

No. 815,931.

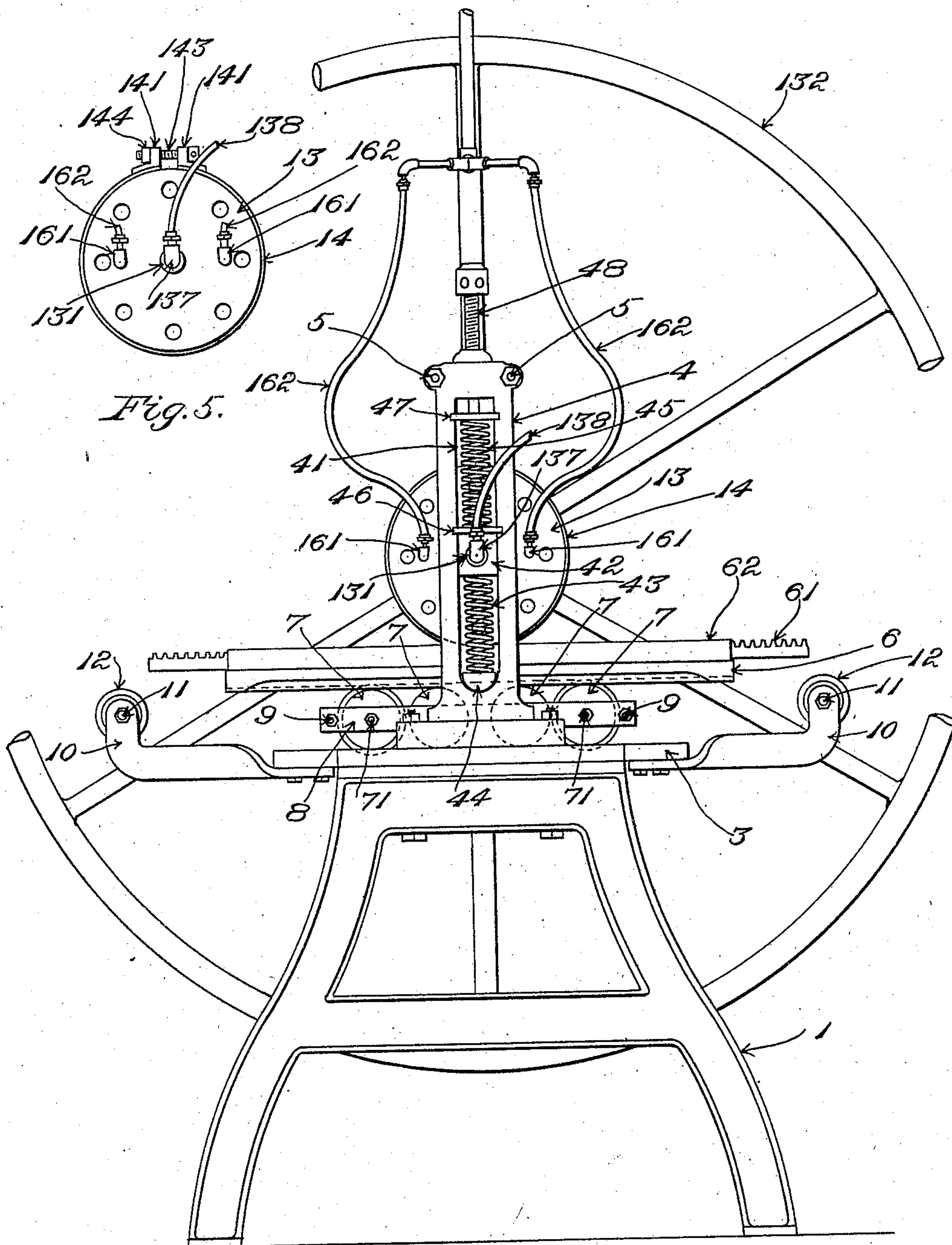
PATENTED MAR. 20, 1906.

G. MOORE.

MACHINE FOR EMBOSSED AND PRINTING UPON LEATHER, SILK, &c.

