

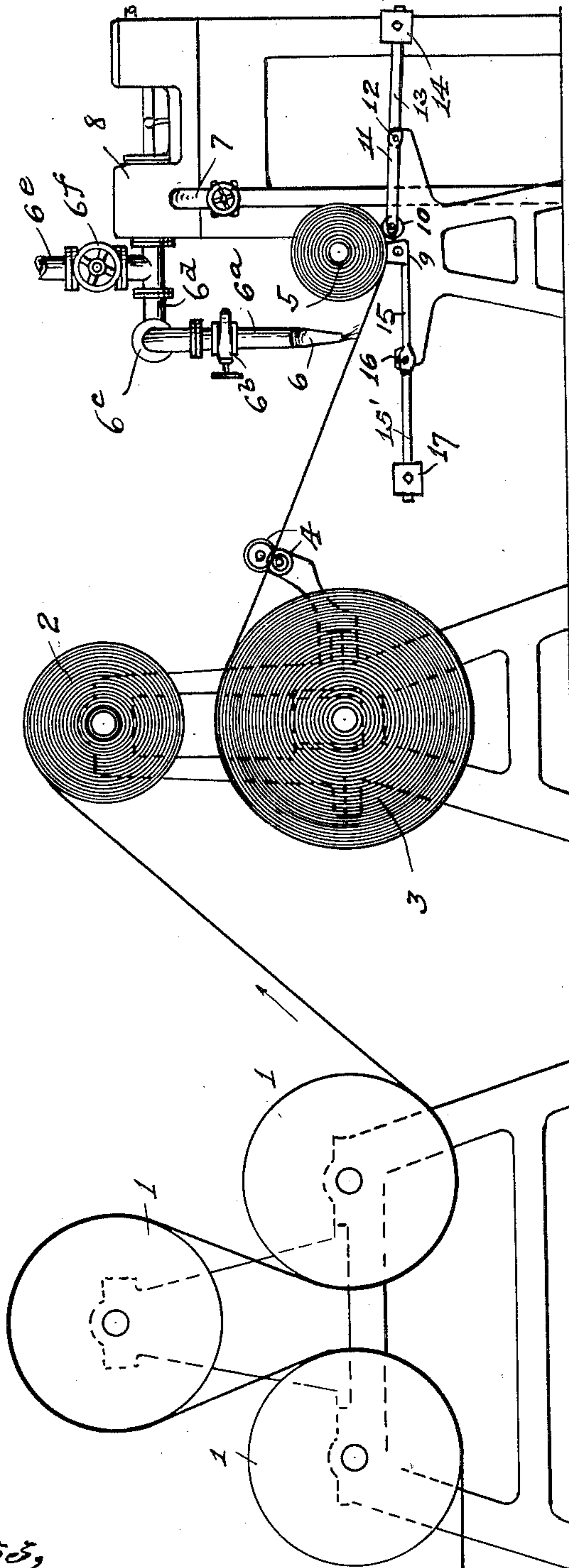
L. KIRSCHBRAUN.

PROCESS OF SATURATING FELT.

APPLICATION FILED NOV. 21, 1919. RENEWED NOV. 7, 1921.

1,417,841.

Patented May 30, 1922.



Witness,
S. E. Mann

Inventor,
Lester Kirschbraun

By Frank L. Belknap Atty.

UNITED STATES PATENT OFFICE.

LESTER KIRSCHBRAUN, OF CHICAGO, ILLINOIS.

PROCESS OF SATURATING FELT.

1,417,841.

Specification of Letters Patent.

Patented May 30, 1922.

Application filed November 21, 1919, Serial No. 339,691. Renewed November 7, 1921. Serial No. 513,586.

To all whom it may concern:

Be it known that I, LESTER KIRSCHBRAUN, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Processes of Saturating Felt, of which the following is a specification.

The object of the present invention is to saturate ordinary roofing felt just as it is leaving the paper machine and while it is being wound up into rolls. Most of the roofing felt is made on single cylinder machines in which the felt passes over drying rolls to remove the water from the sheet.

In the commercial manufacture of felt, the sheet is hot as it passes from the drying rolls to the winding rolls. At this point, the sheet of felt is practically free from water, the hot air in the pores being expended, and the sheet is in a relatively highly bibulous condition. In other words, the sheet at this time is in the optimum condition for receiving the saturant.

