(No Model.) 2 Sheets—Sheet 1.

F. RICHTER.

BEER COOLER.

No. 270,844. Patented Jan. 16, 1883.

Fig. 1.

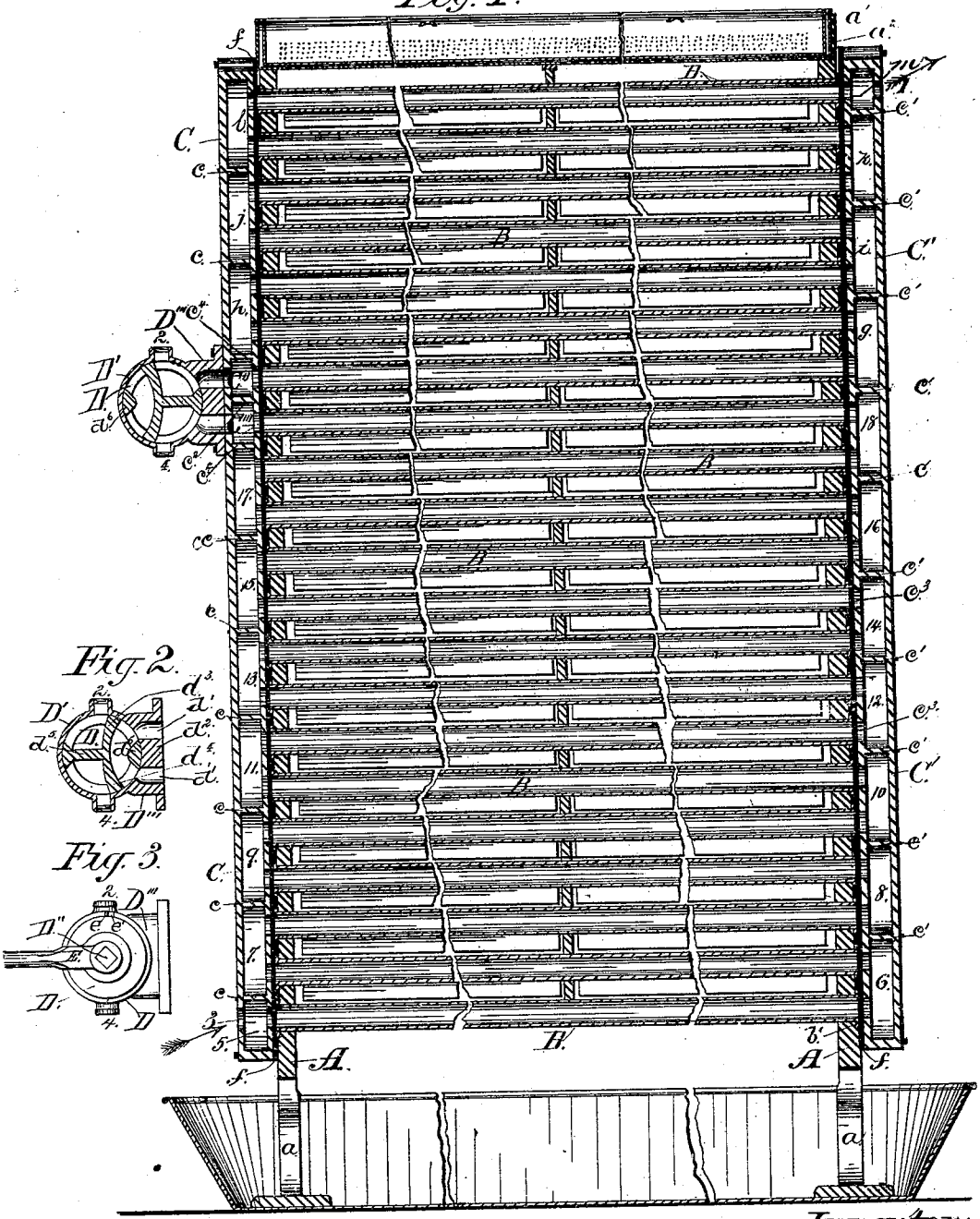


Fig. 2.

Fig. 3.

Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

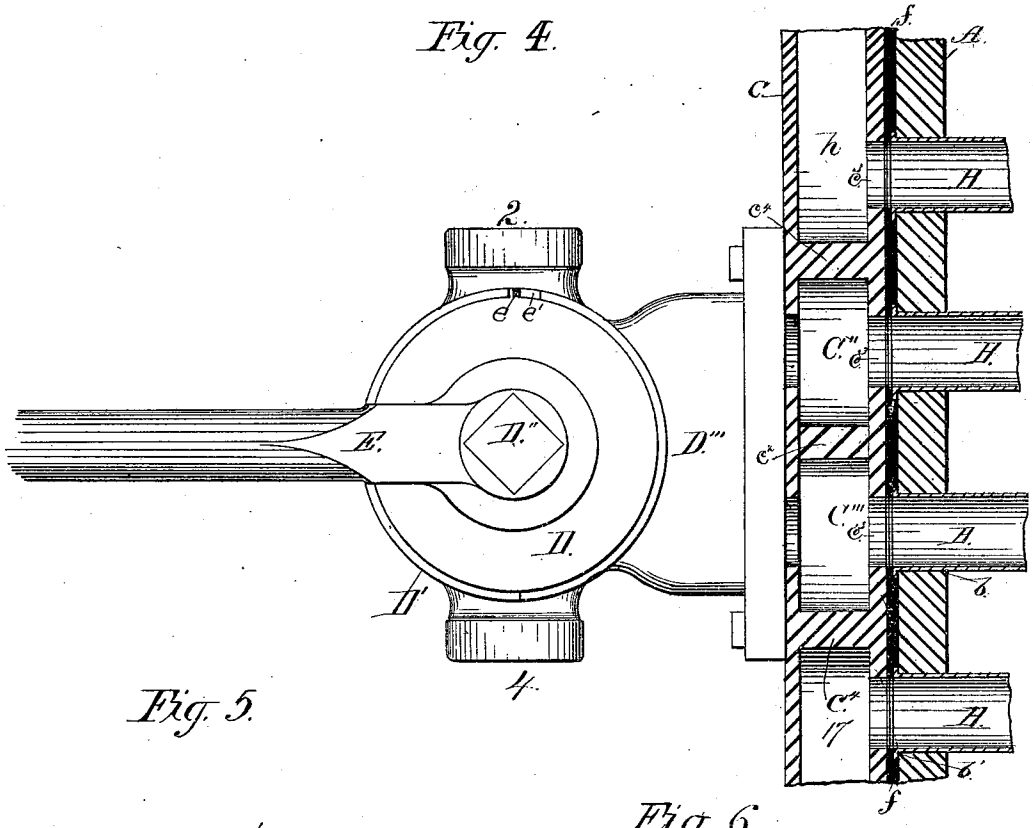


Fig. 5.

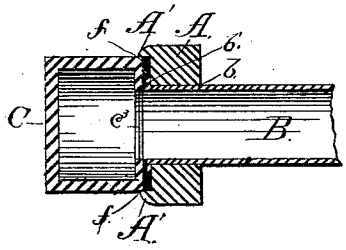
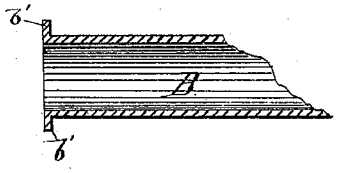


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRIEDRICH RICHTER, OF MILWAUKEE, WISCONSIN.

BEER-COOLER.

SPECIFICATION forming part of Letters Patent No. 270,844, dated January 16, 1883.

Application filed July 26, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH RICHTER, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Beer-Coolers; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to beer-coolers, and will be fully described hereinafter.

In the drawings, Figure 1 is a longitudinal vertical section of a beer-cooler embodying my invention. Figs. 2 and 3 are detail views of a valve that forms part of my invention. Fig. 4 is a detail of a portion of my cooler. Fig. 5 is a horizontal section of one pipe and its connections on one side, and Fig. 6 is a section of one of the pipes.

Heretofore with coolers constructed according to the plan in general use the ends of the pipes through which the cooling-liquid passes have been united by means of elbows, and as the beer or other liquid to be cooled had to be poured into pans or troughs at the top to flow through perforations in said troughs down over and around the pipes to a pan at the bottom of the cooler, that it might be deprived of its heat in this passage, it has been found difficult to keep the pipes clean, owing to their many elbows, and hence my invention, the object of which is to simplify the connections between the pipes, dispenses with the elbows altogether and presents a solid, smooth surface at each end of the beer-cooler, and at the same time unites the parts by such connections as will admit of the cooler being easily taken apart when it is to be cleaned or repaired.

Another object of my invention is to provide a means for controlling the flow of the cooling-fluid, all as will be fully set forth farther on.

Referring to the drawings, A A are the side stands of my beer-cooler, which have legs *a a*, that rest in a suitable pan.

B are the pipes of my cooler for conveying the cooling-fluid. These pipes pass through round openings *b* in the side stands, A, fitting snugly therein, while the ends of said pipes are flanged or upset, as at *b'*, whereby the pipes and side stands are firmly united together.

