

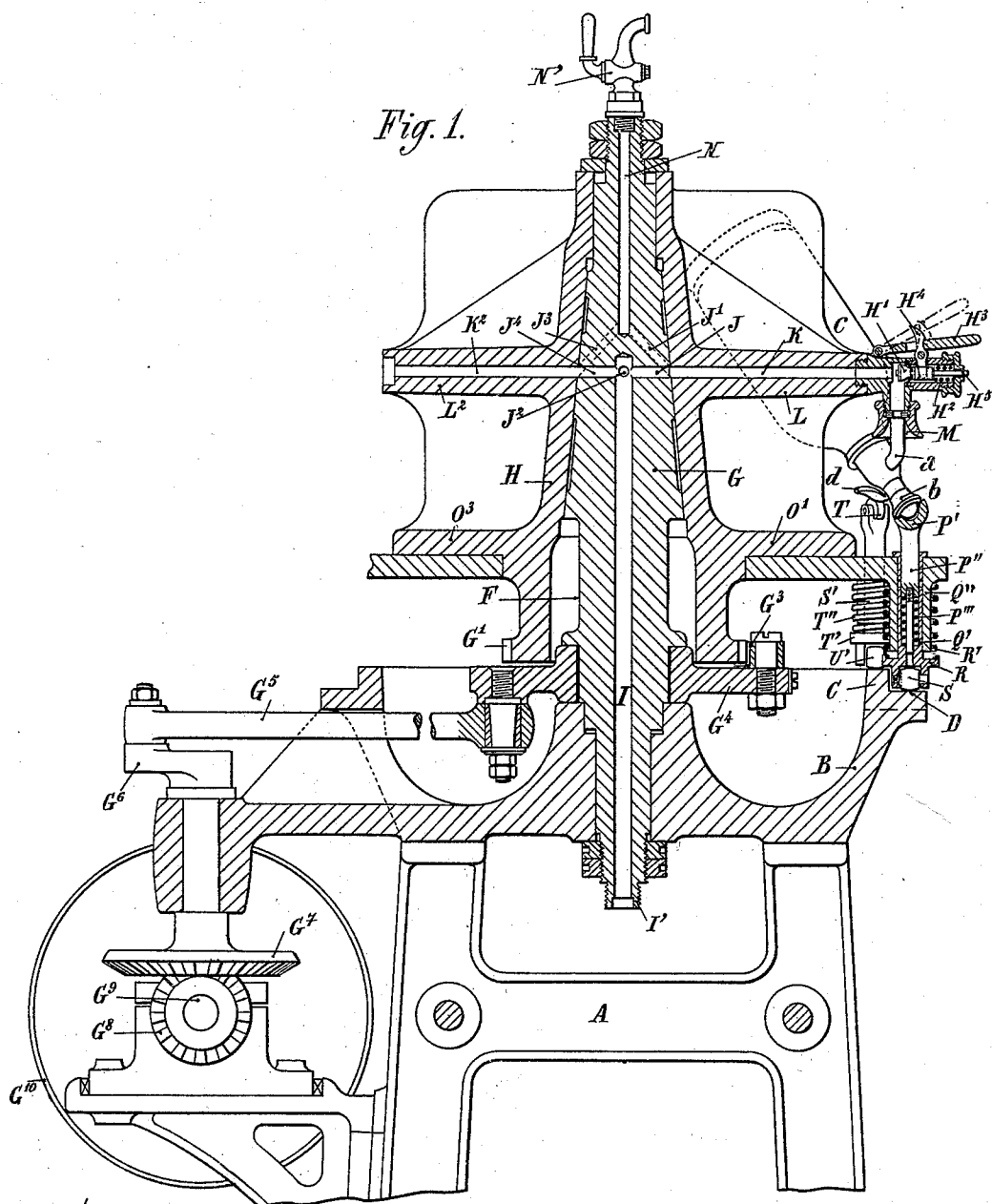
(No Model.)

2 Sheets—Sheet 1.

C. GUÉRET.
BOTTLING APPARATUS.

No. 542,639.

Patented July 16, 1895.



Witnesses:-

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UNITED STATES PATENT OFFICE.

CÉLESTIN GUÉRET, OF PARIS, FRANCE, ASSIGNOR TO GUÉRET FRÈRES, OF
SAME PLACE.

BOTTLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 542,639, dated July 16, 1895.

