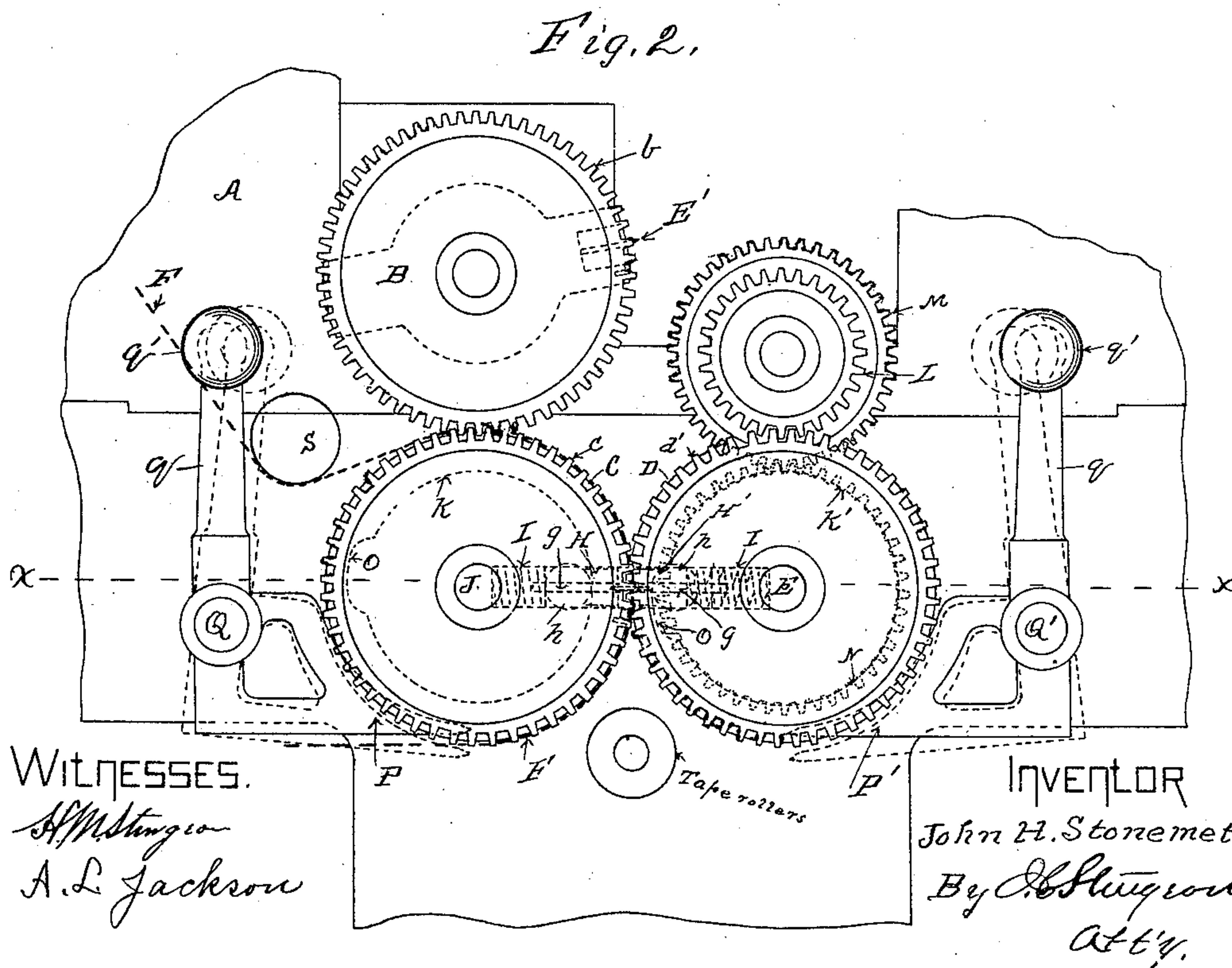
