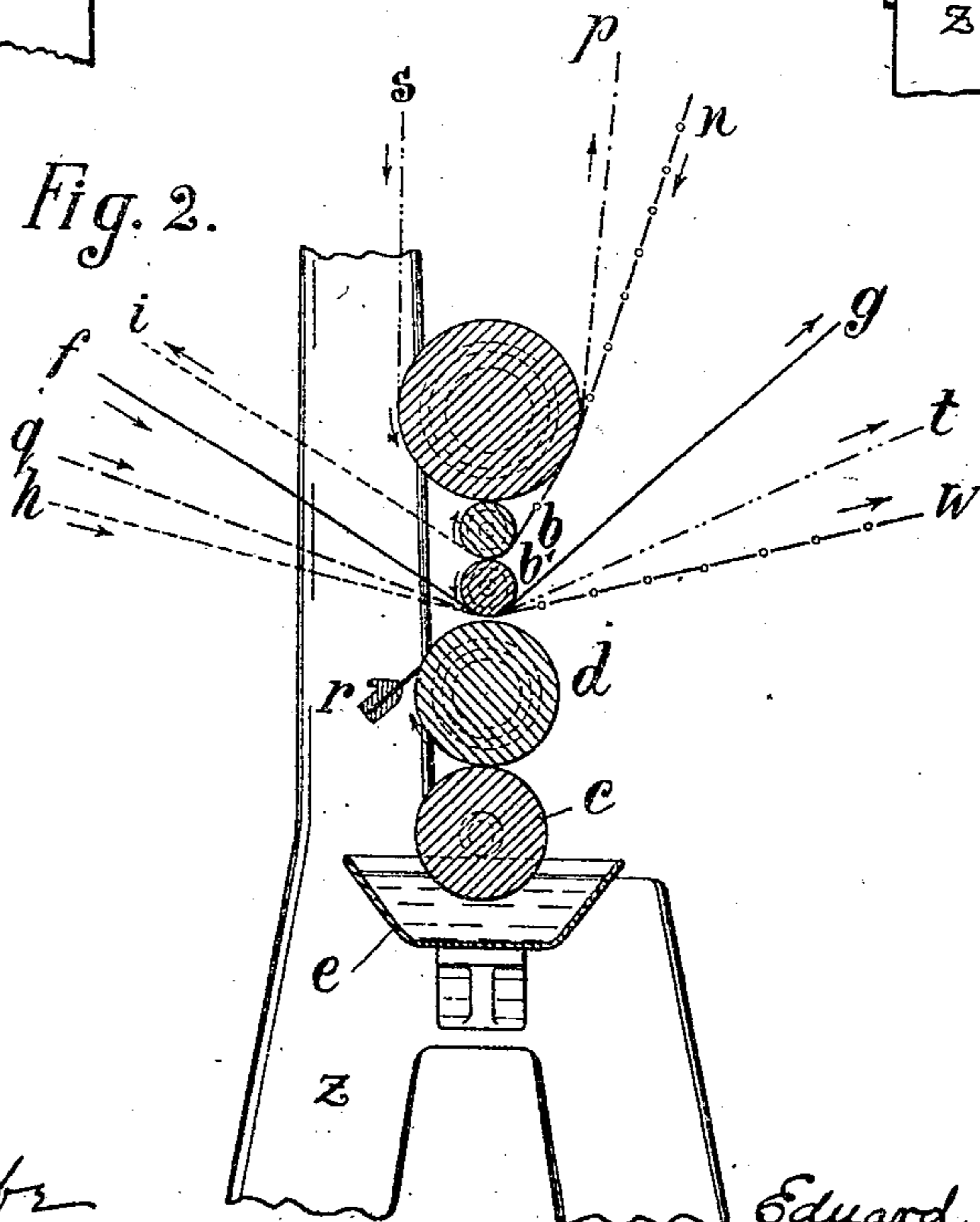
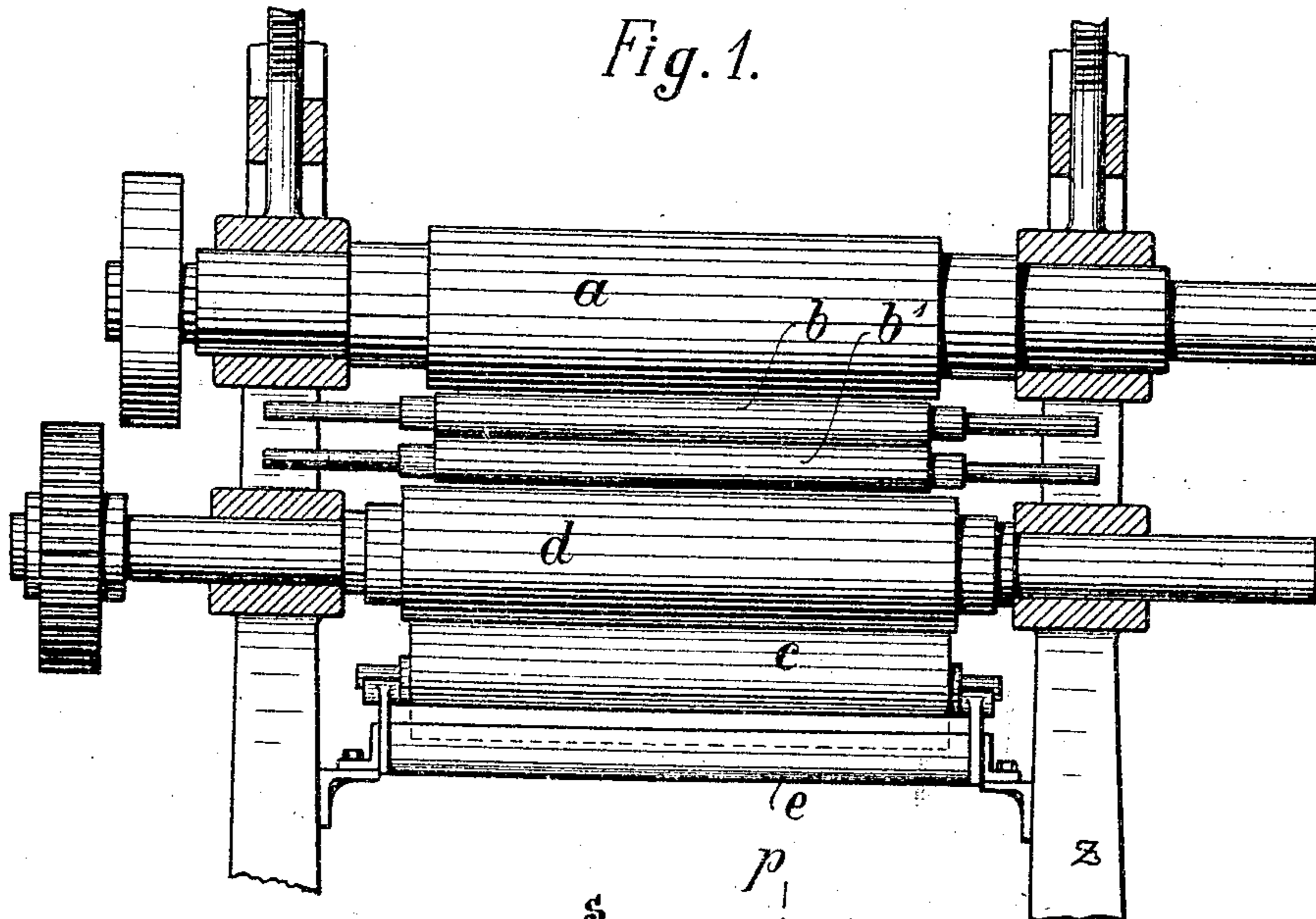


