Nov. 25, 1924.

M. K. GOLDEN

1,517,112

MACHINE FOR EMBOSSING AND PLAITING TEXTILE AND OTHER FABRICS

Filed Jan. 9, 1924

5 Sheets-Sheet 1

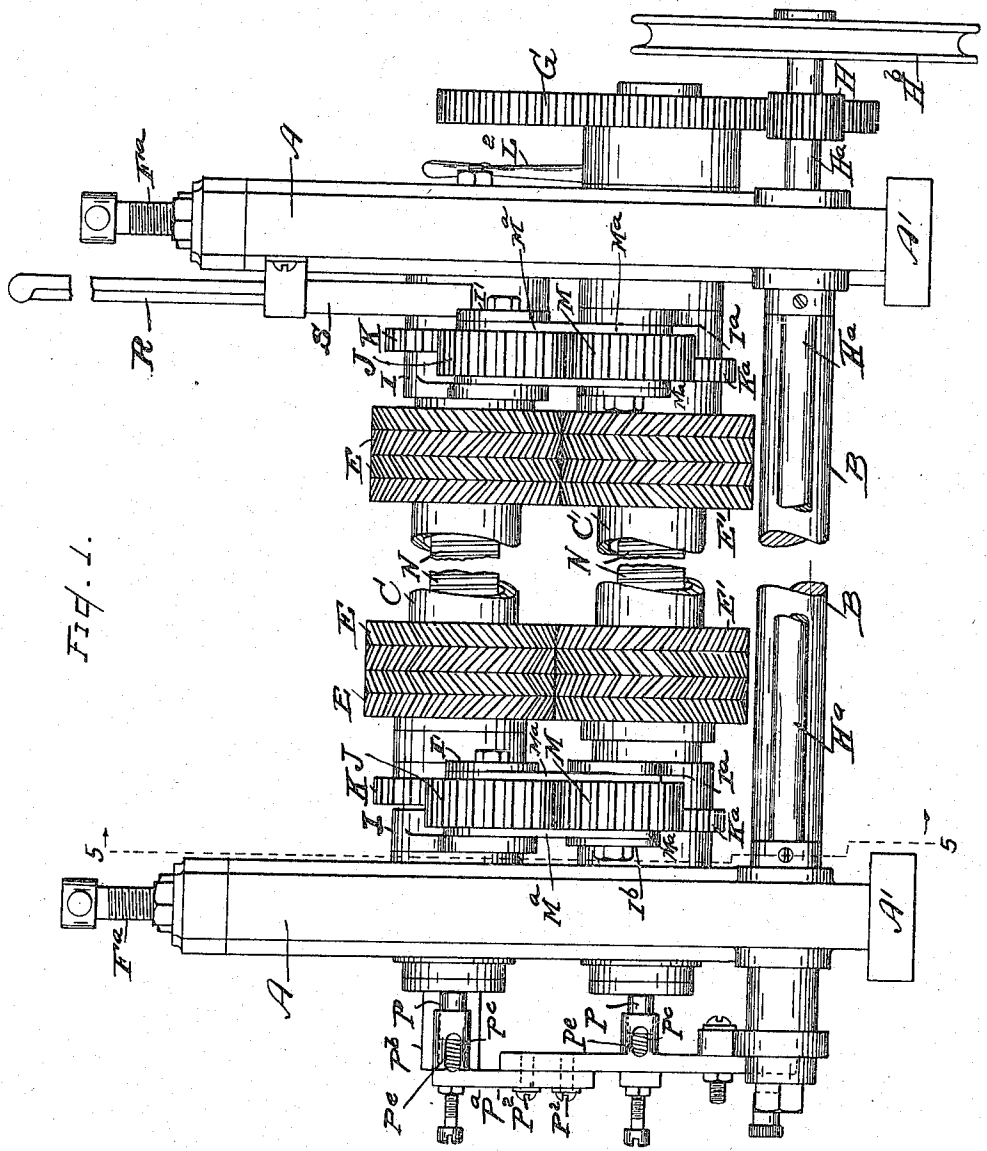


Fig. 1.

Inventor

May K. Golden

By S. E. Thomas

Attorney

Nov. 25, 1924.