APPLICATION FILED JUNE 9, 1904.

3 SHEETS—SHEET 1.



Witnesses:
Oscar F. Hill
J. Henry Parker

Fig. 1.

Inventor:

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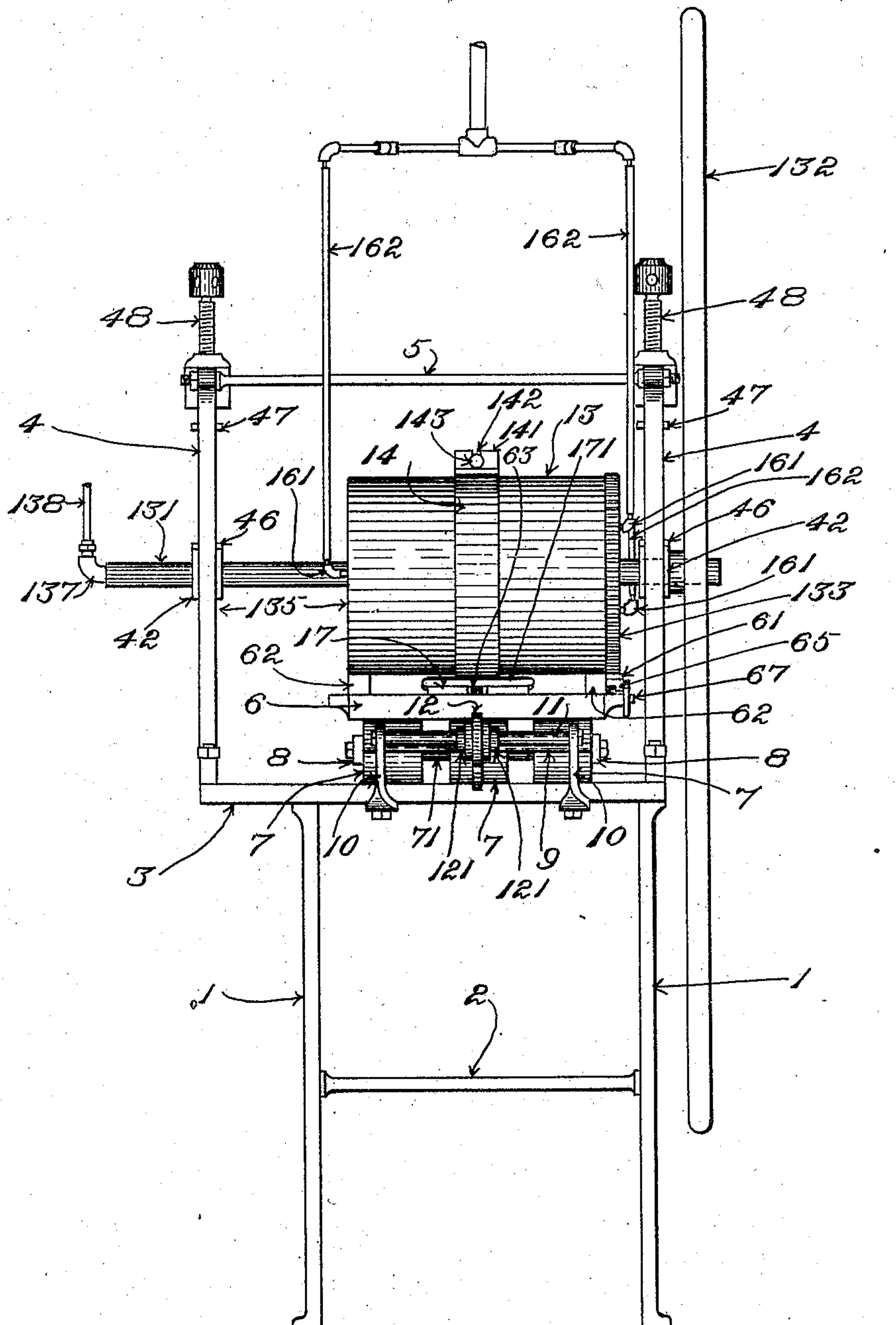
