No. 810,193. PATENTED JAN. 16, 1906.

F. DAUM.

SOAP MOLDING MACHINE.

APPLICATION FILED JUNE 4, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

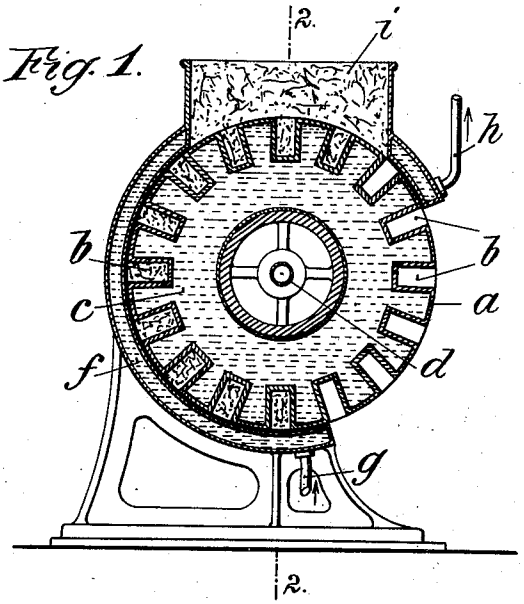

Fig. 2.

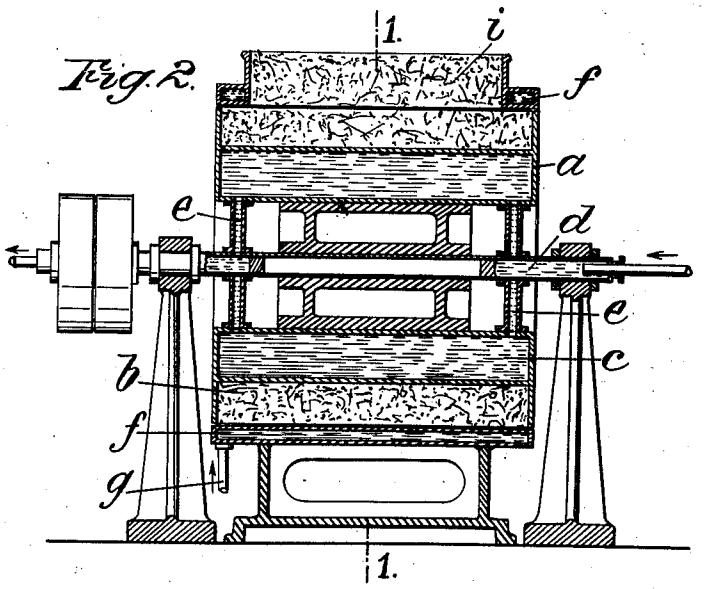

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Fig. 3.

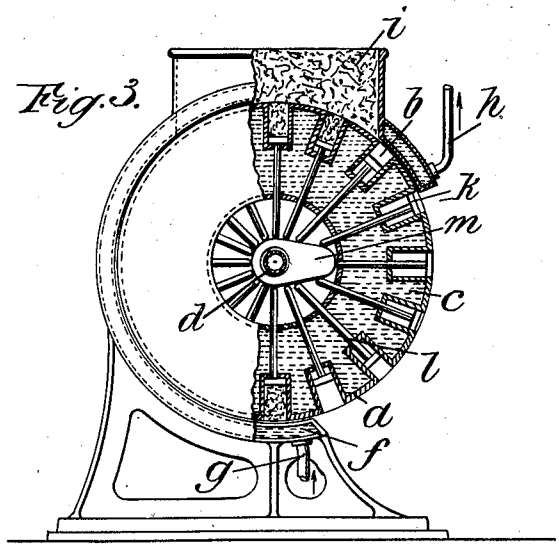
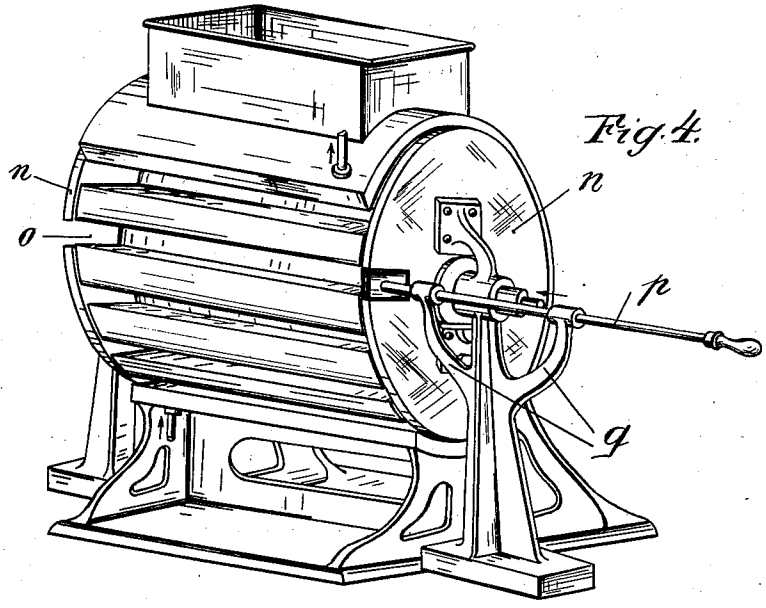


Fig. 4.



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FELIX DAUM, OF MAINZ, GERMANY.

SOAP-MOLDING MACHINE.

No. 810,193. Specification of Letters Patent. Patented Jan. 16, 1906.

Application filed June 4, 1904. Serial No. 211,087.

