

No. 768,059.

PATENTED AUG. 23, 1904.

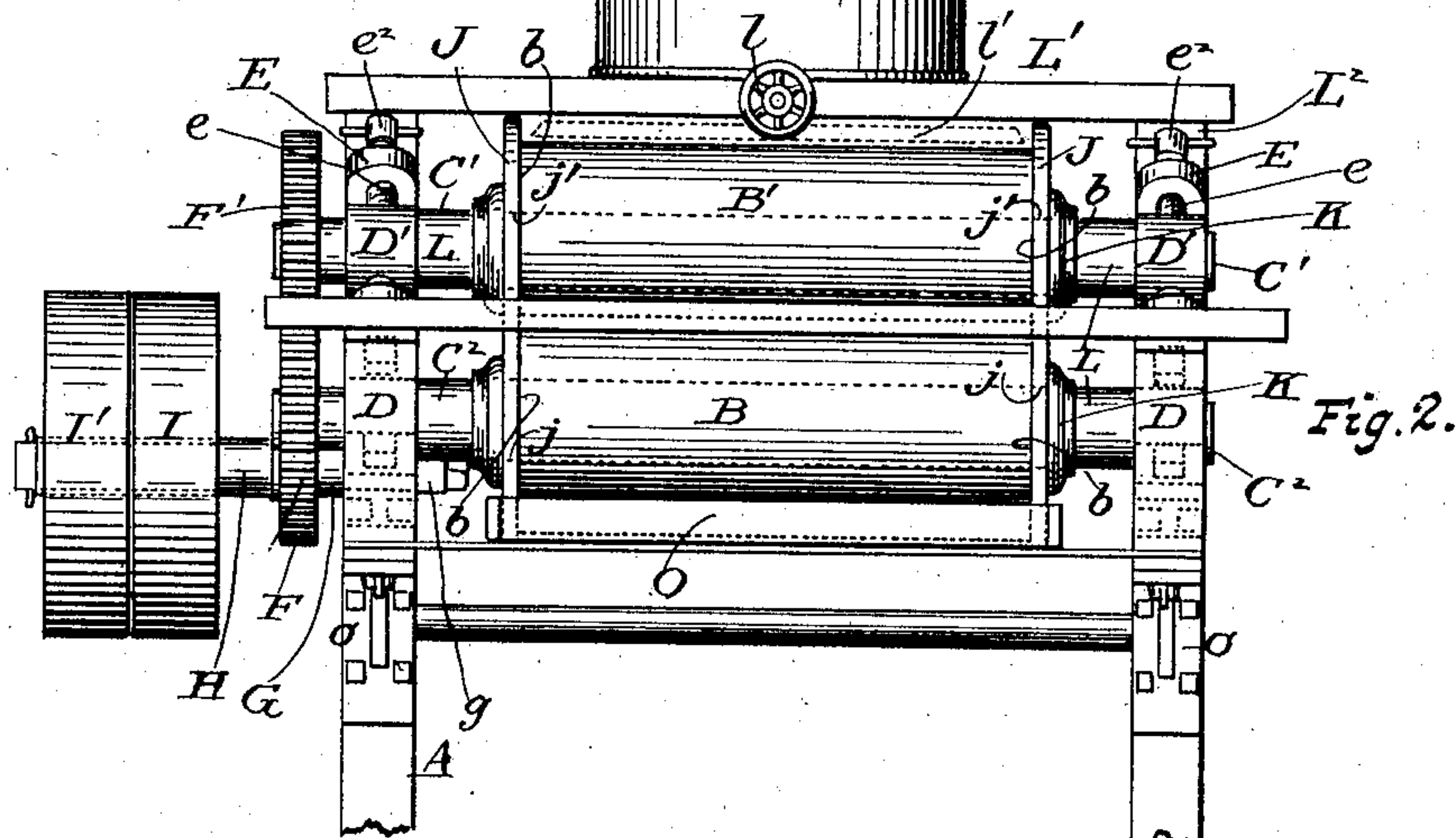
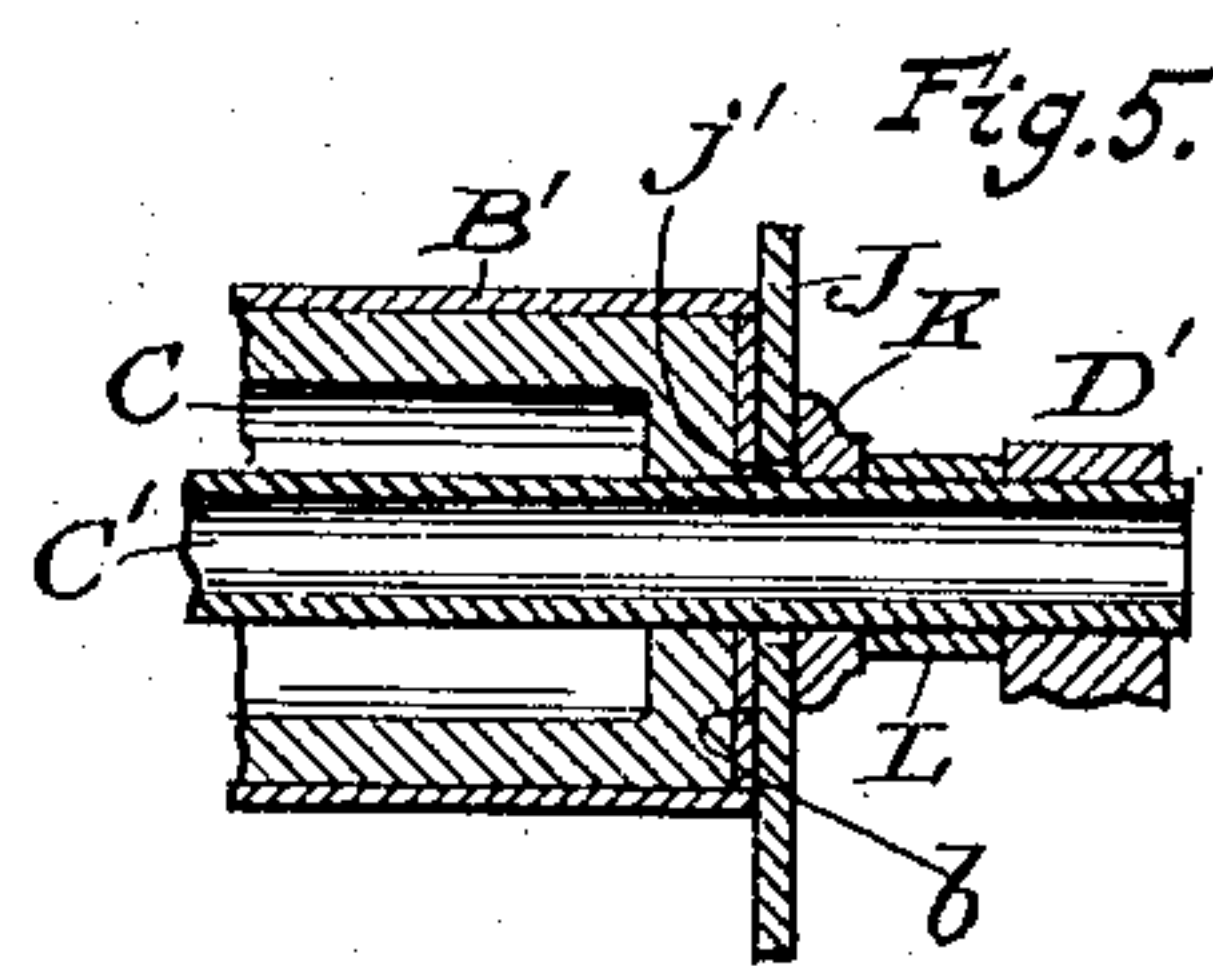
