

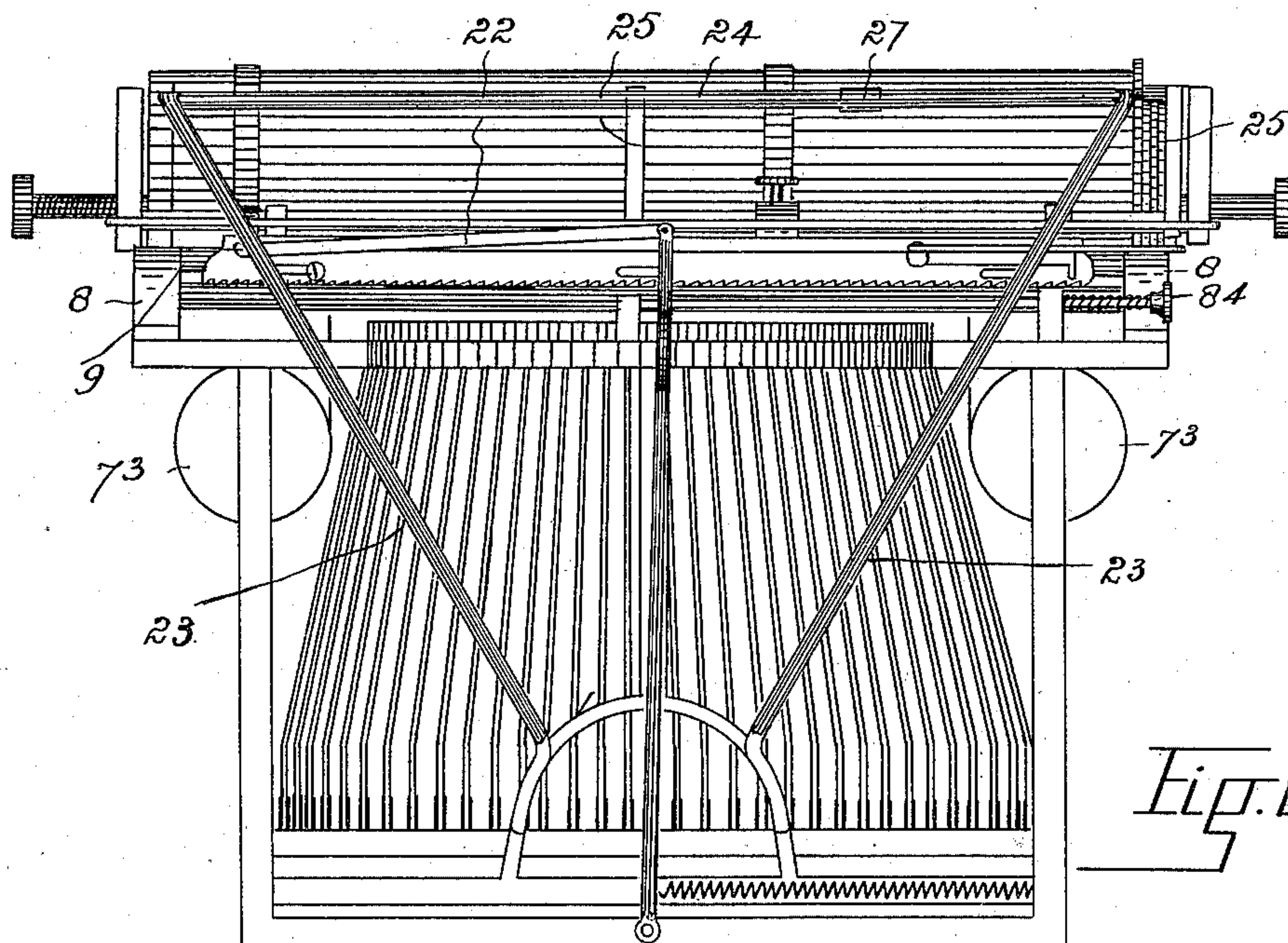
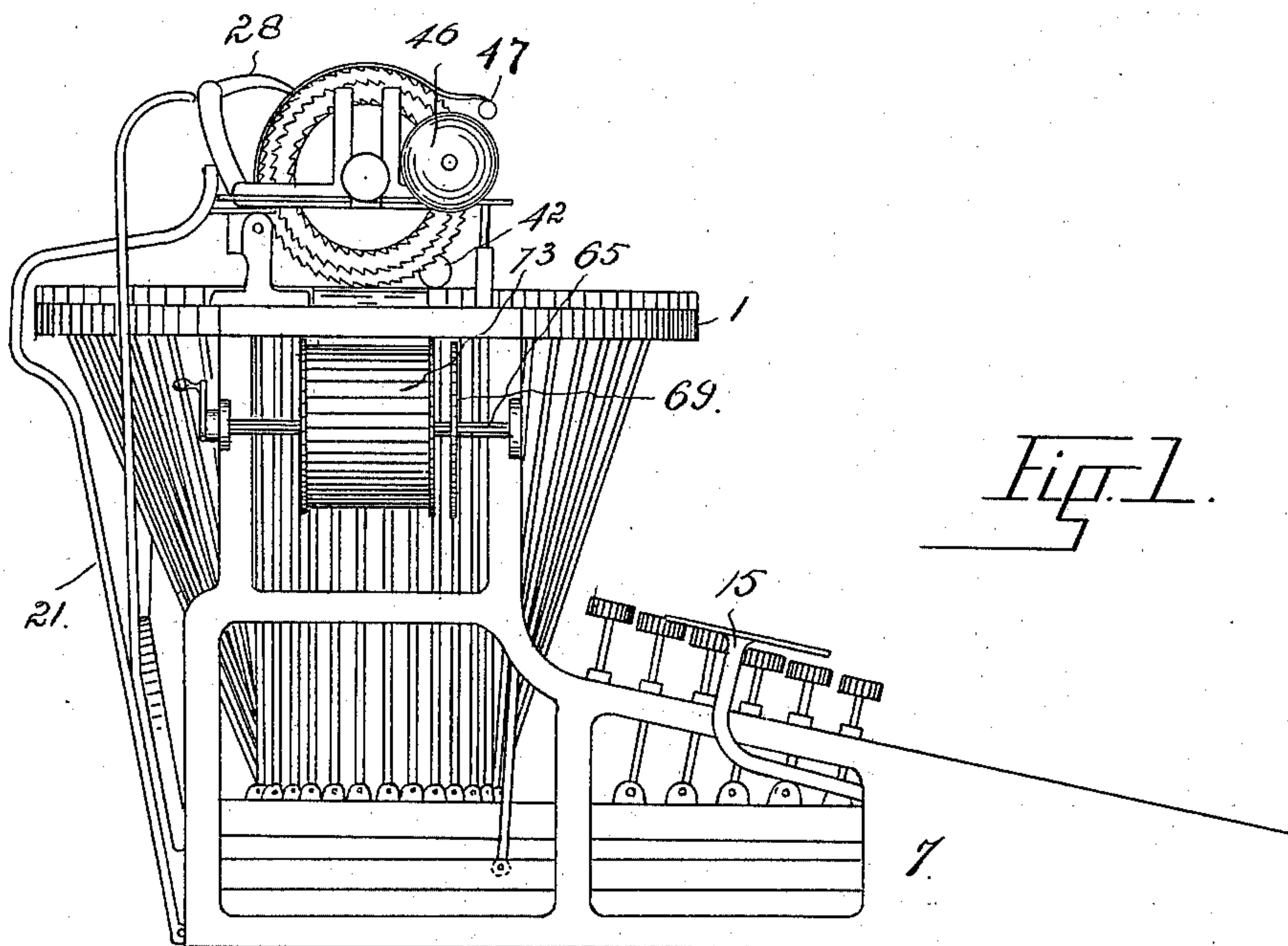
(No Model.)