No. 856,079.

PATENTED JUNE 4, 1907.

E. MERTENS.
ROTARY PRINTING MACHINE.
APPLICATION FILED JAN. 26, 1907.



WITNESSES
Walter Ebb
L. H. Grote

INVENTOR
Eduard Mertens
BY
Hansen and Hanson

ATTORNEYS

UNITED STATES PATENT OFFICE.

EDUARD MERTENS, OF GROSS-LICHTERFELDE, NEAR BERLIN, GERMANY.

ROTARY PRINTING-MACHINE.

No. 856,079.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed January 26, 1907. Serial No. 354,202.

To all whom it may concern:

Be it known that I, EDUARD MERTENS, a subject of the King of Prussia, residing at and whose post-office address is Gross-Lichterfelde, near Berlin, 36 Jägerstrasse, Prussia, Germany, have invented certain new and useful Improvements in Rotary Printing-Machines.

The present invention relates to rotary printing machines.

In order to completely take up the color from the engraved surface of the printing cylinders customarily used in rotary printing machines by which designs or patterns of desired sort are printed upon calicoes, wall papers, the paper, textile fabric, or the like, which is to be printed is pressed as far as possible into the depressions of the engraved surface. For this purpose soft strips of cloth running with the paper or the like through the machine or a pliant resilient covering on the press-roll which carries and drives the paper is generally used. These methods however are attended with great disadvantages. Strips of cloth with a seam leave the mark of the seam upon the finished product when more delicate fabrics are printed. Seamless strips of cloth are also impractical for a similar reason since the structure of the cloth is apparent upon the finished product if fine goods are being printed. Covering the cloth with caoutchouc or the like to give it a smooth surface is also unsatisfactory as well as expensive, because when the coat is thin it soon assumes the structure of the cloth, and when it is heavy it is easily injured by folds or otherwise and the injuries are conspicuous upon the final product after the printing. Covering the press-roll with cloth, etc., is attended with disadvantages in a still higher degree. Where a covering of caoutchouc for the cloth is used the rollers must be frequently withdrawn for replenishing or smoothing out, whereby much time is lost and expense incurred. Furthermore, the elastic material must be turned in a lathe or by means of special devices on the machine itself, which adds to the expense and inconvenience of this style of apparatus.