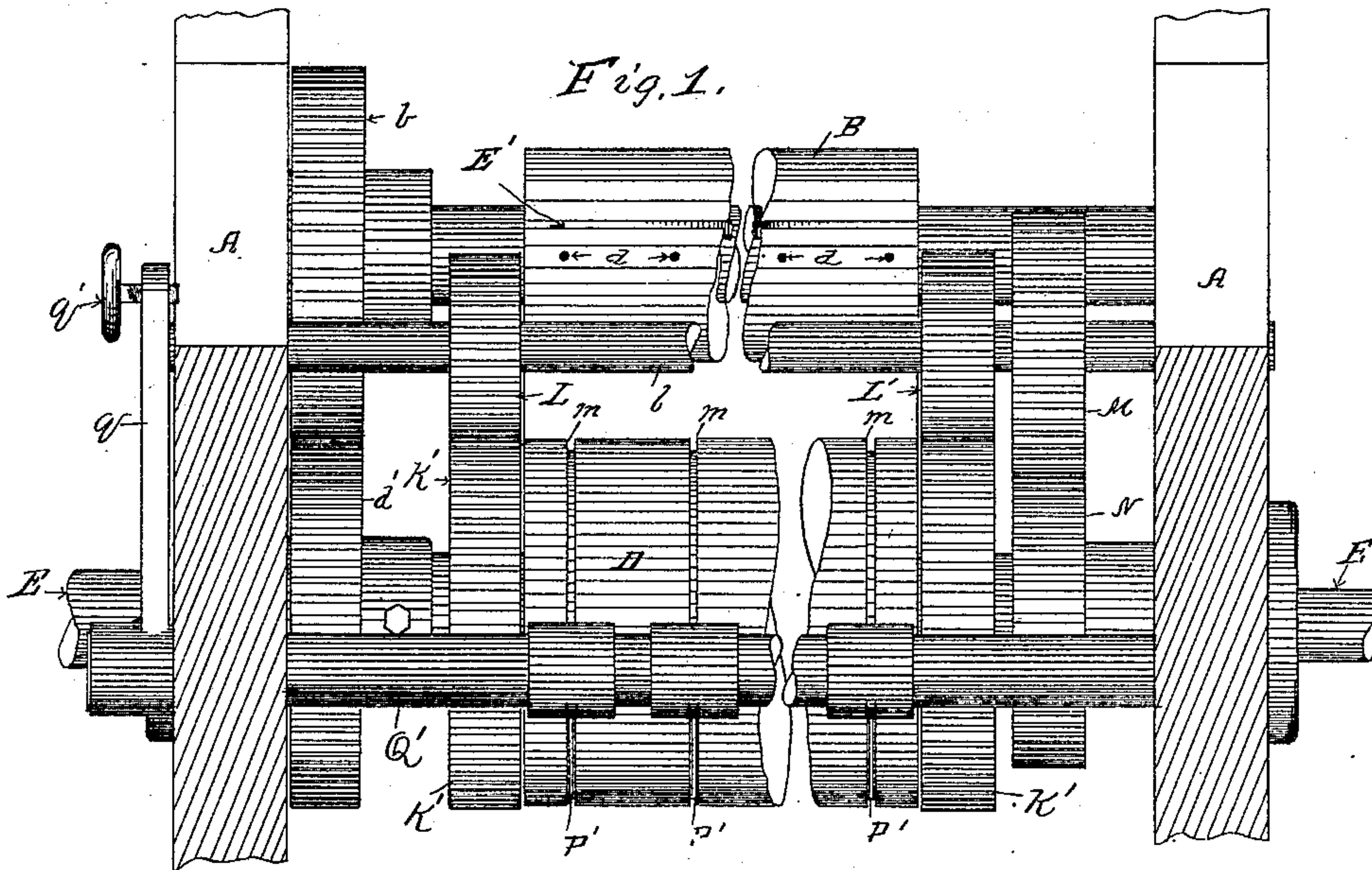