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Fig. 2. George Moore
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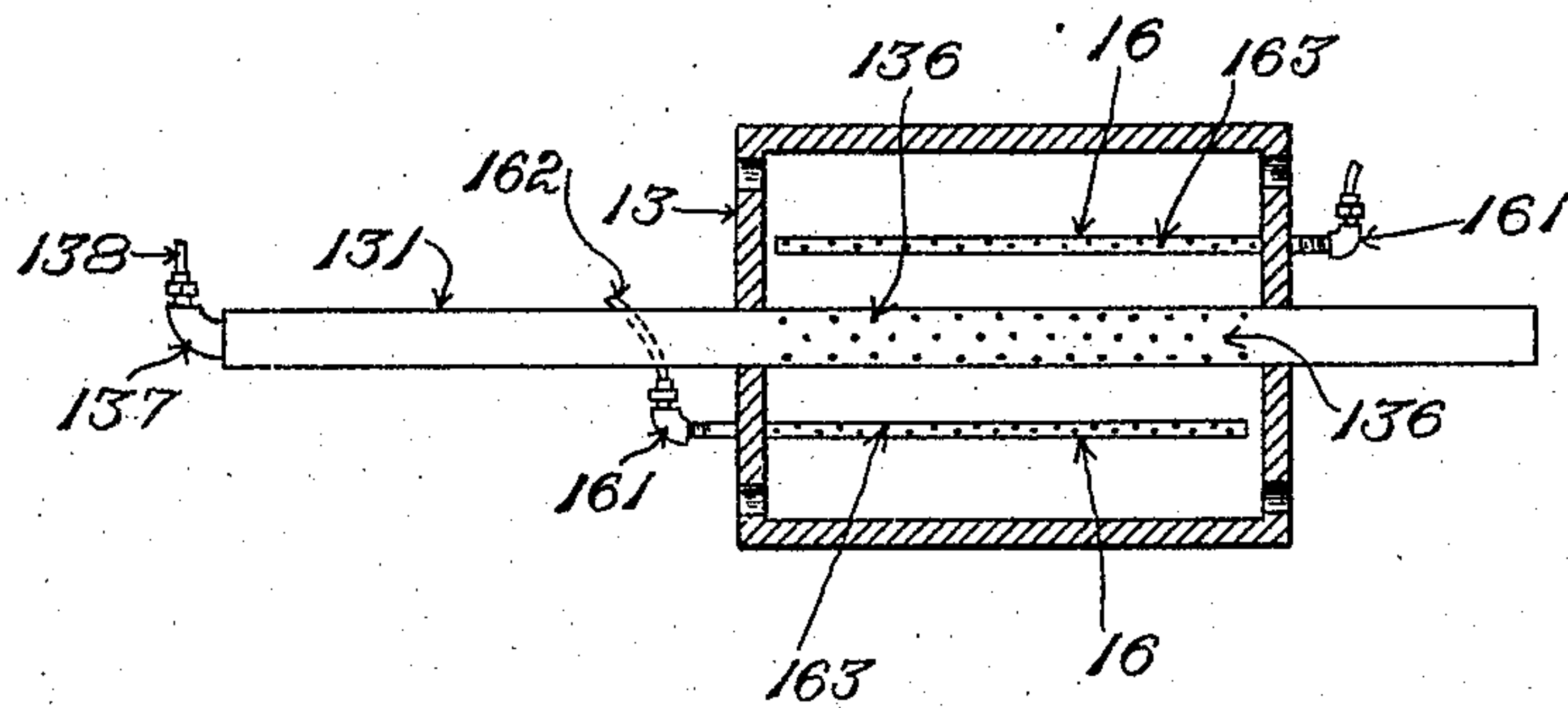


Fig. 6.

