

No. 637,577.

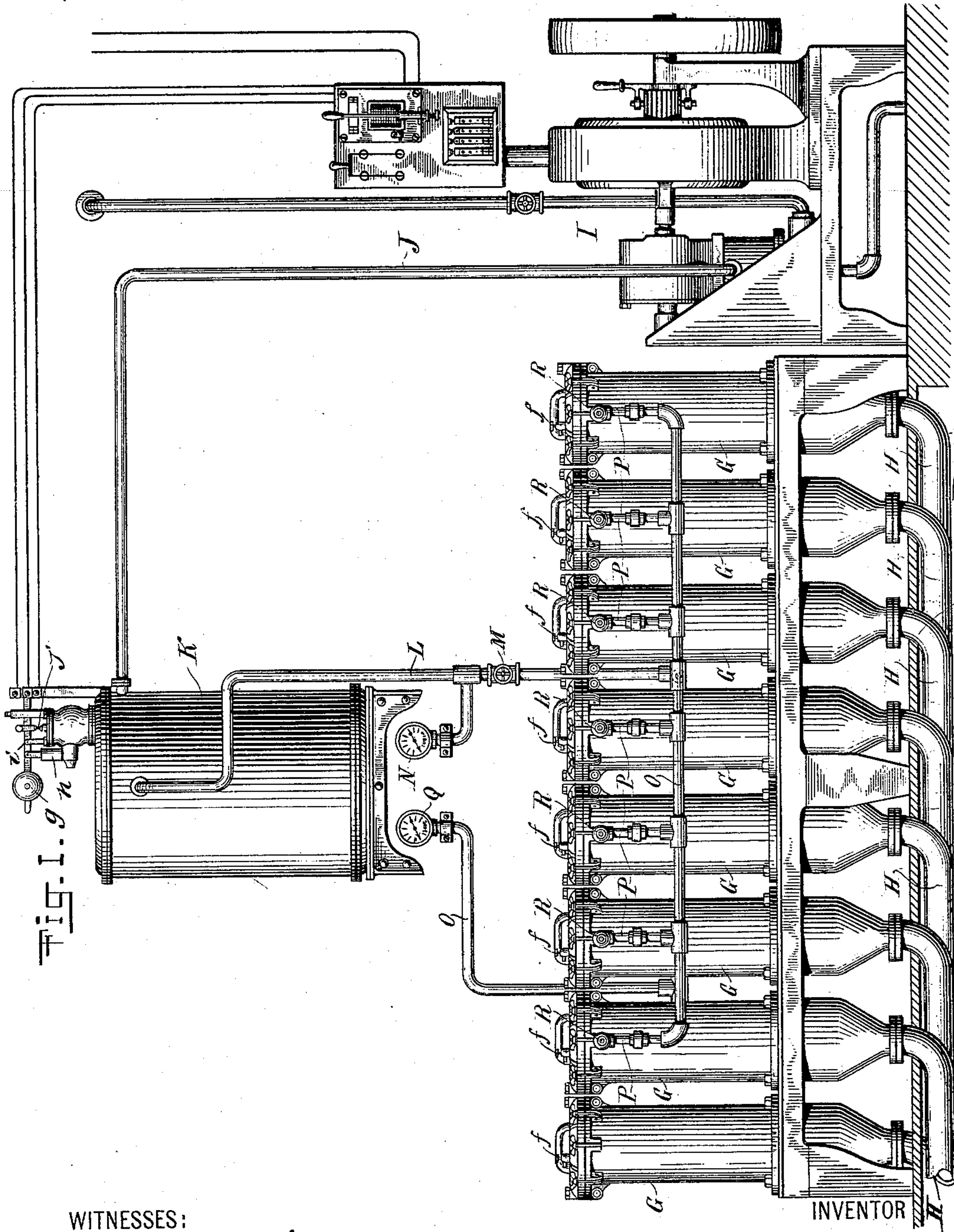
Patented Nov. 21, 1899.

