

No. 842,891.

PATENTED FEB. 5, 1907.

J. KLEINWEFERS.
EMBOSSING MACHINE.
APPLICATION FILED AUG. 2, 1901.

Fig. 1.

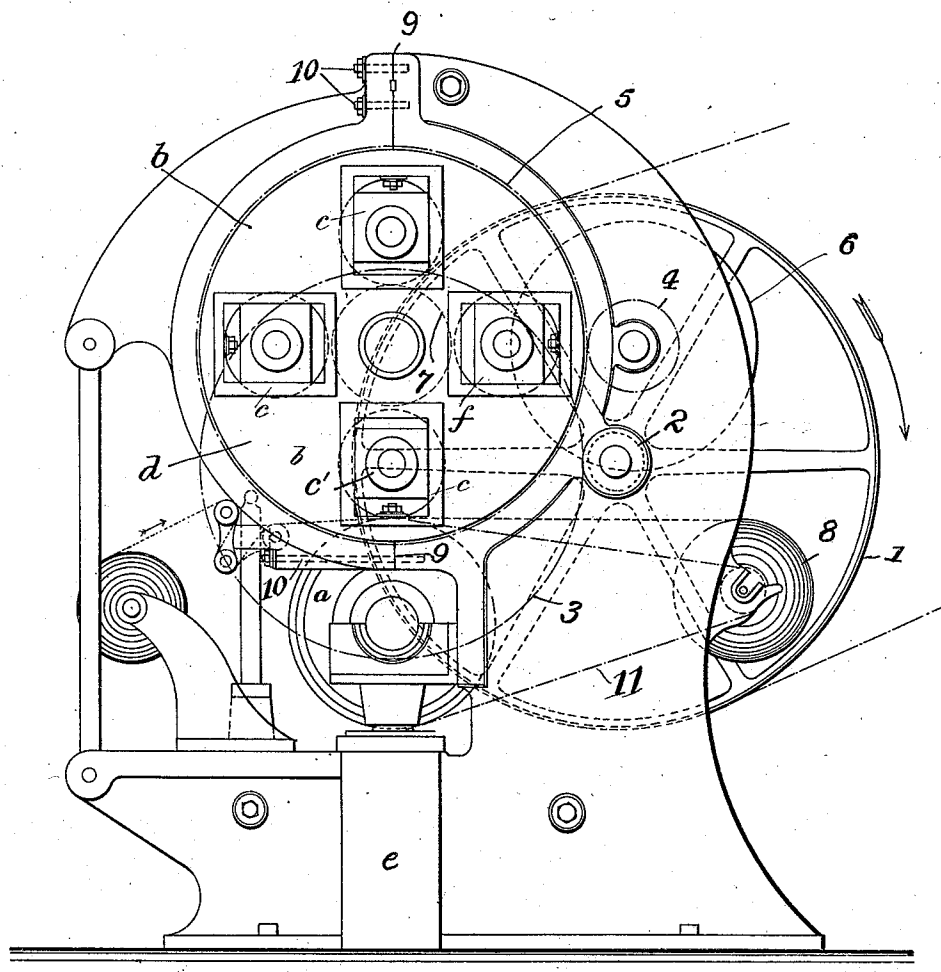
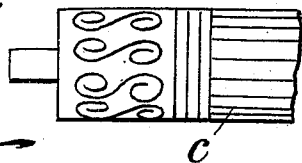


Fig. 2.



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Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHANNES KLEINWEFERS, OF CREFELD, GERMANY, ASSIGNOR TO JOH. KLEINWEFERS SÖHNE, OF CREFELD, GERMANY, A CORPORATION OF GERMANY.

EMBOSSING-MACHINE.

No. 842,891.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed August 2, 1901. Serial No. 70,691.

To all whom it may concern:

Be it known that I, JOHANNES KLEINWEFERS, manufacturer, a subject of the King of Prussia, German Emperor, residing at Crefeld, in the Kingdom of Prussia and German Empire, have invented certain new and useful Embossing-Machines, of which the following is a specification.

This invention has reference to calendering-machines which are so arranged and constructed as to produce impressions on both sides of the woven fabric or other article passed through them, the pattern being either the same on both sides of the fabric or either side may show a different pattern.