4 Sheets—Sheet 1.

J. H. FREEMAN, Jr.
TYPE WRITING MACHINE.

No. 558,795.

Patented Apr. 21, 1896.



WITNESSES:

G. J. Pollard
Chas. E. Dawson

INVENTOR
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BY
A. J. Brier
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(No Model.)

4 Sheets—Sheet 2.

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Patented Apr. 21, 1896.

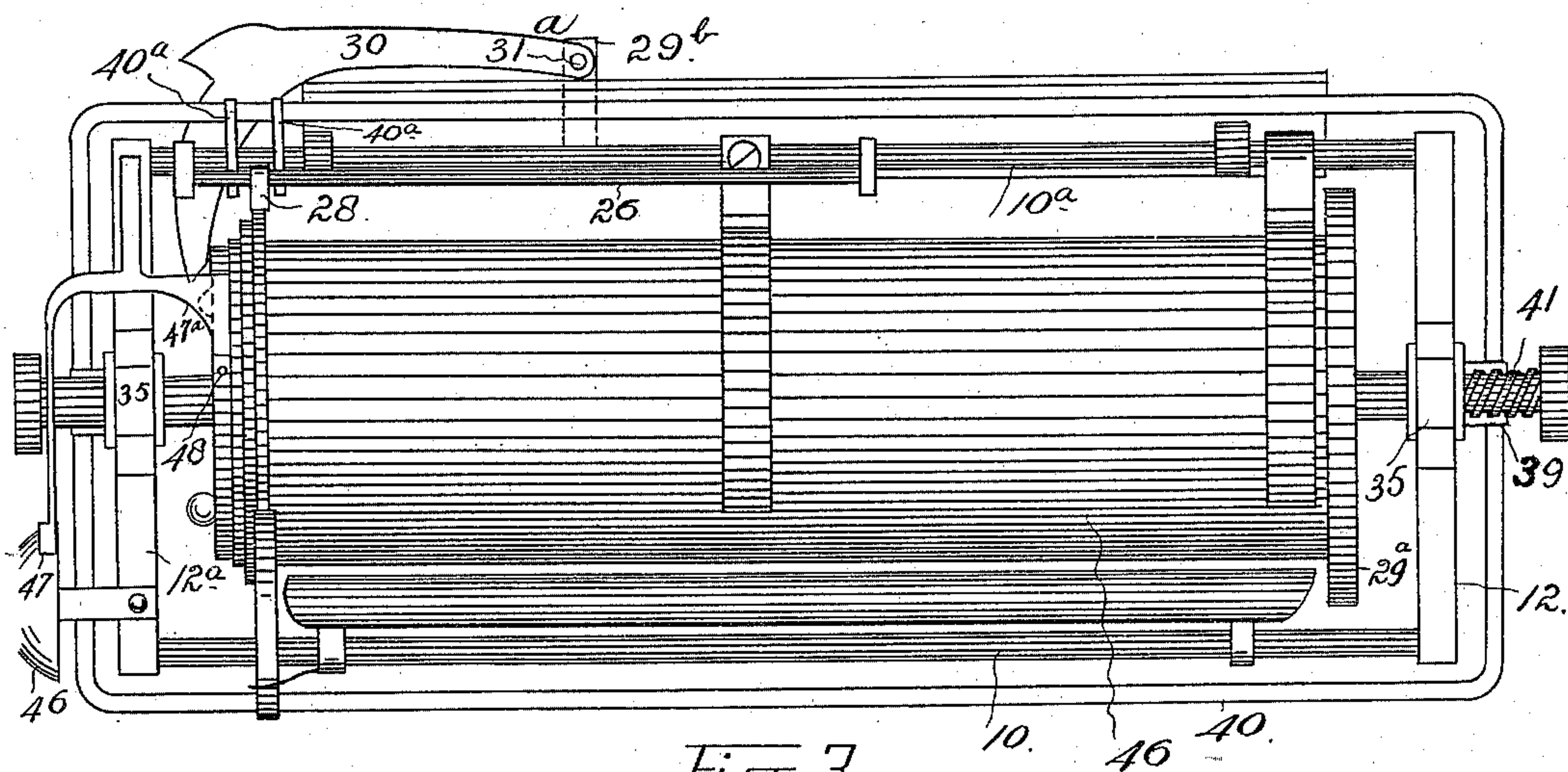


Fig. 3.

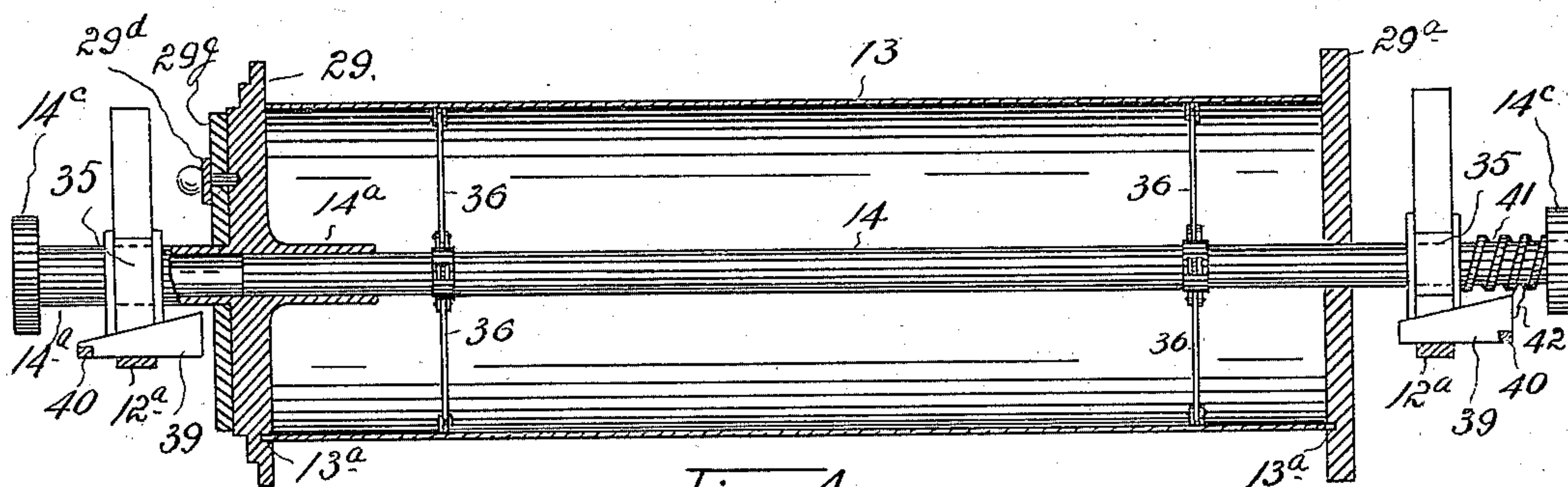


Fig. 4.

