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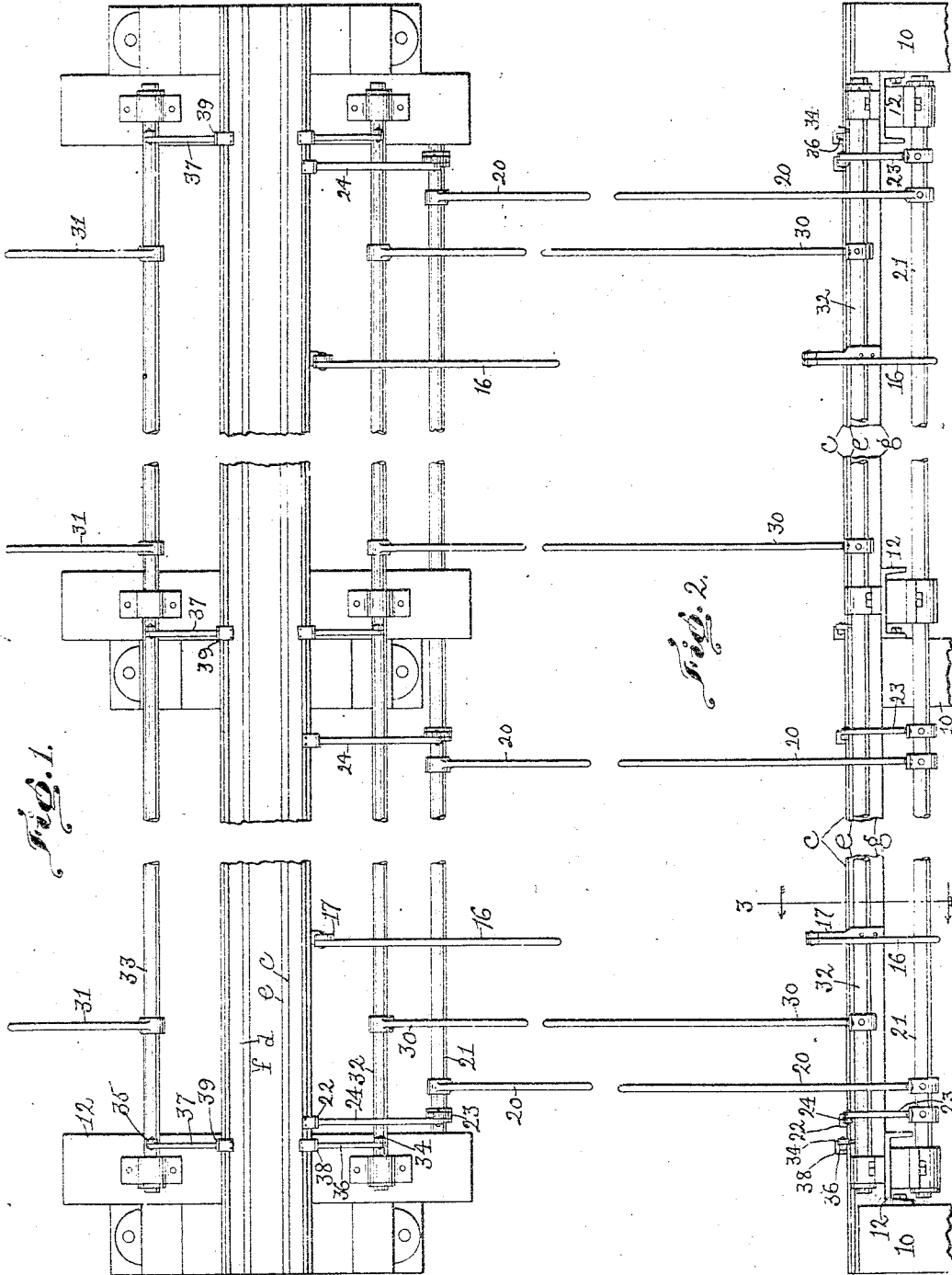
METHOD AND APPARATUS FOR COVERING RIGID METAL ARTICLES WITH FIBROUS MATERIAL.

APPLICATION FILED JAN. 16, 1915.

1,168,599.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 1.



