118-261

No. 720,281. PATENTED FEB. 10, 1903.

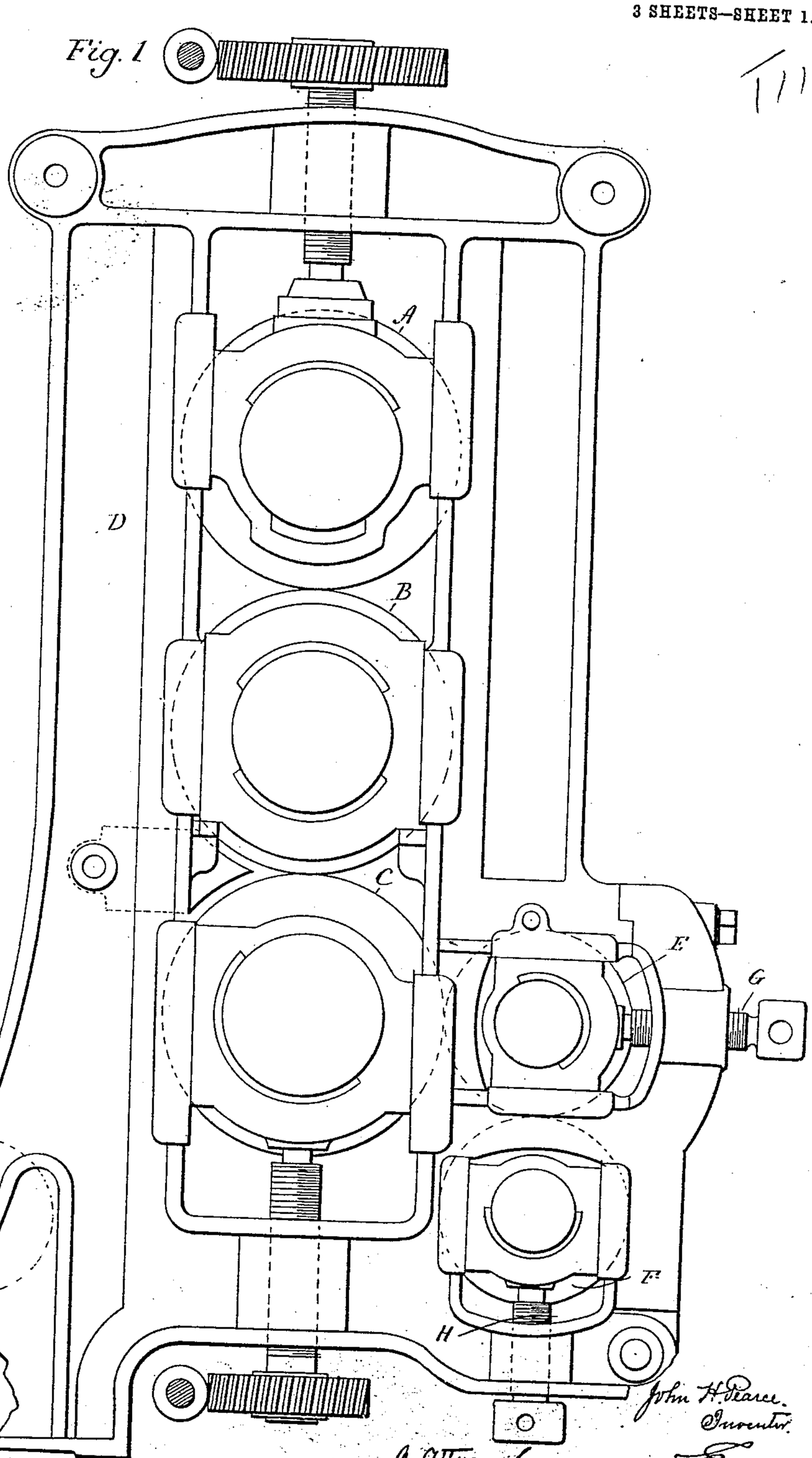
J. H. PEARCE.

MACHINE FOR COATING FABRIC WITH RUBBER.

APPLICATION FILED NOV. 22, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1



Witnesses.
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THE NORRIS PETERS CO.

