

No. 607,274.

Patented July 12, 1898.

W. P. QUENTELL.
TYPE WRITING MACHINE.

(Application filed June 10, 1897.)

(No Model.)

3 Sheets—Sheet I.

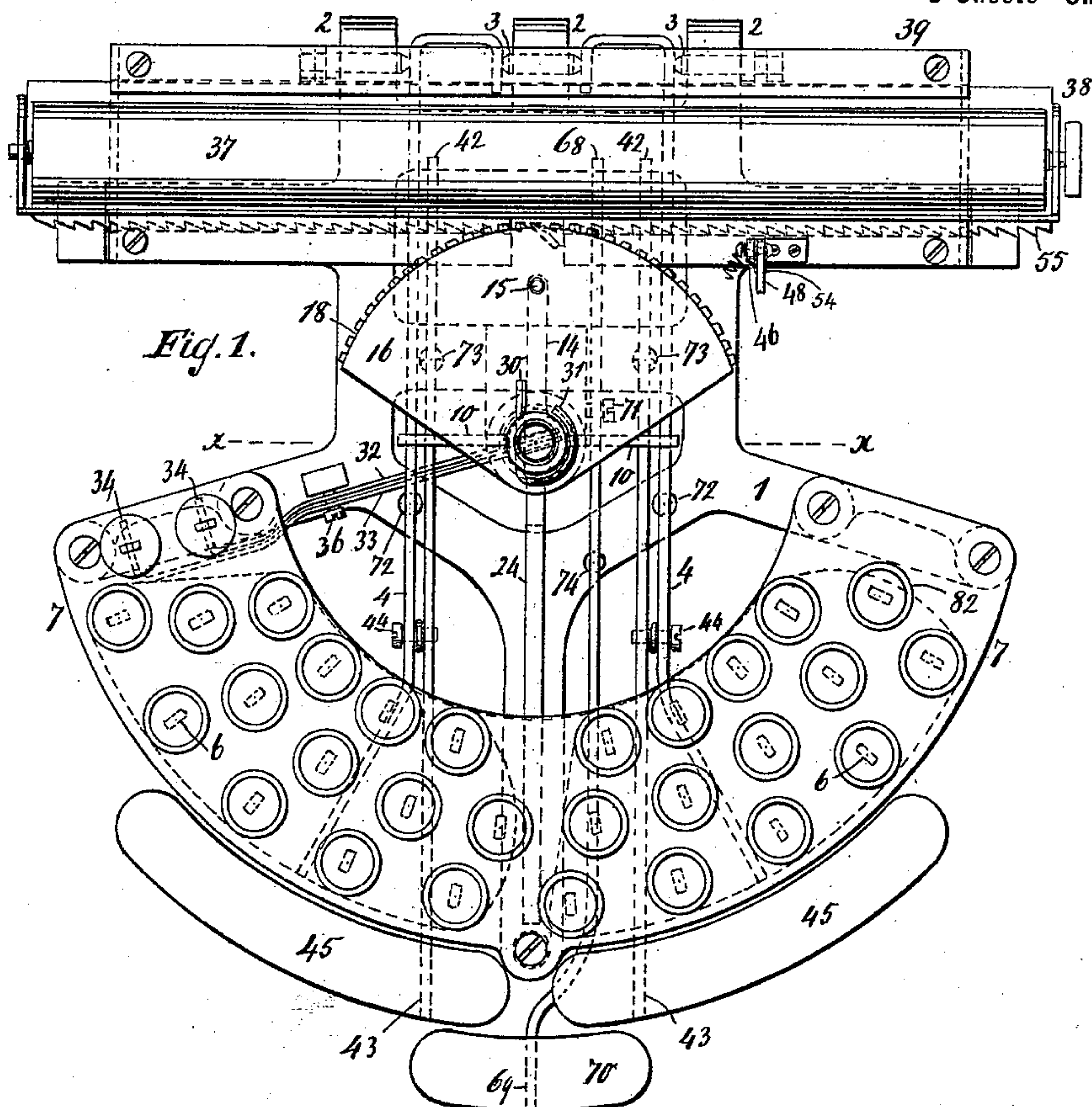


Fig. 1.

Fig. 2.

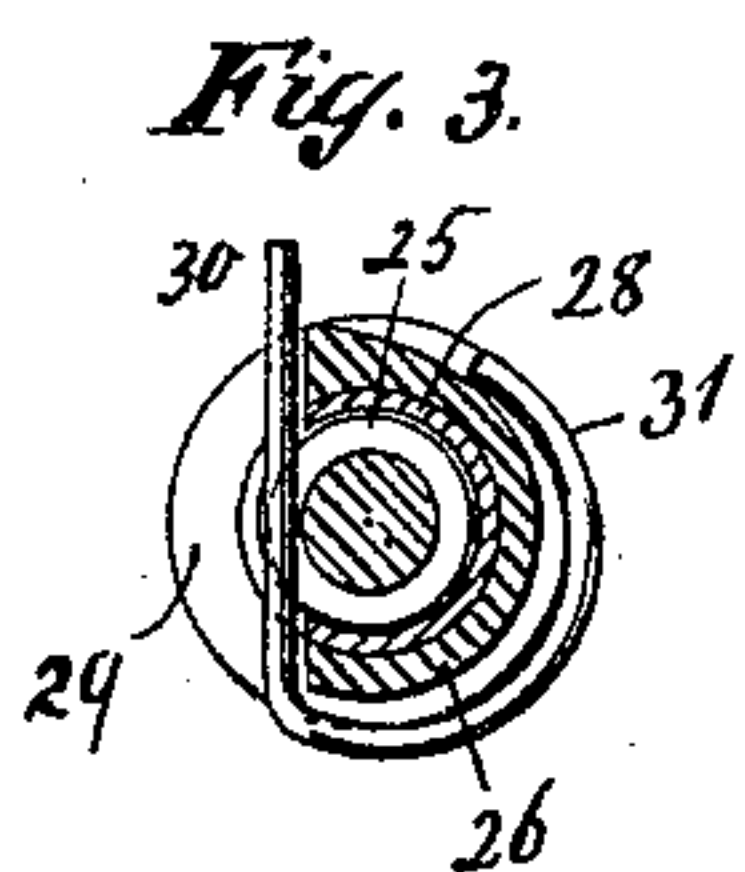


Fig. 3.

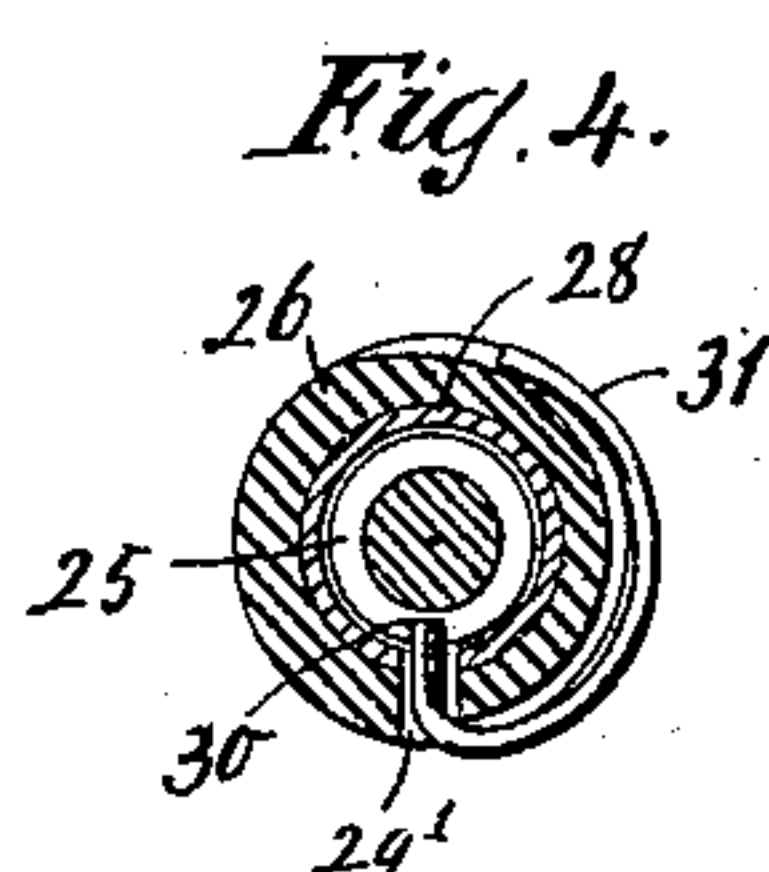


Fig. 4.