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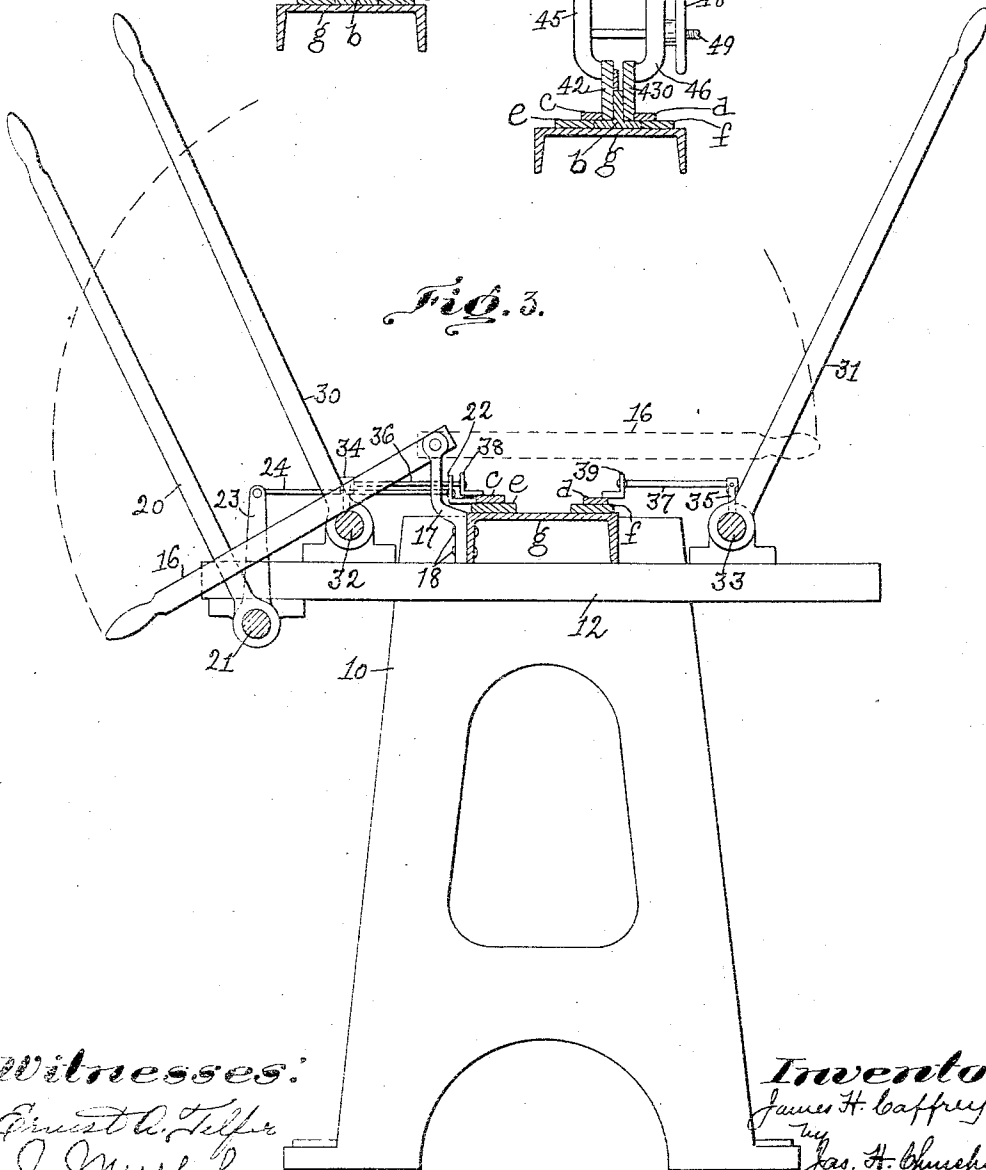
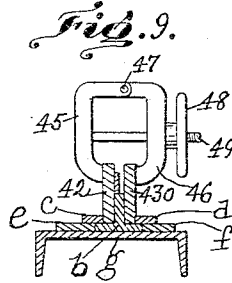
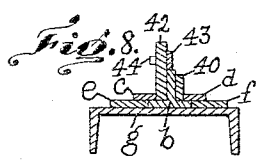
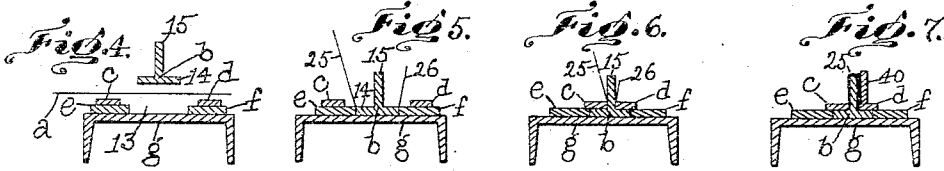
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES H. CAFFEY, OF BEAVER FALLS, PENNSYLVANIA, ASSIGNOR TO ASBESTOS PROTECTED METAL COMPANY, OF BEAVER FALLS, PENNSYLVANIA, A CORPORATION OF MASSACHUSETTS.

