

(No Model.)

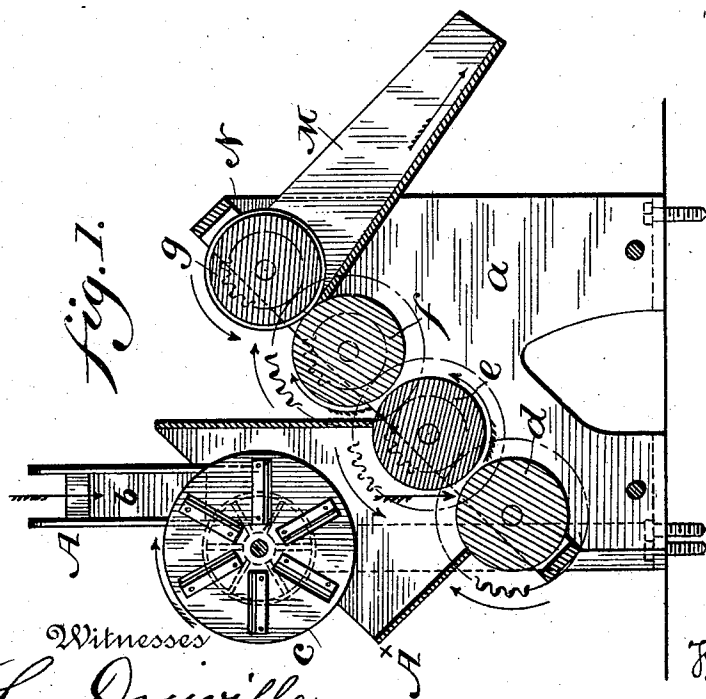
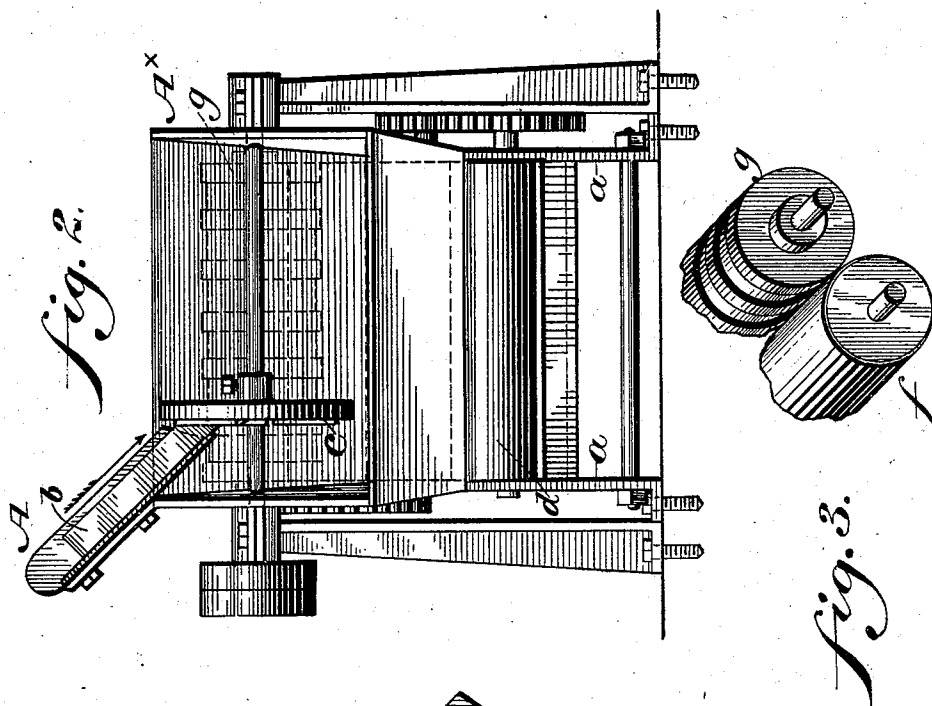
2 Sheets—Sheet 1.

F. S. RUTSCHMAN.

APPARATUS FOR TREATING AND DRYING SOAP.

No. 576,159.

Patented Feb. 2, 1897.



Witnesses

L. Douville,
P. F. Chagle

fig. 2.¹/₂.



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2 Sheets—Sheet 2.