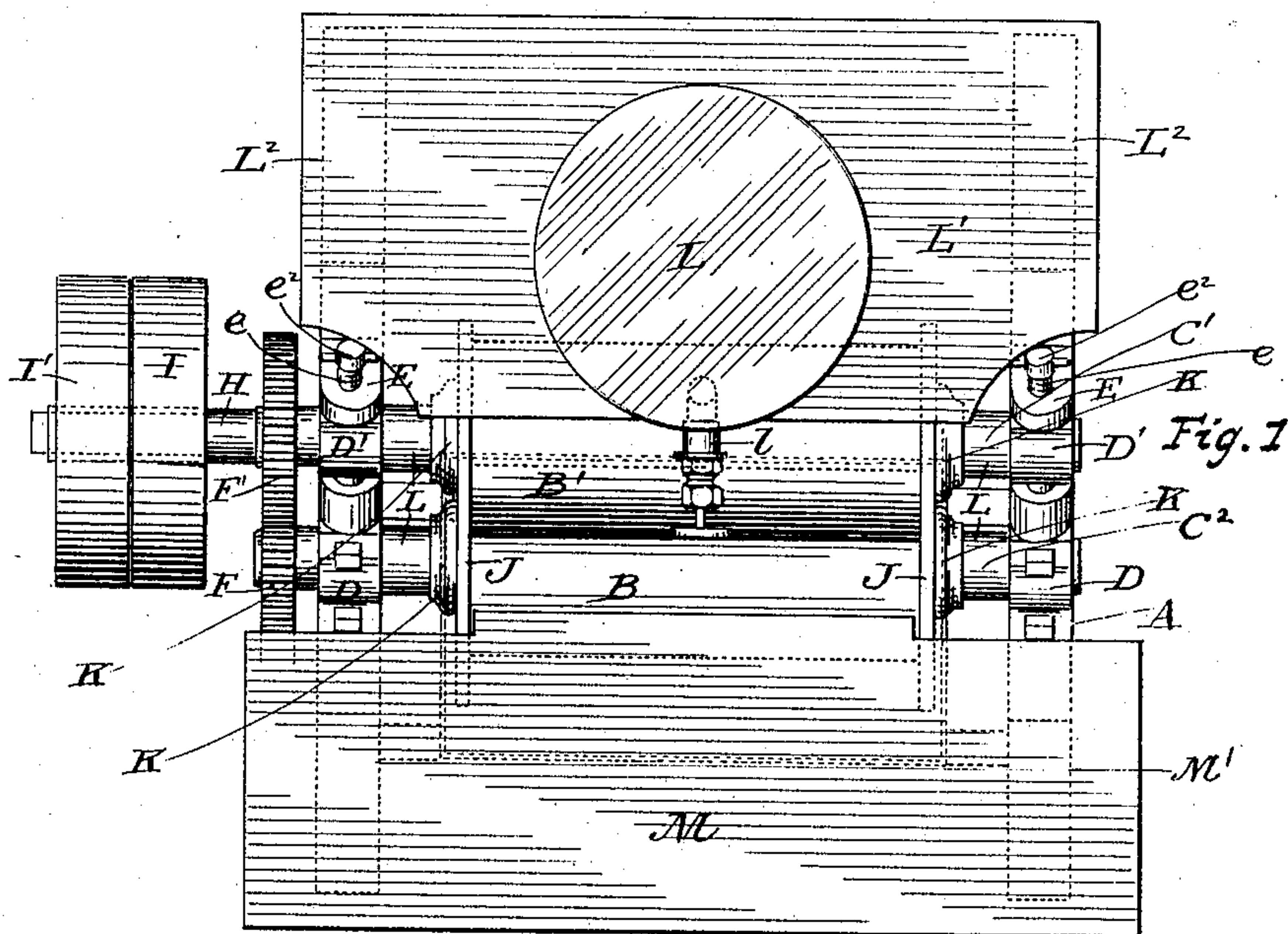
H. A. MANN.