METHOD AND APPARATUS FOR COVERING RIGID METAL ARTICLES WITH FIBROUS MATERIAL.

1,168,599.

Specification of Letters Patent.

Patented Jan. 18, 1916.

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To all whom it may concern:

Be it known that I, JAMES H. CAFFEY, a citizen of the United States, residing in Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented an Improvement in Methods and Apparatus for Covering Rigid Metal Articles with Fibrous Material, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a novel method of and apparatus for providing rigid metal articles with a protective covering of fibrous material which is adhesively secured thereto, and more particularly metal articles which are provided with a covering of asbestos or other paper, which is secured to the metal article by asphalt or like bituminous cement.

In the present instance, the metal article is shown as a bar, which may be T or otherwise shaped in cross section, and which is covered by a layer of asbestos paper secured thereto by asphalt cement, and which is especially adapted among other uses, to be employed in the manufacture of skylights for mills, factories and other buildings.

In accordance with this invention, the metal article, which for convenience may be referred to as the metal bar, is cleansed by dipping it into an acid bath, and then the cleansed bar is placed into a bath of hot or liquid asphalt, in which the bar is allowed to remain until it has been heated to approximately the temperature of the asphalt. The bar is then removed from the bath and the surplus asphalt is removed so as to obtain a coating of asphalt of uniform thickness. The removal of the surplus asphalt may be accomplished by passing the bar through a slot or opening in the side of the kettle containing the asphalt. The coated bar is then placed on a layer or sheet of asbestos paper or other fibrous covering material, which has been previously placed in position in the apparatus herein shown, which is employed to firmly press the bar to the paper and the paper to the bar as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a plan view of an apparatus

for pressing the covering to the metal bar. Fig. 2, a side elevation of the apparatus shown in Fig. 1. Fig. 3, a cross section of the apparatus shown in Fig. 1, and Figs. 4 to 9 inclusive diagrammatic views to illustrate the various steps employed in folding and pressing the covering layer to the coated metal bar.

Referring to the drawings and more particularly to Figs. 4 to 9 inclusive, *a* represents a sheet, strip or layer of asbestos paper or other fibrous material, and *b* a metal bar which has been coated with a layer of asphalt or other adhesive material, which is not indicated, but which is applied to the bar *b* by first cleansing the same by dipping in an acid bath, and then immersing the bar in a bath of melted asphalt, in which the bar is left until the bar has been heated to substantially the temperature of the asphalt bath, and when thus heated, the bar is removed from the asphalt bath and passed through a suitable opening in a side wall of the kettle containing the asphalt, so that the surplus asphalt is removed and a layer of asphalt of uniform thickness is left on the metal bar. The metal bar *b* coated with asphalt is laid upon the paper sheet or layer *a*, which has been placed upon two parallel metal bars *c*, *d*, which are separated from each other and rest upon two parallel metal bars *e*, *f*, which latter are separated from each other and rest upon a table or platform *g*, which is supported at its ends by upright frames 10, see Fig. 3, which latter also support cross bars 12, extended beneath the table or platform *g* transversely thereof.

The metal bars *e*, *f*, are separated from each other for the reception between them of a portion of the paper sheet *a* and the head of the bar *b* as represented in Fig. 5.

