March 25, 1930. C. R. SCULLEY 1,751,889

APPARATUS FOR IMPREGNATING ROOFING FELT

Filed Jan. 18, 1929 2 Sheets-Sheet 1

Fig. 1.

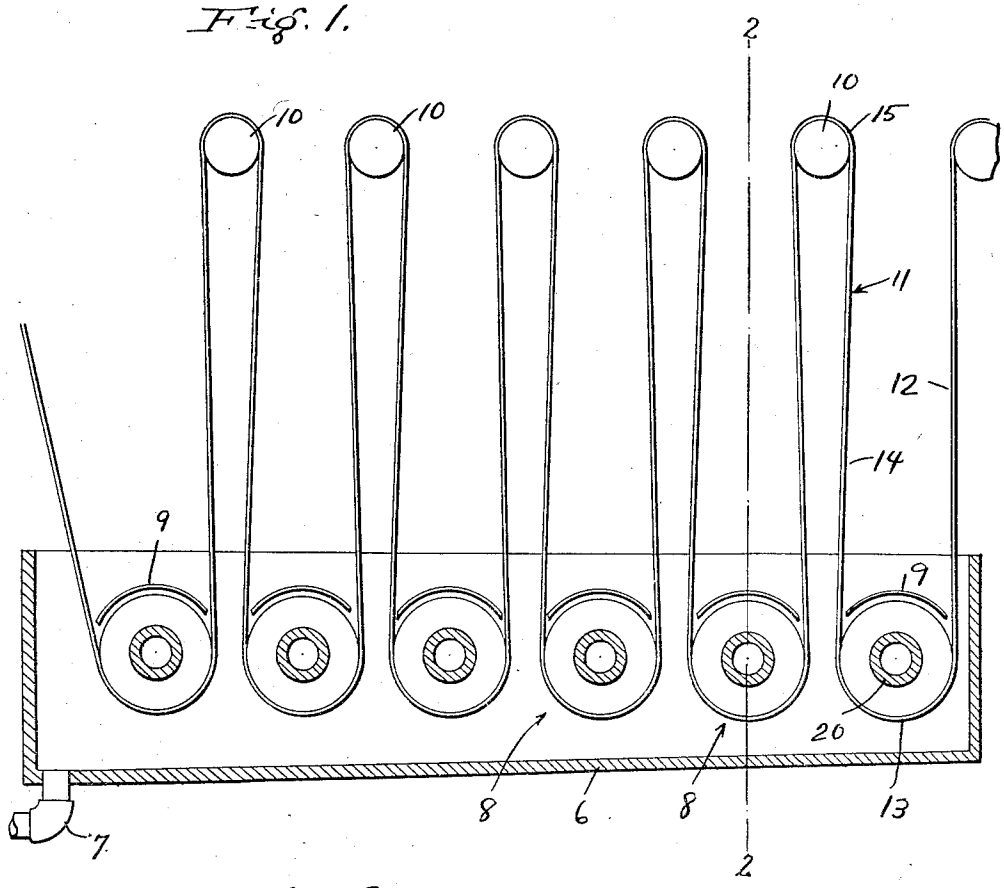
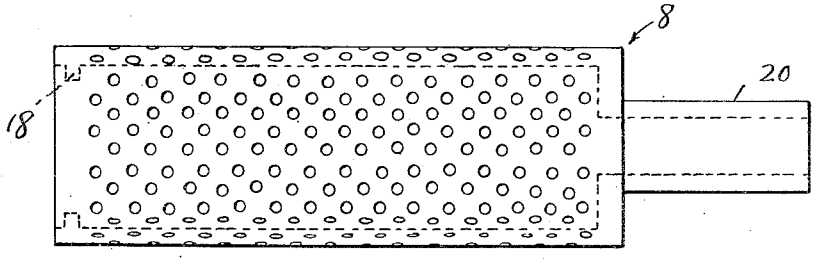


Fig. 3



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Filed Jan. 18, 1929 2 Sheets-Sheet 2

Fig. 2.