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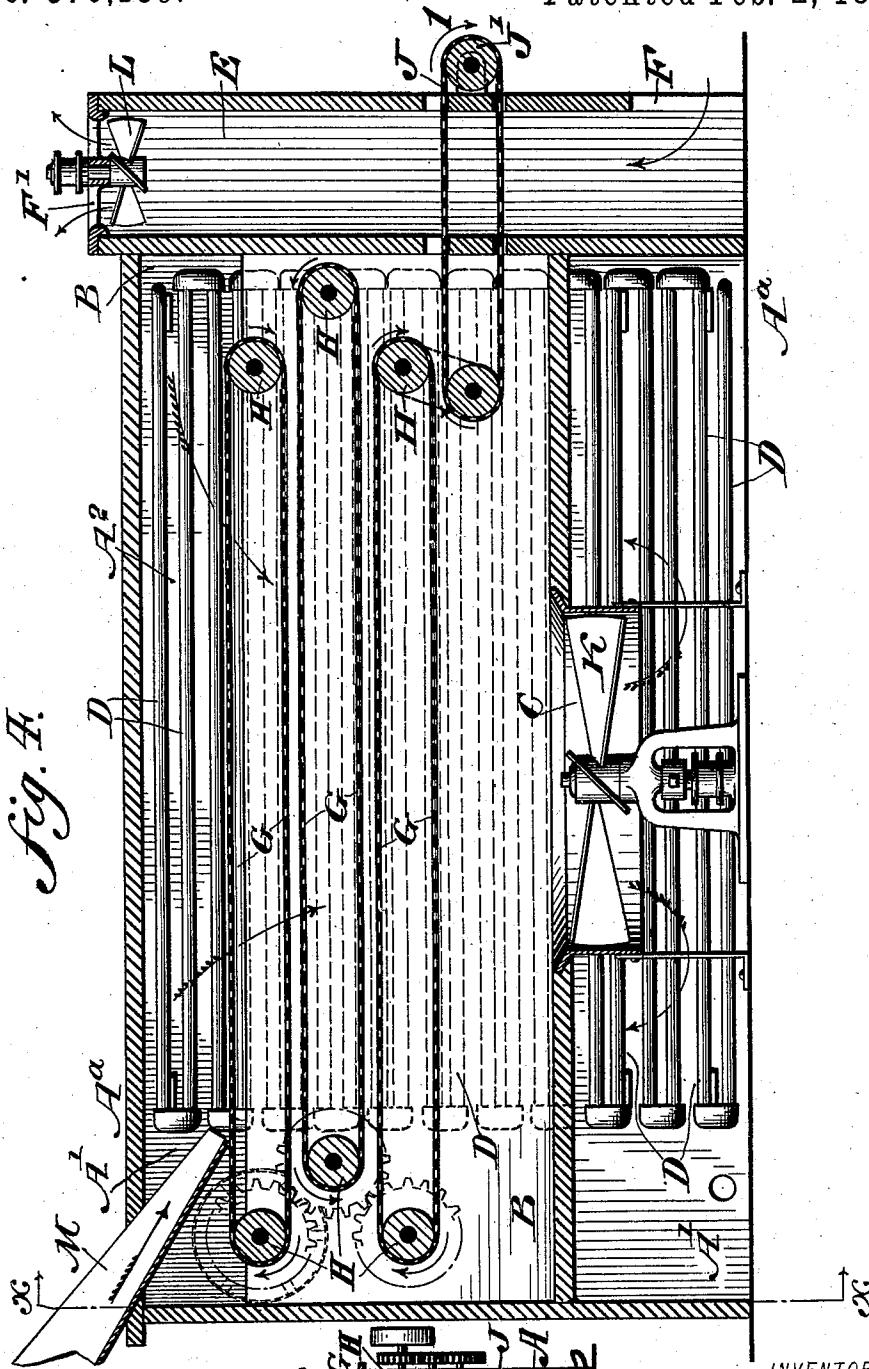


Fig. 4.

WITNESSES:

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P. H. Chaglev.

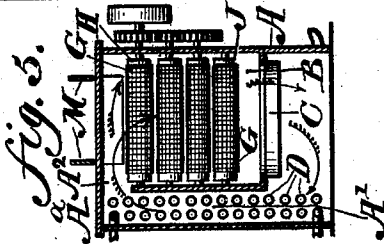


Fig. 5.

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APPARATUS FOR TREATING AND DRYING SOAP.

SPECIFICATION forming part of Letters Patent No. 576,159, dated February 2, 1897.

Application filed April 9, 1895. Serial No. 545,066. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS S. RUTSCHMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Treating and Drying Soap, &c., which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to an apparatus for treating and drying hard soap and other material; and for this purpose it consists of the combinations and arrangements of parts hereinafter set forth.

Figure 1 represents a vertical section of an apparatus for treating soap embodying my invention. Fig. 2 represents a front view thereof. Fig. 2½ represents a view of the cutters of the apparatus. Fig. 3 represents a perspective view of detached portions. Fig. 4 represents a vertical section of an apparatus for drying soap embodying my invention. Fig. 5 represents a vertical section thereof on a reduced scale.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates an inclined chute which is supported on the frame *a* and adapted to direct the piece *b* of soap to the rotary cutter *c*, whose axis is mounted horizontally on the said frame *a*.

A^x designates a hopper which is secured to the frame *a* and has a portion of the cutter *c* in the same. Below said hoppers are rollers *d* and *e*, and above the latter are rollers *f* and *g*, the roller *g* having a circumferentially-grooved periphery, the several rollers being parallel and having horizontal axes, which are mounted on the frame *a*.

