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J. & D. BAXTER.  
FILLING MACHINE.

(Application filed Apr. 29, 1901.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 4.

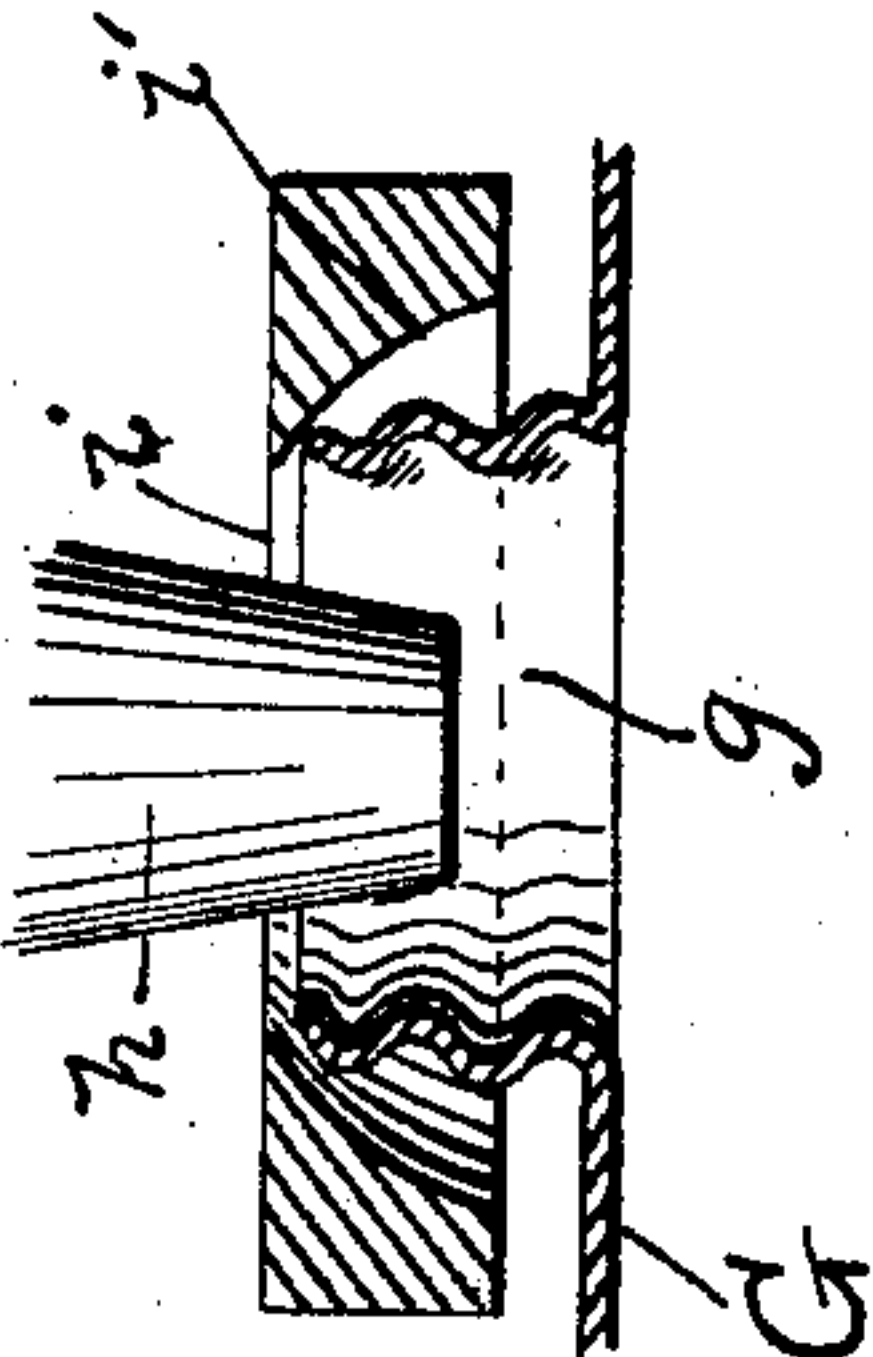
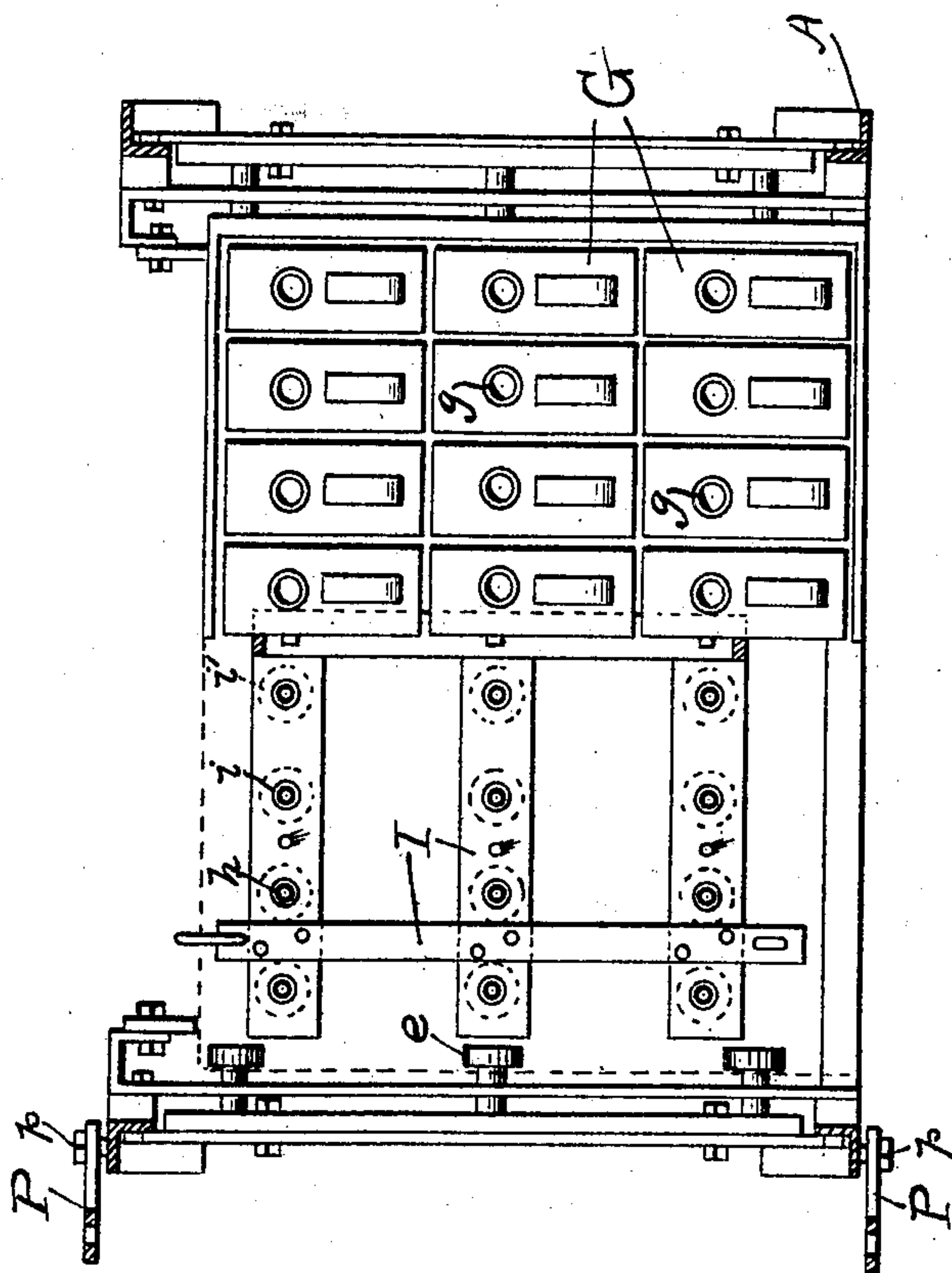


FIG. 3.



