J. D. TOMLINSON.

MACHINE USED IN THE PRODUCTION OF SUEDE COTTON CLOTH.

APPLICATION FILED JULY 1, 1915.

1,218,131.

Patented Mar. 6, 1917.

3 SHEETS—SHEET 1.

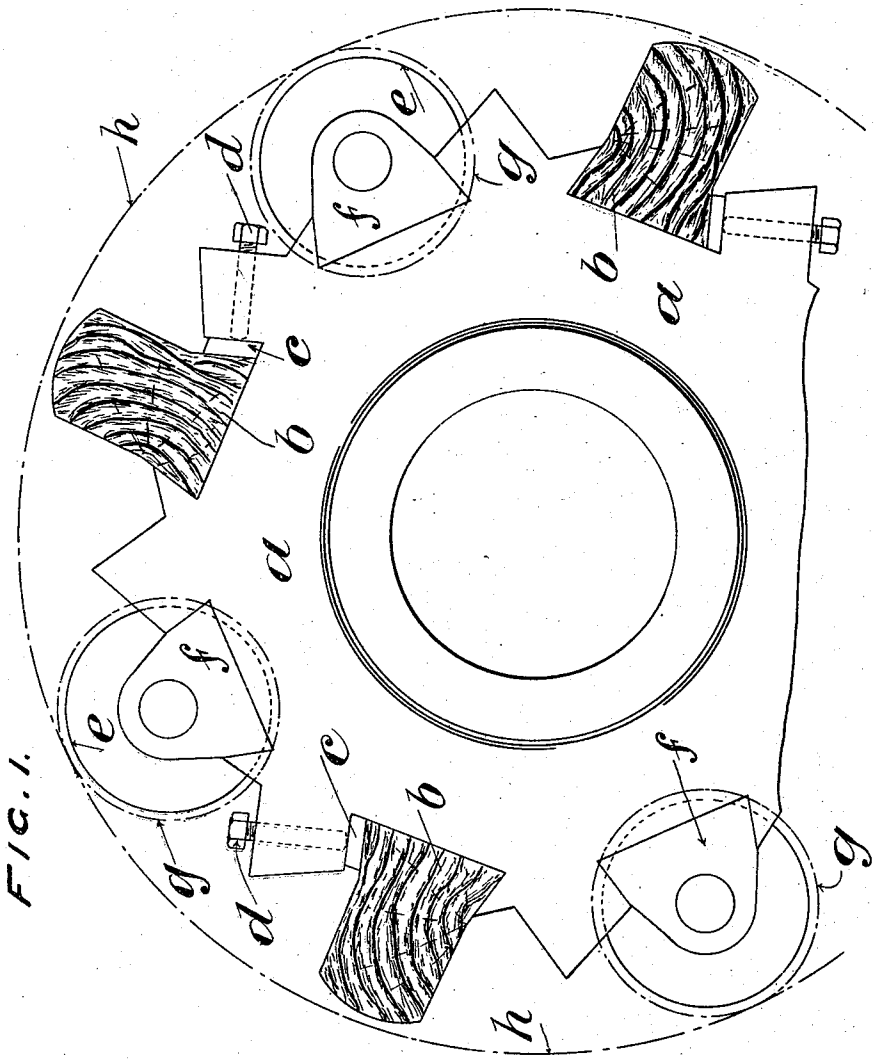


FIG. 1.