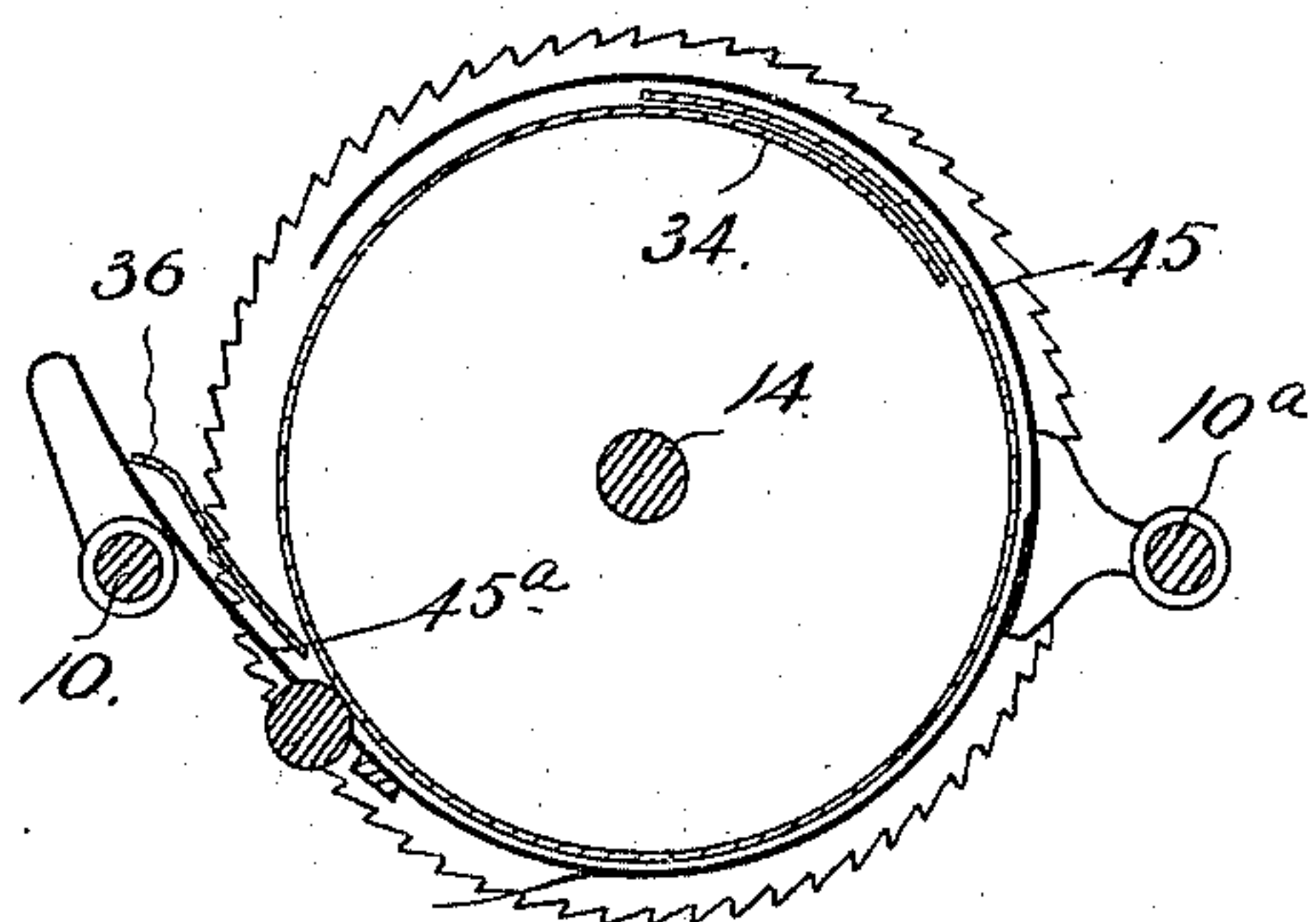


Fig. 6.

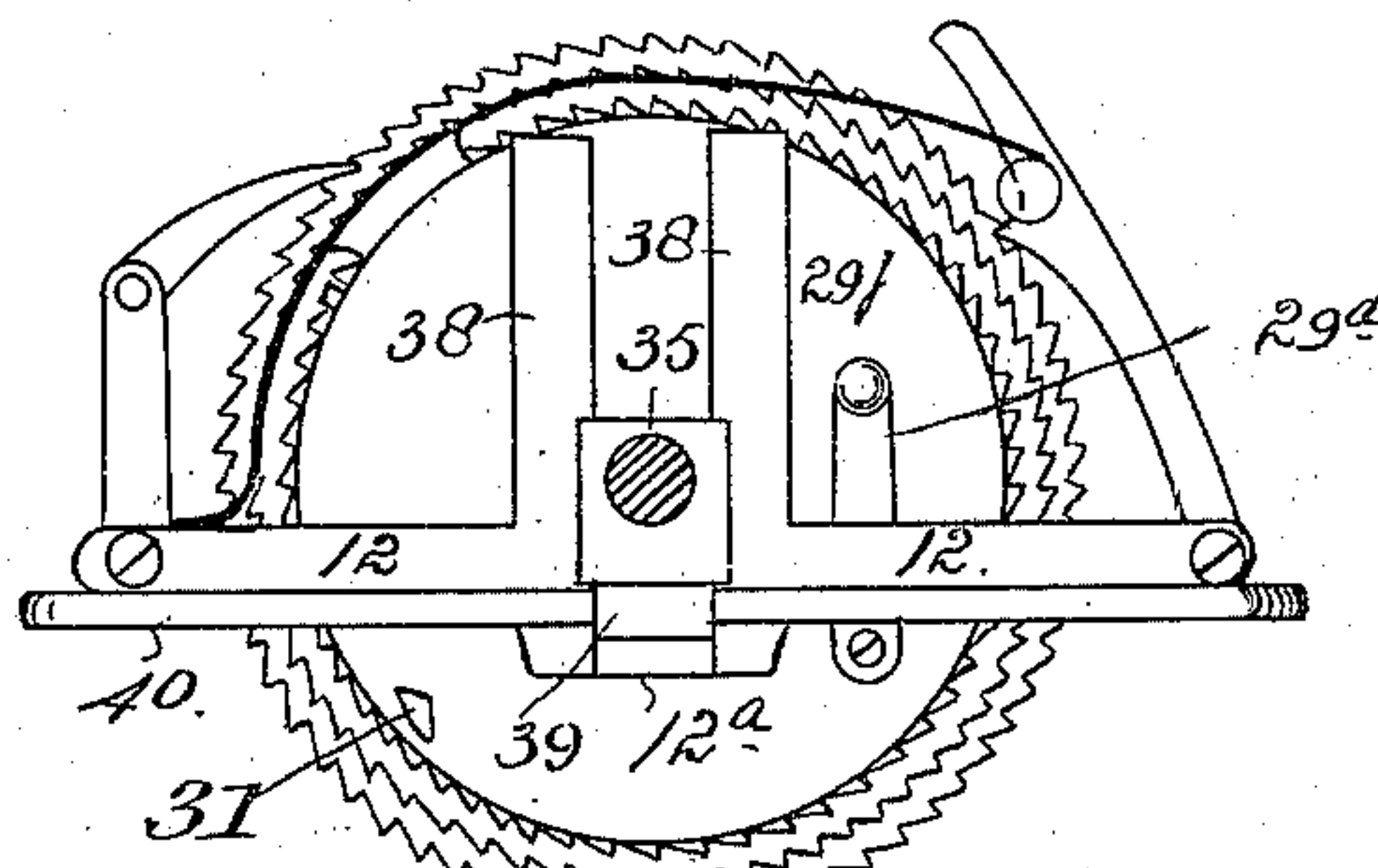


Fig. 5.

