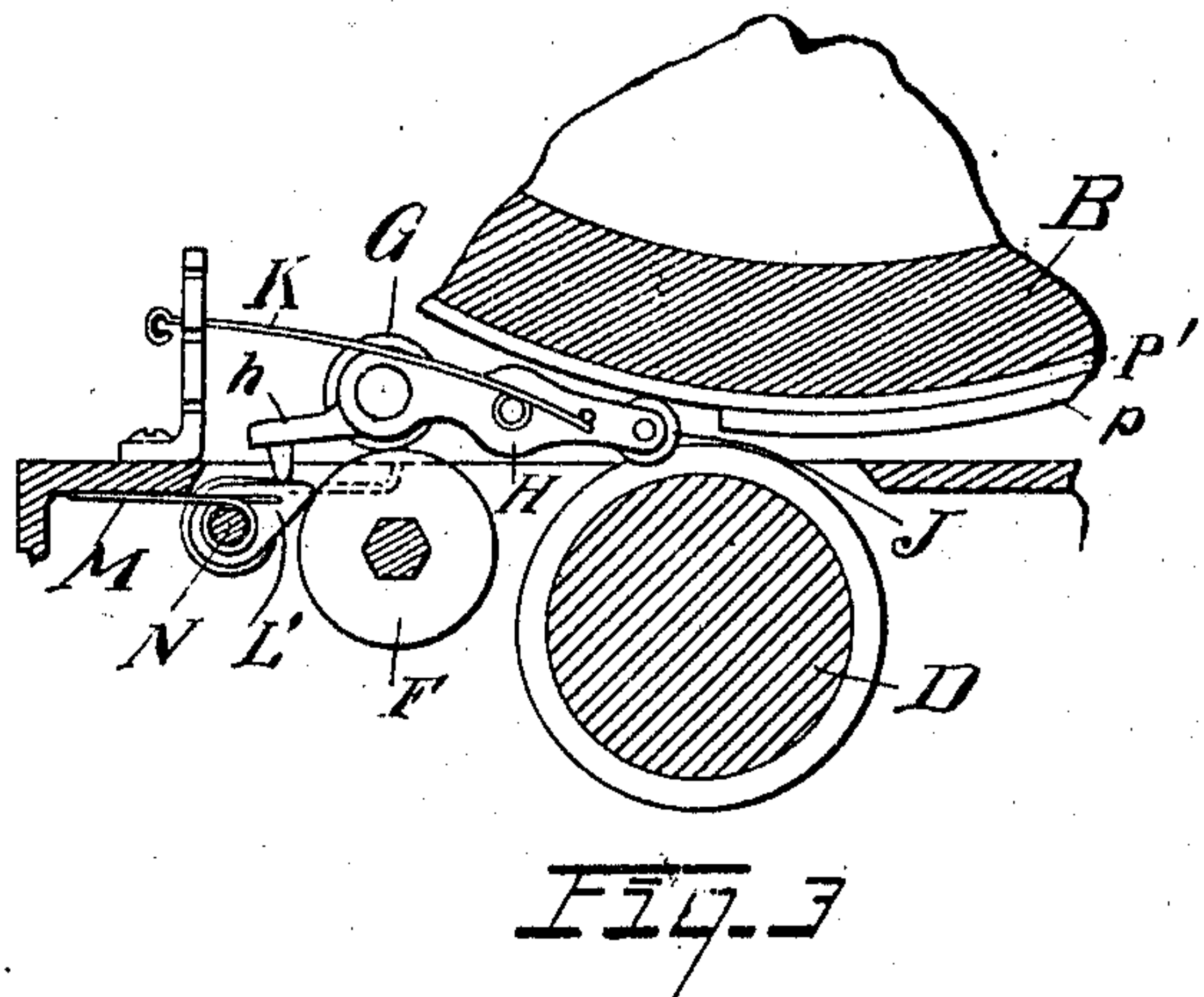
