Specification of Benjamin Goddard and William Finley : pill machines, &c.;

Contributors

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A.D. 1869, 25th NOVEMBER. N° 3406.

SPECIFICATION

OF

BENJAMIN GODDARD & WILLIAM FINLEY.

PILL MACHINES, &c.

LONDON:
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Pill Machines, &c.

LETTERS PATENT to Benjamin Goddard, of Stockport, in the County of Chester, Druggist, and William Finley, also of Stockport, in the said County, Cotton Spinner, for the Invention of "IMPROVED MACHINERY FOR PILL MASS MIXING AND PILL MAKING, MIXING PLASTIC SUBSTANCES, MAKING PLASTER ROLLS, AND FOR OTHER SIMILAR OR ANALOGOUS PURPOSES."

Sealed the 24th May 1870, and dated the 25th November 1869.

PROVISIONAL SPECIFICATION left by the said Benjamin Goddard and William Finley at the Office of the Commissioners of Patents, with their Petition, on the 25th November 1869.

We, BENJAMIN GODDARD, of Stockport, in the County of Chester, Druggist, and WILLIAM FINLEY, also of Stockport, in the said County, Cotton Spinner, do hereby declare the nature of the said Invention for "IMPROVED MACHINERY FOR PILL MASS MIXING AND PILL MAKING, MIXING PLASTIC SUBSTANCES, MAKING PLASTER ROLLS, AND FOR OTHER SIMILAR OR ANALOGOUS PURPOSES," to be as follows:—

This Invention has for its object the production of improved machinery or machines for mixing and making pills, mixing plastic substances

and making the same into rolls and balls. Upon a suitable base we mount a frame, in or to which we fit a mass mixer, a moveable mass table or trough, adjusting rollers for rolling the mass into slabs of the required thickness, cutters and gauge for cutting the slabs into strings, the sizes of which can be regulated by the gauge as required, and vertical grooved plates for making the strings into pills or balls. The rollers, cutters, and grooved plates are so geared and connected that they can be actuated simultaneously or separately.

The improved mixer consists of a hollow cylinder with either open or closed ends, which may be made in sections to open, or in one piece with a lateral or side opening for charging it with the matter to be mixed therein. Through the axis of this cylinder we run a shaft having a piston at one end and a dise, toothed wheel, and knob at the other, carrying a number of radially fixed knives, spikes, or beaters, along the centre or space between the piston and disc above mentioned, which latter are turned so as to fit accurately the interior of the cylinder which is bored to receive them. In this cylinder we next insert through perforations along the side a number of blades, spikes, or fingers fixed to a finger bar for inserting and removing them bodily when required. The blades on the shaft are so managed that they pass between the blades on the finger bar, which are made of sufficient length to extend across the interior of the cylinder on one side to the shaft, and as the latter is turned the mass is thus thoroughly mixed, when on removing the finger bar the said shaft can be withdrawn by the knob, and draws out the mass with it by the piston at the opposite end. For giving motion to the shaft when turned by hand a pinion is fitted to the frame so as to gear with the toothed wheel before described, and this pinion is turned by a handle. The mass table upon which the mixed mass is placed is a slab or plate with sides, one end of which is placed close to the rollers so that when the latter are turned backwards and forwards they draw the mass through and roll it into slabs of the required thickness. Over this table we fit a rotating perforated hollow cylinder containing dust for dusting the mass. These rollers are placed one over the other and geared at the ends, so that their distances apart can be adjusted for rolling slabs of different thicknesses. The upper roller is fitted with a ratchet or notched wheel and lever pawl for working the rollers when the cutter and pill making plates are in action. In order to regulate the size of the pills we use changing notch wheels having

different numbers of teeth. The cutter is a long knife which is placed in front of the rollers, and works up and down through a slot in the bottom of a trough containing dust for dusting its sides. At right angles to the front side of the cutter knife we fit a scraper, which is geared so as to move simultaneously with the cutter and insure the separation and dropping of the string cut off from the slab at each cut. Immediately under the cutters also in front of the machine, we fit the grooved plates into the space between which the string separated from the slab at each cut fall; one of these plates is a fixture, and the other moveable by means of a compound lever, which gives thereto a reciprocating vertical motion, and thus the strings are cut and rolled into pills or balls and fall out underneath into a suitable receiver, and are coated with dust ready for being put up for sale and use.

