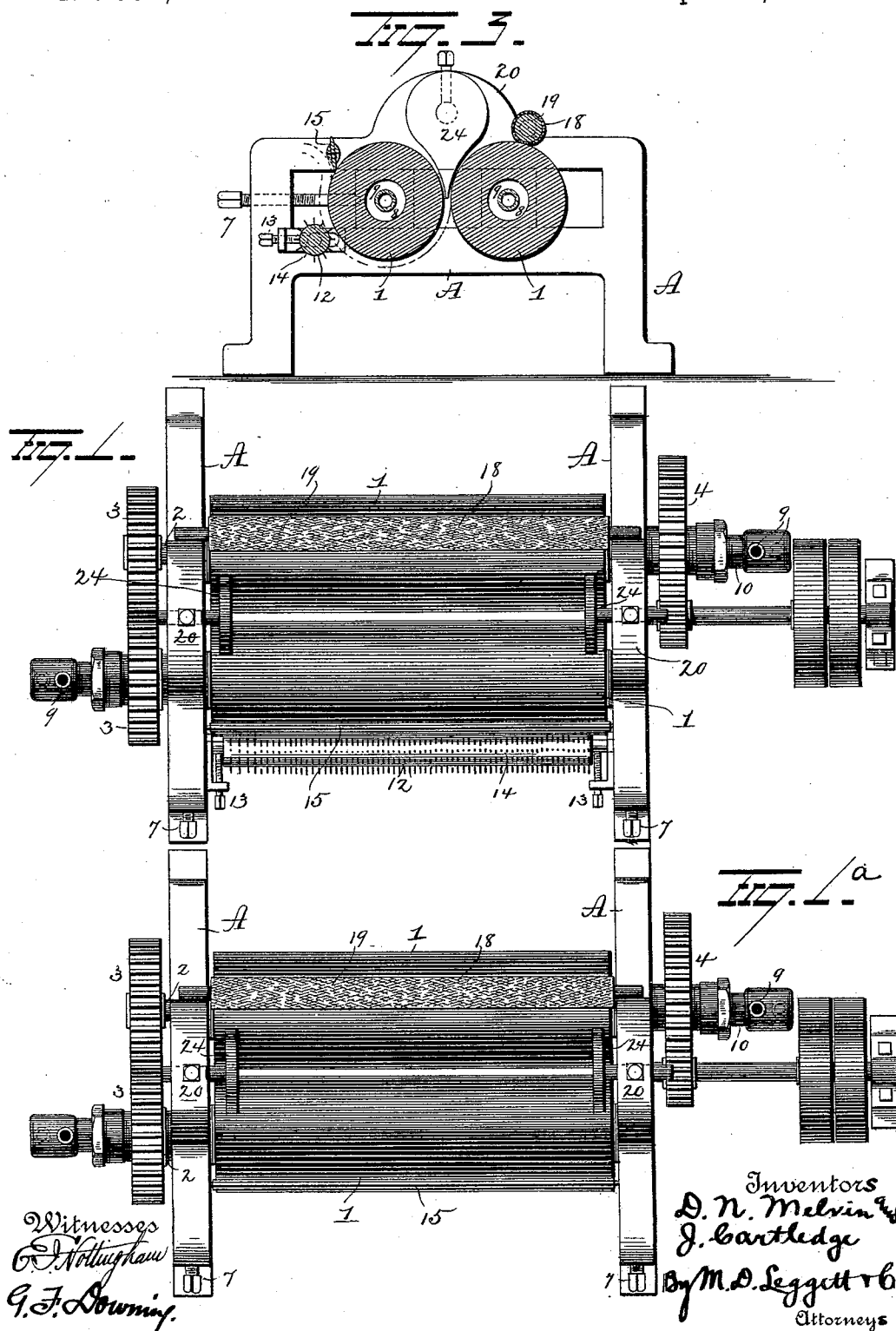


2 Sheets—Sheet 1.

METHOD OF AND APPARATUS FOR ROLLING LINOLEUM INTO SHEETS.

Patented Apr. 23, 1895.



(No Model.)