Application filed April 29, 1895. Serial No. 547,516. (No model.) Patented in France November 20, 1894, No. 243,007, and in
England January 1, 1895, No. 88.

To all whom it may concern:

Be it known that I, CÉLESTIN GUÉRET, a citizen of the Republic of France, residing at Paris, France, have invented certain new and useful Improvements in or Relating to Bottling Apparatus, (for which I have obtained Letters Patent in France, No. 243,007, dated November 20, 1894, and in England, No. 88, dated January 1, 1895,) of which the following is a specification.

This invention relates to bottling apparatus which is well adapted for filling "siphons," for instance, with gaseous mineral water.

The nature of the invention will be easily understood by reference to the accompanying drawings and the following description.

In the drawings, Figure 1 is a vertical central section of the apparatus. Fig. 2 is a plan of Fig. 1, partially in horizontal section, and Fig. 3 is a transverse section of a detail of the apparatus with a siphon in place thereon.

Upon a frame A is fixed horizontally a circular table B, with a super-elevated rim, on which are formed two concentric paths C and D, the inner path C being higher than the outer one D. In both paths is a depression E, joined to the level part of each path by two inclined planes C' and D'.

Centrally on the table B is fixed vertically a piece F, upon which is a coned portion G, which serves as the plug of a cock. The body thereof is formed in the external shell or seat H, which is movable about the plug. The plug G has several channels in it, a central vertical channel I terminating at its lower extremity in a neck or nozzle I', for the influx of the liquid to be bottled, and at the upper end in a series of radiating channels J J' J² J³ J⁴. The functions of these channels and of the plug G are hereinafter explained. The channels J, J², and J⁴ are horizontal and correspond according to the position of the shell H upon the cock-plug G to other channels K K' K² K³ in the said shell H, and in the arms L L' L² L³, all cast in one piece with H, and having, according to circumstances, their outer extremities coincident with and terminated by a tube M conducting into the siphon the liquid coming from the tube I' through the central channel I of the plug. The chan-

nels J' and J³ are inclined upward and converge in a central vertical channel N, which may be put in communication with the exterior through the cock N'.

A ratchet-wheel G' is arranged upon the bottom of the shell H for the purpose of effecting the necessary rotation of the said shell H for the working of the apparatus. Pawls G² and G³ act in combination with the ratchet-wheel G'. The said pawls are arranged in diametrically-opposite positions upon a disk G⁴ loosely mounted on the same center piece F. The disk G⁴ is oscillated by a connecting-rod G⁵, connected thereto and to a crank G⁶, worked by the bevel-wheels G⁷ G⁸, the latter wheel G⁸ being keyed on to the driving-shaft G⁹, carrying the belt-driven pulley G¹⁰.

On the four arms O' O² O³ O⁴, which constitute a lower base-plate of the shell or body H of the cock, and are arranged exactly underneath the cross-arms L L' L² L³ of the shell H, are fixed supports P to carry the siphons, which, as shown in the drawings, are placed in an inclined position with, so to say, a double slant, in such manner that their necks or spouts *a* present themselves exactly underneath the bell-mouthed tubes M of the arms L L' L² L³, the heads *b* of the siphons being supported by the suitably-shaped and inclined heads P' of vertical rods P'', supported by the coiled springs P''' received in socket-pieces, hereinafter described, the inverted bodies of the siphons being supported in the curved semicircular supports Q. These two parts, viz: the rods P'' and the collars Q, are carried by the supports P of each arm L L' L² L³.

The rod P'' is adapted to move endwise in a tubular socket-piece Q', which is itself movable endwise in a socket Q'' in the support P. The socket-piece Q' projects beyond the lower end of the socket and is terminated at its lower end by a base-piece or flange R sustaining a coiled spring R', which tends always to keep the socket-piece at the lower extreme of its travel. On the under surface of each of the base-pieces R in lugs R'' is a roller S, which turns in the lugs R'' and runs upon the outer and lower path D before mentioned as constituting part of the table B. The sup-

port P carries, also affixed to its under face, a fixed socket or sleeve S', in which is a plunger S'', carrying at its upper end a roller T to act upon the lever *d* of the siphon by which the valve in the latter is closed and opened. At the lower end of this plunger is a flange or base, upon which bears a coiled spring T''. This plunger has lugs U carrying a roller U', which turns between them and travels upon the inner and higher path C, hereinbefore mentioned, of the table B.

