

(No Model.)

3 Sheets—Sheet 1..

J. H. HOLMES.
PRINTING MACHINE.

No. 246,884.

Patented Sept. 13, 1881.

Fig. 1.

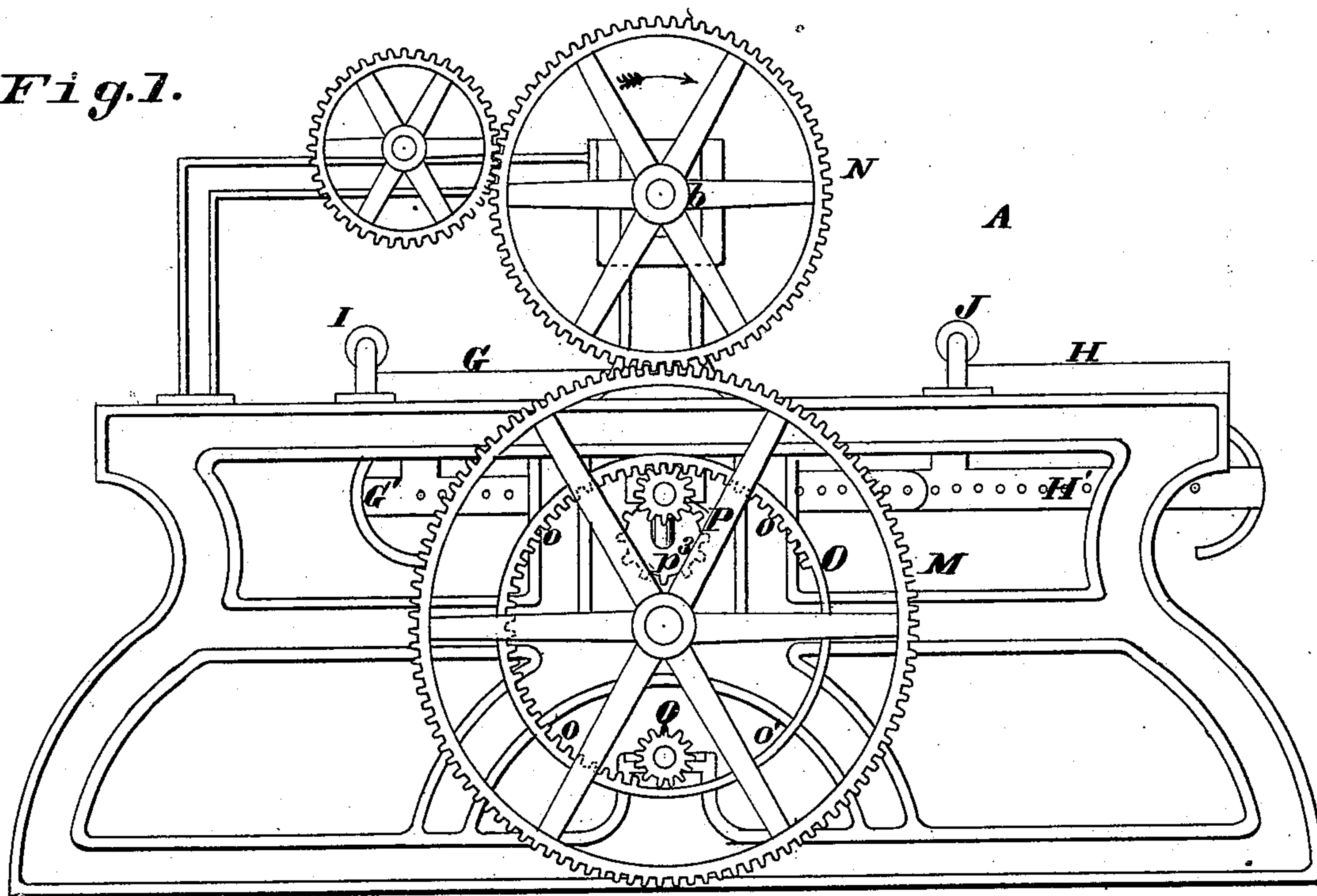
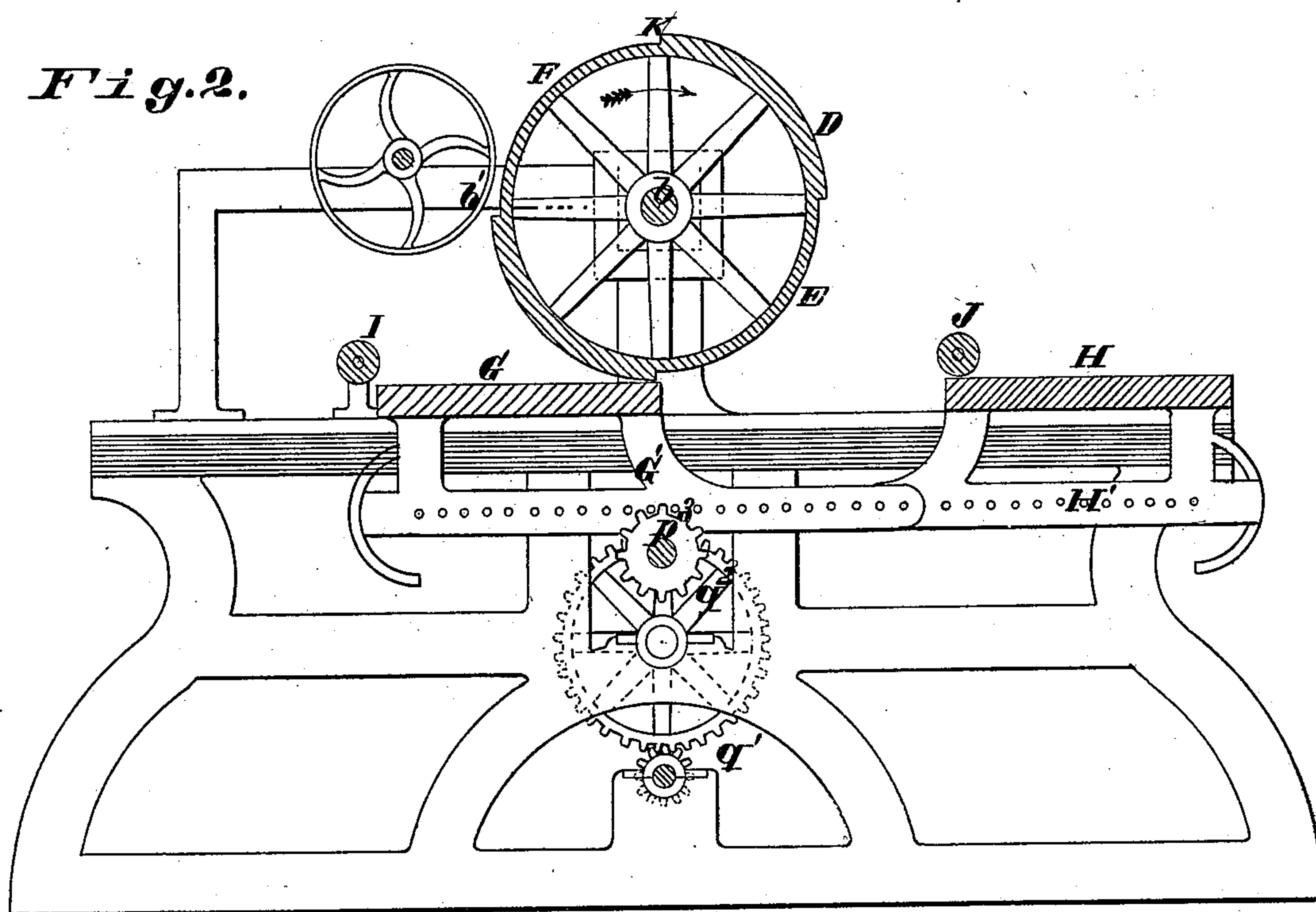