C C' are chambered castings, the chambers being divided off by partitions *c c' c² c⁴*. The castings C C' are just wide enough to fit snugly in between the flanges A' of side stands, A, and have perforations c^3, that communicate with the pipes B, and between the castings and stands I interpose rubber strips *f*, that are likewise perforated, so as not to obstruct communication between the chambers in the castings and the pipes B, but which make a perfectly-tight joint when the stands and castings are bolted together.

The cooling-liquid flows upward through the pipes, as follows: The liquid (generally water) is let in at 3 to chamber 5, and, passing from this chamber to the lowest pipe B, goes through it into chamber 6, and thence through the next pipe into chamber 7, and thence successively through chambers 8 9 10 11 12 13 14 15 16 17, and thence into chamber 18, and from this chamber it flows through the fourteenth pipe from the bottom into chamber C''', and out through exit 4 of valve D, and at the same time another stream may be let in at inlet 2 of said valve, which, passing through valve D into chamber C'', will be conducted through the fifteenth pipe from the bottom, and thence into chambers *g h i j k l m*, and out at 1, and hence I may gradually cool the beer by admitting moderately cool water or other fluid to the upper series of pipes and very cold water or other fluid to the lower series; but to make it possible to send a single stream from the inlet 3 through all the pipes I provide the valve D and chamber D'. They are constructed as follows: The valve D has three wings, d^3 d^4 d^5, and a pillar, d^6, and on its outside it has a squared lug, D'', to receive a wrench, E. The chamber D' has a throat, D''', that is divided by a partition, d^2, into two passages, *d' d'*, and when the chamber is secured to the casting A these passages coincide with the perforations that lead into chambers C'' C'''. When two separate streams are employed the valve should be turned to the position shown in Fig. 1; but when a single continuous stream is desired the valve should be turned to the position shown in Fig. 2, as will be obvious upon inspection of the drawings.

Any number of pipes may be used without departing from the spirit of my invention, and

therefore, although I have indicated the location of the valve D and its connections at a point whereby it communicates with and controls the flow from the fourteenth and into the fifteenth pipe from the bottom, it is obvious that the exact location of said valve is immaterial, provided it is at a point to control the flow into the upper series of pipes, whatever number may be employed. The said valve has a pin, *e*, and the outside of the valve-chamber D′ is provided with a stop or offset, *e′*, whereby the said valve is prevented from turning too far.

The partitions in the chambered casting C′ are all lettered *c′*, and those in the chambered casting C are all lettered *c*, except those at the point where the valve is located, and everywhere save here all the chambers in both castings (exclusive of the inlet-chamber 5 and outlet chamber *m*) are of the same size by reason of the said partitions being located the same distance apart; but here the space between the chambers *h* and 17 in the casting C is again divided by the partition c^2, (coinciding in horizontal line with the center of the partition d^2 in the throat D‴ of the valve-chamber D′,) and hence there are formed the chambers C″ above the partition c^2 and C‴ below said partition, and to indicate this more clearly I have marked the partition above the chamber C″ and that below the chamber C‴ as $c^4\,c^4$ instead of simply *c*, like the other partitions in the casting C.

Above the pipes B are located two V-shaped troughs, *a′* and a^2, provided with perforations; but as these troughs are of ordinary construction they do not call for an extended description. The beer is poured into the upper trough and flows through minute perforations in the sides thereof into the trough below, and thence through a line of larger perforations in the bottom of the second trough directly on top of the upper pipe B, and around this and the succeeding pipes down to the pan at the bottom, being meanwhile deprived of its heat in such passage by reason of the cooling-fluid, which flows upward through and inside of said pipes at the same time.

I am aware that heretofore beer-coolers have been constructed with outside casings or chambers to receive and connect the ends of the pipes, and such I do not therefore claim broadly; but, so far as I am aware, I am the first to insure tight joints by upsetting or flanging the ends of the pipes, and also the first to provide my vertical end stands with vertical flanges to receive and securely hold my chambered castings. These casting are held against the said side stands, A A, by means of bolts passed through the partitions *c c′*, screw-threaded on their ends and screwing into the said side stands, but preferably not passing entirely through the latter.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a beer-cooler, the combination of the chambered castings C C′, constructed as described, with the flanged side stands, A, pipes B, and packing *f*, as set forth.

2. In a beer-cooler, the combination, with side stands, A, of the pipes B, flanged or upset at their ends over the outer surfaces of said stands, as set forth.

3. In a beer-cooler, the combination of side stands, A, with chambered castings C C′, fitting in between the flanges on said stands, as set forth.

4. The combination, with the valve D and valve-chamber D′, of the hollow casting C, having a partition, c^2, and partitions $c^4\,c^4$, and the pipes, arranged substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, on this 3d day of July, 1882, in the presence of two witnesses.

FRIEDRICH RICHTER.

Witnesses:
STANLEY S. STOUT,
HAROLD G. UNDERWOOD.