(No Model.)

2 Sheets—Sheet 1.

J. H. STONEMETZ.
CUTTING AND SWITCHING MECHANISM FOR WEB PRINTING MACHINES.
No. 452,243. Patented May 12, 1891.



WITNESSES.

A. M. Sturgeon
A. L. Jackson

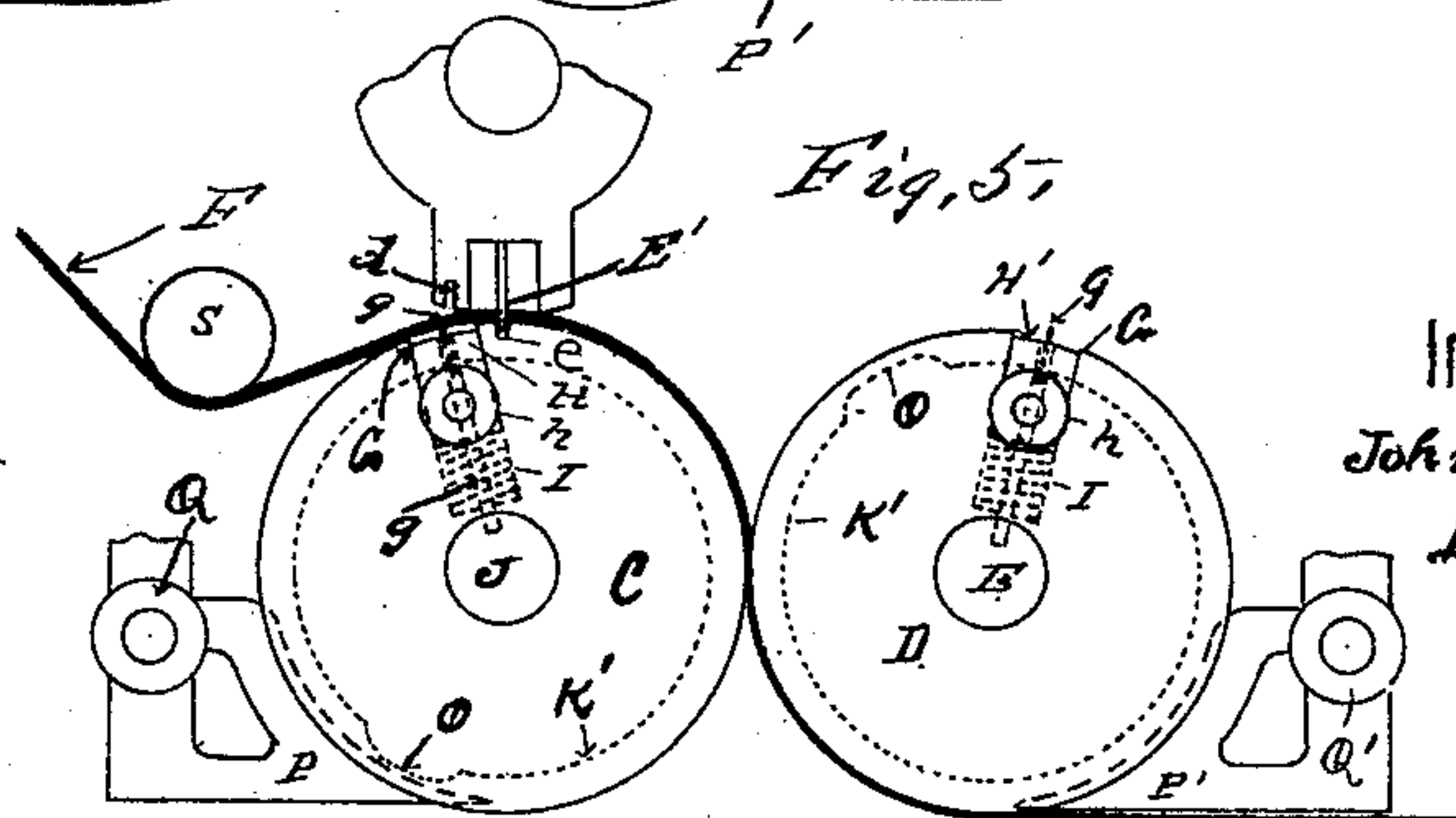
