

Sept. 8, 1936.

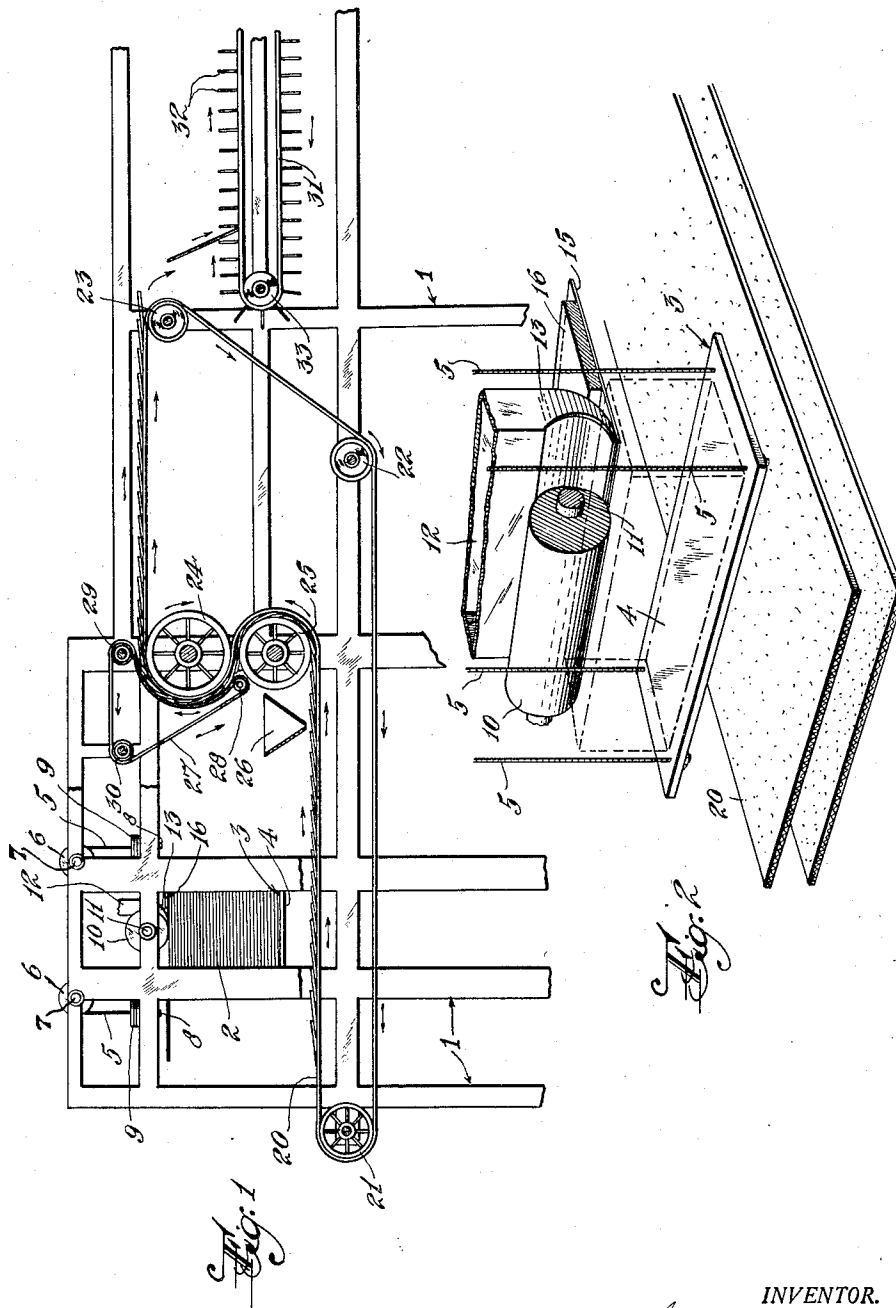
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2,053,723