The arms L L' L² L³ are each provided with a valve H', arranged in such manner as to intercept all communication between their channels and the tubes M, and consequently to isolate from each other, in the event of accident, all the four siphons being filled.

It might happen that the siphons or one of them might burst in the machine, or that the neck or spout *a* of one of them, being damaged or chipped, its joint with the mouth of the tube M might not be perfectly tight, so that an escape of gas and of water might take place, whereby seeing that all the siphons are in process of being filled simultaneously, the result in the absence of such valves would be the production of a slow or otherwise incomplete and defective filling.

The valve H', under the influence of the internal coiled spring H², which tends always to press it tightly against the discharging-orifice of each arm L L' L² L³, is, for the working of the apparatus, held away from the said orifice by a jointed external lifter H³, which, when lowered, catches the end of a jointed lever H⁴, whereof the point engages with the guide-piece H⁵ of the valve H'. It will be readily understood that under these circumstances if a siphon breaks or if an escape occurs at the joint of any siphon-mouth with its tube M it will suffice simply to raise the lifter H³ to disengage the lever H⁴, and which will then allow the valve H' under the control of the spring H² to close up the corresponding orifice, so as to intercept all communication between the defective siphon and the other channels of the apparatus and consequently with the other siphons.

The construction of the apparatus having thus been explained, its working will be easily understood and will now be described.

The siphons to be filled are placed, as has hereinbefore been explained, upon that one of the supports P which is above the depression E of the paths C and D. Next, in consequence of the rotation imparted to the shell H (or body) of the cock, the support P and the siphon which it carries are carried round thereby, and the rollers S and U', coming in contact with the inclined planes C' and D', ascend the same. The ascent of the roller S upon the inclined plane D' causes the elevation of the rod P', and in consequence thereof that of the head *b* of the siphon, and this elevation continues until the said roller arrives on the path D, when the spout *a* of the siphon is brought into hermetic contact with

the corresponding bell-mouthed tube M. The ascent of the roller U', commencing on the inclined plane C' simultaneously with that of the roller S upon the other inclined plane D', continues after S has reached D' and until the said roller U' arrives on the path C (at a higher level than D) and produces the complete elevation of the rod S'', and consequently of the roller T, which, coming in contact with the lever *d* of the siphon-head, effects the opening of the latter at the same moment as the hermetic joint of the spout *a* in the tube M has been effected. The rotation of the shell or body H continues until its channel K coincides with the channel J of the plug G. At this moment the rotation of the casing H is arrested and a sufficient quantity of the gaseous water fills the siphon, compressing the carbonic acid which it previously contained. The rotation of the body H is then renewed and continues until the channel K coincides with the next channel J', which connects with the upper channel N and to the communication with the outer air by the cock N', so as to allow during the stoppage of the movement the release of the compressed carbonic-acid gas from the siphon, which cannot be entirely filled until that is done. The rotation of the shell or body H being again renewed, continues until the channel K, and consequently the siphon, comes into communication with the second channel J², by which, during the stoppage of movement, a second introduction of gaseous water is effected. Thereafter a renewed rotation of the shell H brings the channel K, and with it the siphon, into communication with the canal J³, by which, as before, during the stoppage of the motion, a further discharge or expulsion of compressed carbonic acid, which still hinders the complete filling of the siphon, takes place, and thereupon, after the further renewed rotation of the body H, the siphon is brought by the channel K in communication with the channel J⁴, by which during another arrest of motion the last introduction of gaseous water is effected, thus filling the siphon up to the desired level. The rotation of the body H, which has again been renewed after this last introduction of liquid, then brings the roller U', which has meanwhile traversed the path C, to the top of that one of the inclined planes C', which leads down to the recess E, into which the roller U consequently descends, producing through the action of the recoiling-spring T'' the lowering of the rod S'', and consequently the fall of the lever *d* of the siphon, thus bringing about the closure of the latter. By the time that the siphon is closed the roller S has traversed the path D and commenced to descend the corresponding inclined plane D', producing by the reaction of the spring R' the descent of the rod P'', and thereby allowing the head *b* of the siphon to descend and release the spout *a* of the latter from the bell-mouthed tube M. The filled siphon is re-

leased from the moment that the rollers U' and S reach the bottom of the descents and the recessed part E of the table B. It can then be removed and replaced by an empty siphon, ready to be filled by a repetition of the process.

