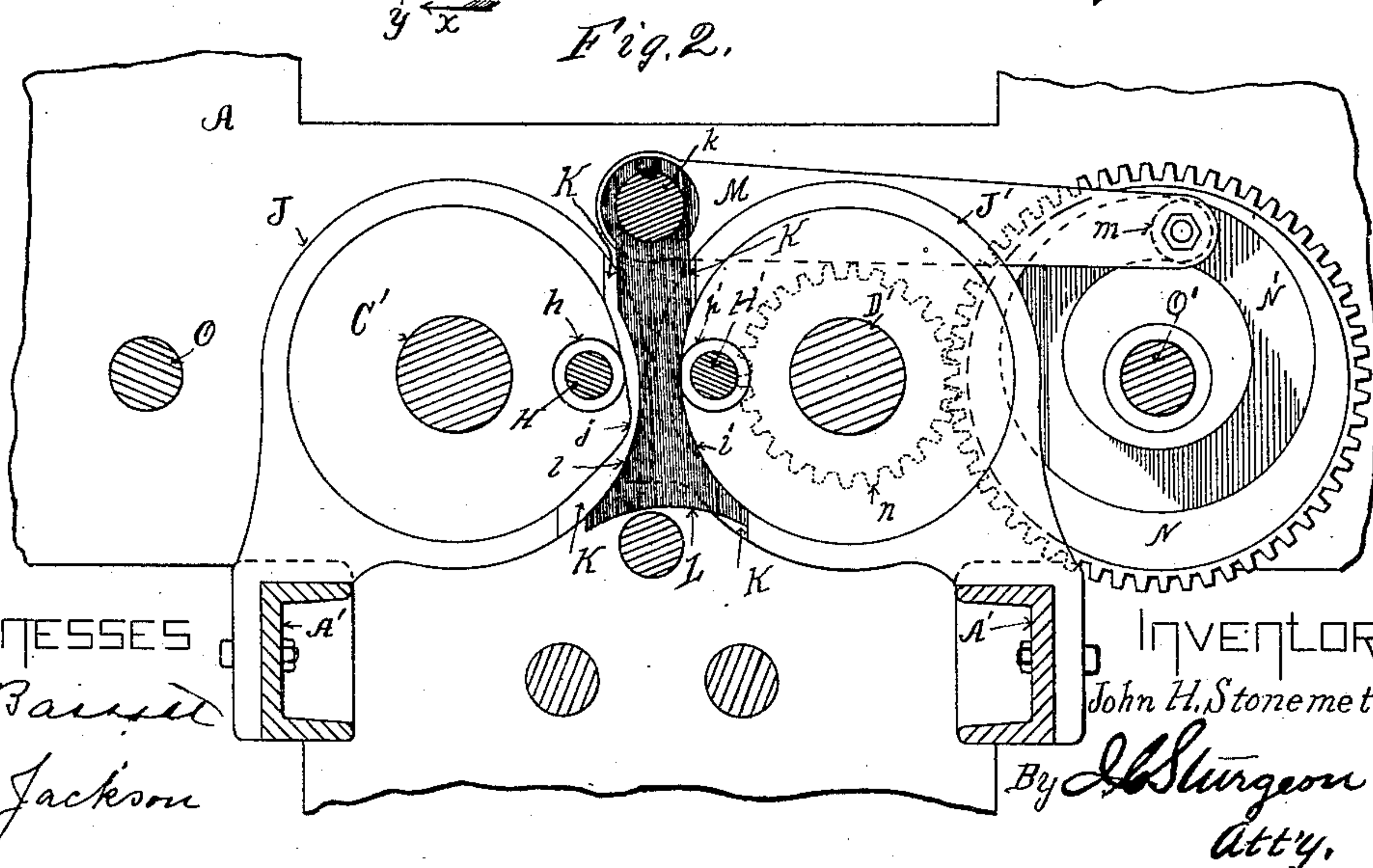
