

REFERENCES.

- (1) "Some of the Memorable Events and Occurrences in the Life of Samuel L. Mitchill 1786-1821." No author or date of publication given.
Felix Pascalis-Ouviere, "Eulogy on the Life and Character of the Hon. Samuel Latham Mitchill," 1831.
Samuel D. Gross, "Lives of Eminent American Physicians and Surgeons," 1861.
Howard A. Kelly, "Cyclopedia of American Medical Biography," 1912.
"Biographical Directory of the American Congress," 1928.
"Dictionary of American Biography," 1934.
- (2) *New York Assembly Journal*, 1791, 1792 and 1798.
United States Annals of Congress, Seventh to Twelfth Congresses, 1801 to 1813.
- (3) "An Act to Encourage Vaccination," U. S. Stat. at L., 2, 806 (1813).
- (4) *Medical Repository*, Volumes 1 and 2, consult Indexes for a dozen references.
- (5) James A. Spalding, "Life of Dr. Lyman Spalding," page 20 (1916).
- (6) Arthur Selwyn-Brown, "The Physician throughout the Ages," 1, 801 (1928).
- (7) Benjamin Smith Barton, "Collection for an Essay toward a Materia Medica for the United States, 1798 and 1804," published privately by the author.
- (8) *Medical Repository*, 18, 268 (1817) contains a good review.
- (9) *Ibid.*, 19, 434 (1818).
- (10) James A. Spalding, "Life of Dr. Lyman Spalding," page 362 (1916).
- (11) *Medical Repository*, 22, 113 (1822).
- (12) *Am. J. Pharm.*, 2, 316 (1831).
- (13) *Ibid.*, 4, 94 (1833).

 EARLY AMERICAN PHARMACEUTICAL INVENTIONS.*

 BY CHARLES WHITEBREAD.¹

Until a few years ago a person applying for a United States patent was required to supply a model of his invention to the Patent Office, United States Department of Commerce. These models were kept by the Patent Office and an immense number of them accumulated. When it eventually became necessary to change the phase of office procedure requiring the submission of a model with the application for a patent, there was substituted for the previous method a plan under which drawings took the place of the models.

The large collection of patent models which had accumulated through the years, and which represented practically every branch of industry, was then disposed of in various ways. Some of the models were returned to patentees or their descendants, others were transferred to the Smithsonian Institution to be exhibited in the United States National Museum and others were junked.

The patent models which reached the Division of Medicine included inventions classified under the headings of medicine, surgery, dentistry, pharmacy and nursing. All of these inventions were devised with a view to simplifying the practice of medicine. Consideration is given to a few unusual patent models of general medical interest and, in more detail, the patent models devised for use in the practice of pharmacy.

When the anesthetizing power of ether became known, physicians were confronted with the work of placing patients under its influence, a new task and one involving painstaking care and responsibility. What was more natural than to

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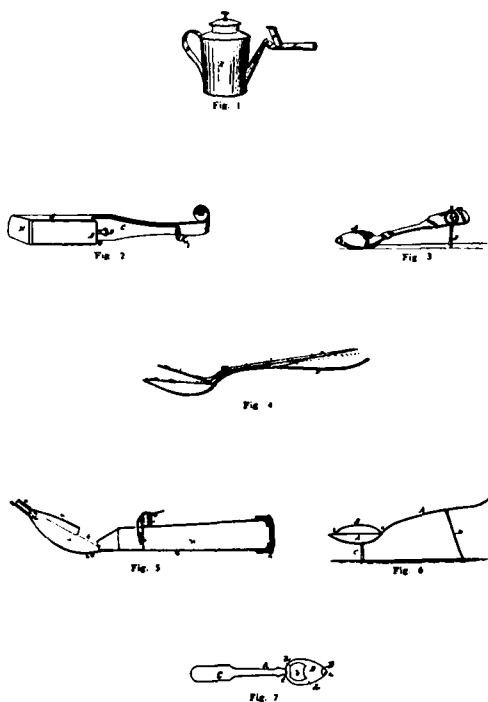
desire a device which would simplify the task and make it as nearly foolproof as possible? So Dr. W. T. G. Morton, with the help of an associate named Gould, invented and patented an ether inhaler. It will be remembered that Dr. Morton was the dentist and physician who first demonstrated practical ether anesthesia to the world. This Morton and Gould inhaler, a sort of tin can apparatus with a mouthpiece, was among the models turned over to the Division of Medicine. Of course, the inhaler never came into general use, the method of dropping ether on cotton being more simple.

In the surgical collection of models are many devised to simplify the operation of bloodletting which was so much in vogue in the early history of the United States. Some of these old surgical instruments are vicious and wicked-looking contrivances. One resembles a revolver, and has the tip of a knife protruding from the end of the barrel. This instrument is operated by pulling back the hammer of the revolver, thus drawing the point of the knife blade back into the barrel against a strong spiral spring. The end of the barrel is now placed on the vein to be punctured, after which pressure on the trigger causes the knife to shoot forward making the necessary incision for the application of an "exhausted cup."

