

No. 708,738.

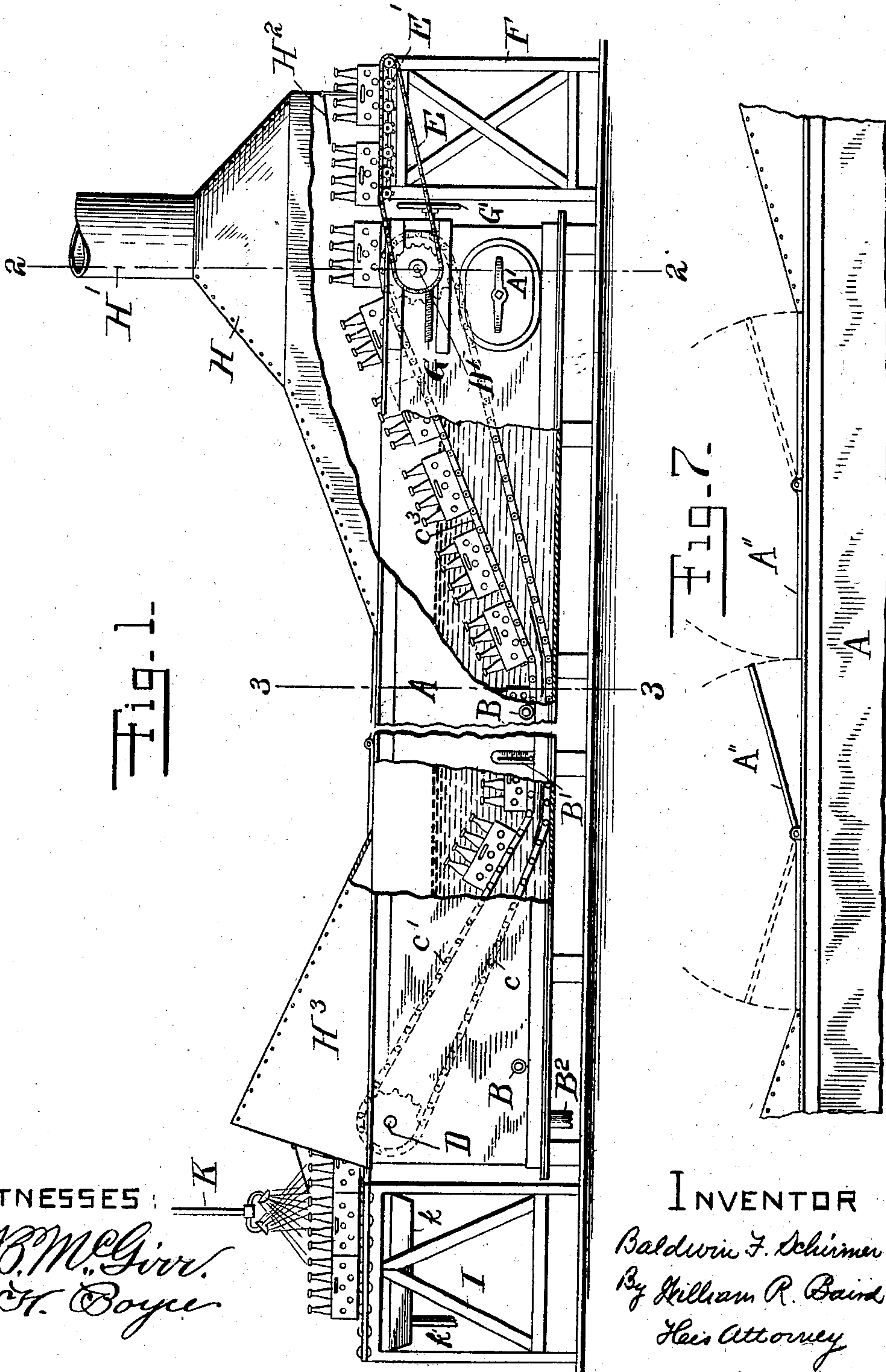
Patented Sept. 9, 1902.

