A. F. W. & W. F. A. NEYNABER.

Pill Feeder and Counter.

No. 213,296 Patented Mar. 18, 1879.

Fig. 1

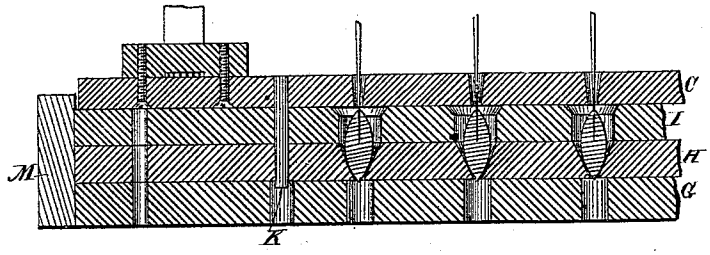


Fig. 2.

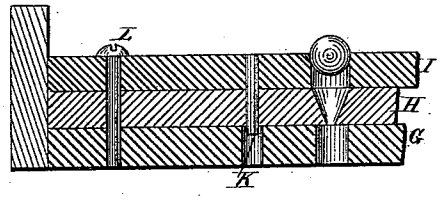


Fig. 3.

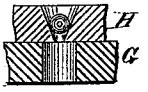


Fig. 4

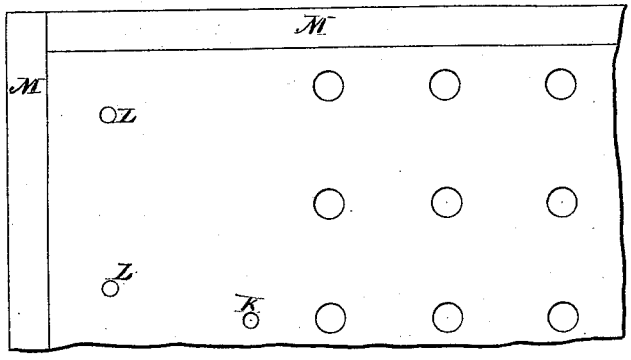
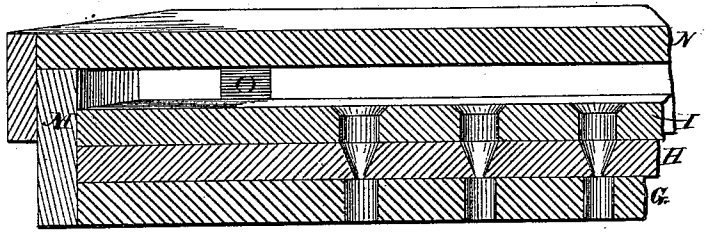


Fig. 5



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UNITED STATES PATENT OFFICE.

ADOLPHUS F. W. NEYNABER AND WILLIAM F. A. NEYNABER, OF NEW YORK, N. Y.

IMPROVEMENT IN PILL FEEDERS AND COUNTERS.

Specification forming part of Letters Patent No. **213,296**, dated March 18, 1879; application filed April 27, 1877.

To all whom it may concern:

Be it known that we, ADOLPHUS F. W. NEYNABER and WILLIAM F. A. NEYNABER, of the city, county, and State of New York, have invented a new and useful improvement in an appliance to our pill-coating machine, (patented November 23, 1875,) for the purpose of putting pills on needles by a mechanical contrivance instead of being put on by hand. Said appliance we have called "The Universal Pill Feeder and Counter;" and the improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal section, showing the feeder as used for putting oblong pills on the needles; Fig. 2, a longitudinal section, showing the feeder as used for putting larger globular pills on the needles; Fig. 3, a longitudinal section, showing the feeder as used for putting smaller globular pills on the needles; Fig 4, a horizontal section of the universal pill feeder and counter; Fig. 5, a longitudinal section, showing the same as used for counting out pills.

The object of our invention is to furnish a device by which pills of all usual sizes and shapes can be put on needles of our racks instead of being put on by hand.

G is the bed on which the plates rest, surrounded by rim M, projecting sufficiently above the plates to prevent the pills from falling off from the plate or bed. On bed G rests plate H. Into this plate are drilled the desired number of holes with countersinks on the upper side to correspond exactly with the position of the needles drilled in right-angled or diagonal lines, as desired. We prefer the countersink being about three-sixteenths of an inch in diameter on the upper side and about three-sixteenths of an inch deep, terminating in a hole of about one-sixteenth of an inch or less, so that a needle will pass through the hole. In case that by inadvertence the needle will be forced all through the pill it will not break at the point. This is of great importance in the handling of the needle apparatus, as it will save many a needle from breaking at the point. Corresponding with the holes in plate H are drilled larger holes through bed G underneath plate H.