To all whom it may concern:

Be it known that I, FELIX DAUM, chemist, residing at 46 1/10 Kaiserstrasse, Mainz, in the Grand Duchy of Hesse, Germany, have invented new and useful Improvements in Soap-Molding Machines, of which the following is a specification.

This invention relates to a soap-molding machine, and has for its object to charge the liquid soap into molds to cool the same and to effect its solidification, the bars or cakes of soap thus produced being then removed either by hand or otherwise. The machine is so arranged as to be capable of continuous working.

The machine consists for this purpose of a hollow rotating drum suitably made of sheet-iron, on the periphery of which are formed box-like recesses, the size and configuration of which correspond to the desired form of the soap-bars or tablets to be produced. The interior of the drum is cooled by means of water, cold air, carbon dioxid, or the like, and the drum is made to revolve partly within an external cooling-jacket. The liquid soap passes from a tank arranged on the top of the drum into the molds of the latter as they pass round underneath, and as the drum travels round the soap is solidified by the cooling action, so that the formed bars or tablets will either drop out of themselves at that part of the machine where the drum is not inclosed in the jacket or they are removed by hand or by mechanical means. For removing the bars or tablets mechanically the molds may be provided with movable bottoms, to which are attached rods extending into the drum, where they are acted upon by a fixed cam or the like, so as to push the bottoms outward, and thus force the bars or tablets out of the molds. The mechanical ejecting device can also be so arranged that the molds of the drum are open at the sides, in which case the still liquid soap is prevented from running out by means of metal plates against which the ends of the drum revolve. These plates have openings at a suitable point, through which a plug, moved either by hand or mechanically, is made to enter the mold, so as to eject the solidified bars or tablets from the same.

On the accompanying drawings is shown a soap-molding machine constructed according to my invention.

Figure 1 shows a longitudinal section of the machine on line 1 1, Fig. 2. Fig. 2 is a section on line 2 2, Fig. 1. Fig. 3 is a side view, partly in section, of a modified construction of the machine with a mechanical device for ejecting tablets. Fig. 4 shows a perspective view of another modification with a different arrangement of the ejecting device.

a is the hollow drum, in the periphery of which are formed the recesses *b*, constituting molds for receiving the liquid soap. The interior *c* of the drum and the sides and bottoms of the molds are cooled by means of water, cold air, carbon dioxid, or the like, which may be suitably supplied through the hollow shaft *d* and branch tubes *e*, Fig. 2. The greater part of the drum *a* outside the tank *i* is surrounded by a cooling-jacket *f*, to which water or other cooling medium is supplied through the pipe *g* and whence it is discharged through the pipe *h*. Above the drum is arranged the tank *i* for the liquid soap. From this tank the liquid soap flows into the molds as they pass under it, and it then solidifies as the molds pass round to the uncovered part of the drum, where the bars or tablets either fall onto a table or they are removed mechanically. According to the nature of the soap treated, either the inside or the outside cooling is employed, or both may be applied conjointly.

In the arrangement shown at Fig. 3 the molds *b* are provided with piston-like bottoms *k*, having rods *l*, that extend inward in the drum. Each mold is preferably provided with two rods, one at each end. These rods slide in contact with a fixed cam or cams *m* of such a shape that the bottoms *k* remain in position at the inner ends of the molds during the greater portion of a revolution, but are protruded when the molds arrive at the part where the drum is uncovered, so that the soap bars or tablets are ejected at that point.

In the arrangement at Fig. 4 the molds *b* are open at the ends. The liquid soap is prevented from running out by means of fixed plates *n* at the ends of the drum, between which the latter revolves. At a suitable point the plates *n* have openings *o*, through which a plug *p* can enter the molds at one end, so as to push the solidified bar of soap out of the mold at the opposite end. The

plug *p* is guided in arms *q* on the framing of the machine and is either actuated by hand or by any suitable mechanical devices.

Now what I claim, and desire to secure by Letters Patent, is the following:

1. In a machine for effecting the solidification of liquid soap in molds the combination of a revolving drum with recesses formed at the periphery thereof and constituting molds for the soap, a tank for receiving the liquid soap and supplying it to the molds, a jacket including the tank, partially surrounding the drum, and means for cooling the sides and bottoms of the molds during their revolution, substantially as described.

2. In a machine for effecting the solidification of liquid soap in molds the combination of a revolving drum with recesses formed at the periphery thereof and constituting molds for the soap, a tank for receiving the liquid soap and supplying it to the molds as they pass under it, a jacket including the tank, partially surrounding the drum, and means for cooling the sides and bottoms of the molds during their revolution, substantially as described.

3. In a machine for effecting the solidification of liquid soap in molds the combination of a revolving drum with recesses formed at the periphery thereof and constituting molds for the soap, a tank for receiving the liquid soap and supplying it to the molds as they pass under it and cooling devices for the molds applied to the interior and exterior of the drum, substantially as described.

4. In a machine for effecting the solidification of liquid soap in molds the combination of a revolving drum with recesses formed at the periphery thereof and constituting molds for the soap, a tank for receiving the liquid soap and supplying it to the molds, a jacket including the tank, partially surrounding the drum, means for cooling the sides and bottoms of the molds during their revolution, and means for mechanically removing the solidified soap from the machine, substantially as described.

5. In a machine for effecting the solidification of liquid soap in molds the combination of a revolving drum with recesses formed at the periphery thereof and constituting molds for the soap, a tank for receiving the liquid soap and supplying it to the molds as they pass under it, a cooling device for the molds applied to the interior of the drum, and a cooling-jacket arranged around the drum and open at one side for the purpose of removing the solidified soap, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FELIX DAUM.

Witnesses:

GEORG PFEUFFER,

LUDWIG WIRTH.