M. K. GOLDEN

1,517,112

MACHINE FOR EMBOSSING AND PLAITING TEXTILE AND OTHER FABRICS

Filed Jan. 9, 1924

5 Sheets-Sheet 2

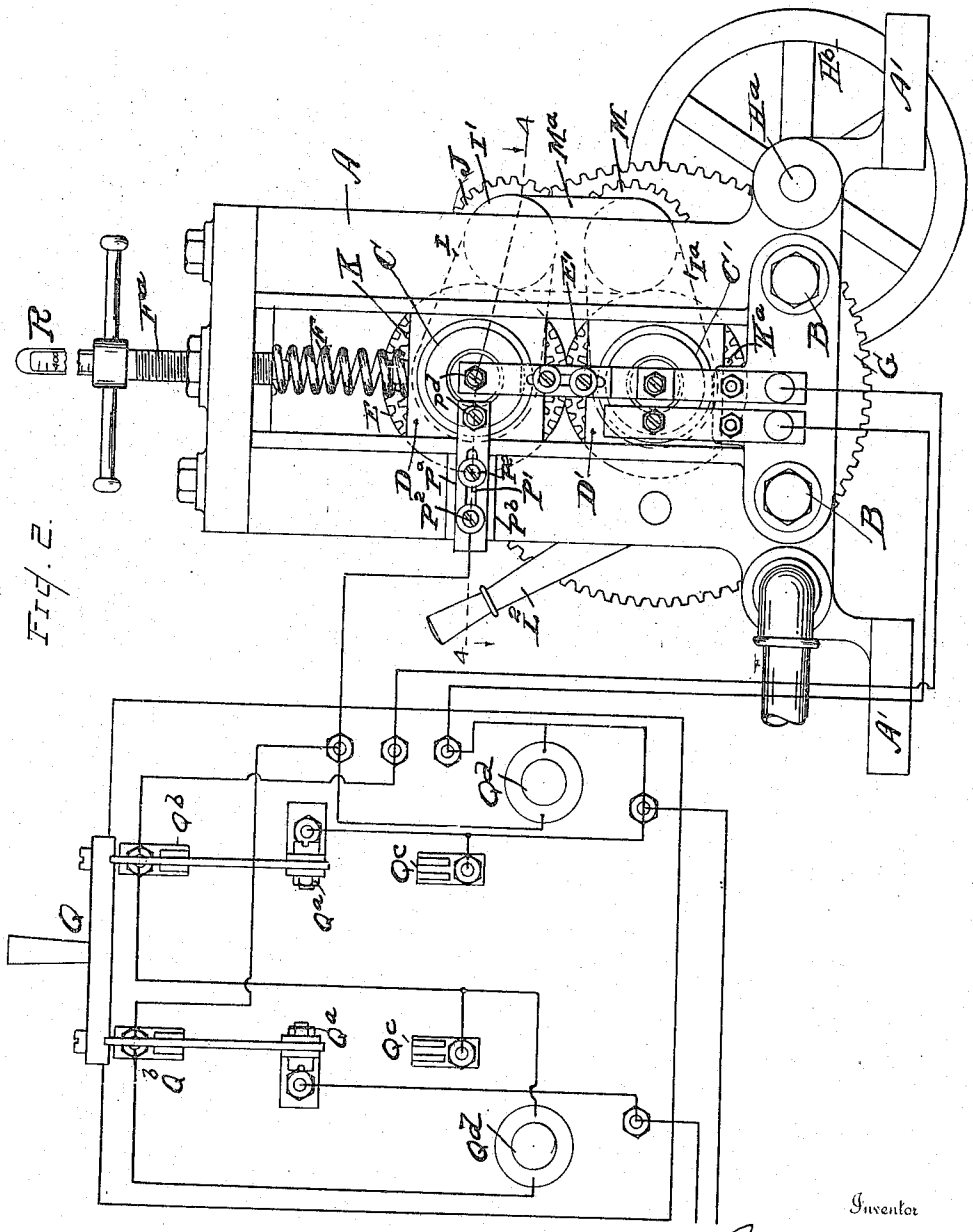


Fig. 2.

