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TYPING MECHANISM

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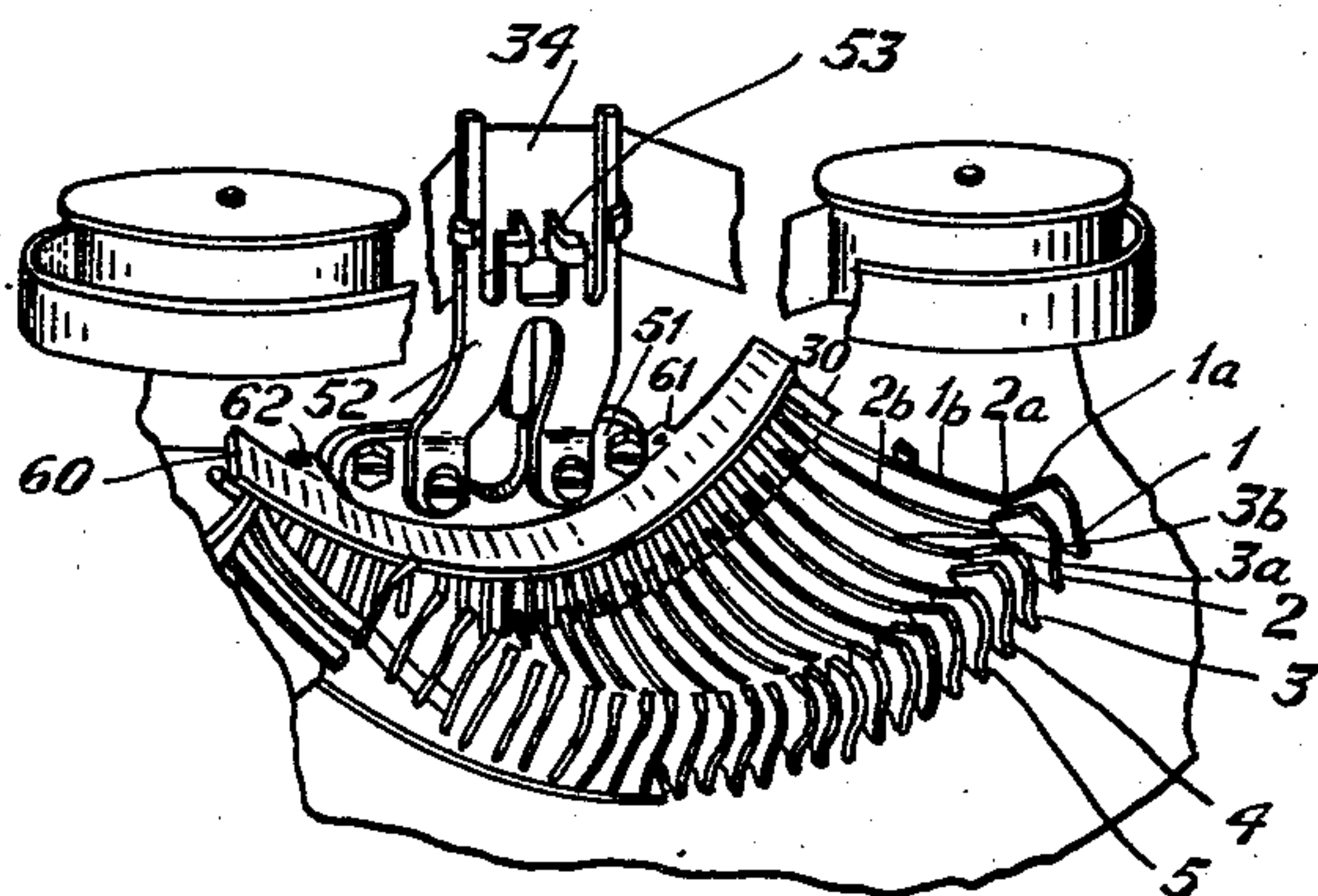