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# UNITED STATES PATENT OFFICE.

JAMES BAXTER AND DAVID BAXTER, OF CHICAGO, ILLINOIS.

## FILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 683,016, dated September 24, 1901.

Application filed April 29, 1901. Serial No. 57,986. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES BAXTER and DAVID BAXTER, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Filling-Machines, of which the following is a specification.

This invention relates to machines for filling cans, bottles, and the like collectively and with uniform quantities of liquid of the type illustrated in United States Letters Patent No. 640,987, granted to us on the 9th day of January, 1900; and the invention consists in certain improvements, more particularly in the nature of an attachment to the type of machine illustrated in the said Letters Patent, whereby the serviceableness and utility of the machine is extended, the object of the present invention being to enable the said machine to be used for filling cans, bottles, and vessels having contracted openings, which are usually closed by a screw-threaded cap or ordinary plug-stopper.

While the invention has been designed more especially as an attachment for the filling-machine forming the subject-matter of our prior patent above referred to, yet it will be obvious from the following description that the same is applicable generally to machines of this type in which it may be desired to provide means directing the flow of a liquid or other highly-mobile substance from a series of measuring-chambers into a corresponding series of receptacles having contracted receiving-openings.

A filling-machine in which are incorporated the improvements forming the subject-matter of our present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the filling attachment in its elevated position. Fig. 2 is an end elevation of the same, the depressed position of the filling attachment being indicated in dotted lines. Fig. 3 is a plan view taken on the line 3 3 of Fig. 1, and Fig. 4 is an enlarged detail illustrating the conjunction of the filling attachment with the necks of the cans or bottles during the filling operation.

In the drawings, A represents a suitable supporting-frame, which carries at its top the

receiving and measuring tank of the apparatus, designated by B. This tank B is a plain rectangular metal casting, which is divided into a series of equal-sized measuring-cells by means of suitable longitudinal and transverse partitions, as fully shown and described in our former patent hereinbefore referred to. Inasmuch as the formation of this tank forms no part of our present invention, the same need not be particularly described. It is, however, noted that the bottom of each cell has a centrally-located discharge-aperture, the several apertures in each longitudinal row of cells being controlled by a valve-strip C, which valve-strips C are connected at one end thereof by a transverse tie-bar C', whereby the several valve-strips may be caused to operate in unison through the agency of an operating arm or lever D, all as clearly set forth in our aforesaid patent.

E represents a pair of cross-bars connecting the legs of the frame near the lower ends thereof at opposite ends of the machine. In each pair are journaled a series of rollers e, forming an antifriction-track for the reception and removal of a box or case F, the latter containing a series of uniformly spaced or positioned cans, bottles, or other receptacles G. These cans or receptacles, in accordance with the purpose of our present invention, are provided with openings of contracted area, as shown at g, such openings being ordinarily closed by a screw-threaded cap or by an ordinary cork or other stopper.

Referring now to the mechanism in which are embodied the improvements forming the subject-matter of our present invention, H designates a series of funnels, there being one for each of the measuring-cells contained within the tank B. These funnels are preferably arranged in a series (here shown as three) of rows of funnels disposed side by side longitudinally of the machine, the funnels in each row being separated from each other simply by vertical partitions therebetween. The series or rows of funnels H are supported and carried on a suitable base-frame I, which frame is suspended from and normally drawn toward the base of the tank B by means of a series of tensile springs J, connecting said parts in the manner plainly shown. Each of the parallel longitudinal



bars or plates of the frame I has formed therethrough a series of apertures *i*, corresponding in number and relative location to the superposed funnels H, each of the said  
 5 apertures being entered through the greater portion of its depth by the lower end of a vertical discharge-nozzle *h*, connected with the bottom plate of the funnel-body. The several longitudinal rows of funnels H are supported vertically upon the frame I by means  
 10 of two or more hollow or tubular members K, depending from the base-plate thereof and telescoping a corresponding series of posts or pins L, extending vertically from the longitudinal members of the frame I, whereby  
 15 provision is made for the ready positioning and removal of the funnels upon their supporting-frame.

