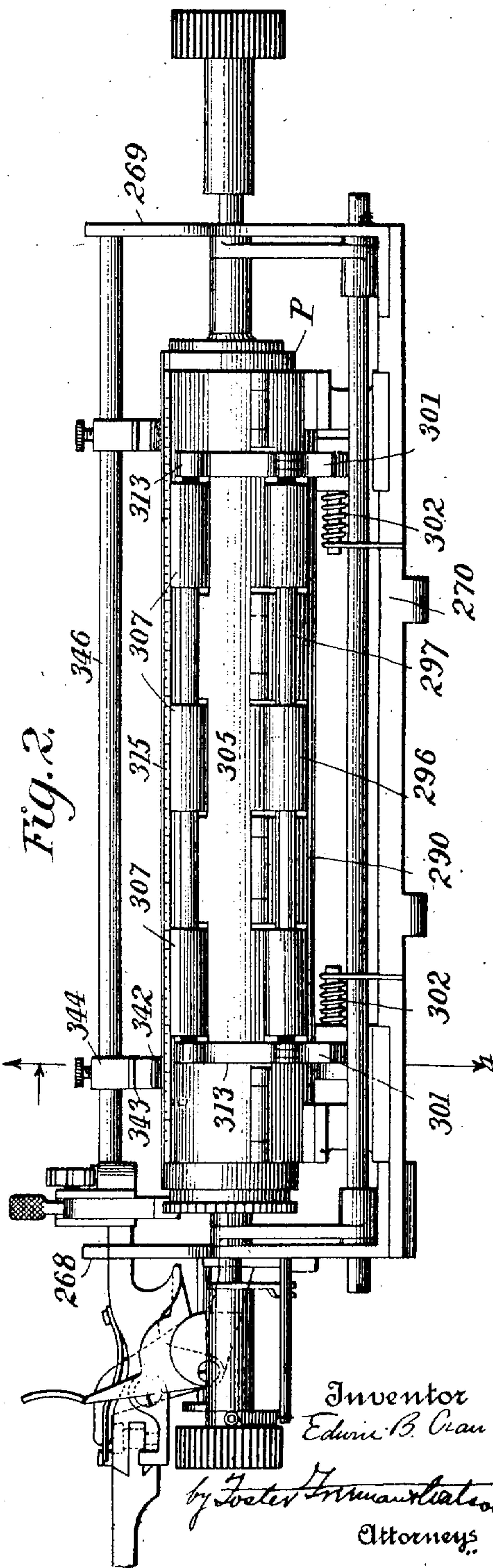
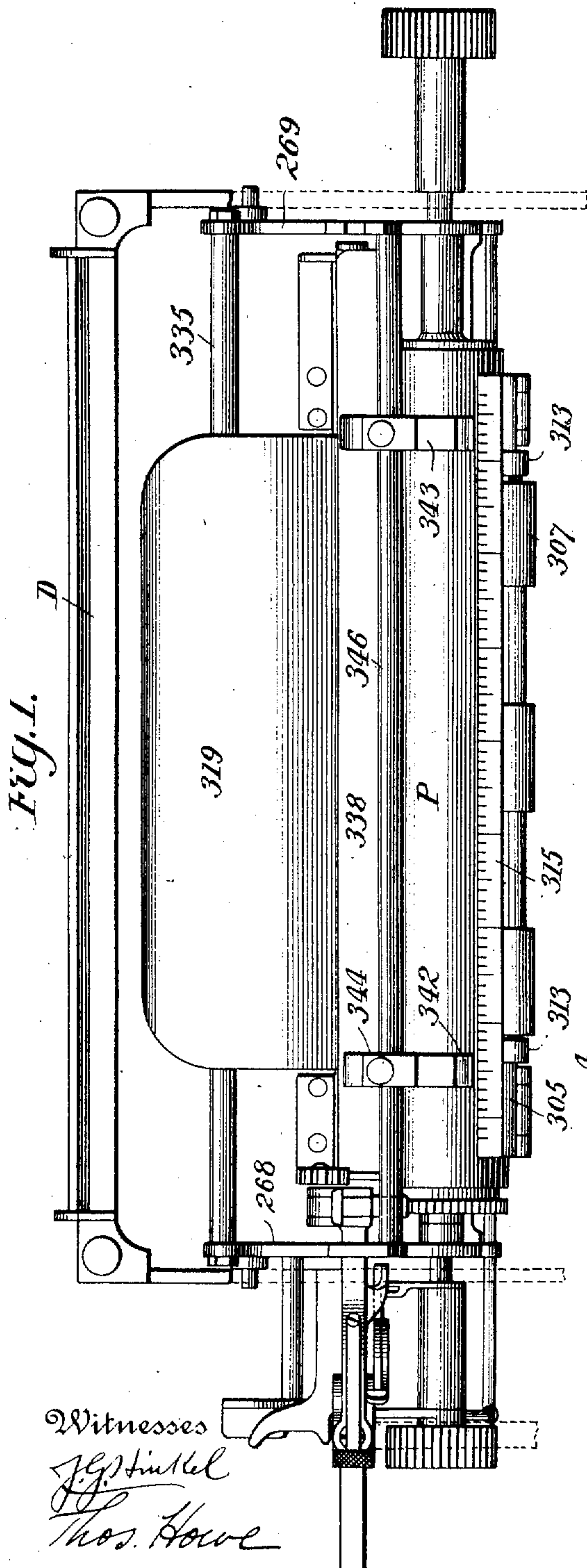