MACHINE FOR IMPREGNATING FABRICS WITH FLUID SUBSTANCES.

APPLICATION FILED APR. 30, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.

*Charles S. Sisk*  
*A. Sisk*

Henry A. Mann,  
Inventor

by *Alex. Sisk*  
Attorney.

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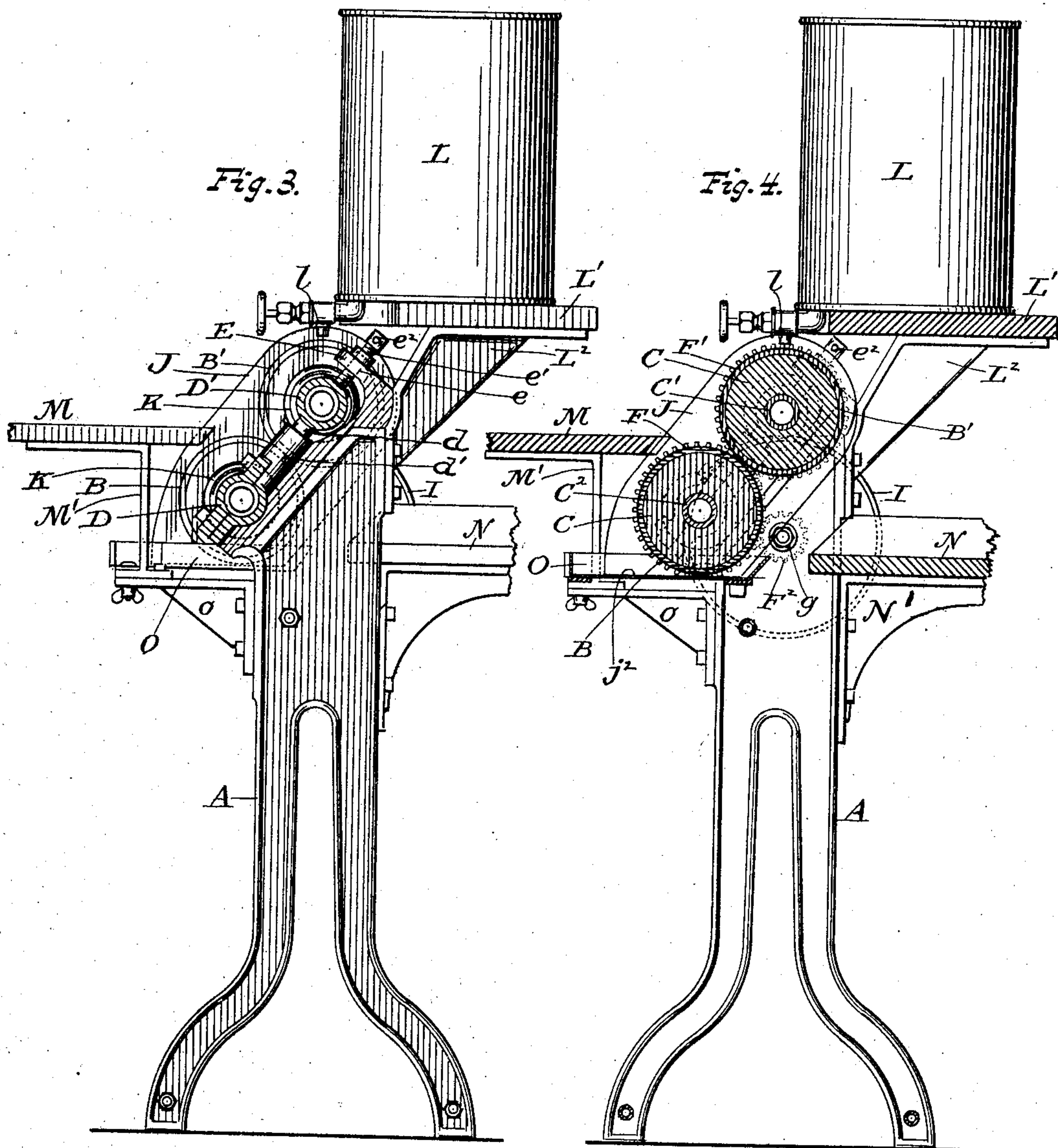
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Inventor.

by Alex. S. S.  
attorney



# UNITED STATES PATENT OFFICE.

HENRY A. MANN, OF ALBANY, NEW YORK.

## MACHINE FOR IMPREGNATING FABRICS WITH FLUID SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 768,059, dated August 23, 1904.

Application filed April 30, 1902. Serial No. 105,321. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. MANN, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented new and useful Improvements in Machines for Impregnating Fabrics with Fluid Substances, of which the following is a specification.

This invention relates to a machine for impregnating woven fabrics with substances and compounds when in condition of a fluid; and it consists of certain novel features and combinations and arrangements of parts hereinafter described, and set forth in the claims.

The objects and advantages of this invention will be clearly understood from the specification and claims when taken in connection with the drawings, (in two sheets,) in which—

Figure 1 is a plan view of a machine embodying the improvements in this invention. Fig. 2 is a front view of the operating parts of the machine. Fig. 3 is an end elevation of the same. Fig. 4 is a sectional elevation, and Fig. 5 is a section illustrating the relative arrangement with the rubber-cylinder shaft of adjuncts thereto.

Similar characters of reference refer to similar parts throughout the several views.

In the drawings, A is the frame of the machine, which frame may be of any suitable form of construction adapted to receive and hold the several operating parts of the machine.

B and B' are elastic exterior cylinders made of rubber of suitable thickness, as, say, one inch or more or less, and of equal diameters. These cylinders B B' are each suitably mounted and fixed on an interior cylinder C, which latter respectively are mounted on shafts C' C<sup>2</sup>. One of these shafts, and preferably shaft C', is supported from fixed bearings D, secured to the frame, while the shaft C<sup>2</sup> is supported in adjustable bearings D', which latter respectively are provided with a suitable post d, which nicely fits in sleeve d', made fixedly connected with each bearing D, so that said adjustable bearings D' may at pleasure be moved toward fixed bearings D and be held at place moved to and thereby increase the pinch of rubber cylinders B B' or lessen

the same, as may be found to be advantageous by reason of the character of the fabric and the nature of the fluid substance being applied to the former and quantity of the same to be supplied to the fabric.

