This invention is concerned with roof shingling, and more particularly with a machine for rapidly "tabbing" asphalt shingles in place on a roof. It has long been common in tabbing roof shingles to manually raise the overlapping portion of each individual shingle of a row of shingles, apply an adhesive material thereunder, and return such raised overlapping portion to its normal position. This has been a tedious and time consuming process.

It is a primary object of this invention to provide a machine that will progressively raise the overlapping portions of successive asphalt shingles of a row of same, apply a substantially uniform line of an adhesive material, such as tar, beneath their forward edge margins, and guide them back to their normal positions, whereby a neat and long lasting roof cover is formed.

A principal feature of the invention is an applicator foot that will raise each successive shingle as it is moved along a row of shingles, and through which adhesive can be uniformly supplied beneath the raised shingles. The foot preferably comprises a surface engagement means, a shingle supporting surface, a guide wall, and an adhesive applicator port. The shingle supporting surface is preferably formed in three sections and includes an arcuate center section and blade-type extensions pivotally connected at each end of the arcuate center section.

Other features of the invention greatly facilitating the tabbing of shingles are an extension handle fixed to the applicator foot; a spring biased, normally closed, control valve, positioned in a conduit for supplying adhesive to the adhesive applicator port; and remote control means for the valve, operated from the end of the handle opposite the applicator foot.

There is shown in the accompanying drawing a specific embodiment of the invention representing what is presently regarded as the best mode of carrying out the general concepts in actual practice. From the detailed description of this presently preferred form of the invention, other more specific objects and features will become apparent. In the drawing:

FIG. 1 is a fragmentary perspective view of the adhesive applicator as used in roofed operations;

FIG. 2, an end elevation of the adhesive applicator;

FIG. 3, a side elevation of the applicator foot; and

FIG. 4, a bottom plan view of the applicator foot.

Referring to the drawing:

In the illustrated preferred embodiment, the adhesive applicator shown generally at 10 includes a handle 11, a foot 12, a supply conduit 13, and a control valve 14 positioned in the conduit and fixed to handle 11. A control lever 15 is pivotally mounted adjacent one of the grips 16 of the handle, and is connected by wire cable 17 to the free end of actuating arm 18 of valve 14. Valve 14 may be of any conventional type, but preferably comprises a flat diaphragm, or butterfly valve, with a stem 19 connected to the valve head and extending through the valve housing. Actuating arm 18 is fixed normal to stem 19, and a coil spring 20, having one free end anchored to arm 18, as at 21, and its other free end anchored, as at 22, to an extension 23 of the valve housing, surrounds the stem and normally biases the valve to closed position.

The wire cable 17 interconnecting the control lever 15 and the actuating arm 18 passes through one or more guides 24, such that when control lever 15 is pivoted toward grip 16, the motion is transmitted through the cable to actuating arm 18, which is similarly rotated to open valve 14. Spring 20 will rotate the actuating arm back to the valve closed position when the control lever is released.

Supply conduit 13 is connected at one end to a source of adhesive not shown, and adhesive is supplied to the conduit under pressure. The other end of conduit 13 is connected, as shown, to port 25 of foot 12. The source of adhesive and pressurizing means, not shown, may for example, comprise a reservoir and pump unit in conduit 13, or a pressurized adhesive container that is either portable or stationary, as desired.

As best seen in FIGS. 3 and 4, foot 12 has a surface engagement means in the form of a narrow bottom runner 26, and an arcutely shaped shingle supporting surface formed in three sections, 27, 28, and 29. The runner and the center section 28 of the shingle supporting surface are rigidly interconnected by a guide wall 30, which extends upwardly from the runner 26 and protrudes beyond the top of the center section 28 of the shingle supporting surface.

Port 25 extends through guide wall 30 between the runner and the shingle supporting surface, and terminates at the edge of the runner, as shown in FIG. 4. Pivot pins 31 are fixed to guide wall 30 at each end of the center section 28 and end sections 27 and 29 are pivotally mounted thereon. As shown, each of the end sections is of blade-like configuration with a guide ear 32 spaced slightly from, but cooperating with, guide wall 30. The plane of each of these ears forms an angle with respect to the plane of the guide wall and extends from the end of the guide wall outwardly and away from the free edge 33 of the shingle supporting surface to avoid damaging the shingles. With this arrangement, as the foot is moved along a line of shingles on a roof, the overlapping sections of the shingles (FIG. 1) are raised onto the supporting surface, as will be further explained. The raised edge 34 of each shingle contacted by guide ears 32 and guide wall 30 will serve as a ruling guide to insure a substantially straight line of adhesive being applied beneath the shingle.