Fig. 2.



Attest. { Charles Pickles
Solon H. Vapp

Inventor { Jesse H. Holmes
by C.D. Moody, atty.

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Fig. 3.

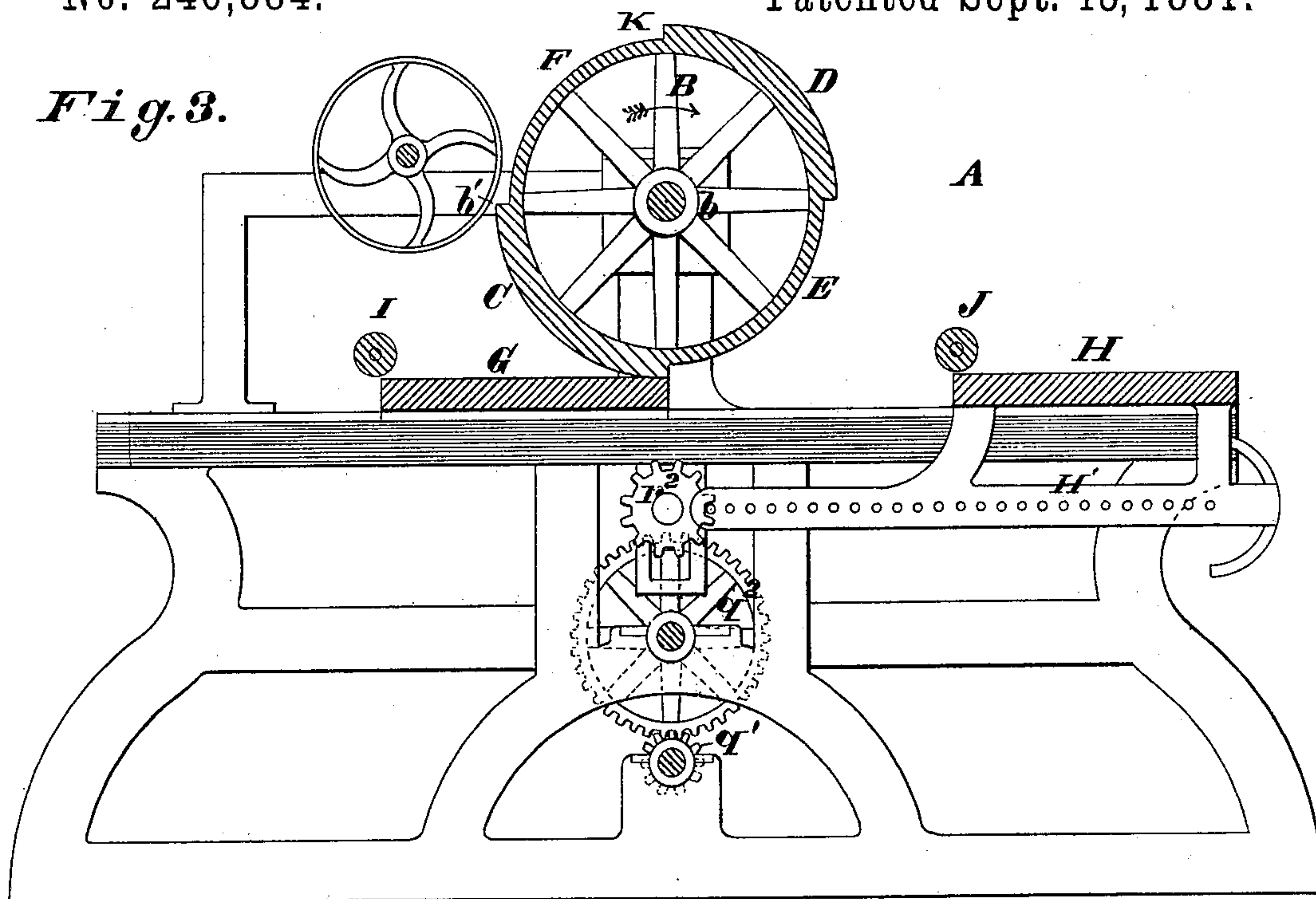
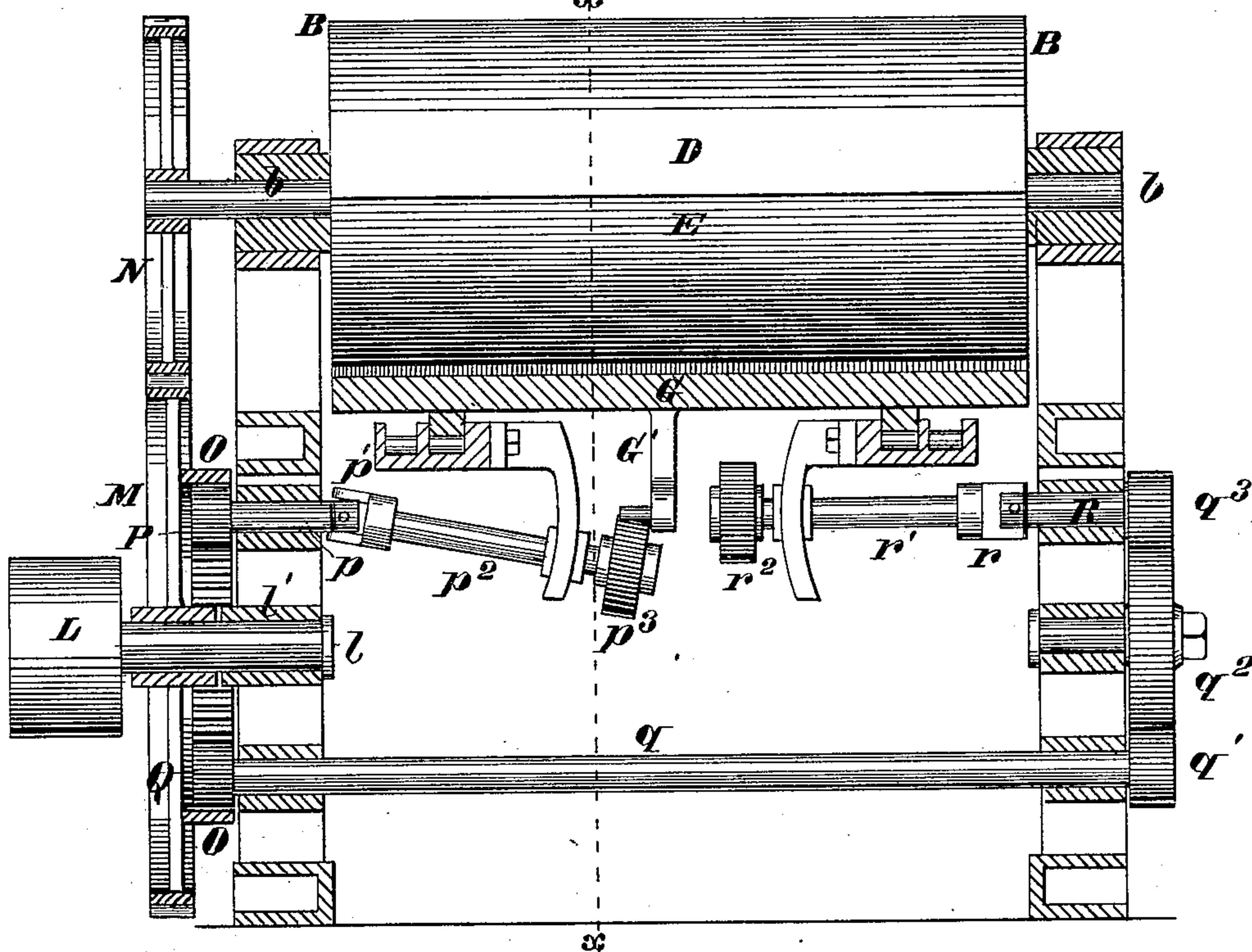