The upper plate, I, has holes corresponding also exactly with the position of the needles and the lower plate, H. The holes in plate I are funnel-shaped on the upper side, terminating in holes of the size required for the oblong pills to be coated, and continuing to be parallel as they extend downward to the lower side of the plate.

If a plate is provided with indentations forming half a circle instead of being conically tapered, the plate can be used for a few sizes of globular pills only; but if the indentations of plate H are made in the shape of a countersink, as shown in Figs. 1, 2, 3, and 5, the plate can be used for many sizes of smaller globular pills, while the larger globular pills can be put on by means of the upper plate.

If a plate be provided with countersinks, as shown in plate H, Figs. 1, 2, 3, and 5, but not having the dust and air holes, there will be no access for air beneath the pill, and a partial vacuum may be formed when a soft pill is slightly pressed in the process of piercing the pill by the vertically-moving needle, whereby the pill may be retained in its place on the plate instead of being lifted up by the needle, and dust will settle in the lower part of the recess; but if the countersinks terminate in small holes, as described, no vacuum can be formed, and less dust, if any, will settle in the lower part of the countersink.

The main feature of our invention is the improved shape of the countersink in connection with the dust and air hole, as above described, by which the following advantages are obtained: First, there is less risk of breaking the points of the needles; second, the pills will be much more easily lifted up by the needles; and, third, the settling of dust in the recess is much lessened.

The operation is as follows: For oblong and larger globular pills select the proper upper plate for the size of pills to be coated, put this plate on the lower plate, H, and put a handful or a sufficient quantity of pills on the plate, move the pills with the hand over the holes, or shake the apparatus so as to fill the

holes with pills, while the surplus of pills will roll into the space in front of the plate. The instrument with needles is then put on the plate, close to the left side rim, and parallel with the plate, and the needles are forced into the pills.

For small globular pills or granules use the feeder without any upper plate, put a handful of pills or granules on plate H, move them with the hand over the holes, or shake the apparatus so as to fill the holes, allow the surplus to roll into the space in front of the plate, put the instrument with needles on plate H, close to the left side rim, and parallel with plate H, and force the needles into the pills or granules.

If the feeder is to be used for counting pills, take out the brass piece O, inserted into rim M, Fig. 5, and the operation will be as follows: For counting oblong and larger globular pills select the proper upper plate for the size of pills to be counted, put this plate on the lower plate, H, and put a handful or a sufficient quantity of pills on the plate, move the pills with the hand over the holes, or shake the apparatus so as to fill the holes with pills, while the surplus of pills will roll into the space in front of the plate, the operator holding the counter with one hand, so as to close the opening in rim M, while with the other hand he moves the pills over the holes or shakes the apparatus. As soon as all holes are filled, and the surplus of pills is in front of plate H, the counter is held over a pasteboard box or any suitable vessel, the hand closing the gate is removed, and the surplus of pills allowed to slide into the vessel beneath. Another pasteboard box, or a box made of wood, as cover N, is put over the counter, the contrivance is then inverted, and the exact number of pills (thirty, twenty-five, fifty, one hundred, &c., according to the number of holes contained in the counter) will be found in the pasteboard box or cover N. From the paste-board box the pills can be allowed to slide into the bottle through a suitable funnel or by means of the hand being put over the mouth of the bottle. The pasteboard or wood box referred to is illustrated by cover N, in which is also a gate, although any ordinary box without a gate will answer the purpose. For counting small globular pills or granules use the feeder without any upper plate, and proceed otherwise as above directed for counting. In this manner pills can be counted out for putting them up in bottles or boxes.

If the feeder and counter contains thirty holes, each time that the holes are filled, thirty pills will be counted out. For counting out twenty-five pills at a time an apparatus is required to have twenty-five holes; for counting out fifty pills, one with fifty holes: for one hundred pills, one with one hundred holes. Some pills are sold in boxes containing thirty pills, while pills made according to the formulas of the United States Pharmacopœia are sold in trade in bottles containing twenty-five, fifty, one hundred, and five hundred pills. For counting out these pills different devices have been in use.

Our improved device answers both purposes, for putting pills on needles and for counting out the pills when finished, and is the most convenient device ever constructed for these purposes, very useful for manufacturing and dispensing pharmacists.

The apparatus can be made of wood, metal, or any other suitable substance.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination of upper plate, I, having funnel-shaped holes on the upper side, with parallel extension downward, with plate H, having tapered holes terminating at the bottom in small holes merely to allow air, dust, and needles to pass, for the reception of oblong and globular pills, for the purpose of counting such pills, according to the number of holes contained in the plate, or transferring such pills for coating to needles in corresponding positions with the center of the holes of plates I and H, substantially as specified.

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1,750 mrd.