The weight of the bar *b* is sufficient to force the paper sheet into the space between the metal bars *e*, *f*, shown in Fig. 4. When the paper sheet and coated bar *b* have been placed in the space 13 and in substantially the position shown in Fig. 5, the paper sheet *a* rests upon the platform or table *g* and any air which may be between the paper and the head 14 of the coated bar *b* is expelled therefrom by pressure upon the web 15 of the bar *b*, which pressure may be

applied by means of a lever 16, which is pivoted at one end to a bracket or arm 17, attached to the table by rivets 18 or otherwise.

The lever 16 is moved from the position shown by full lines in Fig. 3 into the position represented by dotted lines, and is extended transversely of the coated bar *b*, and when engaged with web 15 of the coated bar, the operator presses down on the lever 16 and forces the head 14 of the coated bar down into firm contact with the paper sheet *a* and thus expels the air which may be between the sheet and head of the bar. The presser lever 16 is then moved back into its full line position, and the side bar *e*, which is movable on the table *g*, is moved transversely of the table, so as to force the head of the coated bar against the side bar *f*, which is stationary on the table, it being attached thereto in any suitable manner. The side bar *e* may be moved, as herein shown, by the operator moving a lever or arm 20 toward the table and into a substantially vertical position. The lever or arm 20 is attached to a rock shaft 21 supported by the cross bars 12 of the framework of the apparatus, and said rock shaft is operatively connected with the sliding side bar *e*, which is effected as herein shown by connecting a bracket 22 on the side bar *e* with a crank 23 on the rock shaft 21 by means of a link or rod 24. When the lever 20 is moved as described, the paper sheet *a* is firmly pressed against the side edges of the head 14 of the coated bar *b* as represented in Fig. 5, and the free side portions 25, 26, of the paper sheet *a*, which are on opposite sides of the coated bar *b*, are caused to assume an upright position as represented in Fig. 5. The operator then moves the bars *c*, *d*, toward each other, so as to cause said bars to fold the free side portions 25, 26, of the paper sheet over upon the upper surfaces of the head of the coated bar and into substantially the position represented in Fig. 6. The folding bars *c*, *d*, may be operated as herein shown by levers 30, 31, attached to rock shafts 32, 33, located on opposite sides of the table and provided with cranks 34, 35, which are connected by links or rods 36, 37, with brackets or arms 38, 39, attached to the folding bars *c*, *d*.

The parts are now in the position indicated in Fig. 6, and the operator then takes a metal bar 40, which is unattached and can be handled, and which is represented in Fig. 7, and wipes the remaining free portions of the side 25 of the paper sheet, over the web of the bar *b*, and against the free portion of the side 26 of the paper sheet, thereby bringing the side 26 of the paper sheet into contact with one side of the web, and the other side 25 of the paper sheet into contact with the other side of the web, the top edge thereof and with the opposite side

of the web, where it overlaps the side 26 of the paper sheet. The paper sheet *a* is initially arranged on the machine, so that one side as 25 is materially longer than the other side 26, and so that the latter, when folded over the head 14 and against the web 15 of the coated bar, will leave the upper portion of the web exposed, so that the side 25 may contact therewith. The folding side bars *c*, *d*, are then backed off or moved away from the web of the coated bar by moving the levers 30, 31, backward, and when the folding bars are backed off or opened sufficiently, presser bars 42, 43, are placed between the said folding bars and the paper covered web of the bar *b*, and the levers 30, 31, are then moved forward or toward each other to force the pressure bars 43, 42 against the sides of the web, as represented in Fig. 8, so as to firmly press the paper against the opposite sides of the web of the coated bar *b*. Pressure is also applied to the paper covering the upper edge of the web of the coated bar, which may be effected by means of a small bar 43, which is secured to the pressure bar 42 by a pin 44 extended through a vertical slot (not shown) in the upper portion of the presser bar 42, which is made wide enough to extend above the web and allow the bar 43 to be adjusted to the upper edge of the web and to bear against the paper covering said upper edge, which portion of the paper is pressed against the upper edge of the web by the weight of the bar 43. After the side presser bars 43, 42, have been placed in position as described, the upper ends of the presser bars 43, 42, are then engaged by a clamp consisting of jaws 45, 46, which are pivoted together at 47 and which are forced into engagement with the presser bars 42, 43, by a hand wheel 48 working on a screw threaded rod 49 in a manner well understood. The paper covered bar is then removed from the machine, and the ends of the coated bar may and preferably will be protected by folding over by hand the portions of the paper sheet which project beyond the ends of the coated metal bar, with the result that the metal bar is not only protected on all surfaces by the coating layer of asphalt or other adhesive material but is also protected by the asbestos or other covering sheet or layer.