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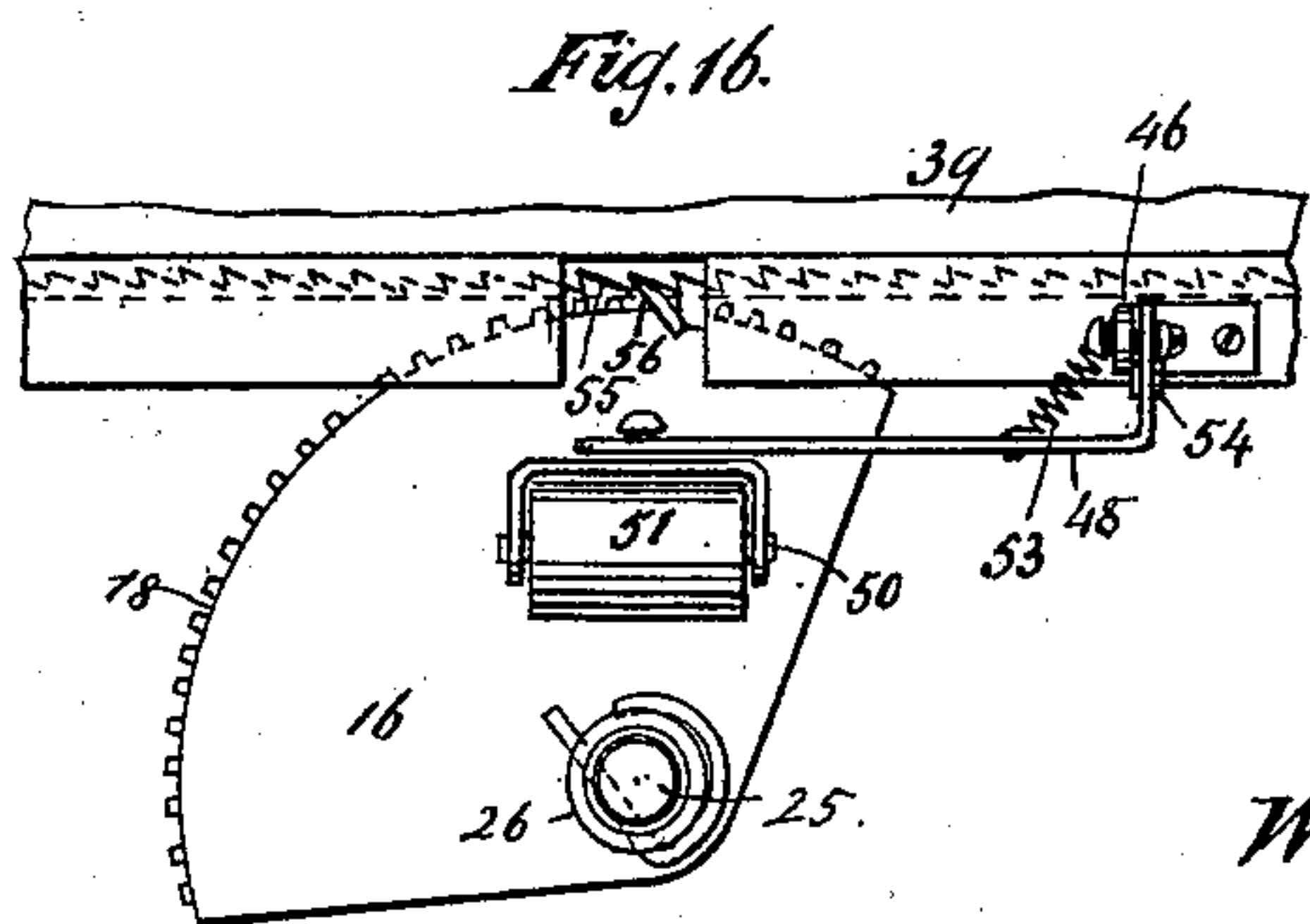
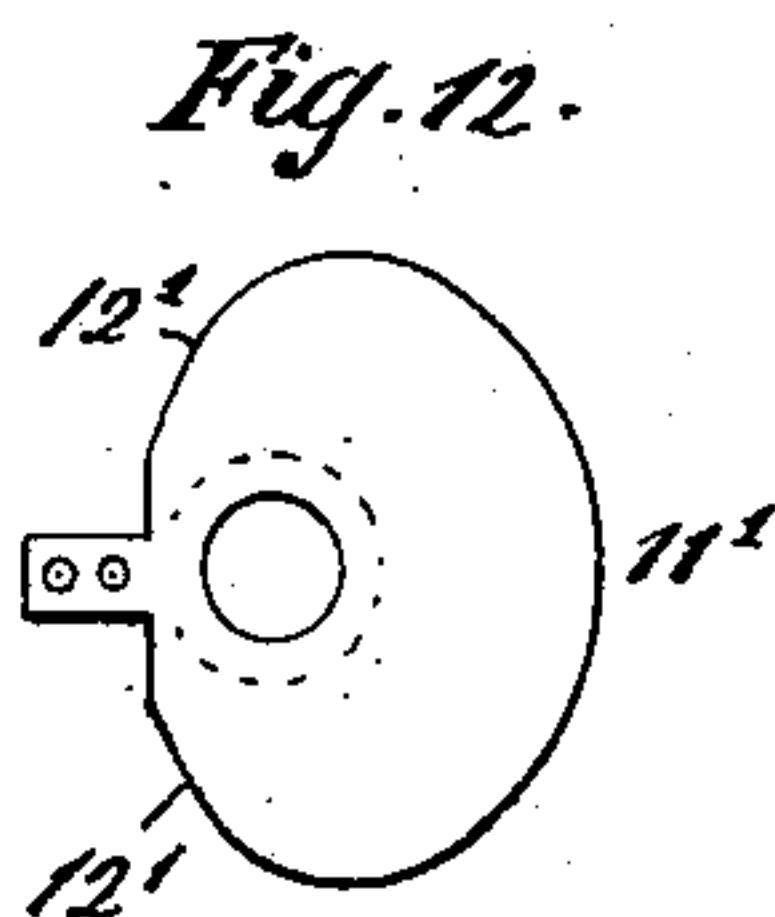
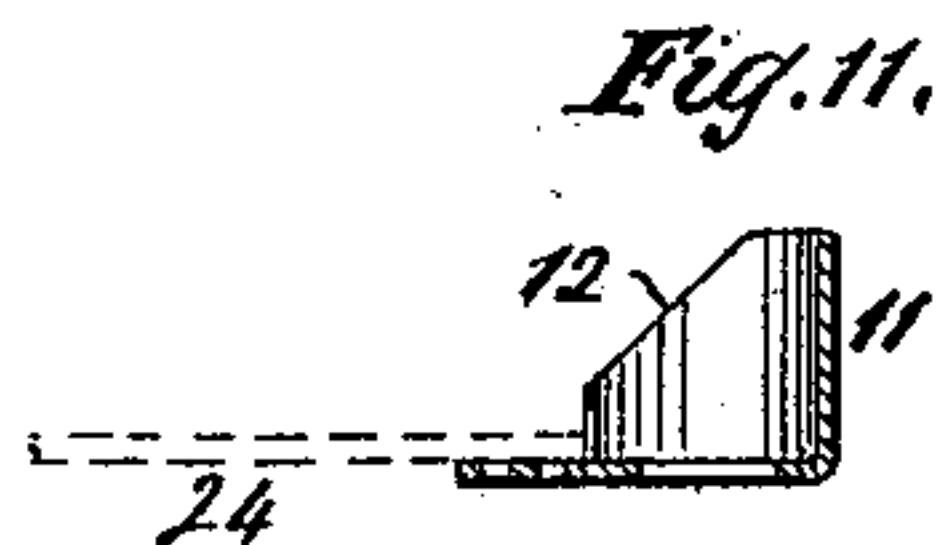
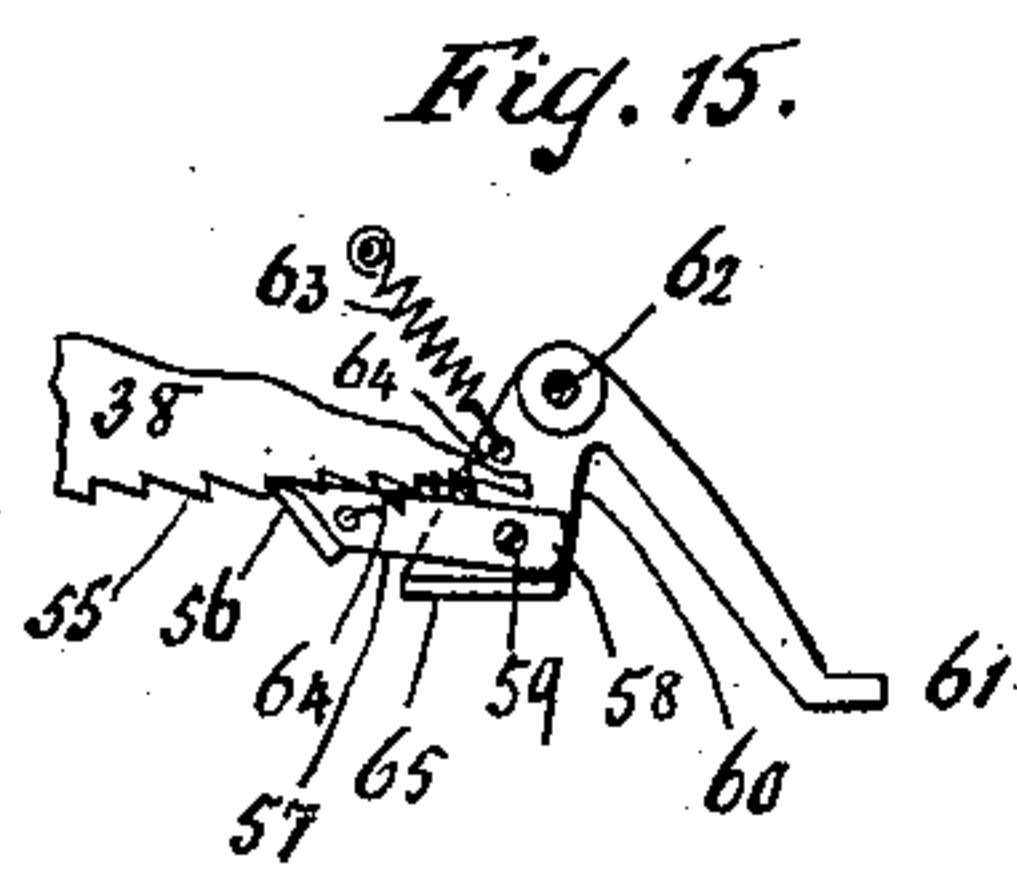
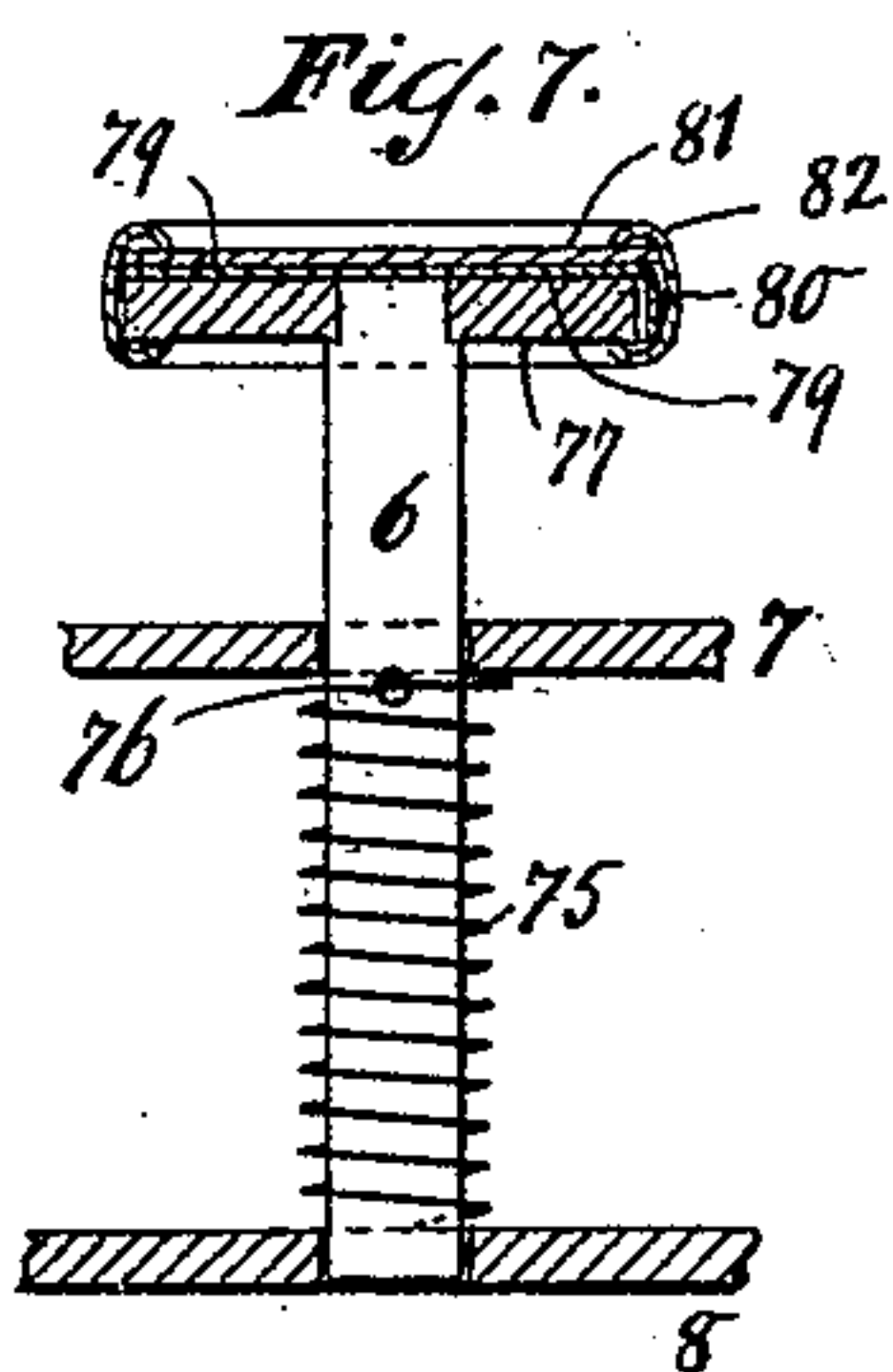
