Sept. 6, 1949. J. L. KEMPTHORNE 2,481,021

ROLLING DEVICE

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Fig. 1.

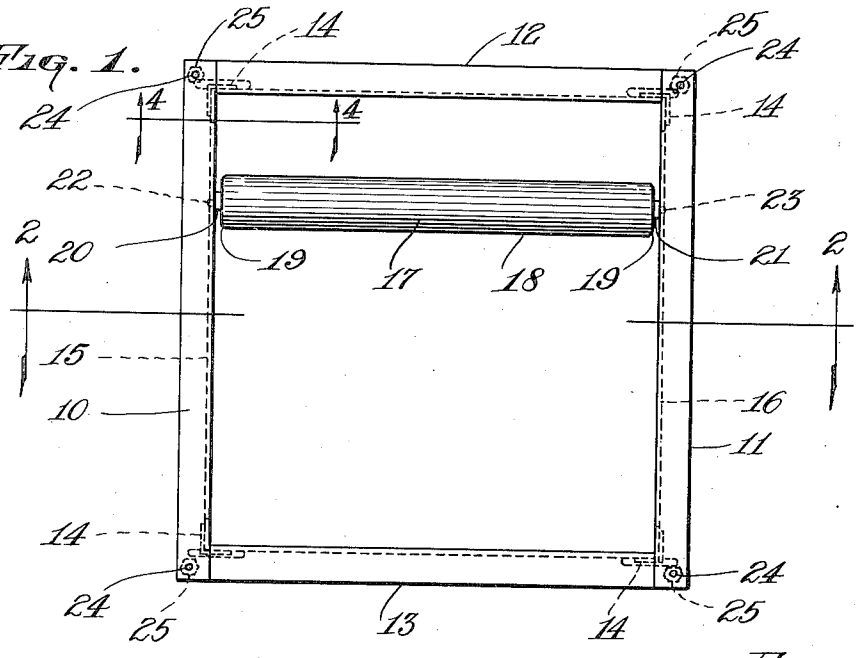


Fig. 2.

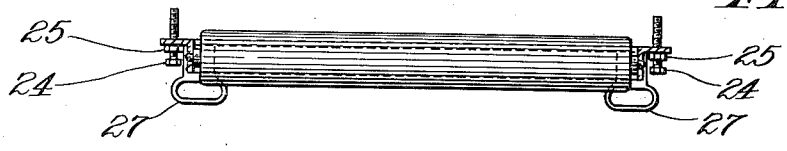
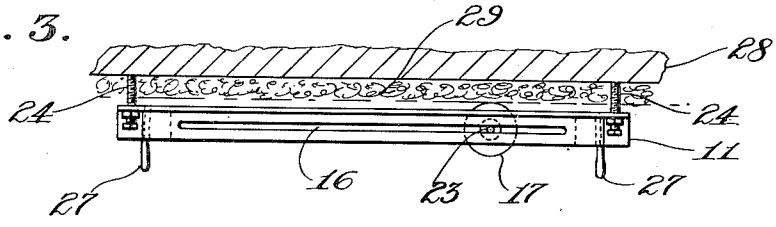


Fig. 3.



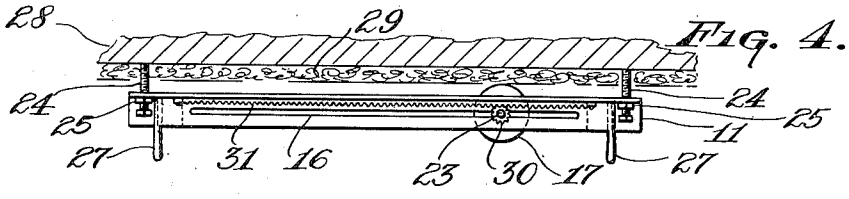


Fig. 4.

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Fig. 5.