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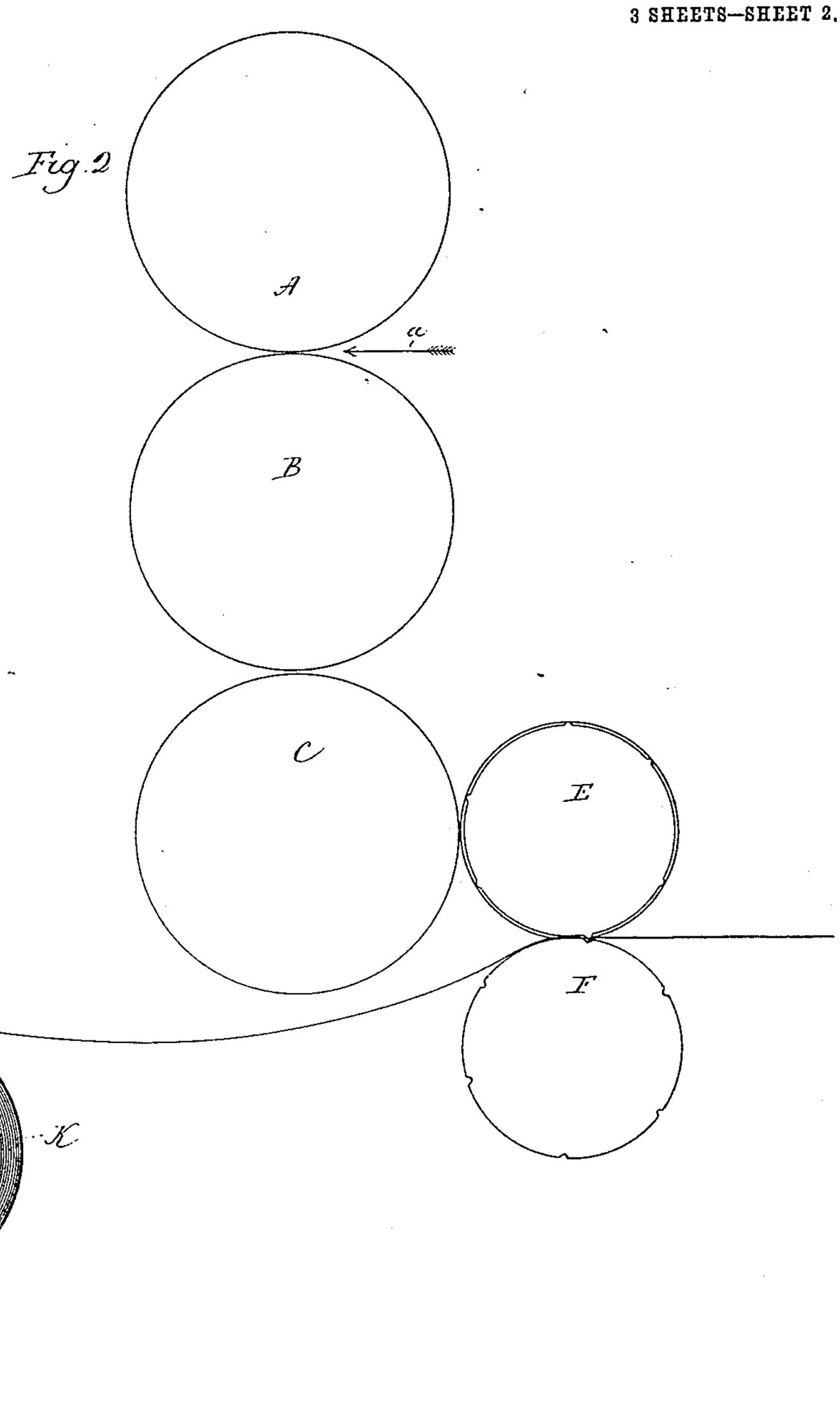
NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2



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NO MODEL. 3 SHEETS—SHEET 3.