The instruments represented in the collection of dental patent models are very unusual, many of them being quite unlike the working tools of a dentist of the present time. For instance, a drill in the collection is operated like a spray gun with a back and forth movement of the handle to drive a wheel and chain which rotates the drill. Another drill is spun by a spring, and the device, which is shaped like a bellows, has to be wound up like a clock.

Inventors have appreciated the tedious work of nurses, and have invented all sorts of medicine spoons, some with covers to protect medicines and mustaches, some with feet so a filled spoon will be at the patient's hand for self-administration and others with a clock-like dial on the handle to serve as a reminder when to give the next dose of medicine. One of the most unusual of the nursing patent models is a device for the administration of pills without the knowledge of the patient.

This device resembles an ordinary teapot and has an opening in the long crooked spout into which the pill may be dropped surreptitiously by the nurse when the patient is drinking from the spout.



Nursing Patent Models.

Fig. 1.—Pill administrator; Figs. 2-7, medicine spoons.—*Courtesy of U. S. National Museum.*

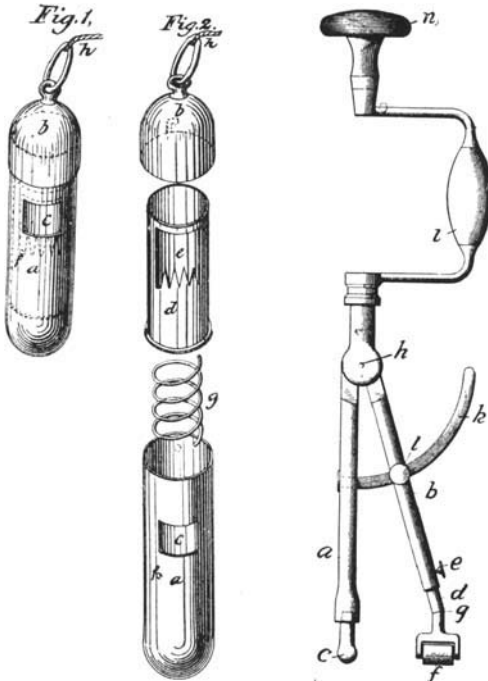
A famous invention represented in the national collection is a set of the metallic tractors patented in 1796 by Dr. Elisha Perkins, a Connecticut physician.¹ The tractors, which came in pairs, resemble horseshoe nails.

One is made of brass and the other of steel. They are applied by drawing the points over the affected parts for about twenty minutes at a sitting. The tractors' curative properties were believed to be due to magnetism or electricity supposed to be generated by them.

In passing judgment on this patent it should be remembered that it was granted when knowledge of electricity was more limited than at present, and investigators were proclaiming galvanic electricity—discovered only five years earlier by Galvani—as a specific for all kinds of disorders.

One of the most unique of the medical inventions is the Myers' Tape-worm Trap, patented in 1854 by Dr. Alpheus Myers.

The trap, which is made of metal, resembles a large capsule such as is used in administering powders. The lower half of the capsule has in its side a rectangular window, and also contains a snugly fitting cylinder. This cylinder also has a window (with lower rim sharply toothed), the lower edge of which rests on a spiral spring. In use, the trap is baited with a suitable nutritious substance, and the cylinder with the tooth-edged window is forced down on the spring until the teeth are below the window opening where it is held by a small stud. The trap is now ready for use. The tapeworm's host is instructed to fast for a suitable length of time before swallowing the trap, the idea being to have the parasite so hungry that it will be quickly attracted to the bait. The trap is then swallowed, a safe grip being kept on the cord attached to the upper half of the capsule. The tapeworm is supposed to put its head into the little window to remove the bait. This tampering with the bait releases



Medical Patent Models.—Left, tapeworm trap ready to be swallowed; center, the tapeworm trap (enlarged), separated in its component parts; and right, the dimple-producing instrument.—*Courtesy of U. S. National Museum.*

the cylinder which is forced upward by the spring, and the tapeworm is snared. The release of the cylinder is supposed to warn the patient so he can pull on the string and bring the trap and the captured tapeworm to the exterior.

In February 1877, a patent was granted for a "Pedal Calorificator," an improvement in foot warmers.

The invention is quite a simple one, consisting of a cup-shaped mouthpiece from which are suspended two tubes each long enough to reach from the mouth of the user to his feet. In the operation of the apparatus, the sufferer from cold feet is instructed to inhale through his nostrils and to exhale into the mouthpiece thus sending his hot breath down to warm his feet.

¹ Illustration of these famous instruments, *JOUR. A. PH. A.*, Vol. 22, No. 11, page 1142 (Nov. 1933).

"A device which serves either to produce dimples on the human body or to nurture and maintain dimples already existing," was patented in the United States in 1896, by a resident of Berlin.

This invention looks like a carpenter's brace and bit, the bit being a small rounded knob. An adjustable extra arm also extends from the brace, and it has on its lower extremity a small rotating roller. In use, the knob-like bit is placed on the spot where it is desired to form a dimple, or where one already existing is to be accentuated, and the brace is then turned on its axis. The rotating knob is supposed to make a dimple, and the roller on the end of the extension arm, to use the words of the inventor, is to "mass and make the skin surrounding the spot where the dimple is to be produced, malleable."