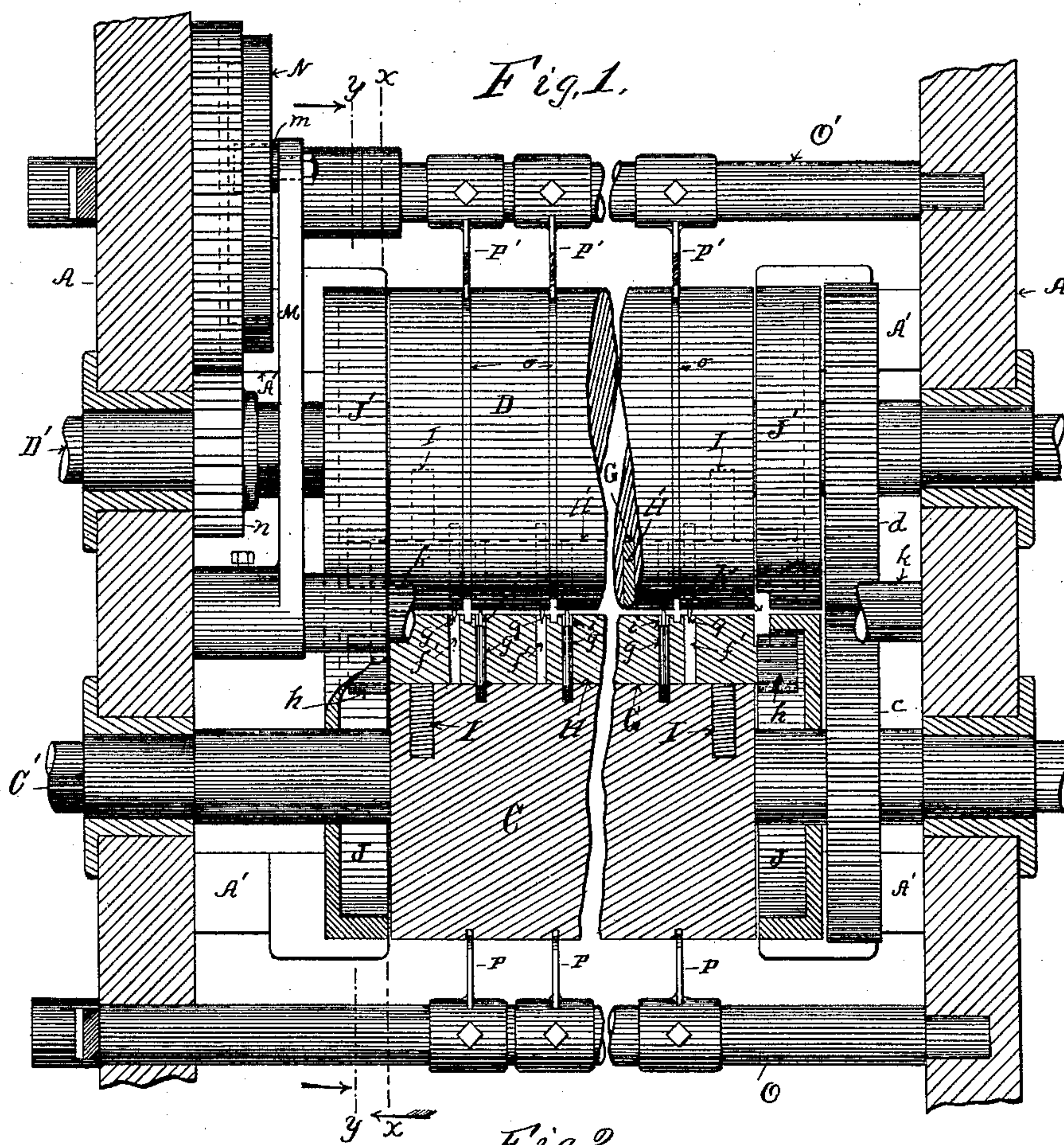