Fig. 1

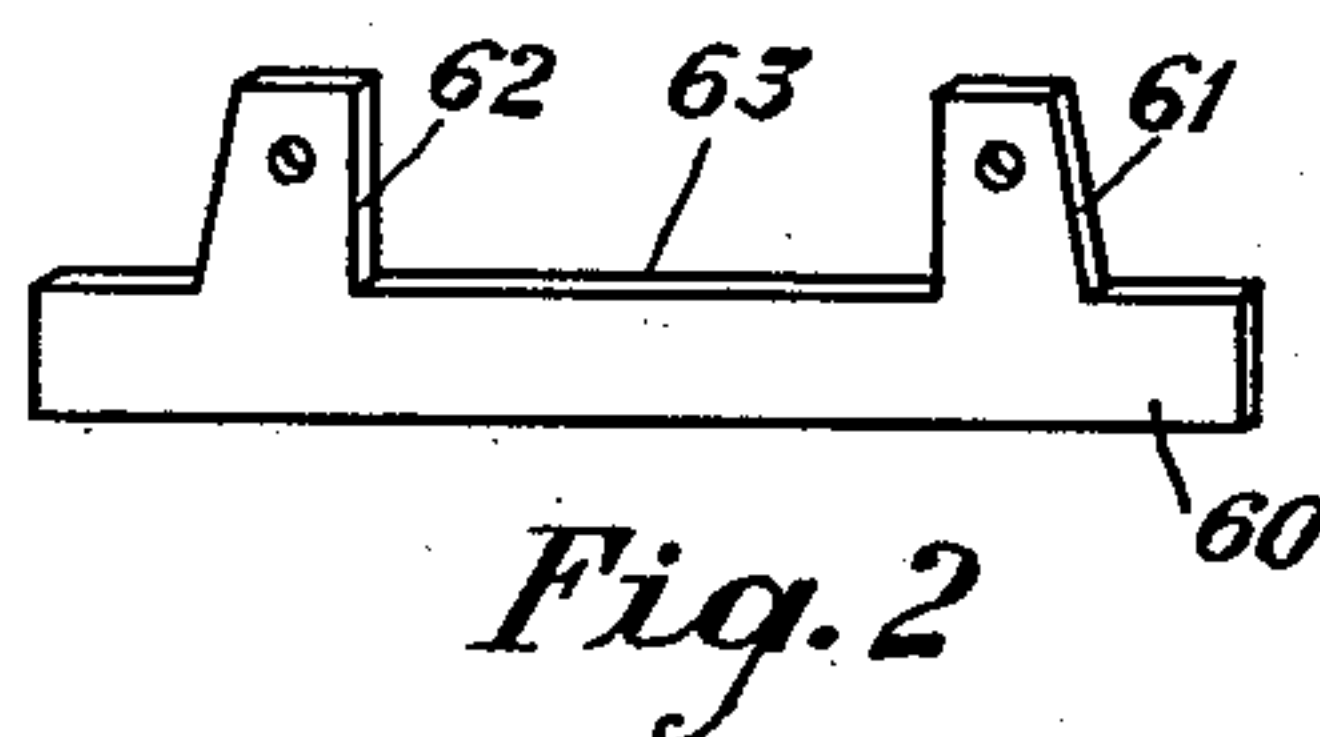


Fig. 2

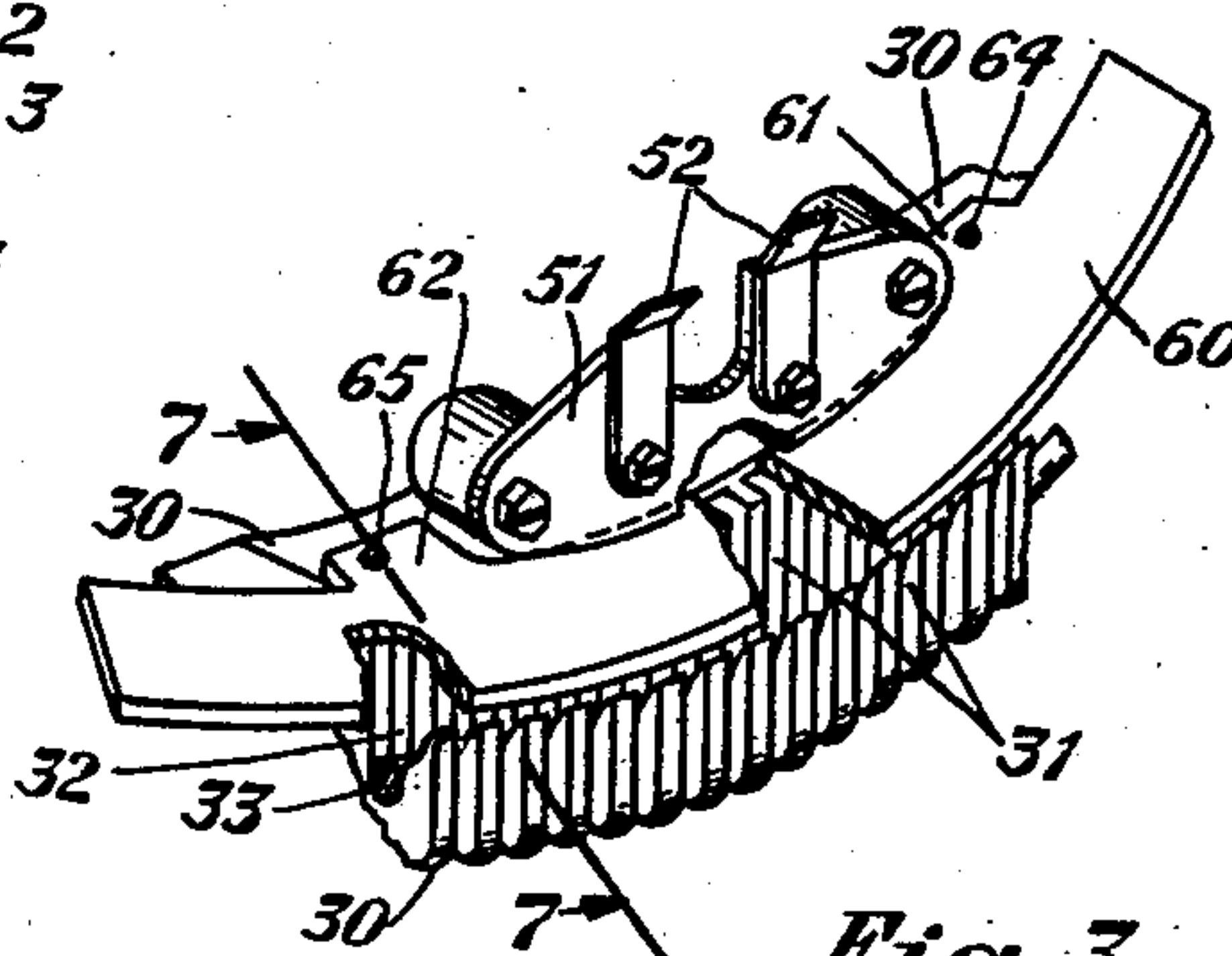


Fig. 3

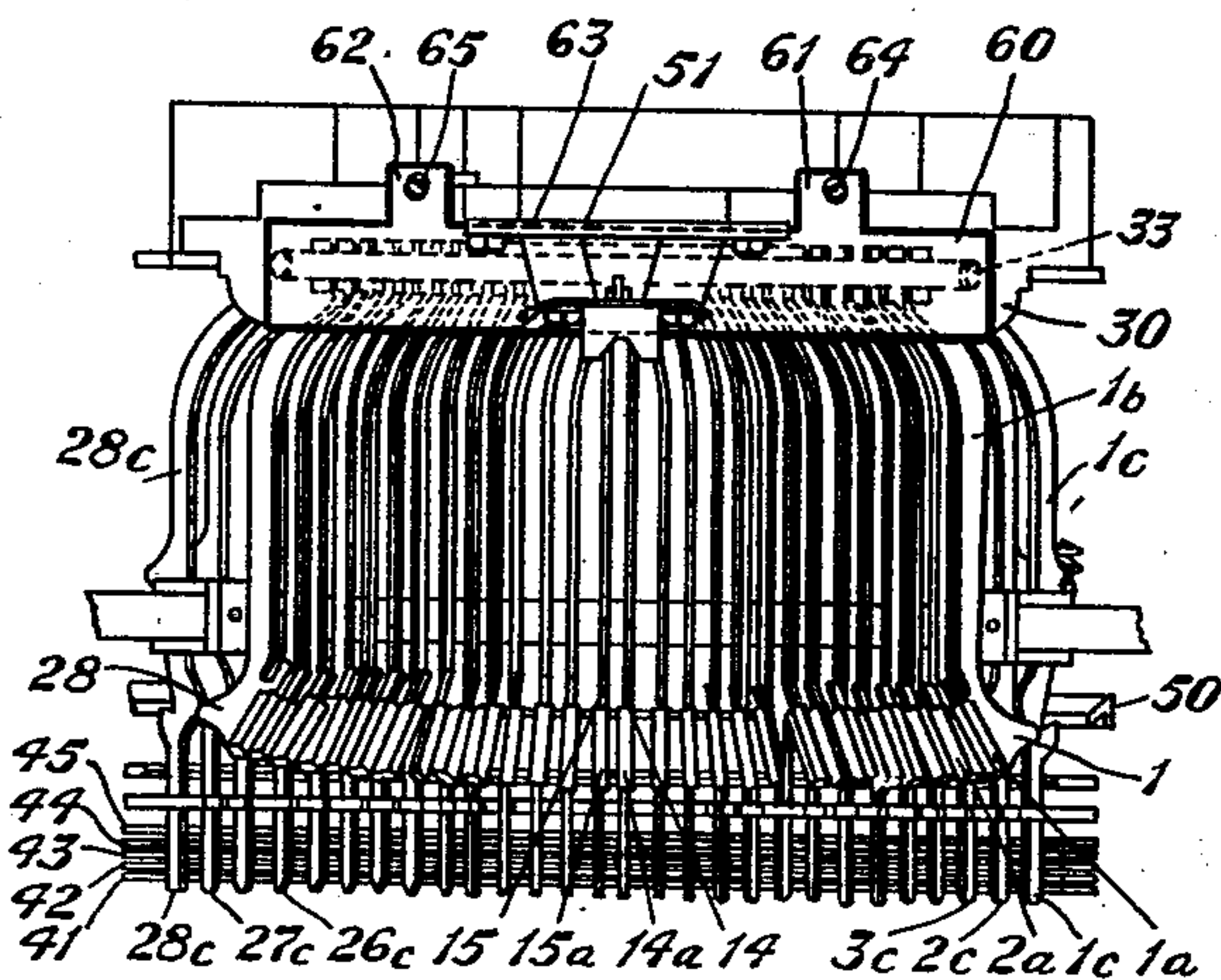


Fig. 4

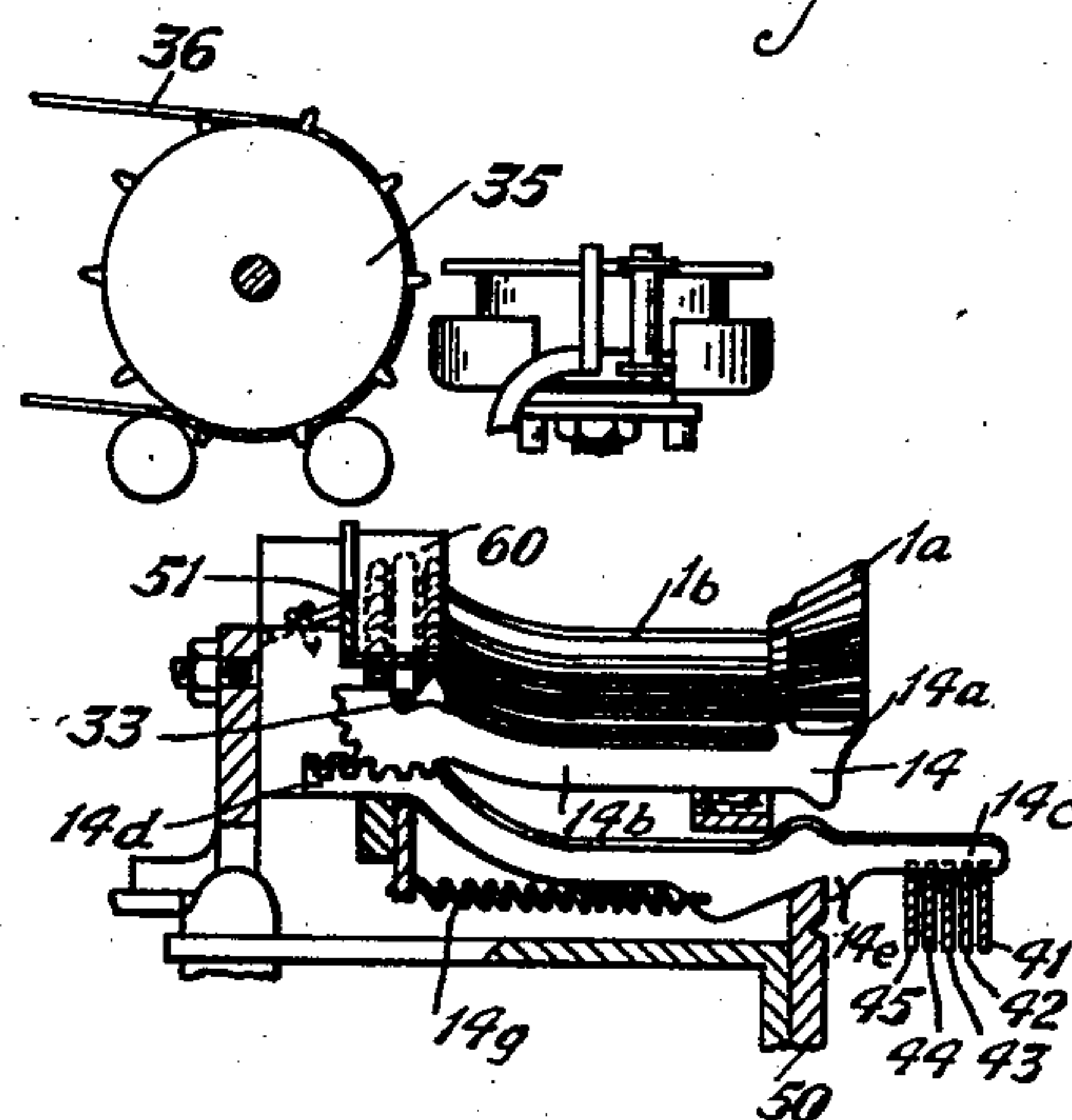


Fig. 5

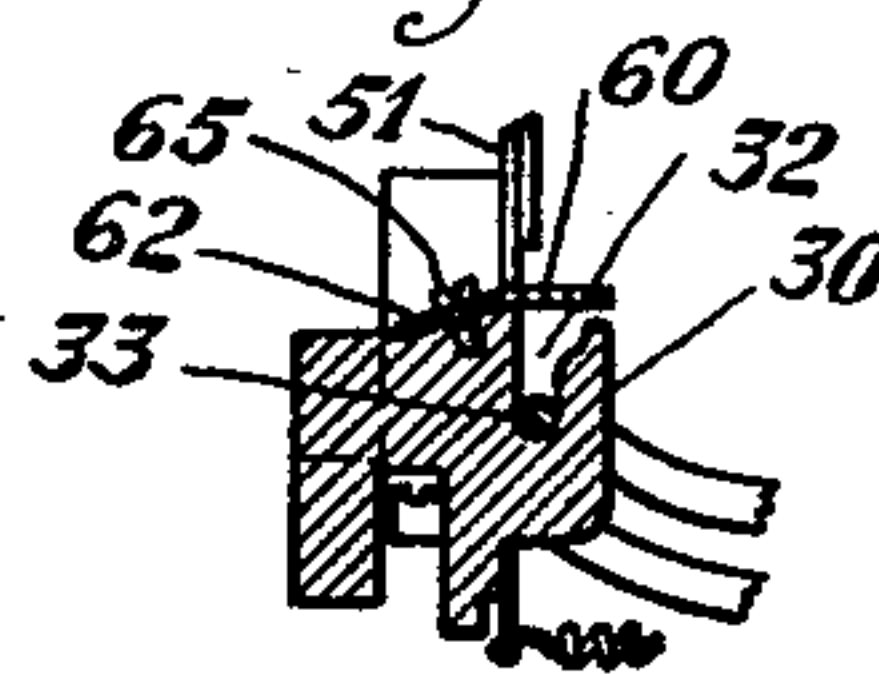


Fig. 7

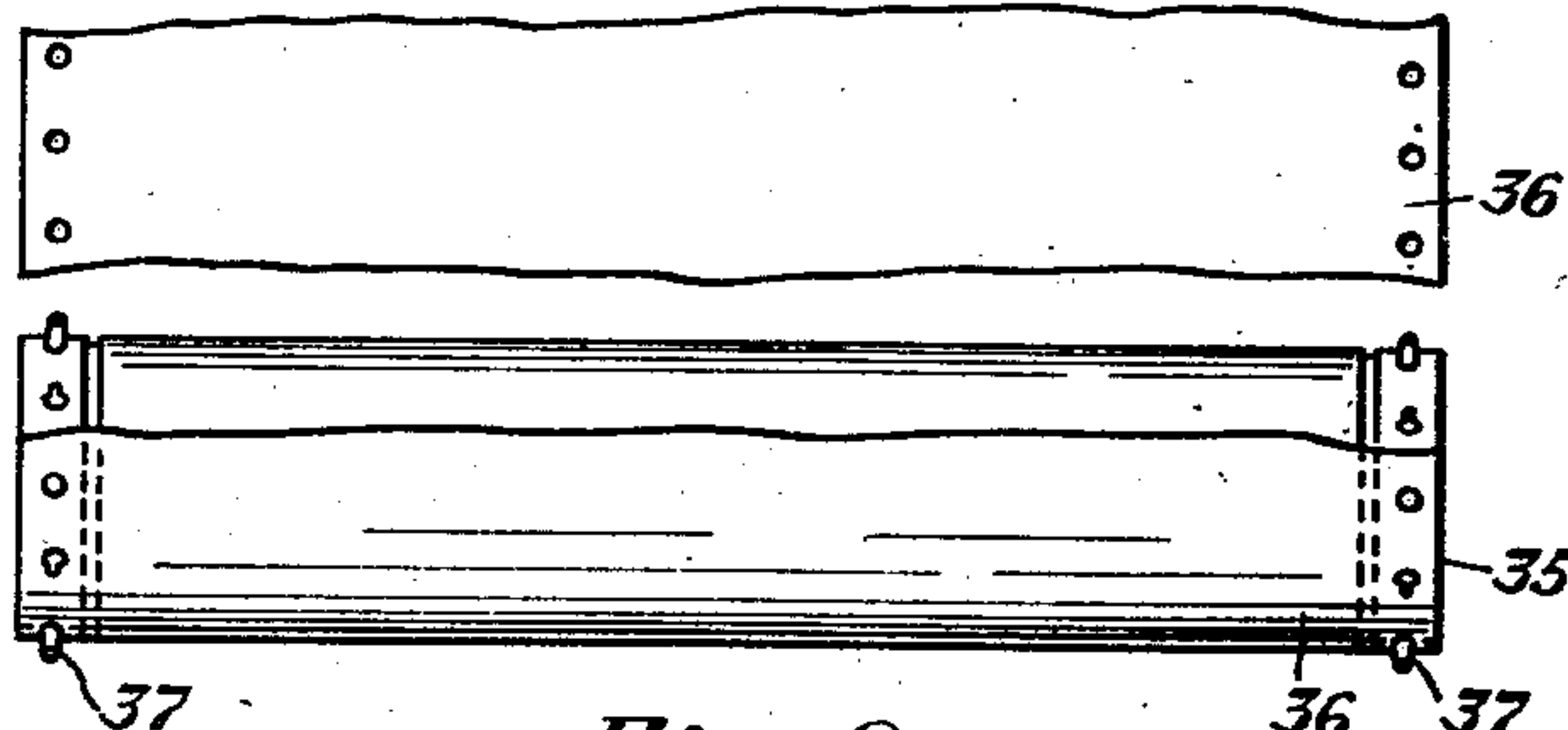


Fig. 6

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TYPING MECHANISM

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1 Claim. (Cl. 197—40)

This invention relates to typing mechanisms of the kind used in keyboard operated typewriters, electrical typewriters, teletypewriters, etc.

