

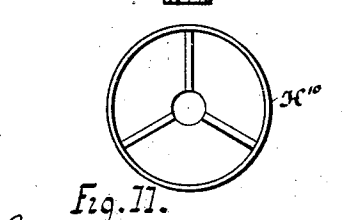
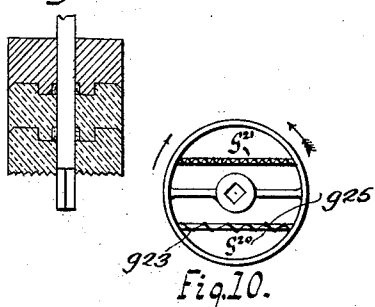
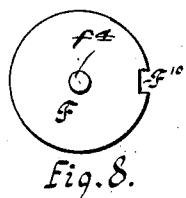
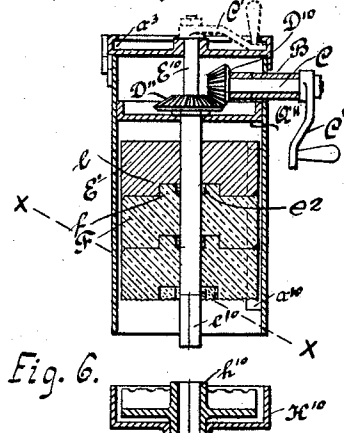
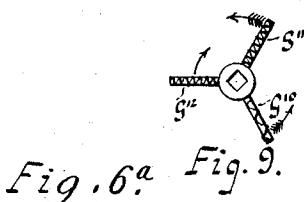
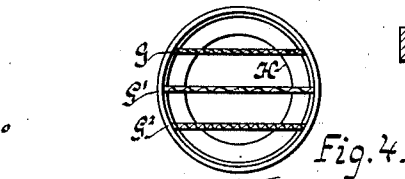
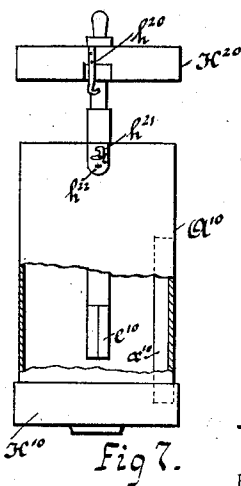
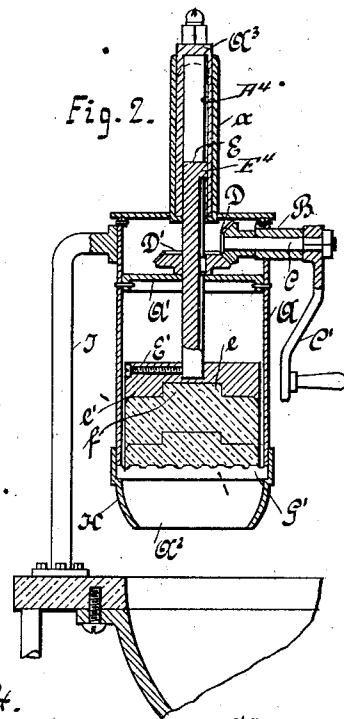
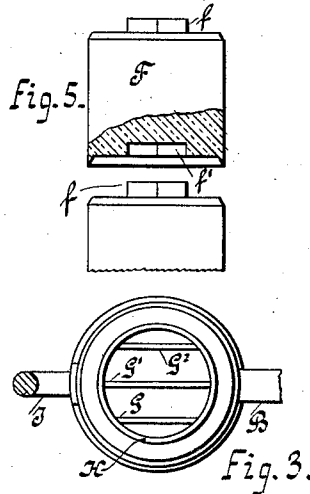
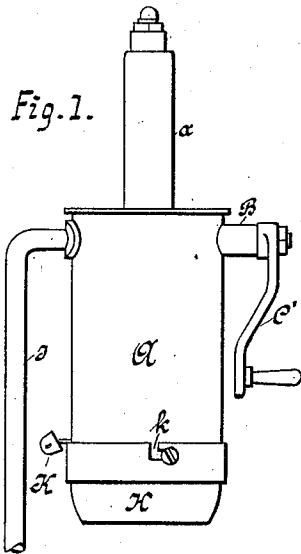
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SOAP SUPPLIER.

APPLICATION FILED MAY 15, 1905.

1,037,456.

Patented Sept. 3, 1912.



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UNITED STATES PATENT OFFICE.

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TO GRANULATOR SOAP COMPANY, A CORPORATION OF NEW YORK.

SOAP-SUPPLIER.

1,037,456.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed May 15, 1905. Serial No. 260,435.

