Oct. 24, 1950 J. NORDMAN 2,526,965

CAPSULE FILLING DEVICE HAVING A STANDARD, A ROTATABLY AND SLIDABLY MOUNTED PLATFORM, AND ROTATABLY MOUNTED SPREADER MEANS THEREON

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Fig. 1.

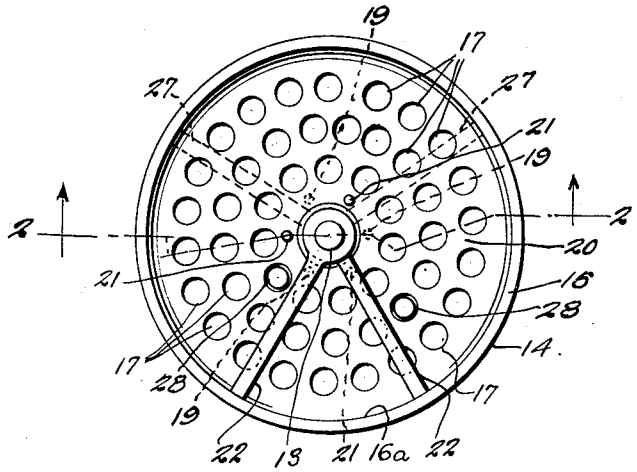


Fig. 2.

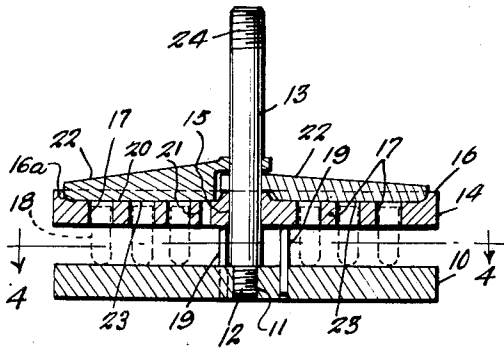


Fig. 3.

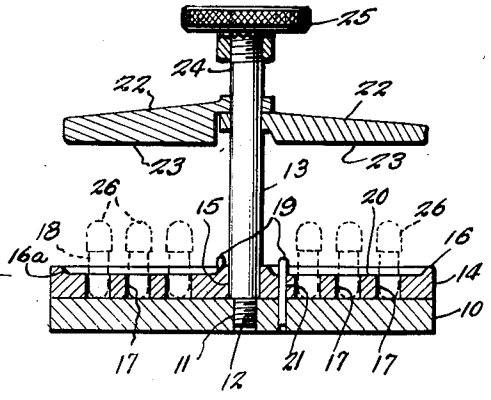
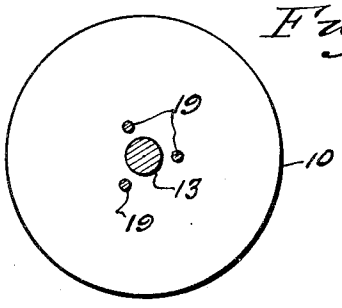


Fig. 4.



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CAPSULE FILLING DEVICE HAVING A STANDARD, A ROTATABLY AND SLIDABLY MOUNTED PLATFORM, AND ROTATABLY MOUNTED SPREADER MEANS THEREON

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6 Claims. (Cl. 226—40)

1

This invention relates to new and useful improvements and structural refinements in capsule filling devices and the principal object of the invention is to provide a device of the character herein described, such as may be conveniently and effectively employed in pharmacies, laboratories, and the like, for the purpose of filling capsules with drugs and other materials.

A further object of the invention is to provide a device which may be easily and efficiently operated and in which the capsules may be readily applied and removed.

Another object of the invention is to provide a device which may be easily disassembled for purposes of cleaning and which may be quickly modified to accommodate capsules of various sizes.

A still further object of the invention is to provide a capsule filling device which is simple in construction and which will readily lend itself to economical manufacture.

With the above more important objects in view, and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a top plan view of the invention.

Figure 2 is a cross-sectional view, taken substantially in the plane of the line 2—2 in Figure 1 and showing the device in readiness for the capsule filling operation.

Figure 3 is a cross sectional view similar to that shown in Figure 2, but illustrating the device in readiness for the removal of capsules, and

Figure 4 is a cross sectional view, taken substantially in the plane of the line 4—4 in Figure 2.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention embodies in its construction a suitable base 10, preferably of circular configuration, and provided substantially in the center thereof with a threaded bore 11 adapted to receive a screw threaded shank 12 of a shaft-like standard 13.

A substantially circular platform 14 is formed with a central bore 15, whereby it may be slidably and rotatably positioned on the standard 13, as will be clearly apparent from the accompanying drawings. The platform is provided with an upturned marginal flange 16 having a concaved guide groove 16a. The platform is also provided with a plurality of openings 17 these being adapted

2

to receive the capsules indicated by the phantom lines 18.

The base 10 is also provided with a plurality of outstanding pins 19, these being arranged in a spaced relationship and normally engaging the underside of the platform 14, as is best shown in Figure 2. It will be apparent that in this manner, the platform will be supported in a spaced relationship with respect to the base, whereby the upper ends of the capsules 18 are substantially flush with the upper surface 20 of the platform 14, while the lower ends of the capsules 18 contact the base 10.

The platform 14 is also formed with a plurality of apertures 21 which are spaced in accordance with the spacing of the pins 19. It will be apparent that by rotating the platform 14, the pins 19 may be received in the apertures 21, whereby the platform 14 may be lowered to contact the base 10, as is best shown in Figure 3.

