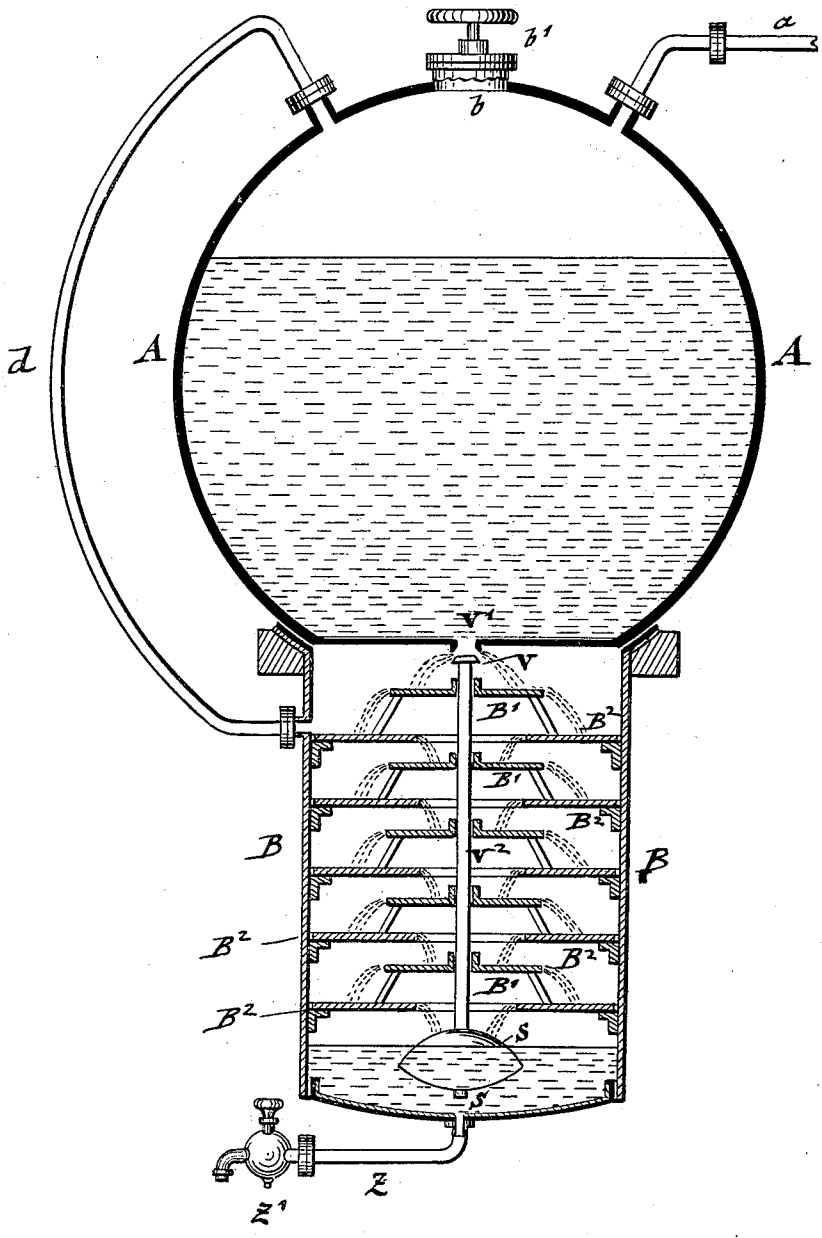
(No Model.)

O. BRÜNLER.

APPARATUS FOR CARBONATING LIQUIDS.

No. 394,821. Patented Dec. 18, 1888.



Witnesses,
Henry Huber
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UNITED STATES PATENT OFFICE.

OSCAR BRÜNLER, OF NEW YORK, N. Y.

APPARATUS FOR CARBONATING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 394,821, dated December 18, 1888.

Application filed August 15, 1887. Serial No. 246,941. (No model.) Patented in Germany March 4, 1887, No. 41,993; in France June 23, 1887, No. 184,395; in Belgium June 23, 1887, No. 77,920, and in England June 25, 1887, No. 9,049.