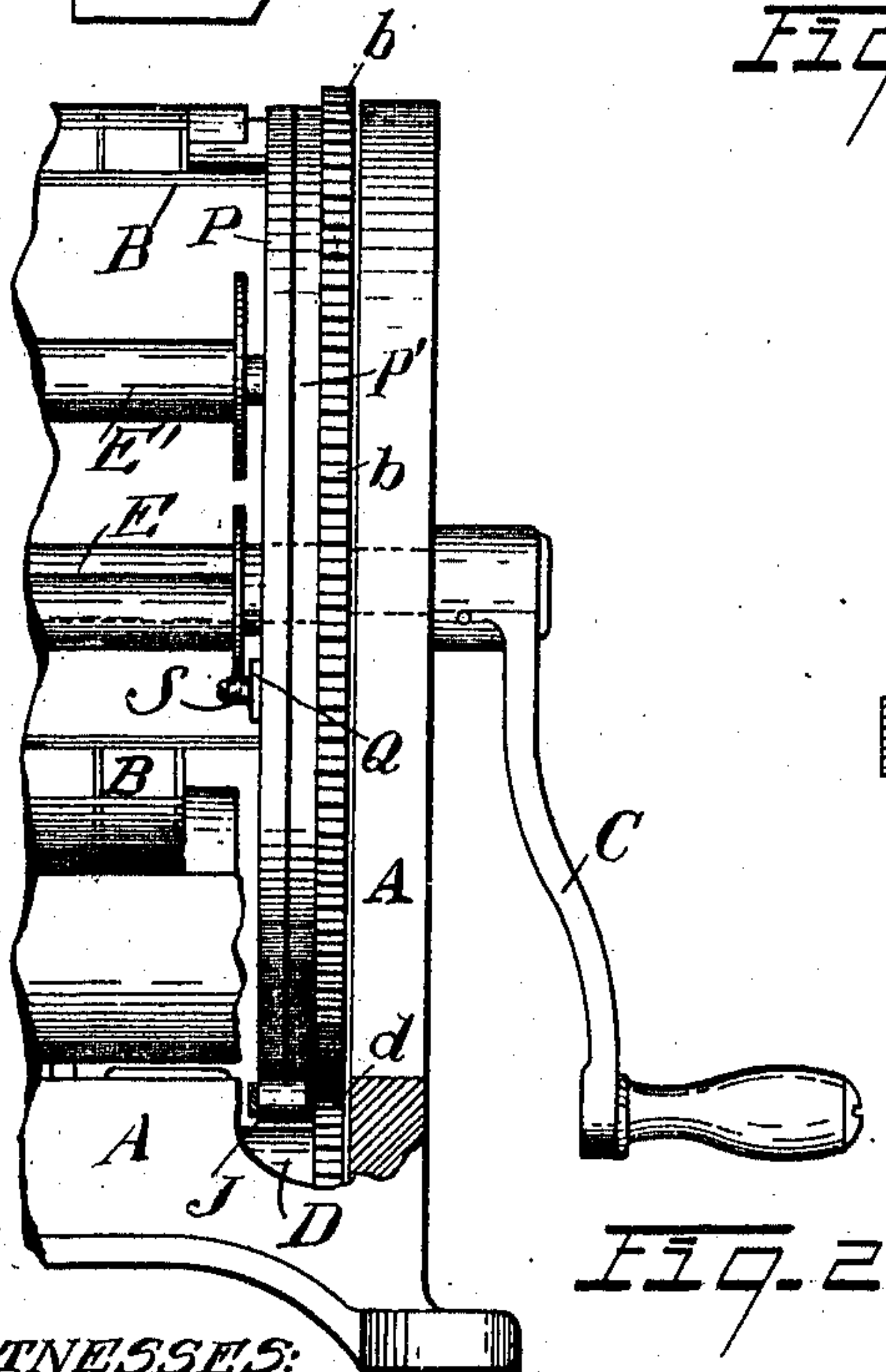
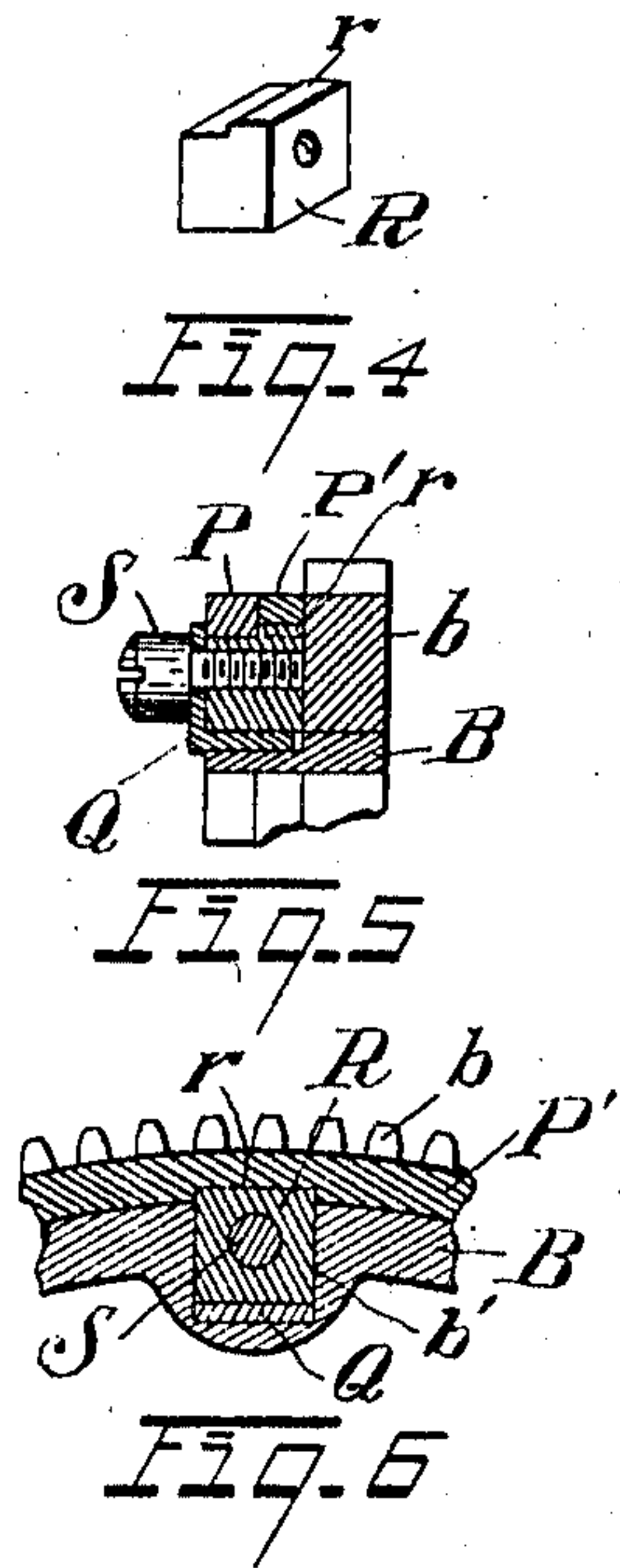
