

(No Model.)

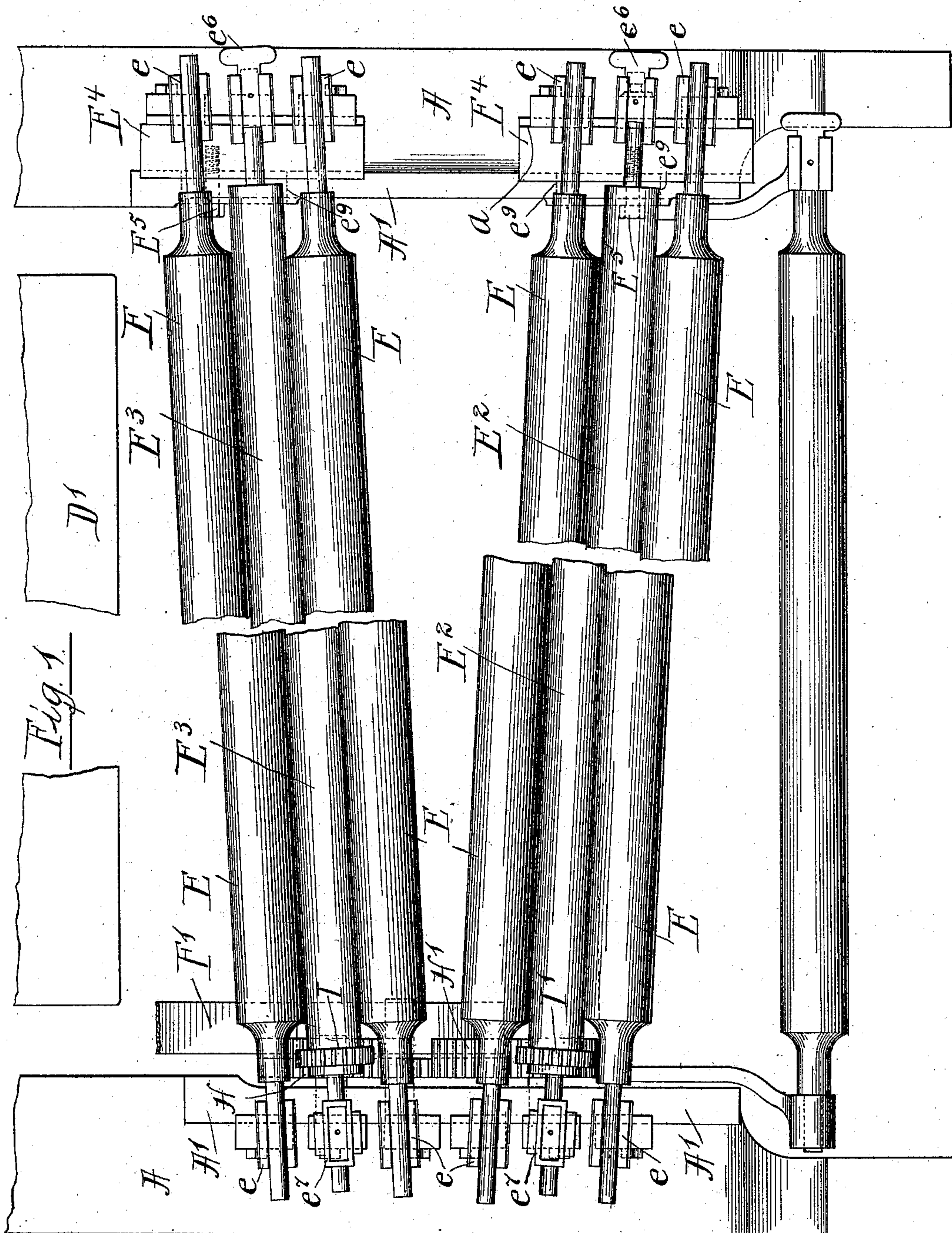
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R. MIEHLE.

INKING APPARATUS FOR PRINTING PRESSES.

No. 559,036.

Patented Apr. 28, 1896.



Witnesses:

Jos. W. Adams

Clinton Hamilton

Inventor:-

Robert Miehle

by:- Langton, Poole & Birn  
his Attorneys.