The series of funnels and the frame carrying the same are designed to be vertically shifted between a position directly beneath the discharge-orifices of the measuring-cells, as shown in full lines in Figs. 1 and 2, and a position directly above and contacting with  
 25 the cans or other receptacles contained in the case F, as shown in dotted lines in Fig. 2. In order to effect this movement of the funnel-carrying frame in a manner adapted to secure a close and perfect registration of the  
 30 several apertures *i* with the corresponding openings *g* of the cans G, we have devised the following mechanism, which in practice we have found to effect this result in a highly satisfactory manner. Depending from the  
 35 opposite sides of the top horizontal members of the frame A are a pair of slotted guides M. Secured to the opposite sides of the frame I, centrally thereof and rising therefrom in an outwardly-inclined direction, as shown in  
 40 Fig. 2, are a pair of hangers N, the upper ends of which are extended horizontally in the form of pins through the vertical slots of the guides M and also through longitudinal slots *o* in a pair of levers O, which latter are  
 45 pivoted at *o'* to the vertical members of the frame A, at or near the upper end thereof, at one end of the machine. The opposite ends of said levers O are connected by a transverse horizontal handle-bar O', as best shown  
 50 in Fig. 2. Pivoted at *p* to the vertical members of the frame adjacent the free ends of the levers O are a pair of slotted guides P, the slots of which engage pins *p'* in the outer faces of the levers O, near the free ends of the  
 55 latter. One of these pins *p'* is screw-threaded and carries an arm *p<sup>2</sup>*, by turning which the lever O and slotted guide P may be rigidly clamped together in any desired position. The longitudinal bars of the frame I are  
 60 chamfered on their under surfaces around the apertures *i*, as at *i'*, for a purpose which will appear later in the description of the operation.

Referring to the operation of our improved  
 65 attachment, it is noted that the normal position of the frame I and the series of funnels H carried thereby is as shown in Fig. 1,