E. HETT.  
MULTICOLOR PRINTING PRESS.

(Application filed Jan. 3, 1899.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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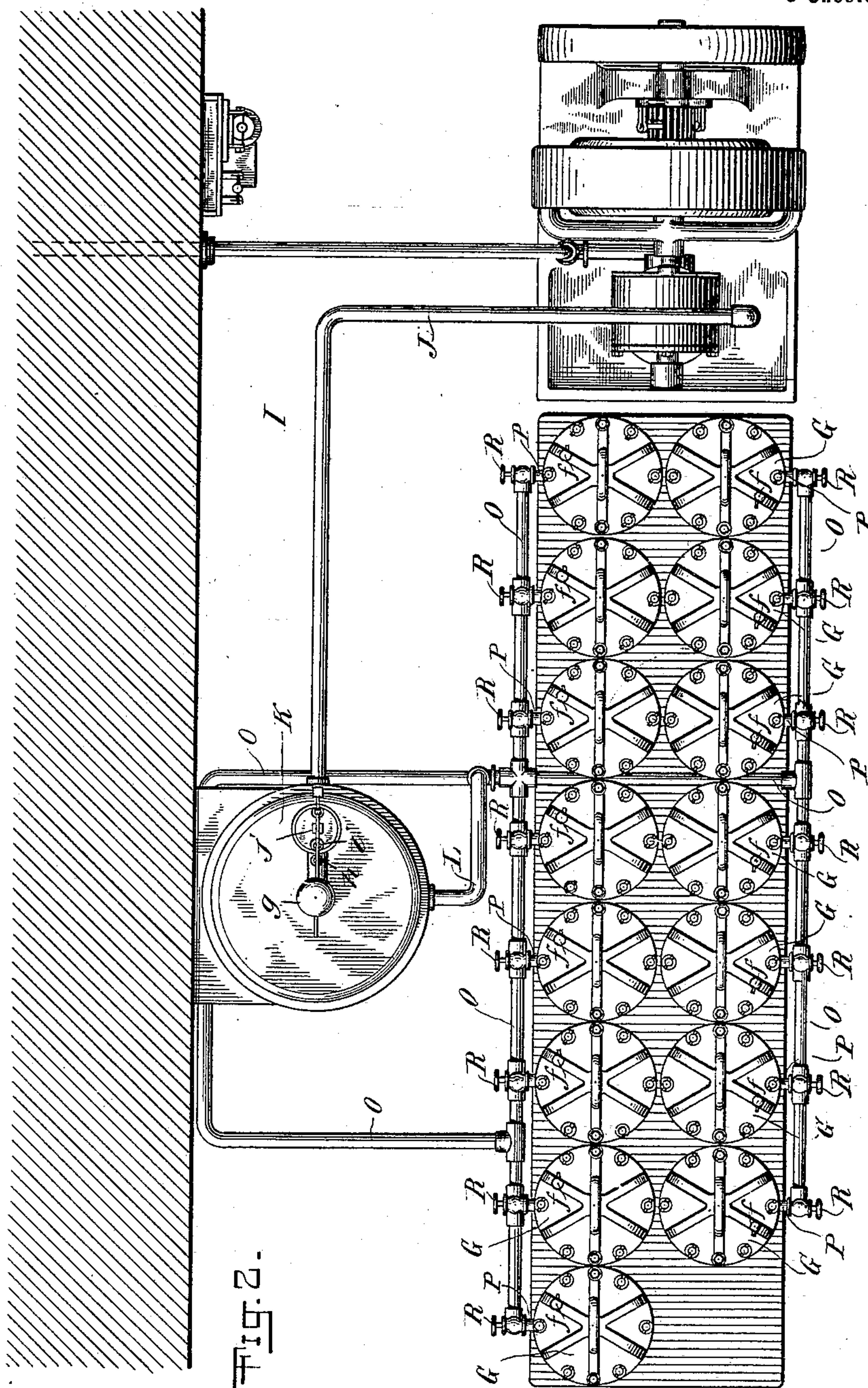
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**MULTICOLOR PRINTING PRESS.**

(Application filed Jan. 3, 1899.)

(No Model.)