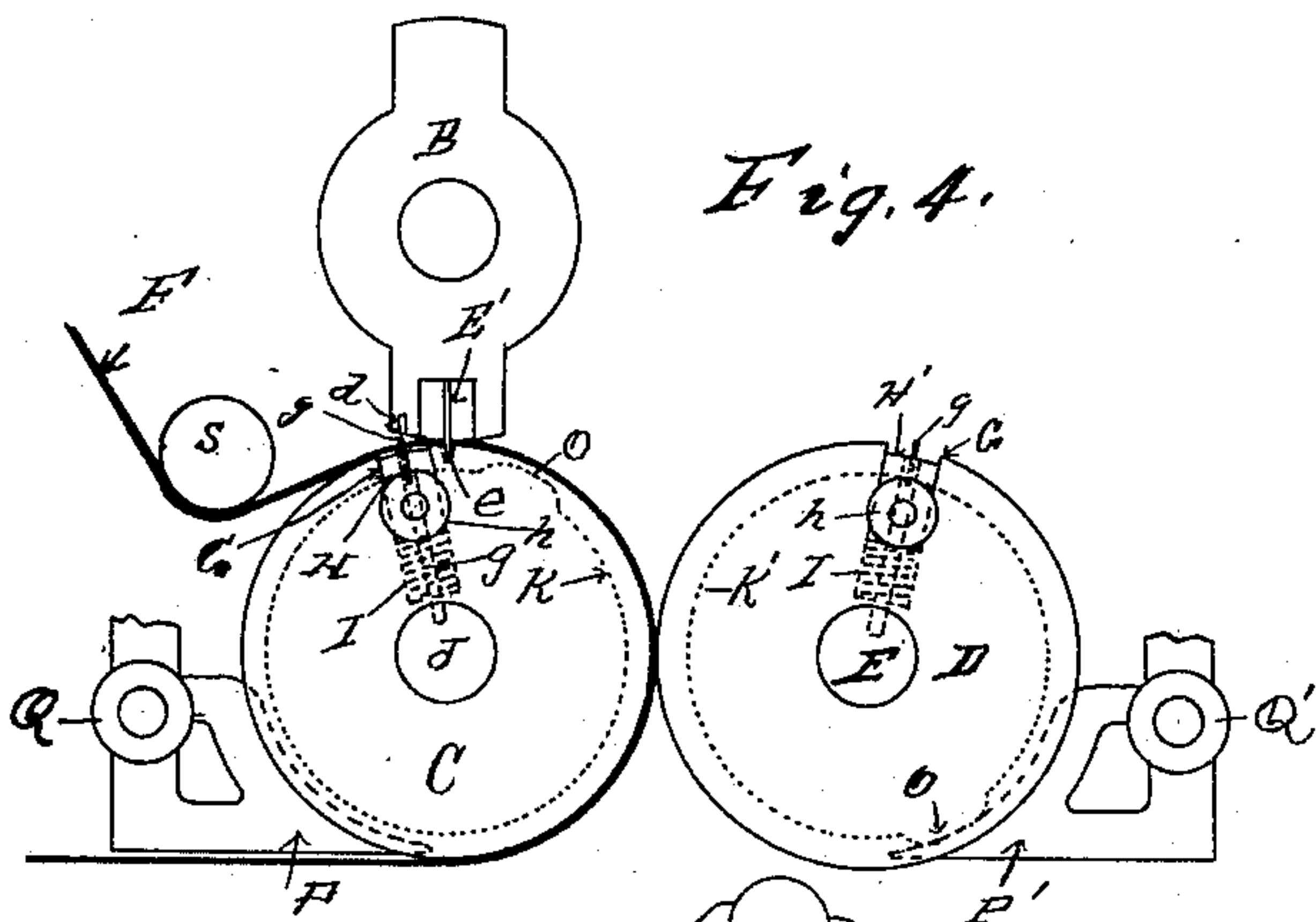
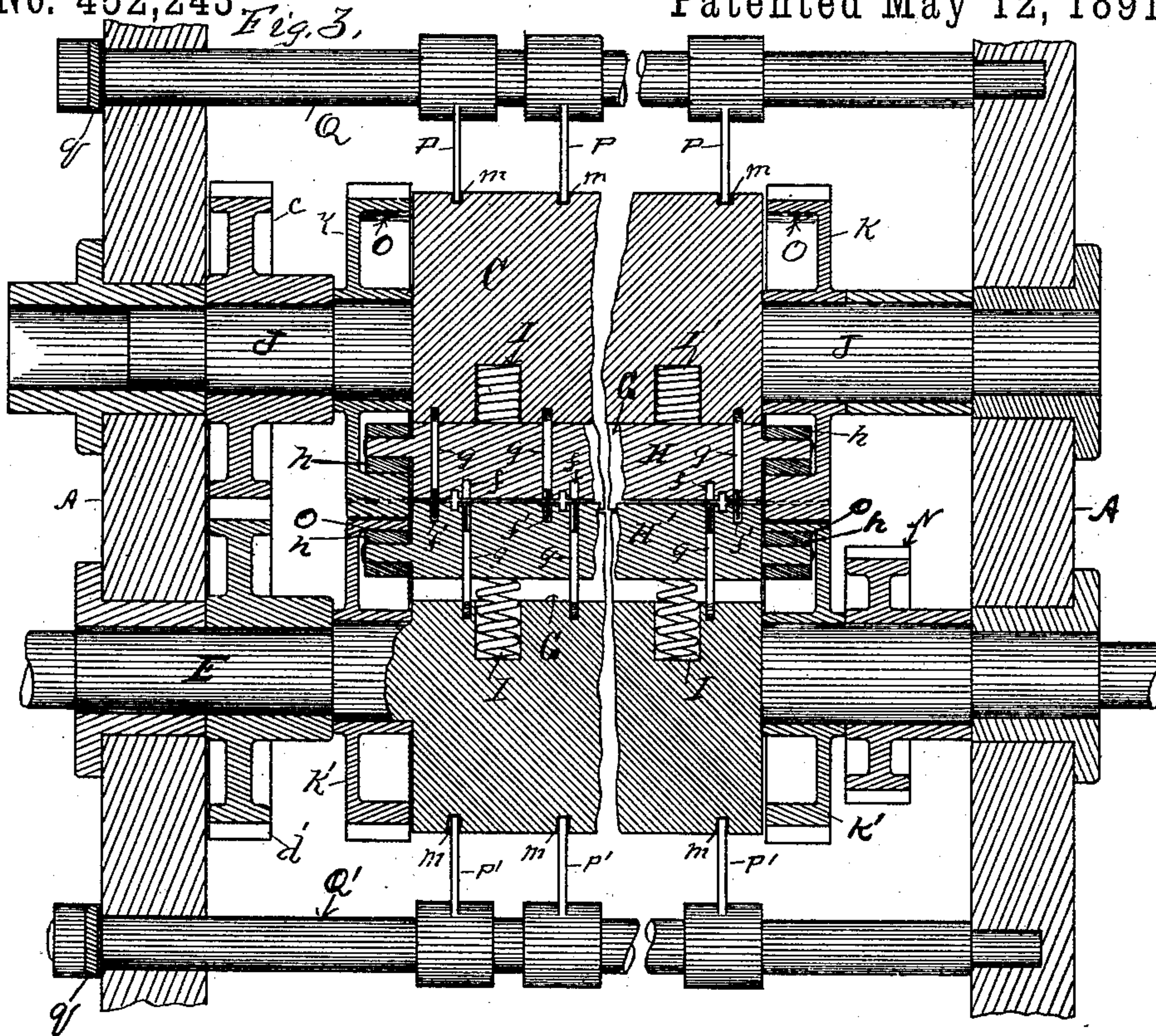
INVENTOR