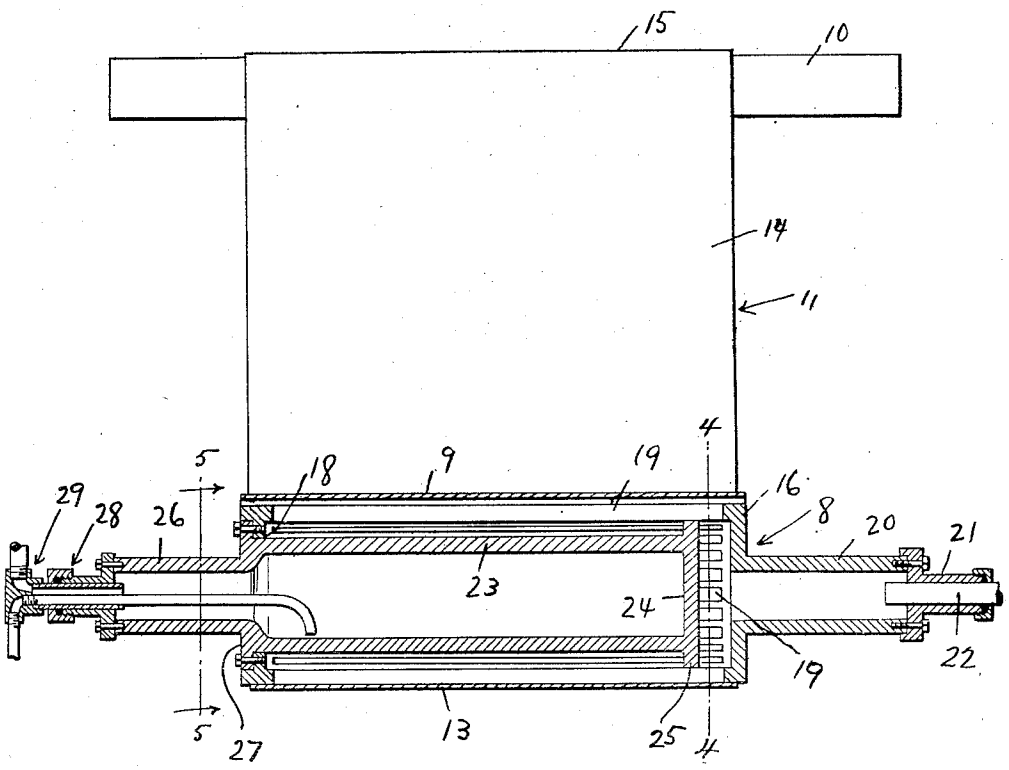


Fig. 4.

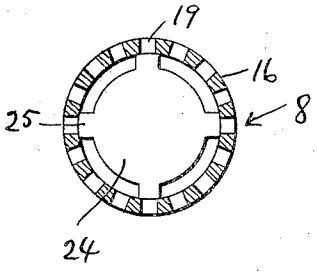
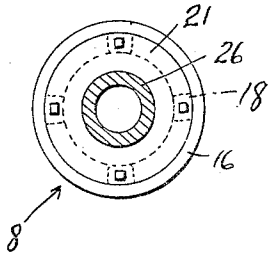


Fig. 5.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR IMPREGNATING ROOFING FELT

Application filed January 18, 1929. Serial No. 333,328.

This invention relates to a new apparatus for treating roofing felt for saturating and impregnating said felt with asphalt to condition it for the market.

In carrying out the invention I have found it practicable to accomplish this novel method of saturation treatment by utilizing a structure which is characterized principally by a support, and one or more movable applicators, each applicator being constructed for conducting the liquid asphalt under pressure, and evenly discharging it through surface apertures to thoroughly saturate and appropriately impregnate the felt in a manner to insure proper adhesion and uniform coating.

More specifically stated, the apparatus for accomplishing this task is made to embody a trough equipped with a plurality of longitudinally spaced rotary applicators, suitably constructed to conduct the fluid asphalt, internally heated to maintain the asphalt in a free flowing state and cooperable with heated looping and feeding rollers to accomplish the result in a dependable and efficient manner.

In the drawings:

Figure 1 is a diagrammatic sectional and elevational view showing the complete structural arrangement made in accordance with the present invention.

Figure 2 is a vertical transverse section taken approximately on the plane of the line 2—2 of Figure 1.

Figure 3 is a detail view of one form of roller applicator.

Figure 4 is a transverse sectional view taken approximately on the plane of the line 4—4 of Figure 2, and

Figure 5 is a similar sectional view taken approximately on the plane of the line 5—5 of Figure 2.

