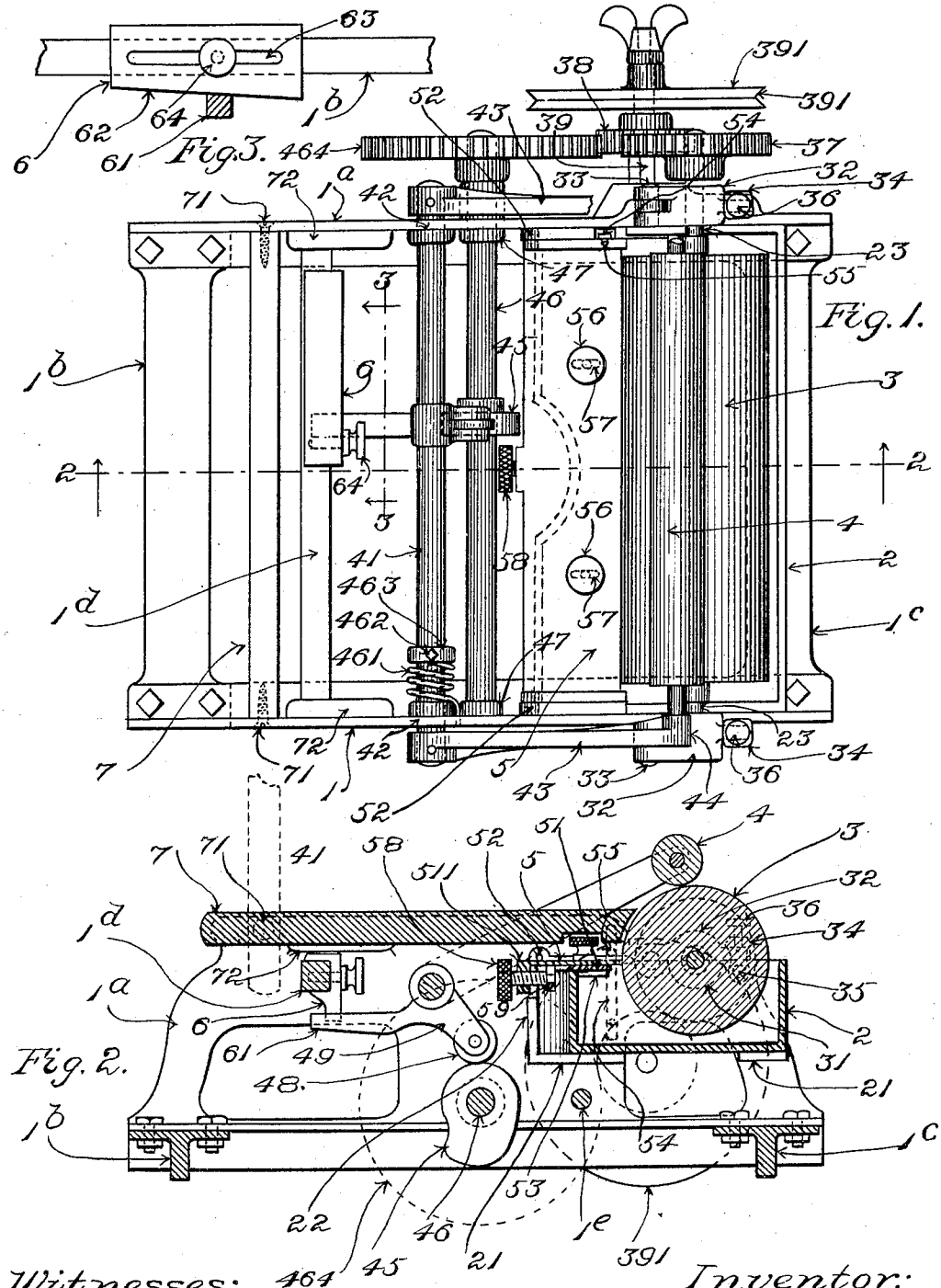
No. 789,718. PATENTED MAY 16, 1905.

J. P. CURTIS.

MACHINE FOR APPLYING ADHESIVE OR OTHER COATINGS TO SHEETS.

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No. 789,718. Patented May 16, 1905.

UNITED STATES PATENT OFFICE.

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MACHINE FOR APPLYING ADHESIVE OR OTHER COATINGS TO SHEETS.

SPECIFICATION forming part of Letters Patent No. 789,718, dated May 16, 1905.

Application filed September 28, 1903. Serial No. 174,913.