Fig. 4.



At test:
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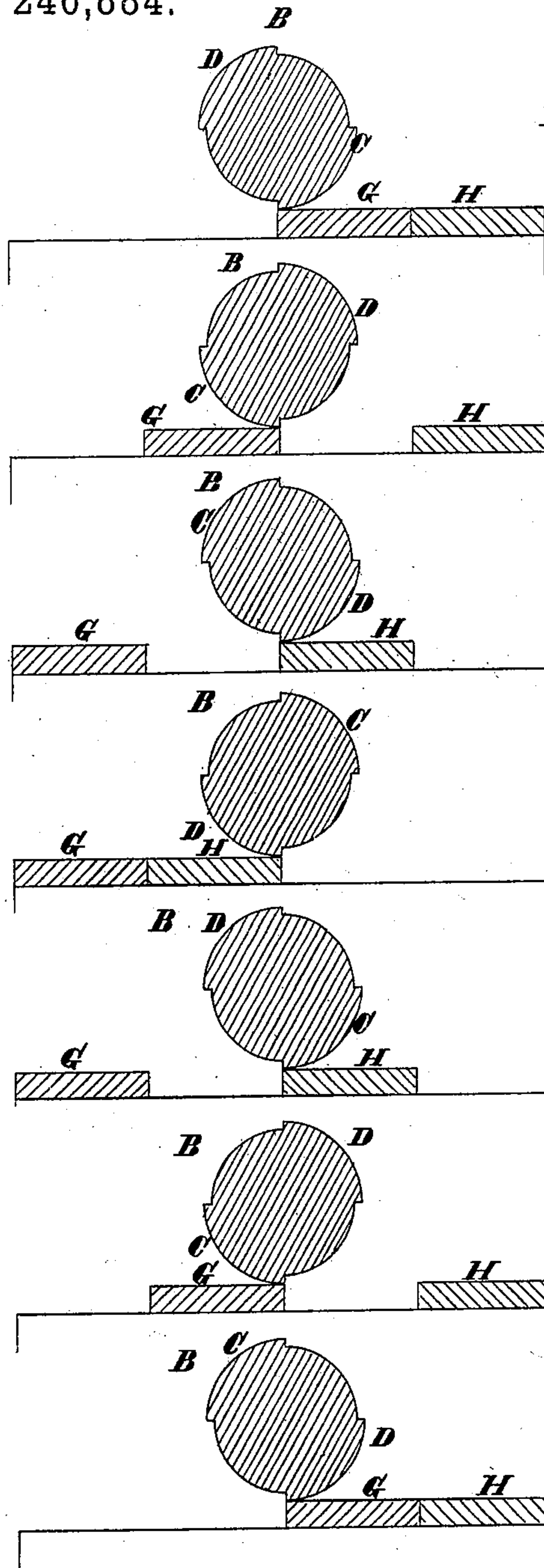


Fig. 5.

Fig. 6.

