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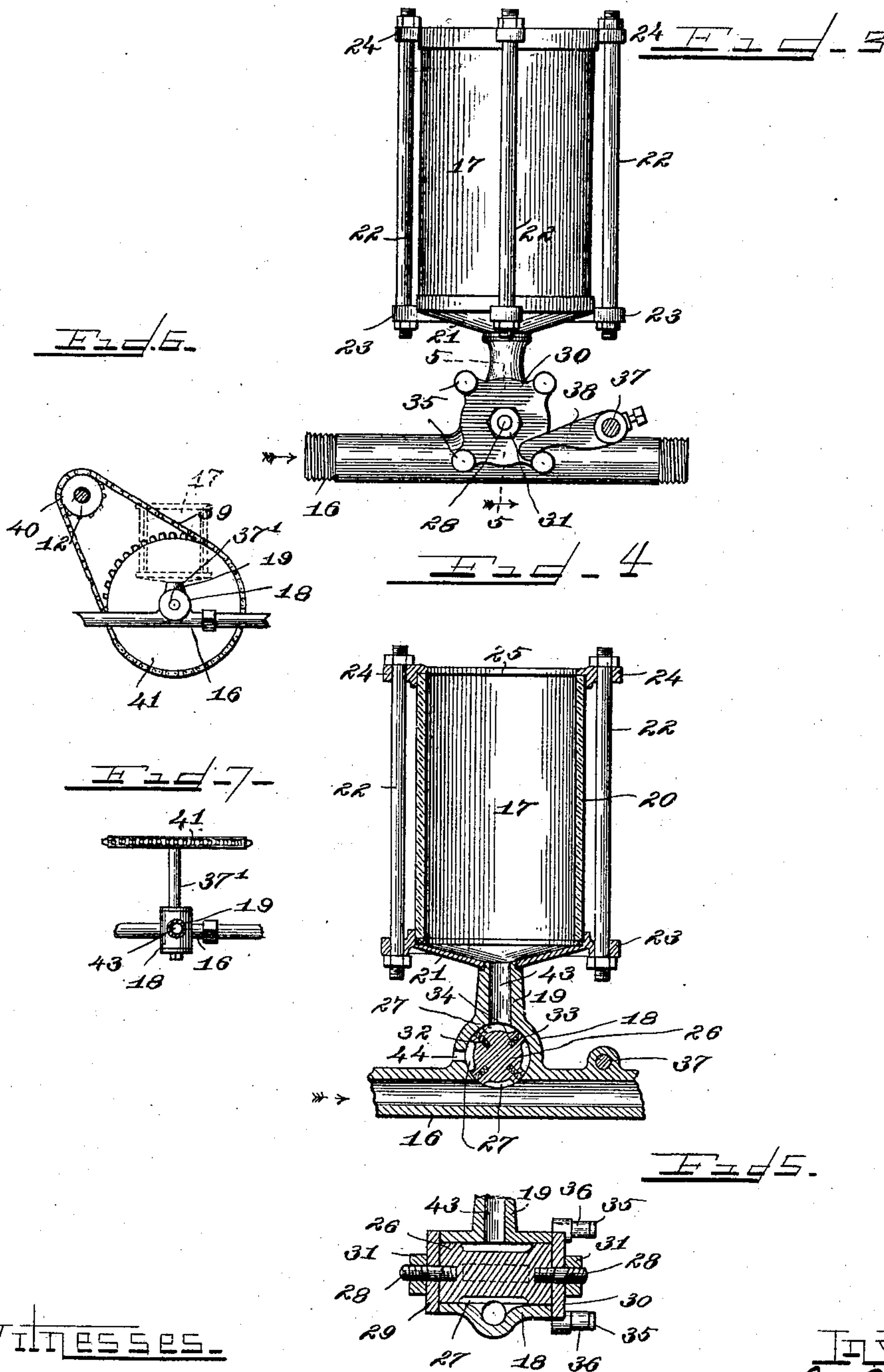
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AUTOMATIC SOLUTION FEEDER FOR CARBONATING OR OTHER MACHINES.