**3 Sheets—Sheet 2.**



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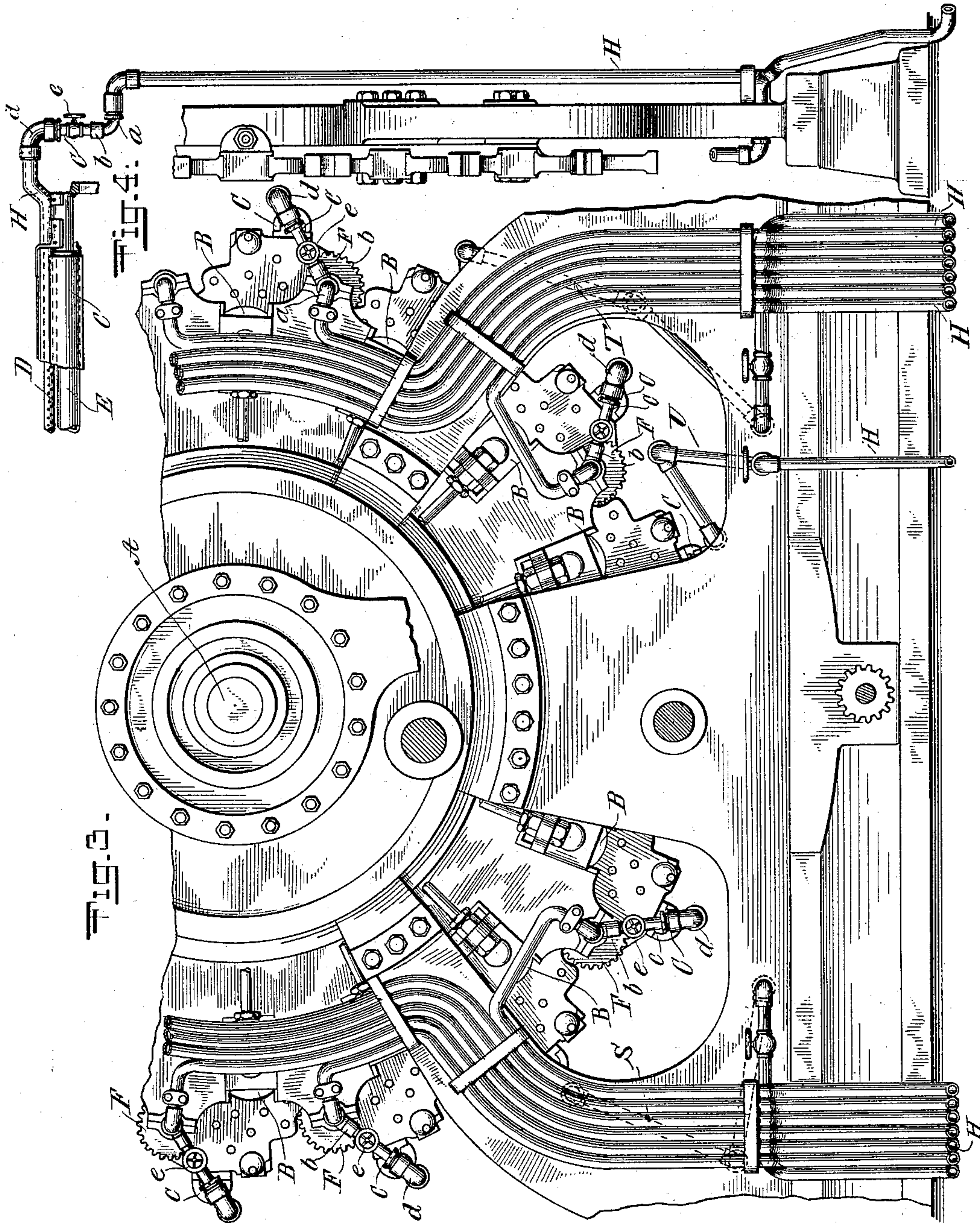
E. HETT.

**MULTICOLOR PRINTING PRESS.**

(Application filed Jan. 3, 1899.)

(No Model.)

**3 Sheets—Sheet 3.**



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# UNITED STATES PATENT OFFICE.

EDWARD HETT, OF NEW YORK, N. Y.

## MULTICOLOR-PRINTING PRESS.

SPECIFICATION forming part of Letters Patent No. 637,577, dated November 21, 1899.

Application filed January 3, 1899. Serial No. 700,926. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD HETT, a citizen of the United States, and a resident of New York, (New Dorp,) in the county of Richmond, State of New York, have invented certain new and useful Improvements in Multicolor-Printing Presses, of which the following is a specification.

My invention has special reference to a multicolor-printing press—such, for instance, as is shown in my application for patent filed July 19, 1894, and serially numbered 508,015, renewed May 27, 1899, Serial No. 718,570—although some of its features have a more general application and use.