The apparatus which has just been described, and which is represented by way of example only in the accompanying drawings, is arranged for the treatment of four siphons at one operation. The rotation of its working parts is effected one-eighth of a revolution at a time with a sufficiently-long stoppage between each partial rotation to allow the operations hereinbefore described to be successfully completed.

It is evident that, without departing from the principle of the invention, the apparatus may be arranged for the treatment of any desired number of siphons at the same time; likewise that any suitable mechanical arrangement other than that shown and described may be used to effect the intermittent movement of the working parts in the manner described.

I claim—

1. In bottling apparatus, the combination with a supporting frame and table, of a vertically-arranged plug having a channel or passage through which the liquid to be bottled is adapted to pass, a rotatable shell or casing surrounding the plug and having an extended arm provided with a passage adapted to align with the passage in the plug when said casing is rotated, a discharge tube carried at the outer end of the said arm, a vertical plunger adapted to be periodically raised during the rotation of the casing to support the head of a siphon and cause the filling tube of the latter to be brought into communication with the discharge tube of the arm, and a second plunger also adapted to be periodically raised during the rotation of the said casing and to operate the valve lever of the siphon simultaneously with the communication between the filling tube of the siphon and the discharge tube of the apparatus, all as and for the purpose specified.

2. In bottling apparatus, the combination with a supporting frame and table, of a vertically-arranged plug having a series of horizontal passages through which the liquid to be bottled is adapted to pass, a shell or casing surrounding the plug and having a series of extended arms each provided with a passage adapted to be brought into alignment with the passages in the plug when the casing is rotated, a discharge tube carried at the outer end of each arm, vertical plungers arranged beneath and corresponding respectively with the said discharge tubes and adapted to be periodically raised to support the head of a siphon and cause the filling tube of the latter to be brought into communication with the corresponding discharge tube, and a second series of plungers arranged respectively in proximity to the first series of plungers and

adapted to be periodically raised and operate the valve levers of the respective siphons simultaneously with the communication between the filling tubes of the siphons with the discharge tubes of the apparatus, all as and for the purpose specified.

3. In bottling apparatus, the combination with a supporting frame and table, of a vertically-arranged plug having a channel or passage through which the liquid to be bottled is adapted to pass, a shell or casing surrounding the plug and having an extended arm provided with a passage adapted to align with the passage in the plug when the casing is rotated, a discharge tube carried at the outer end of the arm and adapted to communicate with the passage of the arm, a valve carried by the arm and adapted to control the communication between the passage of the arm and the discharge tube, a vertical plunger adapted to be periodically raised during the rotation of the casing to support the head of a siphon and cause the filling tube of the latter to be brought into communication with the discharge tube of the arm, and a second plunger also adapted to be periodically raised during the rotation of the said casing and to operate the valve lever of the siphon simultaneously with the communication between the filling tube of the siphon and the discharge tube of the apparatus, all as and for the purpose specified.

4. In bottling apparatus, the combination with a supporting frame and table, of a vertically-arranged plug having a channel or passage through which the liquid to be bottled is adapted to pass, a rotatable shell or casing surrounding the plug and having an extended arm provided with a passage adapted to align with the passage in the plug when said casing is rotated, a discharge tube carried at the outer end of the said arm, a vertical cushioned plunger adapted to be periodically raised during the rotation of the casing to support the head of a siphon and cause the filling tube of the latter to be brought into communication with the discharge tube of the arm, and a second vertical cushioned plunger adapted also to be periodically raised during the rotation of the casing and to operate the valve lever of the siphon, all as and for the purpose specified.

5. In bottling apparatus, the combination with a supporting frame and table, of a vertically-arranged plug having a passage through which the liquid to be bottled is adapted to pass, and also a second passage adapted to communicate at its outer end with the open air, a shell or casing surrounding the plug and having an extended arm provided with a passage adapted to align with the first passage in the plug when the casing is rotated, and also with the inner end of the second passage of the plug when not in alignment with the first passage, a discharge tube carried at the outer end of the arm, a vertical plunger adapted to be periodically raised during the

rotation of the said casing to support the head of a siphon and cause the filling tube of the latter to be brought into communication with the discharge tube of the arm, and a second
 5 plunger also adapted to be periodically raised during the rotation of the casing and to operate the valve lever of the siphon simultaneously with the communication between the filling tube of the siphon and the discharge
 10 tube of the apparatus, all as and for the purpose specified.