The material distributing means consists of a plurality of spreader arms 22, these being pivotally mounted on the standard 13 and extending radially therefrom, the inner end of the arms being suitably arranged on the standard, so that the lower edges 23 of the arms 22 engage the surface 20 of the platform 14.

The upper end of the standard 13 is formed with a screw threaded portion 24, and a suitable knurled nut 25 may be removably positioned on this portion if desired.

Having thus described the constructional details of the invention, its method of operation will now be explained.

When the invention is placed in use, the platform 14 is arranged so as to be supported by the pins 19 whereupon the capsules 18 may be inserted into the openings 17, as has been already explained.

Material for filling the capsules is then deposited upon the surface 20 of the platform 14 and by rotating the spreaders 22 about the standard 13, the material will be effectively distributed to fill the capsules.

When the filling operation is completed, the platform 14 is rotated so that the pins 19 are received in the apertures 21 whereupon the platform 14 is lowered as already explained, to its position on the base 10, as shown in Figure 3. Suitable caps 26 may then be applied to the capsules 18 and the capsules may be removed from the device by simply lifting them from the openings 17.

It will be noted that since in capsules of standard sizes, a capsule of a given diameter is usu-

ally of a given length, the invention may be readily adapted to accommodate various sizes of capsules. This is accomplished by employing a common base 10 together with the standard 13 and the spreader arms 22, and using a number of attachments, as it were, consisting of a plurality of the platforms 14. These platforms will be similar in structure, but will differ in thickness and in the diameter of the openings 17.

Accordingly, when it is desired to fill capsules of a relatively different size, the appropriate platform 14 will be employed, the thickness of which will be in proportion with the length of the capsule and the openings 17 thereof will conform with the capsule diameter. In this manner, the upper ends of the capsules will remain substantially flush with the surface 20 of the platform while the latter is being supported upon the pins 19.

When the invention is not in use, the several of the platforms 14 may be "stacked," as it were, upon the standard 13, and retained in position thereon by means of the nut 25.

The movement of the arms 22 upon the platform 14 is indicated by the phantom lines 27 and it should be noted that the device may be effectively employed for filling a lesser number of capsules with respect to the number of openings 17 with which the platform is provided. This is accomplished by inserting the desired number of capsules in a sector-like formation of the required number of openings 17 and manipulating the arms 22 only over the portion of the surface 20 which is occupied by the capsules. The movement of the arms 22 may be effectively confined to this area by inserting removable plugs 28 in the suitable of the openings 17, as is illustrated in Figure 1.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure and accordingly, further description thereof at this point is considered unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of the parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim as my invention is:

1. A capsule filling device comprising a base, a standard carried by the base, a platform slidably mounted on the standard, said platform having a plurality of capsule receiving openings, an upstanding circular guide and retaining flange carried by the platform, and spreader means rotatably mounted on the standard and frictionally engaging the platform and the flange for distributing material into the capsule receiving openings.

2. A capsule filling device comprising a base, a standard carried by the base, a platform slidably mounted on the standard, said platform having a plurality of capsule receiving openings, an upstanding guide and retaining flange carried by the platform, and spreader means frictionally engaging the platform and the flange for distributing material into the capsule receiving openings said guide and retaining flange being annular and having an annular concaved guide groove in its inner face, and said spreader means including a spreader arm pivotally mounted on the standard and having a rounded end portion for frictionally engaging the guide groove.

3. A capsule filling device comprising a base, a standard carried by the base, a platform slidably and rotatably mounted on the standard, said platform having a plurality of capsule receiving openings, spreader means rotatably carried by the standard and frictionally engaging the platform, means for guiding the rotary movement of spreader means on the platform, and pins rising from the base for holding the platform spaced a predetermined distance from the base whereby the closed lower ends of capsules positioned in the capsule receiving openings will engage the base and the upper open ends of the capsules will be substantially flush with the upper face of the platform, said platform having apertures for receiving the pins upon rotation of the platform to permit the platform to be lowered against the base.

4. A capsule filling device comprising a base, a standard carried by the base, a platform slidably mounted on the standard, said platform having a plurality of capsule receiving openings, spreader means rotatably carried by the standard and frictionally engaging the platform, means for guiding the rotary movement of the spreader means on the platform, and means for holding the platform spaced a predetermined distance from the base whereby the closed lower ends of capsules positioned in the capsule receiving openings will engage the base and the upper ends of the capsules will be substantially flush with the upper base of the platform, said last mentioned means including a plurality of circumferentially spaced upstanding support pins carried by the base for engaging the lower face of the platform.

5. A capsule filling device comprising a base, a standard carried by the base, a platform slidably and rotatably mounted on the standard, means for normally holding the platform spaced relative to the base, said platform including a plurality of capsule receiving openings, a spreader arm journalled for rotation on the standard and frictionally engaging the upper face of the platform, means for retaining a filling material on the platform and for guiding the pivotal movement of the spreader arm, and means removably positioned in a selected opening in the platform for limiting rotation of the spreader arm on the standard.

6. A capsule filling device comprising a base, a standard carried by the base, a platform slidably mounted on the standard, means for normally holding the platform spaced relative to the base, said platform including a plurality of capsule receiving openings, a spreader arm pivoted on the standard and frictionally engaging the upper face of the platform, means for retaining a filling material on the platform and for guiding the pivotal movement of the spreader arm, and means removably carried by the platform for limiting the pivotal movement of the spreader arm, said last mentioned means includes a stop plug frictionally fitted in a selected capsule receiving opening formed in the platform.

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