B. F. SCHIRMER.
PASTEURIZING APPARATUS.

(Application filed Mar. 4, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

J. B. McGivver.
C. H. Boyce.

INVENTOR

Baldwin F. Schirmer
By William R. Baird
His Attorney

No. 708,738.

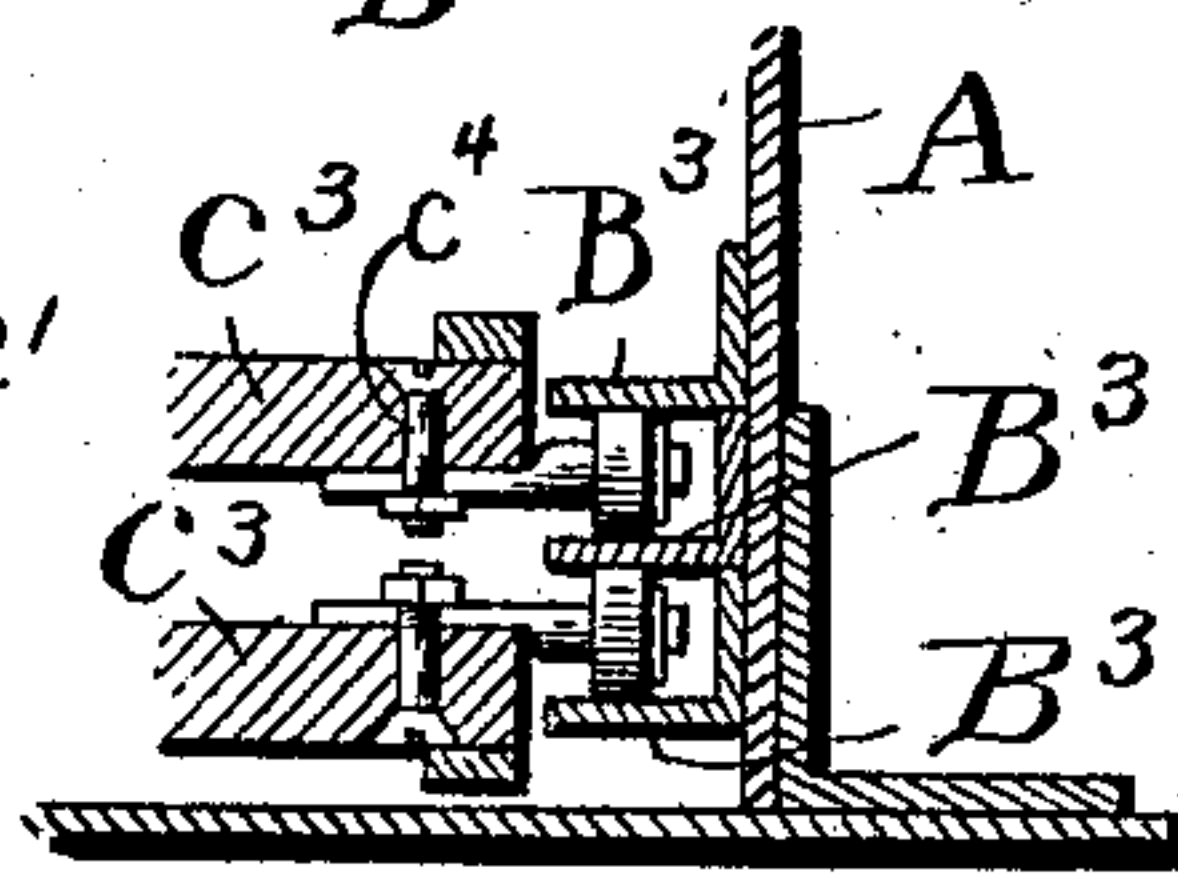