Fig 3

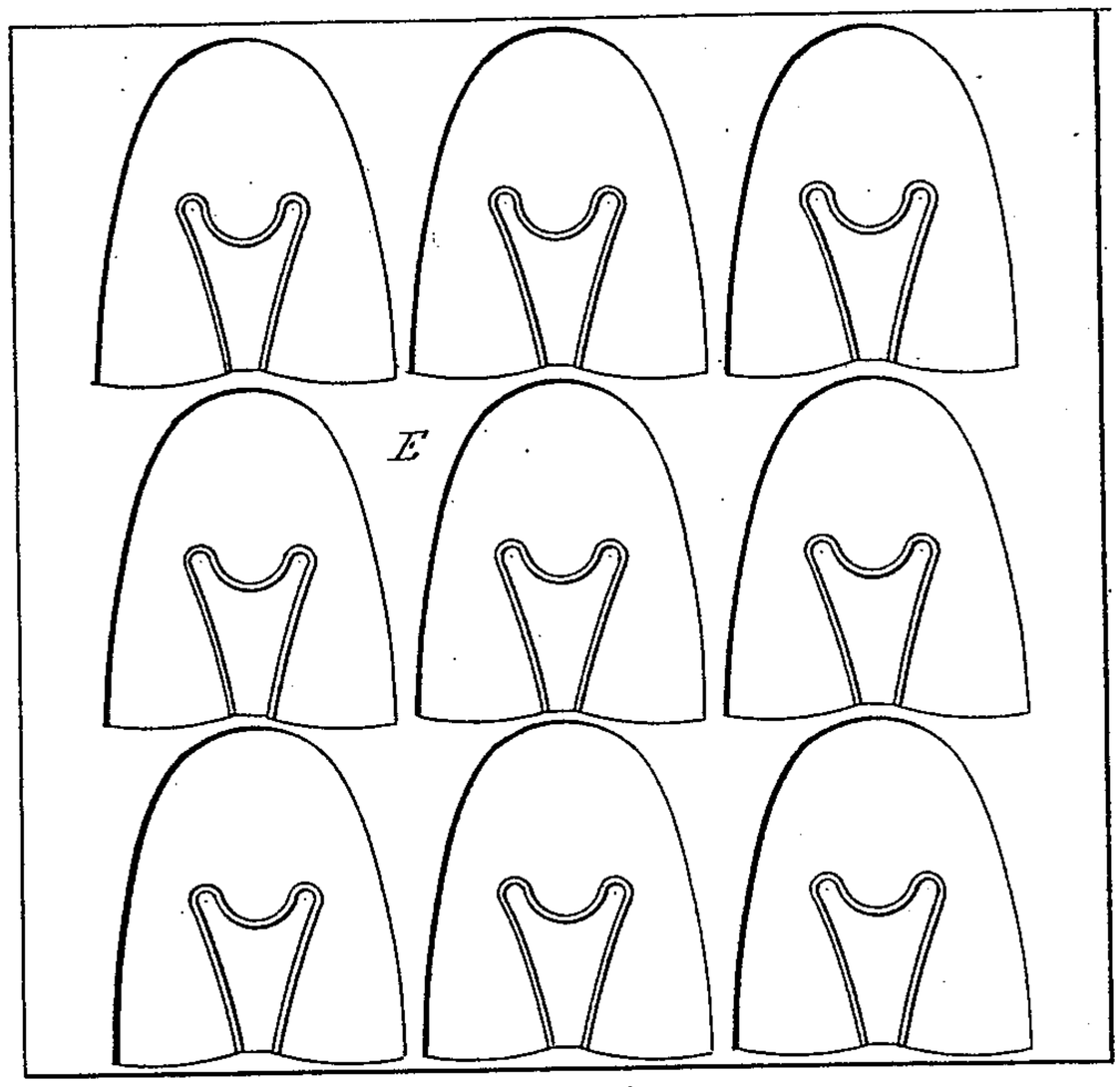


Fig 4

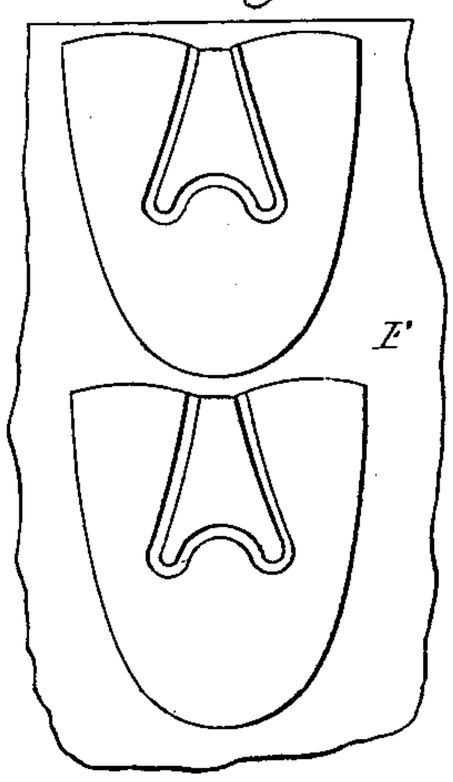
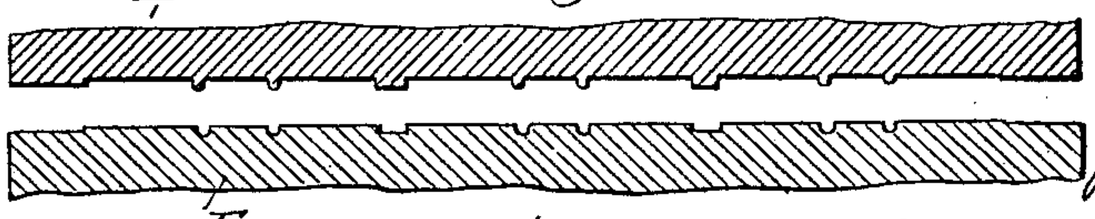


Fig 5



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UNITED STATES PATENT OFFICE.

JOHN H. PEARCE, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HENRY STUART HOTCHKISS, OF NEW HAVEN, CONNECTICUT.

