

(No Model.)

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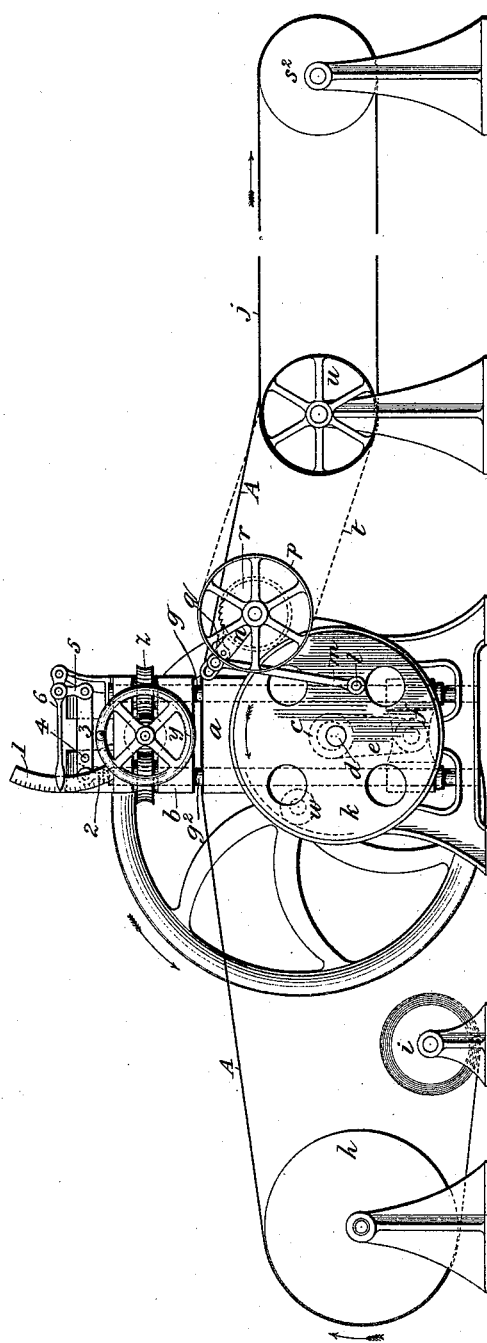
H. M. STEINTHAL.

MACHINE FOR THE MANUFACTURE OF FLOOR CLOTHS, &c.

No. 420,634.

Patented Feb. 4, 1890.

Fig. 1.



WITNESSES.