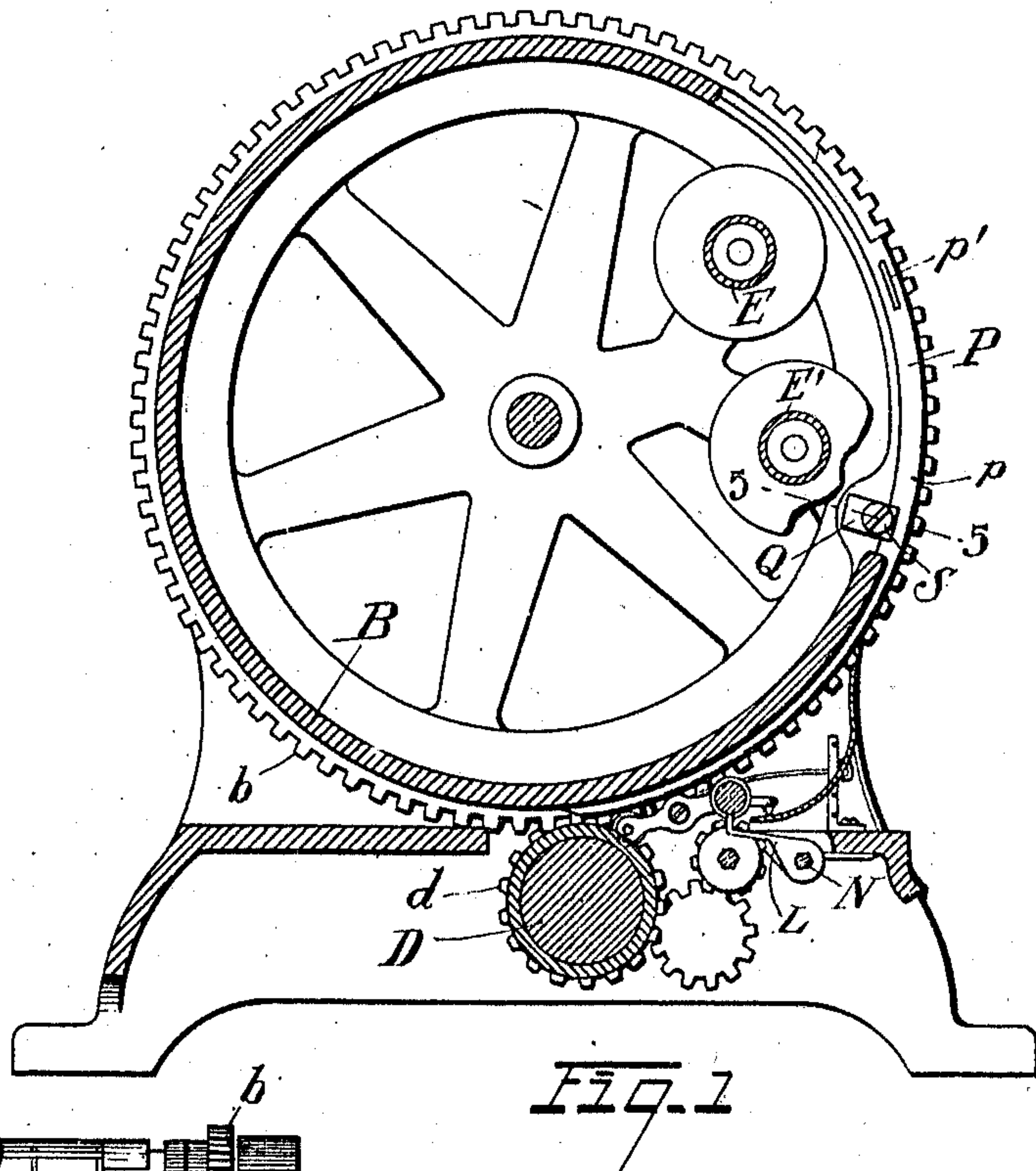


