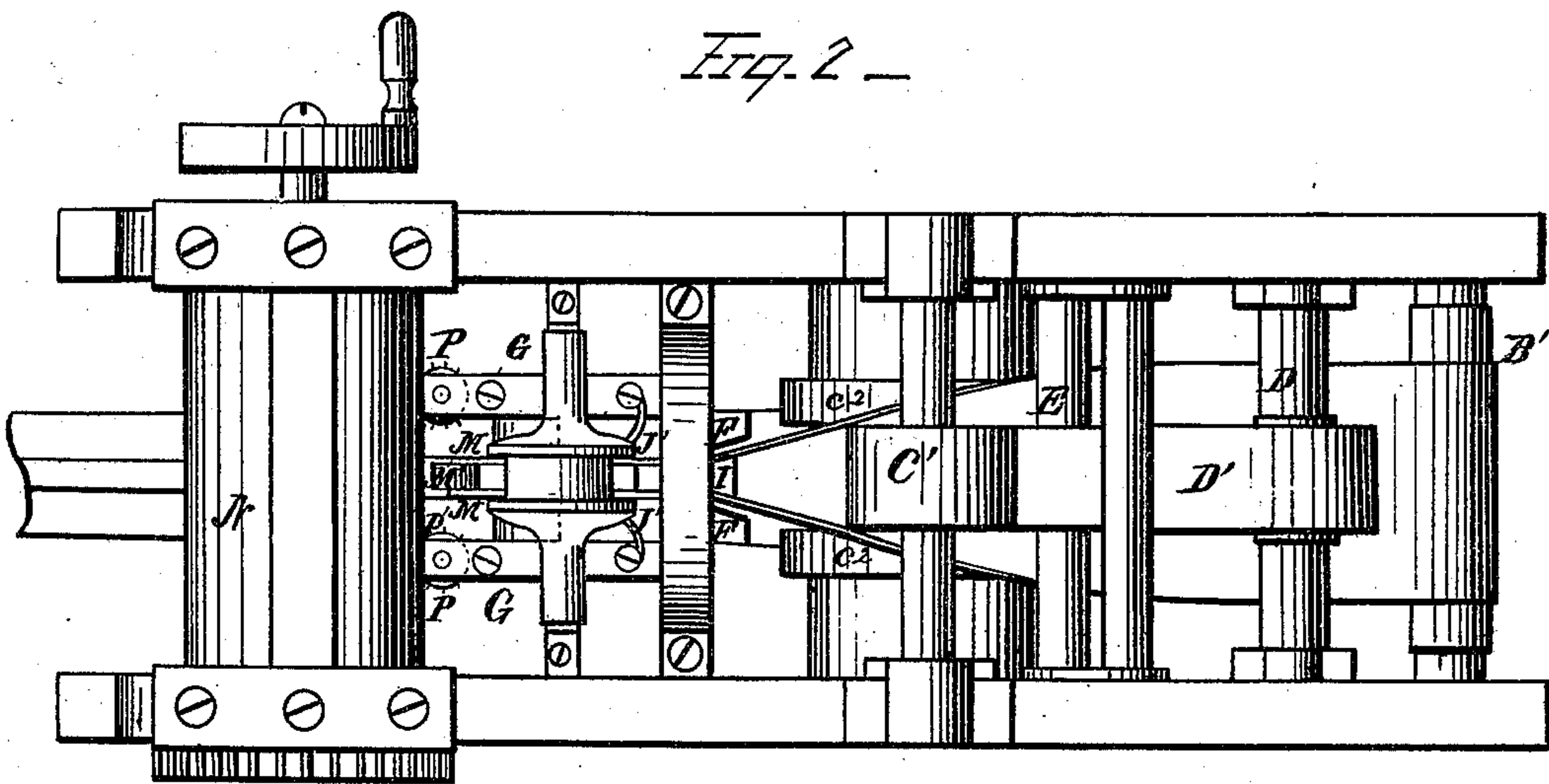