The lower edge of the hopper A^x, which is adjacent to the periphery of the roller *e*, serves to direct the soap on said roller to the roller *f*. The rollers *g* and *f* are formed with grooves and ridges, as shown in Fig. 2½, the ridges of the roller *g* being opposite the grooves of the roller *f*, and the grooves of roller *g* being opposite the ridges of roller *f*, and the opposite faces of said ridges and rollers being substantially parallel.

The cutter and rollers receive power in any suitable manner, and the rollers *d* and *e* are

so geared that the roller *e* rotates at a greater rate of speed than the roller *d* and the roller *f* rotates at a greater rate of speed than the roller *e*.

At the discharge end of the frame *a*, adjacent to the roller *g*, is a chute M, which leads to a drying apparatus. (See Figs. 1 and 4.)

The soap in hard condition is fed by the chute A to the cutter *c*, whereby it is formed in thin pieces, which, dropping therefrom, are directed by the hopper A^x between the rollers *d* and *e*, where they are crushed, the mass then being carried around by the more rapidly-revolving roller *e* to the more rapidly-revolving roller *f*, whereby it is further crushed and carried to the roller *g*, where it is formed into thin strips, which are directed to the chute M and so directed to the drying apparatus, (see Fig. 4,) where A^a designates a casing in which is a chamber B, whose bottom wall is provided with a fan-casing C, and at whose side is a space A' for the reception of steam or other heating pipes D, said chamber being in communication with said space at the top of the same through the passage A² and at bottom through the fan-casing C.

At one end of the casing A^a is a cooling flue or chamber E, which is provided with inlet and outlet ports, respectively, F F'.

Within the casing A^a are the horizontal aprons G, which extend in zigzag order, so that the end of one apron extends beyond the other, whereby when the soap reaches the end of one apron it drops upon the apron below the same, it being noticed that the aprons are formed of wire netting, gauze, or other reticulated material, so that hot air may circulate through the same, said aprons being supported and operated by the rollers H, which are geared together, so as to receive power in any manner.

J designates an apron which is located partly within the chamber B and passed through the chamber E and outside of the latter, where it is supported on the roller J' in said chamber E.

In the case C is a rotary fan or blower K, and in the chamber E is a rotary fan or blower L, both of which receive power in any suitable manner.

The soap may be stripped from the top roll

in any suitable manner, as by hand or a proper device.

The operation is as follows: The soap is directed into the casing and deposited upon the upper apron. The fan draws the hot air downwardly through the aprons and consequently directs it against the soap, it being noticed that the air passes through the fan-case and enters the passage A', where it is again subjected to the heating action of the pipes D and discharged through the passage A² into the top of the casing A³, and thus the circulation of hot air continues. The soap leaves the upper apron, drops upon the apron below it, and so on throughout the series until it reaches the apron J, where it is carried through the chamber E, when it is subjected to the cold air drawn through the same, whereby the previously heated and dried soap is cooled, in which condition it is discharged from said chamber E at the arrow 1. The knives of the cutter c have their cutting edges corrugated, the corrugations alternating in adjacent cutters, so as to form the soap into strips, which, after leaving the cutter, are directed through the hopper A^x to the rollers d e.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for treating soap, a hopper, a rotary cutter having knives with alternating corrugations on their edges, the rollers d and e below said hopper, and the rollers f and g above said rollers d and e, operating mechanism for rotating said roller e at a greater rate of speed than said roller d, and for rotating said roller f at a greater rate of speed than said roller e, and a chute M leading from said rollers f and g, said roller g

having a peripheral groove therein, said parts being combined substantially as described.

2. In an apparatus for treating soap, a hopper with a rotary cutter therein, a pair of rollers below said hopper, a pair of rollers above said first rollers, the upper one of which has a peripheral groove, mechanism for moving said rollers at different rates of speed, a chute leading from the upper pair of rollers, a chamber with a series of zigzag aprons below said chute, and an air-flue adjacent to said chamber having an apron passing from the said chamber through the same, said parts being combined substantially as described.

3. In an apparatus for treating soap, a rotary cutter, a series of parallel rollers below said cutter, mechanism for operating each of said rollers at a greater speed than the one immediately below it, and a chute leading from between the upper two rollers of said series, the upper roller having circumferential grooves in its periphery, said parts being combined substantially as described.

4. An apparatus for treating hard soap, consisting of mechanism for cutting said soap into strips, a heating-chamber into which said cutting mechanism discharges, a series of alternating horizontal aprons on which said strips are carried, a hot-air blast in the floor of the heating-chamber, a cooling-chamber adjacent to and on the side of said heating-chamber, and having one of said aprons projecting therein, and a blower in said cooling-chamber, said parts being combined substantially as described.

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Witnesses:

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