Leaving this bit of information concerning medical patent models, a review is given of some of the early United States inventions designed to simplify the work of pharmacists. Those which reached the Museum are listed below in chronological order, with a brief description of each taken from the patent specifications.

Patent No. 341.—A device for spreading plaster upon cloth, invented by B. Morison, Milton, Pa., and patented August 8, 1837. The apparatus is a frame 18" high and 18" square, having four legs which give it the height of an ordinary table. In this frame are two parallel rollers, with turning cranks on opposite ends, a small wooden one and a larger one of metal, the latter being directly under a triangular vat, called the spreader, for holding the plaster mass. The plaster, melted to the consistency of molasses, is now poured into the spreader, and spread on the cloth to the required thickness.

Patent No. 3619.—A machine for making mercurial ointment, invented by James W. W. Gordon, Baltimore, Maryland, and patented June 5, 1844. The materials to be mixed are placed in a vertical cylinder which is securely fastened to the bottom of the machine. Knives, or cutters, are attached to blades at the end of a piston rod which is operated by a crankshaft at the top of the framework. The up and down motion of the knives fastened to the rotating blades of the piston extinguish the mercury in the materials into which it is to be incorporated.

Patent No. 7323.—An apparatus for spreading and gaging plaster for pharmaceutical purposes, invented by James M. Keep, Bath, Maine, and patented April 30, 1850. This apparatus consists of an adjustable table with clamp frame adapted thereto, both of which can be expanded or contracted to graduate them to the size of the plaster required, and so constructed and arranged that the material employed for the purpose is held firmly during the operation of overlaying it with the adhesive substance by means of a heated iron; the material being evenly spread and leaving a border or selva around the edge of the plaster.

Patent No. 8556.—A paper-crimping press, invented by Carlos A. Cook, Lowell, Massachusetts, and patented December 2, 1851. By a particular arrangement of upper and lower crimping surfaces, paper is crimped in a trough-like shape, which renders it very convenient to be filled with a powder. The upper part of the apparatus being opened on its hinges, the paper of required size is laid on the surface of the lower section. The operator then pulls the upper section forward and closes it sharply upon the paper. When the upper part is raised, the paper will be found to be properly crimped and ready to receive its powder and be folded.

Patent No. 14161.—A pill machine invented by Noah W. Kumler, Cincinnati, Ohio, and patented June 22, 1856. This invention consists of plates of wood or metal placed the required distance apart, and all or part of them adjustable by means of set-screws, or otherwise. A pulley and belt draws the pill material between the plates and rolls it out to any required size in the shape of cylindrical rods. These rods are conducted to a revolving metal roller provided with semicircular grooves cut around its circumference. The rods of pill material are carried between the face of this roller and a segmented plate of metal furnished with semicircular grooves similar to those on the face of the roller. The projections formed by the grooves on the roller and segmented plate cut the rods of pill material into the required sizes. These pieces are rolled around by the motion given to the roller until formed into pills suitable for use. The pills are finally discharged from the machine ready for use.

Patent No. 17865.—A globule machine invented by James C. Ayer, Lowell, Massachusetts, and patented June 28, 1857. This apparatus first forms the semisolid material of which the globules are to be made into cylindrical rods. This is accomplished by compressing the mass through a strong cylinder with great force. Globules are formed from these rods when the rods are passed broadside through two corrugated cylinders, one of which is revolving at greater speed than the other.

Patent No. 31998.—An apparatus for distilling oils and other substances, invented by Abraham Quinn, New York City, and patented April 9, 1861. The invention consists, principally, of an inverted siphon applied and arranged in combination with a still and condenser. The purpose of the invention is, *first*, to make possible the distilling and refining of oils with one operation and by the same heat without the use of agitators, pumps or similar machinery; *second*, to serve as a safety-valve when paraffin or palm oil has been allowed to solidify in the condenser; *third*, to act as a vacuum-chamber to prevent oil boiling over from the still into the condenser and mixing with the distilled oil in the receiver; and *fourth*, to serve as a means of running back a portion of the oil to the still.

Patent No. 32642.—A machine to fill and fold medical powder papers, invented by Mark S. Palmer, New Bedford, Mass., and patented June 25, 1861. This invention consists of certain novel improvements for preparing strips of paper, filling them with certain quantities of powder and folding the powder in the papers in a proper manner and shape for medical purposes. The invention is intended more especially for folding papers containing homeopathic powders, and for folding and filling papers with Seidlitz powders, but by varying the size of the parts which receive the papers and fold them, the machine may be adapted for folding large or small papers of powders.

Patent No. 49242.—A mold for the manufacture of capsules invented by Dundas Dick, New York City, and patented August 8, 1865. In this mold there is a fixed center core, which center core is surrounded by two similar side pieces hinged to a common bed-plate. When the side pieces are closed and the ordinary gelatinous composition of which capsules are formed is poured into the top opening of the two side pieces the space around the core is filled. When the mass has cooled sufficiently and hardened to retain its shape, the sides of the apparatus are dropped and the capsule is removed from the core. The capsule is then filled with the desired material and closed at its mouth by dipping in hot gelatin or other suitable material.