The end sections extend beyond runner 26 and are biased by coil springs 35 into contact with the ends of the runner. In this biased position, the free ends of the blade-like end sections will extend downwardly to a point below the plane of the runner. Because they are pivotally connected at 31, however, the end sections can be pivoted upwardly so that their undersides 37a and 37c will be at least even with the underside of runner 26. As thus constructed, when the foot is moved along a line of shingles, the leading end section will closely follow the roof surface and will drop sufficiently to pass under even lower than usual shingles, thereby guiding them onto the shingle supporting surface.

One end of each of the coil springs 35 is anchored to the center section 28, as at 36, and the other end is anchored to a end section at 37.

As the foot is pushed along on runner 26 by an operator grasping grips 16 of handle 11, the shingles are successively raised, and held raised, as the shingle supporting surface is thereupon driven, or moved, simultaneously with movement of port 25 past each shingle, the control lever 15 is operated to open valve 14 and release a continuous, uniform line of adhesive through conduit 13 and the port. The volume of adhesive applied beneath the shingles is controlled by the pressure applied to the control lever and the resultant degree of opening of valve 14.

After the shingle supporting surface passes from un-
der each shingle, it will fall back to the roof and be stuck or "tabbed" in place.

Because of the similar construction of the pivotally mounted end sections 27 and 29, of the shingle supporting surface, either of them can be utilized as a leading end section during tabbing operations. Thus, after the leading edge has been used to raise one line of shingles for tabbing purposes the handle 11 can be pivoted with respect to foot 12 and another line tabbed, but with the other end section now serving as the leading end section; and with the operator moving in the opposite direction across the roof.

Although the curved three piece arcuate shingle supporting surface is most desirable inasmuch as it presents a smooth surface capable of easily lifting, sliding beneath, and lowering a shingle, other configurations utilizing, for example, sloping surfaces with a peak above port 28 could be used. Similarly, although the surface engagement means has been here illustrated and described as a runner 26, it is contemplated that for some uses wheels or rollers may be found preferable, and it is further contemplated that other biasing means than the springs 35 may be used. For example, for many uses the weight of the extensions themselves may prove sufficient to maintain the end sections in engagement with the roof, irrespective of surface irregularities therein.

Whereas there is here illustrated and specifically described a certain preferred construction of apparatus which is presently regarded as the best mode of carrying out the invention, it should be understood that various changes may be made and other constructions adopted without departing from the inventive subject matter particularly pointed out and claimed herebelow.

I claim:

1. A foot for adhesive applicators comprising: a bottom runner; a multiple-section, shingle-supporting surface extending above said runner and beyond the ends thereof, said sections of the shingle-supporting surface being movably related; a wall interconnecting said runner and said shingle-supporting surface; and an adhesive applicator port extending through said wall between said runner and said shingle-supporting surface.

2. A foot for adhesive applicators as in claim 1, wherein said shingle supporting surface is formed in three sections.

3. A foot for adhesive applicators as in claim 2, wherein said three sections include an arcuate center section and blade-like end sections pivotally connected to said guide wall and forming extensions at the ends of said arcuate center section.

4. A foot for adhesive applicators as in claim 3, wherein said blade-like end sections normally extend from the ends of said arcuate center section outwardly and downward therefrom to a point outward of, and below the bottom runner; and means normally biasing said end sections against the ends of said bottom runner, said end sections being pivotally upwardly until the bottoms thereof are positioned above the level of the underside of said bottom runner.

5. A foot for adhesive applicators as in claim 3, wherein said end sections are each provided with a guide ear extending upwardly thereof, said guide ears cooperating with said guide wall to insure said foot being easily guided along the edges of shingles beneath which adhesive is to be applied.

6. A foot for adhesive applicators, as in claim 4, wherein the wall extends upwardly beyond the shingle-supporting surface to form a guide for shingles raised by the shingle-supporting surface.

7. A foot for adhesive applicators comprising: a bottom runner; a multiple-section, shingle-supporting surface extending above said runner and beyond the ends thereof, said sections of the shingle-supporting surface being movably related; means holding said runner and said shingle supporting surface in spaced relationship; and an adhesive applicator port between the runner and the shingle-supporting surface.

8. An adhesive applicator comprising, in combination: foot means for raising shingles and for guiding them back into lowered position, said foot means including a bottom runner, a multiple-section, shingle supporting surface extending above said runner and beyond the ends thereof, said sections of the shingle-supporting surface being movably related, means holding said runner and said shingle supporting surface in spaced relationship, and an adhesive applicator port between the runner and the shingle-supporting surface; a source of adhesive supply under pressure; conduit means interconnecting said source of adhesive supply and said adhesive applicator port; valve means in said conduit means for regulating flow of adhesive therethrough; an extension handle pivotally connected to the foot for pushing said foot in either of two directions; and operating means for said valve, said operating means being connected to said handle at the end opposite the foot.

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CHARLES A. WILLMUTH, Primary Examiner.