

(No Model.)

T. J. MARTIN.
MACHINE FOR PRINTING FABRICS.

No. 488,897.

Patented Dec. 27, 1892.

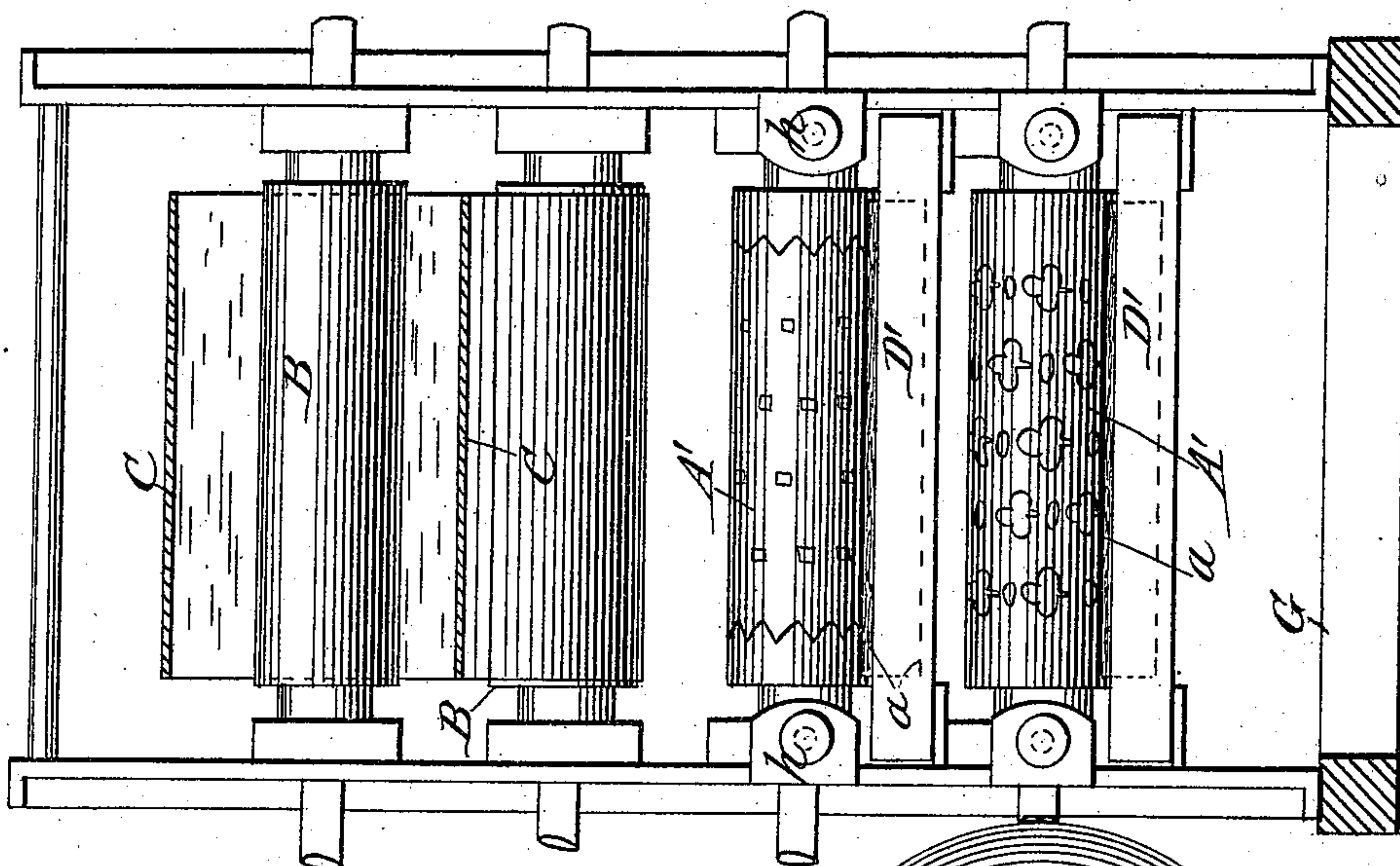


Fig. 2.