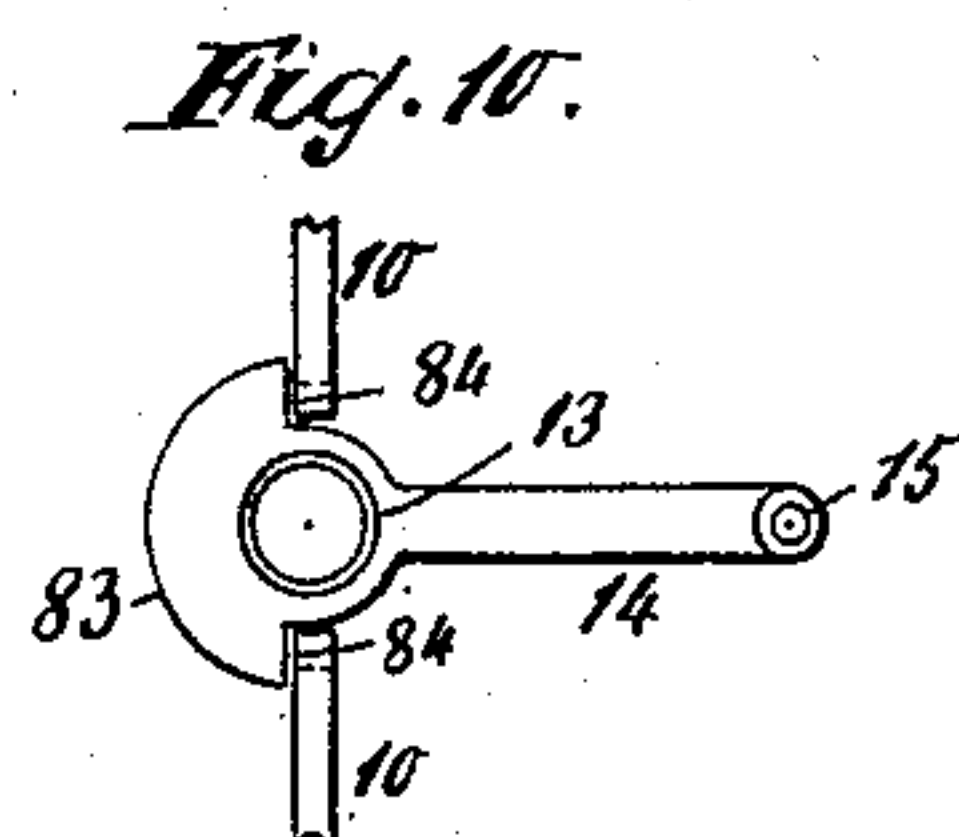
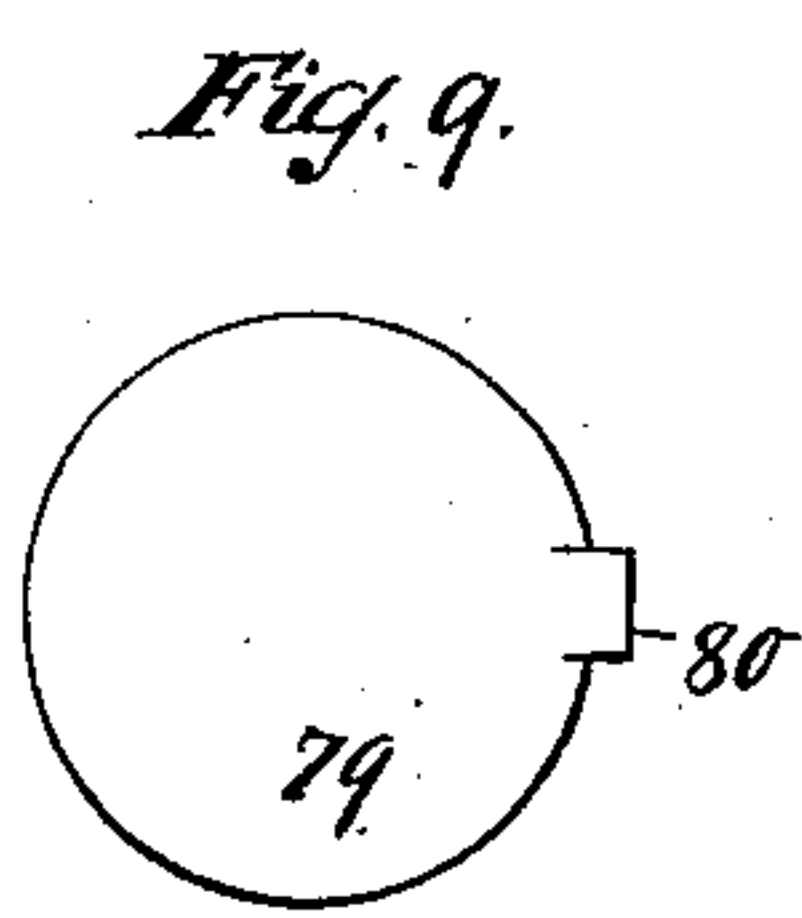
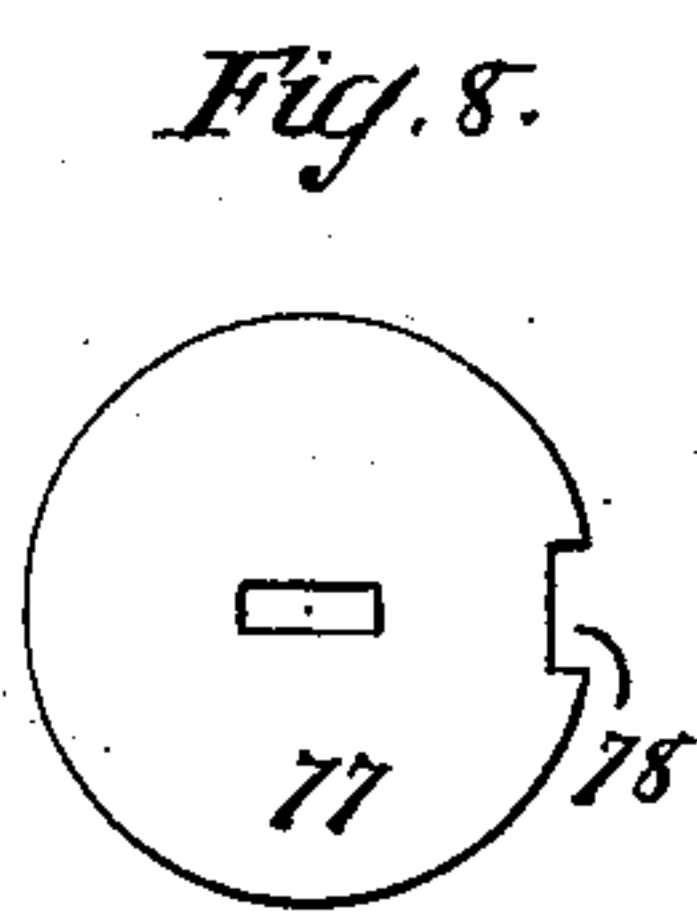
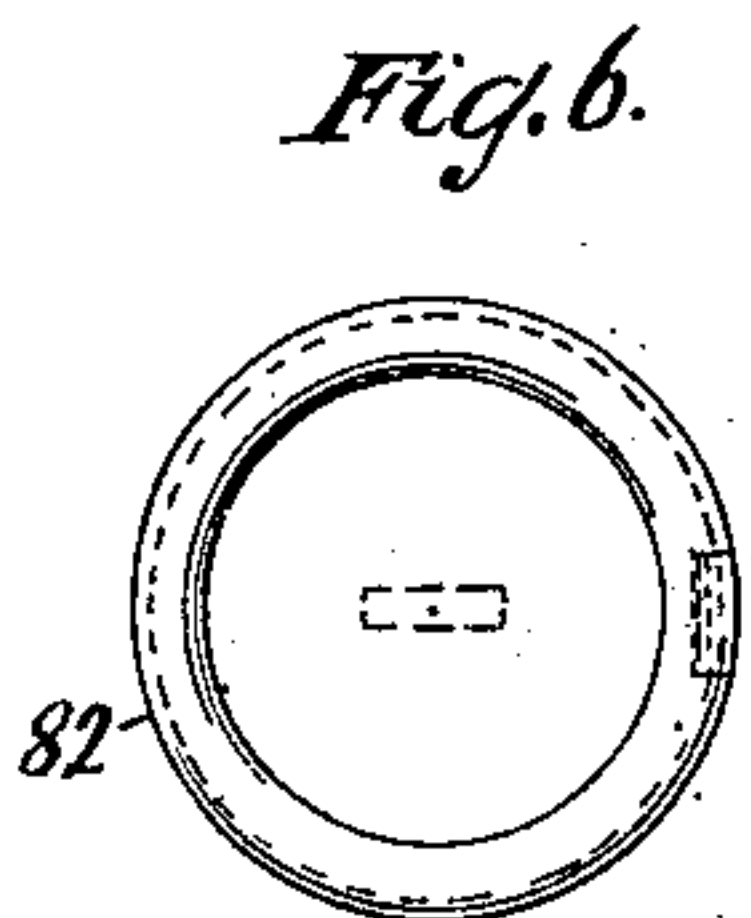
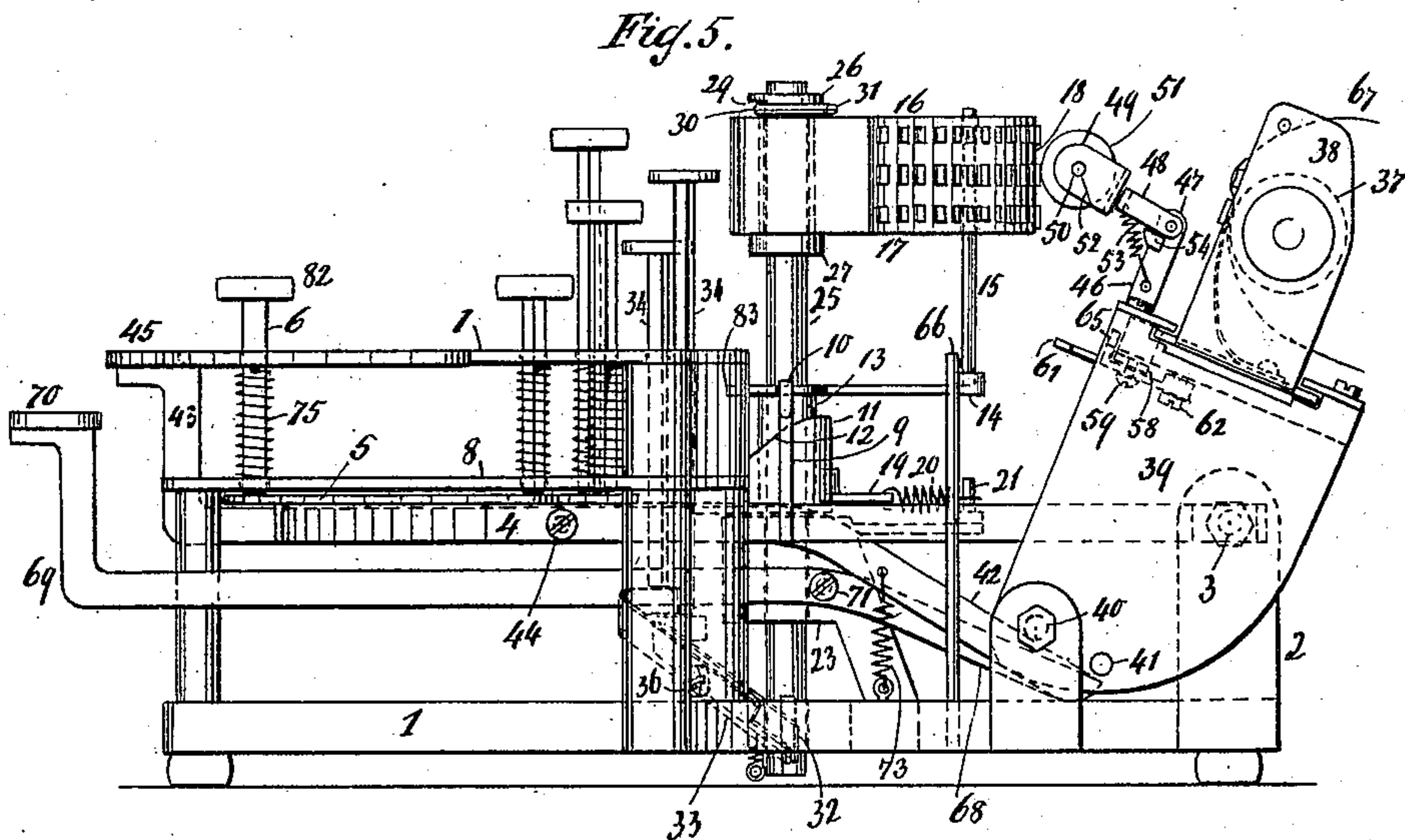
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