Inventor

Mass K. Golden

By O. B. Thomas

Attorney

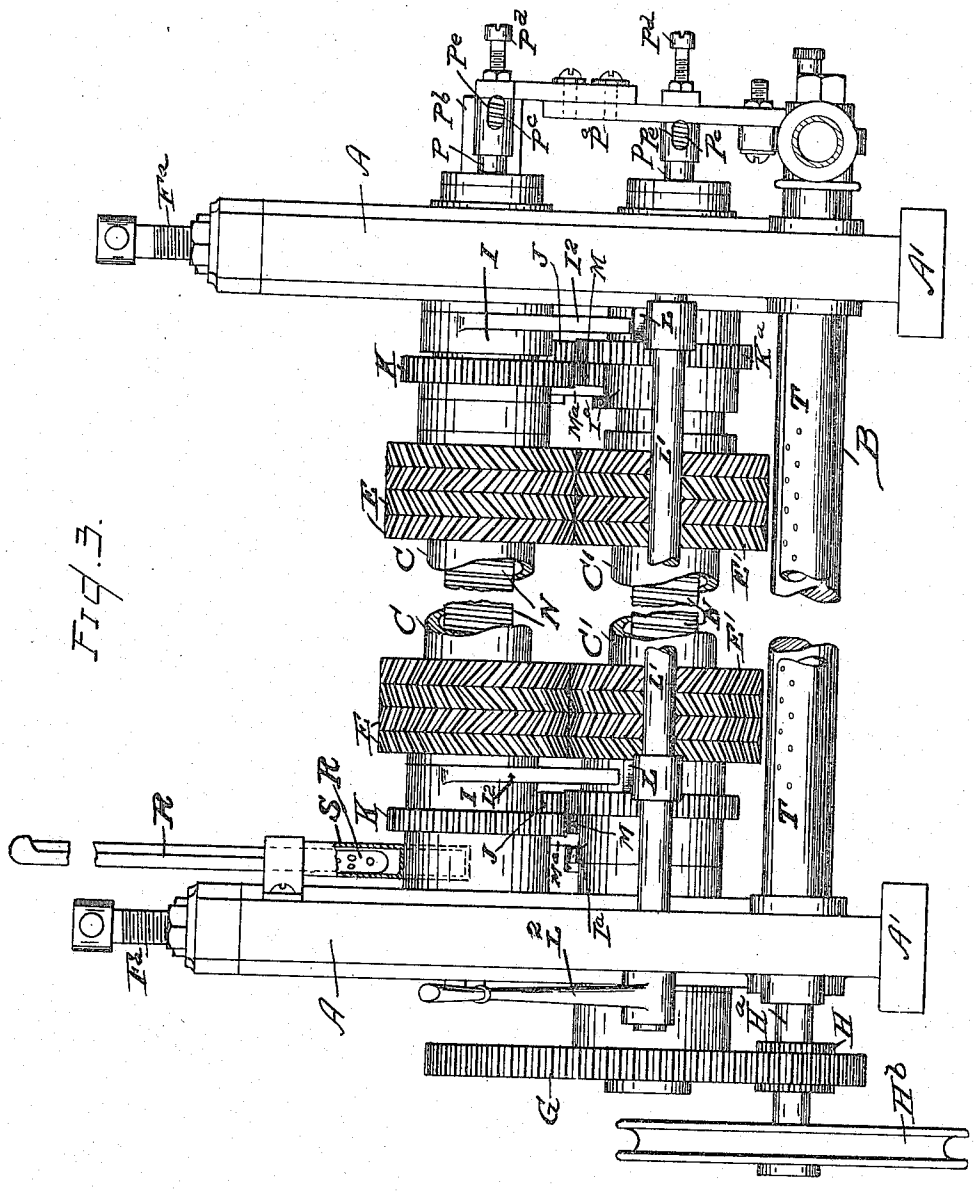
Nov. 25, 1924. 1,517,112

M. K. GOLDEN

MACHINE FOR EMBOSSING AND PLAITING TEXTILE AND OTHER FABRICS

Filed Jan. 9, 1924 5 Sheets-Sheet 3

Fig. 3.