These defects are remedied by my machine in which the material which is to be printed is not carried directly by the press-roll as is usual, but by one or more secondary yielding rollers, i. e. rollers provided with a resilient cover, which are inserted between the press-roll and the cylinder. The follow-

ing important advantages are thereby secured: The roller provided with the resilient cover, which is preferably of smaller diameter than the printing cylinder and the press-roll, may be readily exchanged for one of a different width where goods of a different width are to be printed. It may be easily removed and repaired when injured. The layer of supple material, for example caoutchouc, which is relatively very thick, affords a very elastic pressure and permits of a deeper depression of the paper or fabric to be printed, into the engraved surface of the printing cylinder. Again, the rollers being provided with a resilient surface afford a much greater protection against injuries to the fabric printed than the coverings of press-rolls and strips of cloth which are in general use, because of the thickness of the resilient layer, and its greater elasticity. When printing quickly, it is not only a narrow line across the paper etc., which contacts with the printing cylinder, but the resilient surface of the roller is flattened against the printing cylinder and thereby presses the paper against a broader segment of the cylinder, and thereby insures the taking up of the color from its engraved surface.

In order to increase the pressure and to diminish the consumption of power, instead of one secondary roller with a resilient cover, two or more of such rollers may be inserted between the printing cylinder and the press-roll.

In order that the invention may be more clearly understood, reference is made to the accompanying drawing in which one form of a machine of this kind is represented in its essential parts by way of example, and in which;

Figure 1 is a front elevation, and Fig. 2 is a vertical section through the machine.

Similar letters of reference refer to similar parts in both views.

The printing cylinder *d* which is etched or engraved in the customary manner is journaled in a suitable frame *z*, and is adapted to be rotated in a suitable manner in the direction of the arrow shown in Fig. 2. The color-doctor *r* lies against the printing cylinder and removes the superfluous color therefrom. The roller *c* for applying the color is arranged under the printing cylinder *d* and dips into the color trough *e* and transfers the color to the cylinder. Above the cylinder *d* are situated two secondary rollers *b*, *b*¹, which are

each provided with a resilient cover and which are free to move in a vertical direction; they are pressed against the printing cylinder or against one another by the upper main
 5 press-roll *a* which, in the printing machines customarily used is provided with a resilient covering and presses the material to be printed against the printing cylinder either directly or indirectly with a running strip of
 10 cloth interposed.

The material which is to be printed may be fed to the printing cylinder in various ways. It may, for example, be passed from *f* between the printing cylinder and the lower secondary roller *b*¹ and then conducted further
 15 to *g*. Secondly, the material may be passed from *n* between the two secondary rollers, around the lower roller *b*¹ and through between this and the cylinder *d* to *w*. Thirdly,
 20 the material may be guided so that it runs from *q* between the cylinder *d* and the bottom roller *b*¹ around this, between the two secondary rollers, around the upper roller *b*, through between the latter and the press-roll
 25 and around the latter to *p*. A fourth way is such that the material runs from *h* between the cylinder *d* and the lower roller *b*¹, around the latter and through between the two secondary rollers to *i*. Fifthly, the material
 30 may be passed from *s* between the press-roll *a* and the upper roller *b*, around the latter, through between the two secondary rollers,

around the lower roller *b*¹ and through between this and the cylinder *t*.

I claim as my invention:

1. In a rotary printing machine, the combination of a frame, a rotary printing cylinder mounted thereon, a rotary press-roll, and a secondary rotary resilient press roller of smaller diameter intermediate said printing
 40 cylinder and said press-roll, for the purpose specified.

2. In a rotary printing machine, the combination of a frame, a rotary printing cylinder mounted thereon, a rotary press-roll, and
 45 a secondary rotary press roller of smaller diameter provided with a resilient cover intermediate said printing cylinder and said press-roll, for the purpose specified.

3. In a rotary printing machine, the combination of a frame, a rotary printing cylinder mounted thereon, a rotary press-roll, and
 50 a plurality of secondary rotary press rollers of smaller diameter intermediate said printing cylinder and said press-roll, for the purpose specified.

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

EDUARD MERTENS.

Witnesses:

JOHANNES HEIN,
 WOLDEMAR HAUPT.