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(No Model.)

4 Sheets—Sheet 3.

J. H. FREEMAN, Jr.
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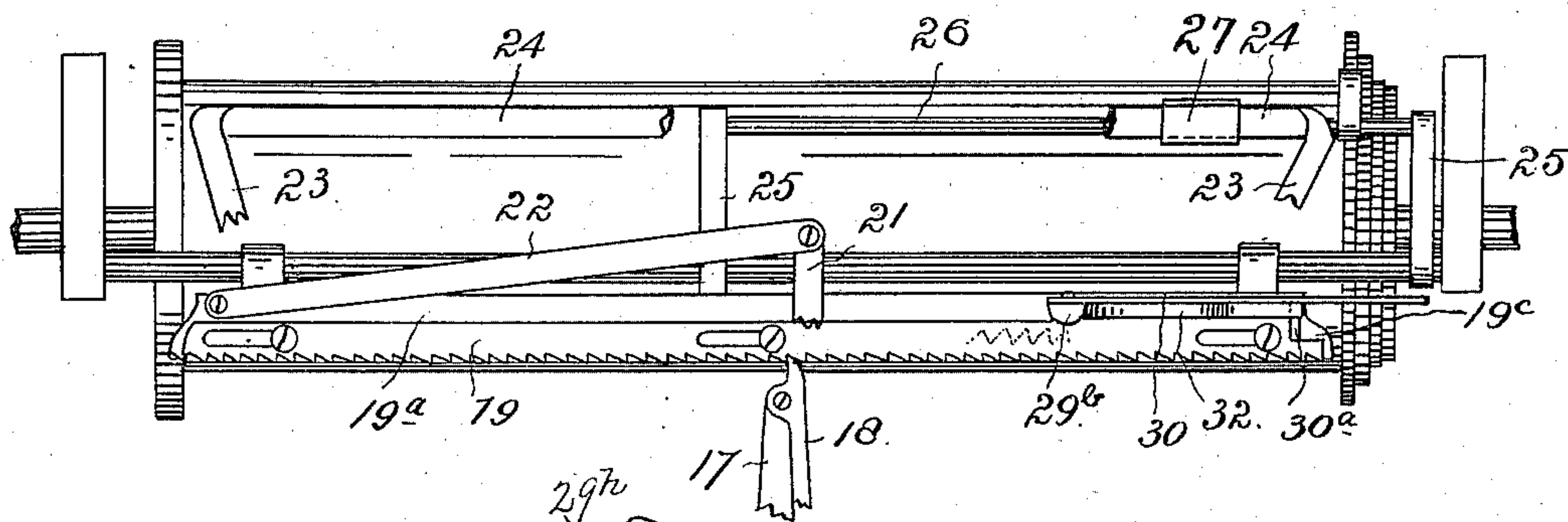


Fig. 7.

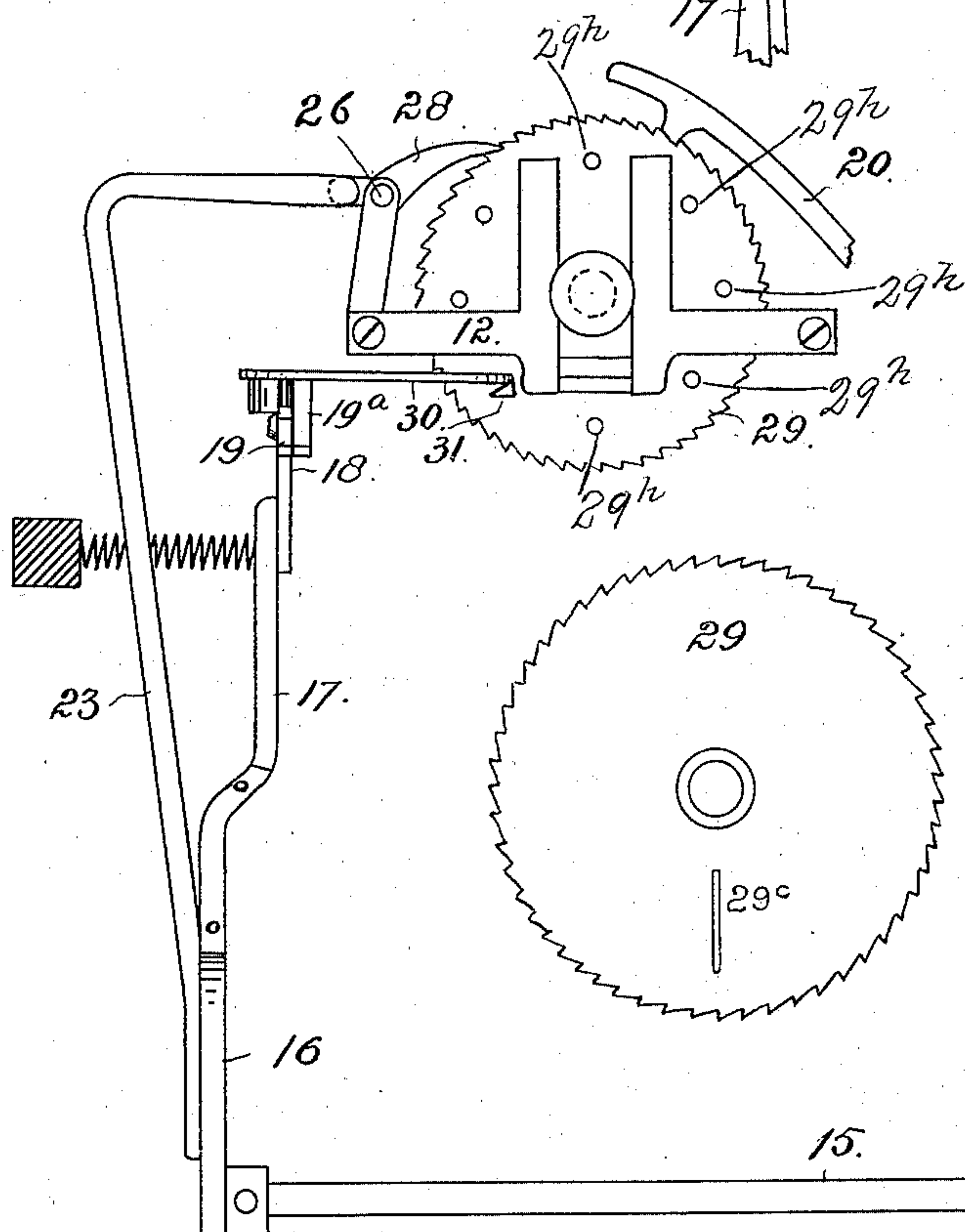


Fig. 8.

