No. 856,885. PATENTED JUNE 11, 1907.

C. F. KÜBLER.

APPARATUS FOR APPLYING FLUIDS TO FABRICS.

APPLICATION FILED SEPT. 18, 1906.

Fig. 1.

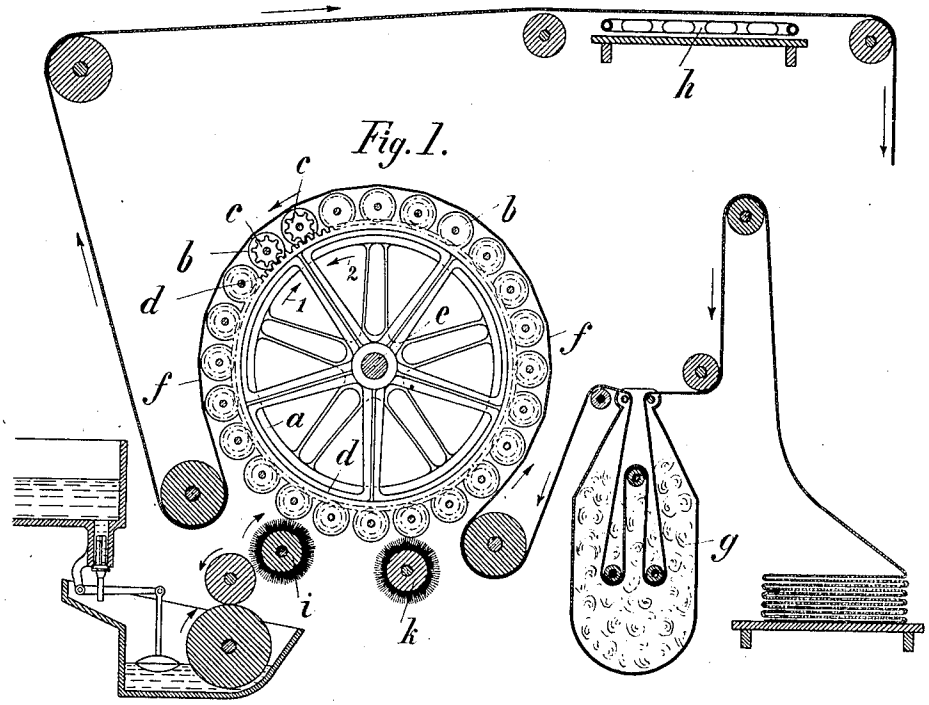


Fig. 2.



Fig. 3.

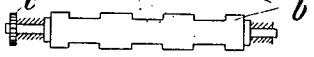


Fig. 4.

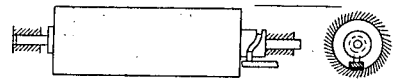


Fig. 5.

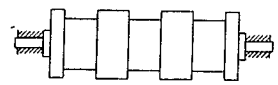


Fig. 6.

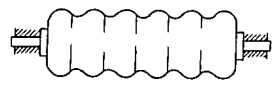
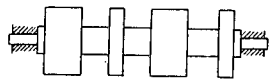


Fig. 7.



Witnesses.

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APPARATUS FOR APPLYING FLUIDS TO FABRICS.

No. 856,885. Specification of Letters Patent. Patented June 11, 1907.

Application filed September 18, 1906. Serial No. 335,136.

To all whom it may concern:

Be it known that I, CARL F. KÜBLER, a subject of the Emperor of Germany, residing at Düsseldorf, in the Province of Rhineland and Kingdom of Prussia, Germany, have invented a certain new and useful Improvement in Apparatus for Applying Fluids to Fabrics or other Surfaces, of which the following is a specification.

The present invention refers to apparatus for applying fluids such as solutions of dyes, colors, mordants, etching and bleaching-fluids by means of rolls, which distribute the fluid fairly even over the whole surface.

The object of this invention is to improve these apparatus in such a way that the fluid or liquor is applied so regularly and evenly as appeared impossible up till now. For this reason a number of rolls, which are driven at the same speed apply each on every part of their surface the same amount of color or other liquid to every part of the fabric to be treated.

Figure 1 of the annexed drawing shows an apparatus constructed according to this invention in sectional elevation and Fig. 2–7 show a number of rolls which can be used in the apparatus.

The rolls *b*, which serve for applying liquid such as color to the fabric *f* are journaled on the surface of a drum or cylindrical frame and are each provided with a pinion *c*, gearing with a toothed wheel, *d*, which is loose on the shaft *e* of the cylindrical frame and can be rotated independent of the frame. While a fabric is laid about the circular row of rolls, the latter move about the center line of the frame and are rotated about their own axes by the wheel *d* and pinions *c*. By the rotary motion of the drum or frame the rolls pass a color- or liquid- feeding device and thus take up color or other liquid and give it off later on to all parts of the fabric with which they contact perfectly evenly distributed, in consequence of the even speed by which they rotate about their own axes. Since each spot of the fabric comes across the same number of roll-sections, which always give off the same amount of color each time, the liquid may be applied to the rolls in extremely thin layers, by means of which the evenness and regularity of the distribution of color on the fabric is still the greater. It is not possible to obtain a similar evenness of distribution of color if instead of tooth gearing, belting is employed to drive the rolls, since by such driving system slips are unavoidable, which naturally would destroy the equalness of speed of the rolls. Therefore in my apparatus I make use of tooth-gearing by which the rolls are driven synchronously, so as to form equal members of a rolling body and practically they form one complete large roll. They can be rotated with such a speed about their axes, that a certain length of the fabric is operated upon by an equal, a greater or a smaller length of each surface of rolls.

If desired the fabric or other stuff may be, before the color, dye or other liquid is applied thereto, laid through a steamchamber *g*, in which it may be steamed, so as to enable the liquor to better adhere to the surface. The dyed or otherwise treated fabric may be also guided across a drying apparatus *h*.

The rolls *b* for applying the liquid to the fabric may have any desired surface, thus they may be engraved Fig. 2 or profiled, Fig. 3. The surface may be smooth or provided with a suitable covering, such as cloth, plush, felt, leather, card-clothing, and so on.

Various kinds of means for applying the color or like to the rolls may be used. For instance I prefer to use brush-rolls *i* and *k*, which also may be profiled in any desired way as is seen in Figs. 4 to 7. Also strewing means such as sprinkling nozzles may be employed for feeding the rolls with the color or the like. If desired the cylindrical frame *a* or the rolls *b* or both or the brushes *i*, *k* may be made partially or wholly movable in axial direction.

I claim:

In an apparatus for applying a fluid to a fabric, the combination of a rotary cylindrical frame, a shaft therefor, a plurality of rolls journaled in the frame at equal distance from its axis, a gear on each roll, a gear rotatable on the shaft in mesh with the aforesaid gears and adapted to rotate the rolls independent of the frame, color-applying devices mounted in the path of the rolls, and means to hold the fabric to be printed in contact with the rolls.

CARL F. KÜBLER.

Witnesses:
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