No. 881,795. PATENTED MAR. 10, 1908.

P. GRÜTZMANN.

TYPE WRITER.

APPLICATION FILED AUG. 9, 1907.

3 SHEETS—SHEET 1.

Fig.1.

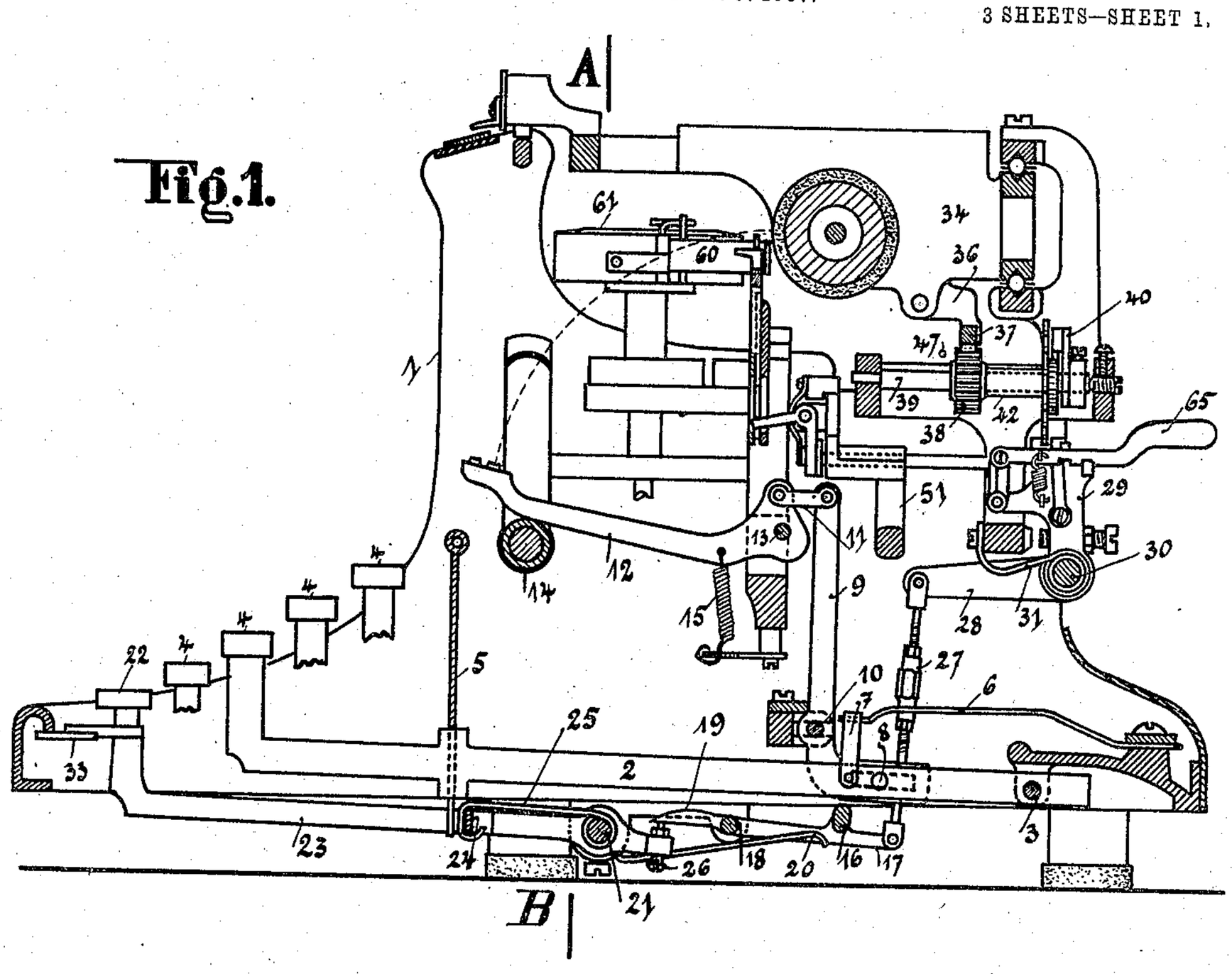
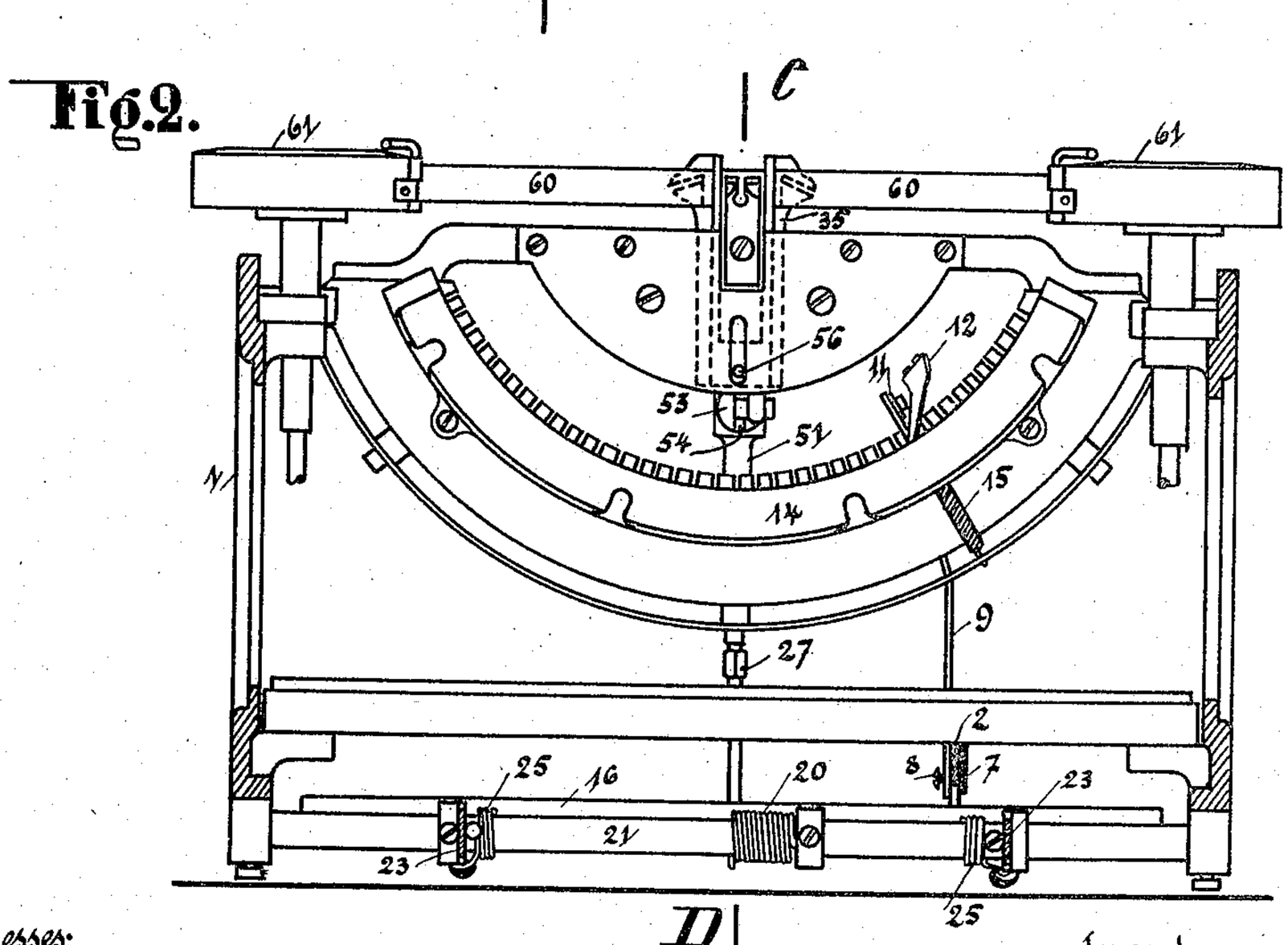