John H. Stonemetz.
By A. M. Sturgeon
Att'y.

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CUTTING AND SWITCHING MECHANISM FOR WEB PRINTING MACHINES.

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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. 452,243, dated May 12, 1891.

Application filed November 25, 1890. Serial No. 372,648. (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 the 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 and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a section of a web-printing press embodying my improved cutting and switching mechanism. Fig. 2 is an end elevation of the same. Fig. 3 is a horizontal section of same on the line xx in Fig. 2. Figs. 4 and 5 are detail views illustrative of the travel of alternate sheets.

Like letters refer to like parts in all of the figures.

In the construction of my improved web-printing-press cutting and switching cylinder mechanism shown, $A A$ are sections of the the sides of a printing-press frame. In the portion $A A$ of the frame I mount a cylinder B , and directly under it I mount a switching-cylinder C , and to the right of and adjacent to the cylinder C and on the same horizontal plane therewith I mount a second switching-cylinder D , these cylinders C and D being of equal size and of such diameter that a printed sheet when cut off of the web will reach nearly or quite around the periphery thereof. The shaft E of the cylinder D is provided on the outer end thereof with a suitable gearing (not shown) intermeshing with the gearing on one of the impression or tympan cylinders of the press (not shown) and is driven thereby. The cylinders D , C , and B are also geared together by means of gear-

wheels of equal size d' , c , and b , so that they rotate at equal speed.

From the periphery of the cutting-cylinder B projects an ordinary serrated cutting-knife E' , adapted to enter a longitudinal groove e in the switching-cylinder C , so as to sever the web F at each revolution of the cylinders B and C .

In the cylinders C and D are longitudinal grooves G , in which are radially-moving bars or ribs H and H' , which extend beyond the ends of the cylinders C and D , where they are provided with friction-rollers h , as and for the purpose hereinafter set forth.

In the bottoms of the grooves G are secured radially-projecting pins g , which project outward through radial holes a in the bars or ribs H and H' and beyond said ribs slightly above the periphery of the cylinders C and D , holes d 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 on the cylinder C when they are rotated, and holes f and 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 , as and for the purpose hereinafter set forth. In the bottoms of the grooves G are also spiral springs I , which operate to force the bars or ribs H and H' outward radially, as hereinafter set forth.

On the shafts J and E of the cylinders C and D are loose internal cam-wheels $K K$ and $K' K'$, which engage with the friction-rollers h on the ends of the bars or ribs H and H' . These cam-wheels K and K' are geared together and are driven by gear-wheels $L L'$, intermeshing with the gearing on the cam-wheels $K' K'$, the gear-wheels L and L' being mounted on a shaft l , which has on one end thereof a gear-wheel M , which intermeshes with a gear-wheel N on the shaft E of the cylinder D , the gearing $M N$ being so proportioned as to drive the cam-wheels $K' K'$ and $K K$ at one-half of the speed of the cylinders C and D , both of the cylinders $C D$ and the cams $K K'$ traveling in the same direction. Each of the cams $K K$ and $K' K'$ has a depression O therein, and until the friction-rollers h on the bars or

ribs H and H' enter the depression O in the cams K K and K' K' the bars or ribs H and H' are retained by said cam-wheels at the bottoms of the grooves G in the cylinders C and D with the springs I compressed. When, however, the rollers h enter the depression O in the cams K K and K' K', the springs I operate to force the bars or ribs H and H' radially outward a sufficient distance to cover the outer ends of the pins g, so as to push the sheet off therefrom. The cam-wheels K K and K' K' are so set with regard to the depressions O therein and with relation to the radially-moving bars or ribs H and H' that each time the ribs or bars H and H' meet during the rotation of the cylinders C and D the depression O in either the cams K K or K' K' also reaches the same point and allows the rib or bar H or H', as the case may be, to move outward, as illustrated in Fig. 2, while the depression O in the other cam is at the opposite side of its cylinder. This is accomplished by having the cams move at one-half the speed of the cylinders. It will be observed that while the cutting-cylinder B meets the cylinder C and severs the web it also forces the front end of the web down upon the pins g in the cylinder C, which pins lead the front end of the web around the cylinder C and down between the cylinders C and D, where (in the case illustrated in Fig. 2) the depression O in the cam K' on the cylinder D meets the rollers on the bar or rib H' and allows it to move outward, so as to cover the pins g in the cylinder D, so that they will not engage with the front end of the sheet, which is still retained by the pins g in the cylinder C and carried on around said cylinder until it is detached therefrom by the operation of the fingers P, hereinafter described. When, however, this sheet is severed from the web by the next rotation of the cutting-cylinder B, and the front end of the web is again forced down upon the points of the pins g in the cylinder C, and the front end of the web is again carried down between the cylinders C and D, the depression O in the cam K on the cylinder C has passed around to the point of contact of the two cylinders and allows the bar or rib H on the cylinder C to move outward and push the front end of the sheet off of the pins g in the cylinder C and onto the pins g in the cylinder D, which pins g then lead the front end of the sheet around the cylinder D until it is detached therefrom by the fingers P', hereinafter described. Thus it will be observed that at each alternate revolution of the cylinders C and D one sheet travels to the left around under the cylinder C and the next sheet to the right around under the cylinder D.