As is well known, the dry felt is saturated by passing it through a hot tank containing the hot asphaltic saturant. This is known as tank saturated felt. In practical operation, in the roofing industry, serious difficulties are encountered in saturating felt in this manner. The felt is made at the felt mill, rolled up and shipped to the roofing plant and these rolls as they stand around, accumulate moisture to as much as 5% to 8%. This moisture has to be removed before the felt can be satisfactorily saturated. The cold felt as it passes into the hot bath of asphalt in the tank is heated to about 350° to 400° F. This, of course, will evaporate the water but the water must evaporate before the asphalt can penetrate into the felt. This is obvious, of course, because the water converts into steam and issues from the pores, precluding the possibility of any saturant entering at the same time. Much difficulty is experienced in foaming in these saturating tanks which requires that the operation be slowed down so that the tanks do not flow over. This, of course, is a serious objection where a maximum out-put is desired. In fact, the greater part of the travel of the felt through the saturating tank is consumed in the removal of the water. Another objection to this method is the tendency to tear the

felt in its passage through the tank under the required tension.

All of the above objections are overcome in the operation of my process, in which the saturant is applied to the sheet immediately as it leaves the drying rolls of the paper machine and while the sheet is still hot. My process is carried out as follows:

To more clearly illustrate the invention, I have shown a diagrammatic view of the drying rolls and the two sets of winding rolls of an ordinary paper machine for making felt.

Referring in detail to this drawing, I designates the drying rolls, 2 and 3 the initial winding rolls which are used alternately, the cutters 4 for trimming the edges of the felt and 5 the rewinding rolls. Between the cutters 4 and rewinding rolls 5, I place a spout 6, the outlet of which may be so formed as to project the asphaltic saturant in the form of a spray. The saturant may come from any suitable supply tank (not shown) to pipes 7 leading to pump 8, the object being to force the saturant onto the sheet under pressure if desired. The spray may be dispensed with and any suitable form of nozzle used.

If desired, a suction box 9 may be supported beneath the sheet. It will be noted that the saturant is applied to the felt at the point where the lap of the incoming sheet is tangential to the already wound roll. If the vacuum box is used, it is preferably applied below the sheet substantially as shown. The object of the vacuum box is to facilitate the removal of the hot air in the pores of the sheet and facilitate the entrance of the saturant into said pores. As the sheet is wound up, the saturant will tend to further work into the pores of the felt and diffuse uniformly throughout the sheet to form complete saturation. As the wound up roll cools, the air in the pores contracts, thus sucking in the saturation.

The saturant normally used for this purpose is asphalt in a hot liquid condition, such as 140 melting point Mexican asphalt which may or may not be air blown. Other water-proof saturants may, of course, be used. It is to be noted that an excess saturation is not to be employed as otherwise there would be a tendency for the saturated felt to stick when wound up. To lessen any tendency of this character, I provide a squeeze roller 10,

preferably of steel, suitably mounted on an arm 11, which is pivoted at 12 and provided on the opposite side of the pivot with a second arm 13 carrying a counter weight 14, the object being to hold the roller 10 in frictional engagement with the roll of the felt and squeeze out any excess saturation.

In order that the vacuum box may at all times be in contact with the sheet, as the diameter of the roll increases, the box is preferably mounted on an arm 15, pivoted at 16 to a suitable support. The arm 15 is provided with an extension 15' carrying an adjustable counter weight 17.

15 In the pipe line 6^a leading from the pump to the spout 6 is a valve 6^b for controlling the supply of saturant to the spout, said pipe line being adjustably secured at 6^c to the pump connection 6^d which connection is provided with a pipe line 6^e having a controlling valve 6^f therein. The pipe line 6^e leads to the source of supply of the saturant (not shown).

It will be noted that the valve 6^b permits 25 regulation of the supply of the saturant to

the spout and also where desired, by closing valve 6^b and opening valve 6^f, the saturant may be entirely cut off from the spout and allowed to circulate through the pump, thereby avoiding the necessity of stopping 30 the pump.

I claim as my invention:

1. A process of saturating felt consisting in applying an asphalt in a hot liquid condition to the hot sheet, as the latter passes 35 beyond the drying rolls and finally winding up the sheet after the saturant is applied and while the sheet is still hot.

2. A process of saturating felt, consisting in applying a hot bituminous saturant in 40 liquid form to the one face of the hot dry sheet, at or adjacent the point where it is being wound up.

3. A process of saturating felt, consisting in applying a waterproof saturant in hot 45 liquid condition to one face of a heated sheet as the latter passes beyond the drying rolls, and winding up the sheet after the saturant is applied.

LESTER KIRSCHBRAUN.