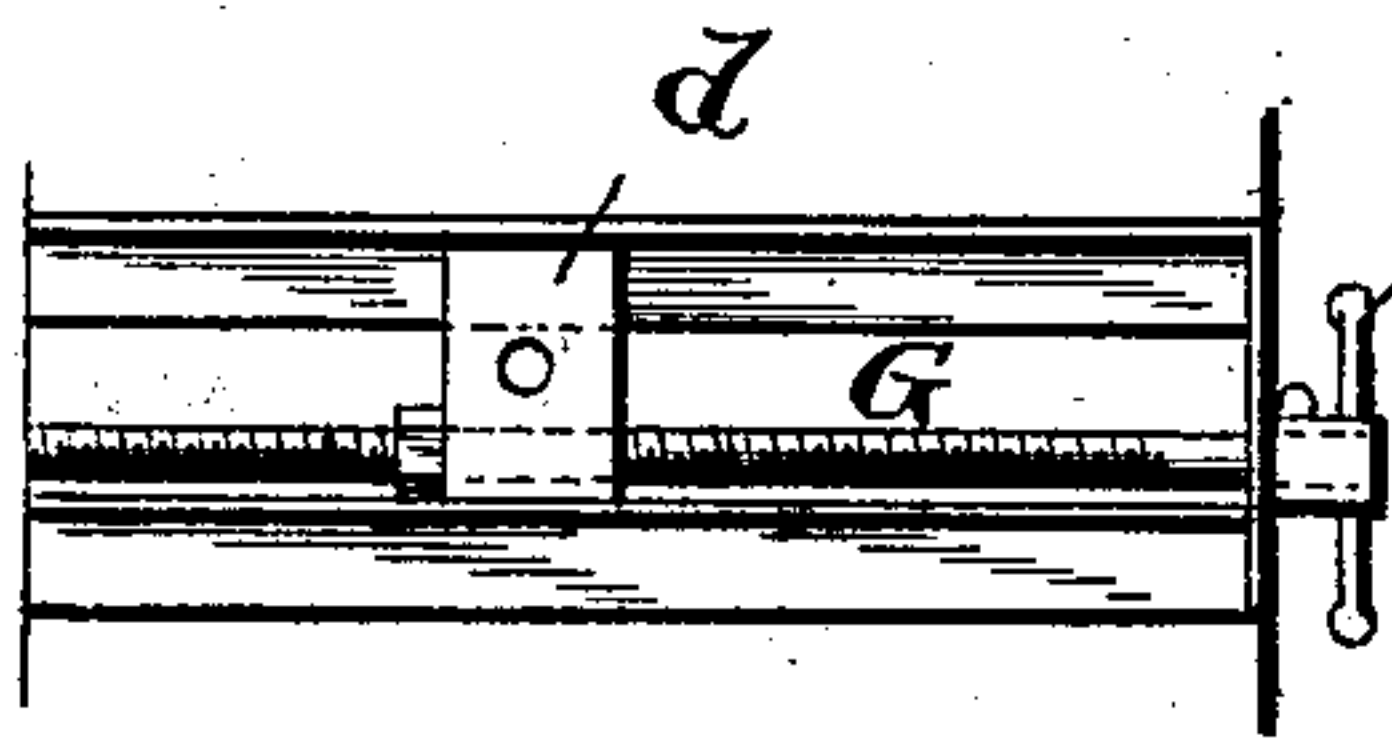
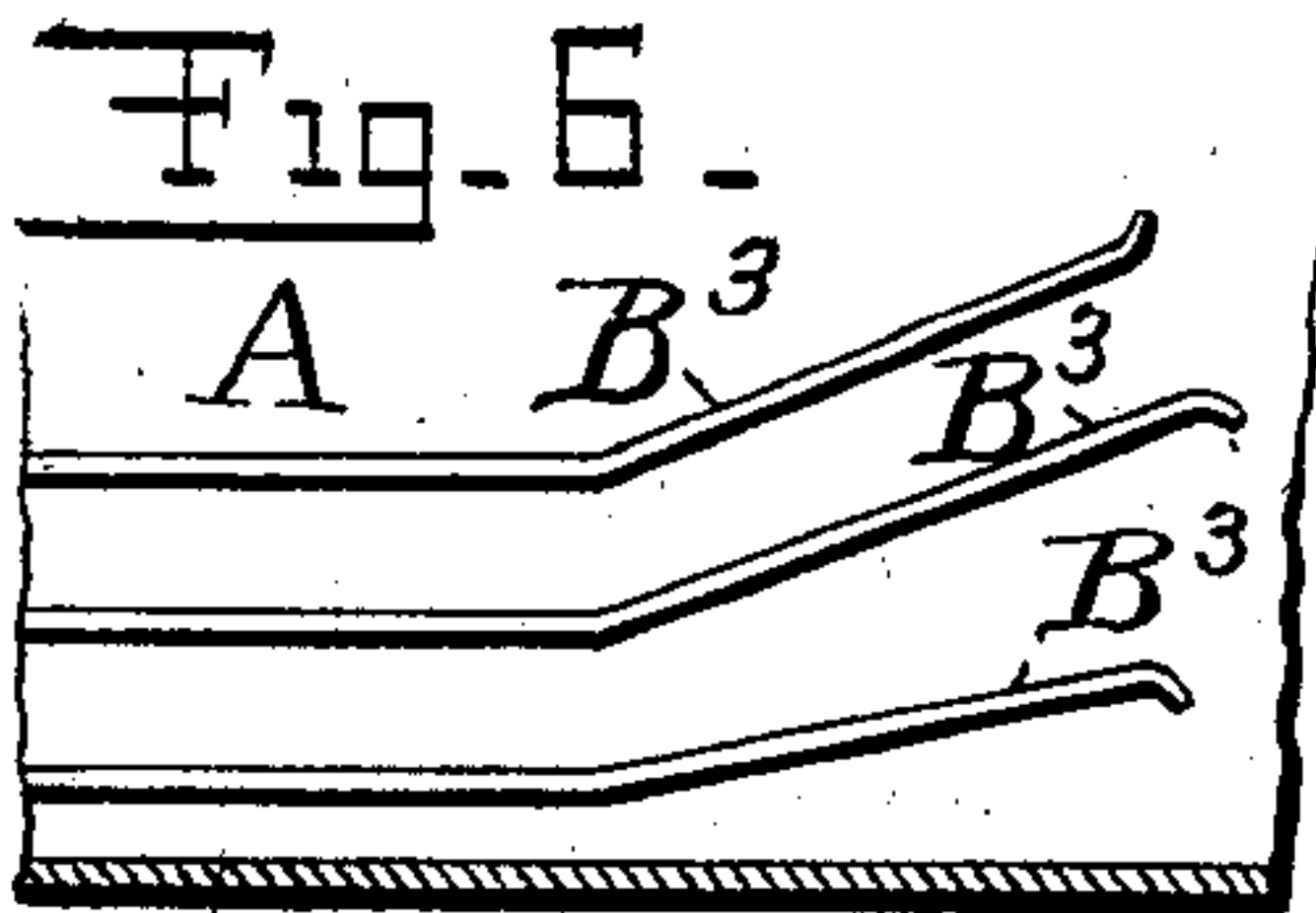