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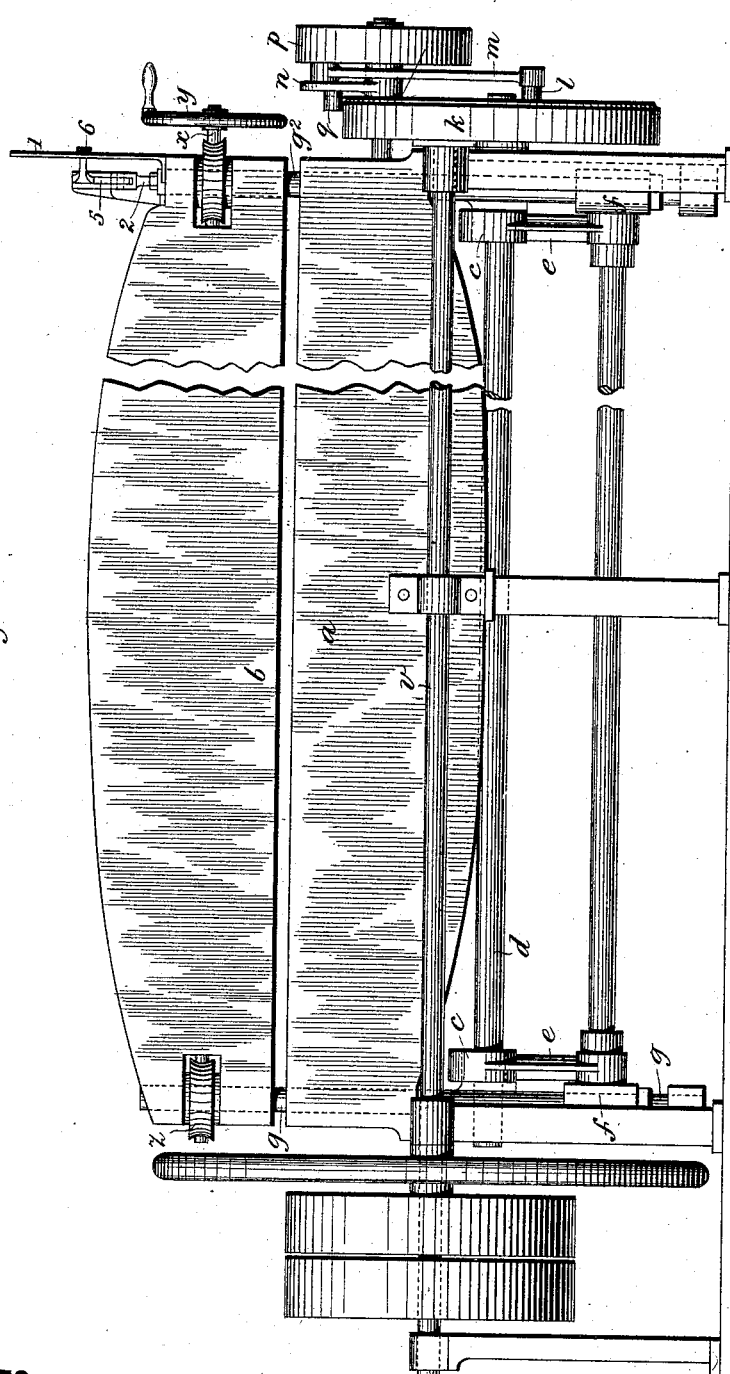
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Fig. 2.



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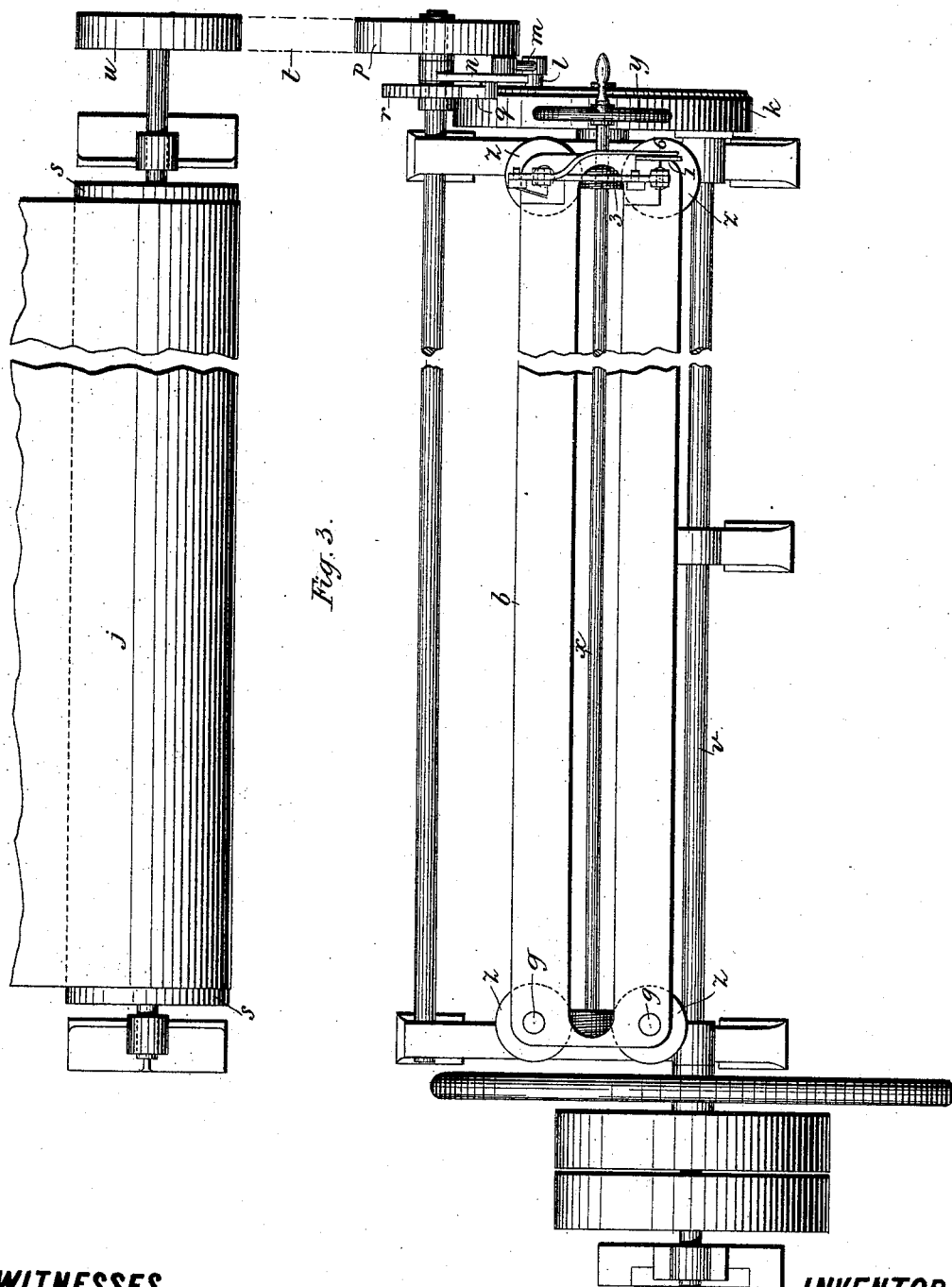
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UNITED STATES PATENT OFFICE.