To all whom it may concern:

Be it known that I, JOSEPH P. CURTIS, a citizen of the United States, residing at Everett, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Machines for Applying Adhesive or other Coatings to Sheets, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in an improved machine which is adapted for employment in applying coatings of different kinds to sheets of various materials and also to a variety of articles in sheet form. For example, the machine is intended to be used, among other purposes, in applying adhesive or cementitious material to vamp-linings for shoes. The invention, however, is not necessarily restricted to employment in connection with sheets of any particular material or with articles of any particular class.

The preferred form of embodiment of the invention is illustrated in the accompanying drawings, and I will proceed to describe the invention with reference to the latter, although it is to be understood that the form, construction, arrangement, &c., of the parts in various respects is not material and may be modified without involving departure from the spirit of the invention.

In the drawings, Figure 1 shows in plan a machine embodying the invention. Fig. 2 is a view in section on the plane indicated by the dotted line 2 2 in Fig. 1. Fig. 3 is a detail view, in vertical section, on the plane indicated by the dotted line 3 3 in Fig. 1.

The framing of the machine comprises in the present instance the opposite side pieces 1 and 1^a, the front and rear cross-bars 1^b and 1^c in the lower portion of the same, and the upper and lower tie-bars 1^d and 1^e. The chief component elements of the machine, the same being carried or supported by the said frame, comprise the pan or trough 2 to contain the substance or compound which is to be applied to the sheet or other article, a traveling surface 3, usually constituted of one or more rolls and by which a coating of the substance or compound contained in the pan or trough 2 is applied to the sheet or other article, a presser 4, by means of which the sheet or other article is held in proper relations with the said traveling surface, and means for automatically moving the said presser away from its position in proximity to the said traveling surface into a position separated from the latter, which latter position facilitates the application of the sheet or other article to the traveling surface preparatory to receiving the desired coating and its removal therefrom after receiving such coating and then moving the said presser into relations with the traveling surface, in which the presser operates to hold the sheet or other article against the same.

I will now describe with reference to the drawings the manner in which I have represented the invention as embodied or carried into effect.

I wish it to be understood that whereas I shall carefully describe the construction which is illustrated in the drawings the particular features of construction and arrangement which are shown in the drawings and to which I shall make reference are not in themselves material to the invention, except as specified in the claims at the close hereof.

For the support of the pan or trough 2 the side pieces 1 and 1^a of the frame are furnished with inwardly-projecting horizontal ledges 21 21, upon which the end portions of the pan or trough rest. The traveling surface 3 is herein constituted by a cylinder or roll, which is journaled in bearings 31, with which the opposite side frames 1 and 1^a are provided. The lower portion of the cylinder or roll dips into and works within the pan or trough, and hence when the coating substance or compound is introduced into the pan or trough the cylinder or roll is partly immersed within such substance or compound.

For the purpose of holding the cylinder or roll 3 in place the bearings 31 31 are furnished with caps 32 32, which fit over the journals of the said cylinder or roll. The said caps are

pivoted, as at 33 33, to the side pieces of the frame and are provided with suitable means for retaining or securing the same in closed position. For the purpose of enabling the cylinder or roll to be removed from the machine when required, as for the purpose of being cleaned, the said retaining or securing means is of a character enabling the said caps to be released when desired in order to allow them to be thrown back, so as to uncover the bearings. In the present instance links or stirrups 34 34 are pivotally mounted at 35 upon the side pieces of the machine-frame. These links or stirrups are adapted to be swung into position over the free ends of the caps 32 32, as indicated in the drawings, as for the purpose of locking said caps in position over the journals of the cylinder or roll, and are provided with clamping-screws 36 36, which may be turned down upon the caps for the purpose of properly holding the latter in place. After the said screws 36 36 have been turned sufficiently to disengage them from the caps the links or stirrups 34 34 may freely be turned out of engagement with the caps, which will release the latter and permit them to be turned back from the bearings and journals.

For convenience in cleaning the pan or trough 2 and for other reasons it is removably applied to the supporting-ledges 21 21. Herein the machine-frame is open and unobstructed at the rear thereof, so as to permit the pan or trough to be slipped into or out of place by a horizontal movement. The removal of the cylinder or roll 3 from its working position permits the pan or trough 2 to be withdrawn or inserted. For the purpose of arresting the pan or trough in the proper position within the machine as it is passed forwardly from the rear of the latter the side pieces of the machine-frame are furnished with stops 22, herein constituted by vertical ribs projecting inwardly from the said side pieces and with which the end portions of the pan or trough at the front of the latter engage.

The end walls of the pan or trough 2 are notched at 23 23 to receive the journals of the cylinder or roll 3, and through the engagement of the walls of the notches with the said journals the pan or trough is prevented from shifting its position after the cylinder or roll has been placed in its working position.