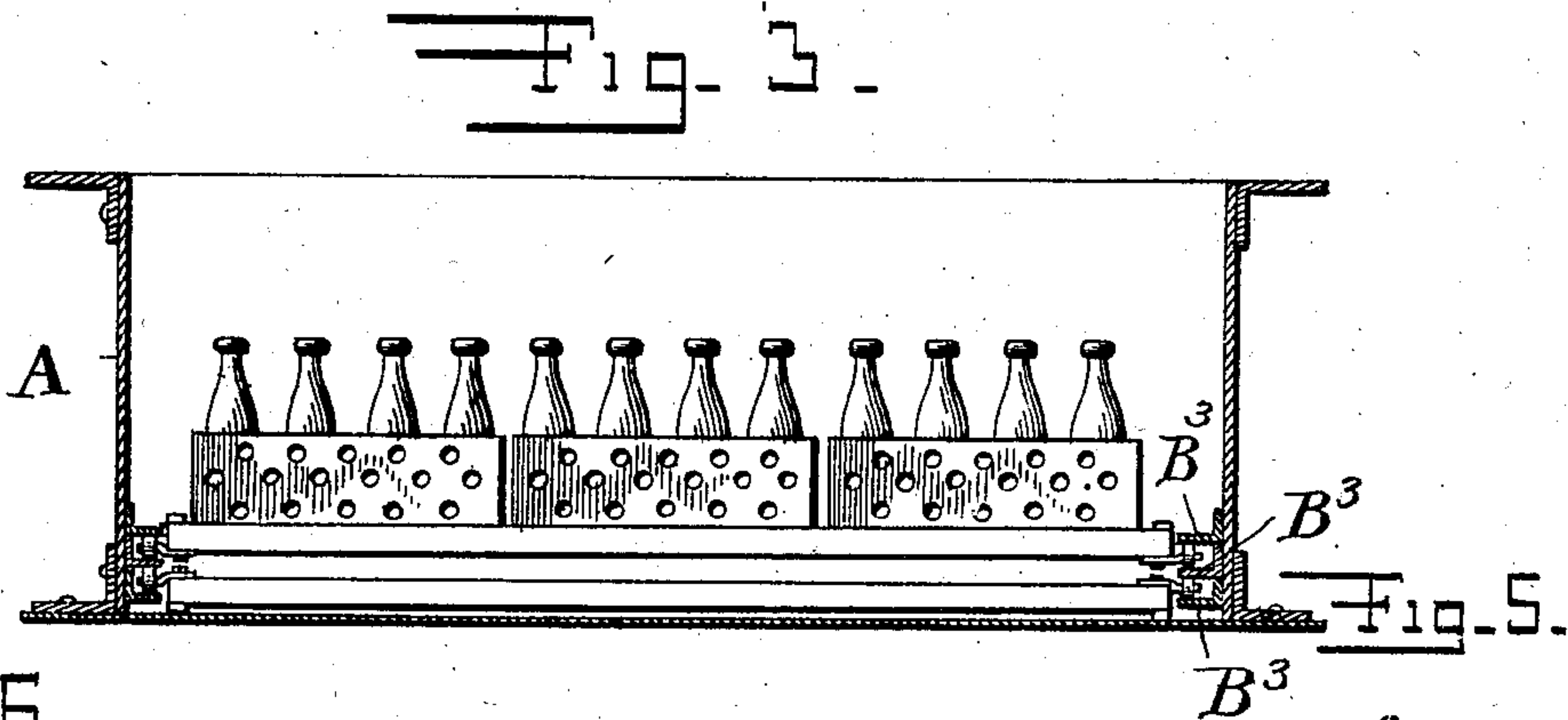
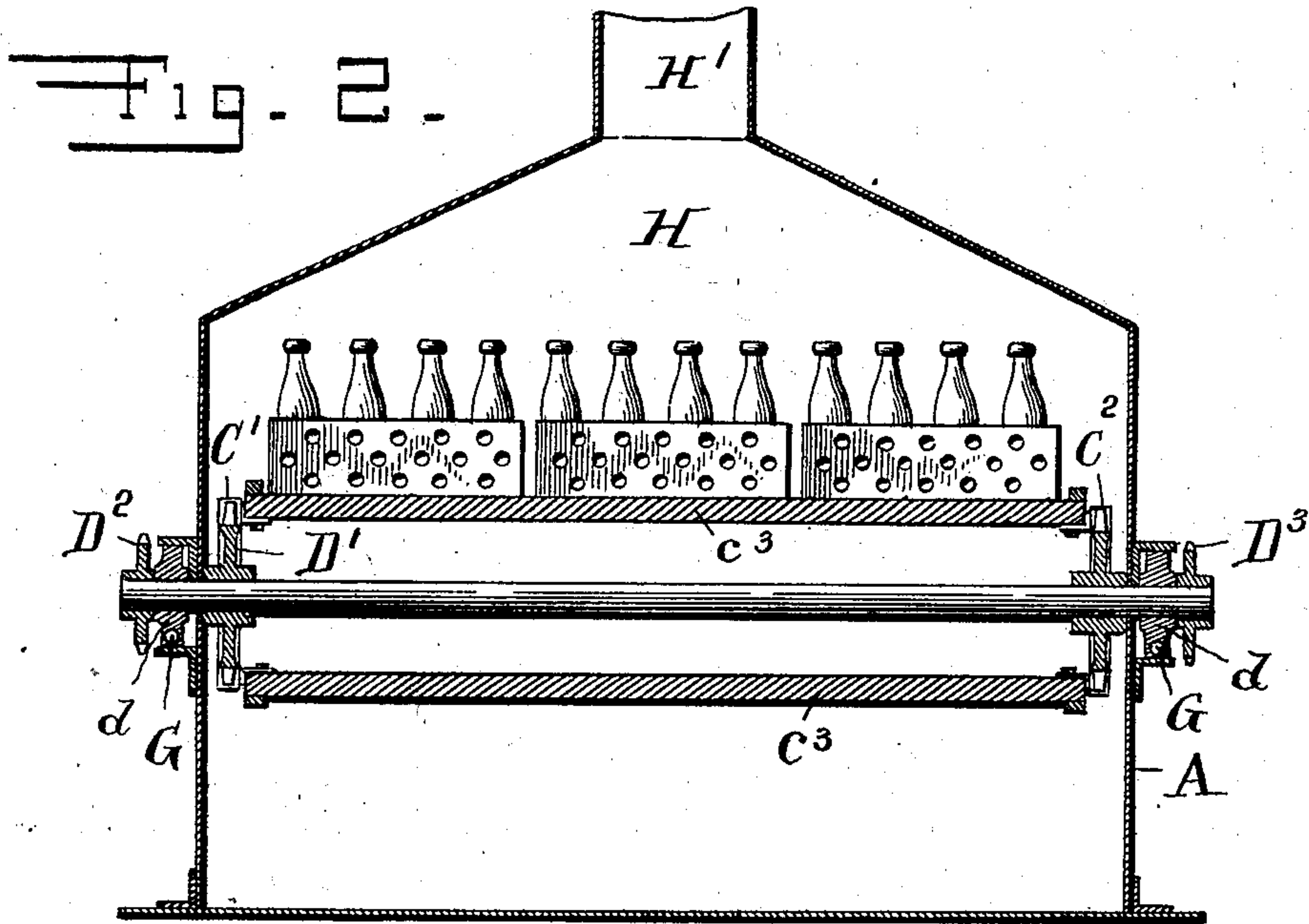
Patented Sept. 9, 1902.