APPARATUS FOR TREATING SHINGLES AND SHINGLE ELEMENTS

Filed May 26, 1932

3 Sheets-Sheet 1



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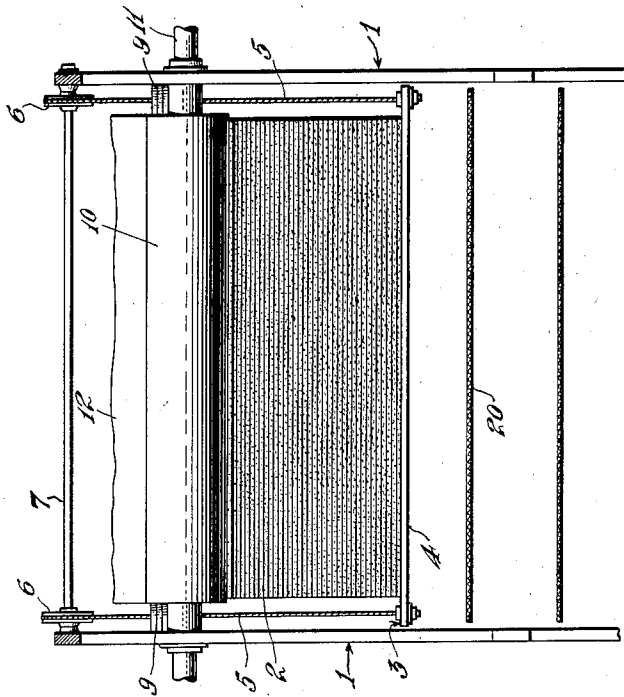


Fig. 4

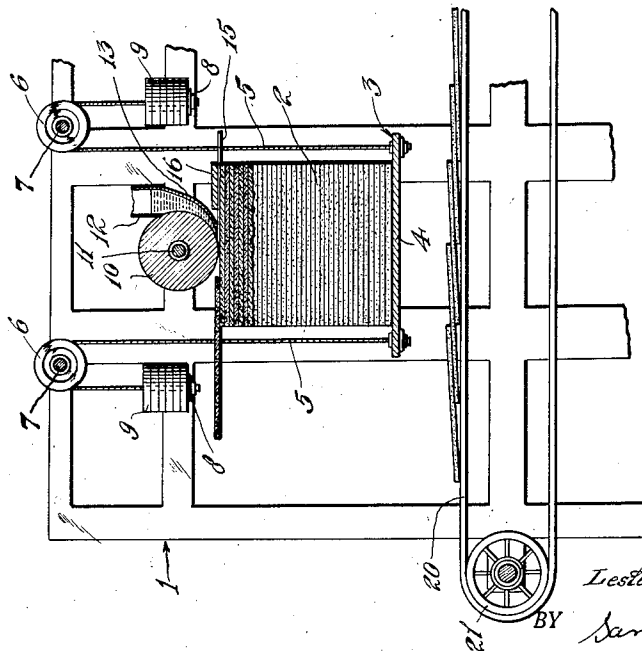


Fig. 3

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*Fig. 5*

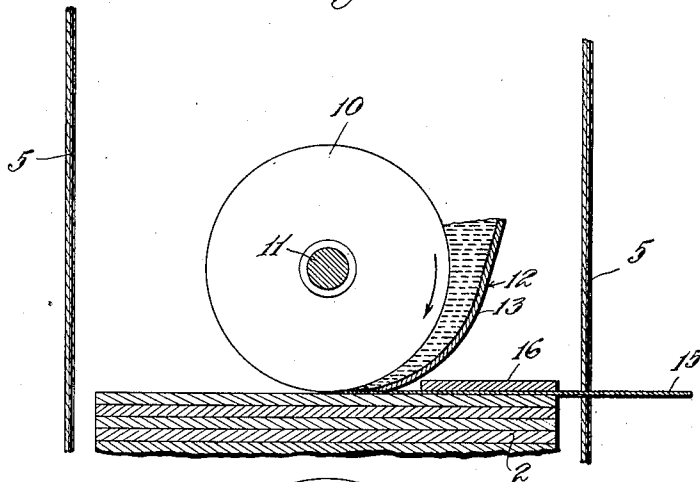


*Fig. 6*

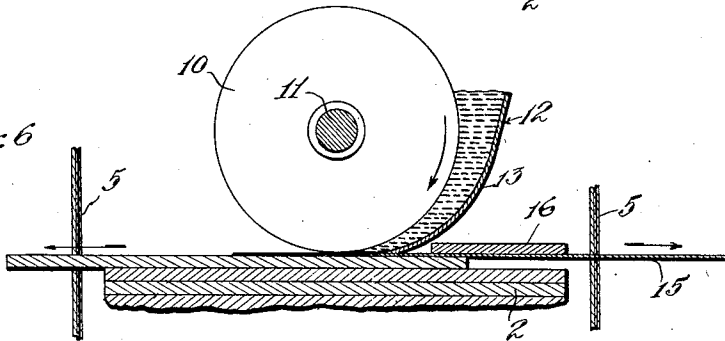
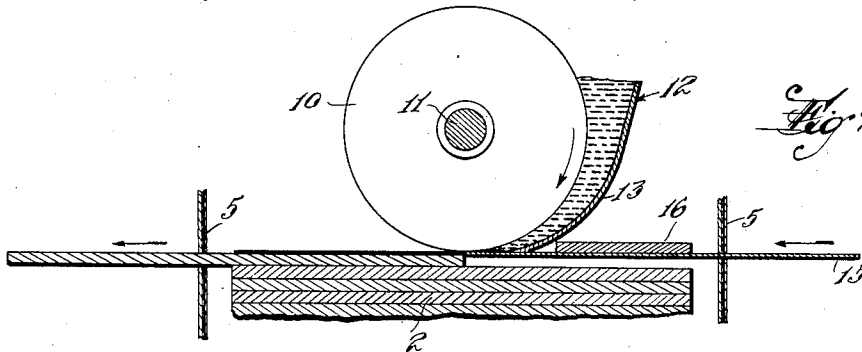