wherein said parts are elevated to occupy a position directly below the discharge-apertures of the measuring-tank B and to freely  
 70 permit the placing and removal of the box of cans or other holders to be filled. This box having been placed in proper position beneath the measuring and guiding parts of the machine, as shown in Figs. 1 and 2, the  
 75 handle-bar O' is depressed by the operator, thereby swinging downwardly on their pivots the levers O, which latter carry with them the connected frame I and the several rows of funnels H carried thereby. By the continued depression of the handle-bar O' the  
 80 funnels H and their supporting-frame I are carried downwardly until they occupy the position indicated by dotted lines in Fig. 2 directly upon and contacting the receiving-  
 85 nozzles *g* of the cans G. During the latter operation the lower chamfered edges of the apertures *i* engage the top edges of the nozzle *g* of the cans and by their coöperation therewith serve to properly center the apertures and nozzles in a manner that will be  
 90 readily understood, thereby insuring the proper positioning of the discharge necks or throats *h* of the funnels H relatively to the nozzles of the cans G, the vertical axes of the two said elements becoming coincident, or substantially so, as clearly indicated in  
 95 Fig. 4, whereby a proper discharge of the syrup or other material being handled is insured, with the provision also of an adequate annular space between the inner surface of the nozzle *g* and the outer surface of the neck *h* to permit the free escape of air or steam from the can as the filling operation proceeds.  
 100 The vertically-swinging frame I and the funnels carried thereby having been thus depressed into snug registration with the tops of the cans, they are temporarily locked in such position by a partial turn of the arm *p<sup>2</sup>*. The lever D being then swung in a direction to open the discharge-valves of the measuring-cells, the syrup or other liquid  
 105 flows therefrom into the wide open mouths of the funnels therebeneath and by the latter is guided and discharged into the necks or nozzles of the receptacles G. When the filling of the latter has been completed, the clamping-arm *p<sup>2</sup>* is released, and the springs J immediately return the frame and its contained funnels to their elevated position, as  
 110 shown in full lines. The box F, containing the filled receptacles, is then free to be withdrawn and replaced by another similar box containing empty receptacles, whereupon the above-described operation is repeated. Any  
 115 time when it is desired to remove any or all of the longitudinal series of funnels to be cleaned, repaired, or for any other reason this is readily accomplished by merely depressing the frame I in the manner above described and raising the funnels off their supporting-pins L. The slotted vertical guides M, coöperating with the upper and outer extremities of the hangers N, insure the ver-  
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tical movement of the frame I between its elevated and depressed positions, and by reason of the fact that the frame I is, in effect, pivoted centrally by the hangers N on its operating arms or levers O it is capable of a slight vertical oscillating or rocking movement when forced into registering engagement with the tops of the receptacles, thereby adjusting itself automatically by continued downward pressure on the operating-bar O' to a snug registration therewith, in which operation the chamfered lower edges of the apertures *i* are effective, as above described, to secure a perfect centering of each discharge-nozzle relatively to the corresponding receiving-nozzle of the can or other receptacle engaged thereby. By reason of the flexible connection of the frame I with its support through springs J said frame is also capable of such slight horizontal or lateral adjustment as may be effective in an auxiliary way to secure a perfect registration between the cooperating parts.

From the foregoing it will be observed that by our present invention we are enabled to extend the capability and usefulness of multiple-cell filling-machines which have a direct discharge through the bottoms of the cells, rendering the same equally capable of charging small-necked receptacles without any leakage or waste whatever. A machine of this type equipped with our present improvements is certain and reliable in operation and effects a large saving of time over the common hand method of filling such receptacles individually now commonly practiced.

While our invention has been designed more particularly for use in connection with machines used for packing syrup and molasses and like commodities, yet its utility is by no means limited thereto; but it may with equal advantage be employed in the packaging of oils, paints, and any other liquid or mobile commodities that are put up and marketed in measured quantities and in receptacles of the class described.

It will be observed that the above-described means for supporting the longitudinal series of funnels upon the frame I, comprising the telescoping members K and L, provides a free vertical adjustment of the funnels relatively to their supporting-frame, such as would be desirable to prevent injury to the parts, in case in the operation of forcing the frame I and the nozzles *h* into registration with the receptacles G the lower ends of the nozzles *h* should contact the upper ends of the receiving-nozzles *g* before the said parts became properly centered by the automatic adjustment of the frame I.

We claim as our invention—

1. In a filling-machine, the combination with a supporting-frame and a measuring-tank superposed thereon, the latter comprising a series of measuring-cells having discharge-openings in their bottom walls, of a

frame carrying a series of funnels corresponding in number and relative arrangement to the measuring-cells disposed directly beneath the latter, and an operating-lever pivoted at one end on the supporting-frame and at an intermediate point to the funnel-carrying frame, whereby said funnels may be moved vertically into and out of registration with a series of receptacles to be filled disposed therebeneath, substantially as described.

2. In a filling-machine, the combination with a supporting-frame and a measuring-tank superposed thereon, the latter comprising a series of measuring-cells having discharge-openings in their bottom walls, of a frame carrying a series of funnels corresponding in number and relative arrangement to the measuring-cells disposed directly beneath the latter, automatically-operating means for raising and supporting said frame normally in an elevated position beneath the measuring-tank, and other positively-actuated means for depressing the same to carry the funnels into registration with a series of receptacles to be filled disposed therebeneath, substantially as described.