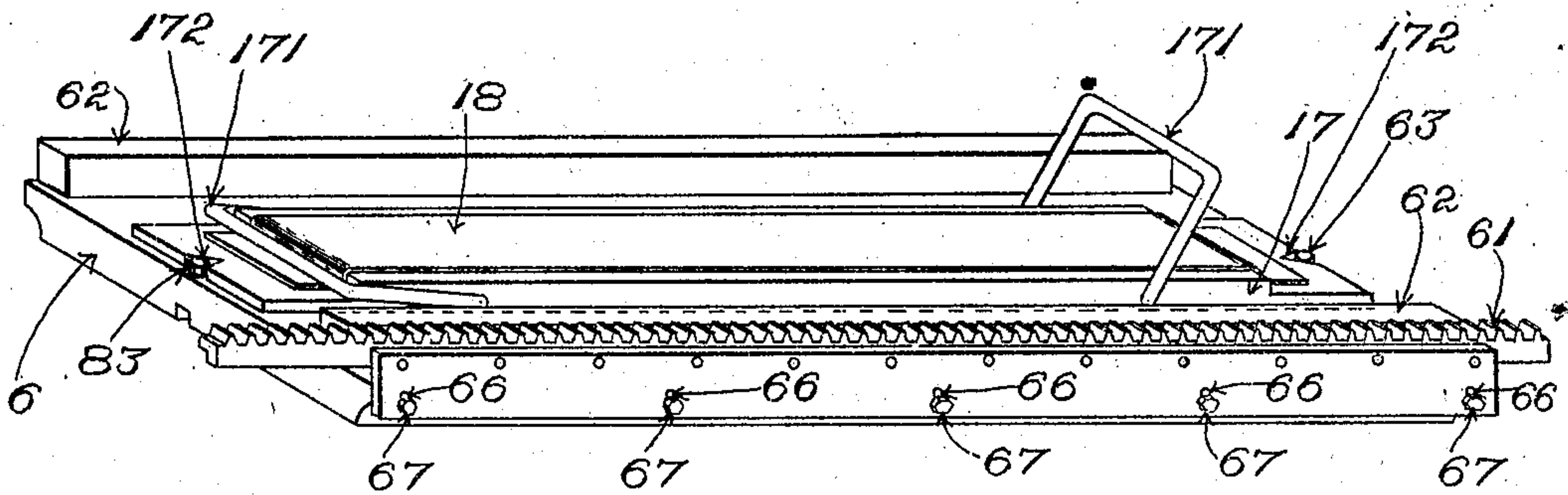


Fig. 3.