HENRY MICHAEL STEINTHAL, OF SCARBOROUGH, COUNTY OF YORK,
ENGLAND.

MACHINE FOR THE MANUFACTURE OF FLOOR-CLOTHS, &c.

SPECIFICATION forming part of Letters Patent No. 420,634, dated February 4, 1890.

Application filed July 5, 1889. Serial No. 316,597. (No model.)

To all whom it may concern:

Be it known that I, HENRY MICHAEL STEINTHAL, floor-cloth manufacturer, a subject of the Queen of Great Britain, residing at Scarborough, in the county of York, England, have invented certain new and useful Improvements in Machines for the Manufacture of Floor-Cloths, &c., of which the following is a specification.

My invention consists of a machine for pressing materials which are in continuous or long lengths, and it is constructed so as to bring strong direct downward pressure upon successive sections of the material during intermittences in the onward movement or travel of the latter. The machine has been specially designed for pressing sheets or pieces of paint composition used in the manufacture of floor-cloths, wall-coverings, or for other like purposes, the said sheets or pieces being arranged in any required order as to color upon a length of cloth; but it is applicable in other cases where continuous or long lengths of material have to be pressed.

My machine consists, essentially, of, first, a rising and falling plunger or presser; second, a fixed table or block against which the pressing is effected; third, mechanism whereby the material to be pressed is moved forward intermittently between the plunger and the table, each movement being equal to the width of the pressing-face of the plunger; and, fourth, a steam-heated cylinder, over which the material is led before reaching the plunger. This cylinder will, however, only be required in cases where the material has to be warmed or softened before pressure.

Having explained the nature and main features of my machine, I will describe more in detail how it can be constructed, and for this purpose I will refer to the accompanying drawings, which represent a pressing-machine in which my invention is embodied.