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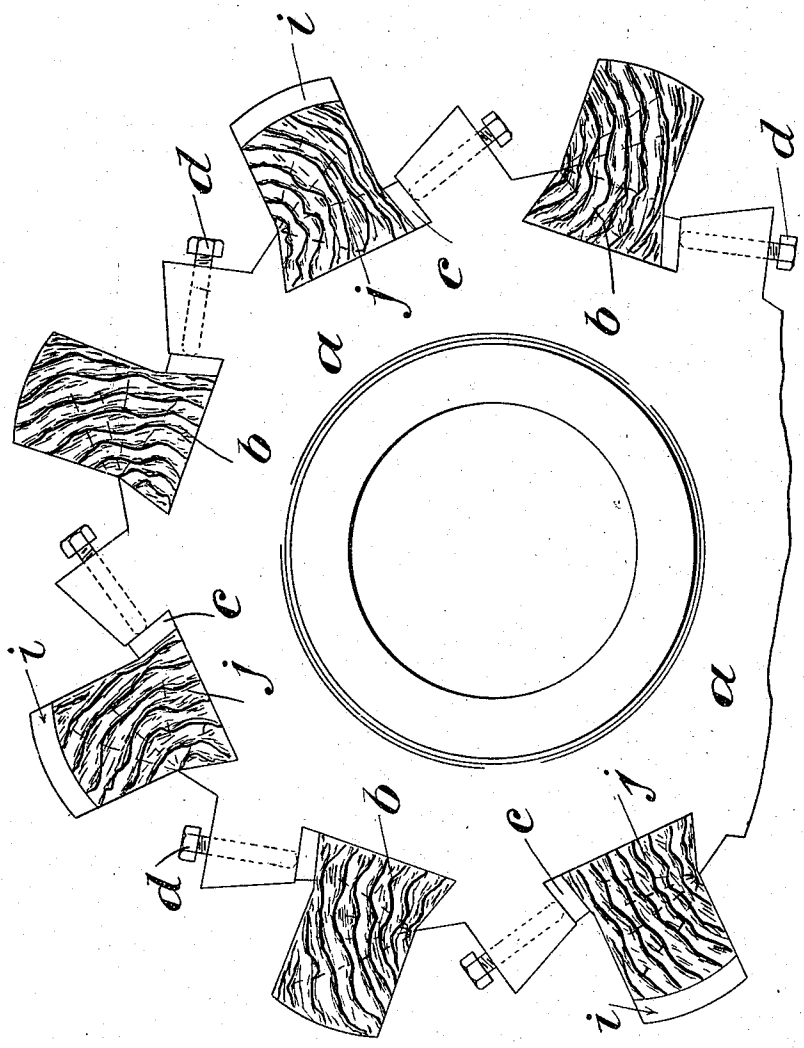
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3 SHEETS—SHEET 2.

FIG. 2.



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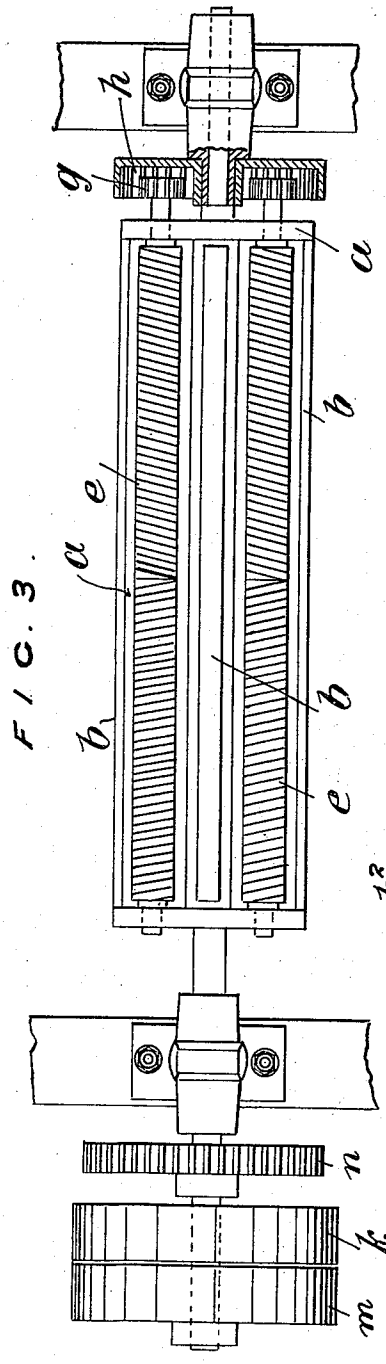


FIG. 3.