3. In a filling-machine, the combination with a supporting-frame and a multiple-cell measuring-tank superposed thereon, the latter having discharge-apertures in its base, of a mechanism for filling small-necked receptacles therefrom, the same comprising a vertically-adjustable frame having a series of funnels supported thereon, the base of said frame having a series of apertures which are entered by the discharge-nozzles of the funnels, automatically-operating means for supporting said frame normally in an elevated position beneath the measuring-tank, and other positively-operated means for depressing the same and effecting a registration of the discharge-nozzles of the funnels with the receiving-nozzles of the receptacles, substantially as described.

4. In a filling-machine, the combination with a supporting-frame and a multiple-cell measuring-tank superposed thereon, the cells of the latter discharging through their bases, of means for conducting the discharge therefrom into a series of small-necked receptacles disposed therebeneath, the same comprising a frame having formed through its base a series of apertures corresponding in number and relative location to the receiving-nozzles of the receptacles thereunder, a corresponding series of funnels carried by said frame and having their discharge-nozzles entering said apertures, springs normally maintaining said frame and its contained funnels in an elevated position beneath the measuring-tank, lever mechanism for depressing said frame and funnels into registration with the receiving-nozzles of the receptacles, and means for temporarily locking said frame and funnels in such depressed position during the filling operation, substantially as described.

5. In a machine of the character described,



the combination with the supporting-frame and the multiple-cell measuring-tank superposed thereon, of an apertured frame carrying a series of funnels disposed beneath the latter, a series of springs supporting said frame and funnels normally in an elevated position, a pair of hangers disposed centrally of said frame on opposite-sides thereof, a pair of vertically-slotted guides depending from the opposite sides of the machine-frame and centrally thereof, a pair of slotted levers pivoted at one end of said machine-frame and having their opposite ends connected by a transverse handle-bar, the upper ends of said hangers passing through the slots in said guides and levers, whereby the funnel-frame may be depressed vertically into registration with the receiving-nozzles of the receptacles therebeneath and may automatically adjust itself to a close registration therewith, substantially as described.

6. In a machine of the character described, the combination with a supporting-frame and a multiple-cell measuring-tank superposed thereon and discharging through its base, of means for guiding the discharging fluid from the latter into a series of small-necked receptacles disposed therebeneath, the same comprising a vertically-adjustable frame having a series of chamfered apertures formed through its base and a corresponding series of funnels removably supported on said frame and having their discharging-nozzles entering the said apertures, elastic means whereby said frame and its contained funnels are sustained at their opposite ends from the supporting-frame of the machine, and means for depressing said funnel-carrying frame at points centrally and on opposite sides thereof, whereby when the funnel-carrying frame is depressed into registration with the receptacles to be

filled, said frame automatically adjusts itself to perfect registration and automatically effects a true centering of the discharge-nozzles of the funnel with the receiving-nozzles of the receptacles, substantially as described. 45

7. An attachment for multiple-cell filling-machines whereby the latter may be rendered capable of filling receptacles having contracted necks, the same comprising in combination a rigid frame the base of which has formed directly therein a series of chamfered apertures adapted to overlie and automatically center the contracted necks of the receptacles relatively to the apertures, a series of funnels removably carried by said frame and having discharge-nozzles which enter said apertures centrally thereof but do not pass through the same, and means for reciprocating said frame into and out of registry with the necks of the receptacles, substantially as described. 50 55 60

8. An attachment for multiple-cell filling-machines whereby the latter may be rendered capable of filling receptacles having contracted necks, the same comprising in combination a rigid vertically-reciprocable frame the base of which has a series of chamfered apertures formed therein, a series of funnels carried by said frame and having their discharge-nozzles entering but not passing through said apertures, and means for supporting said funnels on said frame to permit automatic vertical adjustment of the funnels relatively to the frame and their ready removal from the latter, the same comprising vertically-telescoping parts carried by said funnels and frame respectively, substantially as described. 65 70 75

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