

(No Model.)

2 Sheets—Sheet 1.

G. I. FELDON.

APPARATUS FOR COATING PAPER OR OTHER FABRICS.

No. 470,115.

Patented Mar. 1, 1892.

FIG: 1.

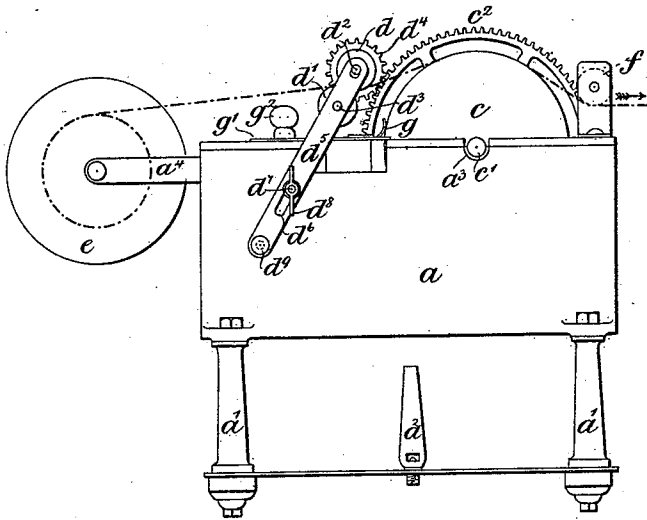
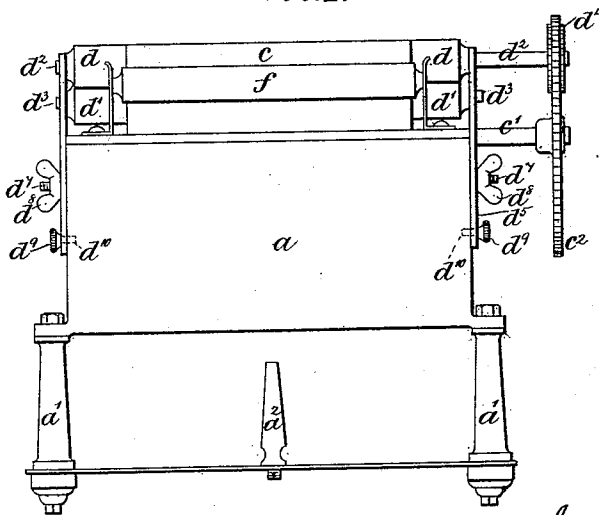


FIG:2.



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Inventor
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

GEORGE ISAAC FELDON, OF LAMBETH, ENGLAND.

APPARATUS FOR COATING PAPER OR OTHER FABRICS.

SPECIFICATION forming part of Letters Patent No. 470,115, dated March 1, 1892.

Application filed May 1, 1889. Serial No. 309,250. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ISAAC FELDON, drapers'-box manufacturer, a subject of the Queen of Great Britain, residing at Upper Marsh, Lambeth, in the county of Surrey, England, have invented new and useful Improvements in Machinery or Apparatus for Coating Paper or other Fabric with Glue, Gum, Paste, or other Fluid or Semi-Fluid Material, of which the following is a specification.

The object of my invention is to construct a simple apparatus by the aid of which fluid or semi-fluid matter—such as gum, glue, or paste—may be expeditiously and economically applied to the surface of sheets or continuous lengths of paper or other fabric. For this purpose I employ a drum or cylinder fixed upon a shaft mounted with capability of revolving in suitable bearings, and I immerse the under side of the periphery of this drum or cylinder in a bath of the coating material. The fabric to be coated is drawn by hand or by any suitable motor (not shown) across the drum or cylinder from between a pair of nipping or tension rollers, one or both of which may, if desired, be covered with india-rubber or other suitable material, although I find in practice that such rollers obtain a proper grip of the fabric without any such covering, and one or both of these nipping or tension rollers is or are geared with the shaft of the drum or cylinder, thus giving motion thereto in the direction of travel of the paper. These nipping or tension rollers are, preferably, driven by the fabric passing between them, the necessary nip being obtained preferably by the simple weight of the upper roller, which is mounted in slotted bearings for that purpose. The surplus coating material is removed from the drum or cylinder by means of a brush or doctor.

In order that the said invention may be more clearly understood and readily carried into effect, I will proceed, aided by the accompanying drawings, to more fully describe the same.

In the drawings, Figure 1 is a side elevation of a machine constructed according to my invention. Fig. 2 is an end elevation. Fig. 3 is a longitudinal section, and Fig. 4 is a plan thereof.

In the several figures like parts are indicated by similar letters of reference.

a represents the body or frame of the machine, *a'* represents the legs thereof, and *a²* represents a Bunsen burner.

The body *a* of the machine is constructed to contain water, which is heated by means of the burner *a²*, and thus forms a water bath, or any other heating means might be employed for that purpose.