Mary K. Golden Inventor

By S. E. Thomas

Attorney

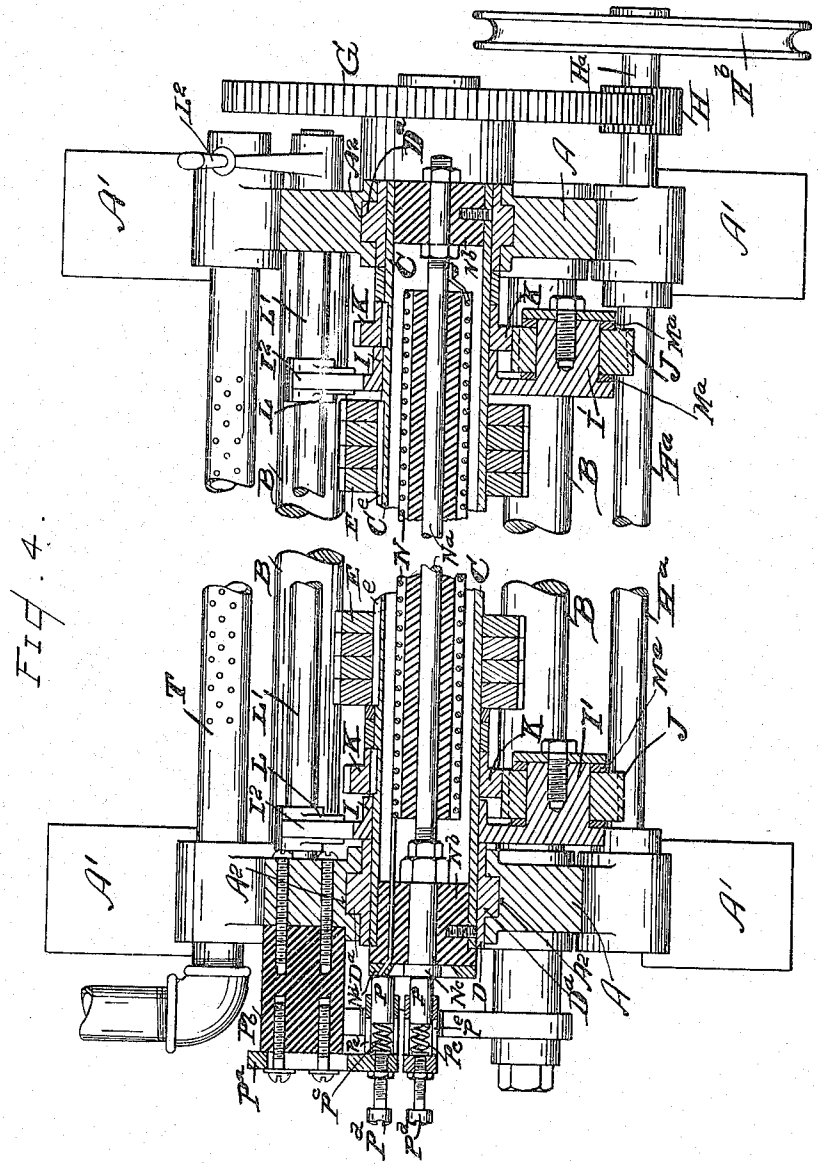
Nov. 25, 1924. 1,517,112

M. K. GOLDEN

MACHINE FOR EMBOSSING AND PLAITING TEXTILE AND OTHER FABRICS

Filed Jan. 9, 1924 5 Sheets-Sheet 4

Fig. 4.