Patent No. 57071.—A portable drug crusher invented by H. C. Becker, New York City, and patented August 14, 1866. This apparatus consists of a semi-oval plate, either of wood or iron, with a rim of wood, iron or copper running around about two-thirds of the plate, to prevent the drugs from falling off. A small round hole is made in the plate through which the cut and crushed material can pass into a receiver. Attached to the plate close to the square end and slightly raised above the flat surface of the plate, is a cutter and crusher of steel, in one piece, and secured to the plate by two screws, which makes it possible to change the cutter and crusher when necessary. At the end of the cutter is a handle by means of which the machine is put in operation.

Patent No. 63208.—An apparatus for mixing powders invented by Jabez Burns, New York City, and patented March 26, 1867. It consists of a movable agitator in the interior of a drum, to which a revolving motion can be imparted, and which is provided with a feed opening in such a manner that the agitator can be readily removed and cleaned. The agitator consists of a series of spiral flanges, which are secured to one of the heads of the drum, and this head made removable, so that by the action of the spiral flanges the materials to be mixed are thrown toward the movable head where they can be removed.

Patent No. 63814.—An apparatus for making medical plasters invented by Albert D. Richards, Lowell, Mass., and patented April 16, 1867. Upon a block of wood is affixed a bed-piece. The upper surface of this bed-piece is concave. This concavity is bounded on all sides by a sharp edge. Hinged to one end of the wooden block is a shield or pan. Having a quantity of the plaster mass in the pan, a sufficient amount of it is drawn to the bed-piece. A spreader in the form of a warm roller then draws the plaster evenly over the bed-piece.

Patent No. 96038.—An apparatus for dividing powders invented by Frederick Schaeffer, Philadelphia, Pa., and patented October 19, 1869. This invention rapidly and accurately divides masses of powder into a number of equal portions. It is useful for many purposes, but is especially intended for dividing medicinal powders into small quantities suitable for packing in papers. The apparatus makes it possible for the medicine to be packed without handling, and without any

of the usual weighing and measuring. The dividing is done by means of wedge-shaped blocks.

Patent No. 104181.—A percolator invented by Albert Merrell, Cincinnati, Ohio, and patented June 14, 1870. This apparatus consists of two conical-shaped vessels one resting above the other in a suitable frame. In using the apparatus, the substance to be percolated is placed in the upper vessel on a perforated septum. The covers are tightly bolted on, and the upper, middle and lower openings closed. The air is then exhausted from the entire apparatus. By opening a valve at the top of the upper vessel, the percolating liquid is allowed to flow into the vessel. After maceration has progressed for a proper length of time, the valve between the two vessels is opened and the percolate passes into the lower vessel, the receiver. The operation can be hastened by pumping air into the upper vessel through a valve provided for that purpose until any desired pressure is produced.

Patent No. 113453.—An apparatus for spreading medicinal plasters invented by Adolph J. Schafhirt, Washington, D. C., and patented April 4, 1871. The object of this invention was to provide an adjustable apparatus, by means of two perforated plates sliding one upon the other, whereby different sized plasters might be made, "such want being long felt by the druggist and apothecary."

Patent No. 132200.—A device for cutting and shaping pills invented by John Cooper, Philadelphia, Pennsylvania, and patented October 15, 1872. This invention is a machine with moving plates in pairs, the grooves of which will match to make the required size of pill. One machine supplied with these moving plates will take the place of several machines heretofore required for the several sizes. The first part of the invention consists in combining with the bed and sliding beam of a pill-cutting machine, a series of movable plates so fitted that one pair may be removed and another pair substituted in order that a pill of a different size may be made on the same machine. The second part of the invention consists in grooving both sides of these movable plates so that fewer plates are required in the set. The other part of the invention relates to the ready adjustment and securing of the plates in their positions.

Patent No. 132614.—An apparatus for spreading plasters invented by Nathan Wood, Portland, Maine, and patented October 29, 1872. This invention consists of a metal fire-box containing a lamp; a table on top of the fire-box; and a platen for spreading the plaster in the center of the table.

Patent No. 139858.—A suppository mold invented by Lyman R. Blackman, Newport, Rhode Island, and patented June 17, 1873. This invention consists of two plates of about equal thickness, the upper one perforated and the lower one containing depressions equal in number to the perforations in the upper plate. The two plates are separable, and adjustable by means of set pins and grooves, so that the openings in the upper plate register with the depressions in the lower plate, forming when taken together, a conical mold. In using the device the two plates are placed together. The melted suppository mass is poured into the molds and allowed to cool. When the suppositories have hardened, the mold is turned upon its face and the lower plate lifted off. This releases the tips of the suppositories. A gentle tap on the other plate disengages the body of the suppository.

Patent No. 142524.—A suppository mold invented by Peter I. Spenzer, Cleveland, Ohio, and patented September 2, 1873. This device consists of two bars of metal, hinged together at one end, with handles at the opposite ends, and having within their contiguous faces a series of grooves, which, when the jaws are closed together, coincide, so as to form cavities that, horizontally, are circular, and vertically decrease regularly in dimensions from their upper ends downward. In use the jaws of the device are closed. Melted suppository mass is poured into the molds. When cool the jaws are opened and the completed suppositories drop out.