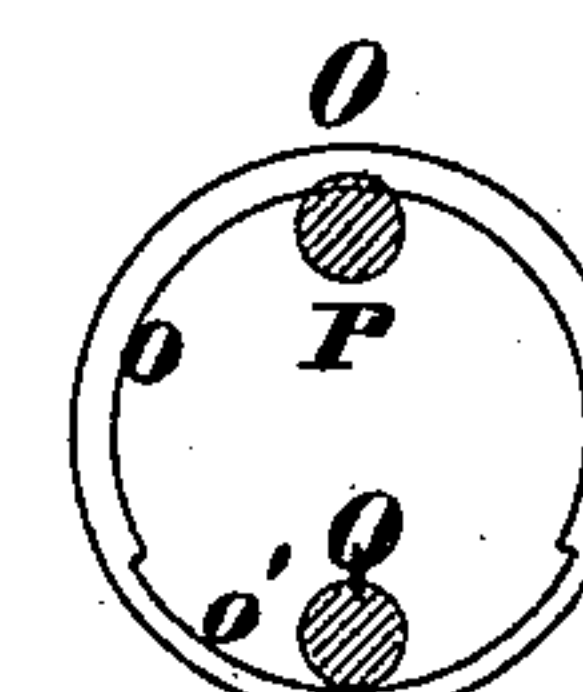
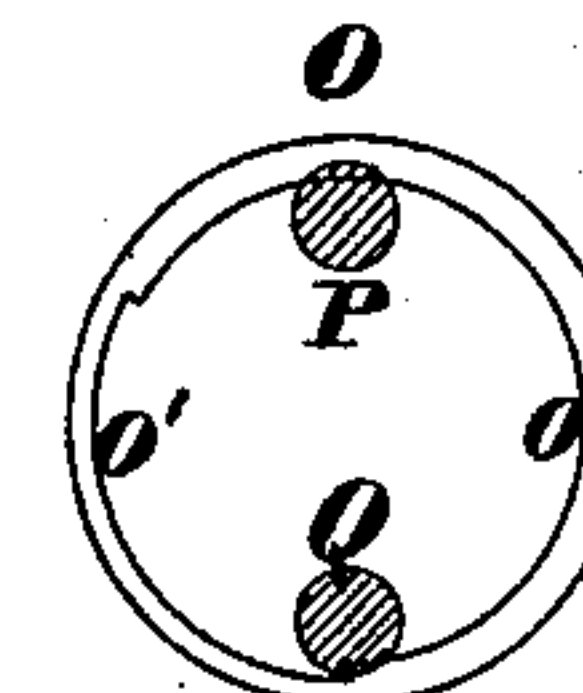
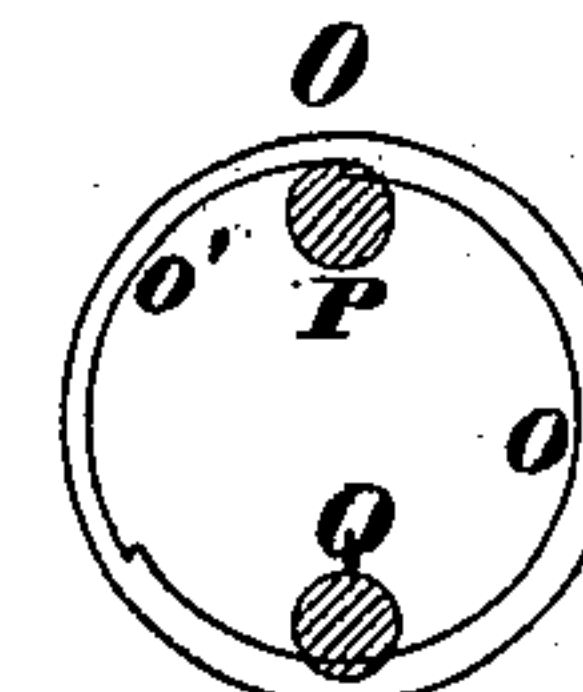
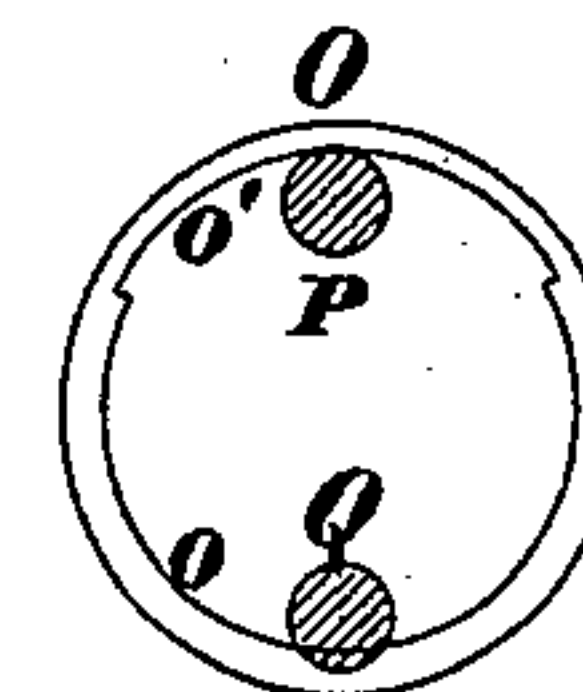