Fig.2.



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3 SHEETS—SHEET 2.

Fig. 3.

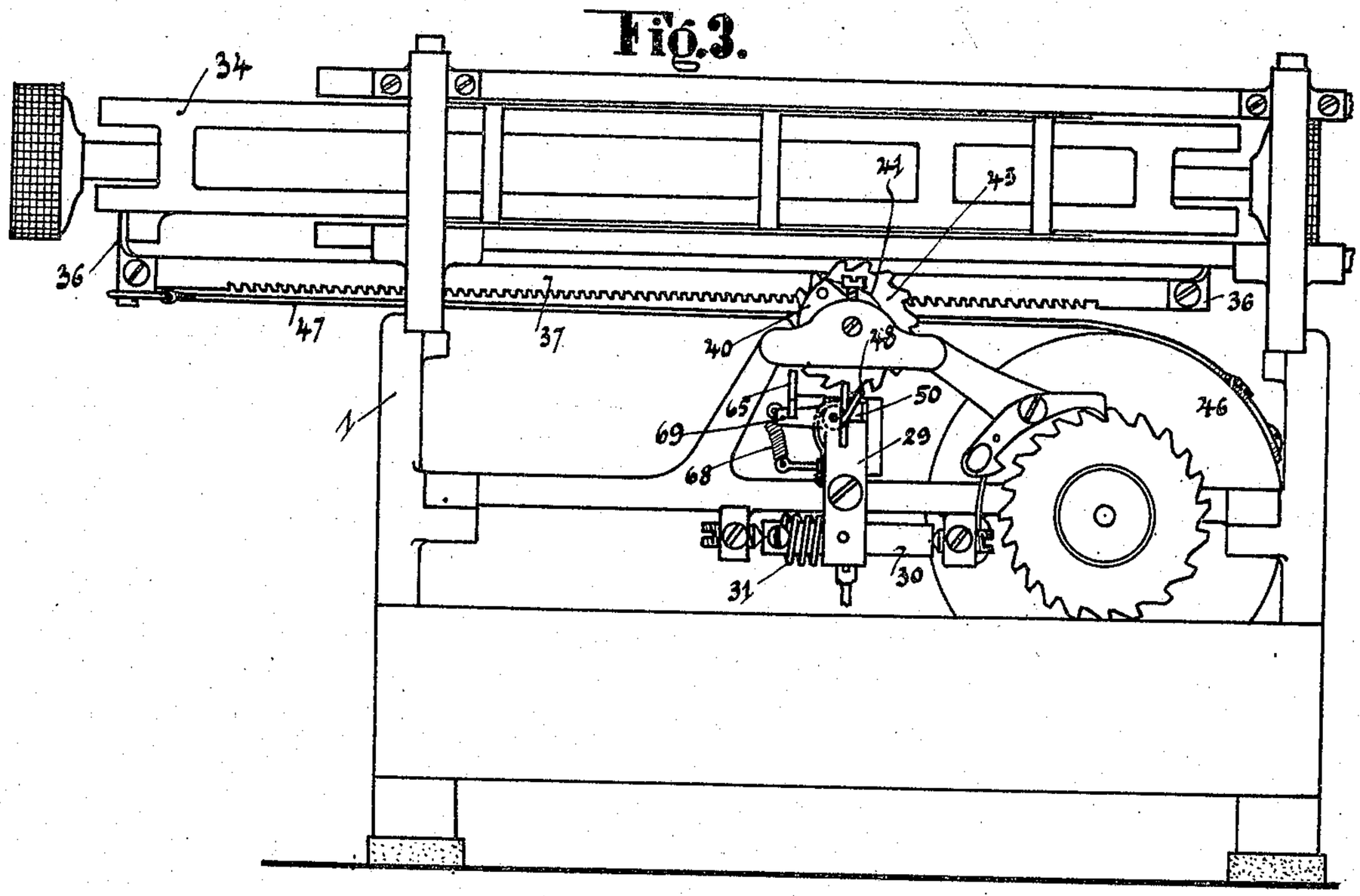
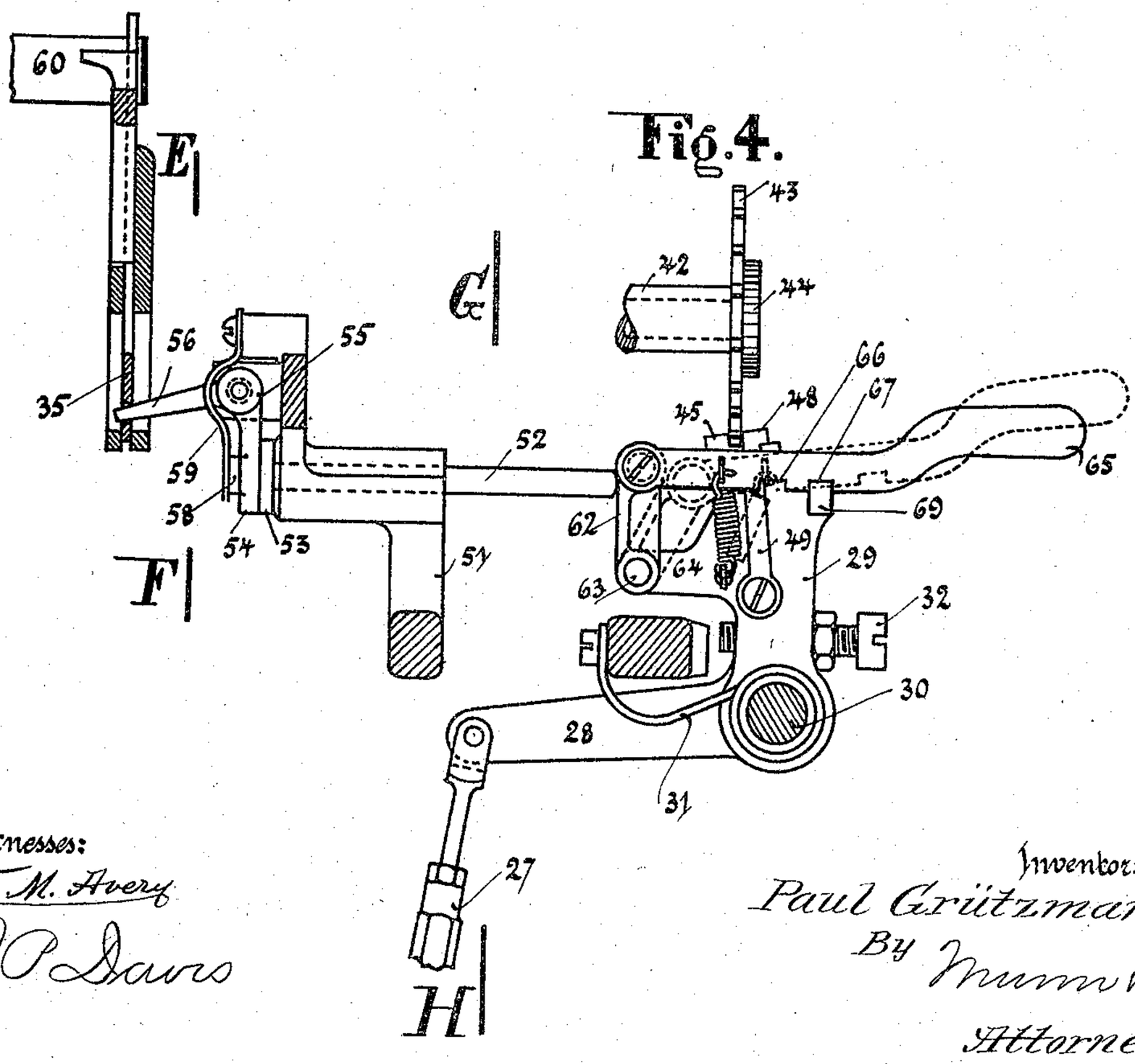


