangement of counterweight G' greatly facilitates the vertical displacement of the whole apparatus when wanting to adjust the same to casks of different sizes. This is effected by simply loosening screw s' and pushing frame p upward or downward until cap n^2 is in right position.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent in the United States is—

1. A beer-filling apparatus comprising a five-way cock for the admission of compressed air, for the entrance of beer, and for the escape of air during and after the filling operation, a float to check automatically the entrance of beer when the cask is filled, an eccentric to lower the apparatus into position for use, and means to counterbalance the weight of the apparatus, for the purpose as described.

2. In a beer-filling apparatus, the combination, with the cock a' and its bores c' c^3 b^{21} v v', of the plug h and its bores c^2 b^{20} i i' i^2, and the cock z, provided in the continuation of bore i, substantially as and for the purpose described.

3. In a beer-filling apparatus, the combination, with the cock a', of the collars n n', the uprights o, glass cylinder c, float k, cap n^2, washer n^3, and tube b', having lateral grooves b^2, substantially as and for the purpose described.

4. In a beer-filling apparatus, the combination, with the cock a', of the forks g g', the bar g^2, and eccentric g^3, substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HEINRICH STOCKHEIM.

Witnesses:

FERD. BOPP,

OTTO MARTINI.