(Application filed Oct. 10, 1901.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES.

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AUTOMATIC SOLUTION-FEEDER FOR CARBONATING OR OTHER MACHINES.

SPECIFICATION forming part of Letters Patent No. 711,460, dated October 21, 1902.

Application filed October 10, 1901. Serial No. 78,176. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. BASTIAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Solution-Feeders for Carbonating or other Machines, of which the following is a specification.

This invention relates to carbonating apparatus; and its primary object is to provide an automatic feeder for supplying a mineral salt or other solution to the carbonator.

A further object of the invention is to automatically feed a salt or other solution to the carbonator in measured quantity and at regular intervals, so that the solution will always be supplied to the carbonator in proper proportion to the liquid flowing therein; and a further object is to operate the automatic solution-feeder from the pump-shaft of the carbonating apparatus, so that a measured quantity of the solution will be discharged into the suction-pipe of the pump at regular intervals to be carried into the carbonator by the liquid being pumped.

With these and other objects in view the invention consists in the novel devices and the peculiar construction and arrangement thereof hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 illustrates my invention applied to a carbonating apparatus, the latter being shown in broken lines. Fig. 2 is a side elevation of the pump and automatic solution-feeder. Fig. 3 is an enlarged elevation of the solution-feeder. Fig. 4 is a central sectional view of the solution-feeder. Fig. 5 is a sectional view on the line 5 5 of Fig. 3. Figs. 6 and 7 are detail views showing the feeding device driven continuously by the pump-shaft.

It is unnecessary to describe the carbonating apparatus in detail, as it will be understood that my invention may be used in connection with any kind of carbonating apparatus and in connection with any other machine where it will be useful. The pump is supported on a frame 11 and operated by a shaft 12, which carries a fly-wheel 13 at one end and a loose pulley 14 and a tight pulley 15 at its other end, this pump-shaft being op-

erated in a suitable manner by means of a belt on the tight pulley.

In the embodiment of the invention illustrated in the drawings the automatic solution-feeder is connected with the suction-pipe 16 of the pump and comprises a suitable tank 17 and a casing or barrel 18, provided with an upward hollow extension 19 and preferably cast integral with the suction-pipe. I prefer to construct the solution-tank of a glass cylinder 20, rigidly secured to a base 21 by means of tie-rods 22, which pass through openings in lugs 23 around the base and corresponding lugs 24 on a top rim 25; but I do not limit myself to this particular construction, as it is obvious that other kinds of tanks may be used with equivalent results.

A feeding-plug 26 is arranged in the casing and provided with cups 27 at intervals in its periphery. The plug is provided at each end with a trunnion 28 to receive the disks 29 30, which are secured in place against the ends of the casing by nuts 31 on the trunnions to form a tight joint and are carried by the plug in its rotary movement. The plug is provided with longitudinal channels 32 between the cups, in which packing-bars 33 are arranged and pressed outwardly against the casing by springs 34.

The disk 30 is intermittently operated, like a star-wheel, and it carries a number of studs 35, corresponding in number to the cups in the plug and located opposite thereto, these studs being provided with antifriction-rollers 36. A feeder-shaft 37 is journaled in suitable bearings, and it carries a tappet 38, which is arranged to engage the studs and impart an intermittent rotary motion to the plug, this movement being effected by means of the sprocket-chain 39, operating on the small sprocket 40, carried by the pump-shaft, and the large sprocket 41, carried by the feeder-shaft 37.

The construction of the solution-feeder is simple, and it is arranged to be operated automatically to supply solution in regulated quantity to the mixer 42, the operation of the feeding devices being controlled by the pump, so that the quantity of solution supplied will always be in proper proportion to the quantity of liquid pumped into the mixer,

thereby automatically maintaining the relative proportion of the liquid and solution at all times. As the pump-shaft operates the feeder-shaft is rotated to bring the tappet
 5 into engagement with the studs of the disk 30, thereby imparting an intermittent rotary motion to the plug and discharging into the suction-pipe a measured quantity of solution at regular intervals. As the plug rotates each
 10 cup will become filled with solution passing from the tank down through the passage 43 in the extension 19, and the spring-pressed packing-bars carried by the plug bear tightly against the inner wall of the casing and prevent the escape of the solution in the cups until
 15 the cup reaches the suction-pipe and empties therein. The liquid passing through the suction-pipe carries away all the solution from the cup then discharging and also thoroughly
 20 washes the cup during its rotary passage through the suction-pipe. I provide an opening 44 in the side of the casing above the suction-pipe to permit the escape of the liquid carried up by the cups from the suction-pipe,
 25 so that the cups will always reach the solution-passage 43 empty and free from liquid.