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

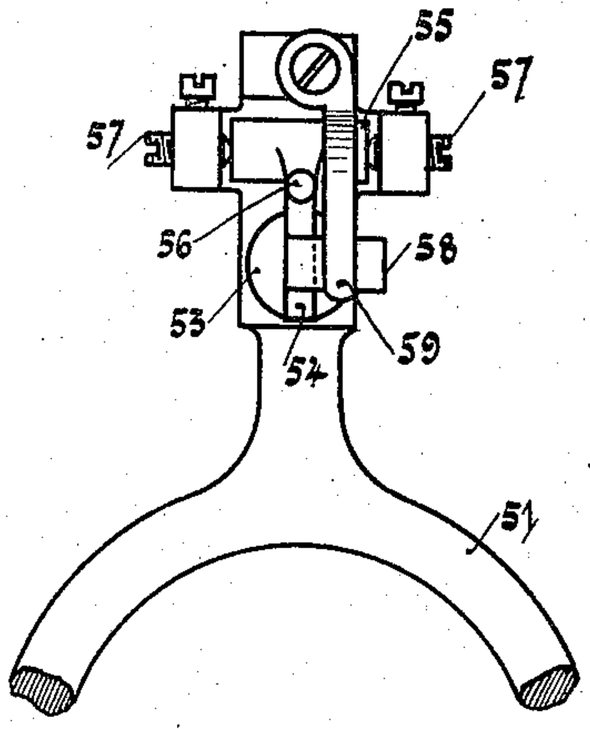
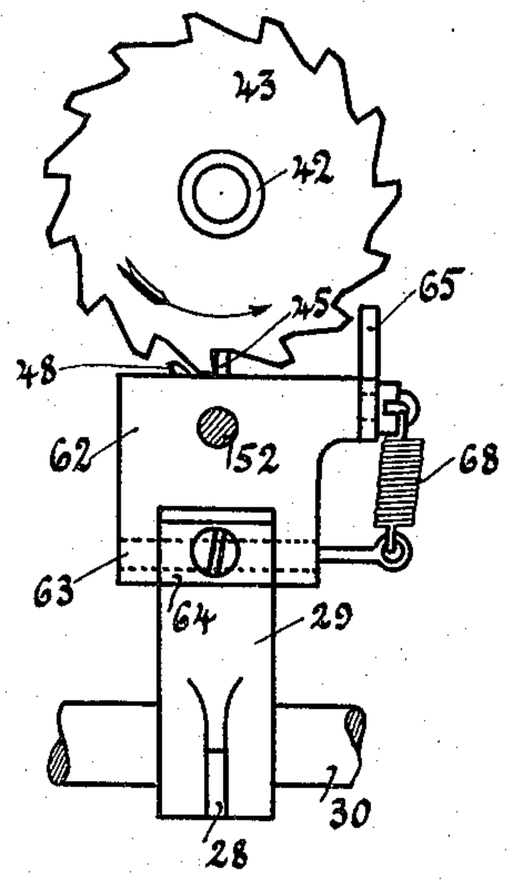


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITER.

No. 881,795. Specification of Letters Patent. Patented March 10, 1908.

Application filed August 9, 1907. Serial No. 387,734.

To all whom it may concern:

Be it known that I, PAUL GRÜTZMANN, a citizen of the Empire of Germany, residing at Stettin, in the Empire of Germany, have invented a new and useful Type-Writer, of which the following is a specification.

My invention relates to type-writers, in which the ribbon or inking band is raised or shifted on a key being depressed so as to cover the printing place during the print of a type, and consists of a device so arranged that the means for raising or shifting the ribbon can be at will operated from the carriage feeding mechanism and disconnected from the same. In the latter case the ribbon will remain in its normal position, so that the types on the type levers will not strike the ribbon on the printing place on the keys being depressed. Then the wax-paper or stencil of the known mimeograph or cyclostyle can be passed round the platen-roll and written on. Thus the new device presents the advantage, that the ribbon need not be taken out of the type-writer at all, when it is desired to multiply the writing by means of the mimeograph or cyclostyle. With the new device all that is necessary for rendering the ribbon at will idle or active is merely to shift a part in one or the opposite direction.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through a known type-writer provided with my new device on the line C—D in Fig. 2, Fig. 2 is a vertical cross section through the same on the line A—B in Fig. 1, the carriage being omitted and the segmental pad for the type levers being shown in elevation, Fig. 3 is a rear view of the same, the carriage having been almost completely drawn outwards. Fig. 4 shows on an enlarged scale a portion out of Fig. 1 with the new device, Fig. 5 is a vertical section through the line E—F in Fig. 4, seen from front to rear, and Fig. 6 is a vertical section through the line G—H in Fig. 4, seen from front to rear.

Similar characters of reference refer to similar parts throughout the several views.

In the drawings I have shown a known type-writer to illustrate the manner, in which my new device may be applied to it.