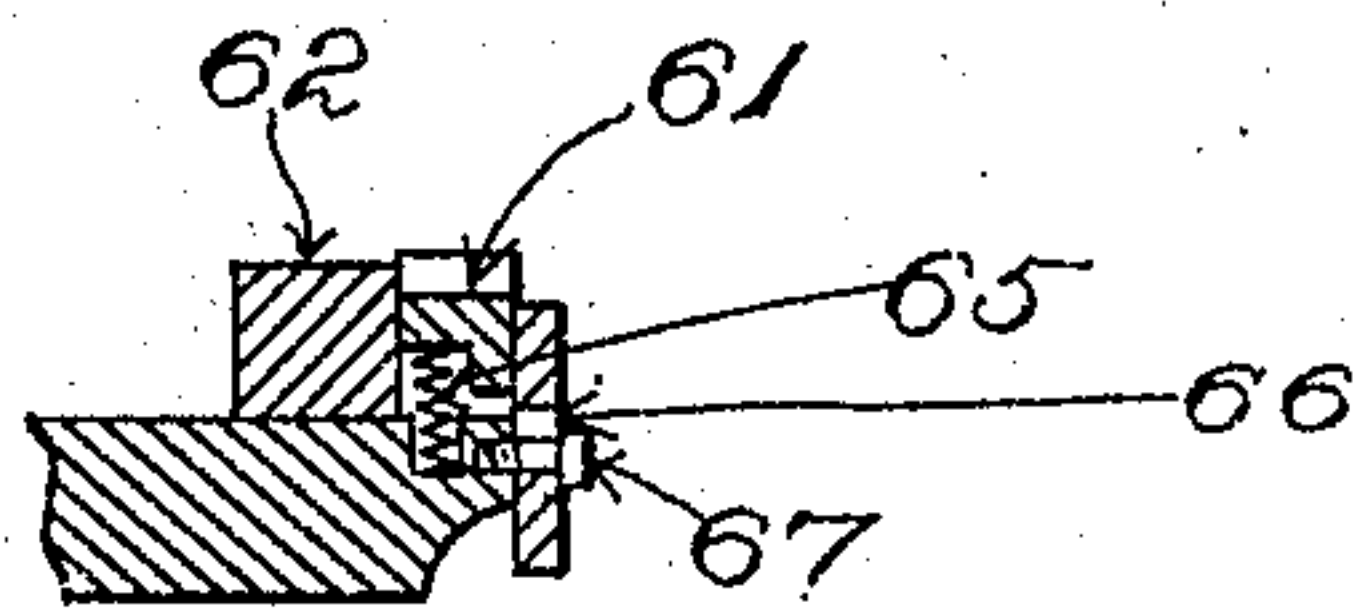


Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE MOORE, OF BOSTON, MASSACHUSETTS.

MACHINE FOR EMBOSSING AND PRINTING UPON LEATHER, SILK, &c.

No. 815,931.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed June 9, 1904. Serial No. 211,772.

To all whom it may concern:

Be it known that I, GEORGE MOORE, a citizen of the United States, residing at Boston, in the county of-Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Machines for Embossing and Printing Upon Leather, Silk, and other Material, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention consists in a machine of novel and improved character which I have designed for use more particularly in printing in gold, silver, &c., upon leather, silk, and other material.

I have shown in the accompanying drawings a machine embodying my invention in the best form in which it has thus far been reduced to practice by me.

In the drawings, Figure 1 shows the said machine in side elevation. Fig. 2 is an end elevation of the said machine. Fig. 3, Sheet 3, is an isometric showing the platen and also a bar or plate with a sheet or strip of leather or other material applied thereto in readiness for being embossed or printed. Fig. 4, Sheet 3, is a sectional detail showing chiefly the mode of mounting the rack upon the platen. Fig. 5, Sheet 1, is an end elevation of the cylinder. Fig. 6, Sheet 3, is a representation of the cylinder in longitudinal section, showing certain of the burners thereof.

Having reference to the drawings, the machine which is shown therein is provided with a supporting-framework comprising opposite side frames 1 1, which in their lower portions are connected by means of a spacing and tie piece 2 and upon the tops of which a bed or table 3 is mounted, from the opposite sides of which rise the standards 4 4, the said standards having the upper ends thereof connected by the pair of spacing and tie rods 5 5.

6 is a horizontal platen located above and parallel with the bed or table 3 and supported upon the latter by means of a series of rolls 7 7, &c., intervening between the under surface of the platen and the upper surface of the bed or plate and rolling upon the latter surface as reciprocating movements are communicated to the platen. The rolls 7 7, &c., are arranged in groups upon the parallel cross-rods 71 71, &c., which latter have their opposite ends connected to side bars 8 8, the extremities of the said side bars being joined by other rods 9 9. The side bars and cross-rods 71 71 9 9 form a rectangular frame

by means of which the rolls 7 7, &c., are maintained assembled in working relations.

From the opposite ends of the bed or table 3 pairs of arms 10 10 extend in the direction of the length of the said bed or table. The ends of the said arms are upturned, and the upturned ends of each of the said pairs are connected by means of a cross-rod 11, on which is mounted a roll 12 between collars 121 121 on the said cross-rod, the said collars preventing the roll from movement lengthwise of the cross-rod. The rolls 12 12 support the platen 6 as it approaches the extremes of its reciprocatory movements. The platen is grooved on its under side at the middle of the width thereof and the bed or table 3 is grooved at its upper side, the grooves receiving projecting peripheral portions of the middle line of rolls 7 7 and of the rolls 12 12. Thereby the platen is prevented from becoming misplaced transversely within the machine during operation.