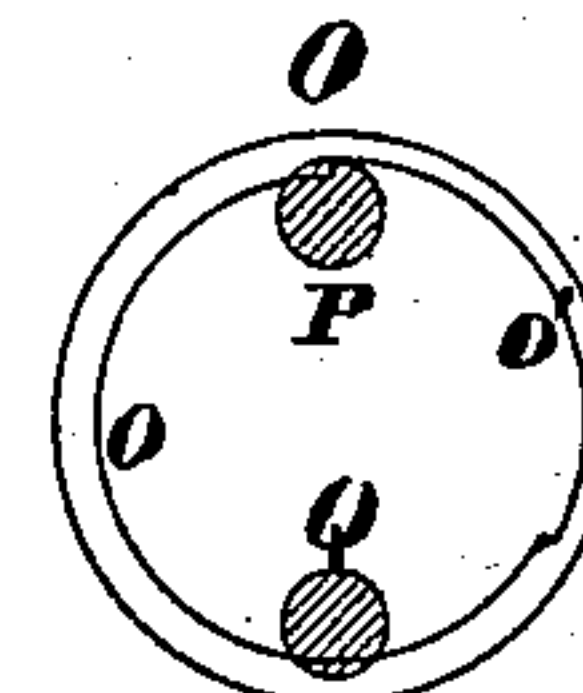
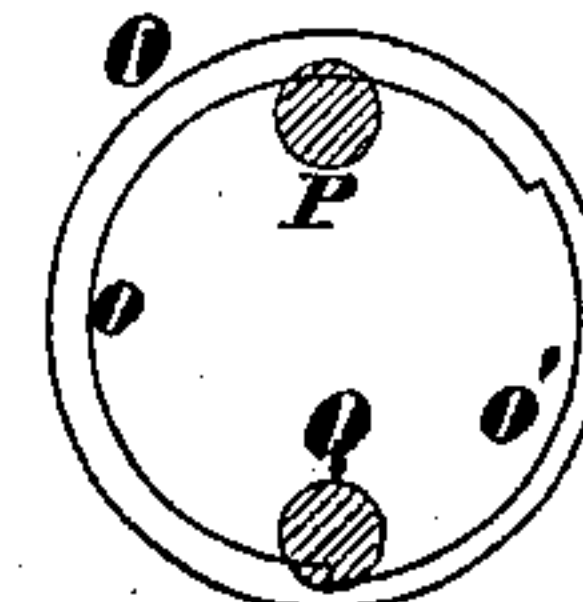
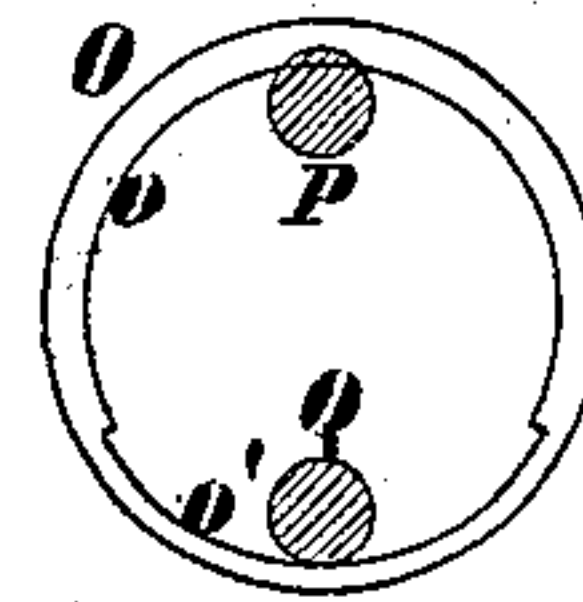
Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.