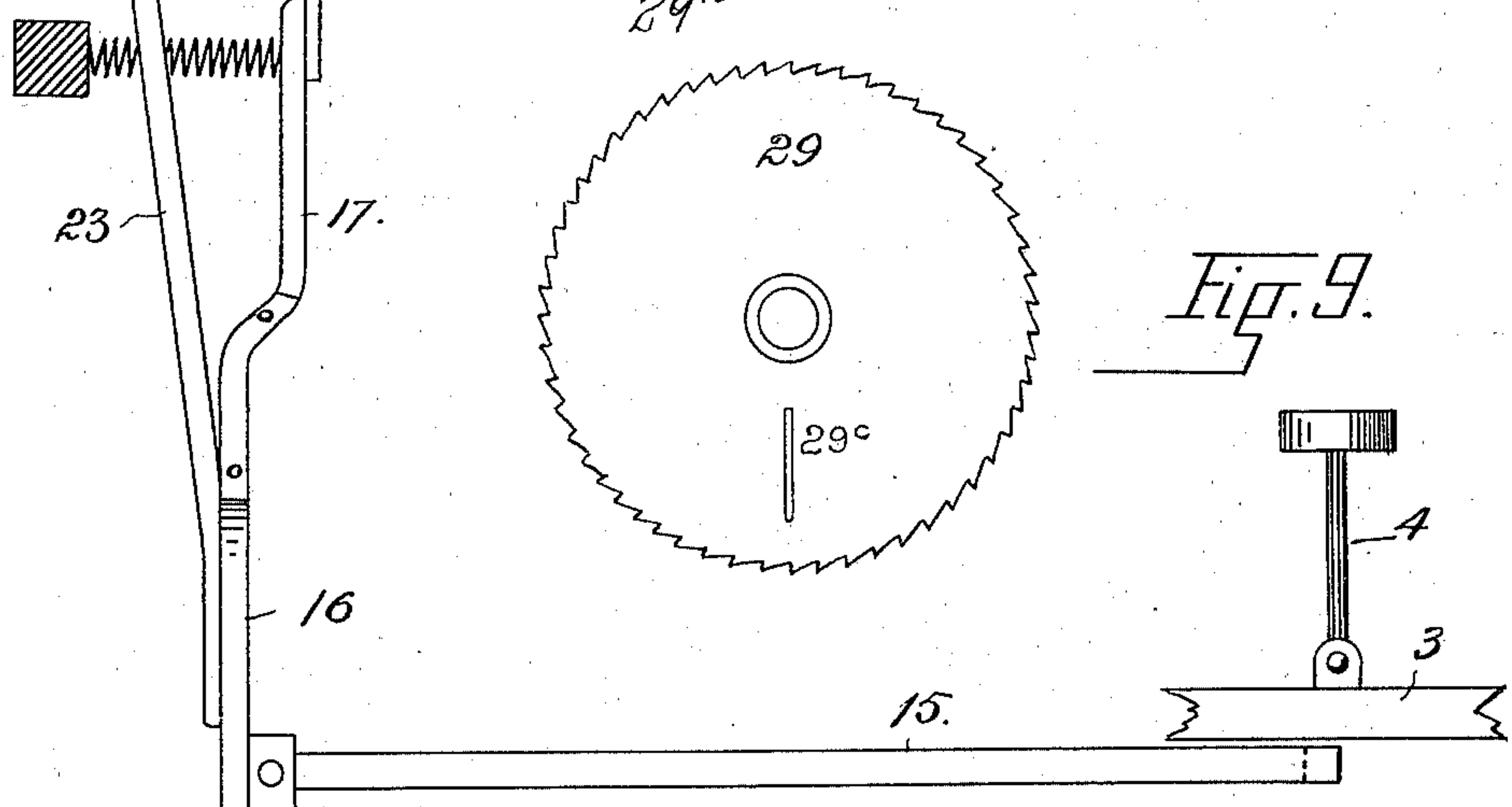


Fig. 9.

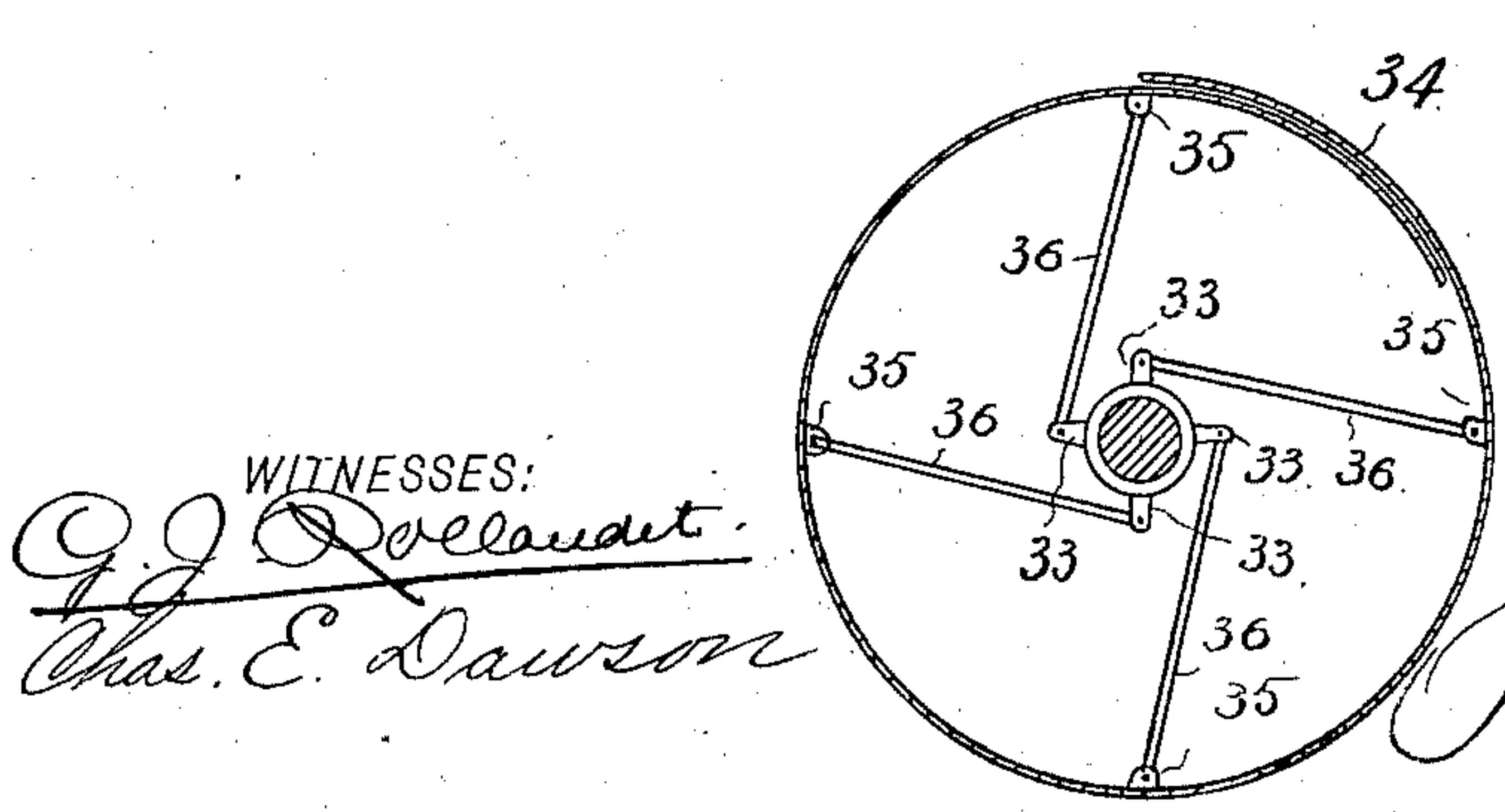


Fig. 10.