H. C. GAMMETER.
PAPER FEED MECHANISM.
APPLICATION FILED OCT. 9, 1907.

990,207.

Patented Apr. 18, 1911.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HARRY C. GAMMETER, OF CLEVELAND, OHIO, ASSIGNOR TO THE AMERICAN MULTIGRAPH COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PAPER-FEED MECHANISM.

990,207.

Specification of Letters Patent. Patented Apr. 18, 1911.

Original application filed October 22, 1906, Serial No. 339,909. Divided and this application filed October 9, 1907. Serial No. 396,571.

To all whom it may concern:

Be it known that I, HARRY C. GAMMETER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Paper-Feed Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to mechanism for feeding paper to printing presses, and particularly those presses wherein there is a rotary drum, the object of the invention being to effectively control the timing of the paper feed, not only as to its point of beginning but also its duration.

The invention is well adapted for embodiment in the printing machine commercially known as the multigraph, wherein there is a rotary printing drum adapted to carry individual type which cooperate with a suitable under-running platen, such as the embodiment herein shown.

The invention includes not only the arrangement of feed-controlling cams, but the simple and efficient lock therefor, as hereinafter more fully explained.

The invention may thus be most conveniently summarized as comprising the combination of parts described and set out as to their essential elements in the claims.

In the drawings, Figure 1 is a vertical section through a multigraph embodying this invention. Fig. 2 is a side elevation of the left hand portion of such multigraph. Fig. 3 is an enlarged sectional elevation in a plane parallel with Fig. 1 and nearer the left hand end of the machine and looking from that end. Fig. 4 is a perspective view of the locking block, Fig. 5 a cross section through such block and through the cam rings, this section being taken in a radial plane, as indicated by the line 5—5 in Fig. 1. Fig. 6 is a section through the locking block in a plane parallel with Fig. 1.

The multigraph shown in the drawings comprises the frame A carrying the rotary drum B and the under-running impression platen D. The frame and platen are geared together by gears *b* and *d* on these two members respectively. The frame is adapted to carry longitudinal rows of individual type, not shown. Mounted in a recess in the drum are ribbon spools E and E', and the ribbon

passes from one of these spools around the type on the drum to the other spool. A crank C furnishes means for driving the drum and platen.

