H. J. SOMMER AND P. SAHA.

PROCESS AND APPARATUS FOR MAKING WAX FILMS.

APPLICATION FILED JAN. 4, 1919.

1,321,401.

Patented Nov. 11, 1919.

2 SHEETS—SHEET 1.

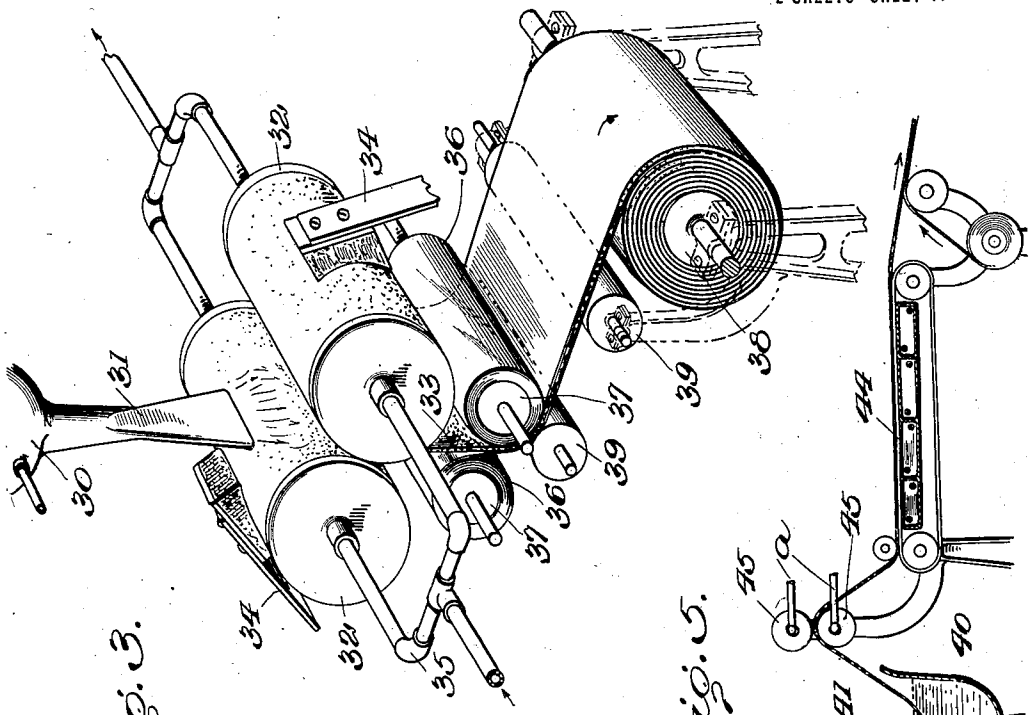

Fig. 3.

Fig. 5.

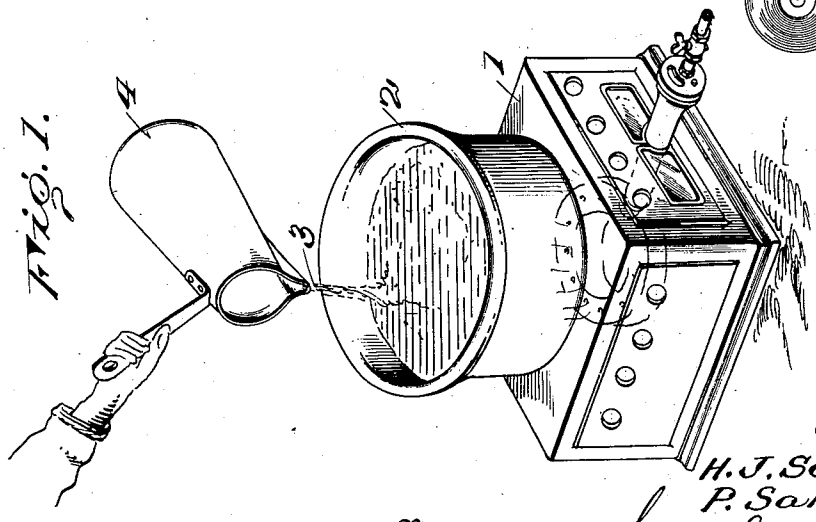

Fig. 1.