Patent No. 146549.—A suppository mold invented by James H. Plaisted, Waterville, Maine, and patented January 20, 1874. This mold consists of two parts which are separated to remove the suppositories. These two parts are so constructed that they may be separated by a sliding motion in the direction of the axis of the suppository, while a lateral sliding motion or a direct separation is prevented. The object is to facilitate the removal of the suppository from the mold, and to diminish the danger of breaking it.

Patent No. 147831.—A lozenge cutter invented by James A. Dingwall, New York City, and patented February 24, 1874. The purpose of this device was to provide a method of cutting lozenges with greater rapidity either by hand or machine power. The apparatus consists of a

supporting frame, to which the perforated main plate, with tubular cutters, is attached, which guides in suitable holes and recesses of the frame, the perforated spring plate, which passes up around the tubes on pressing the cutter into the lozenge mass, and detaches, by its downward motion, the waste parts from the cutter tubes, while the cut lozenges are carried upward.

Patent No. 150307.—A percolator invented by Laurent Dursse, Grafton, West Virginia, and patented April 28, 1874. This invention relates to glass percolators used in the preparation of medicines. In use, the powdered drug is placed in the conical glass receptacle with the menstruum or solvent, and the bottom of the percolator is closed as soon as the liquid has permeated the mass and begins to drop. The percolator is then covered and put in a moderately warm place for a few days. The main feature of the invention is the air-tight cover to prevent evaporation.

Patent No. 154708.—An apparatus for spreading plasters invented by William G. Neubauer, Long Island City, New York, and patented September 1, 1874. This apparatus is composed of an upper part or bed, and a lower part. These two parts are hinged together, and form a receptacle for the pattern plates and spreader used in the process of spreading plasters.

Patent No. 159899.—A portable machine for sugar-coating pills, confectionery and other substances, invented by William Cairns, Jersey City, New Jersey, and patented February 16, 1875. This invention consists of a furnace or heater and swivelling pan. Gear for rotating and moving the pan is attached to it. The pan may be of the same shape as the ordinary steam pan, and be set to revolve at an angle to the horizon, as usual in sugar-coating machines driven by hand or steam power. The machine, which is devised to operate by hand, instead of having a pan surrounded by a steam coil, is arranged to be heated by a stationary heater or furnace beneath the pan. The pan can be swivelled across the fire or away from it, thus regulating the heat as desired.

Patent No. 162673.—A regulating percolator invented by George McPherson, Chicago, Illinois, and patented April 27, 1875. This invention consists of a faucet connected to a closed cap upon the head of the percolator, the faucet being provided with depressions upon its outer periphery, whereby the operator is enabled to control the admission of air, to regulate the progress of the menstruum through the drug in the percolator and to secure, in a convenient manner, time for the more thorough extraction by maceration of the medicinal principles contained in the drug, while, during the process, loss of alcohol or ether, and other volatile and expensive liquids by evaporation is entirely prevented. The invention further consists of a pump or air-forcing apparatus, whereby the air may be compressed above the menstruum and the percolation accelerated according to the degree of pressure.

Patent No. 163552.—A pill tile invented by William E. VanVelsor, Philadelphia, Pennsylvania, and patented May 18, 1875. This invention consists of a glass pill tile having a ground surface to prevent the slipping of the pill mass, and a scale to be used in cutting pills to their proper size.

Patent No. 171699.—A lozenge machine invented by Thomas Robertson, Toronto, Ontario, Canada, and patented January 4, 1876. This invention has four principal parts, as follows: 1st, a printing block or head, with adjustable dies affixed, attached to sliding standard and worked by a suitable arrangement of levers, for printing the paste as it lies on the cutting board; 2nd, adjustable hollow dies or cutters, affixed to a cutting head, to which a reciprocating up and down motion is given by a pair of revolving wheels, each having an eccentric channel sunk in its face, in combination with side standards, to which the cutting head is attached, to cut the sheet of paste as it lies on the cutting board into lozenges of any desired shape or size; 3rd, a series of pushers to remove the lozenges, when cut, from the hollow dies, and place them regularly on suitable drying frames; and 4th, apparatus to feed the cutting boards and drying frames forward automatically.

Patent No. 178183.—A pill-coating machine invented by Henry C. Neer, Park Ridge, New Jersey, and patented May 30, 1876. This invention consists of a bed-plate containing receptacles for pills, a covering plate, a guide plate and a needle plate provided with needles. In operation a pill is suspended on each needle and then dipped in the coating substance.

Patent No. 187279.—A machine for cutting gelatin capsules off the molds on which they are formed, invented by Frederick A. Hubel, Detroit, Michigan, and patented February 13, 1877. This apparatus consists of a series of small circular knives which revolve horizontally, and work in

connection with springs, screws, cogwheels, cranks, platforms, slides, levers and cylinders. The circular knives rotate around the mold and cut the capsule at the required length.

Patent No. 190564.—A machine for putting up Seidlitz powders invented by Charles R. Doane, Brooklyn, New York, and patented May 8, 1877. In this machine the combination of two distinct and separate mechanisms operate alternately from a central shaft having a reciprocal rotary motion, whereby the alkaline and acid powders are put up in papers and alternately deposited outside of the machine.