6. In bottling apparatus, the combination with a supporting frame and table, of a vertically-arranged plug having a series of horizontal
 15 passages through which the liquid to be bottled is adapted to pass, and also a series of inclined passages communicating with the outer air, a shell or casing surrounding the plug and having a series of extended arms
 20 each provided with a passage adapted to be brought into alignment with the horizontal and inclined passages in the plug alternately when the casing is rotated, a discharge tube carried at the outer end of each arm, vertical
 25 plungers arranged beneath and corresponding respectively with the said discharge tubes and adapted to be periodically raised to support the head of a siphon and cause the filling tube of the latter to be brought into com-
 30 munication with the corresponding discharge tube, and a second series of vertical plungers arranged respectively in proximity to the first series of plungers and adapted to be periodically raised and operate the valve levers of
 35 the respective siphons simultaneously with the communication between the filling tubes of the siphons and the discharge tubes of the apparatus, all as and for the purpose specified.

7. In bottling apparatus, the combination
 40 with a supporting frame and table, of a vertically-arranged plug having a passage through which the liquid to be bottled is adapted to pass, and also a second passage adapted to communicate at its outer end with the open
 45 air, a valve adapted to control such communication, a shell or casing surrounding the plug and having an extended arm provided with a passage adapted to align with the first passage in the plug when the casing is rotated,
 50 and also with the inner end of the second passage of the plug when not in alignment with the first passage, a discharge tube carried at the outer end of the arm, a vertical plunger adapted to be periodically raised
 55 during the rotation of the said casing to support the head of a siphon and cause the filling tube of the latter to be brought into communication with the discharge tube of the arm, and a second plunger also adapted to be
 60 periodically raised during the rotation of the casing, and to operate the valve lever of the siphon simultaneously with the communication between the filling tube of the siphon and the discharge tube of the apparatus, all
 65 as and for the purpose specified.

8. In bottling apparatus, the combination

with a supporting frame and table, of a vertically-arranged plug having a channel or passage through which the liquid to be bottled is adapted to pass, a rotatable shell or casing
 70 surrounding the plug and having an extended arm provided with a passage adapted to align with the passage in the plug when the said casing is rotated, a discharge tube carried at the outer end of the said arm, a vertical plunger
 75 adapted to be periodically raised during the rotation of the casing to support the head of a siphon and cause the filling tube of the latter to be brought into communication with the discharge tube of the arm, and a second
 80 plunger also adapted to be periodically raised during the rotation of the said casing and to operate the valve lever of the siphon simultaneously with the connection between the filling tube of the siphon and the discharge
 85 tube of the apparatus, and means for effecting a step-by-step rotation of the casing consisting of a rotating shaft, a crank thereon, a connecting rod jointed at one end to the crank, a disk to which the opposite end of the
 90 rod is connected and adapted to be oscillated by said rod, a pawl carried by the said disk, and a ratchet wheel on the casing engaged by said pawl, all as and for the purpose specified.

9. In bottling apparatus, the combination
 95 with a supporting frame and table, of a vertical plug carried by the table and having its lower end extended and terminating in a neck or nozzle and having a cone-shaped upper portion, and said plug also having a vertical channel or passage and a series of radiating horizontal passages in communication with the vertical passage, and also upwardly
 100 inclined passages intermediate the horizontal passages, a shell or casing rotatably mounted upon the plug, a series of arms integral with the casing and each having bores or passages adapted to be brought into communication with the horizontal passages of the plug and with the inclined passages when not in communication with the horizontal passages, the
 105 said plug having also a second vertical passage adapted to communicate with the outer air, the said passage being in communication with the inclined passages, a valve carried at the outer end of each of the arms, a flared depending discharge tube or nozzle in communication with the passage of each of the arms, fixed siphon supports adapted to support the
 110 body of the siphons, a series of vertically-movable plungers carrying each a bearing or support at the upper end for the head of a siphon, and a second series of vertically movable plungers for operating the valve levers of the siphons, all as specified.

In testimony whereof I have hereunto set my hand in the presence of the two subscribing witnesses.

CÉLESTIN GUÉRET.

Witnesses:

JEAN ROBELET,
 LOUIS SULLEGE.