In the frame 1 a series of key levers 2 is mounted to rock on a horizontal rod 3. Only one key lever 2 is shown for the sake of clearness. The key levers 2 provided with keys 4 are guided in a comb 5 and are normally pressed upwards by means of springs 6 and links 7. They are each provided with a pin 8, which engages in the slot of the horizontal arm of a bent lever 9. The latter is mounted in the frame 1 to rock at 10 and its upper arm is pivotally connected by means of a link 11 with the short arm of a type lever 12 rocking on a bent rod 13. Normally the type levers 12 are pressed downwards on a segmental pad 14 by helical springs 15. The key levers 2 are adapted to severally depress a horizontal bar 16 forming a part of a frame 17, which rocks in the frame 1 around 18. This frame 17 is provided with two front arms 19 and is on the rear pressed upwards by a spring 20 fastened on a horizontal rod 21. A space key 22 is fastened on two levers 23, 23, which are mounted on the rod 21 to rock and are connected together by a bar 24 and are thereby pressed upwards by means of two springs 25, 25.

The rear arms of the two levers 23, 23 are adapted to act upon the two front arms 19 of the rocking frame 17 by means of adjustable screws 26. A central rear arm of the rocking frame 17 is pivotally connected by means of an adjustable rod 27 with a lever 28 which is shown as made in one piece with a vertical lever 29 (see Fig. 4) fastened on a horizontal rocking shaft 30 and pressed to the front by a spring 31. An adjusting screw 32 serves for limiting the turn of the two levers 28 and 29, it striking against a suitable projection on the frame 1. The turn of the two levers 28 and 29 to the rear is limited by arms 33 (Fig. 1) on the two levers 23, 23 beneath the space key 22, which arms are pressed upwards against the front part of the frame 1.

The rocking lever 29 serves for simultaneously feeding the carriage 34 and actuating the vertically movable ribbon guide 35 in the following manner. The carriage 34 guided in any known manner in the frame 1 is provided with two levers 36, 36, which are connected together by means of a rack 37 and are in a known manner spring-pressed, so that the rack 37 normally meshes with a pinion 38 (Fig. 1) fastened on a horizontal shaft 39. By depressing the known upper arms (omitted from the drawings) of the levers 36 the rack 37 can be turned out of engagement with the pinion 38 as usual. The shaft 39 is mounted to turn in the frame 1

and has fastened on it an arm 40, on which a spring-pressed pawl 41 is disposed. Loose on the shaft 39 is a sleeve 42, on which an escapement wheel 43 (Fig. 4) and a ratchet wheel 44 are fastened. In the ratchet wheel 44 engages the pawl 41 mentioned above. On the lever 29 is fastened a detent 45 (Figs. 4 and 6) which normally engages in the escapement wheel 43 for stopping the carriage 34 that is pulled to the left as usual by a spring in the spring barrel 46 by means of a rope 47. The carriage 34 can be drawn out to the right, since the spring-pressed pawl 41 rides over the teeth of this ratchet-wheel 44. A pawl 48 is mounted to rock in the lever 29 (Fig. 3) and is by a spring 49 pressed to the left against a stop 50, so that it is ready to engage in the next following tooth space of the escapement wheel 43 on any key 4 or the space key 22 being depressed. In this case the detent 45 on the lever 29 will move to the front out of engagement with the escapement wheel 43, which is thus liberated, so that its following tooth will strike the pawl 48 and turn it a little to the right until it bears on the lever 29. This means, that the carriage 34 is fed through the distance of one type width so that the respective type lever 12 will strike the paper on the right printing place. On the key 4 or 22 being released the detent 45 registering with the pawl 48 will engage in the escapement wheel 43 and prevent it from moving as usual.

In the machine frame 1 is provided a suitable support 51 (Figs. 4 and 5), in which a rod 52 is mounted to longitudinally move and to turn. This rod 52 is provided with a circular head 53, which normally bears on the support 51 and is adapted to act upon a vertical arm 54 made in one piece with an axle 55 and an inclined arm 56. The axle 55 is mounted to rock between two pointed screws 57, 57 in the support 51. The arm 54 is provided with a projection 58, on which a leaf spring 59 acts for pressing the arm 56 downwards and the head 53 on the support 51. The inclined arm 56 engages in a hole of the vertically guided ribbon guide 35. It will be seen, that the ribbon 60 passing from one ribbon roller 61 (Fig. 2) through the slots of the guide 35 to the other ribbon roller 61 will be raised by the arm 56 on the latter being turned upwards.