Patent No. 197779.—A pill machine invented by John Hill, South Norwalk, Connecticut, and patented December 4, 1877. This invention consists of a series of blades fixed to a vibrating bar, and adapted for dividing the rolls of pill mass upon a table in combination with pivoted clearers which separate the mass from the cutters. Having prepared a roll of pill mass of the desired length, it is adjusted on the table beneath the clearing teeth and divided by depressing the knives. The knives and clearing teeth are then raised and thrown back out of the way, and the bits of pill mass are removed from the table and rolled into pills.

Patent No. 202268.—A measuring bottle stopper invented by Wilmer L. Keller, Baltimore, Maryland, and patented April 9, 1878. This device consists of an ordinary stopper with a measuring graduate placed on its lower end. The measure corresponds very closely to the ordinary fluid measures in common use, it differing from them only in that the flare of the sides is somewhat reduced in order to allow the measure to be inserted in the neck of the bottle to which the stopper is applied. By means of this invention the loss usually experienced in cleansing measures of the liquid adhering to them is prevented, the liquid passing again to the bottle after the insertion of the stopper therein. The time spent in cleansing measures is saved.

Patent No. 210589.—A machine for filling and capping capsules invented by Thomas Whitfield, Chicago, Illinois, and patented December 3, 1878. This machine is operated in this manner: a plunger is raised by a spring to its highest position and a rod is drawn downward. The cap of a capsule is passed in an inverted position through an aperture in the side of the tube, and then forced up against a funnel by a spring. A sufficient portion of the powdered substance to be inclosed in the capsule is next fed, by means of a spatula, from the trough into the funnel, the powder falling loosely over the inverted capsule cap in the base of the funnel. The shell of the capsule, mouth downward, is dropped into the funnel, and by pressing on the finger piece the plunger is caused to swing around into position over the tube by the pin, traveling in the spiral portion of the groove, and then to descend into the tube, forcing the shell of the capsule down on the material in the base of the funnel, thus filling compactly both parts of the capsule, and uniting them securely at the same time and by the same movement. By drawing down the rod the capsule descends and falls out at the aperture in the side of the tube.

Patent No. 211733.—Certain improvements for his pill machine (Patent No. 197779) were invented by John Hill, South Norwalk, Connecticut, and patented January 28, 1879. The improvements consist, mainly, in combining with the vibrating knives and clearing teeth or comb, a graduated scale-bar and an adjustable indicating finger, for the purpose of quickly determining the proper length to roll the pill mass for cutting a given number of pills; also, in combining with the vibrating knives and comb, a self-adjusting locating plate, which will gage the proper position for locating the rolls of pill mass under the knives; also in the employment of stop arms at the ends of the machine, which will serve as stops or rests for the comb when down, one of which arms will also serve, in connection with the adjustable indicating finger, as a means of determining the proper lengths for the rolls of pill mass.

Patent No. 214775.—A suppository mold invented by Henry R. Heyl, Philadelphia, Pa., and patented April 29, 1879. The mold is operated as follows: a plunger is elevated and a hopper supplied with suppository material. This material is forced into the mold by the plunger. The flask is then removed from the frame shearing off the suppository even with the top of the mold thus insuring uniformity in size and contents of the suppositories.

Patent No. 216197.—An apparatus for capsulating medicaments invented by Stanislas Limousin, Paris, France, and patented June 3, 1879. This invention consists of a perforated plate to receive wafers while being filled, funnels for pouring medicaments into the wafers, a receptacle for holding moisture or adhesive material, and reversible stamps provided at each end with concave faces, one face serving to moisten the edges of a wafer, and the other serving to press the edges of two wafers together.

Patent No. 216899.—A bottle-washing machine invented by Rudolph Schultz and Emil O. Nagel, Detroit, Michigan, and patented June 24, 1879. In the operation of the machine one of the faces of the shaft is presented upward, the bottles to be cleaned set into the recesses of the cog wheels, and the small yokes raised sufficiently to allow the neck of the bottle to enter the inner ends of the tubes, the stop-cocks of which are open. The shot receptacles are then removed, filled with shot and replaced, when the shot will pass through the tubes into the bottles. The stop-cocks are now closed, the next face of the shaft presented, and the same operations performed until the various faces of the shaft are filled with bottles to be cleaned. The shaft is then rapidly

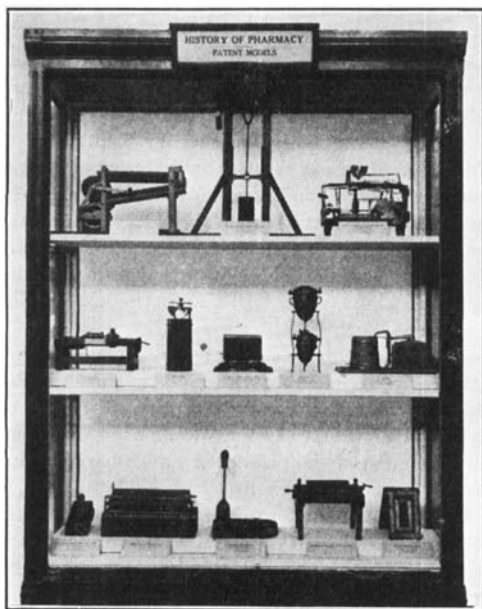
rotated, whereby the shot are thrown from top to bottom of the bottles, and in all directions, cleansing thoroughly the interior of the bottles, while the brushes are cleaning the exterior of the bottles. When this is sufficiently done the stop-cocks are opened in each series, when the mouths of the bottles are presented vertically downward to retain the shot in their receptacles, into which they will pass when the bottles are in the position last described.