In the drawings, Figure 1 is a side elevation of the machine. Figs. 2 and 3 are respectively an end elevation and a plan, and are drawn to a somewhat larger scale than Fig. 1. The steam-heated cylinder and the roller from which the roll of cloth is unwound are omitted from these two figures.

a is a fixed table or pressing-block, above which is arranged a plunger or presser *b*, having an up-and-down movement. This movement can be produced in any convenient manner. The preferred arrangement is that shown in the figures, and consists of eccentrics *c c* on a rotating shaft *d*, communicating motion through links *e e* to cross-heads *f f*, which are connected by vertical bars to the plunger *b*. Four vertical bars (marked, respectively, *g g g* and *g*²) are shown in the figures, and all of them may connect the cross-heads *f f* to the plunger; but in the arrangement shown the three bars marked *g g g* constitute this connection, while the fourth bar *g*² is a fixture to the frame of the machine for the purpose hereinafter described; but it also serves as a guide to the cross-head and plunger in their up and down movements.

At one side of the press is a steam-heated cylinder *h*, over which the material *A* to be pressed—say a roll or length of cloth covered with sheets or pieces of paint composition—is led from a roller *i* or otherwise. From the steam-heated cylinder *h* the cloth is led between the plunger *b*, and the pressing-block *a* and its end, or the end of a sheet or cloth connected thereto for the purpose, is attached to a traveling band *j*, arranged at the delivery side of the pressing mechanism, which draws it forward intermittently, as about to be described.

Upon a wheel *k*, which is on the shaft *d*, (though it might be on another shaft,) is a crank-pin *l*, connected by a rod *m* to an arm *n*, mounted loosely on the shaft of a ratchet-wheel *r*, on which shaft is a pulley *p*, that drives the traveling band *j*. This arm *n* has a pawl *q*, which takes into the ratchet-wheel *r*. The result of this arrangement is that, as the crank-pin *l* in the revolution of the wheel *k* is approaching the wheel *r*, it causes the arm *n* to push the ratchet-wheel *r* round by means of its pawl *q*. Consequently the traveling band *j*, and therefore the length of paint-covered cloth, are caused to move a certain distance—that is to say, a distance equal to the width of the plunger *b*. During this forward movement of the cloth the plunger is clear of the bed or pressing-block *a*. Then

as the crank-pin *l* in the revolution of the wheel *k* is receding or moving away from the pulley *p* the arm *n* and pawl *q* are drawn back, the pawl riding over the ratchet-teeth 5 *r*. Therefore there is no movement of the cloth, and it is during this interval or intermittence of the movement that the plunger *b* comes down and presses that part of the material which is then below it. This intermittent action continues until the whole length 10 of the cloth or material has been pressed in successive sections. The traveling band *j* should be as long as the roll or length of material to be pressed, which, in the case of floor-cloths, is generally sixty feet. It is preferred 15 not to carry the traveling band *j* round a roller on the shaft of the ratchet-wheel *r*, but round a roller driven by a belt from the pulley *p* on that shaft, as shown, *s* being the roller driven by a belt *t* and pulley *u* from the pulley *p*. 20 *s*² is the roller at the other end of the course of the traveling band *j*.

v is the driving-shaft of the machine. Motion is transmitted therefrom by a pinion *w*, 25 which gears with internal teeth cut around the wheel *k*. In order to allow of the pressure being regulated, the machine is fitted with a screw-shaft *x*, having a handle *y* and gearing with screw or worm wheels *z* on the vertical bars *g*. By turning the shaft *x* rotation 30 is given to the vertical bars *g*, which are screw-threaded at one part to take into corresponding female threads in the plunger *b*. The height of the plunger, and consequently 35 the pressure exerted thereby, is regulated.

If it is required to emboss the material, the plunger will be engraved or cut accordingly.

