C. C. ABBEY & E. L. MADDEN.

CAPSULE FILLER.

APPLICATION FILED MAY 11, 1914.

1,161,276. Patented Nov. 23, 1915.

Fig. 1

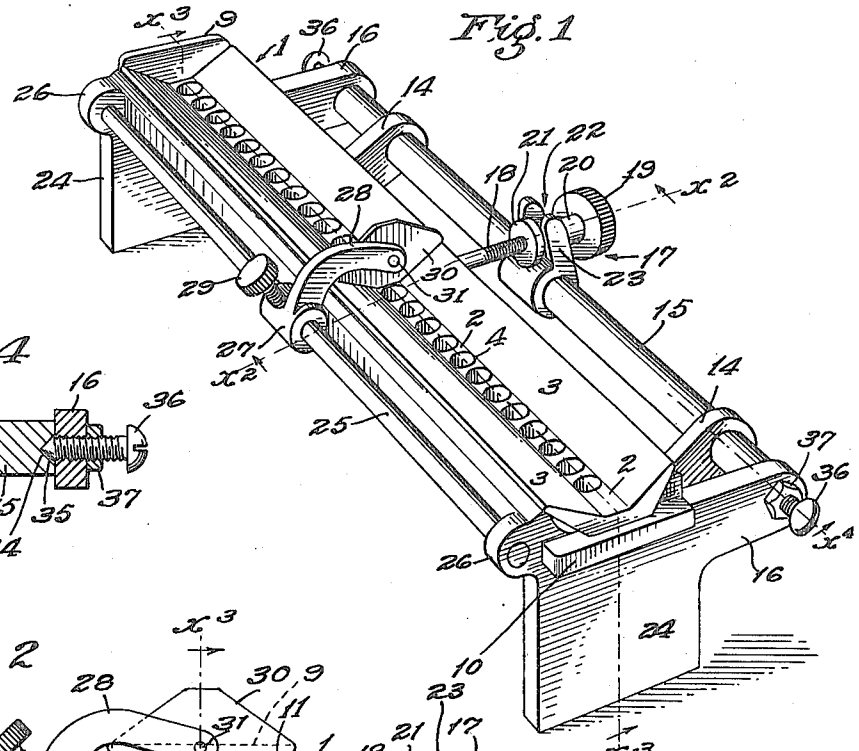


Fig. 4

Fig. 2

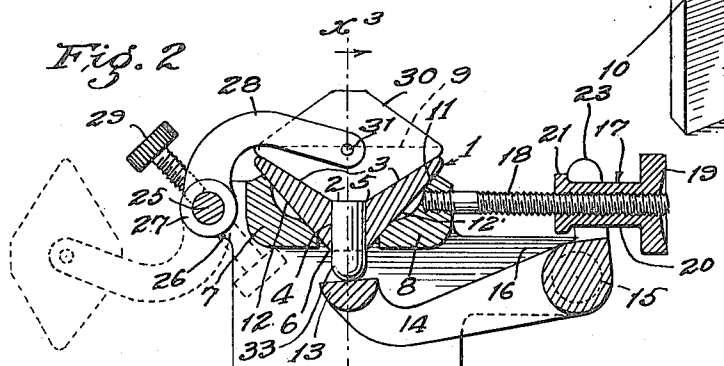
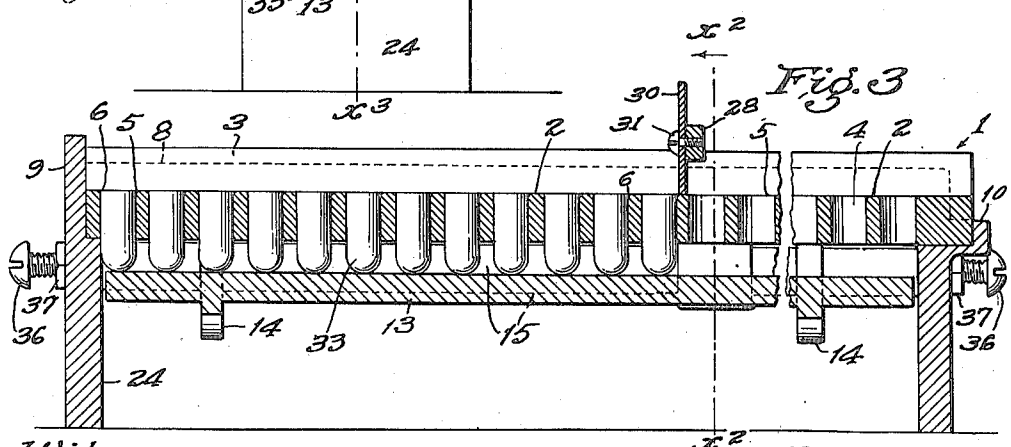


Fig. 3



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UNITED STATES PATENT OFFICE.