When the machine is required to make plastic rolls instead of pills or balls the slab making table and rollers are removed, and a trough with a moveable end and grooved rollers substituted therefor. The plastic mass is then placed in the trough, the duster before mentioned being supplied with water instead of dust, and on turning the rollers the mass is wetted and forced against them by the moveable end of the trough which is drawn towards them and carries the mass with it.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Benjamin Goddard and William Finley in the Great Seal Patent Office on the 25th May 1870.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, BENJAMIN GODDARD, of Stockport, in the County of Chester, Druggist, and WILLIAM FINLEY, also of Stockport, in the said County, Cotton Spinner, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-fifth day of November, in the year of our Lord One thousand eight hundred and sixty-nine, in the thirty-third year of Her reign did, for Herself, Her heirs and successors, give and grant unto us, the said Benjamin Goddard and William Finley, Her special licence that we, the said Benjamin Goddard and William Finley, our executors, administrators, and assigns, or such others as we, the said Benjamin Goddard and William Finley, our

executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVED MACHINERY FOR PILL MASS MIXING AND PILL MAKING, MIXING PLASTIC SUBSTANCES, MAKING PLASTER ROLLS, AND FOR OTHER SIMILAR OR ANALOGOUS PURPOSES," upon the condition (amongst others) that we, the said Benjamin Goddard and William Finley, our executors or administrators, by an instrument in writing under our, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that we, the said Benjamin Goddard and William Finley, do hereby declare the nature of our said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

This Invention has for its object the production of improved machinery or machines for mixing and making pills, mixing plastic substances, and making the same into rolls and balls. Upon a suitable base we mount a frame, in or to which we fit a mass mixer, a moveable mass table, slab, or trough, adjusting rollers for rolling and flattening the mass to the required thickness, cutters and gauge for cutting the flattened mass into strings, the sizes of which can be regulated by the gauge as required, and vertical grooved plates for making the strings into pills or balls. The rollers, cutters, and grooved plates are so geared and connected that they can be actuated simultaneously or separately.

The improved mixer consists of a hollow cylinder or cone, with either open or closed ends, and made in sections to open, or in one piece with a lateral or side opening for charging it with the matter to be mixed therein. Through the axis of this cylinder or cone we run a shaft having a piston at one end and a disc, toothed wheel, and knob at the other, and between the piston and disc above mentioned a number of radially fixed knives, spikes, or beaters. The end piston and disc are turned so as to fit accurately the interior of the

cylinder, which is bored to receive them. In this cylinder we next insert through perforations along the side a number of blades, spikes, or fingers fixed to a finger bar for inserting and removing them bodily when required. The blades on the shaft are so arranged that they pass between the blades on the finger bar, which are made of sufficient length to extend across the interior of the cylinder on one side of the shaft, and as the latter is turned the mass is thus thoroughly mixed, when on removing the finger bar the said shaft can be withdrawn by the knob, and draws out the mass with it by the piston at the opposite end. For giving motion to the shaft when turned by hand a pinion is fitted to the frame so as to gear with the toothed wheel before described, and this pinion is turned by a handle. The mass table upon which the mixed mass is placed is a slab or plate with sides, one end of which is placed close to the rollers, so that when the latter are turned backwards and forwards they draw the mass through and roll it to the required thickness. Over this table we fit a rotating perforated hollow cylinder containing dust for dusting the mass. The rollers are placed one over the other and geared at the ends, so that their distances apart can be adjusted for rolling the mixed mass into cakes or slabs of different thicknesses. The upper roller is fitted with a ratchet or notched wheel and lever pawl for working the rollers when the cutter and pill making plates are in action.

In order to regulate the size of the pills we use changing notch wheels having different numbers of teeth. The cutter is a long knife, which is placed in front of the rollers and works up and down through a slot in the bottom of a trough containing dust for dusting its sides. At right angles to the front side of the cutter knife we fit a scraper, which is geared so as to move simultaneously with the cutter and insure the separation and dropping of the string cut off from the cake or slab at each cut. Immediately under the cutters and also in front of the machine we fit the grooved plates into the space between which the strings separated from the slab at each cut fall; one of these plates is a fixture and the other moveable by means of a compound lever, which gives thereto a reciprocating vertical motion, and thus the strings are cut and rolled into pills or balls and fall out underneath into a suitable receiver and are coated with dust ready for being put up for sale and use.

When the machine is required to make plastic rolls instead of pills or balls the cake or slab making table and rollers are removed, and a trough with a moveable end and grooved rollers substituted therefor. The plastic mass is then placed in the trough, the duster before mentioned being supplied with water instead of dust, and on turning the rollers the mass is wetted and forced against them by the moveable end of the trough, which is drawn towards them and carries the mass with it.

The accompanying Drawing is intended to illustrate the form and construction of the said improved machine.

Explanation of the Drawing.

Fig. 1 is a front elevation, and Fig. 2 is a side elevation.