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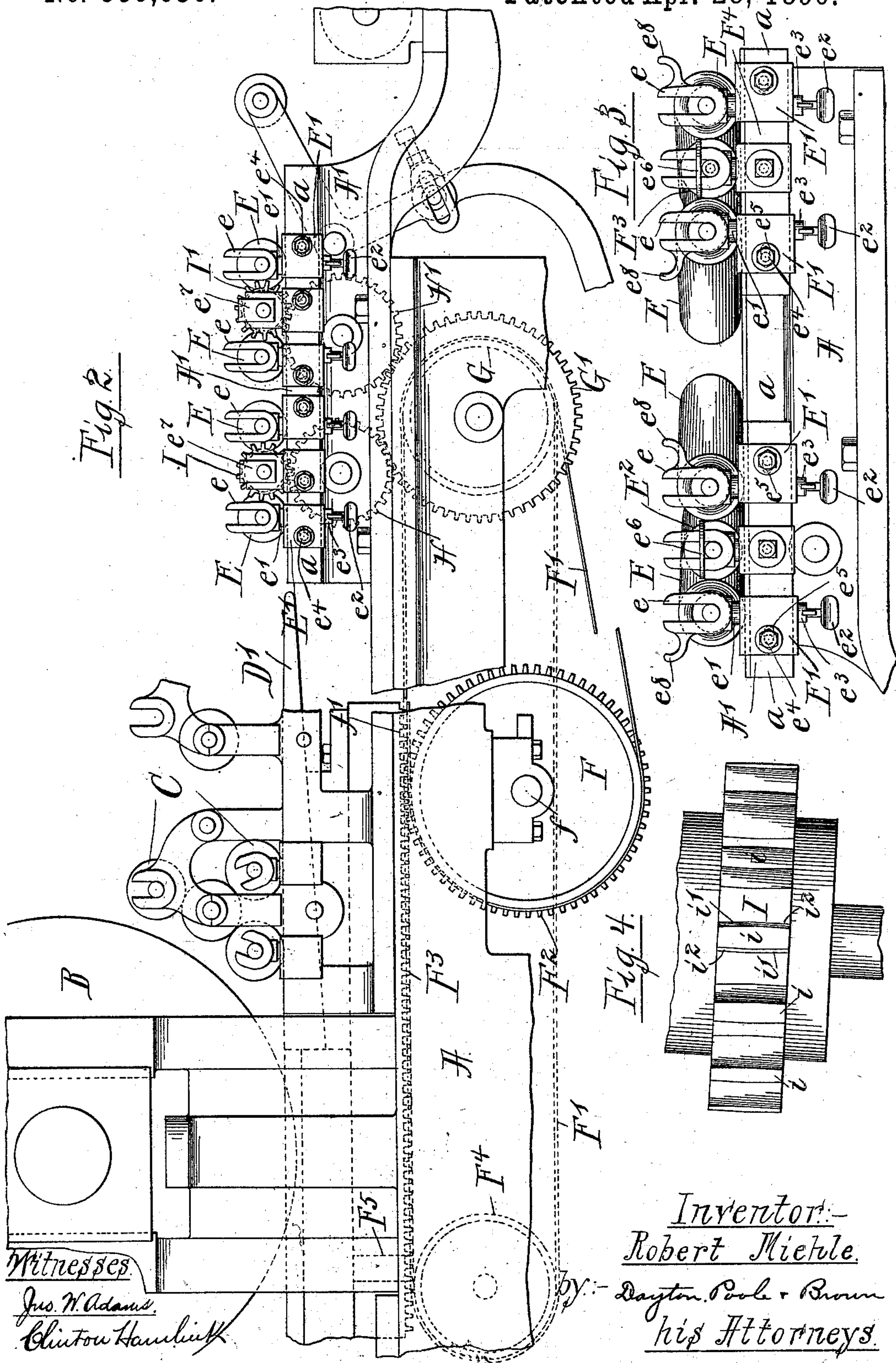
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Robert Miehle.

By:—Dayton Poole & Brown  
his Attorneys.



# UNITED STATES PATENT OFFICE.

ROBERT MIEHLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MIEHLE PRINT-  
ING PRESS AND MANUFACTURING COMPANY, OF SAME PLACE.

## INKING APPARATUS FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 559,036, dated April 28, 1896.

Application filed August 16, 1894. Serial No. 520,452. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT MIEHLE, a resi-  
dent of Chicago, in the county of Cook and  
State of Illinois, have invented certain new  
and useful Improvements in Inking Appa-  
ratus for Printing-Presses; and I do hereby  
declare that the following is a full, clear, and  
exact description thereof, reference being had  
to the accompanying drawings, and to the let-  
ters of reference marked thereon, which form  
a part of this specification.

This invention relates to printing-presses,  
and more specifically to inking apparatus  
therefor, and has for its object to provide an  
improved mechanism for distributing ink on  
the ink-table.

In a prior application for patent filed by me  
in the United States Patent Office June 26,  
1891, Serial No. 397,607, I have shown an ink-  
ing apparatus having the same general fea-  
tures of construction as that herein shown,  
the particular object of the present invention  
being to provide a construction embodying  
improvements upon the general features set  
forth in said prior application.