(No Model.)

2 Sheets—Sheet 1.

J. H. STONEMETZ.
CUTTING AND SWITCHING MECHANISM FOR WEB PRINTING MACHINES.
No. 452,244. Patented May 12, 1891.



WITNESSES
F. J. B. R. R.
A. L. Jackson

INVENTOR
John H. Stonemetz.
By J. Sturgeon
Atty.

(No Model.)

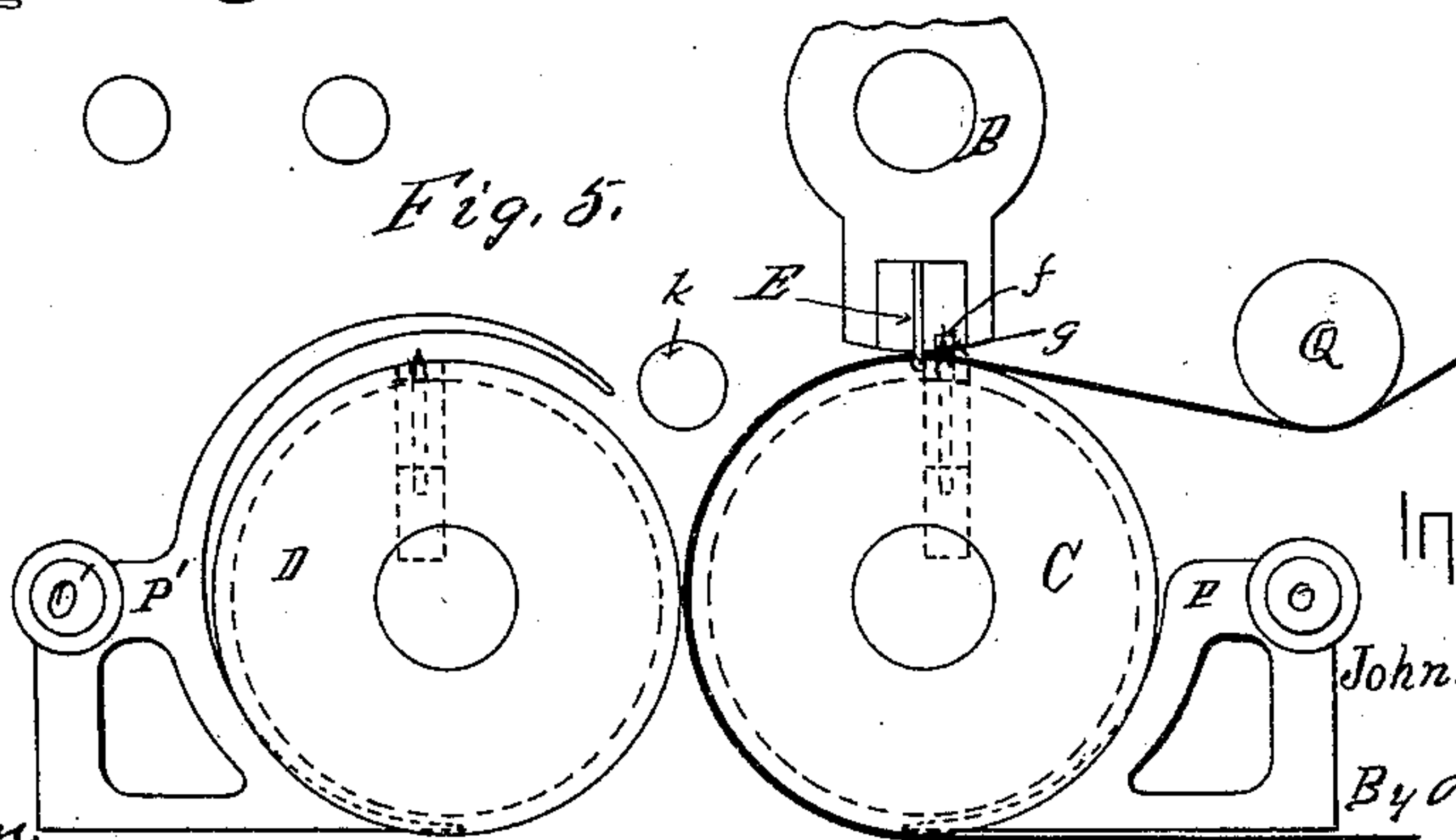
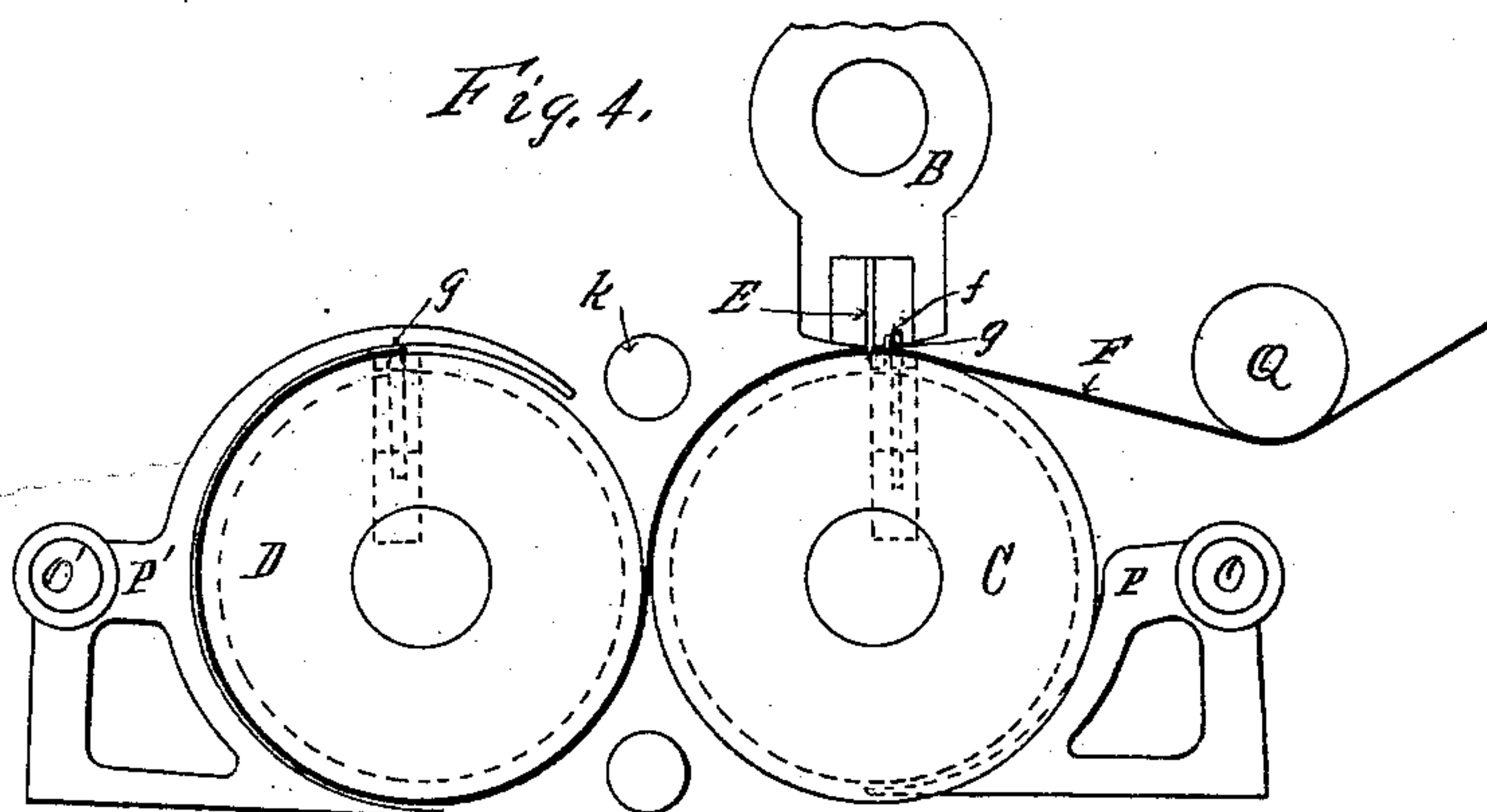
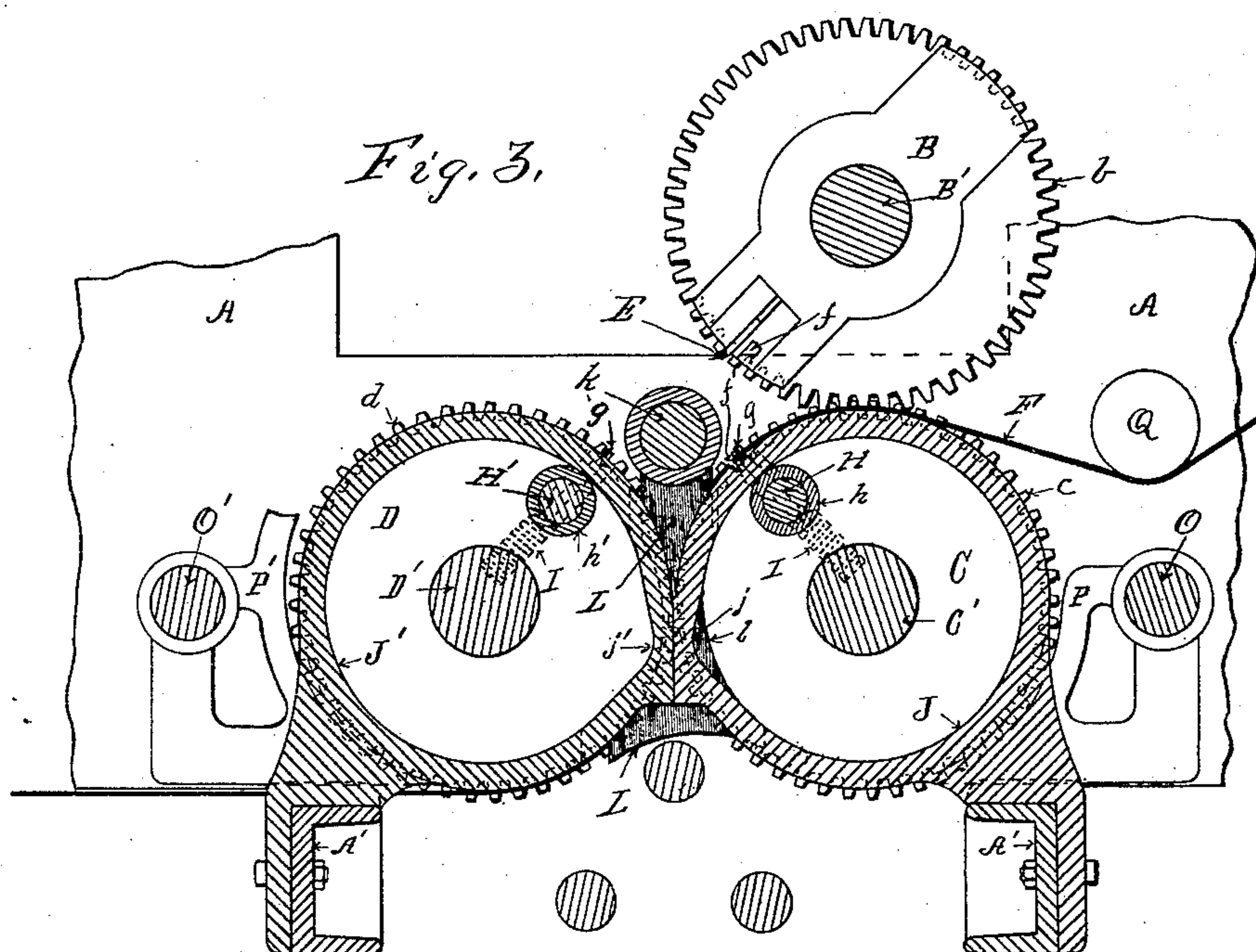
2 Sheets—Sheet 2.