Around the peripheries of the cylinders C and D are annular grooves m, and on the left of the cylinder C and the right of the cylinder D are rock-shafts Q and Q', on which are

mounted fingers P' and P', which project down under the cylinders C and D and enter the grooves m in said cylinders and operate to throw the front ends of the sheets off of the points of the pins g in the cylinders C and D when the front ends of the sheets reach said fingers in their traverse around the cylinders, so that the sheets will pass from the cylinders directly into paper-folders. (Not shown) These shafts Q and Q' are also provided with handles q on the outside of the press-frame, by means whereof the fingers P and P' may be lowered down from the cylinders C and D, so as to allow the sheet to be led on around said cylinders for the purpose of accumulating one sheet upon another.

When it is desirable to accumulate one sheet upon another, the arm q on the rock-shaft Q is moved forward, so as to move finger P out of contact with the cylinder C. Then the first sheet is carried on around the cylinder C and the front end of a second sheet is received on the pins g on top of the first sheet—that is to say, the front end of the web from which a second sheet is to be cut is imposed thereon at the second revolution of the cylinder C—and they are then carried down between the cylinders C and D, at which point the depression O in the cams K K on the cylinder C allows the bar or rib H in the cylinder C to move outward and push off the front ends of the accumulated sheets from the pins g in the cylinder C and onto the pins in the cylinder D, which pins g lead the accumulated sheets on around the cylinder D until thrown off by the fingers P', operating in the radial grooves m in the cylinder D, as in the case of alternate single sheets hereinbefore described. It will thus be observed that the cylinders C and D operate not only to switch and deliver sheets alternately to the right and left, but also to accumulate sheets one upon another and deliver the same ready to be folded together.

Having thus fully described my invention so as to enable others 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 stationary pins secured in said cylinder and projecting radially beyond the periphery thereof, with a bar or rib operating radially in a longitudinal groove in the cylinder and adapted to move outward to or beyond the points of said pins, substantially as and for the purpose set forth.

2. The combination, in a web-printing-press switching-cylinder, of stationary pins secured in a longitudinal slot or groove in the periphery of said cylinder and projecting radially beyond the periphery of the cylinder, with a bar or rib operating radially in said longitudinal slot or groove in the cylinder and adapted to move outward to or beyond the points of said pins, and a cam or cams at one

or both ends of said cylinder for operating said bar or rib, substantially as and for the purpose set forth.

3. 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 projecting radially above or beyond said bar or rib, and throw-off fingers adapted to strip the sheet from said cylinder.

4. The combination, in a web-printing-press switching mechanism, of duplicate switching-cylinders carrying pins adapted to engage the front end of an incoming sheet, a cutting device operating in contact with one of said cylinders, and throw-off fingers operating to strip the sheet from said cylinders.

5. The combination, in a web-press cutting and switching mechanism, of a cutting-cylinder, as B, switching-cylinders, as C and D, and gear-wheels, as *b c d*, of equal size, connecting said cylinders together, with longitudinal bars or ribs, as H H', in groove, as G,

in the peripheries of said cylinders C and D, pins, as *g*, projecting radially above or beyond said bars or ribs H H', cam-wheels, as K K', at each end of the cylinder C, engaging with friction-rollers, as *h*, on each end of the bar or rib H, springs, as I, in the cylinder C, under the bar or rib H, like cam-wheels, as K' K', at each end of the cylinder D, engaging with friction-rollers, as *h*, on each end of the bar or rib H', and like springs, as I, in the cylinder C, under the bar or rib H', said cam-wheels K and K' being geared together and adapted to rotate at half the speed of the cylinders C and D, and rock-shafts, as Q and Q', having fingers, as P and P', thereon, operating in near contact with said cylinders.

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

JOHN H. STONEMETZ.

Witnesses:

ARCHIBALD COLE,
J. D. CLARK.