The invention consists in the matters here-  
inafter described, and particularly pointed out  
in the appended claim, and will be readily  
understood, reference being had to the accom-  
panying drawings, in which—

Figure 1 is a plan view of part of the frame  
of a printing-press embodying my invention,  
showing the arrangement of the ink-distrib-  
uting rollers thereon. Fig. 2 is a side eleva-  
tion of the frame of the press, the central por-  
tion thereof being broken out to shorten the  
view, showing the arrangement of the ink-  
distributing and form rollers. Fig. 3 is a view  
of the opposite end of the ink-distributing  
rollers from that shown in Fig. 2. Fig. 4 is an  
enlarged detail of the gear-wheel of one of  
said distributing-rollers.

As shown in said drawings, A designates the  
frame of the machine, B the impression-cyl-  
inder, and C the form-rollers, all of which may  
be of any approved construction and desired  
arrangement.

D designates the type-bed, which is recip-  
rocated beneath the impression-cylinder in

the usual manner, and D' the ink-table car-  
ried by the type-bed D, of which it forms  
an extension. Near the end of the machine-  
frame A, remote from the cylinder B, are lo-  
cated the distributing-rollers E, in this in-  
stance four in number, which serve the pur-  
pose of distributing the ink equally over the  
surface of the ink-table. In said prior appli-  
cation, hereinbefore referred to, are shown a  
similar set of distributing-rollers, said rollers  
being there, as well as in the present instance,  
shown as arranged at an inclination to a line  
perpendicular to the line of travel of the bed.  
In the former instance, however, the said  
rollers, comprising both sets, are arranged to  
be driven at an equal speed either by means  
of a belt directly engaging cylindric sur-  
faces at the end of the rollers or by means of  
a beveled gear-wheel intermeshing with a cor-  
responding pinion secured upon the end of  
each of the two driving-rollers. In the present  
instance the actuation of the two distributing-  
rollers is accomplished in a different and im-  
proved manner, as will appear from the fol-  
lowing description.

Each of the two ink-distributing rollers E  
is mounted at its ends in a U-shaped bearing  
e, which is provided with a cylindric shank  
e', swiveled in a suitable socket formed in a  
supporting-block E'. An adjusting or thumb  
screw e<sup>2</sup>, provided with a lock-nut e<sup>3</sup>, extends  
vertically through the bottom of said block  
E' and engages the lower end of the cylindric  
shank of the U-shaped bearing e and serves  
to secure vertical adjustment of the bearing-  
pin e'. The blocks E' at one side of the press  
are mounted on guideways a, formed on the  
outside of sliding blocks E<sup>4</sup>, mounted on the  
top rail A' of the frame A, and are held there-  
on by means of bolts e<sup>4</sup>, passing through hori-  
zontally-arranged slots e<sup>5</sup>, formed in said sup-  
porting-blocks E', and a bolt-aperture formed  
in the said sliding block E<sup>4</sup>. The blocks E'  
at the opposite side of the press are similarly  
mounted directly upon the top rail A', thus  
providing for longitudinal adjustment of said  
bearing-blocks with relation to each other,  
and correspondingly of the U-shaped bear-  
ing carried thereby. This arrangement of the



distributing-rollers permits the latter to be accurately adjusted with relation to the driving-rollers  $E^2 E^3$ , hereinafter described, to insure proper contact between said rollers.

5 The carriage-blocks  $E^4$  are secured so as to be adjustable as a whole upon the top rail  $A'$  by means of a bolt  $E^5$ , passed through a slot  $e^9$ , formed longitudinally in said top rail and tapped into a corresponding bolt-aperture in the block  $E^4$ . By means of this adjustment

10 each set of rollers may be brought to any desired angle with the ink-table without disturbing their relation to each other. The said distributing-rollers  $E$  are shown as arranged in two sets of two each, each set being arranged at opposite angles of inclination to the line of travel of the type-bed, and said distributing-rollers are driven by frictional

15 contact with the driving-rollers  $E^2 E^3$ , which are arranged one between the distributing-rollers of each pair. Said driving-rollers  $E^2 E^3$  are mounted in bearings generally similar to those of the ink-distributing rollers, the adjusting-screws being omitted as unnecessary, however, and the trunnions of the said

20 distributing-roller being held from rising in their bearings at one end by flat keys  $e^6$ , sliding in grooves formed in the U-shaped bearings above said trunnions, and at the other

25 end by lubricating-boxes  $e^7$ , in which they are inclosed, as clearly shown in Fig. 1. The driving-rollers are herein shown as made somewhat smaller in diameter than the distributing-rollers, and they are preferably arranged with their axes in a plane below the

30 plane of the axes of the distributing-rollers, but far enough above the ink-table to avoid coming in contact therewith. Supports  $e^8 e^8$  are provided at the sides of the bearings  $e e$ , in which the trunnions of the rollers may rest

35 when lifted out of their bearings, so that the distributing-rollers may be supported free from contact with the ink-table or the driving-rollers when the machine is not in use.