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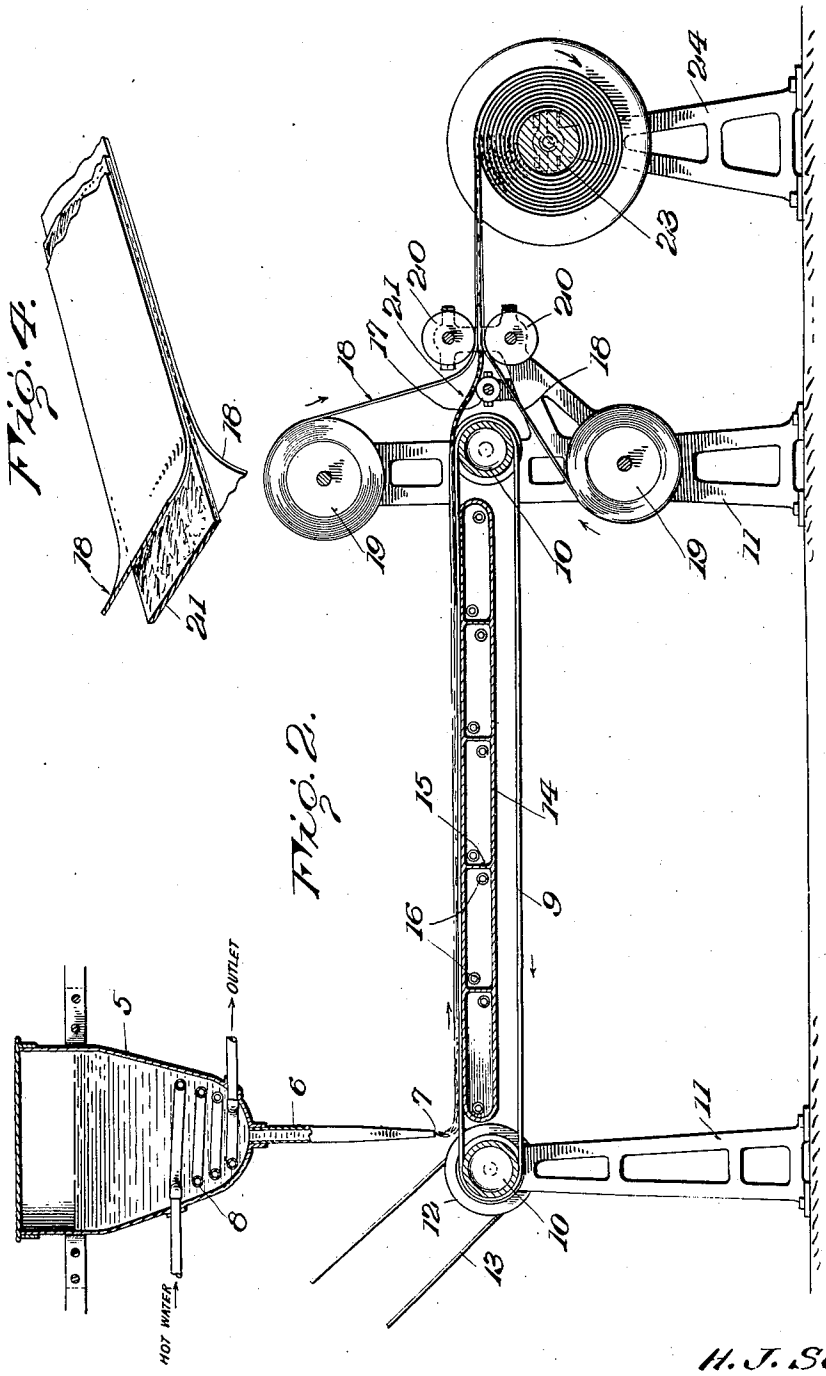

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UNITED STATES PATENT OFFICE.

HENRY J. SOMMER AND PRAMATHANATH SAHA, OF HOLLIDAYSBURG, PENNSYLVANIA.

PROCESS AND APPARATUS FOR MAKING WAX FILMS.

1,321,401. Specification of Letters Patent. Patented Nov. 11, 1919.

Application filed January 4, 1919. Serial No. 269,621.

To all whom it may concern:

Be it known that we, HENRY J. SOMMER, a citizen of the United States, and PRAMATHANATH SAHA, a subject of the King of Great Britain, both residing at Hollidaysburg, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Processes of and Apparatus for Making Wax Films, of which the following is a specification.