No. 847,166.

PATENTED MAR. 12, 1907.

E. B. CRAM.
PAPER FEEDING MECHANISM.
APPLICATION FILED APR. 28, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

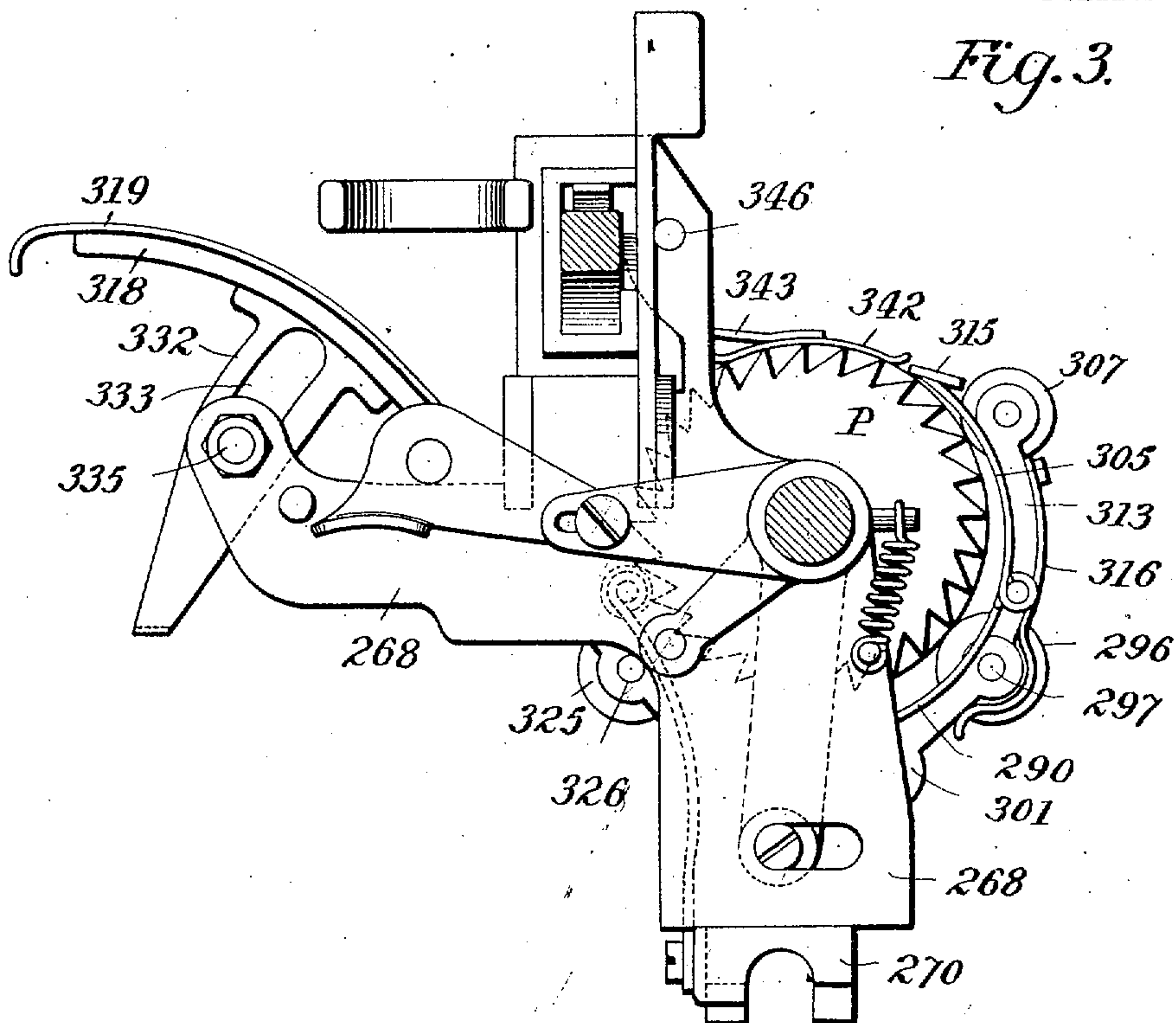
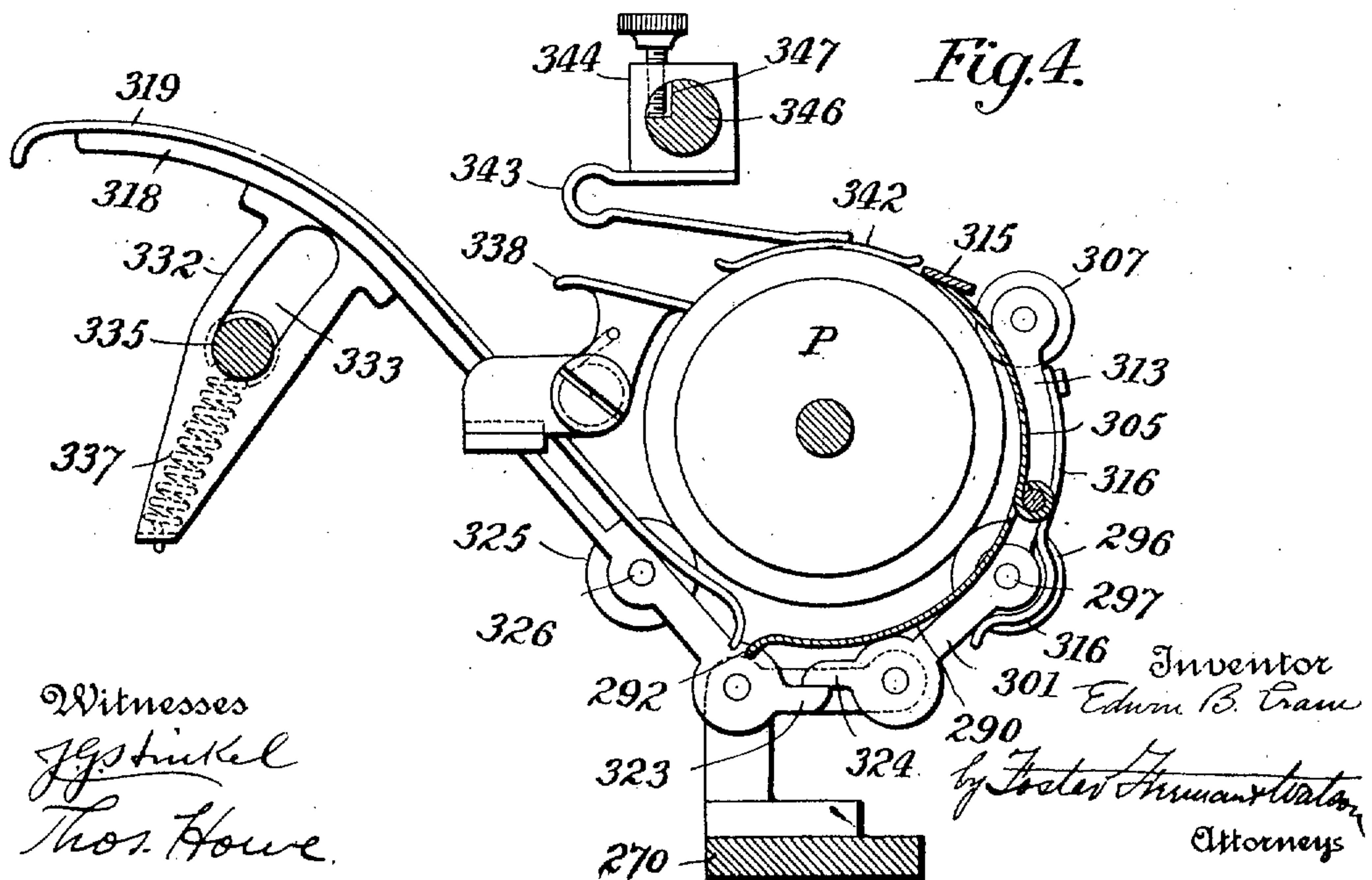