CHARLES C. ABBEY AND ERNEST L. MADDEN, OF SANTA ANA, CALIFORNIA.

CAPSULE-FILLER.

1,161,276. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed May 11, 1914. Serial No. 837,943.

To all whom it may concern:

Be it known that we, CHARLES C. ABBEY and ERNEST L. MADDEN, both citizens of the United States, residing at Santa Ana, in the county of Orange and State of California, have invented a new and useful Capsule-Filler, of which the following is a specification.

The object of this invention is to provide very cheap and simple means for rapidly, accurately and conveniently filling capsules with powdered or other substances without waste or loss of such substances and to facilitate placing the caps on said capsules after filling.

The invention may be variously carried out and is regarded as pioneer in that a perforated channel member is provided to receive the capsules open end up with their top ends flush with the floor of the channel so that material placed in the channel can be swept into the capsules, and in connection with this basic feature means are provided for holding the capsules with their tops on a level with the bottom of the channel, and further means are provided for adjusting the holding means so that at different times capsules of different lengths may be charged with equal convenience from the same channel, and a simple and convenient construction is provided for lifting the capsules to cap receiving position when filled.

It is a feature of this invention in its preferred form that when a certain amount of substance is to be filled into a certain number of capsules which will just contain the same, that amount can be supplied to the filler and charged into the capsules exactly filling each capsule and having none of the material left over.

Other features and advantages may appear from the subjoined detail description.

The accompanying drawings illustrate the invention.

Figure 1 is a perspective view of the capsule filler. Fig. 2 is an elevation in cross section from line x^2, Fig. 3 showing a capsule in place. Fig. 3 is a broken longitudinal section from line x^3, Figs. 1 and 2, showing a number of capsules in place. Fig. 4 is a sectional detail on line x^4, Fig. 1.

The channel member 1 may be variously constructed and is preferably an open ended trough-like bar having a flat bottom 2, sloping sides 3 and perforations 4 in the bottom, said perforations being of a size to fit the capsules to be filled and extending from wall to wall. The top margins at one side 5 of the several perforations or orifices 4 are rounded and the opposite sides of said margins may be angular as indicated at 6 to snugly fit one side of the open end of the capsule that is to be filled, the rounded edges 5 serving to allow the capsule to be easily inserted. It is understood, however, that both, neither or either of the sides may be rounded as may be preferred by the manufacturer to suit the trade. The support for said channel member may be variously constructed and in the drawings is shown as a metal frame provided with two parallel members in the form of side rails 7, 8 connected at their ends by the end pieces 9, 10, The side rails afford downwardly converging supporting surfaces 11 upon which the channel member may rest, the side rails and end pieces forming a frame that just fits the outside of the channel member, which has upwardly diverging slanting faces 12, 12′, to rest firmly on the side rails. One of the end pieces 9 extends between the side rails to close the end of the channel member when the channel member is seated on the side rails, and the other end piece 10 is constructed to leave the channel of the channel member free and unobstructed at that end so that if any surplus material is found in the apparatus after the capsules have been properly filled it can be swept out without waste before the capsules are displaced. The open space between the rails 7, 8 of the frame, is wide enough to admit the largest size capsules. Capsule supporting means is provided directly below said open space and said supporting means is in the form of a bar 13 carried by an arm or arms 14 of a rock shaft 15 that is mounted on bracket arms 16 projecting from one side of the supporting frame. Said rock shaft 15 is controlled by adjusting means which is shown in the form of a threaded collar 17 screwing onto a screw 18 that is fastened in any suitable manner to one of the rails. Said collar 17 has a thumb piece 19, a neck 20 and a flange 21 and the neck 20 extends through a slot 22 between two arms 23 fixed to the rock shaft 15 and adapted to rock the same to move the supporting member upward when the collar is turned in one direction thus to accommodate at different times, capsules of different lengths. The length of the neck is greater than the width of the

arms, affording play or lost motion, to allow the bar 1 to be raised by pressure from below thus to push the capsules up out of the holes 4, without turning the collar.

The frame is provided with end legs 24 to hold the capsule supporting means 13 free from the top of the table or other support upon which the frame may be stationed.

A guide in the form of a rod 25 is mounted on brackets 26 on that side of the frame opposite the rock shaft, and a slide 27 having an arm 28 is mounted on said guide rod and is provided with a setscrew 29 by which it may be fixed at any determined position along said member. When the setscrew is loose, the arm can be slid along and revolved part way around on the guide rod and may be swung to position above and to position away from the channel member and the frame. On the end of the slide arm 28 is mounted a gate 30 by means of a pivot 31 so that said gate is pivoted to adjust itself to the channel when it contacts therewith. Said gate may be provided with edges of different conformations to fit different channels and when the gate is brought into the channel with its proper edge down in the desired position to cut off the channel the arm may be fixed by setting the setscrew. When the setscrew is loosened the gate may be moved toward and from the end closing piece 9 thus to form a greater or less inclosure to receive the capsules and the substances to be capsuled.