Patent No. 223139.—An improvement for his machine for cutting gelatin capsules off molds (Patent No. 187279) invented by Frederick A. Hubel, Detroit, Michigan, and patented December 30, 1879. In practice the molds are immersed to the proper depth in gelatin. After the molds have received a coating of sufficient thickness the slides are placed upon a platform and secured in place by a crank and block. The platform is then raised to the proper height. A lever drawn forward puts the cutting knives in contact with the molds. The crank is rotated and causes the knives to cut the gelatin.

Patent No. 223140.—A device for removing capsules from molds invented by Frederick A. Hubel, Detroit, Michigan, and patented December 30, 1879. This device pulls capsules from the molds on which they were formed. The invention consists of spring clutch bars, vertically adjustable in a suitable frame, which embrace the molds below the base of the capsules, and draw the capsules from the molds.

Patent No. 224734.—A suppository mold invented by James W. See, Hamilton, Ohio, and patented February 17, 1880. This invention consists of one cylinder sliding within another. The mode of operation is as follows: the parts are placed together and held fast by a set screw. The cavities in the cylinders form the molds. These molds are filled and cooled as usual. Then the inward cylinder is pushed slightly downward through the outer one. This loosens the suppositories from the inner ring. The inner cylinder is then pushed upward and out of the outer ring. The suppositories drop from the inner ring.

Patent No. 311835.—A machine for joining the two parts of a gelatin capsule invented by Frederick A. Hubel and Frank J. Reinhold, Detroit, Michigan, and patented February 3, 1885. The mechanism consists of a tube having a portion of its bore enlarged to receive the cap of a



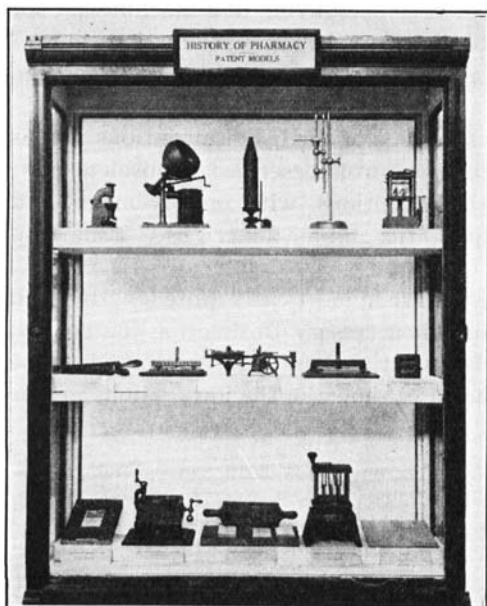
Case 1.—Pharmaceutical Patent Models.—
Courtesy of U. S. National Museum.

From left to right on each shelf. Shelf 1: 1. Plaster machine (14161); 2. Ointment machine (3619); 3. Machine to fill and fold powder papers (32642). Shelf 2: 1. Machine for making globules (17865); 2. Apparatus for mixing powders (63208); 3. A powder paper crimping machine (8556); 4. Percolator (104181); 5. Apparatus for distilling oils (31988). Shelf 3: 1. Apparatus for making medical plasters (63814); 2. Apparatus for dividing powders (96038); 3. Portable drug crusher (57071); 4. Device for spreading plaster on cloth (341); 5. Apparatus for spreading and gaging plaster (7323).

held fast by a set screw. The cavities in the cylinders form the molds. These molds are filled and cooled as usual. Then the inward cylinder is pushed slightly downward through the outer one. This loosens the suppositories from the inner ring. The inner cylinder is then pushed upward and out of the outer ring. The suppositories drop from the inner ring.

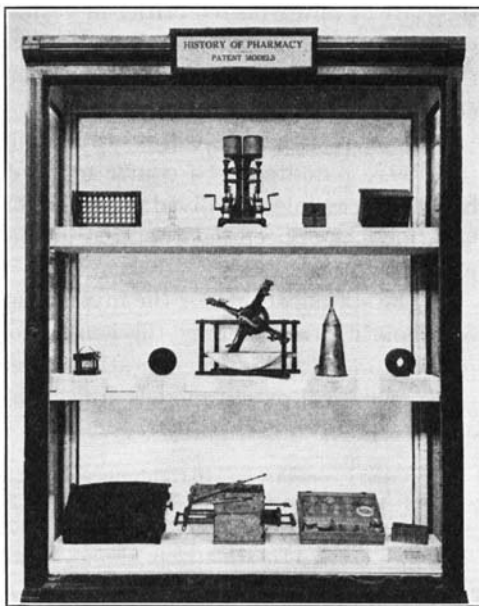
capsule. At the point of enlargement is a shoulder against which the open end of the cap may rest, a plunger to hold the cap therein for a period and then permit it to be removed and a plunger to push the body of the capsule through the tube into the cap, and then expel the joined capsule.