To properly feed the paper to the drum and platen, I may provide the feeding rollers and paper stops which are shown and claimed in my Patent No. 846,992, issued March 12, 1907. Such is the mechanism herein shown, which consists of a continuous under-running feed roller F geared with the platen, and a superimposed feed roller G carried by pivoted arms H and adapted to be held out of engagement with the roller F by means of a cam on the drum which engages a roller J on one of the arms H. A spring K tends to keep the two rollers in engagement. When the rollers are out of engagement, as shown in Fig. 1, suitable stop fingers L mounted on the rock shaft N are projected into the path of the paper, forming stops for it. When, however, the cam allows the roller G to descend, an arm *h* on one of the arms H engages an arm L' on the rock shaft N and thereby swings the fingers down out of the way, against the action of the spring M.

In my patent referred to there is a single cam carried by the drum cooperating with the roller J and controlling the feed. Such cam may be adjusted to determine the time when the feed rollers go into engagement, such action taking place when the cam clears the roller J. With such mechanism, however, the feed rollers are always in action for a definite time.

The present invention is designed to control both the time of the beginning of the feed and its duration and to this end I mount two cams on the drum, side by side, either of which cams may act on the roller J so that the duration of the engagement may be varied. This construction will now be described.

On the surface of the drum adjacent to the gear *b* is a curved cylindrical surface surrounded by two rings P and P'. These rings have formed on them corresponding cam projections *p* which are adapted to operate the roller J as stated. These cams are of the same extent, so that when they are side by side the engagement of the roller is simply that equal to the length of one projection *p*, whereas, when the rings are shifted,

the effective engagement is increased up to a maximum of twice the length of one of a cam p . The cam ring P' is preferably rigidly held on the drum and the shifting is accomplished by moving the ring P independently. To enable such movement to be conveniently made with a suitable tool, as a screw driver, I form a notch p' in the side of this ring P , by which it may be engaged and shifted.

To conveniently lock the shiftable cam ring in any position, as well as to hold the stationary ring against any shifting, I provide the following mechanism. Mounted in a rectangular recess b' in the end member of the drum is a block R which stands beneath the two cam rings. This block is formed as shown in Fig. 4, having a projection r on substantially half its upper surface. This projection occupies a notch in the cam ring P' , as shown in Figs. 5 and 6, thereby preventing such ring shifting. The surface of the block beneath the ring P is concentric with the surface on which the ring rides, so that that ring may be easily shifted. Lying on the outer face of the block and also projecting beneath it into the recess b' is an L-shaped plate Q . This plate may be clamped against the block by a set screw S screwing into the block. Such action clamps the shiftable ring P between the plate Q and the shoulder provided by the outer face of the projection r . Whenever the set screw is loosened, the cam ring P may be conveniently shifted by means of a screw driver or other tool engaging the notch p' . When in position, the simple turn of the head of the set screw clamps the parts in place.

It is to be noticed that the thickness of the bottom portion of the plate Q is slightly greater than the height of the projection r . The result of this is that when the set screw is out and the plate removed, the block R drops inwardly radially to the base of the recess b' , and this lowers the projection r so that it clears the ring P and the block may be drawn out of the recess laterally. Conversely, in installing the parts, it is only necessary to insert the block R into the recess, elevate this block into position, insert the lower portion of the plate Q beneath the block and turn the set screw into position. The construction is thus extremely simple, while it has been found very effective in practice.

The mechanism constituting the subject of this invention is shown in connection with other features of the multigraph in my application No. 839,909, filed October 22, 1906, of which the present application is a division.

I claim:

1. In a printing mechanism, the combination of a printing member, an impression platen cooperating therewith, a gear on the

printing member meshing with a gear connected with the platen, a paper feeding device adapted to feed paper to the printing couple thus constituted, and overlapping cam rings mounted side by side on the periphery of the printing member between the gear thereon and the printing surface and adapted to adjustably control the paper feed.

2. The combination of a rotary printing member having a recess, a platen cooperating therewith, a paper feeding mechanism therefor, a pair of cam rings carried on the periphery of the printing member side by side, and adjustable the one along the other to vary the effective length of the cam, and means accessible in such recess to lock the cam.

3. The combination of a printing member, a platen, a paper feeding mechanism, an adjustable cam for controlling the paper feed and comprising two cam rings side by side, one of which may be shifted with reference to the other to vary the effective cam length, and a block and set screw for locking the shiftable cam ring.

4. The combination of a printing member, a platen, a paper feeding mechanism, an adjustable cam carried by the printing member and comprising two cam members side by side, one of which may be shifted with reference to the other to vary the effective cam length, and a block set into a recess in the printing member and provided with means for locking the shiftable cam member.