*Fig. 7*



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## UNITED STATES PATENT OFFICE

2,053,723

APPARATUS FOR TREATING SHINGLES  
AND SHINGLE ELEMENTSLester Kirschbraun, Leonia, N. J., assignor to The  
Patent and Licensing Corporation, Boston,  
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Application May 26, 1932, Serial No. 613,639

3 Claims. (Cl. 91—29)

This invention relates to an apparatus for preparing shingle elements and is more particularly concerned with apparatus for thickening the butts and sealing the edges of shingles or shingle strips.

In the manufacture of asphalt composition roofing shingles it is customary to cut the shingles from a continuous sheet of felt which has been saturated and coated with asphalt and surfaced on one or both sides with mineral or other wear-resistant material. The cutting operation causes the fibres of which the belt base is composed to be exposed along the cut edges of the shingle, with the result that in moist or wet weather these fibres absorb water or moisture and swell causing the asphalt coating to crack and the shingle to deteriorate rapidly. Moreover, shingle elements made in this manner have a thin, flat, unsubstantial appearance when laid on a roof or other structure.

My invention is designed to overcome the objectional features heretofore present in shingles of the type above described.

Briefly, my invention consists in arranging shingle elements in a stack, successively withdrawing the top-most element of the stack and simultaneously therewith, coating the butt portion and cut edges of the strip. As each element is removed from the stack, the next element beneath the stack is exposed to and/or brought in contact with the coating mechanism and is in turn removed from the stack and coated simultaneously. This operation is continued until the stack of shingles is exhausted when a new stack is supplied and the coating operation is continued. The stack may be fed by hand and the shingles may be removed successively in the same manner or the entire process can be made automatic by means of suitable mechanism. As each shingle is removed from the stack and coated it is placed on a conveyor belt in overlapping relation with other shingles so as to expose only the coated portion of the shingle and grit then applied thereto. The grit is then pressed into the coating to cause it to be firmly embedded therein, allowed to cool or dry, depending on the nature of the coating substance, and finally packed and stored for shipment.

In order to more fully comprehend my invention, reference is had to the following description in conjunction with the accompanying drawings of which:

Figure 1 is a side elevational view of apparatus in accordance with my invention;

Figure 2 is a perspective view of the coating

mechanism with a portion of the coating roll removed;

Figure 3 is an enlarged vertical sectional view of the coating mechanism;

Figure 4 is an end view of the apparatus shown in Figure 3; and

Figures 5 to 7 represent successive steps in the coating operation.

Referring to the drawings, the numeral 1 indicates a suitable framework upon which the apparatus is mounted. An elevator for supporting a stack of shingles, 2, is indicated generally by the numeral 3. The elevator consists of a platform 4 supported at each corner by a cable 5 which is securely fastened to the platform. If desired, suitable adjustable walls may be mounted on the platform in order to keep the stack of shingles properly aligned. Each cable passes around a pulley 6 mounted on suitable shafts 7 which are in turn mounted in suitable bearings on the upper part of the frame. The free ends of the cable have discs 8 securely fastened thereto and upon which are supported weights 9, sufficient to cause upward movement of the loaded platform. A coating roll 10, above the platform 4 and centrally thereof, is mounted on a shaft 11, which is fixed to the framework in suitable bearings. The roll is adapted to rotate in the direction indicated by the arrows in Figures 5-7, at a slightly greater peripheral speed than the speed at which the shingles are withdrawn from the stack. A tank 12 for containing asphalt fits against the coating roll in such manner that the ends 13 of the tank hug the periphery of the roll and the roll acts as a closure for the tank. The surface of the roll is free to contact with the asphalt in the tank. A plate 15 is slidably mounted at the bottom of the tank. A second plate 16, considerably heavier than plate 15 is rigidly mounted to the framework above the plate 15. The plates 15 and 16 act to arrest the upward movement of the elevator when the top-most shingle of the stack comes in contact therewith. The inner edge of the plate 15 is approximately of the same thickness as the thickness of the film of coating that is to be applied to the shingle element. By moving this plate inwardly or outwardly in a horizontal direction the amount of coating material which will flow from the tank 12 can be readily regulated. Directly below the elevator is a stretch of conveyor belt 20 which is adapted to run around pulley wheels 21, 22, 23, 24 and 25. A hopper 26 for feeding comminuted wear-resisting material is placed above the conveyor belt 20. A hugger belt 27 travels around pulley

wheels 28, 29 and 30 and is placed with a portion of the belt adjacent to the pulley wheel 24. A second conveyor 31, below and adjacent to pulley wheel 23 and having upright arms 32 affixed thereto at spaced intervals travels around suitable pulley wheels 33.