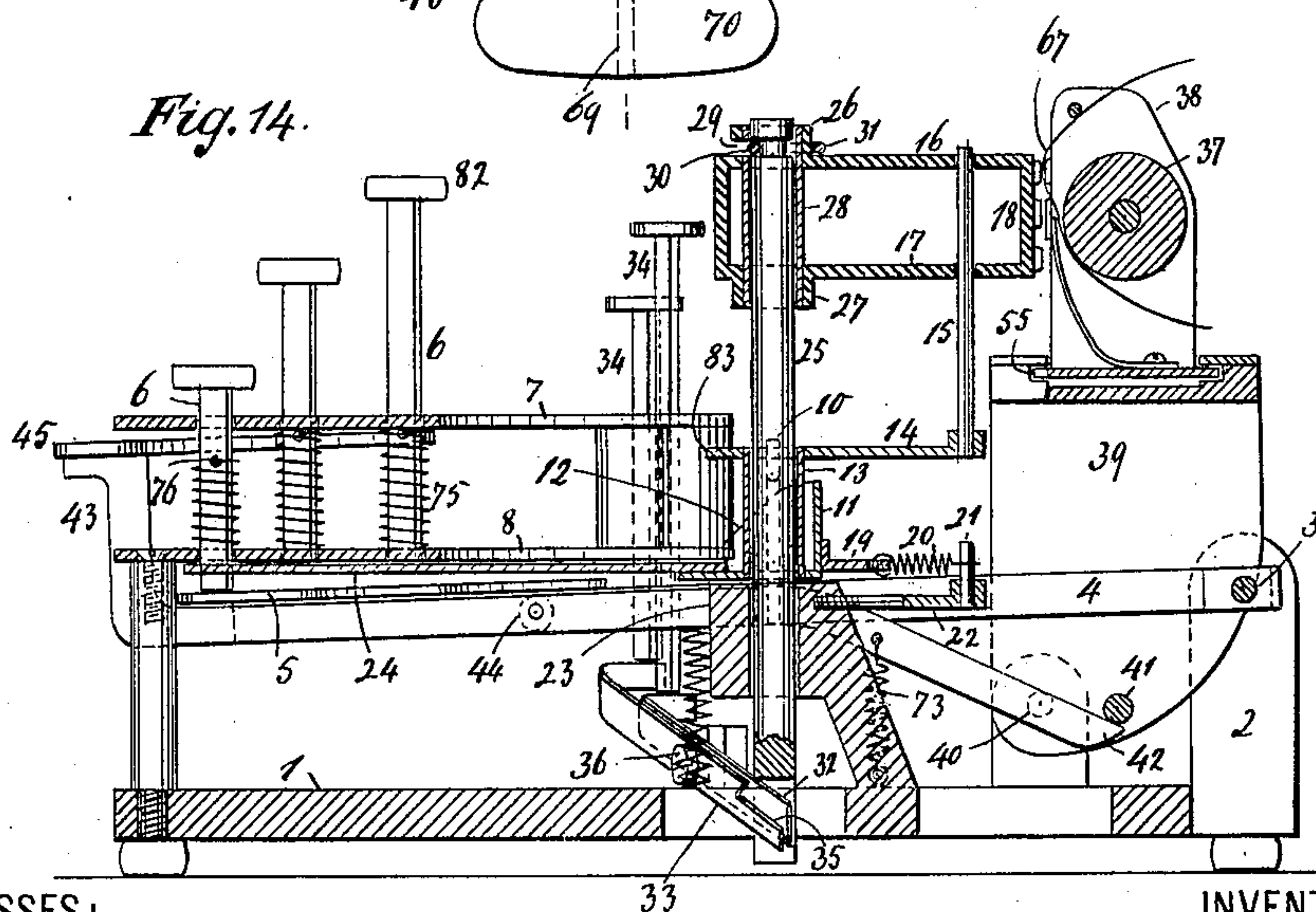
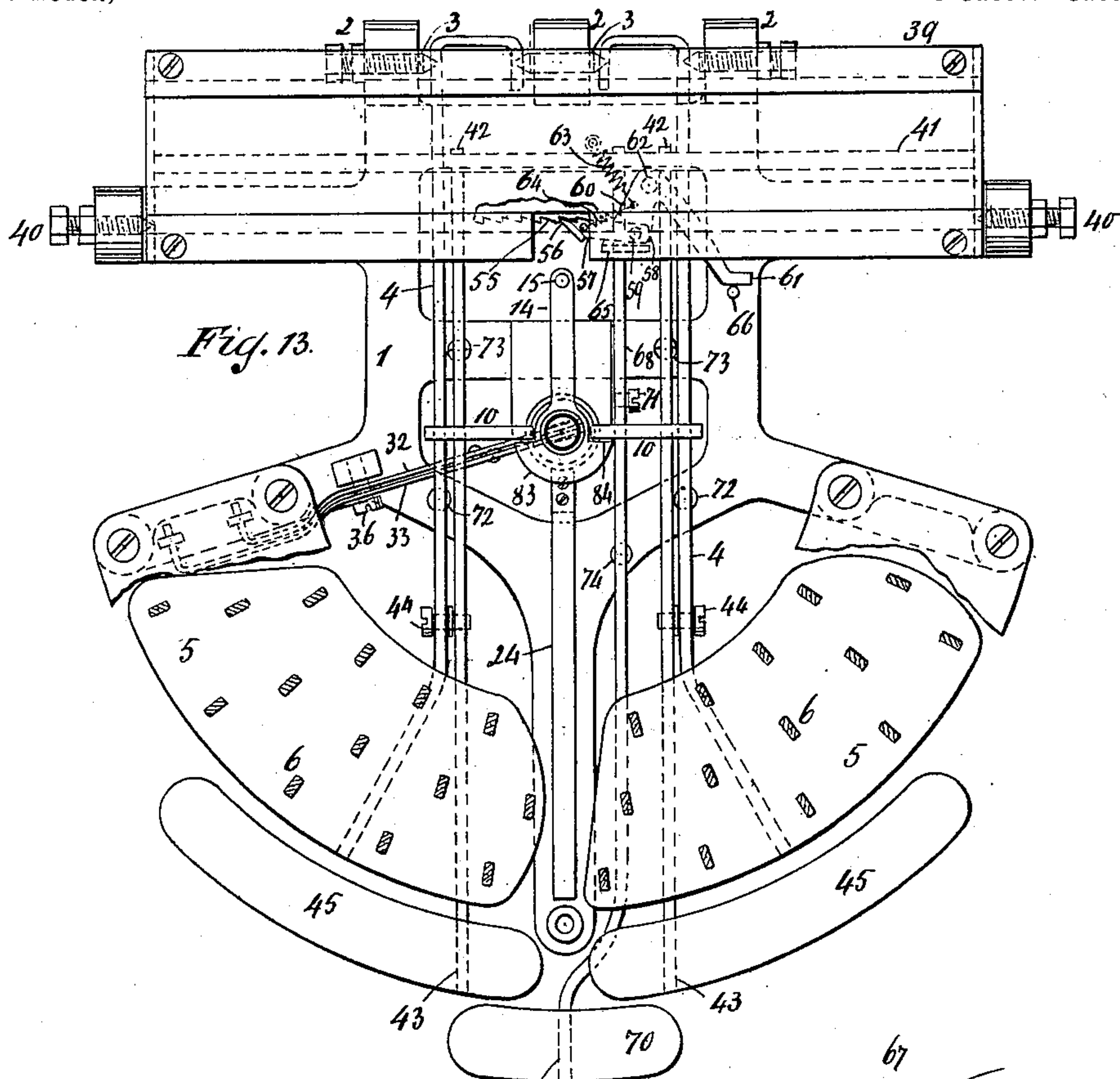
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WILLIAM P. QUENTELL, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 607,274, dated July 12, 1898.