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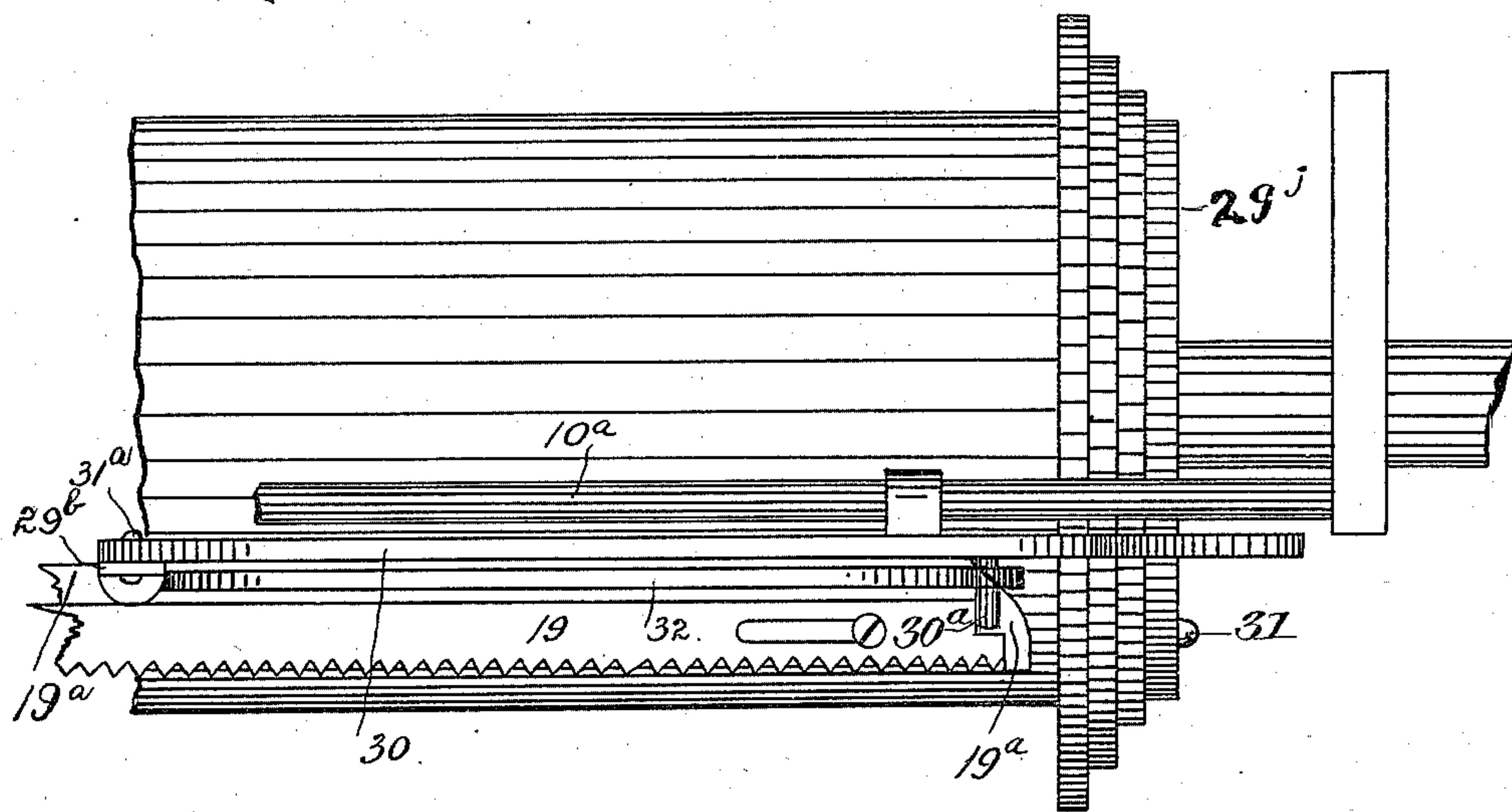
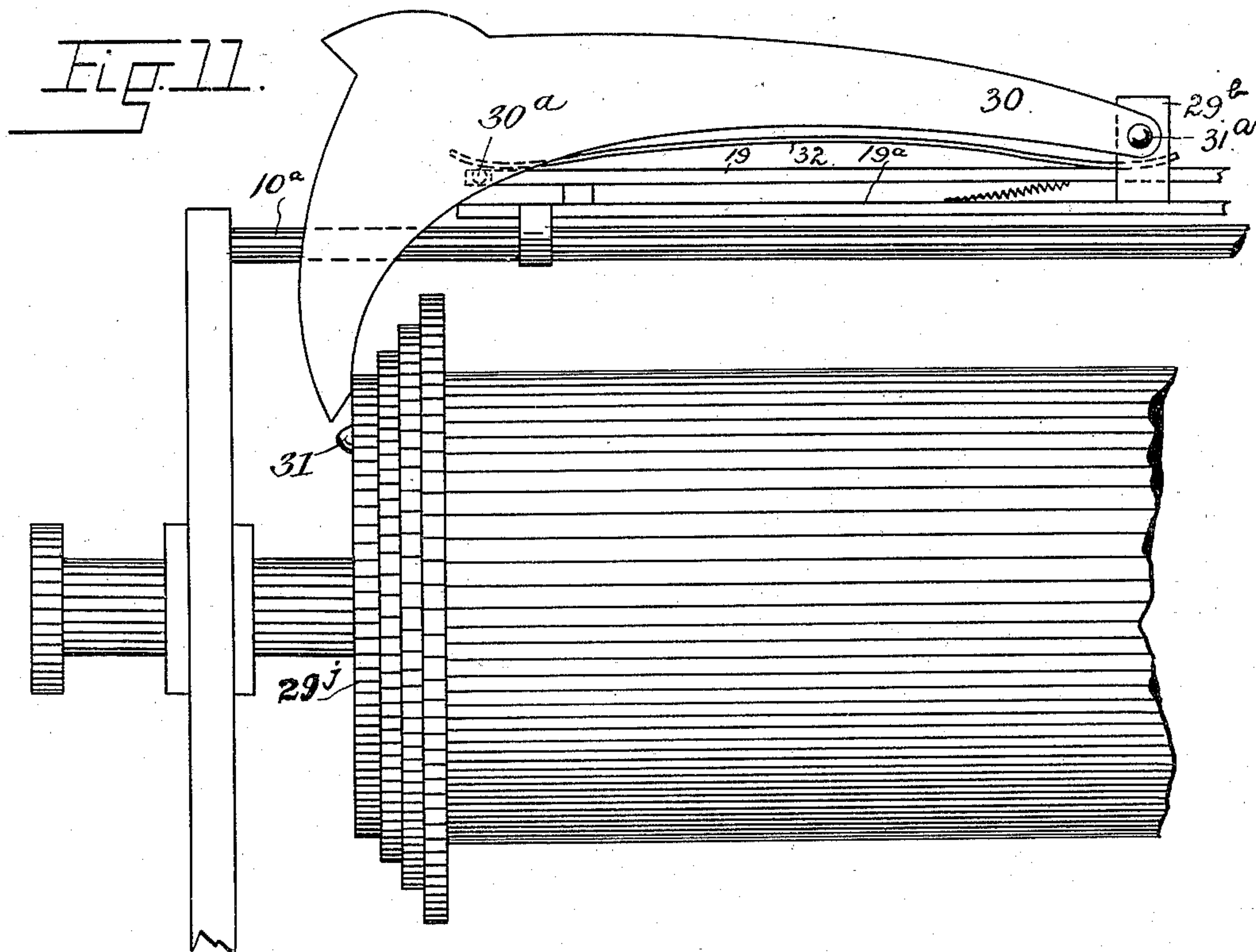
(No Model.)

4 Sheets—Sheet 4.

J. H. FREEMAN, Jr.
TYPE WRITING MACHINE.

No. 558,795.