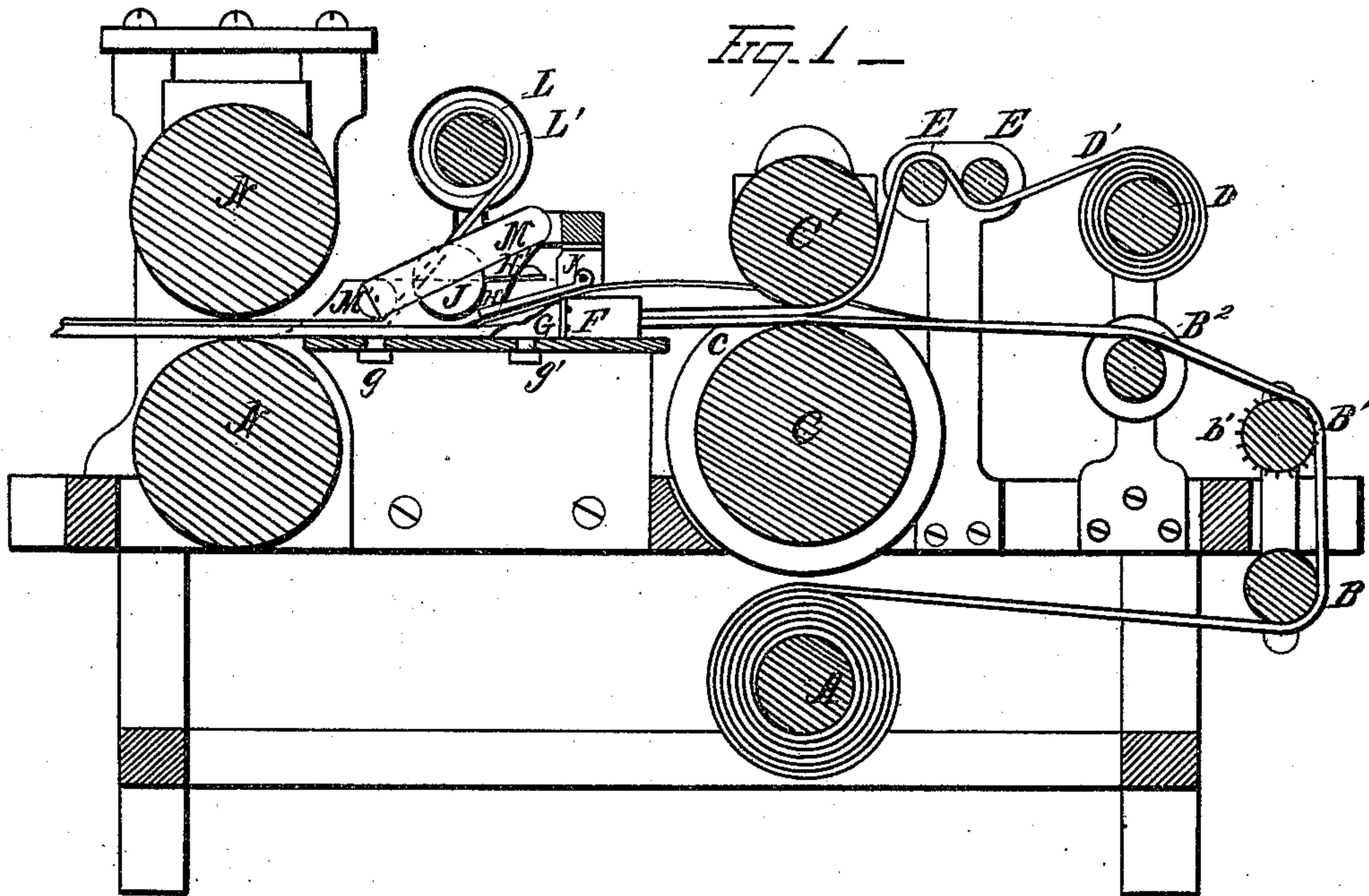