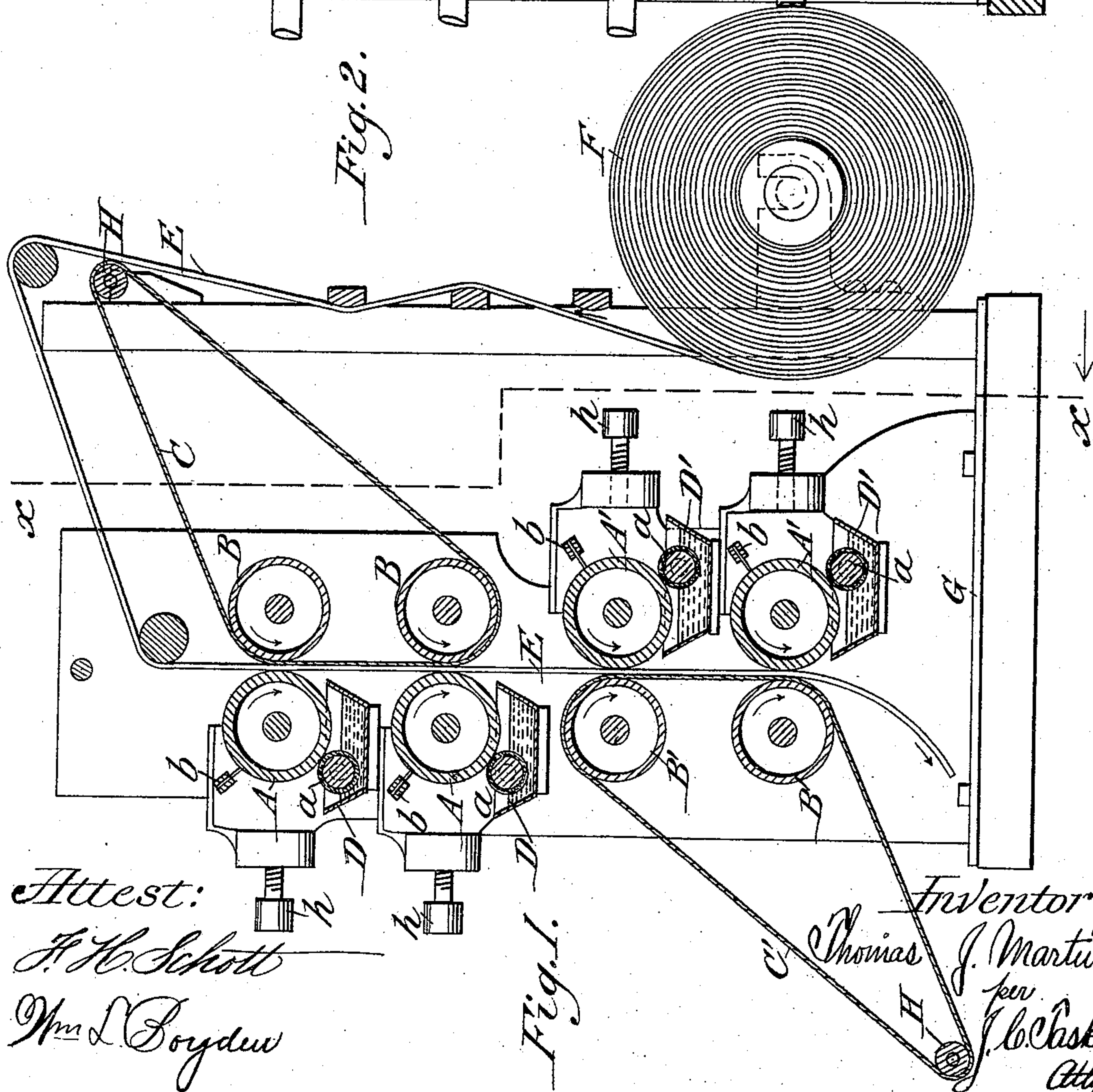


Fig. 1.

Attest:

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THOMAS J. MARTIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO EDWIN MARTIN AND WILLIAM L. MARTIN, OF SAME PLACE.

MACHINE FOR PRINTING FABRICS.

SPECIFICATION forming part of Letters Patent No. 488,897, dated December 27, 1892.