J. H. STONEMETZ.

CUTTING AND SWITCHING MECHANISM FOR WEB PRINTING MACHINES.

No. 452,244.

Patented May 12, 1891.



WITNESSES

F. J. Bassett

A. L. Jackson

INVENTOR

John H. Stonemetz

By *H. Sturgeon*

Att'y.

UNITED STATES PATENT OFFICE.

JOHN H. STONEMETZ, OF MILLBURY, MASSACHUSETTS, ASSIGNOR TO THE
STONEMETZ PRINTERS' MACHINERY COMPANY, OF SAME PLACE.

CUTTING AND SWITCHING MECHANISM FOR WEB-PRINTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 452,244, dated May 12, 1891.

Application filed November 25, 1890. Serial No. 372,649. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. STONEMETZ, a citizen of the United States, residing at Millbury, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Cutting and Switching Mechanism for Web-Printing Machines; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in web-printing-press cutting and switching cylinder mechanism hereinafter set forth, explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a section of a web-printing press, showing a horizontal view, partly in section, of my improved cutting and switching cylinder mechanism, the cutting-cylinder thereof being removed therefrom. Fig. 2 is a vertical transverse section thereof on the line $x x$ in Fig. 1, looking in the direction of the arrow. Fig. 3 is a vertical transverse section of same, including the cutting-cylinder on the line $y y$ in Fig. 1, looking in the direction of the arrow. Figs. 4 and 5 are detail views of same, illustrating features of my invention.

Like letters refer to like parts in all the figures.

In the construction shown of my improved web-printing-press cutting and switching cylinder mechanism, $A A$ are sections of the side frames of a web-printing press.

In the side frames $A A$, I mount a cutting-cylinder B , and directly under it I mount one of the switching-cylinders C , and preferably on the same horizontal plane with the cylinder C , I mount a second switching-cylinder D , all of which cylinders B , C , and D being geared together by means gear-wheels of equal size b , c , and d , so that they rotate at equal speed, motive power being applied thereto by means of gearing (not shown) on the shaft of one of said cylinders, communicating by means of suitable gearing (not shown) with one of the

type or impression cylinders (not shown) of the press.

In the periphery of the cutting-cylinder B is secured an ordinary serrated cutting-knife E , adapted to enter a longitudinal groove e in the switching-cylinder C and sever a web F at each revolution of said cylinders.

In each of the switching-cylinders C and D , I make a longitudinal groove G , in which grooves I place radially-moving bars or ribs H and H' , extending beyond the ends of the cylinders C and D and provided with friction-rollers h and h' , as and for the purpose hereinafter set forth.

In depressions in the bottom of the grooves G under the bars or ribs H and H' , I place springs I , which operate on the ribs or bars H and H' to move them outward, as hereinafter set forth. In the bottoms of the grooves G are also secured pins g , which project radially through holes i in the bars or ribs H and H' above said ribs and a short distance beyond the surface of the cylinders C and D , holes f being provided in the periphery of the cutting-cylinder B at the rear of the cutting-knife E to receive the points of the pins g in the cylinder C when rotated, and holes f' are also provided in the radially-moving bars or ribs H and H' to receive the points of the pins g in the cylinders C and D when they are rotated together, as and for the purpose hereinafter set forth.

On cross-bars $A' A'$, extending between the side frames $A A$ of the press at each end of the switching-cylinders C and D , are secured stationary internal cams J and J' , into which cams the ends of the ribs or bars H and H' extend, so that the friction-rollers h and h' thereon engage therewith. The cams J and J' are cylindrical in shape, except at the sides j and j' thereof corresponding to or slightly below the meeting point of the cylinders C and D , where the cams J and J' are cut away, as and for the purpose hereinafter set forth. The cams J and J' are of such size in diameter that when the friction-rollers $h h'$ contact therewith during the rotation of the cylinders C and D the bars H and H' are retained in the bottoms of the grooves G in the cylinders C and D at all points in their tray-

erse around the said cams J and J' until the depressions *j* and *j'* therein are reached, which allow the springs I in the cylinders C and D to force the bars H and H' outward as the friction-rollers *h* and *h'* thereon pass into said depressions *j* and *j'* until the bars or ribs H and H' cover the points of the pins *g* in the said cylinders, and as they move on so as to carry the rollers *h* and *h'* out of and beyond the depressions *j* and *j'* in the cams J and J' the ribs or bars H and H' are again forced back into the grooves G in the cylinders C and D and retained therein during the remainder of the traverse of the rollers *h* and *h'* around the cams J and J' until the depressions *j* and *j'* therein are again reached.