For the purpose of regulating the thickness of the layer of coating substance or compound which is carried up on the periphery of the traveling surface as the latter rotates I provide a doctor or scraper 5. The latter is most conveniently mounted in connection with and upon the pan or trough 2. It is more immediately applied to a carrier 51, which latter is pivoted at or near the front of the pan or trough at 52 52, with capacity to be swung vertically. In the normal or working position of the scraper or doctor the ends of the carrier rest upon ledges or shoulders 53, with which the end walls of the pan or trough are furnished. The scraper or doctor is prevented from accidentally rising from this position by means of a spring-latch 54, having a projection 55, which takes over the top of the carrier at one end of the latter. When this latch is pressed back, so as to withdraw the projection 55, the carrier and scraper or doctor may be turned upward away from proximity to the periphery of the traveling surface. The scraper or doctor lies upon the carrier and is secured to the latter by means of headed clamping-screws 56 56, the stems of which pass through slots 57 57 in the scraper or doctor and enter threaded holes, which are tapped in the carrier. The slots 57 57 extend in a direction which is transverse with relation to the pan or trough and provide for adjustment of the scraper or doctor toward or from the periphery of the traveling surface, and for convenience in adjusting the scraper or doctor accurately and delicately an adjusting thumb-screw 58 is provided, it being mounted to turn without endwise movement in a bearing 59, with which the carrier is provided, and its threaded stem fitting a correspondingly-threaded hole, which is tapped in a lug 511, projecting downward from the scraper or doctor.

The cylinder or roll constituting the traveling surface is arranged to be driven or rotated in convenient manner. In the present instance it is furnished at one end of its shaft with a spur-gear 37, which when the cylinder or roll is in working position within the machine meshes with a driving spur-gear 38 upon a stud 39, projecting outwardly from the side piece 1^a of the machine-frame.

The presser 4 may be variously shaped and constituted. It herein consists of a roll which is movably mounted, with capacity to be shifted into and out of working relations with the periphery of the traveling surface. The movable support for the presser consists in the present instance of a rocker comprising a rock-shaft 41, which is journaled in bearings 42 42, with which the side pieces of the machine-frame are provided, and arms 43 43, which are fast upon the opposite ends of the said rock-shaft and are provided with bearings 44, in which are received the end journals of the presser-roll.

In connection with the presser 4 I provide in conformity with one portion of the invention automatic means to move the same into and out of working position. By the said means the presser is moved into proximity to the traveling surface and there held while a sheet or other article is passing between the traveling surface and presser, the said sheet or other article being thereby forced against the said traveling surface to cause it to receive its coating therefrom, after which the

presser is moved away from the working position thereof, so as to remove it from proximity to the traveling surface and facilitate the removal of the sheet or other article aforesaid and the application of a fresh one to the traveling surface. The said means includes a cam 45, that is fast upon a rotating shaft 46, which is journaled in bearings 47 47 in the opposite side pieces of the machine-frame, the said cam 45 engaging with a roll 48, which is mounted upon an arm 49, that is fixed in position upon the rock-shaft. Preferably the cam 45 is constructed and arranged to periodically move the presser-support, so as to carry the presser from its working position into its position out of proximity to the traveling surface and there hold the same for a short interval, the return of the presser to its working position being occasioned under the control of the cam by the action of a yielding force which may be either gravity or the tension of a spring or gravity aided by the tension of a spring. In the present instance the action of gravity is assisted by a coil-spring 461, which surrounds the rock-shaft 41, the said spring having one end thereof engaged with the adjacent side piece of the machine-frame and the other end thereof engaged with a clamping-screw 462, which secures a collar 463 upon the rock-shaft.

In order to prevent the presser from actually coming into contact with the traveling surface, and therefore receiving upon its own surface a portion of the substance or compound received by the said traveling surface from the pan or trough, the movement of the presser toward the traveling surface is limited by a stop which is provided for the purpose. The arrangement of the said stop may vary, as desired. I have herein shown a block 6, which is mounted upon the upper cross-bar 1^d in position to be engaged by the forward extension 61 of the arm 49, carried by the rock-shaft. For purposes of adjustment the block is formed with an inclined contact-surface 62 and is made adjustable upon the cross-bar 1^d, so as to enable the required portion of the said inclined surface to be placed in position to encounter the arm, according to the desired extent of the movement of the presser toward the traveling surface. Thus the block 6 is slotted longitudinally, and through the slot 63 passes the stem of the thumb-screw 64, which is applied to the said cross-bar.