Inventor

Marc K. Golden

By L. E. Thomas

Attorney

Nov. 25, 1924. 1,517,112

M. K. GOLDEN

MACHINE FOR EMBOSSING AND PLAITING TEXTILE AND OTHER FABRICS

Filed Jan. 9, 1924 5 Sheets-Sheet 5

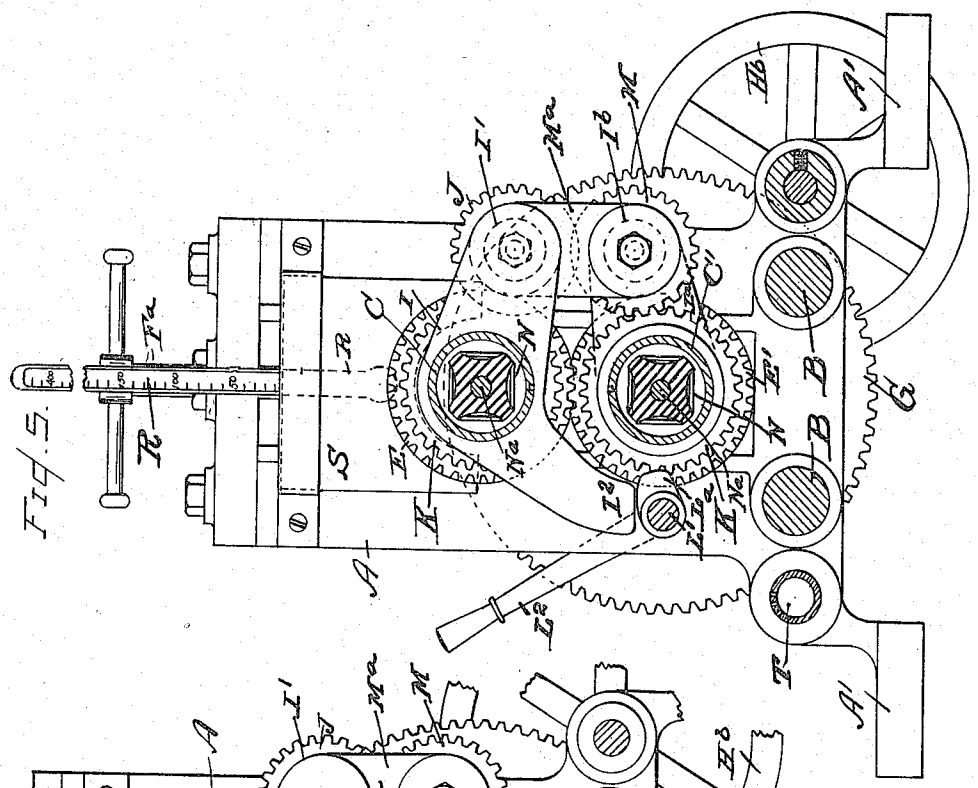


Fig. 5.

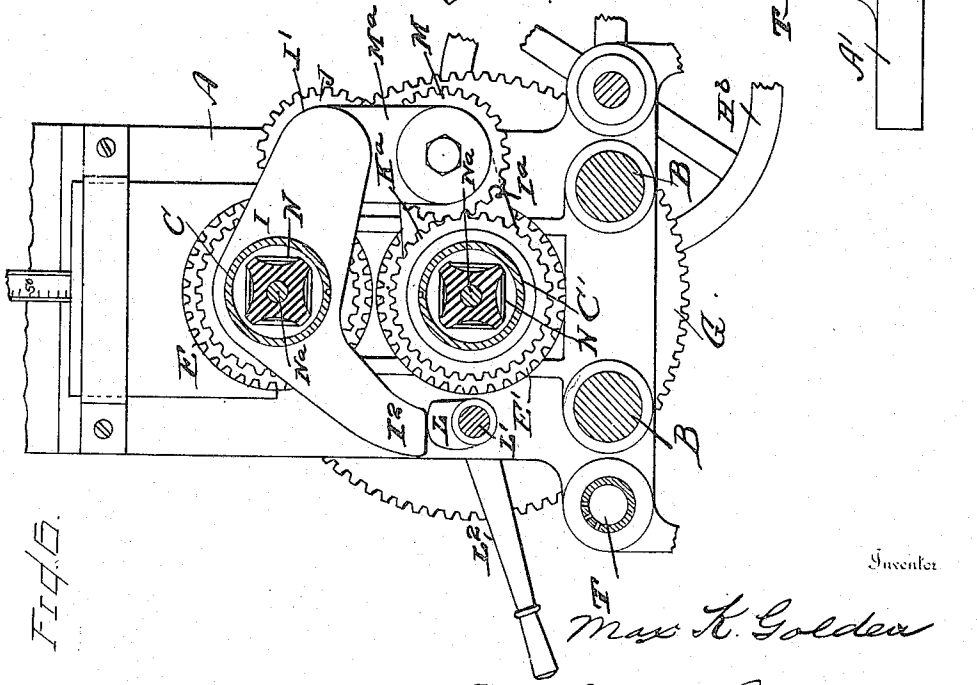


Fig. 6.

Inventor

Max K. Golden

By L. E. Thomas

Attorney

Patented Nov. 25, 1924. 1,517,112

UNITED STATES PATENT OFFICE.

MAX K. GOLDEN, OF DETROIT, MICHIGAN, ASSIGNOR TO DAVID SCHUFF, OF DETROIT, MICHIGAN.

MACHINE FOR EMBOSSING AND PLAITING TEXTILE AND OTHER FABRICS.

Application filed January 9, 1924. Serial No. 685,242.