The standards 4 4 are slotted vertically, and in the slots 41 of the respective standards are received the boxes 42 42, containing the bearings for the shaft 131 of the cylinder 13. The boxes 42 42 are supported by spiral springs 43, which are contained in the slots 41 of the standards, the lower ends of the said springs resting upon the flat upper sides of semicircular blocks 44, occupying the lower ends of the said slots. The springs 43 tend to raise the boxes 42 42 and the cylinder 13. Other springs 45 are placed within the slots 41 above the boxes between plates 46, resting upon the latter and upper plates 47. The said springs 45 are compressed between the said plates and tend to press the boxes and cylinder toward the platen with yielding force. The tension of springs 45 is regulated at will by means of pressure-screws 48 48, working in threaded holes that are tapped in the upper ends of the standards 4 4 and taking bearing by their lower ends against plates 47 47.

For the purpose of enabling the cylinder 8 to be turned upon its axis a hand-wheel 132 is mounted upon one end of the shaft 131 thereof, the said end projecting beyond the bearing 42 at such side of the machine to receive the said hand-wheel.

The impression-surface is provided upon the cylinder 13 in practice, while the sheet or strip to be printed or embossed is supported upon the platen 6.

As thus far described the machine is or

may be essentially as heretofore in plate-presses, and the features, construction, and arrangement are not in themselves of the gist of the invention.

5 In carrying my invention into effect in order that as the cylinder is turned upon its axis the platen may be moved lengthwise to present all portions of the length of the said sheet or strip properly to the different portions of the said impression-surface the cylinder and platen are geared together by means of a gear-wheel 133, with which one end of the cylinder is formed or provided, and a rack 61, with which the platen 6 is furnished. 10 Thus when the cylinder is partially rotated in one direction the platen is moved endwise in a corresponding direction to carry the sheet or strip resting thereupon past the cylinder to receive an impression, and then after the said sheet or strip has been removed from the platen and replaced by another rotation of the cylinder in the opposite direction will be accompanied by travel of the platen in the opposite direction, carrying the 25 second sheet or strip past the cylinder to receive an impression, and so on. To limit the closeness of approach of the surface of the cylinder 13 to the surface of the platen, the platen is furnished at its opposite sides with 30 ribs 62 62, extending lengthwise of the same, and with the upper surfaces of which the periphery of the body of the roll makes contact when not prevented from so doing by the intervention of the sheet or strip that is to be 35 embossed or printed and its backing between the impression-surface upon the cylinder and the platen.

I provide the cylinder 13 with an impression-surface which is constituted by a removable band or jacket 14. The said band or jacket encircles the periphery of the cylinder and fits closely thereagainst. It is engraved or cut upon its exterior surface according to the design, &c., which it is desired to emboss 45 or imprint. Preferably the said band or jacket is split transversely or discontinuous and is provided with means to clamp it securely to the periphery of the cylinder. In the illustrated embodiment of the invention 50 the opposite ends of the band or jacket are furnished with blocks or lugs 141 141, which are formed with open-ended radial slots 142, the said slots receiving the stem of a tightening and securing bolt 143. An enlargement 55 or head with which one end of the said bolt is furnished takes against the outer side of one lug, while a nut 144 upon the threaded stem of the bolt takes against the outer side of the other lug. By means of the bolt and 60 nut the band or jacket may be tightened upon the exterior of the body of the cylinder, and thus effectively secured in place, while by unscrewing the said bolt and nut the band or jacket will be loosened. In order to enable the band or jacket conveniently to be

applied to or removed from the cylinder, a space 135, corresponding in width with that of the band or jacket, is left at one end of the cylinder between such end and the adjacent standard 4. This enables the band or jacket 70 in being applied to be passed by a movement in a transverse direction with relation to the axis of the cylinder into the said space. The opening between the ends of the band or jacket permits such ends to be passed at opposite sides of the corresponding journal of the cylinder, and after the band or jacket has been caused to assume concentricity with the periphery of the body of the cylinder the band or jacket may be moved lengthwise of 80 the said body into place upon the body, after which the bolt 143 will be applied and tightened. The removal of the band or jacket is effected by the reverse operations, as will be understood. 85