To all whom it may concern:

Be it known that we, CHARLES H. J. DILG and JONATHAN O. FOWLER, JR., citizens of the United States of America, and residents of New York, in the county of New York and State of New York, certify that we have invented a certain new and useful Soap-Supplier, of which the following is a specification, the same being a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatuses by means of which solid blocks of material may be disintegrated and furnished for use in the form of fine shavings, or in a comminuted condition, and in particular to means for supplying chemical compounds for washing or cleansing, as soap, or like articles, in granular form; and it has for its object the production of a machine that will accomplish the above purpose, and work in a satisfactory manner, and which may be economically manufactured and easily and rapidly operated.

With this object in view the invention consists in certain novel features of construction and arrangement of parts, all of which will be hereinafter described and specifically pointed out in the drawings which accompany and form a part of this specification, and in which—

Figure 1 represents a side elevation of an apparatus constructed according to this invention; Fig. 2 is a sectional view of the same; Fig. 3 is a view of the bottom of the machine shown in Fig. 2; Fig. 4 is a view in detail of one style of serrated cutting or granulating means; Fig. 5 is a detail view in elevation, partly in section, of interlocking cakes of soap; Fig. 6 is a view partly in section, and Fig. 7 is a side elevation, with the casing partly broken away of other soap suppliers in which our invention is embodied; Fig. 8 is a view in section of the cakes of soap and weight taken at a right angle to the section plane of Fig. 6; Fig. 9 is an outline view of a cake of soap; Figs. 9 and 10 are views in detail of other cutting devices used in the said machines; Fig. 9^a is an enlarged perspective view of a portion of the cutter arm G¹² shown in Fig. 9; and Fig. 11 is an end view of the cap holder for the cutter used in the machine shown in Fig. 6.

Like letters of reference indicate like parts in all the views.

Referring particularly to Figs. 1 and 2 of the drawings, A denotes the shell or casing of the soap supplier, the same, preferably, consisting of a cylinder upon which is ordinarily mounted the vertical tubular extension *a*, communicating with the said shell. A bearing is ordinarily formed in the shell of the soap supplier, consisting, in the present embodiment, of a sleeve B. Within the said sleeve works a spindle C, which may be provided with any suitable means for operating the same, as the manually actuated crank-arm C'. The inner end of the spindle C preferably carries a bevel gear D which meshes with another bevel gear D' mounted in a movable relation upon the plate or partition A' of the cylinder casing A. The said bevel gear D' is ordinarily keyed to a shank or spindle E which works in a bearing in the plate or partition A' and extends up into the upper portion of the tube *a*, with which spindle is engaged a weight E' in order that the rotation of the spindle E may cause the said weight or follower E' to revolve. The upper portion of the gravity shank or spindle E works in, and is embraced in, the sleeve A³ contained in the tube *a*, and the upper end of the said hollow sleeve or spindle preferably projects up from the top of the casing in order to serve as a means of actuating the said shank or spindle E by means of the handle or crank arm C', if desired. The rotatable sleeve or spindle A³ is provided with a longitudinal slot or keyway A⁴ in which works a key or pin E⁴ projecting from the upper part of the shank.

The weight E' is ordinarily provided with any suitable means of interlocking with the soap, through one or more engaging means, as for example, a recess *e*, which recess is constructed and arranged to preferably engage the soap and to register and interlock with a head *f* in the top of the cake of soap F, as in Fig. 6. Each cake of soap is not only also ordinarily provided with means to engage with the weight, through one or more interlocking devices, as for example the recessed portions *f'* on one, say the lower face thereof, as in Fig. 6, but is preferably furnished with other interlocking means, as projecting portions *f*, of practically the same size and contour as the

recesses, and ordinarily also located in the upper face of the same, and constructed and arranged to interlock with the recessed portions f' of an adjacent cake of soap. One end, preferably the lower portion, of the casing A is provided with a cutting device consisting of a series of scraping, shaving, or granulating devices, as for example, the serrated blades G, G', G² the serrations of said blades being preferably arranged in staggered order, the teeth of one of the blades, as G', being wider than those of the other cutting blades or knives, the said teeth being ordinarily respectively inclined at an angle from the horizontal plane of the cutter, as shown in Figs. 2, 4, 6, 9 and 10.

The lower part of the casing head H, which is ordinarily attached to the bottom of the casing A, is preferably reduced in diameter so as to converge and form a contracted opening or mouth A², which ordinarily detachable casing head is preferably interlocked, as at h , with the upper shell or casing A, and may be fastened to the casing or cylinder A as by means of a padlock K. The soap supplier may be sustained by any suitable means, as for example, by means of a supporting arm or standard J.