Application filed November 22, 1890. Serial No. 372,351. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MARTIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Printing Fabrics; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to a machine for printing textile or other fabrics, it being intended for use with any kind of fibrous, textile or woven material, such as cotton, wool, silk, jute, &c. the object of the invention being to provide a machine which will print both sides of a fabric at one passage through the machine in the same pattern upon both sides, or different patterns on both sides, whichever may be preferred or desirable, in the same or different colors, in fact to print the cloth or textile fabric upon both its sides in any of the multitude of the kinds and varieties of patterns and forms which might be conceived, and further, a machine which will print in any number of colors on both sides, of the fabric by once passing it through the machine or will print two separate pieces of fabric on one side with the same pattern or with separate and multiplied patterns, and the invention therefore consists essentially in the construction, arrangement and combination of the printing rollers, the pressure rollers and the blankets as adapted for operation in conjunction with the traveling cloth, and also in certain details in the construction, arrangement and combination of the several parts of the machine, substantially as will be hereinafter described and then more particularly pointed out in the ensuing claims.

In the annexed drawings illustrating my invention: Figure 1 is a vertical section of my improved machine for printing textile or other fabrics. Fig. 2 is a front elevation of the same.

Similar letters of reference designate corresponding parts in both figures.

The frame of my improved machine for printing calicoes and all other kinds of fabrics may be of any suitable and desirable con-

struction which may best adapt it for the convenient arrangement therein and therewith, of the several mechanical parts which constitute the invention.

G designates an example of frame work which I have shown here for illustration simply. It will be noted that I have not encumbered this case with a representation or description of the numerous parts ordinarily found in a printing machine but have endeavored to represent and describe only those parts in combination of which belongs the novelty of the invention and therefore it will be understood that I propose to employ in whatever way may seem best any of the well known arrangements for shifting and changing the positions of the printing rollers and for adjusting the several mechanical parts, which old devices I have omitted from the drawings.

In my improved printing machine I employ a separate engraved roller for each and every color which I propose to use. Further in conjunction with each engraved roller I employ a pressure or impression roller placed closely contiguous thereto, whatever intervening space there is being occupied by the traveling cloth and by the blanket and gray piece if desired. Of course there may be any number of engraved rollers and they may be arranged in any way. The machine may be upright or horizontal and therefore the rollers may be arranged accordingly and obviously the cloth or fabric may pass through the machine in any position, either horizontally, inclined, vertically or otherwise as experience may dictate or wisdom suggest. The rollers which print one side of the cloth will be arranged upon that side, while the rollers which print the other side will be arranged upon the other side. With this view of the scope of the invention I will proceed to describe in detail the example thereof which I have delineated in the drawings.

A A denote engraved rollers which are journaled horizontally in the main frame of the machine their surfaces touching the same vertical line, there being two of these rollers shown, although there may be any number of them and they being located toward the upper portion of the machine frame. A' A'

denote similar engraved rollers likewise jour-
naled in the machine frame in such a manner
that their surfaces touch the same vertical
line, said rollers A' A' being located nearer
5 the base of the machine and out of line with
the aforesaid rollers A A so that if the cloth
as E, travels through the machine vertically.
The surfaces of the rollers A A may touch it
on one side, while the surfaces of the rollers
10 A' A' may touch it on the opposite side. The
rollers A A are provided with color boxes D
D and the rollers A' A' are similarly provided
with color boxes D' D', there being in each
of these color boxes the usual small roller *a*
15 partly submerged in the color material and
operating in contact with the face of the en-
graved roller for the purpose of supplying
the coloring material to the engraved surface
of the roller. Also each one of the rollers A
20 A' A' may or may not be provided with a
color doctor *b*, the object of which is to re-
move any surplus coloring material from the
face of the engraved roller before it registers its
impression upon the cloth or other textile fab-
25 ric. Opposite each one of the upper rollers A
A and horizontally in line therewith is a press-
ure or impression roller B journaled in the
main frame of the machine and separated only
a very short distance from the engraved roller.
30 It may be said that the impression roller runs
in substantial contact with its companion
printing roller, there being between them sim-
ply the traveling fabric which is to be printed
and the blanket, if one is to be used. Again
35 it will be observed that closely parallel and
horizontally-adjacent to each of the lower
printing rollers A' is a companion pressure
roller B' exactly similar in its construction
and arrangement to the pressure roller B just
40 referred to.

