A.D. 1843 . . . . . N° 9977.

Shaping Pills, Lozenges, and Black Lead by Pressure in Dies.

BROCKEDON'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM BROCKEDON, of Devonshire Street, Queen Square, in the County of Middlesex, Gentleman, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Eighth day of December, in the seventh year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Brockedon, Her especial licence, full power, sole privilege and authority, that I, the said William Brockedon, my exors, admors, and assigns, or such others as I, the said William Brockedon, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, and in the Islands of Jersey, Guernsey, Alderney, Sark, and Man, and in all Her said Majesty's Colonies and Plantations abroad, my Invention of "IMPROVEMENTS IN THE MANUFACTURE OF PILLS AND MEDICATED LOZENGES, AND IN PREPARING OR TREATING BLACK LEAD;" in which said Letters Patent is contained a proviso, that I, the said William Brockedon, shall cause a particular description of the nature of my said Invention, and in what manner the same is to be performed, to be inrolled in Her said Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said William Brockedon, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, are fully described and ascertained in and by the following statement thereof, reference being had to the Drawings hereunto annexed, and to the figures and letters marked thereon, that is to say:—

My Invention relates, first, to a mode of manufacturing pills and medicated lozenges by causing the proper materials, when in a state of granulation, dust, or powder, to be made into form and solidified by pressure in dies; and, secondly, my Invention relates to the preparing or treating black lead when in a state of granulation, dust, or powder, by pressure in dies so as to solidify the same into a mass. And in order that my Invention may be most fully understood and readily carried into effect, I will describe the means and also the apparatus employed by me.

It is well known that in making pills, and also medicated lozenges, as heretofore practised, the proper materials are mixed with a suitable liquid into a state of stiff paste, which is divided and shaped and allowed to dry, and it is well known that in some cases the gum and other materials used as adhesive matter for keeping pills and lozenges in form, when the same are mixed by means of fluids, interfere with and prejudice the desired action of the matters employed in making up or preparing pills and lozenges, and these gums and adhesive matters are rendered necessary by the use of fluids for getting the matters into a condition to be shaped. Now, by the first part of my Invention, only such matters will be required to be used in making pills and medicated lozenges as offer the desired medical requirements, as the getting the matters into form will be effected by pressure in dies when the matters are in the state of powder or dust.

Description of the Drawings.

Figure 1 shews the section of suitable dies for making pills, and similar dies will be used when making medicated lozenges, but the same would be formed into suitable figures to produce lozenges of the shapes and sizes desired. *a* is the punch of the dies, the lower end being concave; this punch is to be worked by means of a fly press, or by other convenient means. *b* and *c* form the two parts of the lower die. The parts *a*, *b*, and *c*, are of steel; and it will be seen that the part c^1 of the lower part *c* of the lower die rises into the part *b* of the lower die, and the part c^1 is sunk to correspond with the punch *a*. It is important that in using the matters in a state of powder or dust, that the successive quantities put into the dies should be (as nearly as may be) of

the same weight, and in order to save the trouble of weighing, I have devised a measuring instrument, which being forced into the prepared powder or dust will take up at each time a regulated measure thereof, and then deposit the same into the lower die. Figures 2 and 3 show two sections of this instrument; in one case the instrument is shewn as having just been filled, and in the other Figure the instrument is shown as having been emptied. *d* is the handle, which is fixed into the tube *e* by means of a set screw d^1, or by other convenient means, and according as the handle *d* is less or more into the tube *e*, so will the quantity measured by the instrument be more or less. *f* is another tube, which is closed at its lower end: this tube slides freely within the tube *e*; and *g* is another tube which slides over the outer surface of the tube *e*; and the tubes *f* and *g* are fixed together by the screw *h*, which passes through a slot formed in the tube *e*, which slot allows the tube *f*, *g*, to slide up and down, the end of the handle *d* determining the extent of such sliding. When the tube *e* projects beyond the tubes *f* and *g*, as is shewn in Figure 2, it is pressed into the powder or dust, by which the end becomes full, taking care that in repeatedly filling the same that the dust or powder from which the successive quantities are taken is not beaten down or compressed so as to cause the measure to take a materially greater quantity at one time than another. The measure of powder or dust being thus taken up is to be deposited into the lower die *b*, *c*, by moving the handle upwards whilst holding the outer tube *q*; the pill is then to be finished by causing the punch or upper die *d* to descend into the die, and thus, by one or more blows, to consolidate the powder or dust. The upper die *a*, and also the part *b* of the lower die, is then to be raised up, when the pill may be removed. I have not thought it necessary to show dies for making different shaped medicated lozenges, as a workman acquainted with the making of similar dies for other purposes will readily make the proper punch and lower die to produce the proper size and shape of lozenges desired. It will be proper here to remark that this Invention, when making pills, is particularly applicable when using matters readily soluble in the stomach, such as deliquescent salts used medicinally, the carbonates, tartrates, and nitrates of soda and potash, and other matters, according to the judgment of the medical man, and the Invention is also applicable when less soluble matters are used combined with others readily soluble in the stomach.

