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PORTABLE ROOFING APPARATUS

Filed Aug. 8, 1960

FIG. 1

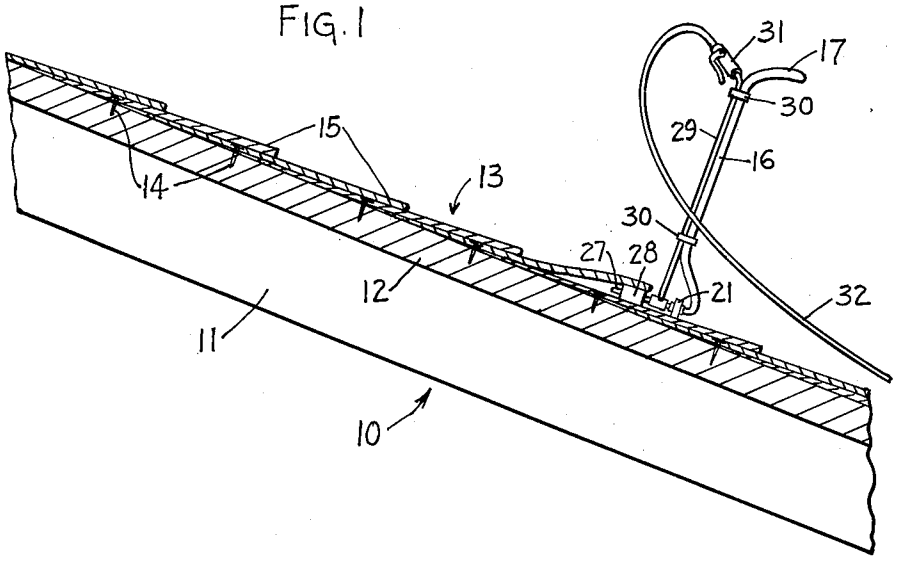


FIG. 2

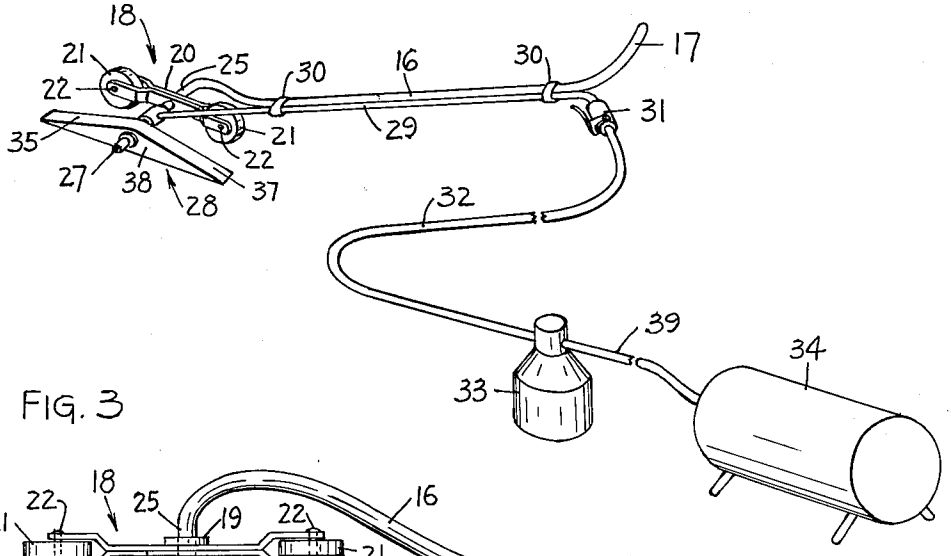
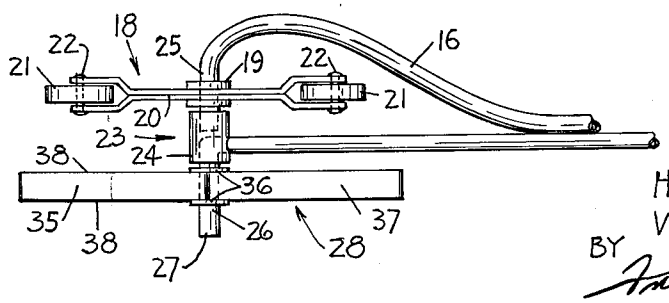


FIG. 3



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PORTABLE ROOFING APPARATUS

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This invention relates to an apparatus for cementing roofing shingles and more particularly to a portable device for depositing an adhesive material between the tab portions of rows of overlapping roofing shingles.