To all whom it may concern:

Be it known that I, MAX K. GOLDEN, citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Machines for Embossing and Plaiting Textile and Other Fabrics, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a machine for embossing or plaiting textile or other fabrics, whereby the character of the design or plaiting may be readily altered to meet the changing demands or requirements of trade.

While the invention is adapted for embossing fabrics of different character and for a multitude of purposes the inventor has in view its use especially for embossing upholstering material,—particularly that employed for upholstering and lining the bodies of motor driven vehicles, thus each manufacturer may secure for his product the special advantage to be derived through what is known to the trade as "custom work",—and while it is possible for any manufacturer to secure any particular fabric, by the use of this machine these same fabrics may be easily and inexpensively altered whereby an initial, monogram, or coat-of-arms of the manufacturer or prospective owner of a vehicle may be introduced into the fabric, or some special configuration or design employed, which will stamp it at once as the particular product of a certain house. The inventor also has in mind its employment in connection with fabrics for the manufacture of ladies' hats or garments as by its use a well known and easily recognized textile may be altered in appearance so as to produce an effect quite foreign to that of the original material.

One feature of the invention consists in a plurality of interchangeable embossing rollers grouped upon a pair of rotatable shafts,—the embossing rollers of the respective shafts being adapted to mesh or coordinate whereby the design upon the rollers may be impressed into the fabric as the latter is fed between the rollers.

A further object of the invention is to provide means whereby the embossing rollers may be separated to readily admit the fabric between them,—the construction being such however that when returned to their initial position the rollers immediately register, so as to properly emboss the fabric fed between them.

A further object of the invention is to provide means for electrically heating the embossing rollers,—indicating means being supplied to show when the rollers are being heated and to determine the temperature of the rollers in order to provide sufficient heat for the different kinds or character of material to be embossed,—the construction being such that when a predetermined temperature is reached the heating elements of the respective rollers may be coupled together in series to insure a constant and uniform temperature without further attention from the operator.

A further object of the invention is to provide means for steaming the fabric and to introduce therewith glue or other "sizing" agent as the fabric is fed to the embossing rollers.

A further object of the invention consists in the details of construction and general arrangement of the machine and also the method of embossing or plaiting the fabric.

With the foregoing and other objects in view which will appear as the description proceeds the invention further resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed it being understood that changes may be made in the precise embodiment of the invention herein disclosed without departing from the spirit of the same.

In the drawings accompanying this specification:

Figure 1 is a plan view of the machine with parts broken away that a drawing of suitable proportions, to properly disclose the invention, may be shown upon the sheet.

Figure 2 is an end elevation of the machine including a diagrammatic view of the electric wiring connected with the heating elements of the respective embossing rollers.

Figure 3 is a front elevation of the machine with parts broken away.

Figure 4 is a horizontal sectional view taken on or about line 4—4 of Figure 2.

Figure 5 is a cross-sectional view taken on or about line 5—5 of Figure 1, the rollers intermeshing to emboss the fabric.

Figure 6 is a similar fragmentary view

showing the embossing rollers spaced apart to receive the fabric by the manual operation of the cam lever.

Referring now to the letters of reference placed upon the drawings:—

A, A, denote the slotted end frames of the machine provided with foot pieces A^1, A^1, to secure it to a suitable bench or table.

B, B, designate bars spaced apart for connecting the end frames of the machine together to provide a unitary structure.

C, C^1, indicate tubular shafts journaled in rectangular bearings D, D^1, supported in the slotted ways in the end frames A, A,—the bearings are provided with projecting ribs D^a extending into vertical grooves A^2 in the walls of the frame,—see Figure 4 of the drawings.

Keyed as at *e*, to the tubular shafts C, C^2, are a plurality of removable coordinating embossing rollers E, E^1, adapted to be forced into cooperating relation through the action of the springs F, F,—the tension of which may be regulated by the manually actuated screws F^a projecting through the tapped upper wall of the end frames.

Mounted upon the end of the tubular shaft C^1 is a gear G, in mesh with a driving pinion H, keyed to the driving shaft H^a, journaled in the end frames of the machine. H^b represents a driving pulley secured to the end of the driving shaft.

I, I, are bracket arms sleeved upon the shaft C, respectively provided at their ends with a stub shaft I^1 to receive a gear J, in mesh with gears K, K, at each end of the shaft C.

Extending downwardly from the bracket arms I, I, are depending legs I^2 adapted to be acted upon by the cams L mounted on the cam shaft L^1 journaled in the end frames and manually actuated by means of a lever L^2.