In carrying out the invention I provide a trough 6 of appropriate shape and proportion having a drain 7 at one end. Situated for rotation in this trough at longitudinally spaced points are the rotary asphalt applicators, each of which is generally designated by the reference character 8. Mounted over each applicator is an arcuate shield 9. Supported above the applicators 8 and arranged in staggered or alternate relation thereto are rotary feed rollers 10. These are arranged in a horizontal row and are constructed to feed the felt in and convert it into vertically elongated loops. In practice, these rollers 10 will be provided with internal heating elements, for instance electrical heaters. With this arrangement the strip of felt is carried down as at 12, under the first applicator as at 13, up as at 14 and then over the first feed and looping roller 10 as at 15. By subjecting the strip of felt to this tortuous passage, uniform application and coating is insured.

The principal novelty in the apparatus is predicated upon the construction of the rotary applicator 8. Each applicator is of the construction better shown in Figure 2. In this figure the reference character 16 designates a hollow cylindrical roller closed at one end, open at its opposite end and formed at the last named end with circumferentially spaced inwardly extending attaching lugs 18. The periphery is formed with longitudinally extending circumferentially spaced discharge slots 19. The closed end (at the right) is equipped with a hollow journal 20 carrying a stuffing box 21 through which the asphalt supply pipe 22 extends. Telescopically fitted in this roller is a hollow steam heating cylinder 23 whose closed end 24 is spaced from the corresponding end of the roller and provided with outstanding spacing lugs 25. These lugs are spaced apart circumferentially to permit passage of the asphalt therebetween. Incidentally, the asphalt is introduced under pressure. The opposite end of the steam cylinder 23 is formed with a hollow journal 26 having an outstanding closing flange 27 bolted to the lugs 18. This journal is also provided with a stuffing box 28 with which a conventional siphon and steam heating head 29 is connected. This head is of a standard construction and its operation is well known. Thus, it will be seen that steam enters and discharges through the journal 26 and heats the cylinder 23. The asphalt enters under pressure through the opposite end, passing through the journal 20, between the lugs 25 and then into the space between the periphery of the steam cylinder and the corresponding portions of the roller. The

asphalt discharges through the slots 19. It is obvious from Figure 3 that instead of providing slots, the surface of the asphalt roller may be equipped with a multiplicity of closely spaced perforations or ports.

In practice, the asphalt is pumped under pressure into the roller, and it is forcibly ejected, in a heated state against the contacting and movable strips of rag felt. Under this action a peculiar suction and capillary force is set up, driving the hot liquid asphalt through the inner surface of the felt, thus insuring thorough saturation for both sides and uniform coating as well as tenacious adhesion.

The gist of the invention is in the treating of a movable strip of rag felt with heated liquid asphalt, forcibly ejecting the asphalt through discharge slots in rotary applicators in a manner to set up the capillary and suction forces mentioned and to thereby properly condition the felt to render it commercially superior.

The features, construction and method of operation will be clear after reading a description in conjunction with the drawings, therefore, a more lengthy description is regarded unnecessary.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice if desired.

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

1. In a roofing felt saturating apparatus, a trough, a plurality of longitudinally spaced rotary applicators mounted for idling rotation in said trough, said applicators being in the form of hollow apertured rollers having means at one end for introducing liquid asphalt under pressure, and means at the opposite end for introducing a heating medium, individual shields mounted in the trough over each applicator, and a plurality of rotary heating and feeding elements supported above the trough, whereby to permit a strip of felt to be trained over said elements and rollers in a loop like tortuous manner.

2. An apparatus for impregnating roofing felts with asphalts comprising a rotary applicator embodying a hollow roller having discharge openings formed in its periphery, provided at one end with a hollow journal carrying a stuffing box, an asphalt supply pipe associated with the stuffing box and journal, the opposite end of the roller being open and provided with internal attaching lugs, a heating cylinder fitting through the last named end of the roller into the interior of the latter and having an attaching flange secured to said lugs, and a hollow journal cooperating with the first named journal, said second named journal being also provided with a stuffing box, and a supply device for the heating medium connected with said last named stuffing box.

In testimony whereof I affix my signature.

CHARLES ROY SCULLEY.