A work-table 7 is mounted in position in front of the traveling surface and presser, this work-table being pivoted at or near its front edge, as at 71 71, to the side pieces of the machine-frame to enable it to be turned when desired into an uplifted position, as indicated in dotted lines in Fig. 2 and in full lines in Fig. 1, so as to expose the interior portions of the machine for inspection, adjustment, cleaning, or the like. When depressed into working position, the said work-table rests on ledges or lugs 72 72, which project inwardly from the side pieces of the machine-frame.

The cam-shaft 46 is driven by means of a spur-gear 464 on its outer end engaging with the driving spur-gear 38. The latter has in connection therewith a suitable driving-pulley 391 or the like, which in practice will be provided with a suitable clutch and clutch-operating mechanism or other usual means of applying and disconnecting driving power.

What I claim is—

1. In combination, a traveling surface, means for supplying coating substance or compound thereto, a presser to bear a sheet or article to be coated against the traveling surface to receive its coating from said surface, and automatic means acting to periodically withdraw the said presser from working relations with the said traveling surface.

2. In combination, a traveling surface, means for supplying coating substance or compound thereto, a presser by which a sheet or article to be coated is borne against the traveling surface to receive its coating from said surface, means acting to bear the presser with yielding force toward the traveling surface, and means acting to periodically withdraw the presser from working relations with the said surface.

3. In combination, a traveling surface, means for supplying coating substance or compound thereto, a presser by which a sheet or article to be coated is borne against said surface to receive its coating from the latter, a movable support for the said presser, and automatic means acting to withdraw the presser periodically from working relations with the said traveling surface, the said means embracing a cam in operative control of the said movable support.

4. In combination, a traveling surface, means to supply coating substance or compound thereto, a presser, and devices to move the said presser into close proximity to the said traveling surface but at a predetermined distance therefrom to press the sheet or other article to be coated against such surface and then automatically withdraw the presser from working relations with respect to the said surface.

5. In combination, a traveling surface, means to supply coating substance or compound thereto, a presser-roll, a carrier for the presser-roll, and devices for operating the carrier to move the presser-roll into close proximity to the said traveling surface but at a predetermined distance therefrom to press the sheet or other article against such surface and then automatically withdraw the presser-roll from working relations with respect to the said surface.

6. In combination, a traveling surface, means to supply coating substance or compound thereto, a presser, devices to move the

presser into close proximity to the said traveling surface but at a predetermined distance therefrom, to press the sheet or other article against such surface, and subsequently automatically withdraw the presser from working relations with respect to the said surface, and adjustable stop devices to regulate the approach of the presser to the traveling surface.

7. In a machine for applying coating substance or compound, the combination with an applying-roll, a pan for holding the coating substance or compound, and a scraper carried by the pan, of a frame provided with bearings for the journals of said roll and having connected therewith supports for the pan, said pan being engaged by the said journals of the applying-roll whereby the scraper is positioned in working relation to the roll.

8. In a machine for applying coating substance or compound, the combination with an applying-roll, and means for supplying the coating substance or compound thereto, of a scraper movable into and out of operative relation to said applying-roll, and means for adjusting said scraper toward and from the roll when in operative relation thereto.

9. In combination, the traveling surface, means for supplying the coating substance or compound thereto, the presser, the movable support for the said presser, automatic means to operate the said presser and periodically move the latter from its normal position in working relations with the said traveling surface and afterward restore the presser to the said position, and a stop to regulate the approach of the presser to the traveling surface to prevent contact of the presser therewith.

10. In combination, the traveling surface, means for supplying the coating substance or compound thereto, the presser, the movable support for the said presser, automatic means to operate the said presser and periodically move the latter from its normal position in working relations with the said traveling surface and afterward restore the presser to the said position, and adjusting devices to regulate the approach of the presser to the traveling surface to suit the thickness of the sheet or other article.

11. In combination, the traveling surface, means for supplying the coating substance or compound thereto, the presser, the rocking support for the presser, the rotating cam to operate the said support, means to actuate the said cam, and the adjustable stop coöperating with the rocking support to limit the approach of the presser to the traveling surface.

12. In combination, the traveling surface, means for supplying the coating substance or compound thereto, the presser, the movable support for the said presser, automatic means to operate the said presser and automatically move the latter from its normal position in working relations with the said traveling surface, and the adjustable block constituting a stop by which the working position of the presser is determined.

13. In combination, the traveling surface, means for supplying the coating substance or compound thereto, the presser, the rocking support for the presser, the rotating cam to operate the said support to move the presser out of working relations with the traveling surface, the spring to return the presser into the said working relations, and the stop cooperating with the rocking support to limit the approach of the presser to the traveling surface.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH P. CURTIS.

Witnesses:

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ALICE H. MORRISON.