B. F. SCHIRMER.
PASTEURIZING APPARATUS.

(Application filed Mar. 4, 1902.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES

J. B. McGiv. Jr.
E. H. Boyce.

INVENTOR

Baldwin F. Schirmer
By William R. Baird
His Attorney

UNITED STATES PATENT OFFICE.

BALDWIN F. SCHIRMER, OF INDIANAPOLIS, INDIANA.

PASTEURIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 708,738, dated September 9, 1902.

Application filed March 4, 1902. Serial No. 96,598. (No model.)

To all whom it may concern:

Be it known that I, BALDWIN F. SCHIRMER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a certain new and useful Improvement in Pasteurizing Apparatus, of which the following is a specification.

My invention relates to that form of pasteurizing apparatuses in which an endless carrier is employed to cause the articles to be pasteurized to move into, through, and out of a liquid which has been heated to the proper degree in order to secure the destruction of the germs which it is the purpose of the heat to kill.

The novelty of my apparatus consists in the construction and adaptation of the parts, as will be more specifically pointed out in the claims.

In the drawings, Figure 1 is a side elevation and a partial section of my apparatus, portions being cut away to show concealed parts. Fig. 2 is a vertical section on the plane of line 2 2 in Fig. 1. Fig. 3 is a similar section on the plane of the line 3 3 in Fig. 1. Fig. 4 is a detail of the take-up apparatus of the main carrier-chain, showing the means of moving longitudinally the sprocket-wheel bearings. Fig. 5 is an enlarged sectional detail of the guides for the carrier, and Fig. 6 is a side elevation thereof. Fig. 7 is a side elevation of the upper middle portion of the tank, showing the doors which close it at the top.

In the drawings, A is a fluid-tank made of any suitable material, oblong in shape and provided near one end with a door A' to admit of access to its interior and on top with doors A'' A'', opening upward and arranged to swing on hinges or pintles in the usual manner. It is also provided with means for heating its interior and any fluids which may be contained therein, consisting of transverse pipes, as B, connected with a source of steam-supply. (Not shown.) Thermometers B' are mounted along its sides to enable the temperature within to be ascertained from the outside, and means for drainage, such as the pipe B², are provided at proper places. An endless carrier and means for propelling the same are mounted within the tank. The carrier C consists of two parallel chains C' and C², each consisting of links c and rollers c',

secured together in the usual way. Placed transversely between the chains are slats or plates c³, secured to the links in any suitable manner—for instance, by screws c⁴. Near the discharge end of the tank sprocket-wheels D (one only being shown) are mounted near the opposite ends of a shaft driven from a source of power (not shown) and mounted in suitable bearings in the side of the tank, which wheels engage with the carrier-chains and propel them through the tank. Near the inlet end of the tank there is similarly mounted in bearings d a second shaft carrying sprocket-wheels D' D', Fig. 2, which also engage with the carrier-chains. The wheels D' may be idlers rotated by the motion of the carrier C or may be driven to assist in propelling the carrier, if deemed desirable. In the latter case their shaft would be connected with a source of power (not shown) by a belt or similar mechanism. The shaft of the wheels D' extends beyond the side of the tank A, and carried by it at its ends are two other sprocket-wheels D² and D³, which drive a supplemental carrier E, consisting of a series of rollers E', mounted in bearings placed on a table or platform F, arranged alongside of the tank A, the rollers being provided with sprockets adapted to engage with one or two chains which are actuated by the wheels D² and D³. The wheels E', &c., are placed about on a level or a little above the level of the carrier C at its highest point.

The bearings d for the wheel D' are adjustable longitudinally of the tank A, a screw G passing through the frame on which they are mounted and operated by a hand-wheel G', serving to move them forward or backward, and thus take up the slack, if any, in the main carrier C.

It will be observed that the wheels D and D' are each mounted within the tank A at its opposite ends and near the top of the same.

It is my purpose to propel the carrier through the tank close to the bottom. I therefore provide the tank with guides consisting of strips of angle-iron B³, with the under surface of which the rollers come into contact and are thereby kept near the bottom in passing through the tank.

A hood H is secured to and above the tank and extends over a part of the table or plat-

form F. It is made of sheet-iron or other suitable material and terminates upward in a chimney H'. It is also provided with an opening to admit of the entrance of the bottle-holding receptacles. This opening is closed by an automatic door H², opening inward, of common construction, so that the steam or hot air within the tank does not readily escape into the outer air. At the discharge end of the tank is a similar hood H³ without a chimney and a similar automatically-closing door.

Alongside of the discharge end of the tank is placed a table or platform I, provided on its upper surface with rollers I' I' in a position slightly lower than the highest position of the carrier C at that end. As the carrier C moves upward the boxes holding the bottles are carried to the highest point, and then as the carrier turns to move downward around the sprocket-wheel D the boxes are pushed over onto the rollers I' I', where they are removed by the operator as they pass through the door of the hood H³. A cooling device consisting of one or more rose-spouts at the end of a pipe K, connected with a source of water-supply whereby a fine spray of cold water is showered upon the bottles, is arranged above the platform. A drip-pan k and drainage-pipe K' are arranged beneath the platform. The bottle-holding receptacles are boxes with perforated sides or baskets made of steel wire or other suitable material.