Although any suitable means may be employed for adjusting the bearings D' in relation to bearings D, yet I at present prefer to employ lugs E, suitably connected with frame A and having in them the screw-threaded perforations e, in which work set-serews e', provided with suitable heads e<sup>2</sup>, adapted to receive a suitable instrument for convenience for revolving said set-screws in either direction—in one direction for forcing the rubber cylinder B' toward its coating rubber cylinder B, so as to increase the pinch of said cylinders, and in the opposite direction for lessening the same, as may be preferred.

It will be seen that shaft C<sup>2</sup> is above shaft C' and relatively back from a vertical line drawn through the center of shaft C', so that the front surface of the rubber cylinder B may be relatively rearward of the line of axis c of shaft C of the latter cylinder. The purpose of this relative arrangement of the two cylinders B B' will be hereinafter explained. These cylinders B B' are made with equal diameters, so as to have equal surface travel when in operation, and are simultaneously revolved by cog-wheels F F' of like diameters and mounted on their respective shafts C' C<sup>2</sup>. Cog-wheel F' is actuated by cog-wheel F, and this latter is actuated by drive-pinion F<sup>2</sup>.

G is a fixed spindle rigidly secured to frame A by its inner end g, while its body is projected outward, as indicated by dotted lines in Fig. 2, with its axial line parallel with those lines in shafts C' C<sup>2</sup>.

H is a hollow shaft mounted on spindle G and suitably secured from moving endwise outward from frame A by any suitable means, as by a washer and spring-key (not shown) or a nut. (Also not shown.)

I is a drive-pulley mounted on hollow shaft H, so as to revolve the latter, and I' is a loose pulley revolving on said hollow shaft, or it may be mounted on the outer end portion of the fixed spindle G, so as to revolve on the same, as may be preferred. A suitable belt-



shifter (not shown) may be provided for shifting a driving-belt. (Also not shown.)

J and J are side plates which are arranged one at each side in the machine and between ends of said rubber cylinders and the respective side members of frame A. These side plates may be of any suitable non-corroding substance, yet I prefer to make them of heavy plate-glass of thickness of one-half of one inch or more or less. These side plates have both their inner and outer surfaces uniformly even and smooth and on parallel planes and are respectively provided with suitable holes  $j$  of diameter corresponding with that of shafts  $C'$  of rubber cylinder B, so as to freely receive the same, and also with holes  $j'$  of diameter and oval form to freely receive the shaft  $C^2$  of rubber cylinder B'. These perforations  $j$  and  $j'$  are indicated by dotted lines in Fig. 2 and shown in Fig. 5. These side plates J J are made with width greater than the diameter of the rubber cylinders B B' and have their lower ends made preferably with straight lines of edge  $j^2$ , as shown in Fig. 4. The ends  $b$  b of rubber cylinders B B' abut the inner surfaces of said side plates, while the interior cylinders C are made shorter than said rubber cylinders by, say, one quarter of an inch or more or less, so that their ends will not have contact with said side plates. These side plates J J are clamped from their outer sides by clamping-plates K K, held up to the outer sides of said side plates by sleeves L L, which respectively abut bearings D and D' and clamping-plates J J, as shown in Fig. 2, so as to crowd the latter against the outer sides of side plates J J and cause the latter to be crowded against the abutting ends of said rubber cylinders B B', as illustrated in Fig. 5. This above-described construction and arrangement of parts (shown in Fig. 5) produces a tight joint between the ends of the rubber cylinders and the side plates, so that none of the fluid substances operated with can have passage from the surfaces of the rubber cylinders B B' to the shafts  $C'$   $C^2$  and bearings of the latter.

L is a receptacle for containing the fluid substance which is to be operated with for impregnating fabrics subjected to the operations of this machine.

L' is a platform for supporting the receptacle in place above the upper rubber cylinder B' from the frame A by means of suitable brackets L<sup>2</sup>. This receptacle may be of any suitable form and capacity, and is provided with a suitable device through which the fluid substances may be discharged on cylinder B' in quantity and place preferred or found to be advantageous.