It has for its object to improve and perfect the supply system for the inking mechanism of such presses; and it consists in the arrangement and combination of such supply devices as are herein shown and set forth.

The accompanying drawings, which form a part hereof, represent the supply system for the inking mechanism of a multicolor lithographic press embodying my invention.

Figure 1 is a front elevation showing that portion of the ink-supply system which may be located at a distance from the press itself. Fig. 2 is a plan view of the same. Fig. 3 is an elevation of a part of the left-hand side of the press, the point where the paper enters the press to be printed being regarded as the front. Fig. 4 is a side elevation of a portion of Fig. 3 looking in the direction of the arrow and showing a part of one of the ink-supply ducts with its ink-fountain.

Like letters of reference in the several figures indicate like parts.

A indicates the shaft of a large drum (not otherwise shown) the outer surface of which constitutes the impression-surface of the press.

B indicates one of a series of cylindrical printing surfaces or tubes, which may be driven and handled in any suitable way.

C represents one of a series of ink-fountains, preferably air-tight, one for each printing-surface and each mounted near its printing-surface, each ink-fountain inclosing, as shown in the drawings, Fig. 4, a perforated delivery-tube D, which may be the terminal portion of the ink-supply duct or otherwise a continuation of the said duct, the said per-

forated delivery-tube being, however, of the same or substantially the same diameter as the duct of which it forms a terminal portion. The ducts may vary in diameter, and the delivery-tubes may vary in diameter, as to each other; but the delivery-tube should always be of the same or substantially the same diameter as the duct of which it forms the terminal portion, by means of which a uniform and well-distributed delivery of ink is secured throughout the whole length of the delivery-tube. The ink-fountain C, as shown in Fig. 4, is provided with the ordinary ink-feeding roller E in its mouth, and a suitable group of ink-distributing rollers carry the ink from the ink-feeding roller to the printing-surface and include a main ink-distributing roller, the gearing of which is shown at F.

G represents a series of ink-reservoirs or mixing and storing vessels, which may be situated at a distance from the press and the printing-surfaces—that is, relatively to the ink-fountain C. The ink-reservoirs are large enough to contain a considerable supply of ink and are provided collectively with mechanism for automatically applying varying degrees of pressure to the body of ink in each or any of the reservoirs and independently of each other in order to force the ink to the various ink-fountains with varying degrees of pressure and likewise independently of each other.

H represents a series of air-tight ink-ducts connecting each reservoir G with its individual ink-fountain C. These ink-ducts are led to the centers of the mountings of the several main ink-distributing rollers F and thence to the corresponding ink-fountains C, as shown in detail in Figs. 3 and 4.

a is a liquid-tight joint in each ink-duct H, so constructed that the portion of the duct beyond the joint may turn by means of the joint when the inking-frame, with its rollers, including the ink-fountain C, swings away from or toward the printing-roller on the center coincident with the shaft of the ink-distributing roller F.

b, c, and d represent a portion of the ink-ducts, respectively, at points where the somewhat different methods of securing the swinging capacity of the inking-frames are attained.

In the form of press constructed as shown



in the drawings, Fig. 3, additional joints for permitting the duct to swing with the inking-frame are in some situations rendered necessary to avoid collision with other parts of the press. At the right and at the left hand side of Fig. 3 is shown in dotted lines an ink-duct with jointed connections so disposed as to permit an inking-frame of the press located at these points, respectively, to swing to and from its printing-roller. These ink-ducts are marked S and T, respectively. An ink-duct (marked U) similarly jointed for a like purpose is shown in full lines near the bottom of Fig. 3. In these instances there are three joints with two intervening lengths of ink-duct between them. Each ink-duct is provided with a valve *e* near the ink-fountain for regulating the flow of ink into the same.