The operation is as follows. A stack of blanks which may be strips of suitable size and configuration, cut from a felted fibrous sheet saturated and coated with asphalt and surfaced with wear-resisting material is placed upon the platform 4 of the elevator. Sufficient weights 9 are placed on the ends of the cable to cause the elevator to move upwardly with the stack of shingles. The plates 15 and 16 impede the movement of the stack upwardly. The topmost element of the stack is then withdrawn in the direction indicated by the arrows in Figures 6 and 7. At the same time the coating roll 10, which is revolving in the direction indicated by the arrows at a speed preferably faster than the horizontal speed at which the shingle element is withdrawn, coats the butt portion of this element. It will be seen that the top-most element does not contact with the periphery of the roll but is spaced a slight distance therefrom equal to the thickness of the inner edge of the plate 15. This permits a sufficient film of coating to be applied to the element. When the topmost element has been withdrawn a sufficient distance to clear the nip of the roll 10, the platform moves upwardly by virtue of the weights 9 and the next element comes in contact with the plate 15 and the upward movement of the elevator is arrested. The element which is now top-most is in turn withdrawn and coated simultaneously. This operation is continued until the entire stack is exhausted when the elevator is lowered and reloaded with a new stack. No mechanism is shown for withdrawing the individual shingle elements from the top of the stack but it is to be understood that this operation may be performed by hand or by any suitable mechanism which is capable of successively withdrawing the top-most element from the stack. As each element is withdrawn from the stack it is placed on the conveyor belt 20 in the position in which it is withdrawn. Each succeeding element overlaps that portion of the preceding element which has not been coated. It will be understood that if a mechanism is used to withdraw the shingles from the stack this mechanism will be suitably timed with the conveyor belt 20 so that the shingles will be laid on the belt in proper overlapping relation. The overlapped shingles are then passed under the grit hopper 26 which applies a stream of mineral surfacing material such as crushed slate, slag or trap rock of suitable color to the upper surfaces of the elements. The overlapped elements to which the grit has been applied then pass around the pulley wheel 25 between the periphery of the wheel and the conveyor belt 20 and the grit is firmly embedded in the coating. Excess grit passes around the periphery of the roll 25 and back into the hopper 26. As the elements pass around the up-

per periphery of the roll 25, they are caught between the hugger belt 27 and the conveyor belt 20. The hugger belt 27 acts to retain the shingle elements in place as they pass around the roll 24. After passing around the roll 24, the overlapped elements travel horizontally for a short distance and are then allowed to fall onto the conveyor 31 in individual spaces provided by the arms 32 to allow them to cool or dry for packing, depending on whether hot asphalt or asphalt emulsion is used as the coating substance.

It will be seen that in accordance with my process the upper portion of the shingle or strip which will be exposed when laid on a roof or other structure will have an additional layer of coating and wear-resisting material applied thereto and will have all the cut edges sealed against exposure to the weather.

If it is desired to coat both butt faces of the shingles, they may be restacked with their opposite faces exposed to the coating mechanism and the coating and surfacing operation repeated.

Instead of a coating roller other coating devices may be used as for example spray nozzles. A spraying device would be particularly useful where the coating material is a bituminous emulsion.

Instead of weighting the elevator in order to lift it, the elevator may be positively operated by power mechanism.

It will be seen that by my invention a very simple means has been provided for rapidly thickening the butts and sealing the edge of shingle elements.

I claim as my invention:

1. Apparatus of the character described comprising a vertically movable support, a coating roll above said support, a coating tank adjacent said roll, a slidable plate mounted horizontally below said roll and adjacent the periphery thereof.

2. Apparatus of the character described comprising vertically movable means for supporting a stack of shingle elements, means for coating at least a portion of the topmost element of the stack, means for bringing the element beneath said topmost element into coating relation with said coating means after the topmost element has been removed from the stack, means for conveying the coated elements removed from said stack for subsequent treatment, and means for surfacing the coated areas of the elements as thus collected.

3. Apparatus of the character described comprising means for supporting a stack of shingle units, a coating device, means for causing relative movement between said supporting means and said coating device whereby to bring the shingle units of the stack successively into contact with said coating device, means for conveying the coated shingle units removed from said stack for subsequent treatment, and means for surfacing the coated areas of the unit thus collected.

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