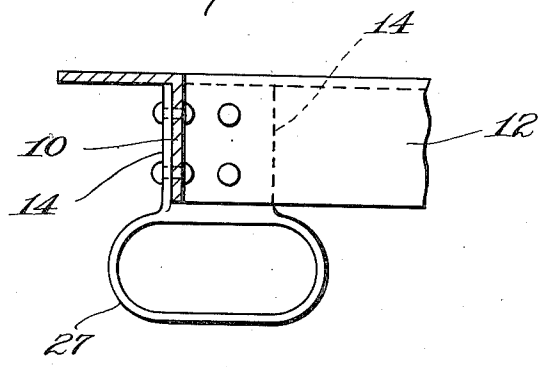
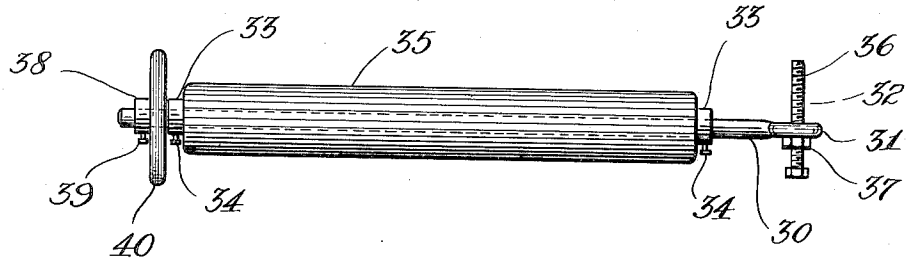


Fig. 6.



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ROLLING DEVICE

James L. Kempthorne, Montclair, N. J.

Application April 10, 1946, Serial No. 661,170

2 Claims. (Cl. 72—128)

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My invention relates to a rolling device for leveling and texturing a layer of acoustical or insulating material.

It is well known to apply layers of acoustical and/or insulating material to various surfaces, such as the walls or ceilings of buildings, and this is effected by various methods which are well known in the art. In accordance with one well known method a thin coating of a suitable adhesive is first applied to a surface and an acoustical or insulation layer is then formed thereon by blowing finely-divided asbestos onto the surface and spraying a liquid upon the asbestos fibers while they are being blown.

In such methods the layer has a surface which is rough and uneven and in many cases does not have a satisfactory texture without further treatment. To produce a level surface and to smooth the same it has been proposed to tamp the surface with a tamp which usually consists of a block of cork or rubber about twelve inches square. This method, in addition to being very time consuming, does not produce a satisfactory texture because the fibers of asbestos are merely pressed in all directions. Furthermore, when using this method one does not obtain an even surface because of the lines and marks made by the tamping block.

To overcome the difficulties of the tamping method it has been proposed to use a large roller which is manipulated manually. The rolling action of such a roller improves the texture of the surface, because the fibers are to a large extent bent over in the same direction, but it is not possible to maintain an even pressure on the roller and as a result the layer acquires a wavy surface which is very detrimental. In addition it is difficult to prevent twisting of the roller and this deleteriously effects the leveling and texturing. It should be noted that in finishing the surfaces of such layers it is desirable to compress only a small amount of the material at the surface, and if undue pressure is executed on the roller the material will be compressed too much in spots. To obtain an even surface one must compress the remainder of the surface the same amount and as a result the insulating and/or acoustical properties of the layer will be deleteriously effected.

The main object of my invention is to overcome the disadvantages of the above-mentioned methods.

A further object is to provide a rolling device which produces a satisfactory texture on the surface of an acoustical or insulating layer.

Another object of my invention is to provide a

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device which produces a flat surface on such layer.

A still further object is to provide a device which produces a layer which is of predetermined thickness throughout.

A further object is to produce a device which is simple in operation and permits the treating of a large surface in a minimum time.

A still further object is to provide a rolling device which has a pure rolling action and thus ensures uniform texturing of the surface of the layer.

Further objections of my invention will appear as the description progresses.

The rolling device according to my invention comprises a support adapted to be placed adjacent the surface of the layer to be treated and provided with a roller. To ensure that the insulating layer will have the desired thickness and also that the surface thereof will not be wavy, I provide means, which are preferably adjustable, to maintain the support, and thus the roller, at a predetermined distance from the surface upon which the insulating layer is applied.

In one embodiment of my invention I provide means to ensure a pure rolling action of the roller.

In order that my invention may be clearly understood and readily carried into effect I shall describe the same in more detail with reference to the accompanying drawing in which:

Figure 1 is a plan view of a device according to my invention,

Fig. 2 is a sectional view along line 2—2 of Figure 1,

Fig. 3 is a partly-sectionized side view of the device of Figure 1 shown in operating position,

Fig. 4 is a sectionized side view of the device of Figure 1 with certain modifications,

Fig. 5 is an enlarged sectional view taken along line 4—4 of Figure 1, and

Fig. 6 is a side view of a rolling device according to another embodiment of my invention.

The device illustrated in Figures 1 and 2 comprises four metal angles 10, 11, 12, and 13 secured together at their ends by brackets 14 to form a rectangular frame which may be about four feet long and three feet wide but may be of any convenient size. The angles 10 and 11 are provided with slots 15 and 16 respectively which serve as guides for a roller 17.