In the treatment of wounds, burns, cuts and similar injuries as well as ulcers and similar forms of sores, it has been found efficacious to apply a thin film of paraffin or other wax which may or may not be medicated. At the present time this wax film is generally applied to the part to be treated by melting the wax and then coating the part with a camel's hair brush dipped in the melted hot wax. This method is obviously painful to the patient and is not uniform in results inasmuch as the film formed by the cooling of the wax is not of uniform thickness. It is the object of our invention to provide a process and means whereby the wax may be applied to the wound in a thin film of uniform thickness after it has cooled or set, so that the patient will not be subjected to any discomfort and the results attained will be more certain than by the methods now generally practised.

Our invention is illustrated in the accompanying drawings and will be hereinafter fully described, the novel features being subsequently more particularly pointed out in the appended claims.

In the drawings—

Figure 1 is a perspective view illustrating a simple method of carrying out our invention;

Fig. 2 is a longitudinal section of an apparatus whereby films may be prepared capable of storage and transportation and ready for use whenever needed;

Fig. 3 is a perspective view of a different form of apparatus adapted to carry out our invention;

Fig. 4 is a detail perspective view of a portion of the article produced by our method;

Fig. 5 illustrates means for infiltrating a bandage.

In Fig. 1, we have illustrated a simple method of producing a wax film for the treatment of burns or wounds. In this apparatus, the reference numeral 1 indicates an ordinary gas burner over which is placed a vessel 2 to contain water which may be brought to a boiling point by the heat from the burner. While this water is at a high temperature and as soon as ebullition ceases, wax, indicated at 3, and which has been previously melted may be poured from a vessel 4 of any convenient form onto the surface of the hot water, a definite quantity of the wax being poured for each unit of surface measurement of the water. As the water cools, the wax will set in a film and will then be ready for use, it being understood that when the wax is melted medicines of any prescribed character may be added thereto or the wax may be used unmedicated. This method of forming the film will be found convenient and advantageous in places where a supply of previously prepared medicated or unmedicated wax cannot be conveniently obtained in a form ready for application, and it is to be understood that the wax is to be allowed to cool or set to such an extent that it will not cause any pain or discomfort to the patient when it is applied to the sore and should be thin enough to be pliable at ordinary atmospheric temperatures.

In the apparatus illustrated in Fig. 2, the wax is placed in a hopper 5 and may be previously melted and treated with medicaments. This hopper may be supported in any convenient or preferred manner and from its lower end depends a delivery spout 6 having a narrow outlet 7 whereby the melted wax will be permitted to escape in a thin sheet or film. A water bath may be provided for the hopper so as to maintain the wax in a semi-fluid state and prevent the setting or hardening of the same. We have illustrated a coil 8 which may be disposed externally or internally around the lower portion of the hopper and through which hot water or steam may circulate so that the melted paraffin or other wax within the hopper will be maintained in a partly fluid condition. Below the spout 6, we arrange an endless apron 9 which may be of oiled silk or of other material covered with oiled silk so that wax deposited thereon will not adhere thereto and this apron is supported by rollers 10 mounted upon standards 11 or other convenient or preferred framework. Motion is imparted to the apron by a pulley 12 on the end of one of the rollers 10 and a belt 13 trained around said pulley and lead-

ing from any convenient motor. Disposed between the upper and lower runs of the apron and adjacent the upper run thereof is a hollow table 14 which will preferably be provided with internal transverse partitions 15 which serve to reinforce the table and also divide the interior thereof into a plurality of independent compartments. Within each compartment, is a transverse coil 16 through which cold water may be permitted to circulate so that the setting of the wax film carried by the upper run of the apron will be facilitated. Adjacent the delivery end of the apron is an idler 17 upon which the portion of the film projecting beyond the delivery end of the apron will fall and the surface of this idler is suitably treated to prevent the film adhering thereto. The idler serves to prevent the film dropping vertically and also serves to deflect it so that it will pass between the strips of oiled paper 18 which are carried in webs by drums or rollers 19 mounted, respectively, above and below the apron, the said strips passing from the said supporting drums to and between the guiding and pressing rollers 20 which are arranged adjacent the idler 17 and respectively above and below the horizontal plane of the axis thereof. The wax film, indicated at 21, and the strips of oiled paper or similar fabric will be subjected to sufficient pressure by the rollers 20 to be made smooth and from the said rollers will pass to a winding roller or drum 23 which is removably mounted in any convenient manner upon a frame 24. When a length of film and oiled paper equal to the capacity of the drum or roller 23 has been wound on said drum or roller, the same will be cut and the roller removed. A second roller or drum may then be placed upon the frame 24 and the process continued indefinitely.