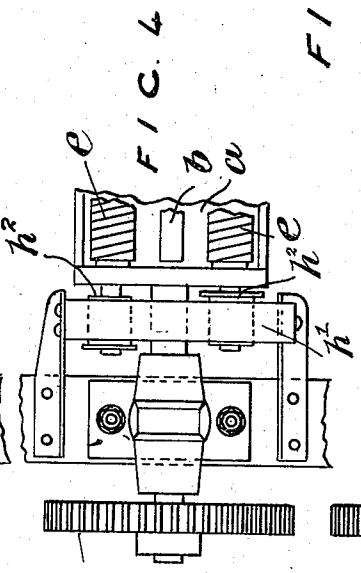


FIG. 4

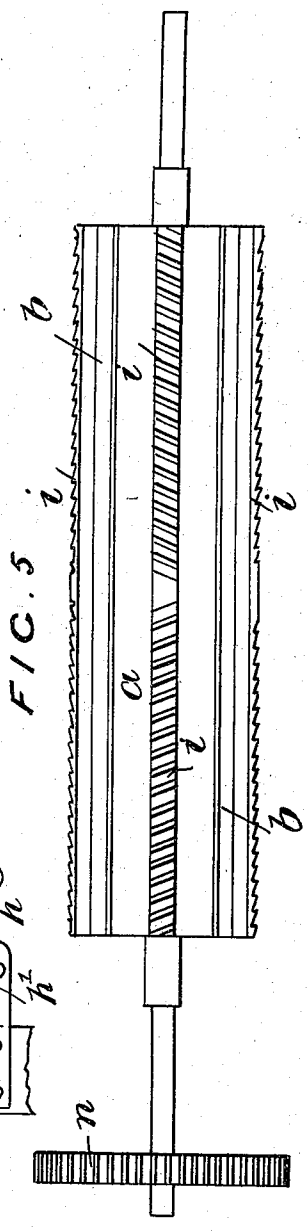


FIG. 5

Inventor

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UNITED STATES PATENT OFFICE.

JOHN DANIA TOMLINSON, OF ROCHDALE, ENGLAND.

MACHINE USED IN THE PRODUCTION OF SUEDE COTTON CLOTH.

1,218,131. Specification of Letters Patent. Patented Mar. 6, 1917.

Application filed July 1, 1915. Serial No. 37,448.

To all whom it may concern:

Be it known that I, JOHN DANIA TOMLINSON, a subject of the King of Great Britain and Ireland, residing at Soho Works, Rochdale, in the county of Lancaster, England, machine maker, have invented new and useful Improvements in Machines Used in the Production of Suede Cotton Cloth, of which the following is a specification.

In the production of "Suede" finish cloth to imitate "Suede" leather, a fabric knitted from very fine Egyptian cotton is used, and one side of this fabric is subjected to the action of carborundum grinding cylinders or rollers to produce the imitation "Suede" effect upon the surface of the fabric.

The machine of known type having such carborundum grinding cylinders is provided with several of such grinding cylinders which revolve alternately in opposite directions to each other, such cylinders consisting of rollers provided with lags of wood running lengthwise on the periphery of the roller and spaced apart, the carborundum grinding surface being provided on the projecting faces of the wooden lags. The fabric treated is very light, soft and elastic, and a difficulty in the process lies in keeping it truly straight and stretched, because if a part gets either folded over or stands above the surface, parts of the fabric are ground away, resulting in a serious flaw. To avoid this defect I have already applied a scroll expanding roller in such machines to straighten out the fabric in juxtaposition to each grinding cylinder before it reaches the cylinder, but the fabric has still a tendency to curl over at the selvages or stand up in parts when being acted upon by the grinding cylinders. My invention consists essentially in the provision of means whereby a straightening action on the fabric can be exerted simultaneously with the grinding. This I carry out in practice by providing the spaces on the periphery of the grinding roller between the lags having the carborundum abrading surfaces, each with a scroll or other expanding roller or expanding device of a convenient type, to act upon the fabric as it is passing over the roller so that as the fabric leaves one grinding lag it is maintained expanded by the intermediate expanding device and so presented to the action of the next grinding lag.