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MACHINERY FOR MANUFACTURING RUBBER BELTING.
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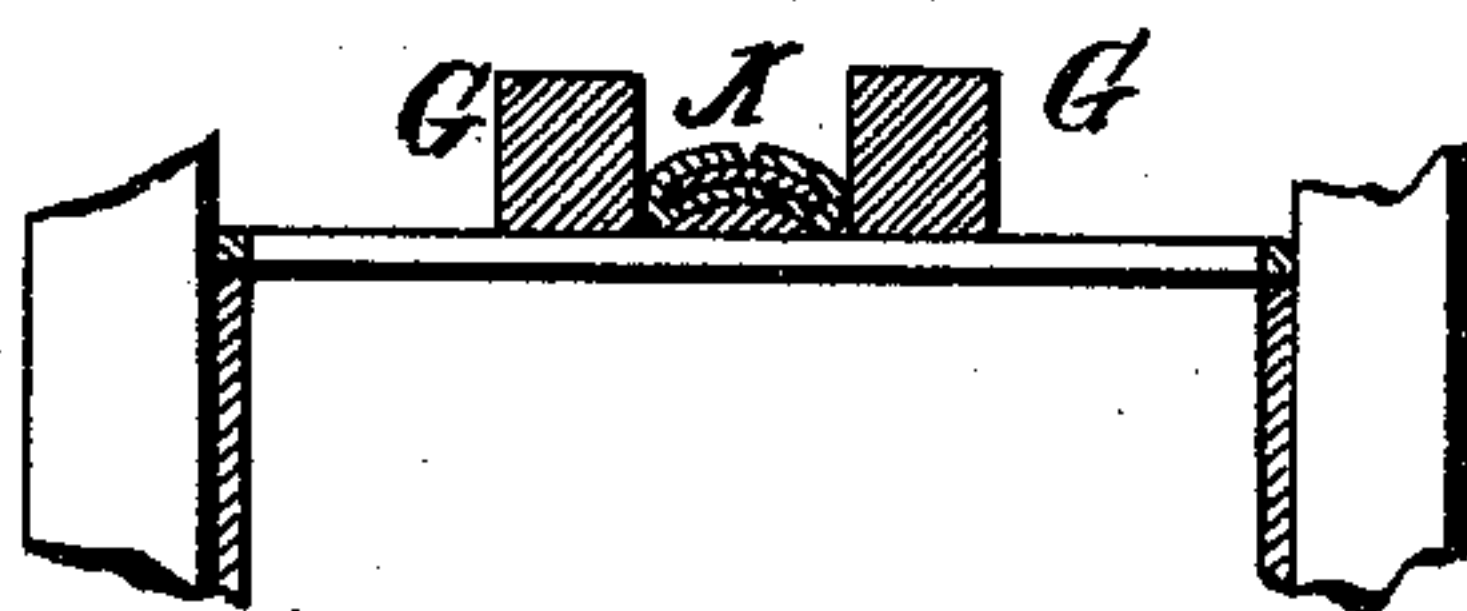
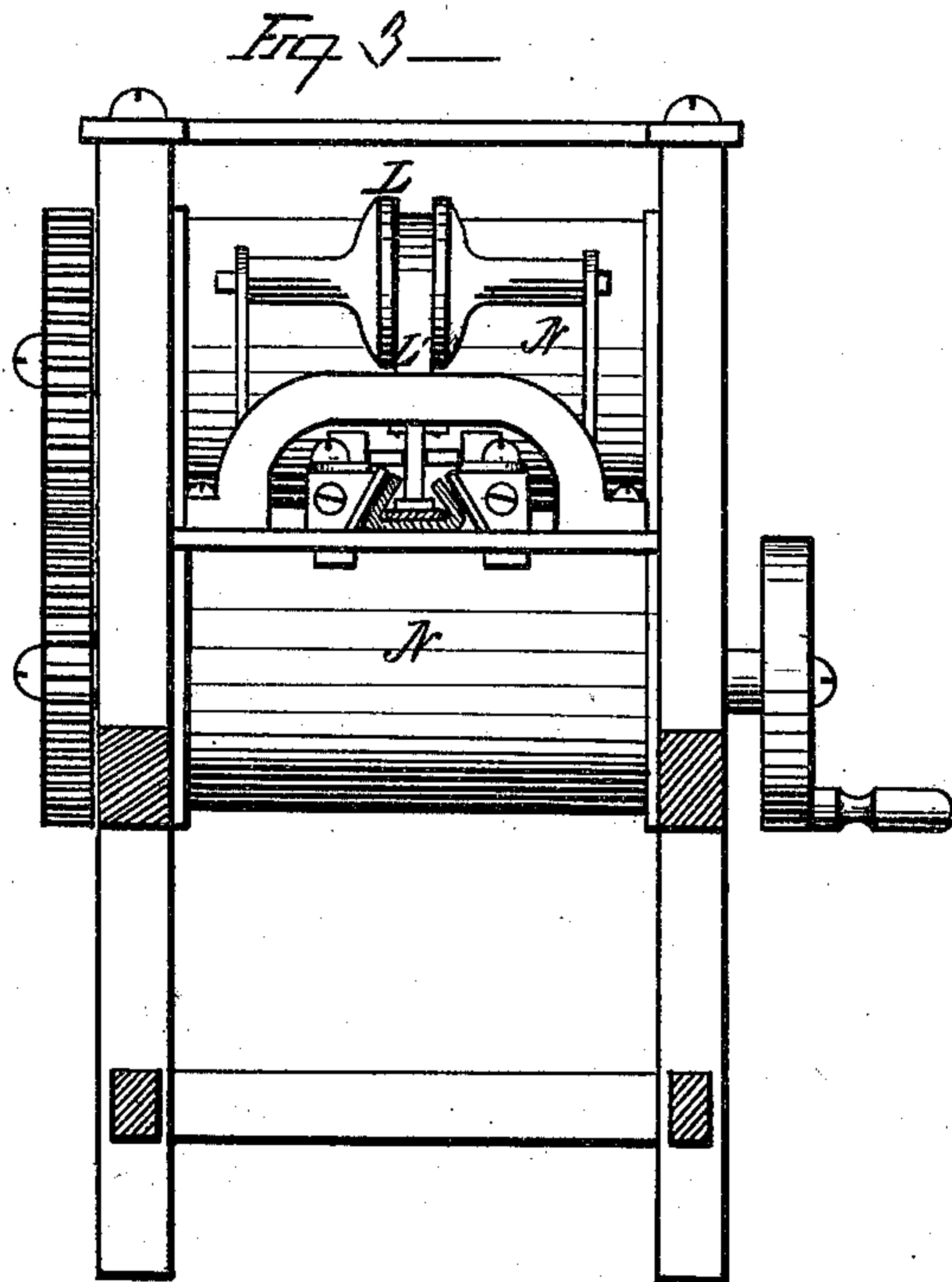