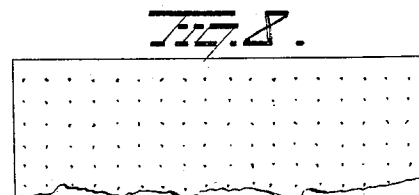
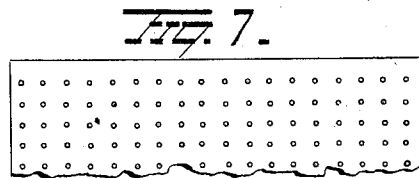
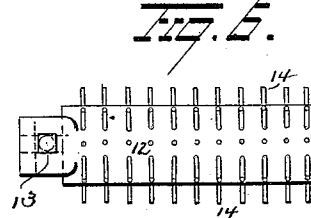
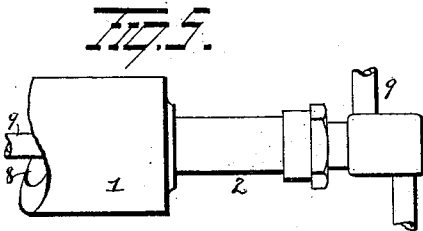
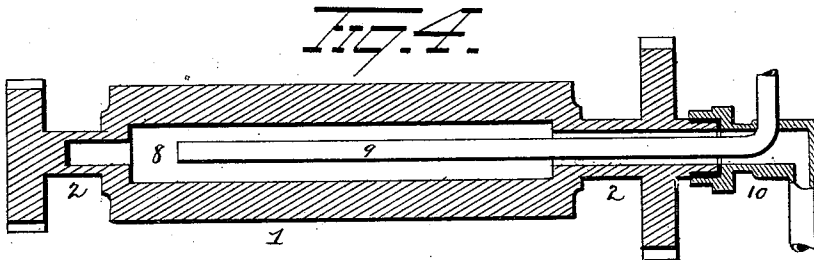
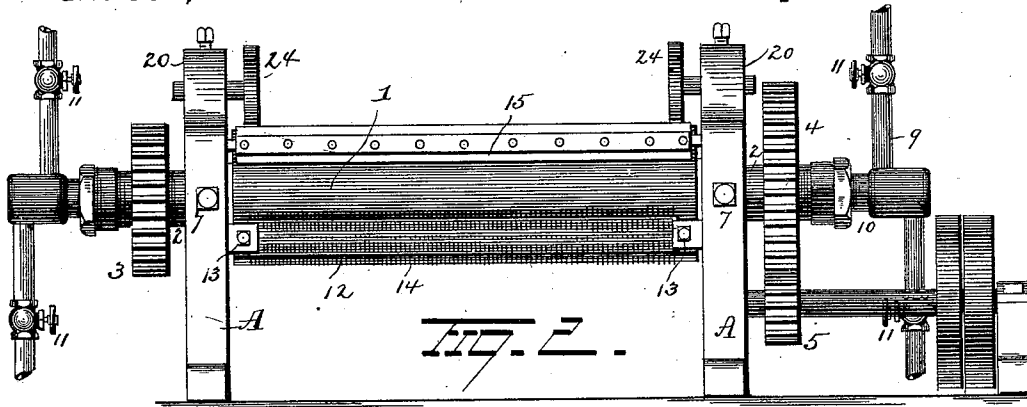
2 Sheets—Sheet 2.

D. N. MELVIN & J. CARTLEDGE.

METHOD OF AND APPARATUS FOR ROLLING LINOLEUM INTO SHEETS.

No. 538,175.

Patented Apr. 23, 1895.



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Attorneys

UNITED STATES PATENT OFFICE.

DAVID N. MELVIN, OF LINOLEUMVILLE, AND JOHN CARTLEDGE, OF NEW YORK, N. Y.

METHOD OF AND APPARATUS FOR ROLLING LINOLEUM INTO SHEETS.

SPECIFICATION forming part of Letters Patent No. 538,175, dated April 23, 1895.

Application filed January 12, 1895. Serial No. 534,704. (No model.)

To all whom it may concern:

Be it known that we, DAVID N. MELVIN, of Linoleumville, in the county of Richmond, and JOHN CARTLEDGE, of New York city, in the county of New York, State of New York, have invented certain new and useful Improvements in Methods of and Apparatus for Rolling Linoleum into Sheets; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in apparatus for and method of rolling unoxidized linoleum into sheets of proper thickness.

Heretofore the practice has been to roll out linoleum upon a sheet of canvas or similar flexible material and then strip it from the canvas. This process was slow and laborious and had to be attended with considerable care and painstaking to prevent injury to the linoleum sheet and furthermore the stripping had to be done by hand.

The object of our invention is to dispense with the necessity for the use of the canvas and consequently the subsequent stripping of the linoleum sheet from the canvas and it consists in passing the linoleum composition successively between and into intimate contact with two sets of rolls, and in mechanism for carrying this process into effect.

In the accompanying drawings, Figures 1 and 1^a are plan views of the two sets of rollers. Fig. 2 is a view in front elevation. Fig. 3 is a view in cross section. Fig. 4 is a view in longitudinal section through one of the rolls and pipes for conducting water thereinto. Fig. 5 is a detail view of the pipe connection. Fig. 6 is a detail view of the pin roller, and Figs. 7 and 8 are views of the product after first and second rolling.

The two sets of rollers are the same except that the pin roller is omitted from the second set as indicated in Fig. 1^a and therefore it is only necessary to describe one set in detail and the same reference characters will apply to both.

A, represents the frame of the machine and 1, 1, a pair of rolls having journals 2, 2, sup-

ported in bearings in the frame. These rolls are adapted to turn toward each other and to this end they are provided with gear wheels 3, 3, at one end intermeshed with each other, and one of the rolls has a gear wheel 4 at the opposite end through which power is derived from an intermeshing pinion 5, on the drive shaft 6. The bearings of one of these rolls is movable and screws 7, 7, are employed to shift the roll relative to the other roll, to regulate the thickness to be given the sheet of linoleum formed.