I have shown and described the feeder connected with the suction-pipe of the pump; but it is obvious that it may be connected
 30 with the discharge-pipe of the pump or at other places without departing from the spirit and scope of the invention, and I therefore reserve the right to make all such changes and use the automatic solution-feeder with
 35 any other machine and for any other purpose within the scope of the invention.

The invention is designed primarily to be used for feeding a mineral-salt solution to carbonating apparatus in measured quantity
 40 and at regular intervals; but it is obvious that any kind of solution may be placed in the tank and fed by the device in the same manner and with equivalent results, and it will be understood, therefore, that I do not in any
 45 way limit the application of the invention by the illustration and the terms employed in the description to feeding a solution to a carbonating apparatus.

In Figs. 1 and 2 of the drawings I have
 50 shown the feeder-shaft geared to rotate once to two rotations of the pump-shaft, so that a cup of solution will be discharged into the suction-pipe at two complete operations of the pump; but this gearing may be changed and
 55 the number of cups may be increased or decreased to correspondingly change the feeding of the solution.

Instead of operating the feeder intermittently, as hereinbefore described, I may drive
 60 the plug continuously by providing it with a feeder-shaft 37', on which the sprocket 41 is mounted, as shown in Figs. 6 and 7. By this construction the plug will be continuously operated with the pump-shaft, and the sprock-
 65 ets may be constructed so that the pump-

shaft will revolve four times to each single revolution of the feeder-shaft, or the plug may be provided with a less number of cups.

With these and other ends in view, what I claim, and desire to secure by Letters Patent, 70 is—

1. A solution-feeder for carbonating and other apparatus, comprising a tank, a casing connected with said tank, a device arranged in said casing and provided with cups to receive solution from the tank, packing-bars carried by said device between the cups, and means for imparting a rotary motion to said device to feed solution from the tank in measured quantity and at regular intervals. 75 80

2. The combination with a pump and a suction-pipe therefor of a tank, a casing communicating with the suction-pipe and the tank, a feeding device arranged in said casing and working partly in the pipe and provided with cups to receive solution from the tank and discharge same into the suction-pipe, said casing being provided with an opening in its side to permit the escape of liquid carried up by the cups from the suction-pipe and means 85 90 for operating the pump and imparting an intermittent rotary motion to said feeding device.

3. The combination with a pump and a suction-pipe therefor, of a tank, a casing communicating with the suction-pipe and the tank, a plug arranged in said casing and provided with cups, spring-pressed packing-bars arranged between said cups, a disk rigid with the plug, studs carried by said disk, a feeder-shaft, a tappet carried by said shaft and arranged to engage said studs, a pump-shaft connected with and operating said feeder-shaft to impart an intermittent rotary motion to the plug, and means for operating the 95 100 105 pump-shaft.

4. A solution-feeder for carbonating and other apparatus, comprising a tank, a casing connected with said tank, a plug arranged in said casing and provided with cups to feed solution from the tank, longitudinal channels in the plug and alternating with the cups, and packing in said channels to work against the inner face of the casing and prevent the escape of solution from the cups until the discharging-point is reached. 110 115

5. The combination with a pump and a liquid-pipe, of a tank, a casing opening into the pipe and connected with the tank, a plug provided with cups for feeding solution from the tank to the pipe and working snugly in the casing and partly in the pipe, said casing being provided with an opening in its side above the pipe to permit the escape of any liquid carried up from the pipe, and means for operating the plug. 120 125

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Witnesses:

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