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UNITED STATES PATENT OFFICE.

JOSEPH E. BASTER, JACOB D. JOSLIN, NATHANIEL E. WARREN, FRANKLIN L. CHAMBERLIN, AND LOUIS K. McCLYMONDS, OF CLEVELAND, OHIO, ASSIGNORS TO CLEVELAND RUBBER COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINERY FOR MANUFACTURING RUBBER BELTING.

Specification forming part of Letters Patent No. **173,437**, dated February 15, 1876; application filed January 17, 1876.

To all whom it may concern:

Be it known that we, JOSEPH E. BASTER, JACOB D. JOSLIN, NATHANIEL E. WARREN, FRANKLIN L. CHAMBERLIN, and LOUIS K. McCLYMONDS, all of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Machinery for Making Rubber Belting; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improved machinery for making rubber belting; and consists, first, in the creasing-rolls, one roll being provided with an annular groove of rectangular section, or nearly so, the other roll meshing loosely into the said annular rabbet, so as to give the interposed belt-covering the proper creases for folding over the filling-plies; second, in the combination, with the said creasing-rolls, of rolls for delivering the filling-plies upon the belt-covering between the creasing-rolls; third, in the combination, with the said creasing-rolls, of rolls for delivering the filling-plies with a tension upon the belt-covering between the creasing-rolls, and over intermediate guide-rolls; fourth, in forming the said creasing-rolls adjustable for belts of different widths; fifth, in the employment, in combination with the creasing-rolls, of the folder for folding down the edges, and bringing them together before entering the pressure-rolls; sixth, in the combination, with the creasing-rolls, of the folder and shoe-tongue, the latter being placed at a distance from the creasing-rolls sufficient to permit the edges to come together before reaching the shoe-tongue; seventh, in making the folders adjustable laterally to suit the different breadths of belting; eighth, in the combination, with the folder, of the spring-plate, between it and the pressure-rolls, for the purpose of keeping the edges of the belt abutting against each other, and prevent them from lifting up or lapping; ninth, in the combination with the folders the edge pressure-rolls for pressing