Patented Apr. 21, 1896.



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Fig. 12.

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UNITED STATES PATENT OFFICE.

JAMES H. FREEMAN, JR., OF HOWARD, COLORADO.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,795, dated April 21, 1896.

Application filed April 29, 1893. Serial No. 472,327. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. FREEMAN, JR., a citizen of the United States of America, residing at Howard, in the county of Fremont and State of Colorado, have invented certain new and useful Improvements in Type-Writing Machines; and I do 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in type-writing machines; and the object of the improvement is to provide a machine on which the writing is done circumferentially instead of longitudinally of the platen.

The sheet of paper to be used is made to surround the platen, which must have a circumference equal to the width of the sheet. The head of the sheet is placed toward the left, and after each line is written the carriage moves one space or the distance between the lines to the left. Hence it is only necessary to reverse the carriage after the entire sheet has been written. This is one important advantage over those machines the carriage of which must be reversed after the writing of each line or as many times during the writing of a sheet as there are lines on the sheet.

My improvement consists of certain attachments which may be applied to the "Caligraph," "Remington," or other machines of similar construction or operation. My attachments consist of means for rotating the platen as the keys are pressed, means for locking the carriage against lateral movement during the writing of the line, means for releasing the carriage after each revolution of the platen, whereby it is permitted to move laterally one space, means for adjusting the size of the platen, whereby it may be made to accommodate itself to any width of sheet, and other details, all of which will be fully understood by reference to the accompanying drawings, in which my improvements are shown attached to the Caligraph machine.

In the drawings, Figure 1 is a side eleva-

tion of the machine with said improvements in place. Fig. 2 is a rear elevation of the same. Fig. 3 is a top or plan view of the carriage, the platen, and their connections. Fig. 4 is a longitudinal section taken through the platen. Means for the vertical adjustment of the platen are also shown in this view. Fig. 5 is an end elevation of the platen, carriage, and their connections, the spindle of the platen being shown in section. Fig. 6 is a vertical transverse section taken through the platen. Fig. 7 is a rear view of the platen, the rack, and the carriage, several of the connecting parts being shown broken away. Fig. 8 is a side elevation of the means for rotating the platen as the keys are pressed. Fig. 9 is an elevation of the ratchet-disk forming one of the platen-heads. Fig. 10 is a section of the platen, showing the adjusting means in elevation. Fig. 11 is a top or plan view of the carriage, illustrating the device for locking the two plates of the rack together. Fig. 12 is a rear view of the same.

To secure the desired results from the construction illustrated in these views, the type must, of course, be given a one-quarter turn on the type-bars from their positions on ordinary machines.

Similar reference-characters indicate corresponding parts or elements of the mechanism in the several views.

The numeral 1 designates the top plate of the machine; 7, the side plates; 8, the carriage-rail standards; 9, the carriage main shafts; 10 and 10^a, the carriage-rods; 12 and 12^a, the carriage-end connecting rods; 13, the platen; 14, the platen-spindle; 15, the universal bar; 16, the rocker-bar; 18, the letter-space dog; 17, the dog-holder; 19 and 19^a, the racks; 20, the holdfast-dog; 21, the driving-arm, and 22 the link.

To the rocker-bar is attached a triangular frame 23 23 24, the parts 23 being secured to the bar at their lower extremities, their opposite extremities being connected by the part 24, which is a horizontal rod located in the rear of the platen. Pivoted on rod 10^a, or the rear rod of the carriage, are two arms 25, as shown in Fig. 7, which are connected at their upper extremities by a rod 26, to which both arms are made fast. This movable frame, composed of the two arms and the con-

necting-rod, is attached to part 24 of the triangular frame by a loose sleeve or other suitable connection 27, which allows the arms 25 and their connecting-rod to move freely with the carriage laterally, while connected with the triangular frame, whose rod 24 lies in close proximity to the arms 25. The rod 26 carries a pivoted pawl or dog 28, which engages the ratchet-disk 29, forming one head of the platen. It will thus be seen that every time a key is pressed and bar 16 actuated the triangular frame is carried forward with the bar, acts on the arms 25, thrusts the dog 28 forward, and gives the platen a partial rotation.

According to the principle upon which a machine provided with my improvements must operate, as heretofore stated, the carriage must not move laterally until the platen has made a complete revolution. The mechanism for locking the carriage and releasing it at the proper time will now be described.

Made fast to the part 19^a of the rack is a lug or rearward projection 29^b, upon which is pivoted at one extremity, as shown at 31^a, a hook-shaped arm 30, the free extremity of which occupies a position in close proximity to the ratchet-disk 29 and engages a lug 31, made fast to an auxiliary disk 29^j, connected with the ratchet, as hereinafter explained. This engagement takes place once for each revolution of the platen, and thus thrusts the arm backward. This horizontally-oscillating arm 30 carries a depending pin 30^a, which enters a notch cut in the movable plate 19 of the rack, and locks said plate from movement. A leaf-spring 32, made fast to the lug 29^b at one extremity, bears against the pin 30^a at the opposite extremity and normally holds the arm 30 and its pin in the locking position. The function of the spring 32 is to return the arm 30 to the locking position after each releasing act occasioned by the engagement of the lug 31 with the free extremity of said arm. Once, however, for each revolution of the platen the lug 31 engages the end of the arm 30 and thrusts the same backward far enough to disengage the pin 30^a from the notch in the rack-plate and release the rack, when the carriage will be carried one space to the left through the medium of the spring-actuated driving-arm 21 and in the usual way.

In order that the lug 31 may always engage the arm 30 at the right instant, it is necessary that there should be some means of adjusting or regulating the auxiliary disk 29^j, carrying the lug 31. Hence the part 29^j is made detachable from the ratchet-disk, but held in place thereon by a leaf-spring attached to the auxiliary disk at one extremity and carrying a pin 29^d at the opposite extremity, which passes through an aperture formed in the auxiliary disk and enters a coinciding aperture 29^h formed in the ratchet disk or head, which carries a series of said apertures.

The auxiliary disk may be held stationary and the platen rotated independently of the

same to secure any desired degree of adjustment, after which the spring-actuated pin 29^d slips into one of the apertures in the ratchet-head and locks the parts together. To secure this adjustment, the pin 29^d is first withdrawn from the aperture 29^h, after which the platen may be rotated by turning the head 14^c, which is made fast to a sleeve formed integral with the ratchet-head of the platen.

The peculiar construction of the platen, which permits its adjustment to correspond with the width of the sheet of paper to be used, will now be described.

The spindle of the platen is provided with one or more sets of short arms or projections 33, each set consisting of a plural number (preferably four) of arms, as shown in Fig. 10. The body of the platen is hollow and composed of some thin spring material, as sheet-steel, the edges of which overlap, as shown at 34. The inner surface of this platen-body is provided with lugs 35, corresponding in number with arms 33. These lugs are respectively connected with the arms by means of rods 36, whose extremities are respectively pivoted to the connected parts. It will thus be seen that by giving the spindle a partial rotation the overlapping portion 34 of the platen-body may be increased or diminished and the size of the platen regulated as desired. As the size of the platen is changed provision must be made for adjusting the spindle vertically or for raising and lowering the platen to maintain that part of its surface to be engaged by the type always in the same horizontal plane. To accomplish this, the spindle 14 is journaled in movable boxes 35, (see Fig. 5,) slidably supported between upright arms 38, attached to the ends 12 of the carriage. Located beneath these boxes and resting upon the central bed-plates 12^a of the carriage ends are the movable blocks 39, having inclined faces engaging the boxes 35. These movable boxes, one at each end of the carriage, are connected by a horizontal yoke 40, which passes around the carriage and is made fast to the blocks.