Application filed June 10, 1897. Serial No. 640,202. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. QUENTELL, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The object of this invention is to provide a type-writing machine of simple and cheap construction and easy and reliable in operation; and the invention resides in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a plan view of the machine. Fig. 2 is a detail view of the type wheel or segment in section along line *xx*, Fig. 1, and with a key-lever depressed. Fig. 3 is a section along line *yy*, Fig. 2, showing the connection of the type-wheel to the shaft. Fig. 4 is a modification of the connection shown in Fig. 3. Fig. 5 is a side elevation of the machine. Fig. 6 is a plan view of a key button or head. Fig. 7 is a sectional view of a key. Fig. 8 is a detail view of the base-plate for a key-head. Fig. 9 shows the character or letter disk for a key-head. Fig. 10 shows stop-shoulders for the type-segment. Fig. 11 is a detail sectional view of the cam rotating the type-segment. Fig. 12 shows a blank for making said type-segment-rotating cam. Fig. 13 is a plan view of the machine with the key-guiding plates removed or sectioned off. Fig. 14 is a sectional side elevation of the machine. Fig. 15 is a detail view of the feed-pawl or spacing mechanism. Fig. 16 is a detail view of an inking-roller.

In the drawings is shown a machine employing a type wheel or segment. A base or support 1 has at its rear part standards 2, Figs. 1, 5, and 14, forming bearings for fulcrums 3 of levers 4. These two levers 4 are placed one at each side of the central line of the machine and have a vertical play or oscillation, and, as will be presently seen, said levers rotate the type-segment in opposite directions. Only one such lever could be employed; but by having two levers oppositely rotating the segment the operation of the machine can be eased.