Wherever flexible shingles, such as asphalt shingles, are employed for roofing, they are laid in overlapping rows, each of which is normally secured to the roof boards, as by tacking along the upper continuous edge of the row. However, the downwardly extending and exposed tab portions of each row of shingles is left unsecured and may be turned upwardly and even broken off by high winds or the like. Accordingly, there have been developed several techniques for securing these tab portions to the shingles which underlies them. One method is to provide the shingle tab with an interlocking feature, another method is to simply secure the overlying tab members together by the use of an adhesive. It is this latter method with which the present invention is primarily concerned.

When adhesives are used to secure the overlapping tab portions of shingles together, the adhesive is frequently applied manually, as by lifting each tab with one hand and brushing adhesive on the top surface of the underlying tab with the other hand. This system obviously has the disadvantage of being slow and cumbersome and of consuming many man hours thereby making the procedure relatively expensive. However, there have been developed certain devices or appliances for use in depositing adhesive under shingle tabs, the use of which greatly reduces the man hour requirements involved in the operation.

The prior art devices with which we are familiar, however, are seriously wanting in several important respects. For example, although these devices are so constructed that they may be manually driven along the roof surface to automatically raise the shingle tabs in a given row of overlapping shingles and to automatically deposit adhesive thereunder, the construction of the tab lifting and adhesive depositing mechanism is such that adhesive quickly becomes deposited on the tab lifting member with the result that the device must be frequently cleaned in order to remain operable. Moreover, in these prior art devices with which we are familiar, the extrusion of adhesive is normally achieved by means of a gear type pump which relies entirely upon the forward motion of the apparatus for power. This feature, of course, makes it extremely difficult to drive the mechanism against the inertia of the pump and also results in spotty extrusion of the adhesive, sometimes depositing a harmful excess and sometimes depositing a harmfully inadequate amount of adhesive.

Furthermore, in these prior art devices, it is frequently essential that the adhesive supply be mounted directly on the apparatus itself which adds greatly to the weight of the machine and further complicates its operation particularly when it is employed on roofs of the gable type or in other situations where the roof surface is slanting.

Accordingly, it is an important object of the instant invention to provide the roofing art with a portable device for automatically and simultaneously lifting the upper tab of rows of overlapping shingles and continuously depositing a uniform quantity of adhesive thereunder in order that the overlapping shingle rows may be adhesively secured together.

Another object of this invention is to provide such apparatus with a tab lifting member which will not become coated with adhesive and require troublesome cleaning.

Still another object of this invention is to provide an apparatus of the type described wherein the extrusion of a uniform and predetermined quantity of adhesive material is accomplished independently of the movement of the apparatus.

Other objects and advantages of our invention will become apparent from the following description of one specific embodiment thereof which I have illustrated in the accompanying drawings.

In the drawings:

FIGURE 1 is a front elevation of our device and shows the manner in which it is employed to deposit an adhesive strip between rows of overlapping shingles on a slanting roof.

FIGURE 2 is an enlarged perspective of our device and shows the utilization of a compressor and pressure pot to provide a continuous and uniform extrusion of adhesive through the nozzle member.

FIGURE 3 is an enlarged top plan view detailing the roof engaging members of our device and illustrating certain important features of our invention.

With continued reference to the drawings:

An elongated frame member **16** has an upper hand grip portion **17** and carries a tube member **29** which is secured to the elongated frame **16** by means of straps **30**. An axle member **23** is then carried across the lower end of frame **16** and comprises a collar member **24**, a lower angulated end portion **25** of frame **16**, and lower angulated end portion **26** of tube **29**, both of which are joined together and axially aligned by means of collar member **24** to thereby make up axle **23**. A wheel assembly **18** is then carried on that portion of axle **23** which is comprised of lower angulated frame end **25** by means of bearing **19**. Making up wheel assembly **18** is a cross bar member **20** secured to and carried by bearing **19** which carries a pair of wheels **21** secured to the cross bar member by means of pins **22**. The other portion of axle **23** which is comprised of angulated end portion **26** of tube **29** then carries a wedge member **28** which is pivotally carried on angulated end portion **26** of tube **29** by means of flanges **36**. Angulated end portion **26** of tube **29** then extends beyond the outer edge of wedge member **28** to terminate in a nozzle portion **27**.

It will be noted that wedge member **28** comprises a triangular block member having a flat bottom surface, a pair of side wall surfaces **38** and a pair of top angulated surfaces which converge to form an apex directly over lower angulated end portion **26** of tube **29**. The forward angulated top surface of wedge **28** forms a lifting surface **35** and the rearward angulated top surface of wedge **28** forms a lowering surface **37** and the outer ends of each of surfaces **35** and **37** converge with the flat bottom surface of wedge **28** to define a relatively sharp angle.