Upon one extremity of the spindle is formed a worm 41, which is engaged by a lug 42, made fast to the adjacent block 39, whereby as the spindle is turned the block will be moved, and since the two blocks are connected by the yoke 40 the turning of the spindle will adjust both blocks 39, and consequently raise or lower the boxes 35, as may be desired, simultaneously with the adjustment of the platen.

The ratchet-head 29 of the platen is formed integral with or made fast to the adjacent extremity 14^a of the spindle, which is tubular and receives one end of the main spindle, which is movable therein. The heads 29 and 29^a of the platen are provided with slots 29^c, Fig. 9, which receives pins or projections 13^a, Fig. 4, formed on the platen, whereby the latter is supported between the two heads and permitted the required movement during the operation of adjustment. The spindle ex-

tremities are provided with milled heads 14°. By holding the tubular part of the spindle fast with one hand and turning the opposite end with the other hand the platen may be subjected to any desired degree of adjustment. The head 29 is a sort of cone-ratchet, there being several sets of ratchet-teeth formed on the different circumferences of the disk.

The number of teeth in the different sets composing the ratchet-head of the platen varies to correspond with the different sizes of the platen. Hence when the platen is largest the pawl should engage that part of the ratchet-head having the greatest number of teeth, since the larger the platen the greater will be the length of the surrounding sheet of paper. The number of letters and words in each line should therefore correspond with the length of the line—that is, the letters and words should be the same distance apart regardless of the size of the platen. This object I obtain by the employment of the differential ratchet-head. It will be readily observed, however, that if the pawl 28 were in engagement with the same set of teeth continuously the number of letters and words in a line would be the same regardless of the size of the platen and the length of the sheet of paper, since the spaces between the letters and words would then vary to correspond with the variation in the circumference of the platen, which condition of affairs would of course be impracticable.

While the differential ratchet-head is shown in the drawings provided with three sets of teeth, it will be readily understood that any other number of sets may be employed and that the spacing between the letters and words may be maintained practically or approximately uniform, as the size of the platen is changed to correspond with the length of the sheets of paper.

The pawl is movable laterally upon its supporting-rod 26. The yoke 40 is provided with two pins 40^a, which occupy positions on opposite sides of the pawl and move the latter to correspond with the adjustment of the yoke, which is actuated by the worm 41, as heretofore stated. The inclined blocks 39 being moved back and forth by the worm-spindle 41, the yoke 40, which is attached to the blocks, is shifted endwise as the platen is raised or lowered. The pins 40^a are so arranged with reference to the pawl 28 that when the platen is largest and correspondingly adjusted vertically the pawl will be moved to engagement with the largest part of the differential ratchet-head 29 or that part having the greatest number of teeth. Again, when the platen is smallest, the pawl will be adjusted by the pins to engage the smallest part of the head 29, while for any intermediate size of the platen the pawl will be made to engage that part of the cone-shaped or differential ratchet-head of corre-

sponding size. The platen is provided with the upper and lower guide-springs 45 and 45^a, attached to the carriage-rods.

From the foregoing description it is believed that the operation of the machine will be readily understood.

The sheet of paper is placed lengthwise upon the platen beneath the guide-springs 45 and 45^a with the head of the sheet toward the left. The platen is so adjusted that its circumference shall correspond with the width of the sheet which is placed thereon. As the key-stems 4 are pressed downward, the bridges 3 engage the universal bar 15 and actuate the rocker-bar 16, the triangular frame 23 23 24, the pivoted frame 25 25 26, and the dog 28, whereby the platen is given a partial rotation for each key pressed. The carriage is locked from lateral movement until it has made a complete revolution by the spring-actuated arm 30, carrying the depending pin 30^a, which engages a notch 19^c formed in the movable rack-plate 19. When the platen has made a complete revolution, lug 31 engages the arm 30 and moves it backward sufficiently to release the locking-pin from the rack-plate when the carriage moves one space, or the distance between the lines, toward the left.

It is desirable that the person using the machine should be notified just before the rotation of the platen is completed. For this purpose a bell 46 and a movable hammer 47 are attached to one end of the carriage. A pin 48 is attached to the carriage-head 29 just in advance of the lug 31. This pin engages the spring-arm 47^a of the hammer, and suddenly releases the same, causing the hammer to strike the bell, whereby the desired warning is given.

The overlapping edges 34 of the platen may be employed to hold the edge of the paper while placing it in position therearound, the tension of the parts being such that they will grasp the paper and afford sufficient resistance to accomplish this object.

Having thus described my invention, what I claim is—

1. In a type-writing machine, the combination with the rocker-bar of the upwardly-projecting frame attached thereto, the movable frame supported upon the carriage and carrying the pawl engaging the ratchet-head of the platen, and means for locking the carriage against lateral movement as the platen is actuated, substantially as described.

2. In a type-writing machine, the combination with the rocker-bar, the letter-space dog and the rack, of a spring-actuated arm attached to one plate of the rack and carrying a pin normally engaging the other plate, and locking the carriage from lateral movement, as the letter-space dog is actuated, substantially as described.

3. In a type-writing machine, the combination with the platen and the rack, of an arm supported upon one plate of the rack and

engaging the other plate, whereby the two plates are normally locked together, and a lug attached to the platen and engaging the locking-arm once during each revolution of the platen, whereby the movable rack-plate is released, substantially as described.

4. In a type-writing machine, the combination with the rocker-bar, the rack and the platen, of an arm attached to the carriage and normally locking the movable rack-plate, means attached to the platen for engaging the arm and releasing the rack-plate at suitable intervals, and means actuated from the rocker-bar for rotating the platen, substantially as described.

5. In a type-writing machine, the combination with the platen of the rack, means attached to the carriage for locking the rack-plates together, and means attached to the platen for releasing said plates at suitable intervals, substantially as described.

6. In a type-writing machine, the hollow platen having overlapping longitudinal edges, the spindle upon which the heads of the platen are pivoted and means connected with the spindle for regulating the size of the platen by increasing or diminishing the lap of the edges, substantially as described.

7. In a type-writing machine, the hollow platen having overlapping longitudinal edges, a spindle upon which the heads of the platen are pivoted, and rods connected with arms on the spindle and lugs on the platen, whereby the size of the latter may be adjusted by moving the spindle rotatably while

the heads are stationary, substantially as described.

8. In a type-writing machine, the hollow platen having overlapping longitudinal edges, the slotted heads supporting the platen-body which is provided with pins entering the slots, the spindle and means connected therewith and engaging the platen from the inside, whereby the size of the latter is regulated by moving the spindle rotatably, while the heads remain stationary, substantially as described.

9. In a type-writing machine, the combination with the platen and carriage, of vertically-movable boxes supported on the carriage ends, the platen-spindle being journaled in these boxes, and means connected with the spindle for adjusting the boxes, substantially as described.

10. In a type-writing machine, the combination with the platen and carriage, of movable boxes supported on the carriage ends and in which the spindle is journaled, blocks connected by a yoke and having inclined faces engaging these boxes, and a worm on the spindle engaged by a lug on one of the blocks, whereby as the spindle is turned the platen is vertically adjusted, substantially as described.

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

JAMES H. FREEMAN, JR.

Witnesses:

J. B. WILLSEA,

CHAS. E. DAWSON.