The levers 4 at their forward or free ends have each a plate 5. Each such plate receives

the pressure from the stems 6 of its set of keys, these key-stems being guided or passing through a keyboard or fixed plates 7 and 8, as seen, for example, in Fig. 7, and normally held up or returned to raised position by springs.

The levers 4 have each a bracket comprising an upright part 9, Figs. 2 and 5, and a cross part 10, Figs. 1, 2, and 13. These brackets respectively engage opposite faces or parts of a cam the body 11 of which is of tubular form, Figs. 5 and 11, and the inclined or cam faces 12 of which lie under the bracket parts 10. Said cam 11 12 is fixed to or formed with a rotary sleeve 13, Figs. 2, 5, and 13, from which extends an arm 14, whose stem 15 engages or passes through the bottom 17 or through the top 16 and bottom 17 of the type-segment, whose periphery or type-bearing face is shown at 18.

The type-segment is shown with several rows of type or characters, and being vertically adjustable said segment can bring one row or another to the printing-line. The stem 15 and cam-faces 12 do not move vertically, but said stem 15 passes loosely through suitable perforations in the type-segment to allow the latter to slide or rise and fall along the stem; but any rotation or swing of the stem 15 in horizontal direction will rotate the segment. The stem 15 is of course long enough to allow the segment to slide or be adjusted vertically without losing engagement with the stem.

The means for vertically adjusting the type-segment will be presently explained.

Connecting with the cam-body 11 is a returning or centering spring 20, Figs. 5 and 14, secured to fixed pin 21 on arm 22, extending from a fixed block 23. This block 23 forms the support or bearing for the rotary cam 11 with sleeve 13. Extending from said cam 11 is a stop-arm 24, Figs. 1, 5, and 14, made to pass or swing close under the lower key-guiding plate 8. The depression of a key will cause the stem 6 of such depressed key to pass or project through below the plate 8 into the path of the stop-arm 24, so that the rotation of cam 11 and the consequent swing of arm 24 are arrested by said arm 24 striking a depressed key-stem. As one or another of the variously-located key-stems is de-

pressed the arm 24 is arrested sooner or later, the different degrees of swing or rotation being such as to bring to the printing-point that character of the type-segment corresponding to the depressed key, the depression of a key causing the corresponding lever 4 to swing downward, so as to press a bracket or arm 10 on one or another of the inclines or cam-faces 12, said cam with parts 14 15 and type segment or face 18 are rotated in one direction or another, the arm 24 swinging or turning with said cam until arrested, as described.

The vertical adjustment of the type-segment is effected as follows: Said segment is rotatively mounted on a shaft 25, Fig. 2, passing through the hub portion of the segment or concentric with the circular type-face 18. This shaft 25 does not rotate, but can rise and fall, passing loosely through sleeve 13, so that said shaft and sleeve can perform their respective movements independently of one another. Near its upper part the shaft 25 is grooved.

The type-segment has its hub or central portions 26 and 27 enlarged or thickened, and a metallic sleeve or hub 28 is secured to said hub portions, said sleeve sitting loosely about or being rotatively fitted to shaft 25. The hub portion 26 has a part 29 suitably grooved or cut away, as seen in Fig. 3, so as to allow the branch 30 of a wire 30 and 31 to be seated through said cut 29 in the circular groove extending about shaft 25 near its upper end. The wire branch 31 being suitably seated or snapped against hub portion 26 or into a recess in said hub portion, the branch 30 is held in the groove in shaft 25 and prevents the type-segment from moving vertically independently of shaft 25. At the same time the segment can rotate on the shaft, the wire branch 30 during such rotation slipping around in the groove of shaft 25. This catch or connecting arrangement can be modified, as seen in Fig. 4, wherein place of a cut-out, as 29, the hub 26 and sleeve or bushing 28 have a perforation, as 29', allowing the wire branch 30 to enter the groove in shaft 25, the wire branch 31 engaging hub part 26, as before.