I will now proceed to describe the second part of my Invention, and in doing so I would state that it is well known that in cutting black lead and otherwise shaping black lead, much powder or dust thereof is produced, a given weight of which is of small value when compared with a like weight of black lead of equal quality; hence, it is desirable to cause the powder or dust

of black lead to be again rendered solid, so as to allow of its being again cut for the making of black lead pencils. And this part of my Invention consists of causing powder or dust of black lead to be subjected to pressure in dies, in order to solidify such dust or powder into masses or blocks, and I have found that dies capable of making blocks about two and a quarter inches long by one and a quarter inches wide, and three quarters of an inch thick, are convenient for pencil makers, though the size and shapes or forms of blocks produced may be varied by having other forms of dies. And I have found that the powder or dust of black lead may be rendered solid with more certainty by means of pressure in dies by withdrawing the air from the dies, and from the powder or dust of black lead therein, before operating by pressure, and such is the case in respect to making pills and medicated lozenges, but owing to the small quantities of matter operated on when making pills and lozenges, I have not in practice found it necessary to exhaust the air in these latter cases. Figure 4 shows a vertical section of the die *a*, the bed of which *b*, *b*, and *c*, *c*, are continued, and solid portions seen in Figure 5, a horizontal section as *b*, *b*, *c*, *c*, and raised above the bed, as in Figure 6, where the shady parts shew the portions cut away to an equal depth, except the dark rim, round which is cut a little lower for the receiver connected with the air pump, so that it shall rest below the die for the lead, as shewn in the dotted line across *a*, Figure 4. *d*, *d*, *e*, *e*, seen in Figure 5, and endways in Figure 4, are wedges of a width equal to the depth of the cutting, shaded in Figure 6. When the wedges *d*, *d*, are placed in the die their sides form a hollow parellelopiped ; the other wedges *e*, *e*, are then driven firmly, but so that their ends shall be within the dotted circle of Figure 5, and allow the receiver *f*, *f*, Figure 4, to rest freely on the flange or edge *g*, *g*, of Figures 4 and 5. This reservoir has a stuffing-box *h*, *h*, through which the condensing plunger *i* passes when depressed on the black lead, previously placed in the cavity formed by the space between the solid bearing *c*, *c*, in the bed or die and the lateral faces of the wedges *d*, *d* ; *k* is a nozzle, to which a pipe communicating with an air pump is attached when in operation. The powder or dust is placed in the cavity *l*, Figure 5, the dome or reservoir is placed over, there being a stud *x* affixed to the dome *f*, which enters a groove formed in one of the solid parts *b* of the die, which ensures the plunger *i* coming correctly opposite the cavity *l*. The air is then pumped out. The plunger *i* is driven down by a powerful fly press or stamper, and the condensation effected. Air is let in by the usual cock connected with the air pump through the nozzle *k* ; the plunger and dome *f*, *f*, are raised, the wedges *e*, *e*, struck out, and *d*, *d*, displaced, and the block of lead condensed in the cavity *l* is released by pressing on the narrowest side of the block. For to

effect this the sides of the solid pieces *c*, *c*, are not quite parallel, and will readily deliver on the widest side. The apparatus is now ready for a repetition of the operation.

Having thus described the nature of my Invention, and the best means I am acquainted with for performing the same, I would wish it to be understood that I make no claim to the dies here shewn, nor do I confine myself to the details thereof, so long as the peculiar character of either part of my Invention be retained.

And I would state that I am aware that clay or brick earth has been formed into bricks, tiles, and other articles, by pressure in dies when in a state of dust or powder, and then burned in kilns, and patents have been granted for such means of making bricks, tiles, and other articles from brick earth or clay, and burning; and I mention these manufactures in order to state that I do not claim the rendering powder generally into solid forms by pressure, and then subjecting the same to burning. But I do strictly confine my Invention to the following improvements:—

First, I claim the mode of manufacturing pills and medicated lozenges by causing the materials, when in a state of granulation, dust, or powder, to be made into form and solidified by pressure in dies.