The mixer may be fixed over the slab or be used separately.

a, *a*, are side standards; *b*, the slab or table upon which the mixed mass is placed; *c*, *d*, two plain rollers between which the cake passes; *e*, a rotating duster; *f*, *g*, two spur wheels in gear with each other and fixed to the end of the shafts of the rollers *c* and *d*; *h*, *h*, a wheel and handle for turning the rollers; *i* is a rocking shaft to which the lever and handle *j* are fixed; *k*, *k*, the two grooved plates between which the strings of the cake fall and are cut and formed into pills by the upward and downward motion of the plate k^1 worked by the handle *j*; *l* is a ratchet lever and pawl centred on the opposite end of the shaft of the roller *c* for turning it; *m*, a screw for adjusting the stroke of this lever and regulating the movement of the rollers and size of the strings; *n*, the knife for cutting the cake into strings. This knife works in a trough (not shewn in the Drawing) containing dust for preventing it from getting clogged. *o*, a rising and falling scraper, the edge of which just touches the side of the knife and scrapes off the strings as they are cut and causes them to fall between the plates *k*, k^1, which are chamfered at the top so as to form a trough when they are both level with each other. The rocking motion of this scraper is effected by the fixed cam *p* and moveable cam p^1; *q*, *q*, are guide rods for the outer grooved plate k^1; *r* is the mixer formed and fitted as herein-before described, or it may be a vertical cone fitted with screw blade mixers, which are so shaped that they continually work the mass towards the bottom and top alternately. We also fit the shaft in the cylindrical mixers to operate

in the same way by making the blades on one side screw to the right and those on the opposite side screw to the left. For varying the thickness of the cakes the journals of the shaft of the roller *c* are provided with changing brasses, and the teeth of the gearing wheels are made of an extra depth. After the mass has been prepared in the mixer and rolled to the required thickness the pill making operation is performed by working the levers *j* and *l*, the latter having been adjusted by the screw *m* to regulate the size of the string and consequently the size of the globes or balls, the plates *k* and k^1 being provided with changing faces in which the grooves are of different sizes. By removing the screw in the lever *j* it can be raised clear of the front and a second slab supported by the connecting rod be attached in front so that the mass cake can then be worked backwards and forwards between the rollers from the front to the back slab or table, and vice versa, till thoroughly kneaded.

In witness whereof, I, the said Benjamin Goddard, on behalf of myself and the said William Finley, have hereunto set my hand and seal, this Twenty-fourth day of May, in the year of our Lord One thousand eight hundred and seventy.

BENJAMIN GODDARD. (L.S.)

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GODDARD & FINLEY'S SPECIFICATION.

[1 SHEET.]

FIG. 1.

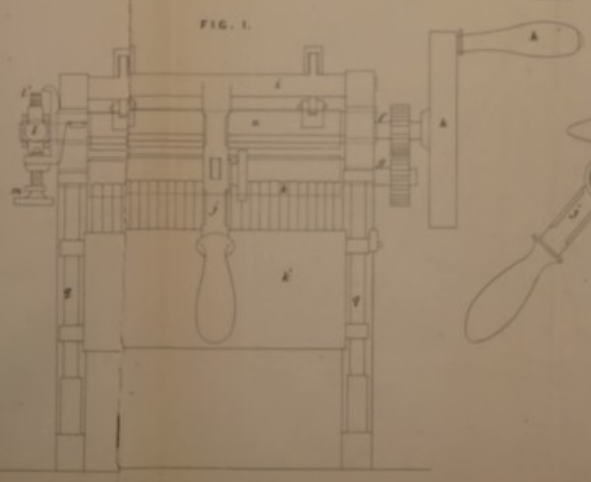
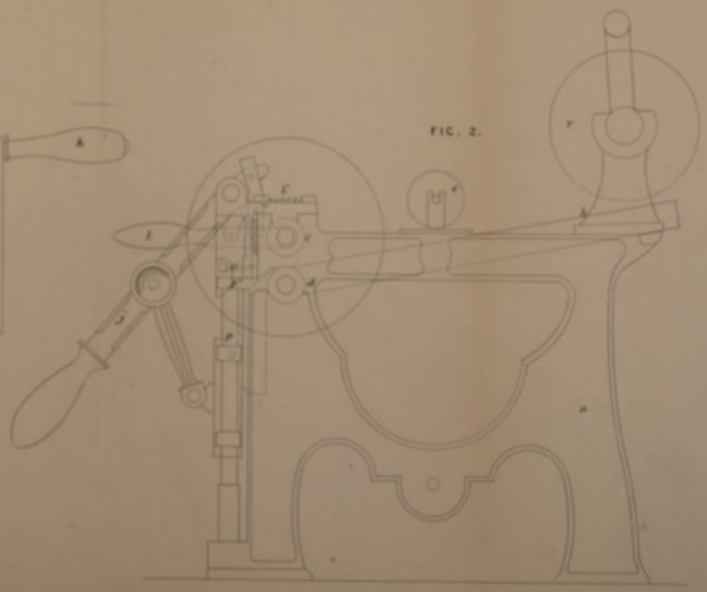


FIG. 2.



The filed drawing is not colored.

Drawn on Stone by Malby & Sons.