Tube **29** then extends upwardly along frame **16** to terminate in a manually operated valve member **31** which is conveniently disposed directly opposite handle member **17** and may therefor easily serve as both a valve member and as another hand grip member for driving the device. The hose **32** then extends away from valve **31** and is connected to a pressure pot **33** which is charged with a supply of adhesive material of a sufficient fluidity that the same is pumpable, and pressure pot **33** is in turn connected to a compressor **34** by means of a hose **39**.

When it is desired to utilize the apparatus of our invention to adhesively secure together overlapping shingle tabs, as for example tabs **15** of shingles **13** which have been secured to roof **10** which comprises rafters **11** and boards **12** as by tacking at **14**, wedge member **28** is in-

serted under any of tabs 15 in any row of shingles 13. The charge of adhesive in pressure pot 33 is then placed under pressure by means of compressor 34 and valve 31 is manually opened to permit the adhesive charge in pressure pot 33 to be extruded through nozzle 27 of tube 29. As adhesive is then extruded through nozzle 27 of tube 29, the entire apparatus is driven forward by means of handle 17 and/or valve 31. As the device is driven forward, the forward lifting surface 35 of wedge 28 will successively pass under and raise each of the shingle tabs in the row and while each shingle is raised, a quantity of adhesive will be laid down in a continuous ribbon of uniform density. After each shingle is raised and the adhesive deposited thereunder, it will then be repositioned by passing over lowering surface 37 of wedge member 28 and as the operator walks along behind the apparatus, he may compress the shingles with his feet to thereby further assure good adhesive securement.

From the foregoing, it will be seen that because the apparatus of our invention will admit of the remote location of both the adhesive supply and the means for pumping the same, we have fully overcome the disadvantages which are inherently present in the "non-portable" devices of the prior art. Moreover, since the device of our invention does not depend upon the forward motion of the apparatus to effect extrusion of the adhesive, we are able to deposit the adhesive in a continuous and uniform ribbon, thereby insuring the most effective results possible with an adhesive securement technique.

An even more important feature of our invention, however, is the provision of a floating wedge member which is carried by the frame in pivotal and spaced relation to the discharge end of the nozzle member employed to deposit the adhesive. It will be noted, for example, that by virtue of the pivotal yet integrated relationship of the wedge member and the nozzle member, that any rocking or other movement of the wedge member will not be detrimental to the nozzle member thereby insuring a constant and uniform adhesive ribbon throughout the entire length of the shingle row.

Another important feature of our invention lies in the disposition of the nozzle orifice in such relation to the side wall of the wedge member that the constantly extruded ribbon of adhesive is laid down under each shingle tab while that tab is disposed in its highest spaced relation to the next underlying tab. Moreover, it will be noted that we have provided for the extension of the nozzle member somewhat beyond the side wall of the wedge member in order that the orifice of the nozzle member will open in spaced relation to the side wall of the wedge and thereby avoid any deposition of adhesive on the wedge member. This latter feature is particularly important in view of the fact that if any adhesive gets on the wedge member, it will begin to bind between the shingle rows and will not only reduce the effectiveness of the

operation but may even result in tearing of some of the shingle tabs.

While we have illustrated one specific embodiment of our invention in the accompanying drawings, which embodiment has been described in detail in the foregoing specification, that description of this specific embodiment has been given only for the purpose of further illustrating our invention to those skilled in the art and we are not limited thereto.

What we claim is:

1. An apparatus for depositing adhesive between rows of overlapping shingle tabs, said apparatus comprising an elongated frame member, an axle member carried by said frame and extending laterally outward of the lower end thereof, a roof engaging wheel assembly carried by one end of said axle, a triangular wedge member having a valved nozzle extending outwardly therefrom and being carried at the other end of said axle and adapted to slidably pass between a row of overlapping shingle tabs to separate the same, an adhesive conveying tube having its lower portion integral with said axle and terminating laterally outwardly thereof through said triangular wedging member into said valved nozzle, handle means at the upper end of said frame for driving said apparatus, means associated with said adhesive conveying tube for opening and closing said valved nozzle, and means responsive to said opening and closing means for extruding adhesive through said nozzle.

2. A portable apparatus for cementing rows of overlapping shingle tabs together, said apparatus comprising an elongated frame member, an axle member carried by said frame and extending across the lower end thereof, a roof engaging wheel assembly carried by one end of said axle, a triangular wedge member carried at the other end of said axle and adapted to slidably pass between a row of overlapping shingle tabs to separate the same, nozzle means carried by said wedge and opening outwardly thereof, handle means at the upper end of said frame for driving said apparatus, means for opening and closing said nozzle means, pumping means remotely disposed from said elongated frame member which is responsive to said opening and closing means for pumping adhesive through said nozzle means, and conveying means connecting said nozzle means to said pumping means.

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