In the accompanying drawings Figure 1 indicates an end view of part of one of the grinding cylinders of the type of machine referred to with my invention applied. Fig. 2 is a similar view showing a modification. Fig. 3, is a plan view of one of the grinding cylinders, showing the drive for the same, and also the drive for the scroll expanding rollers.

Fig. 4, shows in plan view a modified means for driving the expanding rollers, and,

Fig. 5, shows in plan view the modification of the expanding device which is illustrated in end view in Fig. 2.

Referring to Fig. 1 the roller *a* of the usual type, carries the lags *b* dovetailed into the roller and secured by packing pieces *c* set up by pinching screws *d*. The expanding device shown in this figure consists of expanding rollers which are driven on their axes in a direction contrary to the travel of the cloth.

The rotary expanders consist of expanding rolls *e* mounted to revolve in bearings *f* provided by the roller *a* the rolls having right and left hand scrolls formed thereon. The expansion rolls *e* are mounted in the spaces between each of the lags *b*.

The cloth is directed partly around the periphery of the grinding roller in the usual manner and while being acted upon by the grinding surface of the lags *b* it is also in contact with the scroll expanding rollers *e* which serve to maintain the fabric in an even sheet. Any convenient means may be used to effect the driving of the scroll expanding rollers. For instance they may each carry a toothed gear wheel *g* engaging with a fixed internal toothed wheel *h* as indicated in Figs. 1 and 3, the gearing being arranged to obtain the desired direction of rotation of the expanding rollers of each grinding cylinder.

Instead of toothed gear, driving bands *h'* engaging with pulleys h^2 on the expanding rollers may be used as shown in Fig. 4 and it may be arranged to drive the expanding rollers at a speed faster than could be obtained by the gear wheels meshing with a stationary gear wheel or the like.

Instead of using scroll expanding rollers as described any convenient form of expanding or stretching means or devices may be used. Such an alternative device is shown in Fig. 2 of the drawings and in plan view in Fig. 5 in which expansion bars *i* are secured to lags *j* dovetailed into the roller *a*

or conveniently secured thereto. The expansion bars *i* are formed on their surfaces with right and left hand grooves in known manner to exert a stretching action upon the cloth.

The first of the series of rolls is driven by a fast belt pulley *k* on the axis of the roll, a loose pulley *m* being also provided for stopping the machine, as shown in Figs. 3, 4, and 5. These gear wheels mesh with each other so that the series of rolls are revolving alternately in opposite directions.

I declare that what I claim is:

1. In a machine for producing a "Suede" effect upon the surfaces of fabric, an abrading roll having relatively spaced stationary lags provided with abrading surfaces, in combination with cloth expanding means carried by said roll and disposed in the spaces between the abrading lags.

2. In a machine for producing a "Suede" effect upon the surfaces of fabric, an abrading roll having relatively spaced stationary lags provided with abrading surfaces, in combination with cloth expanding members carried by the said roll and disposed in the spaces between the abrading lags, each expanding member being provided exteriorly with spiral corrugations which are arranged to wind in opposite directions from an intermediate point of said member.

3. In a machine for producing a "Suede" effect upon the surfaces of fabric, an abrading roll having relatively spaced stationary lags provided with abrading surfaces, in combination with rotatable cloth expanding members carried by the said roll and disposed in the spaces between the abrading lags, each expanding member being provided exteriorly with spiral corrugations which are arranged to wind in opposite directions from an intermediate point on said member.

4. In a machine for producing a "Suede" effect upon the surfaces of fabric, an abrading roll having relatively spaced stationary lags provided with abrading surfaces, in combination with rotatable cloth expanding members carried by the said roll and disposed in the spaces between the abrading lags, each expanding member being provided exteriorly with spiral corrugations which are arranged to wind in opposite directions from an intermediate point on said member, and means for rotating the said expanding members during operation of the abrading roll.

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

JOHN DANIA TOMLINSON.

Witnesses:

JOSHUA ENTWISLE,

ALFRED STUART YATES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."