down and fixing the edges of the belt before it enters the pressure-rolls proper, and thereby preventing the final pressure from crowding the stock out sidewise, and causing hollow beads at the edges of the belt; tenth, in combining with the folding mechanism of a belt-machine a convex surface on the side opposite the seam, so that when the edges are brought together there is more stock in the seam side than in the other surface, thus insuring a close joint when the belt is flattened; eleventh, in combining with the guides of the belt pricking-rolls for pricking the material at the edges before entering the pressure-rolls, so as to provide for escape of inclosed air; twelfth, in providing similar pricking-rolls for pricking the flat surfaces of the belt-covering for the same purpose; thirteenth, in the combination, with the pressure-rolls proper, of adjustable guides for guiding the belt properly between the pressure-rolls; fourteenth, in the combination, with the creasing-rolls and the belt-cover roll, of intermediate guide-rolls for guiding the material properly to the creasing-rolls, the roll adjacent to the creasing-rolls being at a sufficient distance therefrom to permit the material to fold easily and properly in the creasing-rolls; fifteenth, in making the jaws of the folding mechanism themselves adjustable, so as to alter their angle to the horizontal to suit different size and thickness of belting.

In the drawings, Figure 1 is a longitudinal central section of a machine embodying our invention, showing parts in elevation. Fig. 2 is a plan view of same; Fig. 3, an end view of the folding mechanism looking from the creasing-rolls toward the pressure-rolls.

A is a roll for holding the belt cover or wrapper. In the drawing it is represented as located beneath the machine; but, in practice, it is generally located at some distance from the machine proper. It carries wrapper A'. B, B¹, and B² are rolls, intermediate between the wrapper-roll A and the creasing-rolls, over which the belting passes, and is delivered to its exact and proper position between the creasing-rolls. C and C' are the creasing-rolls. The lower one, C, is made with an annular

groove on its face, rectangular, or nearly so, in section. The other one, C' , is constructed so as to mesh loosely into the annular groove c of the roll C , leaving sufficient room at its sides and bottom for the wrapper that is to be creased, and the filling that is to be inserted. D is a roll from which the filling-ply D' is fed, with a tension between the creasing-rolls. There may be one or more such rolls, according to the number of plies to be inserted, and the ply or plies are fed over intermediate rolls E , which guide it properly into the creasing-rolls. $F F$ are the jaws of the folding mechanism. They are secured by clamps $f f$, which, preferably, can be loosened to permit the jaws F to be adjusted, to make a greater or less angle with the horizontal, according to the breadth or thickness of the belt that is being made. $G G$ are adjustable guides to which the jaws $F F$ are attached. They are adjustable by means of a slot, g , and set-screw g' . The object in making them adjustable is to suit different breadths of belt. The guides G , as will be seen, pass well in between the rolls, so as to prevent the pressure exerted by the rollers from causing the material to spread laterally. H is a plate, made, by the spring H' , to exert a downward pressure upon the seam, after the edges have been brought together, in order to keep the edges abutting against each other, and prevent them from rising or lapping before entering the rolls. I is a shoe, over which the belting is folded. It is supported by a tongue, I' , which depends over a rigid fastening above. The tongue I' is in the nature of a blade, against which the edges fold and are centered. J are edge-pressure rolls, which, by means of springs J' or their equivalent, are made to exert great pressure on the edges of the passing belt. The object of these rolls J is to press and fix the edges of the belt before they enter the main pressure-rolls, and thus prevent the main pressure-rolls from crowding the stock out sidewise, and thus form a hollow bead at the edge of the belt. K is a convex surface, over which the belt-wrapper passes as it is being folded. This convex surface is upon that side of the belt-wrapper which is opposite the seam, the object being that when the belt-wrapper is folded upon this convex surface until its edges meet there will be more stock in the seam side than in the other side of the belt, so that when the belt is afterward pressed flat in the pressure-rolls the result will be a very tight close joint at the seam.