Secondly, I claim the mode of preparing or treating black lead when in a state of powder, granulation, or dust, by pressure in dies, so as to solidify the same.

In witness whereof, I, the said William Brockedon, have hereunto set my hand and seal, this Eighth day of June, in the year of our Lord One thousand eight hundred and forty-four.

WILLIAM (L.S.) BROCKEDON.

AND BE IT REMEMBERED, that on the Eighth day of June, in the year of our Lord 1844, the aforesaid William Brockedon came before our said Lady the Queen, in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification was stamped according to the tenor of the Statute made for that purpose.

Enrolled the Eighth day of June, in the year of our Lord One thousand eight hundred and forty-four.

LYNCH.

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BROCKEDON'S SPECIFICATION.

(1 SHEET.)

FIG. 2.

FIG. 3.

FIG. 6.

FIG. 4

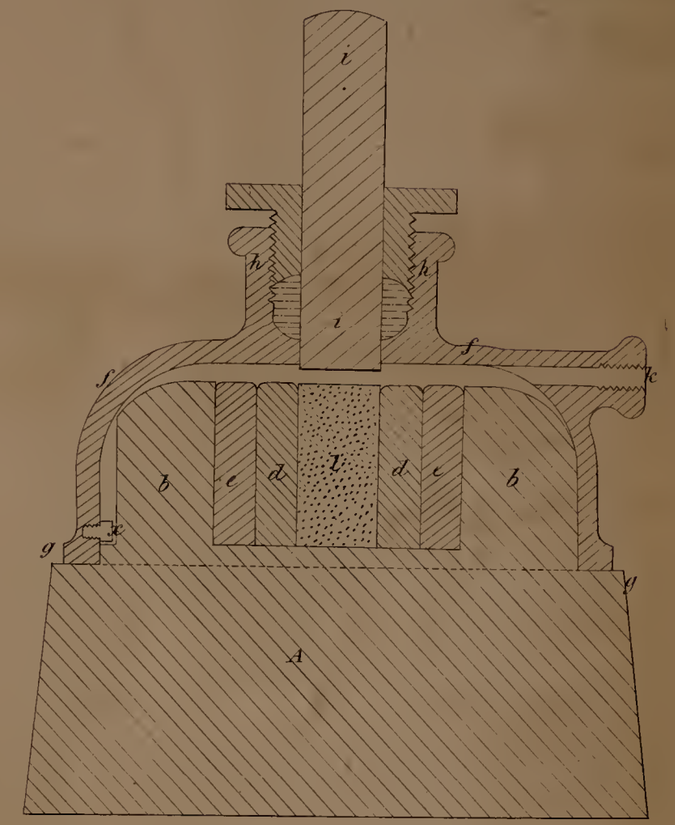


FIG. 5

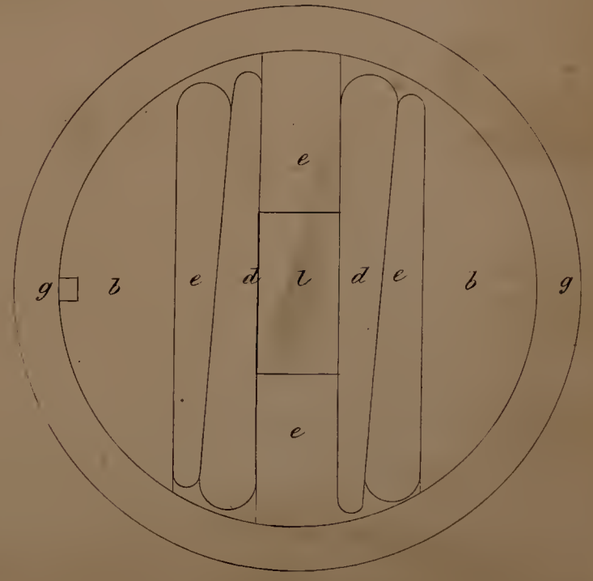
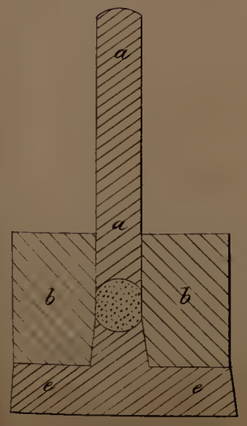


FIG. 1.



The enrolled drawing is colored.

Drawn on Stone by Malby & Sons

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