40  $F$  is a belt-pulley mounted upon a shaft  $f$ , and  $G$  a second pulley mounted in bearings upon the frame  $A$  at a point intermediate of the two sets of ink-distributing rollers and some distance below the latter. A belt  $F'$  is

45 trained over the pulleys  $F$  and  $G$ , and rotary motion may be given to the said pulley  $F$  by any suitable means, but preferably, and as herein shown, by a pinion  $F^2$ , secured upon the shaft  $f$  and arranged to intermesh with a

50 rack  $F^3$ , arranged longitudinally upon the bed of the press. Rotary motion, first in one direction and then in the other, is thus given to the said pulley  $G$ . Secured to said pulley  $G$ , and preferably formed integral therewith, is a gear-wheel  $G'$ . With this

55 gear-wheel  $G'$  intermesh two other gears  $H H'$ , mounted in bearings upon the upper rail  $A'$ , beneath each pair of distributing-rollers, and these latter gears intermesh with and communicate motion to two other gears  $I I'$ , secured

60

upon the ends of the driving-rollers  $E^2$ . The gears  $G'$ ,  $H$ , and  $H'$  are all herein shown as ordinary straight-toothed gears of the usual construction; but in order to provide for the angular arrangement of the said driving-rollers the gears  $I I'$  are of peculiar construction, as shown more clearly in Fig. 4. For the purpose stated each gear-tooth  $i$  of the gear  $I$  has an inclined or beveled portion  $i'$ , formed at a proper angle to mesh accurately with the

70 straight teeth of the connecting-gear  $H$ , while each tooth  $i$  of the gear  $I'$  has an inclined or beveled portion  $i^2$ , corresponding with the angle of the driving-roller meshing with the gear  $H'$ . As herein shown and as preferably

75 made, the teeth of the gears  $I$  and  $I'$  are provided with bevels  $i' i^2$ , so that the driving-rollers are interchangeable and may be used in connection with either set of bearings  $E$ . This is a feature of considerable importance,

80 for the reason that it enables the rollers to be interchanged. The beveling of the pinion-teeth in the manner described also enables the angle of the distributing-rollers to be changed at will, the pinions operating equally

85 well at any intermediate angle between the extreme angles for which the teeth are designed.

The relative size of the elements by which motion is communicated to the driving-rollers is such that the pairs of distributing-rollers  $E E$  driven by rollers  $E^2 E^3$  are driven at a peripheral speed about equal to the surface speed of the inking-table. By this arrangement all torsional strain on the rollers which

90 would be caused by any difference between the peripheral speed of the inking-rollers and the surface of the ink-table is prevented, and the rollers are subjected only to the strain due to direct bearing upon the surface of the

95 table, or, in other words, to radial compression, thus prolonging the life of the roller greatly. As a modified means of communicating motion to the said belt  $F'$  and thus to the train of gears, in Fig. 2 I have shown in dotted lines an idle-pulley over which the belt  $F'$  may be trained, and the end of an arm  $F^5$ , extending out from the bed of the press and engaging said belt. When this construction is employed, the rack and pinion and pulley  $F$  will of course be dispensed with. It will be obvious that with this construction the same result will be obtained with a somewhat less number of parts.

I claim as my invention—

The combination with an ink-table of a distributing-roller arranged at an angle with the ink-table, an angularly-arranged driving-roller located in contact with the distributing-roller, said driving-roller being provided with a gear-pinion, pivotally-mounted and laterally-adjustable bearings for said driving-roller and a gear-wheel for giving motion to said driving-roller, located beneath the gear-pinion of the driving-roller, and mount-



ed to rotate on an axis at right angles with  
the path of the bed and in the same vertical  
plane with the pivot of the bearing at the ad-  
jacent end of the driving-roller, the teeth of  
5 said gear-pinion being beveled in opposite di-  
rections from the center line of the teeth at  
their side or contact faces, substantially as  
described.

In testimony that I claim the foregoing as  
my invention I affix my signature in presence 10  
of two witnesses.

ROBERT MIEHLE.

Witnesses:

C. CLARENCE POOLE,  
WM. S. HALL.