The depending portion of a projection e' of the weight E' will hold the body of the weight up from the teeth of the cutting device, and thus prevent the same from being cut or marred, or the teeth being dulled, as might occur if the knives or cutting blades were to come in actual frictional contact with the weight, in cases where the soap is practically entirely cut or worn away.

In the apparatus shown in Fig. 6, the casing A¹⁰ is provided with a partition A¹¹ through which and the top of the shell or casing works the spindle E¹⁰. The said spindle carries the bevel gear D¹¹ fixed thereto, which meshes with another bevel gear D¹⁰, the shaft C of which works in a sleeve B and carries a crank arm C'. The crank arm, may, however, be attached directly to the top of the spindle E¹⁰ if preferred, as is indicated by the dotted lines. The lower and detachable part of the casing, consisting of the head H¹⁰ supports the cutters G¹⁰, G¹¹, G¹², which are interlocked with the lower end e^{10} of the spindle E¹⁰. The hub h^{10} of the said head H¹⁰ prevents the weight from coming at any time into frictional contact with the blades, as the depending projections e^2 of the weight will rest thereon when the soap is practically entirely disintegrated.

The interior of the casing or shell A¹⁰ is provided with means for preventing the rotation of the weight and the soap, consisting, in the present instance, of a vertical part or spline a^{10} projecting into the chamber and registering and engaging with the groove or recess F¹⁰ of the soap F, and a

similar groove formed in the weight E'. A recess e (single or multiple) extending up into the weight E' engages the projection (or projections) f of the soap F, as before described, whereby the projections and recesses of the weight and those of the upper face of the soap are held rigidly together. The soap cakes may also have a central opening or bore f^4 in the same to allow the insertion therein of the spindle or shank of the rotary cutter contained in the casing.

The top of the shell or casing of the structure shown in Fig. 6 is preferably furnished with an inbent rim or curb a^3 , thus forming a circular groove in which the end of the crank arm C' works when the handle is located at the top of the apparatus. In the soap supplier illustrated in Fig. 7, the upper head H²⁰ of the casing is detachable, and it (or, if so desired, the parts H or H¹⁰) may be secured to the casing of the apparatus by means of a catch or keeper h^{20} which is constructed and arranged to be engaged with a pivoted spring latch h^{21} attached to the casing, and which may be released by moving the lower arm of the latch h^{21} upwardly by means of a key inserted in the keyhole h^{22} .

In the soap cake shown in central vertical or longitudinal section in Fig. 6, the long horizontal lines represent the bottom of the weight and the top face of the cake of soap, and the short cross lines denote the tops of the recesses in the weight and the projections on the upper face of the soap cake. In Fig. 5 representing a front elevation of the soap, where are respectively shown the front upper projection, and the rear lower recess, the long horizontal lines indicate the upper face of the cake of soap, and the short horizontal lines denote the tops of the heads or projections rising from the said face. As stated above, the soap cakes are provided with recessed portions in their lower faces to engage with the projecting portions of the weight. Such projecting portions of the weight, however, are not disclosed in the said longitudinal section of the weight and soap cakes, for the manifest reason that the said projections must lie to one side of, and cannot be coincident with, the said recesses of the weight.

The operation is as follows:—The cylinder A is charged with a suitable number of preferably interlocking cakes of soap, the upper one of which is interlocked with a follower, consisting of a plate or weight E' which may be caused to descend by its own weight or by equivalent impelling devices, as a spring, and which weight is raised, when the apparatus is charged, to the position desired. The casing head is now fastened to the cylinder, upon which the apparatus is ready for use, and by turning

the crank arm C', the soap and cutting devices become engaged with an abrading or scraping action in practically a plane surface, and the lowest cake of soap becomes gradually worn away by reason of its contact with the cutting blades, the said disintegrated particles of soap falling through the contracted discharge nozzle of the casing head. As described and shown, the soap may be rotated against the stationary cutting blades, or the soap may be held stationary, and the cutting blades may be caused to revolve, and as the soap is preferably fed by gravity, the action of the apparatus will be uniform until the soap is practically entirely worn away, or, if, preferred, upon the lowest cake of soap becoming nearly ground away, it may be detached from the weight E', and a new series of interlocked cakes of soap inserted between the partially used cake and the said weight, thus avoiding any waste of soap whatsoever. By arranging the serrations or cutting blades so as to be of different size, the face of the soap becomes evenly ground off without leaving any very marked ridges or grooves in the same.

It will be observed that the teeth of our cutter are so arranged that when either the cutter or the cake is rotated in one direction, the teeth of the cutter will cut with a shaving, and when rotated in the opposite direction, the teeth of the cutter will also cut a shaving.