Provision is made for heating the cylinder as follows: In the opposite heads of the cylinder are set pipes 16 16, &c., extending in the direction of the length of the cylinder at suitable distances apart around the axis of 90 the cylinder. To the outer extremities of the said pipes at the heads of the cylinder are fitted swiveling connections 161 161, &c., with which are joined flexible gas-supply pipes 162 162. In the case of certain of the 95 pipes 16 the swiveling connections 161 161 are combined therewith at one end or head of the cylinder, while in the case of the remainder, which alternate with those first referred to, the swiveling connections are combined 100 therewith at the other end or head of the cylinder. Gas flowing through the supply-pipes 162 162 passes by way of the swiveling connections 161 161 into the interior of the pipes 16 16. These last have fine holes 163 105 163 made through the shells thereof. Through the said holes the gas flows and is ignited, the pipes 16 16, &c., constituting burners. In addition the shaft of the cylinder is tubular and between the ends or heads of the cylinder is also furnished with a number of holes 136 136, one outer end of the said shaft having a coupling 137 swiveled thereto, the said coupling having in connection therewith a supply-pipe 138. The shaft of the cylinder 115 constitutes an additional burner. It is contemplated that in practice gas will be permitted to flow through the outlets or holes of the walls of the various burners until the cylinder has become sufficiently heated, after 120 which the flow through the outer burners 16 16, &c., will be discontinued, leaving in action only the central burner constituted by the shaft of the cylinder.

For the purpose of supporting the sheet or strip of leather, silk, or other material which is to be operated upon and properly presenting the same to the action of the impression-surface of the cylinder I provide a bar or plate 17. This bar or plate is rabbeted or reduced 130

in thickness on the upper side thereof at its ends, and adjacent the shoulders which are left by rabbeting the bar or plate U-shaped bails 171 171 are connected pivotally with the side edges of the latter in such manner that when the said bails are swung outwardly and down the cross-bar of each bail will assume a position in close proximity to the corresponding shoulder. The sheet or strip is applied to the bar or plate 17 by raising the two bails 171 171, then laying the sheet or strip upon the top of the bar or plate, with its end portions overlapping the shoulders thereof, as in Fig. 3, in which the sheet or strip is designated 18, and then swinging the bails down, so as to depress the end portions of the sheet or strip around the shoulders, which will cause the said end portions to be clamped between the shoulders and the cross portions of the bails. After the sheet or strip 18 has been applied to the bar or plate 17 and its end portions have been clamped, as aforesaid, the said bar or plate is laid upon the platen 6, the latter being then in one of its extreme positions. For the purpose of gaging the position of the bar or plate when applied to the platen gage-pins 63 83 are provided upon the latter, and for engagement with the said gage-pins the ends of the bar or plate are notched, as at 172. The bar or plate 17, with the sheet or strip 18 of leather, silk, or other material applied thereto, having been laid upon the platen, the cylinder is rotated by means of the hand-wheel in the direction to advance the platen endwise with relation to the cylinder and cause the impression-surface of the latter to act to emboss or print the said sheet or strip. If the sheet or strip is to be printed in gold, gold-leaf is laid upon the upper surface of the same before the bar or plate, with the sheet or strip thereon, is placed in position upon the platen.

In order to compensate for differences in the thicknesses of successive sheets or strips 18, as well as variations in the thickness of different portions of a given sheet or strip in the direction of the length of the latter, the vertically-movable boxes 42 42 of the cylinder 13 are acted upon by the depressing-springs 45, which cause the surface of the band or jacket 14 to bear with predetermined pressure against the upper surface of the sheet or strip. In order to enable the teeth of rack 61 to retain proper working relations with the teeth of the gear 133, which is connected with the cylinder, the said rack is supported upon springs 65 65 on the platen 6 and is movably secured to the platen. In this instance the rack is provided with a flange extending downward alongside the corresponding edge of the platen, the said flange having vertical slots 66 66, &c., made transversely therethrough, and the rack being held to the platen by means of screws 67 67, the stems of which pass through the said slots into thread-

ed holes that are tapped into the edge of the platen. The springs and slots enable the rack to move vertically, and thereby accompany the gear 133 as the cylinder rises and sinks.