We do not limit ourselves to the employment of this convexed surface; but we do not know that a convexed surface has ever before been thus employed in making rubber belts for the purpose of giving more stock to the seam side of the belt, and we therefore wish it to be distinctly understood that we claim this feature broadly, wherever and however used for the purpose of making belting.

L is a roller for carrying the sealing-strip L'

which covers the seam. It is delivered upon the seam between swinging guides M , which guides bear the roll and benzine-sponge M' , which moistens the strip with benzine before passing beneath the pressure-rolls.

N are the main pressure-rolls, which serve to press the belt firmly together and to compact it after the filling, the folding, and the sealing of the seam has been performed. This passing of the belt through the rolls completes the belt so far as it is acted upon by the mechanical contrivances forming the subject of our invention.

P are pricking-rolls, located in the adjustable guides, and provided with prickers p , the object of which is to prick the edge of the belt-covering after it has been folded, to form vents for the escape of inclosed air when the belt is subjected to pressure. The roll B^1 is provided with similar pricking-points b' , for pricking the whole surface of the belt-wrapper for a similar purpose. The annular groove c in the roll C is preferably made adjustable to suit different breadths of belt. This adjustability is effected by first making the roll a plain cylinder, then forming the annular groove by slipping upon this plain cylinder two clamping-collars, c^2 . When in proper position the collars may be clamped in any suitable manner, as by a set-screw, c^3 . The upper roll c^1 may be increased in breadth to suit different breadths of belt by slipping upon the axle annular washers, and clamping them in position.

It will be observed that the creasing-rolls are placed at such a distance from the shoe-tongue as to permit the belt, which is under considerable tension, to fold properly and bring its edges together against the shoe-tongue; also, the same relation is made to exist between the rolls B^2 and creasing-rolls for a like purpose, viz.: to permit the belt wrapper or cover to be properly creased by the creasing-rolls.

What we claim is—

1. The creasing-rolls $C C'$, made adjustable, substantially as described, to suit belts of different widths, substantially as and for the purpose described.

2. The combination, with the creasing-rolls $C C'$, of the folding jaws F and shoe-tongue, the latter being placed at a distance from the creasing-rolls sufficiently to permit the edges of the belt-covering to act together before reaching the shoe-tongue, substantially as and for the purpose described.

3. The combination, with the creasing-rolls $C C'$ of the adjustable jaws $F F$, substantially as and for the purpose specified.

4. The combination, with the folder, of the spring-plate H , constructed to exert a pressure upon the seam after the edges are brought together, and before entering the pressure-rolls, substantially as and for the purpose described.

5. The combination, with the folders $F F$, of the edge-pressure rolls J , constructed to

exert a downward pressure upon the edges of the belt before entering the pressure-rolls proper, substantially as and for the purpose described.

6. The combination, with the folding mechanism of a belt-machine, of a convexed surface on the side opposite the seam, so that when the edges are brought together there is more stock in the seam side than in the other side of the belt, substantially as and for the purpose described.

7. The combination, with the guides G G, of the pricking-rolls for pricking the edges of the belt, substantially as and for the purpose described.

8. The pricking-roller B² for the purpose of pricking the flat surface of the belt-covering, substantially as and for the purpose described.

9. The combination, with the pressure-rolls,

of adjustable guides G G for guiding the belt properly between the pressure-rolls, substantially as and for the purpose described.

10. The jaws F F made adjustable at *ff*, whereby their angle to the horizontal may be varied, substantially as and for the purpose described.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses.

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