The lift or vertical movement of shaft 25 can be effected by levers 32 and 33, Fig. 2, which engage the foot or slotted lower part of said shaft and can be actuated by keys 34, Fig. 14. One of the levers, as 33, is shown step-shaped or cut away at 35, Fig. 14, where this lever 33 strikes shaft 25. In case the lifting swing of these levers 32 and 33 is arrested at a common stop or level the step 35 will cause lever 33 to effect a lesser degree of lift than results from the corresponding movement of lever 32. These two levers can thus be made to lift shaft 25 with the type-segment to different levels, as for bringing different rows of type to the printing-line. The levers 32 and 33 are shown fulcrumed at 36, Figs. 1 and 14, and the fixed block 23 or any suitable fixed portion might be made to act as a

common stop for the arrest of the lifting movement of these levers.

The platen or paper-roller 37, Fig. 5, is shown mounted in a carriage 38, adapted to travel or feed on the vibrating carriage or support 39, swingingly supported, as at 40, so that said support with the carriage can swing the platen toward and from the type-segment. Said support has a stud or bar 41 engaged by the arm of lever 42 43. Two such levers 42 43 are shown, each fulcrumed at 44 to a positioning-lever 4 at its side of the machine; but the description of one lever 42 43 will explain both said levers. Said levers 42 43 have each at their front end portions finger plates or keys 45, Figs. 1 and 5, placed in proximity to the keys 6, so that if, for example, a finger of one hand is used to hold a key depressed the thumb of the same hand can serve for depressing the adjoining plate or key 45. A depression of plate 45 or lever-arm 43 will cause lever-arm 45 to tilt support 39 with platen 37 toward the type-segment. Said support 39 has fixed thereto an arm 46, Fig. 5, to which at 47 is jointed a swinging arm 48, carrying the bearings 49 for the shaft 50 of the inking-roller 51. The bearing arm or bracket 49 is of springy metal and is slotted or cut through at 52 from the bearing portion for the roller-shaft to the edge of said bracket. The spring of said arms 49 normally tends to close or contract the slots 52, so that the roller-shaft is retained in its bearing. Said slots can, however, be opened or spread enough to allow the roller-shaft to be drawn out of or passed to its seats in the arms 49, so that the roller can be readily mounted and dismounted. When the support 39 tilts forward or toward the type-segment, the roller 51 runs or is pressed up over the type and toward the top of the type-segment, so that when the printing is being done the roller 51 is up out of the way of the platen 37 or over the type-segment, as seen in Fig. 16. On the backward swing of the support 39 and arms 46 the spring 53 draws the roller 51 down or back onto the type-face 18 of the segment. A stop 54 at the joint 47 limits the movement of the arm 48 by spring 53.

The carriage 38 is normally at rest on support 39, but can be fed along on the same for spacing. The carriage has fixed thereto a rack 55, Fig. 13. The pawl 56 is carried by a lever 57 58, fulcrumed at 59 to an arm 60 of lever 60 61, fulcrumed at 62, Figs. 5 and 13, to the carriage-support 39. The spring 63, Figs. 13 and 15, engaging lever-arm 60, tends to hold the latter with pawl 56 to the rack 55. The pawl-carrying lever 57 58 is drawn by spring 64 to swing pawl 56 toward the rack, but the swing of pawl-lever 57 58 to or from the rack is limited by a shoulder or ridge 65, Figs. 5, 13, and 15, on lever-arm 60, and against which ridge or stop 65 either the lever-arm 57 or 58 strikes when the pawl 56 has swung a slight degree one way or an-

other about pivot or fulcrum 59. The stop 65 thus acts as a double stop for the pawl.

When the support with fulcrum 62 has swung forward a certain distance, the lever-arm 61 strikes against stud or stem 66, Figs. 5 and 13, fixed to base 1, whereby lever 61 60 is swung about fulcrum 62, so that the arm 60 swings the pawl 56 clear of the rack, and the spring 64 draws the pawl with lever-arm 57 away from a stop 59, so that on the return of the pawl to the rack the pawl will fall or take into the next succeeding rack-tooth. As the spring 63 is more powerful than spring 64, the lever-arm 60 when drawn by spring 63 will continue moving or swinging the stop 65 toward the rack until the pawl-arm 57 has been forced or swung against such stop 65. The spring 63 thus acts as a feed-spring to effect spacing. This swing of pawl-arm 57 about pivot 59 forces the rack 55, with carriage 38, along for one tooth or space. As the carriage-support 39 swings on pivots 40 to alternately carry lever-arm 61 against and from the stud 66 said lever 61 60 is oscillated to carry pawl 56 to and from the rack and effect a step-by-step feed.

The swing of carriage-support 39 for causing lever 60 61 to clear pawl 56 from rack 55 need not be so great as to carry the platen or the paper or writing-sheet 67, Figs. 5 and 14, against the type-segment. Spacing can thus be effected without printing and a spacing-lever 68 69, Figs. 1 and 5, can be applied to swing support 39 sufficiently for spacing, but not for printing. This spacing-lever is shown with a finger plate or key at 70 and is fulcrumed at 71.

The levers 4 are shown with returning-springs at 72, Fig. 1, and the levers 42 43 have returning-springs 73. The returning-spring for the spacing-lever is shown at 74. The keys have also their individual returning-springs. As seen in Fig. 7, a spring 75 is coiled about each key-shank and rests its lower end on plate 8, while its upper end engages or projects through an eye 76 in the key-shank. The upper end of the spring 75, striking against plate 7 on the rise or release of the key, stops the latter from going up too high or jumping out of place. The key shank or stem can be cheaply formed from a flat strip or piece of sheet metal shouldered or narrowed at its top and is shown as having riveted or secured thereto the perforated disk 77 or base part 77, Figs. 7 and 8, of the key-head or finger-button. This base or disk 77 has a cut-out part 78. The disk 79, Fig. 9, for the letter, character, or number has a lip 80, which, being lapped or bent into cut-out 78, Fig. 7, will prevent the character-disk from rotating or shifting. Onto the character-disk 79 is placed a transparent disk 81—as, for example, celluloid—and a clamping-ring 82, properly flanged or secured, will hold the parts 77, 79, and 81 together.

The segment-rotating arm 14, Figs. 5 and 10, is shown secured to or formed with a disk

83, suitably mutilated to form shoulders 84. When the returning-springs 72 have raised levers 4 or one of said levers, with its bracket-arm 10, to resting or inactive position, said arm 10 rests in the path of said respective shoulder 84, and the arm 14, with the type-segment, cannot rotate to carry the shoulder past the bracket 10 until the corresponding lever 4 is depressed.

The type-segment as seen in Fig. 14 is formed with its top 16, bottom 17, type-face 18, and hub parts or projecting enlargements 26 and 27 all of one piece of material, as hard rubber. The top 16 and bottom 17 are not connected to one another at the center or hub parts or at any place, except at the periphery and sides, so that as little material as possible is used for the segment. The metallic sleeve or bushing 28 is inserted or secured at the hub parts or axial portions 26 and 27 and extends through the segment from top to bottom. A segment of this construction can be cheaply made and can be also made very light to have little weight or momentum.

The printing-levers 42 43 are pivoted or fulcrumed at 44 to their respective positioning-levers 4, whereby the operation of the machine is made reliable, as rebound is prevented. The printing mechanism 42 43 cannot be operated without bringing additional bearing on the positioning mechanism 4 through the connecting-fulcrums 44, so that such positioning mechanism or lever 4, exposed to such additional pressure or bearing, will hold or force the stop-arm 24 firmly against its stopping or depressed key-stem 6 while the printing is being done. The arm 24 thus being held or firmly pressed against its stopping key-stem 6 will hold the type-segment steady for a clear printing stroke.

The blank 11' 12', Fig. 12, for forming the cam 11 12 might be stamped or formed integral with the stop-arm 24, or said stop-arm could be fixed or secured to the cam in suitable manner.

As each key simply positions the type wheel or segment, but does not print nor space, less accurate adjustment is required for this machine than in those machines where the simple depression of the key performs all said three functions, and consequently this machine can be made cheaper and simpler.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, a type wheel or segment, a vibrating platen-carriage support, and a vibrating arm having an ink-roller, said arm being vibrated by and mounted upon the support clear of or out of contact with the machine-frame, substantially as described.