In the known type-writer of the construction illustrated the lever 29 is arranged to act direct upon the rear end of the rod 52 and thus to lift the ribbon 60 on any key 4 or the space key 22 being depressed. According to my invention, however, the following device is provided on the lever 29. A vertical plate 62 is hinged at 63 to a suitable projection 64 on the lever 29 and is pivotally connected with a lever 65, which is provided on its underside with two notches 66 and 67. The two levers 29 and 65 are connected together by means of a helical spring 68, which presses the lever 65 on a suitable projection 69 on the lever 29. Normally the projection 69 engages in the notch 67 of the lever 65 and thereby secures the plate 62 in its vertical position shown. In this position the plate 62 is made to bear on the rear end of the rod 52 as shown or nearly so.

In Fig. 1 a space is shown as left between the key levers 2 and the horizontal bar 16, so that on depressing any key 4 the corresponding type lever 12 will be turned through a part of its angle before the key lever 2 strikes the horizontal bar 16 and thereby turns the lever 29 to the front by means of the parts 27 and 28. Then in the manner described above the carriage 34 will be fed one type width forward and at the same time the ribbon 60 will be raised to cover the printing place whereupon the type on the type lever 12 will strike the printing place and effect the print. In this case the type-writer is operated in the usual manner.

When it is desired to employ the mimeograph or cyclostyle, it is only necessary to lift the lever 65 (Fig. 4) out of engagement with the projection 69 and to shift it rearwards until the projection 69 engages in the other notch 66 of the lever 65. Thereby the plate 62 will be turned to the rear and the two parts 62 and 65 will occupy another position indicated by dotted lines in Fig. 4. It will be then evident, that on depressing any key 4 or the space key 22 the plate 62 will not strike the rod 52 at all, so that the ribbon 60 will remain in its lower position, it being fed as usual, and the carriage 34 will be fed forward as hitherto.

The device described may be varied and it may be applied to any type-writer, in which the ribbon is normally moved over the printing place for effecting the print of the type struck. The manner in which this device may be adapted to the varying construction of the carriage feeding mechanism and of the ribbon raising or shifting mechanism is obvious to any one versed in the art to which this invention appertains.

I claim:

1. In a type-writer, the combination with means for shifting the ribbon to cover the printing place during the print of a type, of a rod longitudinally movable in the machine frame and adapted to actuate said means, a carriage feeding device, a lever mounted to rock in the machine frame and connected with the key-controlled mechanism and adapted to operate said carriage feeding device, and a part on said lever and adapted to be placed at will in either of two positions relatively thereto for transmitting in the one position the motion from said lever to said rod and for remaining in the other position out of contact with same.

2. In a type-writer, the combination with

means for raising the ribbon to cover the printing place during the print of a type, of a rod longitudinally movable in the machine frame and adapted to actuate said means, a carriage feeding device, a lever mounted to rock in the machine frame and connected with the key-controlled mechanism and adapted to operate said carriage feeding device, and a part on said lever and adapted to be placed at will in either of two positions relatively thereto for transmitting in the one position the motion from said lever to said rod and for remaining in the other position out of contact with same.

3. In a type-writer, the combination with means for shifting the ribbon to cover the printing place during the print of a type, of a horizontal rod longitudinally movable in the machine frame and adapted to actuate said means, a carriage feeding device, a lever mounted to rock in the machine frame and connected with the key-controlled mechanism and adapted to operate said carriage feeding device, a plate hinged at one end to said lever, a projection on said lever, and a spring-pressed handle hinged to the other end of said plate and provided with two notches into either of which said projection can engage, so that said plate in its one position can actuate said horizontal rod and in its other position can not.

4. In a type-writer, the combination with means for raising the ribbon to cover the printing place during the print of a type, of a horizontal rod longitudinally movable in the machine frame and adapted to actuate said means, a carriage feeding device, a lever mounted to rock in the machine frame and connected with the key-controlled mechanism and adapted to operate said carriage feeding device, a plate hinged at one end to said lever, a projection on said lever, and a spring-pressed handle hinged to the other end of said plate and provided with two notches into either of which said projection can engage, so that said plate in its one position can actuate said horizontal rod and in its other position can not.

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