In order that the machine may always indicate the pressure to which it is adjusted, I 40 adopt the following contrivance: Upon the plunger *b*, I fix a curved bar 1, divided off to indicate on an enlarged scale parts (say hundredths) of an inch, assuming an inch to be the maximum movement of the plunger. To 45 a piece 2, screwed or firmly attached to the top of the bar *g*², which is a fixture to the frame of the machine, I attach the short arm of a lever 3, pivoted at 4 to a bracket, forming part of the plunger. The long arm of the 50 lever 3 is connected by a link 5 to a hand or indicator 6, which is pivoted at its end to a bracket forming part of the plunger, the connection between the link and the indicator being near the pivot. The result of this arrangement is that as the plunger moves up 55 or down, while the bar *g*² remains stationary, the extent of the movement is multiplied by the lever 3, link 5, and indicator 6, and is indicated on the curved bar or scale 1, where it can be easily read. 60

What I claim, and desire to secure by Letters Patent, is—

1. A machine for the manufacture of floor-cloths from materials in continuous or long 65 lengths upon which plastic compositions are primarily placed, said machine comprising a fixed table or block, a rising and falling

presser or plunger adapted thereto, intermittently-acting mechanism which moves said material forward intermittently between said 70 plunger and table, and a steam-heated cylinder for warming or softening the plastic compositions, said cylinder being arranged to be traversed by the material before it passes between said plunger and table, substantially 75 as set forth.

2. A machine for the manufacture of floor-cloths from materials which are in continuous or long lengths, said machine comprising a rising and falling plunger or presser, a 80 fixed table or block against which the pressing is effected, mechanism whereby the material to be pressed is moved forward intermittently between the plunger and the table, and a traveling delivery-band wholly at the 85 delivery side only of the pressing mechanism to which the end of the completed material is attached and arranged to receive and support the material only after the latter has passed through the pressing mechanism, substantially 90 as set forth.

3. The combination, with the fixed table or block *a* and plunger or presser *b*, of the vertical bars *g*, cross-heads *f*, links *e*, eccentrics *c*, and rotating shaft *d*, whereby up-and-down 95 motion is imparted to said plunger or presser, substantially as set forth.

4. The combination, with the fixed table or block *a*, plunger or presser *b*, and ratchet-wheel *r*, for giving the intermittent motion to 100 the material that is being pressed, of the wheel *k*, crank-pin *l*, rod *m*, arm *n*, and pawl *q*, whereby as the wheel *k* revolves the pawl *q* is caused to push the ratchet-wheel *r* round intermittently, substantially as set forth. 105

5. The combination, with the fixed table or block *a* and plunger or presser *b*, of the vertical bars *g*, cross-heads *f*, links *e*, eccentrics *c*, rotating shaft *d*, whereby up-and-down motion is imparted to said plunger, and of the 110 wheel *k*, crank-pin *l*, rod *m*, arm *n*, pawl *q*, and ratchet-wheel *r*, whereby intermittent motion is imparted to the material that is being pressed, substantially as set forth.

6. The combination, with the fixed table or 115 block *a*, plunger or presser *b*, and traveling band *j*, of the wheel *k*, crank-pin *l*, rod *m*, arm *n*, pawl *q*, ratchet-wheel *r*, pulleys *p* and *u*, belt *t*, and rollers *s* *s*², whereby motion is imparted to said traveling band and to the 120 material under treatment while the plunger is rising, substantially as set forth.

7. The combination, with the fixed table or block *a*, plunger or presser *b*, and vertical bars *g* *g*, fixed to said plunger and formed 125 with screw-threads taking into female threads in the plunger, of the screw-shaft *x* and worm-wheels *z*, whereby the height of the plunger, and consequently the pressure exerted thereby, can be regulated, substantially. 130 as set forth.

8. The combination, with the fixed table or block *a*, plunger or presser *b*, and vertical bars *g* *g*, fixed to said plunger so as to

move up and down therewith, of a fixed bar
 g^2 , and a pressure-indicator consisting of a
scale or divided bar 1, fixed to said plunger,
and of a hand or indicator 6, moving along
5 said scale and pivoted to a part of said plun-
ger and attached by a link 5 and lever 3 to
said bar g^2 , whereby the movements of the
plunger are indicated on the scale, substan-
tially as set forth.

In witness whereof I have hereunto signed to
my name in the presence of two subscribing
witnesses.

HENRY MICHAEL STEINTHAL.

Witnesses:

CHARLES STEWART WARDELL,
ARTHUR SLEIGHTHOLM.