Patent No. 316896.—A device for stirring melted gelatin invented by Frederick A. Hubel and Frank Reinhold, Detroit, Michigan, and patented April 28, 1885. Gelatin capsules were made by dipping metal pins held in a plate into a bath of melted gelatin. The pins being colder than the gelatin, chill a thin film of gelatin which adheres to the pins, and, after being cut to length



Case 2.—Pharmaceutical Patent Models.—
Courtesy of U. S. National Museum.

From left to right on each shelf. Shelf 1: 1. Suppository mold (214775); 2. Machine for sugar-coating pills (159899); 3. Percolator (162673); 4. Capsule machine (210589); 5. Machine for cutting capsules off molds (223139). Shelf 2: 1. Suppository mold (142524); 2. Pill machine (197779); 3. Lozenge machine (171699); 4. Pill machine (211733); 5. Device for stirring melted gelatin (316896). Shelf 3: 1. Apparatus for spreading plasters (113453); 2. Machine for cutting capsules off molds (223140); 3. Device for cutting and shaping pills (132200); 4. Machine for cutting capsules off molds (187279); 5. Pill tile (163552).



Case 3.—Pharmaceutical Patent Models.—
Courtesy of U. S. National Museum.

From left to right on each shelf. Shelf 1: 1. Lozenge cutter (147831); 2. Measuring bottle stopper (202268); 3. Seidlitz powder machine (190564); 4. Mold for manufacture of capsules (49242); 5. Apparatus for spreading plasters (132614). Shelf 2: 1. Pill coating machine (178183); 2. Suppository mold (139858); 3. Bottle washing machine (216899); 4. Percolator (150307); 5. Suppository mold (224734). Shelf 3: 1. Apparatus for spreading plasters (154708); 2. Capsule machine (311835); 3. Apparatus for capsulating medicaments (216197); 4. Suppository mold (146549).

and removed from the pins, form one part of the capsule. In order that the finished capsules may be of the same thickness, it is necessary to keep the gelatin at the same temperature, and this can only be done by stirring the gelatin, as the surface, which is exposed to the air, becomes colder than the lower portion which is nearer the source of heat. In stirring by hand or from the surface in any way bubbles of air are apt to be caught in the gelatin and make bad spots in the capsules.

This list of pharmaceutical inventions is convincing evidence that the machinery utilized in modern medicine making has come into existence as the result of experimentation and research by many workers in various parts of the country.

It is not known what proportion of the patents granted in the United States have to do with the manufacture of medicines, but it is believed that pharmacy is as well represented as other comparable branches of industry. The development of apparatus and machines for the simplification of pharmaceutical tasks has been sufficient to evoke the complaint, occasionally heard from the laity these days, that medicine making has become more or less of a mechanical process. The answer to this sort of unwarranted criticism is that we have been living in a machine age for some time, and if pharmacy had not adapted itself to the mass production ways of the times it could not have kept its head above water, and would soon have been accused of being unprogressive.

Older pharmacists will recall having used some of the listed inventions just as they were patented. Of course most of the apparatus described is obsolete now, but the principles involved in many of the inventions, with improvements and additions, have been incorporated in the apparatus and machinery used in modern pharmaceutical plants.

The specifications for the inventions listed are in most cases quite lengthy, and in preparing the list only the least information necessary to describe the general purpose and method of operation of each invention has been abstracted. The pharmaceutical patent models appear in the cases shown in the illustrations in this order:

Case 1 (reading left to right on each shelf, top to bottom) 14161, 3619, 32642, 17865, 63208, 8556, 104181, 31988, 63814, 96038, 57071, 341 and 7323; Case 2, 214775, 159899, 162673, 210589, 223139, 142524, 197779, 171699, 211733, 316896, 113453, 223140, 132200, 187279 and 163552; Case 3, 147831, 202268, 190564, 49242, 132614, 178183, 139858, 216899, 150307, 224734, 154708, 311835, 216197 and 146549.

If further particulars are desired they may be obtained from the patent specifications, copies of which can be procured from the Commissioner of Patents, United States Department of Commerce, Washington, D. C., for ten cents each. In applying for a patent specification, the patent number, the name of the inventor and the name of the object patented should be furnished.

Pharmacists have every reason to be proud of the way the profession adapts itself to the constantly changing conditions which it encounters in the never-ceasing battle against the forces of disease. The genius of pharmaceutical inventors has played a large part in making this possible. All praise to them.

PHARMACY WEEK.

The information received so far indicates that Pharmacy Week has been more generally observed this year than ever before. The national, state and local pharmaceutical associations and the pharmaceutical press have given this observance wide publicity and judging from the increased demand for the Pharmacy Week stories, and other information, many have appeared in local publications and many addresses have been given before civic and other organizations, or over the radio.

To make this movement fulfil the ideals of its founder requires the coöperation of every one interested in professional pharmacy; and to some extent, at least, every week should be a "Pharmacy Week," during which some effort will be made to acquaint the public with the professional services of Pharmacy.