5. The combination of a rotary printing drum, a rotary platen, a paper feeding mechanism, two cam rings side by side, surrounding the drum and one adapted to be shifted with reference to the other to vary the effective cam length, and a block set into a recess in the printing drum and provided with a screw for locking the shiftable cam ring.

6. The combination with a printing drum of two rings side by side thereon, one of which may be shifted with reference to the other, and a clamping block and screw for the shiftable ring, having a projection engaging in a notch in the other ring.

7. The combination with a printing drum of two rings side by side thereon, one of which may be shifted with reference to the other, a block set into a recess in the ring-carrying member and having a projection engaging in a notch in one of the rings, and means for clamping the other ring.

8. The combination with a printing drum of two rings side by side thereon one of which may be shifted with reference to the other, a block set into a recess in the ring-carrying member and having a projection engaging in a notch in one of the rings and a set screw screwing into said block for clamping the other ring.

9. The combination of a rotary printing drum, two rings side by side thereon, one of which may be shifted with reference to the other, a block set into a recess in the drum and having a projection engaging in a notch in one of the rings and a set screw screwing into said block for clamping the shiftable ring.
10. The combination with a printing drum of two rings side by side thereon, one of which may be shifted with reference to the other, a block set into a recess beneath the rings and having a projection engaging in a notch in one of the rings, a set screw screwing into said block, and a plate on the outer side of said block adapted to bear against the ring which the projection does not occupy, said set screw engaging said plate.
11. The combination with a printing member, of a pair of rings mounted thereon, a recess in the member beneath the rings, a block occupying such recess and having a projection adapted to occupy a notch in the innermost ring, said recess being deep enough to allow the block to descend to allow such projection to pass beneath the other ring, and means for filling the space beneath the block to hold its projection in engagement with the corresponding ring.
12. The combination with a printing drum, of a pair of cam-rings mounted thereon, a recess in the drum within the rings, a block occupying such recess and having a projection adapted to occupy a notch in the farther ring, said recess being deep enough to allow the block to descend to allow such projection to pass beneath the other ring, and means for filling the space beneath the block to hold its projection in engagement with the corresponding ring, said means comprising a plate which enters the space beneath the block and lies along the outside of the block.
13. The combination with a printing member, of a pair of rings mounted thereon, a recess in the member beneath the rings, a block occupying such recess and having a projection adapted to occupy a notch in the farther ring, said recess being deep enough to allow the block to descend to allow such projection to pass beneath the first ring, a plate which enters the space beneath the block and lies along the outside of the block and adjacent ring, and a set screw screwing through the outer portion of said plate into the block.
14. The combination of a printing drum, an impression platen, a pair of paper feed rollers, arms for holding one of said rollers out of contact with the other, a roller carried by one of said arms, cams relatively adjustable and carried by said drum and adapted to engage said last mentioned roller to govern engagement of the feed rollers, and a block set into the drum and a set screw for locking said cams.
15. The combination of a type carrying member having a recess, a pair of overlapping cams, a block occupying said recess and engaging one cam, and a set screw on said block binding the other cam.
16. The combination of a rotary printing drum, a pair of overlapping cam rings surrounding the same, a block seated in the drum and engaging one cam ring, and a set screw on the block binding the other cam ring.
17. The combination of a rotary printing drum, a rotary platen, a paper feeding mechanism, two cam rings side by side surrounding the drum at one end, and a clamping device occupying a recess in the printing drum and binding said rings.
18. The combination of a pair of overlapping cams, a printing member carrying the same and having a recess, a block set into said recess, a distance piece between the block and one wall of the recess serving to hold the block in engagement with one of the cams, and means carried by the block for clamping the other cam.
19. The combination with a rotary printing drum of a pair of members mounted side by side thereon, a block formed to engage one member, a set screw carried by the block formed to clamp the other member, and a distance piece adapted to hold the block in engagement with the member first mentioned, said distance piece being itself held in place by said set screw.
20. The combination with a rotary printing drum of two cam rings thereon, one of them having a notch, a block occupying the notch, and means carried by the block for clamping the other ring.
21. The combination with a rotary printing drum of two cam rings thereon, one of them having a notch, a block occupying the notch, and a set screw screwing into the block and serving to clamp the other ring.
- In testimony whereof, I hereunto affix my signature in the presence of two witnesses.
- HARRY C. GAMMETER.
- Witnesses:
ALBERT H. BATES,
BRENNAN B. WEST.