Between the cams J and J' at each end of the cylinders C and D is a vertical slot or opening K, one-half of which is cut out of each cam J and J', and directly above said slots K is a shaft *k*, mounted in the side frames A A. To this shaft *k* arms L are secured, which project downwardly through the slots K between the cams J and J'. The edges of the arms L are cut out concave in shape, the curves of which concave surfaces *l l'* corresponding exactly with the circles of the insides of the cams J and J', so that when said arms L are oscillated to the right, as shown in Fig. 3, they receive the friction-rollers *h h* on the ends of the bar or rib H and prevent their passing into the depressions *j* in the surfaces of the cams J, while at the same time permitting the rollers *h' h'* on the bar or rib H' to pass into the depressions *j'* in the cams J', and vice versa. When oscillated to the left, the rollers *h' h'* are prevented from passing into the depression *j'* in the cam J' and the rollers *h* pass freely into the depressions *j* in the cams J.

To the shaft *k* at one end thereof is secured a laterally-projecting arm M, and on a shaft O' is loosely mounted a cam-wheel N, having a gear-wheel thereon, which intermeshes with a pinion *n*, secured to the shaft D' of the cylinder D, so that the cam-wheel N revolves at one-half the speed of the cylinders C and D. A roller *m* on the end of the arm M operates in the cam N' in the wheel N, so as to oscillate the arms L to the right at each alternate revolution of the cylinders C and D, and likewise to the left at each alternate revolution thereof, so that the friction-rollers *h h* only pass into the depressions *j* in the cams J, so as to allow the bar or rib to move outwardly at each alternate revolution of the cylinder C, and likewise the friction-rollers *h' h'* only pass into the depressions *j'* in the cams J', so as to allow the bar or rib H' to move outward at each alternate revolution of the cylinder D.

Around the cylinders C and D are annular grooves *o*, and on oscillating shafts O O', located outside of and parallel with the cylinders C and D, are secured fingers P P', which pass under the cylinders C and D, and when raised enter the grooves *o* therein, as illus-

trated in Fig. 5, and operate to disengage sheets from the pins *g* in said cylinders and allow them to pass off to folders; but when lowered away from the cylinders, as illustrated by the finger P' in Fig. 4, the sheets will pass on around the cylinder, as shown in Fig. 4. The fingers P', I preferably make so as to embrace nearly two-thirds of the circumference of the cylinder D and operate when sheets are being carried entirely around the cylinder D to prevent the sheets from becoming disengaged from the pins *g* in the cylinder.

In operation the web F passes from the type and impression cylinders (not shown) under the roller Q, and thence between the cutting-cylinder B and the switching-cylinder C, where the web is severed by the cutting-blade E, and at the same time the forward edge of the web is pushed down upon the points of the pins *g* in the cylinder C. These pins *g* then lead the forward end of the sheet down between the cylinders C and D, where the end of the sheet meets the points of the pins *g* in the cylinder D, the arms L being at that instant thrown to the left by the operation of the lever M and cam N'. The bar or rib H in the cylinder C moves outward, pushing the front end of the sheet off of the pins *g* in the cylinder C and upon the points of the pins *g* in the cylinder D, which pins lead the front end of the web under the cylinder D, where the fingers P' operate to remove the front end of the web from the pins *g* in the cylinder D, the sheet then traveling on toward the left, as illustrated in Fig. 3. At the next revolution of the cutting-cylinder B the sheet hereinbefore referred to is severed from the web F and the front end of the severed web again pressed down upon the points of the pins *g* in the cylinder C, whence it is carried down between the cylinders C and D, the arms L now having been moved to the right by the lever M and cam N'. The bar or rib H' in the cylinder D moves outward, covering the points of the pins *g* in the cylinder D, leaving the front end of the web still on the pins *g* in the cylinder C, which operates to conduct the sheet around under the cylinder C, until it is removed therefrom by the fingers P, and passes off to the right, as illustrated in Fig. 5. Thus it will be observed the sheets pass alternately to the left and right, enabling me to use two folders, each receiving and folding the alternate sheet.