The operation of my apparatus is as follows: The tank A is filled more than half full with water and the upper doors A'' A'', &c., are closed. The steam is turned on and the water thereby heated to the desired temperature, which can be ascertained from the thermometers B'. By means of chimney H² a draft toward the inlet end of the tank is created. Power is then applied to the shaft of sprocket-wheels D D and, if necessary or desired, to that of sprocket-wheels D' D'. This causes the propulsion of the carrier C through the tank. It is made to move very slowly. The filled bottles to be pasteurized having been already placed in the proper receptacles are then placed upon the supplementary carrier E. This causes them to move forward and drop upon the slats of the main carrier C. They then move downward, passing under the hood H and becoming heated as they slowly go through the current of steam and vapor which is drawn into the chimney. As the carrier continues its forward and downward course the bottle-holders and bottles gradually pass into the hot water, and so onward until they reach the intended level near the bottom of the tank. They then pass on through the water until the point is reached where the carrier is deflected upward. Continuing they gradually emerge from the water and thence to the highest point above the sprocket-wheel D. At this point the boxes drop upon the rollers I' I' upon the platform, one box pushing the other over the series of rollers and out through the door, which closes

behind them, the operator removing the boxes as they are discharged. The cool water assists in lowering the temperature of the bottles, so that they can be handled without injury.

By means of this apparatus the bottles are first heated in the vapor above the water before they reach the liquid, the chimney in the hood creating a current in the direction of the inlet. The danger of cracking the bottles by a sudden change in temperature is thus in part avoided, and as a further precaution the immersion of the bottles in the liquid takes place slowly. The bottles are also gradually cooled as they emerge from the fluid. The apparatus is simple, economical, and little likely to get out of order.

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

1. In a pasteurizing apparatus, the combination with a fluid-tank having inlet and outlet openings at opposite ends, of means for heating the tank, a normally closed door at each opening, an endless carrier in the tank, a supplementary carrier connected therewith, means for propelling the supplementary carrier through the inlet-opening, bottle-holders on the supplementary carrier for opening the inlet-door, and means for receiving the bottle from the main carrier at the outlet-door.

2. In a pasteurizing apparatus the combination with a fluid-tank having inlet and outlet openings at opposite ends, normally closed doors at said openings, an endless carrier in the tank, a shaft and sprocket-wheels at the inlet end for supporting and driving said carrier, a supplementary carrier mounted at its inner end on said shaft and extending through the inlet-opening, means for adjusting the shaft to take up slack, and bottle-holding receptacles carried by the supplementary carrier and serving to open the normally closed inlet-door.

3. In a pasteurizing apparatus, the combination with a normally closed fluid-tank, a main endless carrier, means for propelling it through the tank, inwardly-projecting side flanges on the side of the tank engaging the carrier and deflecting it downward from the inlet end to the center of the tank and upward from the center to the outlet end, a supplementary carrier mounted upon and driven by the shaft at the inlet end of the main carrier, bottle-holders on the supplementary carrier serving to open the inlet of the tank, a receiving roller-carrier outside the outlet of the tank, and means for projecting the bottle-holders on the main carrier through the outlet and upon the receiving roller-carrier.

4. In a pasteurizing apparatus, the combination with a fluid-tank, of a transverse shaft at each end near the outlet and inlet respectively and near the top of the tank, sprocket-wheels on said shafts, an endless carrier engaging said sprocket-wheels, horizontal flanges projecting inwardly from the sides of the tank

at its mid-length and near the bottom, said
flanges being parallel with the bottom of the
tank for some distance and provided with up-
wardly-inclined ends, and rollers at the sides
5 of the carrier engaging between and guided
by said flanges.

Witness my hand this 15th day of Febru-

ary, 1902, in the presence of two subscribing
witnesses.

BALDWIN F. SCHIRMER.

Witnesses:

CHARLES H. LOEW,
WILLIAM R. BAIRD.