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWIN B. CRAM, OF BROOKLYN, NEW YORK, ASSIGNOR TO NEW YORK ADDING TYPEWRITER COMPANY, OF ORANGE, NEW JERSEY, A CORPORATION OF MISSOURI.

PAPER-FEEDING MECHANISM.

No. 847,166.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed April 28, 1904. Serial No. 205,305.

To all whom it may concern:

Be it known that I, EDWIN B. CRAM, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Paper-Feeding Mechanism, of which the following is a specification.

This invention relates to paper-feeding mechanism for type-writers, and has for its object the provision of improvements as hereinafter set forth.

In the accompanying drawings, Figure 1 is a plan view of a portion of the carriage of a type-writer to which the invention is applied. Fig. 2 is a side elevation of the subcarriage. Fig. 3 is an end elevation of the subcarriage. Fig. 4 is a section on the line 4 4 of Fig. 2.

The frame of the machine supports a transversely-movable carriage D, carrying a platen P, and a relatively movable subcarriage which supports the paper-feed mechanism. The subcarriage comprises the end plates 268 and 269 and the base-piece 270, to which the end plates are secured. Fixed to the base-piece 270 is a curved paper-guide plate 290, having its inner surface concentric with the surface of the platen. The rear edge 292 of the plate has a short curve which stiffens the plate and prevents the edge of the paper from catching in passing onto the plate. The forward edge of the plate has apertures through which rolls 296 extend and impinge against the platen, the forward edges being turned outwardly in a short curve, as in the case of the rear edge. The rolls are rotatably mounted on a shaft 297, which is supported by arms 301, hinged to the base-piece 270 and having springs 302, which force the arms and rolls toward the platen. The arms 301 have projections 324 beyond their hinges for a purpose as will be hereinafter set forth. Hinged to the paper-guide plate 290 is another guide-plate 305, having apertures for allowing rolls 307 to come in contact with the platen. The rolls 307 are rotatably supported by arms 313, connected to the arms 301 by knuckle-joints which permit lost motion, whereby the arms 301 may be moved some distance without moving the arms 313. Rigidly secured to the upper edge of the plate 305 is a scale 315 for gaging the position of the paper. Springs 316 are fixed to the

arms 313, their free ends bearing upon the arms 301. On the opposite side of the platen from the guide-plates 290 and 305 is a frame 318, carrying a paper-shelf 319. The frame is pivoted to the subcarriage and has at each end projections 323, which extend beneath projections 324.

The paper-shelf has apertures to permit rolls 325, journaled on a shaft 326, fixed in the frame 318, to come in contact with the platen, the shelf having a short curve where it meets the edge of the plate 290, for reasons as described in connection with that plate. Projections 332 are fixed to the frame 318 at each end and have closed slots 333, in which works a rod 335, fixed in the subcarriage end plates, whereby the frame is guided and limited in its movement. Springs 337 are secured to the projections 332 and to the rod 335, whereby the paper-shelf and rolls 325 are forced toward the platen.

A paper-guide shelf 338 for receiving and guiding the paper upwardly as it leaves the platen extends the length of the platen and is so supported by the frame 318 that it may rock into and out of contact with the platen, against which it is normally pressed by springs 339.

