

APPARATUS FOR FILLING SOFT CAPSULES.*

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My object in presenting this paper is not to discuss the origin or the use of soft capsules (as this is known to every pharmacist), but to acquaint the profession with an easy and time-saving device, which does away with the old method of filling the soft capsules with a dropper or burette. At present the dispensing pharmacist, as well as the manufacturing chemist, fills the soft capsules by setting them on a perforated wooden rack, or shallow box with a perforated cover, introduces the liquid drop by drop with a pipette or burette; when filled the capsules are sealed with melted gelatine.



Sealing Capsules.

Filling Capsules.

This method, as we all know, takes up a considerable length of time, requiring a great deal of care, and is troublesome at best, and if one is called upon to do other things, time is a very important factor.

Two years ago I had the pleasure of presenting a paper before the same section on the subject of Ampoules and the method of filling same automatically; also exhibited a simple apparatus for this purpose, which I devised, as the result of a suggestion by Mr. Caswell A. Mayo at a meeting of our local branch several years prior to this.

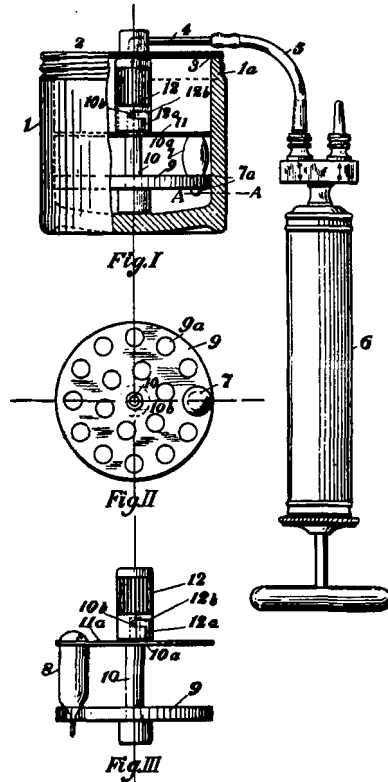
The outcome of this little apparatus was regarded very favorably; several of the colleges adopted its use. It occurred to me that the same fundamental principle involved in this procedure could be applied to a gelatine container as well as a glass one.

I am sure that this small and simple device will appeal to all pharmacists and manufacturers as the most practical, inexpensive, easy to manipulate, time-saving, clean and accurate procedure.

* Read before Section on Practical Pharmacy and Dispensing, San Francisco Meeting.

It consists of a glass receptacle, hermetically sealed, operated by means of a suction hand pump and the capsule retainer. The contents to be used to fill the soft capsule enter automatically; when completed they are sealed and washed off with a little Ether or Alcohol.

There is no question in my mind that physicians do not prescribe soft capsules freshly made with their own formulæ, because they know how troublesome it is to make them under the ordinary circumstances. When one considers the time consumed in making, we will say 30 capsules *at once*, that does not take any



LASCOFF'S SOFT CAPSULE AND AMPOULE FILLER.

Fig. 1.—A 4-ounce, screw-cap ointment jar; tube (4) and rubber tube (5) connect the former to an aspirator (6). An aluminum disc, see figures II and III, is placed within the jar; the disc is perforated so as to admit the necks of soft capsules. In the center of this disc is an upright (10) provided with a lug (10b) and with an offset (10a). Plate (11) has a cylindrical opening in the center for upright (10). Plate (11) is held in place by slotted nut (12), and the capsules, after removing the tips are inserted as shown in figure I. After the capsules are inserted and the frame put in the jar and the medicated liquid, the screw cap thoroughly fastened on, the air is removed by means of the aspirator and is then gradually allowed to return when the liquid will be forced into the capsules. The cover is removed, the aluminum holder taken out and inverted so as to have the opening of the capsules up. The surplus liquid is removed from the capsules and then sealed by means of melted gelatin.

longer with this apparatus than the filling of two or three by hand, we can easily conclude what financial gain we will derive by encouraging the prescriber to call for any combination of his own, freshly prepared.

In searching the various textbooks, like Remington's, Army's or Caspari's, one can find descriptions and illustrations of hundreds of devices to facilitate manufacturing and dispensing, both on a small and large scale for every possible pur-

pose and for the filling of soft capsules all of them have the one fundamental principle and that is—to fill them *one by one*. The difference being only in the method of dropping the fluid into the capsule itself and the particular retaining base to hold the capsule while being filled.

For the hard capsule we have the Parke, Davis & Co. Capsule-Filler, Ihrig's and Remington's Hard Capsule Filler where large quantities are made at one time, but *not one* apparatus or device could I find to fulfill the purpose which this little apparatus does, especially when the same apparatus can perform two purposes, that is the filling of soft capsules as well as glass ampoules.

What is gained by this apparatus?

- 1) Any given number of soft capsules can be filled *at one* time, according to the size.
- (2) Equal division of dose is accomplished without extra manipulation.
- (3) Being constructed of glass and metal, it is easily cleaned and sterilized if necessary.
- (4) The cost is nominal.
- (5) It is very easy to manipulate, and
- (6) Last and not least, the time- and labor-economy.