The foregoing construction also constitutes means for releasably holding the channel member 1 on the frame. The means comprising the pivotally mounted swinging bar 13 and threaded adjustment 18, 19 thus provided to support the capsules is thus arranged with such capsule supporting bar below and spaced apart from the perforated channel member and adjustable up and down relative to the channel member, in order to secure extreme simplicity of construction and yet to enable the operator to accurately adjust the device to bring the tops of the capsules exactly to the level of the floor of the channel member so that the charge for each capsule will be determined exactly by the depth of the capsule. Then by reason of the lost motion at 20 the operator can quickly throw up the arm 14 and elevate the capsules so that their ends project above the floor of the channel member to receive the capsule caps; and by moving the arm 14 up fully the bar 13 lifts the capsules sufficiently so that they may be easily capped and withdrawn from the channel member.

In practical operation the capsules are inserted into the perforations or orifices which have thus been inclosed between the trough-end member 9 and the gate 31 and thereupon capsules 33 will be inserted into the perforation of this separated portion of the channel. Then the user may turn the collar to adjust the capsule supporting means to such position as to bring the open tops of the capsules to the level of the bottom of the channel member, then the charge for said capsules will be emptied into the shut off portion of the channel and will fall into the capsule. Any portion of the material which may rest upon the solid portions of the channel may then be swept by a spatula or brush into the capsules so that each capsule will be exactly filled to the brim. Thereupon the capsule supporting bar may be pushed up by one hand or the collar may be turned to move said bar up to project the tops of the capsules above the flat bottom face of the channel and thereupon the capsule caps, not shown, may be placed upon the capsules and thereupon, by overturning the appliance the capsules may be dropped out of the channel member, or, if desired, the capsules may be lifted out of the holes 4. Then upon loosening the setscrew the gate may be thrown over out of the way and the channel member removed from the frame to be asepticized if desired and stored with other channel members awaiting further use.

If it is desired to fill a number of capsules equaling the full capacity of the filler, the gate may be left in the released position shown in dotted lines in Fig. 2, capsules will be inserted to fill all of the holes in the bottom of the channel member and the supporting means being properly adjusted to hold the capsules with their open ends flush with the tops of their respective holes, that is to say level with the surface. A charge of the substance with which the capsules are to be filled will then be poured into the channel member, thus filling all of the capsules whereupon any surplus may be brushed out or by tilting the frame may be poured out at the open end and after which the operation of applying the caps to the capsules and of removing the capsules from the filler will be performed in the manner substantially hereinbefore described.

In Fig. 4 it is shown that the rock shaft may be provided with taper center seats 34 and removably mounted on centers 35 in said seats; the centers being formed on the ends of screws 36 screwed into the arms 16 and fixed by the set nuts 37.

It is understood that various changes and modifications of the apparatus can be made without departing from the spirit of the invention which is not limited to though it embraces specific construction.

We claim:

1. A channel member having perforations in its bottom to receive capsules, a frame to support said channel member and having an open space below said member to accommodate the lower ends of the capsules that are

in said member, a bar movable in said open space to support said lower ends, means carried by the frame to support the bar, and means to adjust the bar supporting means.

2. A channel member provided with perforations to hold capsules, a frame to support said channel member, a rock shaft mounted on said frame and provided with an arm, means mounted on said arm to support capsules in said channel member, and adjusting means to rock the rock shaft.

3. A member perforated to receive capsules, a frame to support said member, capsule supporting means beneath said member, an adjustable rock shaft carried by the frame to support said member, a screw connected to the frame, and a collar provided with means to engage the arm of the rock shaft with lost motion, said collar being screwed upon said screw.

4. A member perforated to receive capsules, a frame to support said member, capsule supporting means beneath said member, an adjustable rock shaft carried by the frame to support said member, a screw connected to the frame, and a collar provided with means to engage the arm of the rock shaft with lost motion, said collar being screwed upon said screw and adapted to hold the rock shaft in position to support said capsule supporting member but to allow said means to be raised to displace capsules from the capsule supporting member.

5. A capsule filler comprising a frame, a member detachably mounted on the frame and provided with perforations to receive capsules, means to push capsules upward in the perforations, and means connected to the frame and designed to be swung toward and from the detachable member to alternatively fasten and release said member.

6. A capsule filler comprising a channel member having perforations to receive capsules, an arm mounted to swing toward and from the channel member, and a gate designed to fit said channel member and pivoted to said arm.

In testimony whereof, we have hereunto set our hands at Santa Ana, California, this 4th day of May, 1914.

CHARLES C. ABBEY.
ERNEST L. MADDEN.

In presence of—
A. E. WALTER,
A. N. RUTAN.