The gear connection between the cylinder and platen insures a proper register between the embossing or printing surface of the ring, band, or jacket 14 upon the cylinder and the surface of a strip or sheet of material carried by a work-holder that rests upon the platen and is positioned by means of the work-holder gages, enabling the said band or sheet to be subjected to a second or further pressure in case the impression, or results secured by one passage through the press should prove insufficient or unsatisfactory.

I claim as my invention—

1. In a machine for embossing and printing, in combination, the cylinder having the gear, the springs tending to press the said cylinder toward the platen, the reciprocatory platen, and the vertically-yielding rack in operative engagement with the said gear and accommodating itself to the position assumed by the cylinder.

2. In a machine for embossing and printing, in combination, the cylinder having the gear, the platen having the rack in operative engagement with the said gear, the split band having the embossing or printing surface, and means to secure the said band upon the periphery of the cylinder.

3. In a machine for embossing and printing, in combination, the cylinder having the gear, the platen having the rack in operative engagement with the said gear, the split band having the embossing or printing surface, and means to connect together the ends of the said band.

4. In a machine for embossing and printing, in combination, the cylinder having the gear, the platen having the rack in operative engagement with the said gear, and also having work-holder gages, and a work-holder to receive and support a band or sheet of material to be embossed or printed.

5. In a machine for embossing and printing, in combination, the cylinder having the gear, the split ring or jacket having the embossing or printing surface and mounted upon the said cylinder, the platen having the yielding rack in operative engagement with the said gear, and also having work-holder gages, and a work-holder to receive and support a band or sheet of material to be embossed or printed.

6. In a machine for embossing and printing, in combination, the cylinder, the ring or jacket removably applied to the said cylinder and having the embossing or printing surface, means to support said cylinder arranged to leave a clear space at one end of the same for the application and removal of the ring or jacket, and the platen.

7. In a machine for embossing and printing, in combination, the cylinder, the split embossing or printing ring or jacket, a supporting-framework having a standard separated from an end of said cylinder by a clear space corresponding with the width of the ring or jacket to facilitate the application and removal of the latter, and the platen.

8. In a machine for embossing and printing, in combination, the cylinder, the split embossing or printing ring or jacket, a supporting-framework having a standard separated from an end of said cylinder by a clear space corresponding with the width of the ring or jacket to facilitate the application and removal of the latter, the platen, and the vertically-yielding rack in operative engagement with said gear.

9. In a machine for embossing and printing, in combination, the cylinder, the springs tending to press the said cylinder toward the platen, the split embossing or printing ring or jacket, a supporting-framework having a standard separated from an end of said cylinder by a clear space corresponding with the width of the ring or jacket to facilitate the application and removal of the latter, the platen, and the vertically-yielding rack in operative engagement with said gear.

10. In a machine for embossing and printing, in combination, the cylinder having a gear, a burner inside said cylinder, the platen having the rack in operative engagement with said gear, a work-support applied to the said platen, and an embossing ring or jacket applied to the cylinder.

11. In a machine for embossing and printing, in combination, the cylinder having a gear, a hollow shaft for said cylinder having supply connections for fuel and also having burner-outlets within the length of the cylinder, the platen in operative connection with said gear, and a removable embossing ring or jacket applied to the cylinder.

12. In a machine for embossing and printing, in combination, the cylinder, the embossing ring or jacket, the hollow cylinder-shaft having fuel-supply connections and also having burner-outlets within the length of the cylinder, one or more supplemental burners within the cylinder, and the platen.

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

GEORGE MOORE.

Witnesses:

CHAS. F. RANDALL,
EDITH J. ANDERSON.