MACHINE FOR COATING FABRIC WITH RUBBER.

SPECIFICATION forming part of Letters Patent No. 720,281, dated February 10, 1903.

Application filed November 22, 1901. Serial No. 83,228. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. PEARCE, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Machines for Coating Fabric with Rubber; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of a machine constructed in accordance with my invention; Fig. 2, a diagrammatical view of the several rolls thereof; Fig. 3, a plan view of the surface of one of the pattern-rolls; Fig. 4, a broken plan view of the surface of the other roll; Fig. 5, a broken longitudinal sectional view of the two pattern-rolls.

This invention relates to an improvement in machines for coating fabric with rubber. In the manufacture of articles of rubber-coated fabric the fabric is usually coated with rubber in continuous sheets and the stock thus formed cut in the desired pattern. More or less waste or scrap is made, and the valuable portion of the scrap is the rubber; but the value of the scrap thus composed of rubber and fabric is much less than the value of the rubber portion if it could be saved separate from the fabric, owing to the difficulty in separating the rubber and fabric. In another method of construction the rubber is formed in sheets with the pattern impressed thereon, then cut from the stock thus formed, and these patterns subsequently united with the fabric; but this necessitates separate operations.

The object of this invention is to form the pattern in the rubber and cause the rubber to adhere to the fabric only throughout the surface of the desired pattern and so that the rubber outside of that pattern will not adhere to the fabric, and hence will be saved in its plastic condition and independent of the waste of the fabric; and the invention consists in taking rubber from calendering mechanism onto a pattern-roll and passing the fabric to be coated between that roll and a second roll bearing a similar pattern, between which rolls the pattern will be forced into contact with or united with the fabric, while the rubber outside the pattern will be carried off by the roll, or, if carried off with the fabric, will not adhere thereto, so that it may be readily separated therefrom; and the invention consists in the construction as hereinafter described, and particularly recited in the claim.

In carrying out my invention I employ three calendering-rolls A, B, and C, arranged one above the other in a frame D and suitably geared together in the usual manner of rubber-working machines, the upper and lower rolls being vertically adjustable, so that the spaces between the rolls may be adjusted as desired. Adjacent to the lowermost roll C is a pattern-roll E, which I will term the "female" roll, as the pattern is cut into the face of the roll. Below this roll E is a male roll F, having a pattern corresponding to the pattern in the roll E, but raised upon the surface of the roll. The bearings for these pattern-rolls are adjustable, so that the roll E may be moved toward or from the roll C and the roll F moved toward or from the roll E. As herein shown, a screw G is arranged for moving the bearing of the roll E and a screw H is arranged to move the bearing for the roll F. The frame of the machine is also provided with sockets J to receive trunnions of a fabric-roll K in the usual manner of rubber-working machines. It will be understood that the calendering-rolls are heated in the usual manner of rubber-working machines. The rubber-stock is fed between the rolls A B in the direction of the arrow *a* and adheres to the roll B, from which it is taken by the roll C. The stock passing over the roll C is taken from it by the roll E, and rubber of the required thickness is forced into the recesses in this roll. Fabric from the roll K is fed between the rolls E F, and as they revolve the raised portions of the roll F unite the rubber in the recesses in the roll E with the fabric; but as the space between the patterns on these rolls is greater than the space between the raised surface of one and the depressed surface of the other the rubber outside of the patterns will not be

forced into contact with the fabric, and hence will adhere to the roll E and be carried by it back onto the roll C, or if it be carried off by the sheet of fabric it may be readily removed therefrom. Thus the fabric is coated with rubber only over the surface of predetermined patterns, and the stock thus formed may be readily cut up and the only scrap is the fabric around the patterns. It is clearly evident that the upper roll E might be the male roll and the lower roll F the female roll with the same result. In this way the only rubber united with the fabric is that required for the articles to be produced, the rubber outside of these patterns being saved in its plastic condition.

In the drawings illustrating the rolls they are provided with a pattern for rubber shoes; but it is apparent that any pattern may be produced by providing suitably-formed rolls, and, as before stated, the calendering mechanism may be of any approved construction. I therefore do not wish to be understood as limiting the invention to the exact construction shown, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

In a machine for coating fabric with rubber, the combination with three vertically-arranged calendering-rolls, of a female and a male pattern-roll, the female roll arranged adjacent to the lowermost calendering-roll, the male roll arranged below the female roll, and means for adjusting the said rolls, said female and calendering rolls being so formed and arranged that rubber from the lowermost roll will be taken by the female pattern-roll and impressed in predetermined patterns upon fabric passing between the two pattern-rolls, substantially as described.

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

JOHN H. PEARCE.

Witnesses:
GEO. E. BAILEY,
GEO. H. FULFORD.