Upon each end of the platen bears a paper-clamp 342, which is fixed to a spring 343, which is in turn fixed to a block 344, rotatably mounted on a shaft 346, supported by the subcarriage end plates. The shaft 346 has a notch 347, and by means of screws carried by the blocks located to the rear of the centers of the blocks and engaging with the side of the notch the tension of the springs 343 can be regulated. The ends of the clamps overhang the scale slightly, so that the paper in leaving the platen must pass under the clamps. To place a sheet of paper in the machine, its edge is inserted between the rolls 325 and the platen, and the latter is turned in the usual manner, thus forcing the paper forward. In its course the paper is guided by the paper-shelf 319, passes under the rolls 325, is guided by the paper-guide plate 290, passes under the rolls 296, is guided by the upper paper-guide plate 305, passes under the rolls 307, the scale and the paper-clamps 342, one of which bears upon each lateral margin of the paper and is finally discharged upon the paper-guide shelf 338.

If it is desired to adjust the paper in the machine, the paper is grasped between the thumb and forefinger of each hand, the little fingers resting upon the paper-shelf 319. This operates to depress the paper-shelf and its supporting-frame and with it the rolls 325. Further depression of the frame causes the projections 323 to move upwardly and by coöperation with the projection 324 causes the arms 301 and rolls 297 to move outwardly. Further downward movement of the paper-shelf 319 causes the lost motion in the joints between the arms 301 and 313 to be taken up and the two sets of arms to move outwardly together, thus moving the rolls 307 outwardly. The paper may now be adjusted by a gentle pull in the proper direction, and upon the release of the pressure upon the paper-shelf the rolls will return to position in inverse order to that in which they were removed to secure the sheet without disturbing its adjustment.

Without limiting myself to the precise construction and arrangement shown, I claim—
 1. In a type-writer, the combination with a platen, of a plurality of sets of rolls at one side of the platen, a jointed series of supports for said sets, and a spring secured to one of said supports and extending across the joint between said supports to bear upon another of said supports, substantially as set forth.

2. In a type-writer, the combination with a platen, of a plurality of sets of rolls, the supports of one set of rolls being jointed directly to the supports of the other set, and means normally pressing said supports toward said platen, substantially as set forth.

3. In a type-writer, the combination with a platen, of a paper-shelf, a series of rolls about said platen, and means whereby pressure upon said paper-shelf operates to successively remove said rolls from said platen, substantially as set forth.

4. In a type-writer, the combination with a platen, of a paper-shelf, a series of rolls about said platen, means normally pressing said rolls toward said platen, means whereby the depression of said shelf operates to successively remove said rolls from said platen, and means tending to return said shelf to normal position, substantially as set forth.

5. In a type-writer, the combination with a platen, of a paper-shelf, a plurality of sets of rolls upon the opposite side of said platen from said shelf, and means whereby the said sets are successively removed from said platen

upon the exertion of pressure upon said shelf, substantially as set forth.

6. In a type-writer, the combination with a platen, of a paper-shelf, a set of rolls secured to said shelf and other sets of rolls upon the opposite side of said platen, and means whereby pressure upon said shelf operates to successively move said sets away from said platen, substantially as set forth.

7. In a type-writer, the combination with a platen, of pivotally-mounted arms having their lower ends extending beyond their pivots and projecting beneath the platen, pressure-rollers mounted in said arms above their pivots and adapted to bear against the platen, and a pivotally-mounted paper-shelf having its lower end extending beneath the platen and adapted to engage the lower ends of said pivoted arms.

8. In a type-writer, the combination with a platen, of a paper-guide plate 290 fixed with relation to said platen and another paper-guide plate hinged to the fixed guide-plate and bearing on the platen, substantially as set forth.

9. In a type-writer, the combination with a platen, and means for guiding and feeding paper beneath the platen; of a hinged paper-guide shelf for receiving the paper as it comes from the platen, and means normally pressing said shelf toward said platen, substantially as set forth.

10. In a type-writer, the combination with a platen, and means for guiding and feeding paper beneath the platen; of a hinged paper-guide shelf for receiving the paper as it comes from the platen, said shelf being so curved as to discharge the paper upwardly, and means normally pressing said shelf toward said platen, substantially as set forth.

11. In a type-writer, the combination with a platen, of a paper-clamp, a spring secured to said clamp and tending to press it toward said platen, a block secured to said spring, a shaft having a notch, on which said block is rotatably mounted, and a screw in said block and entering said notch whereby said block may be turned about said shaft and the tension of said spring regulated, substantially as set forth.

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

EDWIN B. CRAM.

Witnesses:

W. F. CARTER,
 WALTER N. DAVIS.