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UNITED STATES PATENT OFFICE.

JESSE H. HOLMES, OF ST. LOUIS, MISSOURI.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 246,884, dated September 13, 1881.

Application filed October 15, 1880. (No model.)

To all whom it may concern:

Be it known that I, JESSE H. HOLMES, of St. Louis, Missouri, have made a new and useful Improvement in Printing-Machines, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of a press having the improvement; Fig. 2, a section taken on the line xx of Fig. 4; Fig. 3, a central longitudinal section; Fig. 4, a vertical transverse section, and Figs. 5 to 11, inclusive, a series of diagrams illustrating the different positions of the beds.

The same letters denote the same parts.

I have heretofore made an improvement in that class of cylinder printing-presses wherein an impression in different colors is obtained. The construction referred to consists, substantially as follows: The impression-cylinder is provided with two impression-surfaces, which are spaced apart upon the cylinder a distance not less than the length of one of the surfaces, and, in combination with the cylinder, a double or two-part bed is employed, the bed having a reciprocating movement past the revolving cylinder, and the parts of the bed and the forms being spaced apart a distance not less than the length of one of the cylinder impression-surfaces. The forms upon the two parts respectively of the bed are inked in different colors, and the impression-surfaces of the cylinder are presented successively to each part of the bed. The parts of the bed are rigidly attached to a common base and move as one piece. Necessarily, then, considerable space longitudinally is required to operate in.

To avoid this difficulty and to enable the press to be made as compact as the ordinary presses is the aim of the present improvement, which is supplementary to the one above described; and it consists in the construction and operation of the beds of the press.

A represents the press, and B the impression-cylinder rotating in the bearings b and furnished with the impression-surfaces C and D, between which are the depressions E and F, substantially as in the original construction. The sheets to be printed are delivered to the impression-cylinder, and after being printed

are withdrawn therefrom as before and at the points K and b' respectively, and the operation generally of the press, saving that of the beds G H, is similar to that of the original press. The beds G H, instead of being rigidly fastened to the same base, are arranged to move independently of each other, each part moving twice its length forward and twice its length backward, as follows:

Motion is imparted to the press by belting the pulley L that is attached to the shaft l turning in the bearing l' .