In Fig. 4 I illustrate the operation of my device for accumulating one sheet upon another. In this case the fingers P' are lowered down, so as to allow the front end of the sheet to pass up and around the cylinder D, and the fingers P are raised up under the cylinder C, so as to remove the sheets therefrom. As the front end of the web passes between the cutting-cylinder B and the cylinder C it is forced down upon the points of the pins *g* in the cylinder C, and the front end of the web is then carried down between the cylinders C and D,

when by the movement of the arms L to the left the bar or rib H moves outward and pushes the end of the web off of the pins *g* in the cylinder C and upon the pins *g* in the cylinder D, which then lead the front end of the sheet on around the cylinder D, as illustrated in Fig. 4. At the next revolution of the cutting-cylinder B the rear end of this sheet is severed from the web F and the front end of the web F pushed down upon the pins *g* in the cylinders C, which front end of the web is then carried down between the cylinders C and D, where it meets the front end of the sheet before referred to in its travel around the cylinder D, the arms L meanwhile having been moved to the right. The front end of the first sheet is removed from the pins *g* in the cylinder D by the operation of the bar or rib H' and pressed upon the pins *g* in the cylinder C on top of the front end of the web, then being carried around the cylinder C, the front ends of the two sheets being thence carried on around under the cylinder C by the pins *g* therein until removed therefrom by the fingers P, from whence they pass on to the folder.

Having thus fully described my invention, so as to enable others skilled in the art to which it appertains to construct and use the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a web-printing-press switching-cylinder, of a radially-moving bar or rib in a longitudinal groove in the periphery of said cylinder, stationary pins secured in said cylinders and projecting radially outward through holes in said bar or rib and beyond the periphery thereof, so as to engage the front end of an incoming sheet, with stationary cam-surfaces adapted to engage the ends of said bars or ribs at the ends of said cylinder, and oscillating arms operating in said stationary cams, substantially as and for the purpose set forth.

2. The combination, in a web-printing-press switching-cylinder mechanism, of duplicate switching-cylinders, radially-moving bars or ribs in longitudinal grooves in the peripheries of said cylinders, stationary pins secured in said cylinders and projecting outward through holes in said bars or ribs and

beyond the peripheries thereof, so as to engage the front end of an incoming sheet, with stationary cams at each end of each of said cylinders, having slotted openings between them, and oscillating arms operating in the slotted openings between said stationary cams, substantially as and for the purpose set forth.

3. The combination, in a web-printing-press cutting and switching mechanism, of a switching-cylinder having a radially-moving bar or rib operating in a longitudinal groove therein, stationary pins secured in said cylinder and projecting radially outward through holes in said bar or rib and beyond the periphery thereof, so as to engage the front end of an incoming sheet, stationary cam-surfaces at each end of said cylinder engaging the ends of said bar or rib, and oscillating arms operating in said cams, with a cutting-cylinder adapted to contact with said switching-cylinder so as to sever an incoming web and press the front end of the severed web upon the pins in said cylinder, and fingers operating in grooves in said switching-cylinder to detach the sheet from said pins, substantially as and for the purpose set forth.

4. The combination, in a web-printing-press cutting and switching cylinder mechanism, of duplicate switching-cylinders, each having a radially-moving bar or rib therein, stationary pins secured in said cylinders and projecting radially outward through holes in said bars or ribs and beyond the peripheries thereof, and a cutting-cylinder contacting with one of said switching-cylinders, with stationary cams at the ends of each of said switching-cylinders engaging friction-rollers on the ends of the ribs or bars in said switching-cylinders, oscillating arms operating in slots between said stationary cams, and lever and cam mechanism for operating said oscillating arms at each alternate revolution of said switching-cylinders, substantially as and for the purpose set forth.

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

JOHN H. STONEMETZ.

Witnesses:

ARCHIBALD COLE,
J. D. CLARK.