I^a, I^a, are bracket arms sleeved upon each end of the shaft C^1, respectively provided at their ends with stub shafts I^b, to receive the gears M, M, in mesh with gears K^a, K^a, keyed to the tubular shaft C^1, said gears M, M, being also in mesh with gears J, J, journaled on the stub shaft I^1 of the bracket arms I, previously described.

M^a, M^a, represent links sleeved upon the stub shafts I^1, I^1, of the respective bracket arms I, I^a, to maintain the gears J and M in intermeshing relation.

N, denotes an electrical heating unit supported upon a rod N^a, extending through the insulating blocks N^b, at each end of the tubular shafts.

P, P, designate brushes mounted in a suitable frame P^a, supported upon an insulating block P^b, attached to the frame of the machine. P^c indicates springs sleeved in the brush holders to maintain the brushes in contact with the terminals N^c and N^d of the heating units. P^d represent adjusting screws for regulating the tension of the springs. The brush holders are slotted at P^c for the passage of air that the heat of the machine may not take the tension out of the springs P^c.

As indicated in Figures 2 and 4, the brush supporting frame is also slotted as indicated at P^1, for the passage of bolts P^2, that the several parts may be adjusted as required.

Q denotes a knife switch pivoted at Q^a, adapted to close an electrical circuit between the terminals Q^b and Q^c, and the source of electrical energy. Q^d, designate pilot lights that the operator may be able to determine at any time disturbance in the electrical circuit.

A wiring system is indicated diagrammatically in Figure 2 whereby the heating units of the embossing rollers C and C^1 may be connected in multiple or in series,—no claim is made however for the peculiar method of wiring,—the arrangement following the well known system of coupling an electrical circuit either in multiple or series,—the circuit being such that when the switch is thrown in one direction the heating elements will be connected "in multiple," and when thrown in the opposite direction the heating elements will be connected "in series."

R, indicates a thermometer supported in a yoke-shaped chamber S, partially filled with mercury, adapted to straddle a collar mounted upon the shaft C. The chamber S rests upon the shaft C and is free to be raised or lowered with the shaft upon rocking the manually operated cam lever for separating the rollers.

By this construction the operator is enabled to determine at all times the temperature of the heating rollers and upon starting the machine the heating elements of the respective embossing rollers are connected together in multiple that they may be quickly heated, but upon reaching a predetermined temperature the switch is manually thrown to connect the heating elements together in series.

T represents a perforated pipe connected with a source of steam supply extending longitudinally through the machine and in the path of the fabric delivered to the embossing rollers that the latter may be thoroughly steamed before delivery to the rolls. In addition to steaming the fabric it may also be "sized" by a suitable "sizing" agent introduced along with the steam.

Having now indicated the several parts by reference letters the construction and operation of my apparatus will be readily understood.

Removable embossing rollers E and E^1 provided with arbitrary embossing surfaces are mounted upon the tubular shafts C and

C^1 and are heated by means of the electrical heating elements to a certain temperature predetermined by the requirements or the character of the fabric to be embossed. The fabric is then delivered to the embossing rollers,—the upper rollers being first spaced apart to receive the fabric by the operation of the lever L^2. Upon the fabric being delivered between the rollers the lever L^2, is shifted to its former position permitting the tubular shaft C to return to its initial position under the urge of the springs F.

It will be noted that while the rollers E and E^1 are withdrawn from their intermeshing relation to introduce the fabric, the gears K, J, M, and K^a, are never out of intermeshing relation therefore the embossing rollers will instantly and properly articulate upon being returned to their initial position.

Power having been applied to the driving shaft the embossing rollers will feed the fabric between the same, embossing their design upon the fabric. As the fabric is fed to the embossing rollers it will be steamed and "sized" upon passing over the perforated pipe.

Having thus described my invention what I claim is:

1. In a machine of the character described, a pair of shafts suitably journaled, a plurality of embossing discs or rollers keyed to the respective shafts and arranged in sets and removable to change the design, each set of discs or rollers having embossing surfaces adapted to articulate when rotated, and means for heating said embossing discs or rollers.

2. In a machine of the character described, a pair of rotatable shafts suitably journaled in the frame of the machine; a plurality of removable articulating embossing rollers arranged in sets and sleeved upon the respective shafts adapted to be reassembled upon the respective shafts to form different designs; means for heating said rollers, and means for rotating the same, whereby a fabric delivered between the rollers may be embossed.