M represents a gear attached to the shaft l and engaging with a gear, N, that is fastened to the shaft of the cylinder B. The wheel M is proportioned to the wheel N as six to four, and the circumference of the latter is to the length of either bed G or H as four to one. Therefore, during one revolution of the wheel M, the wheel N and cylinder B will make one and one-half revolution, the beds will complete a forward and backward movement beneath the cylinder, and a sheet will be printed and discharged from the press.

O represents an internal gear attached to and turning with the gear M.

P represents a pinion engaging with the gear O and attached to the shaft p , and, by means of the joint p' , connected with the shaft p^2 and pinion p^3 . The pinion P is one-sixth the size of the gear O. The teeth o in the latter extend but two-thirds, as shown in Fig. 1, around the wheel, being omitted at o' ; hence for each revolution of the wheels M and O the pinion P rotates four times. The pinion p^3 is one-sixth the diameter of the wheel M. It engages in the rack G' of the bed G. The rack is double the length of the bed, and it has twice as many teeth as the pinion p^3 ; hence four revolutions of the pinion p^3 cause the bed to make its full stroke—that is, move twice its length forward and backward.

Q represents a pinion the same size as the pinion P, and engaging with the gear O and attached to the shaft q . The latter extends across the machine, as seen in Fig. 4, and at its farther end is provided with a pinion, q' , which engages with a gear, q^2 , and that, in turn, with a pinion, q^3 . The latter is upon the shaft R, which, by means of the joint r , shaft r' , and pinion r^2 , is connected with the rack

H' of the other bed, H. The pinions p^3 and r^2 engage in the racks G' H' in the usual manner, part of the time being below and part of the time being above the racks.

5 The various parts of the press being thus connected and geared, the relative movements of the cylinder and beds are as indicated in the diagrams shown in Figs. 5 to 11. Beginning with the position of Fig. 5, the impression-surface C of the cylinder B is about to move over the bed G. At this point of time the beds G and H are together at the right, and the gear O is turned so that the pinion P is midway in the teeth o of the gear O and the
10 pinion Q midway in the blank space o' . As the surface C moves over the bed G the latter moves its length to the left and the parts assume the position shown in Fig. 6, the beds G and H being separated and the pinion Q about to come into engagement with the teeth o and be moved thereby. The cylinder continuing to revolve, the surface D is about to take an impression on the bed H, which, with the bed G, has moved one space (its length)
20 to the left, as shown in Fig. 7. The pinion P is now disengaged from the teeth o , and as the surface D moves over the bed H the latter moves to the left, closing against the bed G, as seen in Fig. 8. The next change is shown in Fig. 9, the bed G remaining in the same position as in Figs. 7, 8, the bed H being moved its length to the right and the pinion P about to engage with the teeth o . Both beds now move to the right, bringing the parts into the position of Fig. 10, in which the pinion Q is
30 about to become disengaged from the teeth o . The bed G alone now moves and to the right, bringing the beds G H back into the position of Fig. 5, but the impression-surface D, in

place of the surface C, in position to take an
impression. It will be noticed that during the backward movement of the beds—that is, from left to right—they (see Fig. 9) are opened apart when an impression-surface is about to be presented, and that the beds (see Fig. 10) close
45 together as a depression in the impression-cylinder is being presented.

I hereby disclaim the subject-matter described and claimed in my pending application (serial number 37,616) for Letters Patent for
50 an improvement in printing-presses.

I claim—

1. In a printing-press, a two-part bed, said bed having a reciprocating movement past the cylinder, and the parts G H of the bed moving independently of each other and always
55 in the same plane, substantially as described.

2. In a printing-press, the combination of an impression-cylinder, B, having two impression-surfaces, C D, of equal length and
60 spaced apart a distance not less than the length of one of them, and the flat beds G H, said beds moving reciprocatingly past the cylinder and independently of each other, substantially as described.

3. In a printing-press, the combination of a rotating impression-cylinder and the beds G H, said beds moving reciprocatingly past the cylinder and independently of each other, and operated, respectively, by means of shafts extending inward from the opposite sides respectively of the machine, and provided with pinions which engage with the racks G' and H' respectively, substantially as described.
70

JESSE H. HOLMES.

Witnesses:

C. D. MOODY,
CHARLES PICKLES.