To all whom it may concern:

Be it known that I, OSCAR BRÜNLER, of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Carbonating Liquids, (which has been patented to me or to my authorized agents in Germany, No. 41,993, dated March 4, 1887; in France, No. 184,395, dated June 23, 1887; in Belgium, No. 77,920, dated June 23, 1887; and in England, No. 9,049, dated June 25, 1887,) of which the following is a specification.

This invention relates to an improved automatic apparatus for carbonating liquids and dispensing the same; and the invention consists of an apparatus for carbonating liquids, which comprises a closed water-tank connected to a suitable source of supply of carbonic-acid gas under pressure, and a mixing-vessel located below the closed water-tank and provided with ring-shaped shelves and alternating trays. The mixing-vessel is connected with the upper part of the latter by a pressure-equalizing pipe and with the bottom of the same by an opening and valve, said valve being automatically opened or closed by a suitable float, so as to regulate the supply of liquid and the charging of the same with carbonic-acid gas as the same is drawn off from the mixing-vessel.

The accompanying drawing represents a vertical central section of my improved apparatus for carbonating liquids.

In the drawing, A represents a closed tank, to which the liquid to be impregnated with carbonic acid is supplied by means of an opening, *b*, and valve *b'*, arranged at the top of the tank A. The upper part of the tank A is connected by a pipe, *a*, with a receiver containing liquid carbonic acid, or with any other source of carbonic acid under pressure.

The tank A is preferably made of spherical shape and with a flat bottom, below which a cylindrical or other mixing vessel, B, is arranged, in which the impregnating, or mixing of the liquid with carbonic-acid gas is carried on.

The mixing-vessel B is connected with the upper part of the tank by a pipe, *d*, so that the compressed carbonic-acid gas supplied to the upper part of the tank A can pass by the pipe *d* to the mixing-vessel B, and establish thereby the same pressure in the mixing-vessel as in the tank A.

An orifice, *v'*, in the bottom of the tank A is closed by a valve, *v*, which is automatically opened or closed by means of a float, *s*, applied to the lower end of the valve-rod v^2, said float rising and falling according to the level of the liquid at the bottom of the mixing-vessel B, so as to automatically open or close the orifice *v'* by the valve *v*.

The carbonated liquid is drawn off from the bottom of the mixing-vessel B by a pipe, *z*, having a stop-cock or faucet, *z'*. When a certain quantity of carbonated liquid is drawn off by the faucet *z'*, the valve *v* opens the orifice *v'* so as to permit the liquid from the tank to enter into the mixing-vessel, where it is again carbonated by contact with the compressed carbonic-acid gas in the same, and so on.

For the purpose of exposing a large surface of the liquid to be impregnated to the action of carbonic-acid gas suitable means for distributing the water over a large superficial area are arranged in the mixing-vessel B. These means consist of fixed ring-shaped shelves B^2 and a number of disk-shaped intermediate trays, B^3, supported on the same. The liquid passes alternately from the disk-shaped trays to the ring-shaped shelves, being in its passage over the trays and shelves exposed to the action of the carbonic-acid gas and thoroughly impregnated by the same. The valve-rod v^2 is guided in central openings of the trays, so that the float and valve can move freely up and down in said openings. By the automatic action of the valve *v* and float *s* the liquid is gradually supplied in small quantities to the mixing-vessel, so as to be thoroughly impregnated by the gas, the liquid being then drawn off as required by the faucet at the lower part of the mixing-vessel.

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

The combination of a closed tank containing the liquid to be impregnated, a pipe connecting the upper part of said tank with the source of supply of compressed carbonic acid,

a mixing-vessel located below the tank, a pressure-equalizing pipe connecting the upper part of the tank with said mixing-vessel, a liquid-supply orifice in the bottom of the tank, a float-valve for automatically opening or closing the supply-orifice, ring-shaped shelves and alternating trays located in the mixing-chamber, and a discharge-pipe and faucet at the lower part of the mixing-chamber, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

OSCAR BRÜNLER.

Witnesses:
PAUL GOEPEL,
MARTIN PETRY.