2. In a type-writing machine, a type wheel or segment, a traveling platen-carriage, a vibrating support for the carriage, a vibrating arm having an ink-roller, and a spring connected with said arm and support said roller being made to contact with the type-wheel

and said arm being connected to said support clear of the machine-frame so as to be vibrated to carry the roller over the type-wheel as the carriage-support vibrates toward
5 said wheel substantially as described.

3. In a type-writing machine a type wheel or segment, a platen-carriage, a vibrating support for the carriage, an arm fixed to said support, a vibrating roller-carrying arm on said
10 fixed arm, and an ink-roller on said roller-carrying arm substantially as described.

4. In a type-writing machine a type wheel or segment, a platen-carriage, a vibrating support for the carriage, an arm fixed to said support, a vibrating roller-carrying arm on said
15 fixed arm, and a check or stop for said vibrating arm substantially as described.

5. In a type-writing machine a type wheel or segment, a platen-carriage, a vibrating support for the carriage, an arm fixed to said support, a vibrating roller-carrying arm on said
20 fixed arm, and a check or stop for said vibrating arm, said stop being located at the joint or connection of said arms substantially as described.

6. An ink-roller having an axle and a carrying-arm having jaws or holders forming a bearing for said roller-axle, said jaws being
30 slotted through from said bearings to the edge and being formed of spring metal normally tending to close or contract the slots substantially as described.

7. A hard-rubber type-wheel having an enlarged or projecting grooved central or axial
35 portion, a metallic hub at said enlarged portion, a grooved shaft extended into said hub, and a looped wire made to engage said axial portion and extended therethrough to the shaft-groove substantially as described.

8. A hard-rubber hollow type wheel or segment comprising a periphery with top and bottom all in one piece, the central or axial parts
40 of the top and bottom being left unconnected or separate from one another, and provided with a metallic sleeve or hub substantially as described.

9. A hard-rubber hollow type wheel or segment comprising a periphery with top and bottom all in one piece, the central or axial parts
50 of the top and bottom being left unconnected or separate from one another and provided with an enlargement or thickening, and with a metallic sleeve or hub substantially as described.

10. A type wheel or segment, a shaft on which the wheel is loosely mounted, and is rotatable independently of such shaft, a rotating sleeve on the shaft connected to or made
60 to engage the wheel, said sleeve being provided with a cam, and an actuating-lever made to engage the cam substantially as described.

11. A type wheel or segment, a shaft on which the wheel is loosely mounted, and is rotatable independently of such shaft, a rotating sleeve on the shaft connected to or made

to engage the wheel, said sleeve being provided with inclined or cam faces on opposite sides of said sleeve, and levers made to engage the cam-faces substantially as described. 70

12. A type wheel or segment, a shaft on which the wheel is loosely mounted, and is rotatable independently of such shaft, a rotating sleeve on the shaft connected to or made to engage the wheel, said sleeve being provided with inclined or cam faces on opposite
75 sides of said sleeve, and oppositely-located actuating-levers having engaging brackets for said cam-faces substantially as described.

13. A type wheel or segment, a shaft on which the wheel is loosely mounted, and is rotatable independently of such shaft, a rotating sleeve on the shaft connected to or made to engage the wheel, said sleeve being provided with a cam, an actuating-lever made to
80 engage the cam, and a returning-spring for the type-segment substantially as described.

14. A type-wheel, and a shaft for said wheel, combined with an actuating-cam, and a stop-arm fixed to said cam, the wheel and cam being both mounted directly on said shaft, substantially as described. 90

15. A type wheel or segment, actuating-cam faces for the wheel, actuating-levers for the cam-faces, and shoulders or stops, said
95 levers when at rest being made to engage said stops substantially as described.

16. A type wheel or segment, actuating-cam faces for the wheel, shoulders or stops located above said faces, and vertically-oscillating actuating-levers for the cam-faces, said
100 levers when at their upper or rest point being made to engage or lie in the path of said stops substantially as described.

17. A type wheel or segment, a shaft on which the segment is loosely mounted, a sleeve rotatively mounted on the shaft and made to engage the segment and provided with cam-faces and with stops or shoulders, and actuating-levers for the cam-faces, said levers
110 when at rest being made to engage the stops, substantially as described.

18. A type wheel or segment, a shaft for the wheel, an actuating-arm for the wheel, said arm being provided with shoulders or stops, and actuating-levers for the wheel, said levers being made to engage the stops when at rest substantially as described. 115

19. A type wheel or segment, a shaft for the wheel, a sleeve mounted on the shaft, a double-faced cam on the sleeve, an actuating-arm also mounted on the sleeve and made to engage the wheel, said arm being provided with shoulders or stops, and actuating-levers made to engage the cams, said levers when at rest being made to engage the stops substantially as described. 120

20. A type wheel or segment mounted on a vertically movable or adjustable shaft, lifting or adjusting levers for said shaft, and a common stop for arresting said levers at a common level, one of said levers being step-shaped 130

or cut away so that said levers respectively arrest or hold the wheel at different levels substantially as described.

21. A type wheel or segment mounted on a 5 vertically movable or adjustable shaft, lifting or adjusting levers for said shaft, and a common stop for arresting said levers at a common level, one of said levers being step-shaped or cut away at its point of contact 10 with the shaft so that said levers respectively arrest or hold the wheel at different levels substantially as described.

22. A type wheel or segment writing-machine provided with an independent key for 15 each letter, mechanism substantially as described intermediate or connecting the key and type-wheel for causing said key to rotate or position the wheel, and a printing and spacing lever made to operate independently of 20 the keys, said wheel being provided with a stop-arm and said keys when depressed having their shanks moved into the path of said stop-arm substantially as described.

23. A type wheel or segment writing-machine 25 provided with a positioning-lever and with a printing-lever fulcrumed on the positioning-lever said levers swinging parallel to one another, substantially as described.

24. A type wheel or segment writing-machine 30 provided with separate keys for respectively rotating or positioning the type-segment and for executing the printing stroke, levers actuated by said positioning-keys, and levers actuated by said printing-keys, said 35 printing-levers being fulcrumed on the positioning-levers substantially as described.

25. A type wheel or segment writing-machine provided with a positioning-lever fulcrumed at one end and having a plate at its 40 other end, keys made to contact with said plate, a wheel-actuating cam engaged by said lever, and a stop-arm made to extend from the cam, each of said keys when depressed being moved into the path of said stop-arm 45 substantially as described.

26. A type wheel or segment, a shaft on which the wheel is loosely mounted, a sleeve rotatively mounted on the shaft and provided with a cam, positioning-levers provided with 50 brackets for engaging said cam, plates on said levers, keys made to engage said plates, and a stop-arm extended from said cam, each of said keys when depressed being moved into

the path of said stop-arm substantially as described. 55

27. A type wheel or segment writing-machine provided with separate keys, one key set being made to rotate or position the wheel so that the letter on the wheel corresponding 60 to the actuated key is brought to the printing-point, and the other key set being provided with a finger-plate and made to effect spacing and a printing contact between the type-wheel and the writing surface or paper said 65 positioning-keys actuating the spacing and printing lever for a portion of its throw only, substantially as described.

28. A type wheel or segment writing-machine provided with a keyboard, a positioning-lever having a plate, keys made to contact 70 with said plate, a printing-lever fulcrumed to the positioning-lever, and a finger-plate on said printing-lever, said finger-plate being located in front of said keyboard substantially as described. 75

29. A paper-carriage and a feed-rack therefor, combined with a lever, a pawl pivotally mounted on said lever, and a stop on said lever for limiting the swing of the pawl in both 80 directions substantially as described.

30. A paper-carriage and a feed-rack therefor, combined with a lever, a feed-spring made to engage the lever, a pawl pivotally mounted on said lever, and a spring for moving the 85 pawl toward the rack, said lever having a shoulder extended to each side of the pawl-pivot to act as a double stop for the pawl substantially as described.

31. A type-writing-machine key consisting of a shank having its upper portion shouldered and narrowed, a perforated disk riveted or secured at said shoulder and having 90 a portion of its rim cut, a lettered or character disk having a lip bent into said cut, a transparent covering for the character-disk, 95 and a securing ring or flange connected to the first-named disk and to the covering substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing 100 witnesses.

WILLIAM P. QUENTELL.

Witnesses:

WM. C. HAUFF,
E. F. KASTENHUBER.