Roller 17 has an active portion 18, which may be entirely of metal or of metal with a surface of a slightly resilient material such as rubber, and preferably has its edges rounded off at 19. The ends of roller 17 are provided with portions 20 and 21 whose end surfaces bear against the sides of

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the angles 10 and 11 and with pin-shaped bearing portions 22 and 23 which extend through the slots 15 and 16 respectively.

Angles 10 and 11 are provided near each end with a tapped hole in which is located a cap screw 24 provided with a lock nut 25 (see Fig. 2). As will be pointed out in connection with Fig. 3, screws 24 serve as adjusting means to space the roller at the proper distance from the surface upon which the insulating layer is provided.

With reference to Fig. 3 the reference numeral 28 indicates a ceiling to which has been applied, for instance by spraying, a porous layer 29 of asbestos fibers held together by a suitable binder. The rolling device described in Figs. 1 and 2 is shown in position with the screws 24 extending through layer 29 with their ends in contact with the surface of ceiling 28. By adjusting screws 24 it is possible to set the guide slots 15 and 16, and thus the surface of the roller 17, at the desired distance from the surface of ceiling 28 and thereby ensure that layer 29 will only be compressed sufficiently to obtain the proper surfacing. The frame is held in place by a worker by means of handles 27 and the roller is then rolled back and forth by the hands of another worker to texture the surface of layer 29 and to level the same. The device is then moved to other sections of the layer and the operation repeated, screws 24 being locked in position with nuts 25 to thereby maintain the same spacing and ensure that the entire surface treated will be level and without waves.

In Figure 4, which is similar to Fig. 3, and has the same parts indicated by the same reference numerals, a gear 30 is fixedly secured to the end 23 of roller 17 and engages a rack 31 secured to angle 11. Preferably, the other end 22 of roller 17 is provided with a gear 30 and angle 10 is provided with a rack 31. The use of the gears 30 and racks 31 ensure that the roller 17 will always exert a pure rolling action on the layer 29 of insulating material and prevents any possible difficulty due to an undesired sliding action. This further improves the rolling action and ensures proper texturing.

As shown more clearly in Fig. 5 the brackets 14, which may be of cast iron, comprise an angle portion riveted to angles 10 and 12 and a handle portion 27.

The rolling device shown in Fig. 6 comprises a support 30 in the form of a rod having an enlarged flat end 31 provided with a tapped hole 32. Rotatably mounted on rod 30 and guided against axial displacement by two collars 33 provided with set screws 34 is a roller 35 which may be about four or five feet long but may be of any convenient length. A long cap screw 36 is provided in hole 32 and is locked in place by a nut 37. Rotatably mounted on rod 30 between one of the collars 33 and a third collar 38 provided with a set screw 39 is a disc 40.

In using the device of Fig. 6 the upper end of cap screw 36 is pressed through the layer of insulating material so that its end bears upon the surface to which the insulating material is applied. The cap screw 36 is then adjusted so that the surface of the roller 35 is at such a distance from the surface to which the insulating material

is applied as to obtain the proper leveling of the surface of the insulating layer. The roller 40 is then applied to the end of rod 30 and must be of the proper diameter as to obtain proper spacing of the adjacent end of the roller. For this purpose I provide a series of rollers of different diameters. The collar 38 is placed on rod 30 and locked in place by set screw 39 and the cap screw 36 is locked in position by lock nut 37.

In rolling the layer of insulating material the support 30 is oscillated in an arc about the cap screw 36 and when the rolling is completed the device is moved to other sections of the layer.

It will also be noted that with my rolling device there is no twisting of the roller which causes defective texturing and which might occur when a roller is used manually without any guiding means.

While I have described my invention with reference to specific examples and certain constructional details, I do not desire to be limited thereto as obvious modifications will readily present themselves to persons skilled in this art.

What I claim is:

1. A rolling device for leveling and texturing a layer of compressible insulating or acoustical material provided on a supporting surface comprising a rectangular frame provided on opposite sides with guiding slots and tapped holes, a roller having bearing portions engaging said slots, and an adjusting screw in each of said holes and adapted to be inserted through the layer in engagement with the supporting surface to thereby space the frame therefrom.

2. A rolling device for leveling and texturing a layer of compressible acoustical or insulating material provided on a supporting surface comprising a frame having end members and side members provided with longitudinal guiding slots, a roller having bearings engaging said slots, handles secured to said frame, adjusting screws adjustably secured to said frame to adjust the distance between said frame and said supporting surface, and means to ensure a pure rolling action of said roller with respect to the layer being treated including a rack secured to one of said side members and a gear secured to said roller and meshing with said rack.

JAMES L. KEMPTHORNE.

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