In the present instance the metal bar to be covered is shown as T-shaped in cross section, but it is not desired to limit the invention in this respect, as the said metal bar may be of other shapes in cross section, such as L-shaped, U-shaped or it may be a flat bar, and when it is desired to cover these different shaped bars, the machine herein shown is used for them all up to the point where the free sides of the paper sheet are folded over upon the bar. When

this point is reached, the auxiliary bar or bars which are used for pressing the free end portions of the paper sheet, are made of the proper or desired shape to work upon the particular shape of the coated bar. To illustrate, if the bar *b* is L-shaped, only one of the folding bars *c*, *d*, is used, whereas if the bar is U-shaped, both of the folding bars are employed as clamps for the two presser bars 430, 42, shown in Fig. 8, which are applied to the outer side of the sidewalls of the channel or U-shaped bar, and the free side portions of the paper sheet are folded within the channel bar to engage the inner surfaces of the side walls and bottom thereof. In the case of a flat coated bar, the folding bars *c*, *d*, will effect the folding of the free end portions of the paper sheet, and the pressure applied by means of the lever 16 acting on a tool or bar (not shown) which is applied by hand to the paper covering of the upper surface of the flat coated bar.

Furthermore a machine provided with movable presser jaws and embodying the principle of the machine may be used for covering hollow objects with the protective layer or sheet.

I have herein shown one construction of machine which may be preferred, but it is not desired to limit the invention to the particular construction shown.

Claims:

1. The method of providing rigid metal articles with a protective covering of fibrous material, which consists in immersing the rigid metal article in a bath of adhesive material, placing the article thus coated upon a layer of fibrous material, applying pressure to the metal article to firmly press the metal article upon a portion of the fibrous layer, folding the fibrous layer over upon the metal article to envelop the latter with the fibrous layer, and applying pressure to the folded over portions of the fibrous layer to firmly press such portions to the metal article.

2. The method of providing rigid metal articles with a protective covering of fibrous material, which consists in coating the rigid article with an adhesive material, placing the coated article upon a layer of fibrous material, folding the free side portions of the fibrous layer over upon the rigid article, and pressing the fibrous layer into firm contact with the rigid article.

3. In a machine of the character described, in combination, a table, presser bars supported by and spaced apart on said table, one of said presser bars being movable toward the other, folding bars located above and movable on said presser bars, a rock shaft to which said movable presser bar is connected, rock shafts to which said folding

bars are connected, and means for rocking said shafts.

4. In a machine of the character described, in combination, a table to support a covering layer and the coated bar to be covered, presser bars supported by and spaced apart on said table, means to move one of said presser bars toward the other to press the covering onto the sides of the coated bar, folding bars located above the presser bars and movable in a plane parallel with said presser bars and beyond the latter and over the portion of the coated bar between the presser bars to fold the covering layer over upon the upper surface of said portion, and means to move said folding bars.

5. In a machine of the character described, in combination, a table to support a covering layer and a coated metal bar to be covered by said layer, presser devices spaced apart on said table and one of which is movable toward the other, and a lever pivoted to be moved transversely of said table to engage the coated bar and force it and the covering layer down on said table, substantially as described.

6. In a machine of the character described, in combination, a table to support a covering layer and a coated metal bar to be covered by said layer, presser devices spaced apart on said table and one of which is movable toward the other, a lever pivoted to be moved transversely of said table to engage the coated bar and force it and the covering layer down on said table, and folding devices movable on said presser devices and toward each other, substantially as described.

7. In a machine of the character described, in combination, a table, presser devices spaced apart on said table and one of which is movable toward the other, folding devices located above said presser devices and one of which is movable toward the other and beyond one of said presser devices in a plane parallel with the latter, substantially as described.

8. In a machine of the character described, in combination, a table, presser bars mounted on said table and spaced apart, one of the said devices being stationary and the other movable, and devices movable on and beyond the presser devices in a plane parallel therewith and toward each other, substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES H. CAFFREY.

Witnesses:

H. F. HAWKINS,
JOSEPH MYSIRALL.