The engraved rollers are all arranged so as
to exert a pressure against the impression
roller and any suitable devices may be em-
ployed for this purpose such as the screws *h*
45 *h* for example or any desirable arrangement
of adjustable bearings and levers. All the
rollers, both printing and impression, on one
side of the fabric, rotate in the same direc-
tion, while the rollers on the other side of the
50 fabric likewise rotate in the same direction
but their direction of rotation is different
from that of those on the other side and in
this way the cloth is passed steadily and evenly
through the machine, the tension being equal
55 and the motion regular.

C and C' designate blankets. The blanket
C passes around the upper pressure rollers B
B and a small pulley H, while the blanket C'
60 passes around the lower pressure rollers B' B'
and another small pulley H, said blankets
passing between the pressure rollers and their
adjacent printing rollers. Gray pieces may
also be used if desired following the course
of the blanket. These blankets may be of
65 greater or less length and made of any suit-
able material. The printing may upon some
fabrics be accomplished successfully without

the use of the blankets. Yet I deem that the
blankets constitute one of the features of my
invention. In case gray pieces are used a 75
gray piece will be required for each side. I
have not thought it necessary to indicate the
gray pieces in the drawings, and simply refer
to them here by way of completeness.

The operation of my improved machine for 75
printing textile fabrics will be evident from
the foregoing description of the construction
without need of any extensive additional mat-
ter. Suppose that F denotes a roll of cloth
which is passing up over suitable pulleys and 80
entering at the top of the machine, then pass-
ing downward in a vertical direction between
the rollers and emerging from the machine at
the base. Of course the direction of motion
of the cloth through the machine is immate- 85
rial and may vary as desired. E denotes a
piece of cloth or other fabric which is passing
through the machine. It will first be acted
upon or printed by the rollers A A, which by
pressing upon the cloth and having their 90
pressure sustained by the opposite pressure
rollers, will, as the rollers revolve and the
cloth travels on downward, register their en-
graved delineations accurately and correctly
upon the surface of one side of the cloth 95
in one or more colors and one or more pat-
terns as the case may be. Then likewise
the engraved rollers A' A' will operate in
the same manner upon the other side of the
cloth, pressing against it and having their 100
pressure sustained by the oppositely located
pressure rollers and accordingly the rollers
A' will register their impressions neatly and
clearly upon the other side of the cloth.
The blankets will perform their functions of 105
keeping the cloth clean, the lower blanket C'
preventing any smearing of the impressions
registered upon the cloth by the rollers A,
while the blanket C will be found of value at
the upper part of the machine. Thus it will 110
be seen that the passage of the cloth through
the machine may result in its being properly
printed upon both sides. I have thus de-
scribed the operation with reference to one
piece of cloth, but it is very clear that two 115
pieces of cloth may be passed simultaneously
through the machine instead of one if desired
and that the result of that will be to have
these two pieces each printed on one side, the
rollers A A acting on one of the pieces and the 120
rollers A' A' acting on the other of them.

As I have already indicated herein the ma-
chine may vary greatly in its construction as
regards the number, arrangement and func-
tion of the several printing rollers and I do 125
not consider that I will in any way be re-
stricted to anything that I have herein shown
by way of example but will be permitted to
build my machine in accordance with the
principles herein suggested. 130

Having thus described my invention, what
I claim as new and desire to secure by Letters-
Patent, is:—

1. The combination of the printing rollers

which operate on one side of the fabric, their color boxes, the distributing rollers and doctors therefor, the impression rollers opposite said printing rollers and against which they
5 press, the printing rollers operating against the other side of the fabric, their color boxes, distributing rollers and doctors, the impression rollers directly opposite said printing rollers and against which they press, the im-
10 pression rollers opposite one set of printing rollers and all the rollers on one side of the fabric being located in line with each other and having the same direction of rotation while those on the other side are likewise in
15 line with each other and have the same direction of rotation and the endless blankets passing around each set of impression rollers as well as around a supporting pulley, all arranged so that the fabric may pass between

the printing and impression rollers with an equal and constant tension and be printed on both sides, substantially as described. 20

2. The combination in a calico printing machine for printing upon both sides of the fabric, of the two sets of printing and bearing 25 rolls, the printing and bearing rolls for each side of the fabric being arranged in line so as to act upon the fabric while it travels in a straight line, inking devices for the printing rolls, an independent blanket for each set of 30 bearing rolls, and guide rollers for said blankets.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS J. MARTIN.

Witnesses:

WM. R. COTTER,
JAMES D. TAYLOR.