In the calendering-machines heretofore employed in order to produce varying effects upon the fabric it was necessary to remove the respective engraved rollers from the stack and to replace them by other rollers on which the new pattern was engraved. This operation was very tedious, and it entailed a considerable loss of time and frequent injury to the rollers. For producing impressions of patterns on both sides of the fabric so-called "double calenders" were used heretofore, consisting of two separate series of rollers by means of which the two sides of the fabric were treated in succession. Calendering-machines of this kind are, however, very expensive and complicated and allow at best only two rollers to operate without the necessity of exchanging them. These difficulties are avoided in my invention according to which there are combined with the calendering-machine a series of engraved rollers arranged in a separate rotatable frame, each of which may be easily made to act upon the fabric to be treated. By this means both sides of the fabric may be provided with different impressions or embossed effects.

In the accompanying drawings, Figure 1 is an end view of a calendering or embossing machine embodying my invention. Fig. 2 is a side view of a portion of one of the embossing-rollers, and Fig. 3 is a side view of a portion of the smooth roller.

The calendering-machine is especially distinguished by the fact that all the upper rollers, which include the engraved rollers, cooperate with one single bottom roller *a*. Above this bottom roller a special frame *b* is arranged in the standards carrying the calenders, the frame being rotatable and serving

for the journaling of the upper calender-rollers *c* and a roller *f* with a smooth surface, which rollers are so arranged in a circle between the side plates *d* of the frame *b* that by the rotation of the said journaling-frame the upper rollers may be made to engage in any desired succession with the bottom roller *a*, so as to produce any variety of treatment of the fabric.

By means of the apparatus just described I am not only enabled to treat both sides of the fabric in succession, but different patterns may also be produced on the same side of the fabric in case the rotatable frame is provided with the required number of differently-engraved rollers *c*.

Any well-known means may be employed for producing the necessary pressure in the kind of calendering-machines forming the subject-matter of this invention. For most practical purposes hydraulic pressure has been found to be preferable, and this arrangement is shown in the drawings, the hydraulic cylinder *e* being made to press upward the bottom roller *a* against the lowermost roller in the rotatable frame *d*, which in its turn presses against the central abutment-roller *f*.

By the employment of the kind of calenders just described any desired pattern of embossed or raised work may be produced. Thus the most delicate shading may be obtained or very thin and narrow furrows may be produced by employing several top rollers *c*. Very fine ribs or furrows in the direction of the weft are impressed upon the face of the fabric by one of these delicately-engraved rollers, and similar furrows are impressed upon the back of the fabric in the direction of the warp by the second roller, or the converse arrangement may be used. It is obvious that I may also arrange to impress furrows in the direction of the warp upon the face side of the fabric by suitably engraving the rollers. Other kinds of patterns and shading may also be produced. Thus I may so construct and arrange the rollers as to produce furrows running diagonally across the fabric. All this treatment would need three finely-engraved rollers. Another fourth roller *f* with smooth surface serves to smooth and prepare the bottom roller *a*, which is covered with cotton or compressed paper for the action of the roller *c* and to impart rotation thereto.

The mechanism for rotating the frame *b* for bringing any of its rollers into position and then driving such roller is as follows: On the shaft of the fast and loose driving-pulleys 1 is a toothed pinion 2, gearing with a toothed wheel 3, which is fitted with groove and feather upon the projecting journal end *c'* of the lowermost roller *c* or *f*. This is brought into correct position relatively to the roller *a* for this purpose before the wheel 3 is fitted upon it by means of a pinion 4, rotated by a hand-wheel 6 and gearing with a toothed ring 5 on the circular rotatable frame *b*.

The roller 8 upon which the calendered fabric is wound, passing from the rollers *a* and *c*, is driven by a small belt 11 from a moving part of the machine.

The main framing is divided at the points 9 9 for the introduction of the rotatable frame *b*, the parts being retained in position by bolts 10 or similar holding devices.

What I claim, and desire to secure by Letters Patent of the United States, is—

In a calendering-machine for producing impressed or embossed patterns on one or both sides of woven fabrics and the like, the combination with a single roller mounted in stationary bearings, of a rotatable frame provided at its periphery with a plurality of round rollers, one of which rollers has a smooth surface while the other rollers are engraved, and means for rotating said frame to bring any one of the rollers carried thereby into operative relation with said stationary roller, substantially as and for the purpose described.

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

JOH. KLEINWEFERS.

Witnesses:

FR. PANNES,

RICHARD PANNES.