3. In a machine of the character described, a pair of tubular shafts suitably journaled in the frame of the machine, a plurality of removable discs or rollers mounted upon the respective shafts and keyed thereto, the rollers of each pair of shafts having embossing surfaces adapted to articulate, means for separating the articulating rollers, whereby the fabric to be embossed may be introduced between the rollers, a train of gears connecting the respective rollers together, driving means for rotating said shafts, and means for permitting the gears of the rolls to move toward and from each other without unmeshing the gears of the train, whereby the embossing discs will articulate when returned to their initial position following the introduction of the fabric between the rollers.

4. In a machine of the character described, a pair of shafts suitably journaled, a plurality of embossing discs or rollers keyed to the respective shafts, each set of rollers having embossing surfaces adapted to articulate when rotated, a train of gears connecting the rollers in driving relation, the gears of the rolls being movable toward and from each other without unmeshing the gears of the train, means for separating the rollers, whereby a fabric may be introduced between the rollers for embossing, means for returning the rollers into articulating relation following the introduction of the fabric between the latter, and means for actuating said rollers.

5. In a device of the character described, a pair of tubular shafts suitably journaled, a plurality of embossing discs or rollers keyed to the respective shafts, each set provided with embossing surfaces adapted to articulate when rotated, electrical heating elements housed within the respective shafts, means whereby the electrical heating elements may be connected either in series or multiple, and means for steaming and sizing the fabric as it is delivered to the embossing rollers.

6. In a device of the character described, a pair of tubular shafts suitably journaled, a plurality of embossing rollers or discs keyed to the respective shafts, each set of rollers having embossing surfaces adapted to articulate when rotated, electrical heating units lodged in the shafts for heating said embossing rollers, means for adjusting one of the shafts with reference to the other, whereby the articulating rollers may be separated to receive the fabric to be embossed, a chamber adapted to receive a charge of mercury adapted to be supported on one of said shafts, a thermometer suitably supported extending into the mercury bath whereby a temperature reading of the embossing rollers may be obtained at any time regardless of whether the rollers are in articulating or disconnected relation.

7. In a machine of the character described; a pair of shafts journaled in the frame of the machine, one of said shafts being supported in journals adapted for adjustment, whereby the shafts may be spaced with reference to each other; a plurality of removable embossing discs or rollers keyed upon the respective shafts adapted for reassembling on said shafts, whereby different designs may be produced; electrical heating units lodged in the respective shafts for heating said rollers; a plurality of gears connecting the shafts together in driving relation adapted to permit the separation of the

rollers, the gears still maintaining their intermeshing relation when the rollers are separated, whereby the embossing rollers when returned to their initial position may articulate as before; collars having depending legs sleeved upon one of said shafts; a manually operated cam adapted to act upon the legs of said collars, whereby the embossing rollers mounted upon said shaft may be separated from the embossing rollers mounted upon the shaft beneath; a perforated pipe supported in the frame in the path of the fabric to be fed between the rollers; means for connecting said perforated pipe with a source of steam supply or sizing agent, whereby the fabric fed through the embossing rollers may be first steamed and sized.

8. In a machine of the character described, a pair of shafts suitably journaled, a plurality of removable articulating embossing discs or rollers keyed to the respective shafts, a train of gears connecting the shafts, whereby the embossing discs are rotated, means for separating the articulating embossing discs, whereby a fabric may be introduced between the embossing rollers and a toggle joint connection for maintaining the gears in mesh at all times while permitting the gears of the rolls to move toward and from each other, whereby the embossing rollers may be readily restored to articulating relation upon the delivery of the fabric between the rolls.

9. In a machine of the character described, a pair of tubular shafts suitably journaled, a plurality of detachable embossing discs or rollers keyed to the respective shafts, a train of gears adapted to rotate said shafts, collars sleeved upon one of said shafts having depending legs, a rock shaft fitted with cams adapted to act upon said depending legs, whereby the embossing rollers may be separated, means for actuating the rock shaft, and means for restoring the embossing rollers into articulating relation following the delivery of the fabric between the embossing rollers.

In testimony whereof, I sign this specification in the presence of two witnesses.

MAX K. GOLDEN.

Witnesses:
S. E. THOMAS,
R. V. COON.