Within the body *a* of the machine is arranged a bath *b*, which contains the coating material, and such material is kept at the desired temperature by means of the water bath or jacket. A drum or cylinder *c* is fixed upon a shaft *c'*, which is mounted with capability of revolving in open-topped or other suitable bearings *a³*, formed in the frame or body *a*, and the under side of the periphery of the drum or cylinder *c* is immersed to the desired depth in the coating material contained within the bath *b*.

The fabric to be coated, which is indicated by a dotted line, is first wound upon a reel *e*, supported by brackets *a⁴* from the body *a*, and the fabric is drawn from such reel *e* by any suitable means between a pair of nipping or tension rollers *d d'*, thence across the drum or cylinder *c* and under a guide-roller *f*, whence it is conveyed away and employed in any suitable manner. The nipping or tension rollers *d d'* are fixed upon shafts or axes *d² d³*, mounted with capability of revolving in bearings formed in arms *d⁵*, and such arms are formed with slots *d⁶* therein, through which pass studs *d⁷*, at one end fixed to the body *a* and at the other end screw-threaded to receive fly-nuts *d⁸*, and said arms *d⁵* at their ends are furnished with set-screws *d⁹*, which take into recesses *d¹⁰*, formed in the body *a*, by which means the arms *d⁵*, and consequently the nipping or tension rollers *d d'*, may be fixed in any desired position with relation to the coating drum or cylinder *c*, or turned back out of the way to enable access to be had to the doctor *g*, hereinafter more fully referred to.

One or both of the nipping or tension rollers *d d'* may, if desired, be covered with india-rubber or other suitable material, although I have found in practice that such roll-

ers obtain a proper grip of the fabric without any such covering, and the one d of these nipping or tension rollers is, by a toothed wheel d^4 , fixed upon the shaft d^2 and engaging a toothed wheel c^2 fixed upon the shaft c' of the drum or cylinder c , geared with such drum or cylinder, thus as the fabric is drawn forward giving motion thereto in the direction of travel of the fabric under treatment, and, if desired, both of the nipping or tension rollers d d' may be geared together, so that they both impart a positive motion to the drum or cylinder c .

The nipping or tension rollers d d' are driven by frictional contact with the fabric passing between them, and the necessary nip is obtained, preferably, by the simple weight of the upper roller d , or the weight of this roller may be increased by loading it with heavy metal, if desired. The bearings of the shaft or axis d^2 of the nipping or tension roller d are slightly elongated or slotted, in order to allow such roller to rest upon the fabric under treatment.

The surplus coating material is removed from the drum or cylinder c by means of an adjustable doctor g , formed of india-rubber or other suitable material, or it might be a brush fixed to plates g' , slotted to receive set-screws g^2 , screwing into the body or frame a .

The action of the apparatus is as follows: The fabric is drawn from the reel e between the nipping or tension rollers d d' and across the drum or cylinder c , thus giving motion to the nipping or tension rollers and through the toothed wheels d^4 and c^2 to the drum or cylinder c . The drum or cylinder c in its revolution takes up a film of coating material from the bath b , the surplus thereof being removed by the doctor g , and the drum or cylinder c continues to revolve, bringing the reduced film of coating material into contact with the fabric, which is traveling in the direction of the revolution of the drum or cylinder, thus evenly and efficiently covering the surface of the fabric with the coating material.

I am aware that the coating of fabrics—such as paper—with fluid or semi-fluid material by passing the fabric over a drum or cylinder revolving within a bath containing such material was known prior to the date of my present invention, and I do not claim, generally, mechanism or apparatus of that nature.

Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In machinery or apparatus for coating paper or other fabric with fluid or semi-fluid material in which the desired object is effected by passing the fabric over a drum or cylinder free to revolve and dipping into a bath containing the said material, the combination of the drum or cylinder, a pair of nipping or tension rollers, one being supported adjustably upon the other and being geared with the drum or cylinder, and adjustable arms in which said rollers are mounted, substantially as shown and described, and for the purpose stated.

2. In machinery or apparatus for coating paper or other fabric with fluid or semi-fluid material, a bath b to contain the coating material, a drum or cylinder c , adapted to revolve in such material and convey it to the fabric, a doctor g to remove the surplus material, and nipping or tension rollers d d' , mounted in adjustable arms d^5 and pressed together by the weight of the upper one d and connected with the drum or cylinder c by gearing, such as d^4 c^2 , thus giving motion by the forward movement of the fabric to such drum or cylinder c , all in manner substantially as herein shown and described, and for the purpose stated.

3. In machinery or apparatus for coating paper or other fabric with fluid or semi-fluid material, a body or frame a , adapted to contain water, a Bunsen burner or other source of heat a^2 , a bath b to contain the coating material, a drum or cylinder c , adapted to revolve in such material and convey it to the fabric, a doctor g to remove the surplus material, a guide-roller f to hold the fabric in contact with the cylinder c , and nipping or tension rollers d d' , mounted on adjustable arms d^5 and pressed together by the weight of the upper one d and connected with the drum or cylinder c by gearing, such as d^4 c^2 , thus giving motion by the forward movement of the fabric to such drum or cylinder c , all in manner substantially as herein shown and described, and for the purpose stated.

GEORGE ISAAC FELDON.

Witnesses:

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