DISCUSSION.

Mr. Hynson: I have been a strong advocate of the soft and elastic capsule, but I believe now the hard capsule is more satisfactory for prescription work than the soft capsule. I believe you can get more satisfactory results, more permanent results, in the hard capsule, and within the bounds of the number 1, or 0 capsule, they are just as easily filled and they dissolve as well.

I think the great objection to this method is that it is going to take you three or four times as long to prepare the filler for six or twelve capsules as it would if you put them up in the old method.

There is one point in filling capsules, and that is, not to have any oil on the capsule; for there is difficulty in removing it, and the smallest amount interferes with a perfect seal.

In this connection, if I may be allowed to say it, I think the personal equation of the dispenser comes more in play in the handling of the liquid gelatin than anything else. With the greatest effort I have tried to fix some standard by which I could instruct the student and the clerks so that they could have this liquefied gelatin in a proper condition for use. I would like somebody to tell me how they are going to do that except to learn, like the candymaker and the cook, and all those people do,—by the touch of the thing, by the feel of it, exactly the condition it should be in. Now, if there is any other rule of doing that than simply by practice, I would like to know it.

Mr. Lengfeld: I would like to say that in sealing capsules I have had lots of trouble, but I find by using a little hot water on a piece of cotton and wiping off the top of the capsule I have less than one percent of leak. It turns a round edge just as if they were cut by machinery.

Mr. Nitardy: In connection with the filling of soft, elastic capsules, I would like to bear out the remarks of several gentlemen I have heard here. We formerly cut them at the shoulder; we now cut them long first, fill them, and after they are stacked up in the holders we then take a pair of scissors and cut them level with the shoulder, giving us a new clean edge, that has never been touched by anything, to seal.

In regard to sealing, I think Dr. Hynson is absolutely right—there is nothing but practice which will show you how the gelatin should be. We save the pieces cut off the capsules for melting up and getting our sealing solution, which makes it unnecessary to make a solution of gelatin and glycerin of the same proportion to have the same consistency and elasticity as that of which the capsules are made.

Mr. Lichthardt: The question in my mind is the accuracy of apparatus like that. Suppose the physician orders a five or ten minim capsule of some oil and you use that apparatus, how do you know you have got five or ten minims in that capsule?

Mr. Hynson: You test the capacity of the capsule beforehand.

Mr. Lichthardt: I have found them to vary.

Mr. Osseward: I want to state that you cannot depend on the capacity of the capsule; five minim capsules may hold six or seven, or maybe ten.

Mr. Hynson: Then you make up your bulk for all the capsules. I have never measured the contents before they were put in, but I measure the capsule and make up a mixture and dilute it up to the capacity of the capsule, some multiple of the number of capsules I want to fill, and fill each capsule to a certain point.

Mr. Osseward: There is another point regarding the sealing. It is just as you said, the only way to learn as to the consistency of the gelatin is by practice. There is evaporation of water going on while you are sealing capsules. You have to watch that very closely. So you need an experienced man.

SAND TUBES FOR THE RAPID SEPARATION OF TYPHOID BACILLI.

Several methods for the isolation of typhoid bacilli have been published, based on the much greater mobility of that organism than of the bacteria which accompany it in dejecta. The method now suggested by the authors is claimed to be rapid, simple, and effective. It consists virtually of a sand filter, which the typhoid organisms can penetrate at a much greater speed than other germs. A glass tube about 33 cm. long and 5 to 6 mm. in diameter is drawn out somewhat in the middle and bent in a U. The constricted portion is then filled with sterile sand to a height of about 10 cm. and the open ends of the tube are plugged with cotton. Broth or other culture medium is then introduced through one branch of the tube in such quantity that it reaches a level about 10 cm. deep above the sand bed in each branch. This may, if needed, easily be adjusted by means of a fine pipette. The filling may be either carried out aseptically or the completed apparatus may be sterilized. It is then set aside for twenty-four hours to ensure its sterile condition. The culture broth in one branch is then inoculated with a few drops of intestinal washing obtained after first administering an evacuant enema. This washing will generally be almost clear and contain only a small amount of suspended particles. The apparatus is then incubated at 37° C. for eighteen hours. When the stools contain typhoid germs the culture liquid in the other branch of the tube will frequently be cloudy, and typhoid bacilli may be detected by direct micro-examination. Occasionally the presence of *B. coli* may require a second culture in another sand tube. This will give a pure culture in the time indicated. If no bacteria pass through the sand in eighteen hours the typhoid bacillus is probably absent. A longer incubation should, however, be given, although in time organisms other than the one sought will ultimately traverse the sand stratum. In all cases the identity of the typhoid bacillus should be confirmed by the usual reactions. The method is specially useful for detecting "typhoid carriers" among those who are apparently healthy.—*P. Carnot and H. Weill-Halle* (*Comptes rend.*, 1915, 160, 148, through *Pharmaceutical Journal*.)