The blade G²⁰ in Fig. 10 has the teeth formed, so as to cut when rotated in either direction. When the said blade is rotated clockwise, for example, as shown by the plain arrows, the width of the shaving will be limited to the width of the radial, or radially parallel, edges g²³ located on the left hand side of the cutter. If, however, the cutter is rotated in the opposite direction, or anti-clockwise, as shown by the tailed arrows, the width of the shaving will be determined by the width of the radial, or radially parallel, edges g²⁵.

By reason of the peculiar formation of the cutting teeth g²³, which are inclined in one direction, and that of the teeth 25 which are inclined in the opposite direction, we are able to prevent the cutter from making too deep a cut into the body of the soap cake by the said teeth, which is liable to occur in cases where recently made soap, which is somewhat plastic, is inserted into the machine. Thus while the teeth g²³ are cutting into the body of the cake of soap, the lower face of the same will rest against the oppositely turned teeth g²⁵, which thereby support the soap to a certain extent and prevent the said teeth g²³ from entering into the body of the soap cake a greater distance than the teeth g²⁵ will permit, whereby wastage of the cake of soap is prevented. When

the cutter is operated in the opposite direction a reverse action, as to the operation of the said teeth, takes place, as will be readily understood by those skilled in the art.

The cutter blades we prefer to use are formed with a suitable supporting member, as a hub, or a ring with or without the use of a hub, and have, as stated, non-radially disposed blades as G²⁰ and G²¹. In Fig. 9, a plurality of blades G¹⁰, G¹¹, G¹² extend from a central supporting member or hub.

Manifestly the casing or cylinder may be placed in a slanting or horizontal position, if preferred, and the soap propelled by means of other and equivalent soap feeding means, as a spring, placed on the rod between the cross piece or partition A' and the upper face of the weight or plate E', in which case the mouth would be at the side of the cylinder or casing A.

The advantage gained by constructing the cakes of soap with uneven interlocking or intermeshing faces is a material saving of the soap, for the reason that as the body of the lower cake of soap gets worn down to a thin disk it will not break or crumble as it is supported by its upwardly extending parts f and the parts surrounding the recesses f' of the superimposed cake, but will retain its entirety until engaging or intermeshing portions of the depending projections f of the lower uneven face of the cake above it are presented for abrasion. Then for a period of time the abrasive action is on both cakes of soap, by which construction an even and uniform surface is always presented to the serrated face of the cutter, and all liability of breakage and wastage of the soap cakes—such as occurs when non-interlocking or non-intermeshing cakes of soap are used—is overcome.

As it is evident that many changes in the construction, form, proportion and relative arrangement of parts might be resorted to without departing from the spirit and scope of our invention, we would have it understood that we do not restrict ourselves to the particular construction and arrangement of parts shown and described, but that such changes and equivalents might be substituted therefor, and that

What we claim as our invention is:—

1. In a machine of the class described, the combination of a casing, a spindle within the casing, a crank arm to operatively turn the spindle in either direction, intermediate beveled gears between the crank arm and the spindle, a yieldable device to continuously press toward the cutter the body to be disintegrated, retaining means to prevent the body being cut from rotating with the cutter, and a rotatable cutter connected with the spindle and adapted to operatively work in either direction whereby the body may be pushed toward the cutter with a yielding

feed and the cutter may operatively engage the body when turned in either direction solely by the manipulation of the crank arm.

2. In a machine of the class described, a casing, a rotatable cutter to cut operatively when turned in either direction, retaining means to prevent the rotation of a body contained within the casing but to allow the same to move downwardly, a manually actuated means to operatively rotate the cutter in either direction, and a self-acting non-rotatable but longitudinally movable yieldable device to continuously press the body toward the cutter, whereby, upon the sole operation of the cutter, it will operatively engage the descending body when turned in either direction.

3. In a machine of the class described, a casing, retaining means to prevent the rotation of a body contained within the casing but to allow the same to move downwardly, a cutter having some teeth inclined so as to cut when the cutter is rotated in one direc-

tion, and to support the soap when rotated in the other direction to prevent too deep a cut, and having other teeth inclined so as to cut, when the cutter is rotated in the last-named direction, and to support the soap when rotated in the opposite direction, a manually actuated means to rotate the cutter in either direction, and a longitudinally movable follower to press the body toward the cutter, whereby, upon the sole operation of the cutter, it will operatively engage the descending body, when turned in either direction.

In testimony of the foregoing specification we do hereby sign the same in the city of New York, county and State of New York, this fifth day of May 1905.

CHARLES H. J. DILG.
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."