Although in the drawings is shown an ordinary form faucet  $l$ , connected with said receptacle from its bottom and provided with a discharge-spout 1, indicated in Fig. 1 by dotted lines as being of a relatively small size,

which is adapted to limit the area of discharge of the fluid on cylinder B', yet this discharge-spout may be of form and with an extension of its discharge that may be adapted to extend the discharge of the fluid to that cylinder throughout its whole length, as shown at 1' in Fig. 2, or as may be found to be advantageous.

M is a feed-table suitably supported from the frame A, preferably by means of brackets M'. The front edge of this table is relatively at near opposite the line of pinch of the cylinder B B'.

N is a receiving-table supported by brackets N', connected to frame A and adapted to receive the articles as they emerge out from between the cylinders B B'.

O is a shallow receptacle for receiving the fluid substance which may from any cause come to be in such excess on lower cylinder B as to drip from the same. This receptacle is removable at pleasure, and is shown to be supported beneath lower cylinder B from suitable supports  $o$   $o$ , Fig. 4.

This machine may be constructed with its sizes and proportions of parts variously modified as the nature of its service may require—that is to say, the cylinders may have their diameters and lengths respectively increased or lessened, as may be found to be advantageous for operating with a full bolt or roll of fabric in its full width, with pieces of narrow width, and with articles—such as collars, cuffs, &c.—of relatively short lengths as compared to that of webs of woven fabric.

The manner in which this machine is operated is as follows: The receptacle L is supplied with any prepared quantity of the fluid substance which is to be used for impregnating the fabric to be operated with, whether it be in character starchy, viscid, coloring, waterproofing, fireproofing, or of other nature, which is adapted to give to the fabric or article some peculiar quality not natural in the fabric. The machine will be started, so as to revolve the cylinders B B' in proper direction, and the discharge device will be regulated for delivering the fluid substance on one of the said cylinders, preferably on the upper one, to such a length on the same as may be preferred. The operator will deliver the fabric or article from off the feed-table to between the two revolving cylinders and at the line of pinch of the same, when the revolving cylinders will move the fabric or article in direction from said feed-table to the receiving-table, from which it may be delivered into a suitable receptacle (not shown) or be removed by hand, as may be found to be advantageous.

The side plates J J, against the inner sides of which the ends of cylinders B B' abut, having such a close or tight joint with said ends of those cylinders operate to prevent the fluid substance operated with from passing outward to have contact with the outer sur-



faces of the extended end portions and journals of the shafts of said cylinders, and, being made of glass, these side plates will not corrode and thereby discolor the fluid substance operated with.

The cylinders being made of rubber, which will not be affected by either acids or alkaline substances, as also the glass of the side plates, admits this machine being used for impregnating fabrics with substances which may be of alkaline or acid character.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for impregnating fabrics with fluid substances, the combination with two cylinders having their walls of elastic substance, mounted each on a separate shaft with the axis of one of said shafts on a plane above that of the other, and also having its axis on a vertical line relatively rearward of that of the axis of the lower shaft, and side plates of glass against which the ends of the elastic walls of said cylinders abut, of mechanism revolving said shafts, a receptacle adapted to hold a supply of fluid substance above the plane of the upper side of the upper cylinder, and a device adapted to deliver the fluid substance from said receptacle on the outer side surface of said upper cylinder, as set forth.

2. In a machine for impregnating fabrics with fluid substances, the combination with two cylinders having their walls of elastic substance mounted on suitable shafts with the axis of one of said shafts on a plane above that of the other and also having its axis on

a vertical line relatively rearward of that of the axis of the lower shaft, side plates of non-corroding material against which the ends of the elastic walls of said cylinders abut, and mechanism revolving said shafts, of stationary bearings supporting the journal ends of one of said shafts and adjustable bearings supporting the journal ends of the other shaft, a receptacle above the plane of the upper cylinder and a device adapted to deliver the fluid substance on the outer side of said upper cylinder, as set forth.

3. In a machine for impregnating fabrics with fluids, a framework, two cylinders arranged to receive the fabric between them, a rubber surface for each of said cylinders extending beyond the edge of the cylinders, a fluid-receptacle to deliver material onto one of said cylinders, and side walls fitting snugly against the projecting ends of the rubber facings of the cylinders without contacting with the ends of the cylinders.

4. In a machine for impregnating fabrics with fluids, a framework, two cylinders arranged to receive the fabric between them, a rubber surface for each of said cylinders extending beyond the edge of the cylinders, a fluid-receptacle to deliver material onto one of said cylinders, and side walls of glass fitting snugly against the projecting ends of the rubber facings of the cylinders without contacting with the ends of the cylinders.

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Witnesses:

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A. LEEKIEKP.