The film produced by this method and in the described apparatus will be thin so as to be pliable and will be protected by the oiled paper against infection so that it will remain sterile until it is used. It may be produced in any width so that when the physician desires to use the same he may readily cut from a roll a section of the proper dimensions. The roll will, of course, be placed in sterilized containers or put up in sterile packages so that it may be used at any time without any fear of other diseases being transmitted to the patient. The film will be ready for immediate use at all times without resorting to heat and will be thoroughly aseptic and may be applied to any raw, diseased or burnt surface of the body without any great amount of pain and in nearly all instances without any pain at all to the patient.

In Fig. 3, we have illustrated a further method of producing a film in accordance with out invention. In this form of apparatus, a hopper 30 is employed to contain the melted wax and maintain it in a sufficiently fluid state to escape constantly from the spout 31 in a thin film. Directly below the spout 31 we arrange a pair of rollers 32 between which the escaping film will pass and by which it will be compressed sufficiently to be freed of all wrinkles, bubbles, or other forms of air pockets, the film being indicated at 33. The rollers 32 may be covered with oiled silk or paper or may be continuously treated with free oil applied through oilers 34, said oilers in the illustrated arrangement consisting of pads of felt or other absorbent material bearing upon the rollers and supported in any convenient manner, it being understood that a supply of oil will be fed manually or mechanically to the pads at such intervals as may be necessary in the operation of the apparatus. The rollers 32 will preferably be hollow and pipes 35 extend through the said rollers to admit cold water to the interior thereof so that the heated wax will be set sufficiently to form the desired film. After passing from between the setting or cooling rollers 32, the film passes to and between the strips 36 of oiled paper or silk which are wound upon rollers or drums 37, the said strips 36 and the film being wound upon a drum 38 which may be supported at any convenient point and in any desired manner. The web consisting of the film and the strips 36 may pass directly from the rolls 37 to the winding drum or roller 38, but it will generally be found desirable to carry the same laterally from the rollers 37, as illustrated, the intermediate portion of the web being supported by rollers 39, one of which is arranged in juxtaposition to one of the rolls 37 so that sufficient pressure will be exerted to keep the web taut and smooth and thereby insure its proper winding upon the drum 38.

In both forms of the apparatus, the travel from the hopper to the winding drum should be sufficiently long to permit the film to set perfectly in one continuous sheet and it will be readily seen from the foregoing description, taken in connection with the accompanying drawings, that we have provided means whereby a wax film may be prepared as a commercial article in convenient sizes and in packages of any desired quantity so that it will be ready for instant use by surgeons and physicians when needed and the cumbersome, slow, tedious and painful method of melting wax and painting the sore flesh with the hot melted wax will be supplanted.

It is also to be understood that the wax may, if so desired, be caused to impregnate a gauze bandage so that when applied to a cut or wound about the fingers or toes it will act as a splint to keep the part in proper

position and in perfect rest. Our method of utilizing the wax treatment also effects a large saving in the quantity of wax used, whether the same be used with or without the gauze. In impregnating the gauze with the apparatus illustrated in Fig. 1, a piece of gauze of the desired size may be placed upon the surface of the hot water before the melted wax is poured onto the same so that when the wax is poured it will at once work into the gauze and be carried by the same. If the gauze be carried down through the hopper and the delivery spout in the mechanisms illustrated in Figs. 2 and 3, so as to follow the path described for the film, it will obviously be impregnated. In Fig. 5 we show simple means for conveniently producing a bandage. 40 designates a hopper in which is mounted a roller 41. The gauze 42 is carried by a drum 43 above and at one side of the hopper and passing therefrom under the roller 41 so that it will reach and take up some of the melted wax. The gauze strip may then pass directly to the cooling table 44 or between presser rollers 45 so that excess wax will be squeezed therefrom. It will be understood, of course, that the wax will be supplied so that its surface will be maintained at or slightly above the lowest point of the roller 41.

Having thus described our invention, what is claimed as new is:

1. The method of producing a waxed coating which consists in melting wax, spreading the melted wax in a thin film, pressing the film to remove wrinkles and air pockets, and then winding the film between protective coverings.

2. Means for producing a wax coating comprising a hopper, means for heating the hopper, means for delivering the wax from the hopper in a thin film, and means for setting said film.

3. Apparatus for forming a wax coating comprising a hopper to contain melted wax, means for heating the hopper, means for delivering the wax from the hopper in a thin film, means for causing the film to set, pressure members acting upon the film, and means for winding the film between protective coverings.

In testimony whereof we affix our signatures.

HENRY J. SOMMER. [L. S.]
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