The composition is warm as it comes to the rolls and in passing between the rolls the tendency is for the heat in the composition to increase and to accumulate heat in the rolls. To obviate this tendency the rolls are bored out or made hollow as indicated at 8 to receive a steady stream of cold water therein. This water might be supplied in various ways. A convenient arrangement is that indicated in which one pipe 9 conducts water well into the roller where it is discharged and another pipe 10 conducts it out, the pipe 9, preferably being small enough to enter the pipe 10. In one roll the pipes enter from one end and in the other from the other end, although this is not essential. Valves 11 are employed for controlling this circulation of water.

In the present method it has been found that air bubbles sometimes form in the sheets in their passage between the rolls. These are of course fatal to the manufacture of a first class article. To prick these bubbles and allow the air therein to escape a pin roller 12 is journaled in boxes in the frame, screws 13, 13, being provided for adjusting this pin roller to regulate its position to the thickness of the sheet of linoleum. This roller may be made of wood, and the pins 14, 14, are thickly distributed over its surface and the length of these pins is just a trifle less than the thickness of the sheet of linoleum so as not to allow any air bubbles to escape. The roller might be driven by power or simply by the passage of the sheet of linoleum in contact with the teeth in the roller. The position of the roller may be at any point in the arc between the rolls and the front of the forward roll. The linoleum adheres to one of the rolls and a

knife 15 is provided for scraping it from the roll. This knife is pivoted to the frame so that it may be turned out of the way when not in use; but the normal position is about that indicated in Fig. 3, so that the sheet is peeled off as it reaches the knife when it may be removed by hand. The sheet is then carried to the next set of rolls and passed through them as before, the second pair of rolls being set a little closer together so that the material is flattened out and compacted together and the indentations made by the pin roll are nearly but not entirely obliterated. The result is a sheet of unoxidized linoleum smooth on one side and slightly rough on the other so that the rough side is in condition to more readily adhere to the canvas by virtue of the roughened surface. Fig. 8 illustrates the products respectively after they have passed between the first and second set of rolls and before they are cut into tesserae.

To prevent the material from adhering to the rolls, they are kept oiled by rubbing an oiled cloth over them or otherwise. Two other plans have proven satisfactory, one indicated in Fig. 1 in which a rod 18 called an oil roller covered with absorbent material 19 kept saturated with oil, is made to rest upon one of the rolls 1 as the latter turns to keep it oiled throughout its length. The ends of this oil roller may bear loosely in the crotches formed between the top of the frame and the uprights 20, 20, the motion of the roller 1 retaining the oil roller in place until removed as occasion may require it for reoiling it or substituting a new oil roller.

Blocks 24 are employed to regulate the width of the sheets, these being placed at one or both ends of the rolls 1, 1, to shorten the space between them. Different sized blocks may of course be used to regulate the size of the sheet.

In operation the material is placed over the rolls 1, 1, in comparatively thick sheets and allowed to pass down between them, it adhering to the forward roll until it has passed between it and the pin roller, and to the knife where it is peeled off in a sheet. The sheet is now taken to the second pair of rolls and given a final roll as previously described. This completes the process and prepares the sheets for the cutting block by which the sheets are cut into tesserae.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with means for pressing sheets of linoleum on both sides thereof and forming it into sheets of uniform thickness throughout, of a smooth cylindrical roller

having long sharp pins for penetrating and passing nearly through the sheet of material and pricking any bubbles or blisters therein and means for applying the final pressure to both sides of the sheet, substantially as set forth.

2. The combination with a pair of rolls, of a smooth cylindrical roller having long sharp pins for indenting and passing nearly through the material and pricking any air bubbles or blisters therein, and means for applying a final pressure to the sheet, substantially as set forth.

3. In an apparatus for rolling linoleum into sheets, the combination with a pair of rolls between which the material is rolled, of a smooth cylindrical roller having long sharp pins adapted to pass nearly through the sheet and form indentations in the linoleum sheet and prick any air bubbles or blisters which may be therein, substantially as set forth.

4. The combination with a pair of rolls between which linoleum composition is passed, of a smooth cylindrical roller having long sharp pins between which and one of the main rolls the composition is passed, said pins adapted to pass nearly through the sheet whereby any air bubbles or blisters are pricked, means for adjusting the pin roller, and a pair of rolls between which the composition is passed finally and given a certain amount of pressure, substantially as set forth.

5. The herein described process of treating linoleum composition, consisting in passing it between rollers for thinning and compacting the material, then piercing it to open the air bubbles while the sheet of material still adheres to one of the rollers, and finally, after this piercing, passing the sheet between another pair of rollers, whereby to thin the sheet and close the inner ends of the perforations, substantially as set forth.

6. The combination with a pair of hollow rolls, and means for supplying a steady stream of cold water thereto, of a pin roller between which and one of the main rolls the material to be rolled passes and a knife for peeling the material from the roll, substantially as set forth.

7. A sheet of linoleum composition having one smooth and one rough surface, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

DAVID N. MELVIN.
JNO. CARTLEDGE.

Witnesses:

JAMES L. ASHLEY,
C. L. CARTLEDGE.