I represents an air-pump mechanism for automatically forcing the ink from the ink-reservoirs G through the ink-ducts H to the ink-fountains C. Any suitable air-pump may be employed—such, for example, as the Clayton electric pump. This is preferably accomplished, as shown in the drawings, in the following manner: The ordinary atmosphere admitted into the pump is forced through the air-pipe J into an air-pressure cylinder K, from which the air issues under pressure through pipe L, the flow of the air being regulated by valve M. Above reservoir K, Figs. 1 and 2, and connected therewith are shown an ordinary safety-valve and connections. The details of this form no part of my invention, but may be described as follows: The weight *g*, with its leverage, is supposed to exert normally such a power as to keep the valve *j* seated. Any increase of air-pressure in the tank will tend to open the valve. *i* is the fulcrum, and *h* is a dash-pot to prevent a too-sudden opening or closing of the valve. A gage N indicates the degree of pressure in the air-pressure cylinder and in that part of the pipe L between the valve and the said cylinder. The air-pipe L connects with a distributing air pipe or pipes, there being two such pipes to meet the requirements of the specific arrangement of two rows of ink-reservoirs shown in the drawings, Figs. 1 and 2. From the distributing air-pipes O branch pipes P conduct the air into the top of the ink-reservoirs G, respectively, there being one branch pipe for each reservoir.

Q is a gage showing the degree of pressure in the system between the valves M and a series of valves R, one for each of the branch air-pipes P, the purpose of the valves R being to regulate the degree of pressure upon the surface of the ink in the reservoirs G, respectively, and independently of each other. The cover of each reservoir is securely held in place by clamping-screws or other suitable devices, and it is provided with an escape-valve or petcock *f* for reducing, when desirable, the air-pressure within the reservoir—as, for example, when the cover is to be removed for any purpose, the valve R being in such case

previously closed. By means of the valve R an air-pressure is secured suitable for inducing the desired rapidity of flow of each particular ink-fountain out from its reservoir and through the ink-ducts H into the series of ink-fountains C, one of which, with its joint, valve, and perforated terminal, is shown in detail in Fig. 4 of the drawings.

By means of this ink-supply system an exact and properly-regulated supply of ink into any individual ink-fountain from its own ink-reservoir is secured, notwithstanding the varying degree of fluidity of the inks employed, the varying friction of the ducts, or the varying distances between the ink-reservoirs and ink-fountains, respectively, the whole operation being substantially automatic in character and applicable to the reservoirs and fountains independently of each other.

The air-pump may be operated by the power which operates the press itself or otherwise, as may be desired.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a multicolor-press, an ink-supply system consisting of a series of ink-fountains, each connected by an independent ink-duct with its own ink-reservoir, and a suitable air-pressure mechanism by which the pressure of air upon the ink contained in each reservoir and consequently the flow of ink to each fountain may be independently and accurately regulated, substantially as set forth.

2. In a multicolor-printing press, an ink-supply system consisting of a series of ink-fountains, each connected by an independent ink-duct with its own ink-reservoir, and a suitable air-pressure mechanism by which the pressure of air upon the ink contained in each reservoir and consequently the flow of ink to each fountain may be independently and accurately regulated, each ink-reservoir being provided with a petcock, substantially as set forth.

3. In a multicolor-printing press, an ink-supply system consisting of a series of ink-fountains, each connected by an independent ink-duct with its own ink-reservoir, and a suitable air-pressure mechanism consisting of an air-pump, an air-cylinder, main pipe, with valve, and distributing pipe or pipes, having branch pipes, one leading to each reservoir and each provided with a valve, substantially as set forth.

4. In a multicolor-printing press, an ink-supply system consisting of a series of ink-fountains, each connected by an independent ink-duct with its own ink-reservoir, and a suitable air-pressure mechanism consisting of an air-pump, an air-cylinder, main pipe, with valve and gage, and distributing pipe or pipes, having branch pipes, one leading to each reservoir and each provided with a valve and gage, substantially as set forth.

5. In a multicolor-printing press, an ink-supply system consisting of a series of ink-fountains, each connected by an independent



ink-duct with its own ink-reservoir, and a  
suitable air-pressure mechanism consisting of  
an air-pump, an air-cylinder, main pipe, with  
valve and gage, and distributing pipe or pipes,  
5 having branch pipes, one leading to each reser-  
voir and each provided with a valve and gage,  
said ink-reservoir being provided with a pet-  
cock, substantially as set forth.

6. In a printing-press, the combination of a  
10 source of ink-supply, an ink-fountain, an ink-  
duct for supplying ink to the fountain and a  
delivery-tube connected with or forming part

of the ink-duct and of the same or substan-  
tially the same diameter as the ink-duct,  
and an air-pressure mechanism with suitable 15  
pressure-regulating devices, substantially as  
set forth.

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

EDWARD HETT.

Witnesses:

G. W. DONALDSON,  
EDWIN SEGER.