In machines of this class a so-called type basket is usually provided in which type bars are pivotally mounted and so arranged as to be swung upwardly to enable the type carried by the type bar to impinge against the platen in order to print the desired character. The pivotal ends of the type bars are usually mounted in a so-called type bar segment. The type bar segment is a member arcuate in form and having radial slots therein, the pivotal ends of the type bars being mounted to swing in said slots about a suitable fulcrum rod which may likewise be arcuate in form.

Where the typing machine is used to fill out printed forms it is common practice to have perforations cut along the sides of the printed forms and to have correspondingly spaced sprocket pins on the end of the platen which cooperate with the perforations in the forms to feed the forms uniformly over the platen and without slippage. Difficulty has been experienced, however, in the operation of such machines due to the fact that punchings and fine particles of paper, resulting from the punching operation which prepares the paper, fall off the printed forms during the printing operation. In so far as these foreign particles fall outwardly among the type bars and the operating mechanisms below the type bars, no particular harm results as the particles sift through the mechanisms and land on the bottom of the machine. Unfortunately, however, many of the particles upon being dislodged from the paper during the typing operation fall into the slots of the type bar segment, thereby interfering with the proper pivotal action of the type bars. This has been particularly annoying with teletypewriters and has been the cause of considerable maintenance expense.

In accordance with the present invention it is proposed to overcome this difficulty by mounting a guard over the type bar segment in such a position that it will catch the small particles of paper that fall from the platen and thus prevent them from falling into the slots of the type bar segment. Since the type bars when swung upward to strike the platen are in a substantially vertical position, the guard must be so formed as not to interfere with the operation of the type bars, and for this reason must have a width only great enough to cover the upper surface of the type bar segment. Interference be-

tween the type bar and the guard may be further prevented by offsetting the main arm of the type bar with respect to its pivotal point.

The invention will now be more fully understood from the following detailed description when read in connection with the accompanying drawing, Figure 1 of which is a perspective view of a portion of the type basket of the teletypewriter with non-essential parts broken away. Fig. 2 is a perspective view of the guard before it is curved and mounted into position upon the type bar segment. Fig. 3 is a perspective view of the guard curved to conform to the shape of the type bar segment and mounted in position beneath the plate which supports the ribbon guide. Fig. 4 is a plan view of the type bar cage and type bar segment with the guard mounted in place. Fig. 5 is a view, partly in cross-section, showing the relationship of the type bars, the guard, and the platen. Fig. 6 is a front view of the platen showing how the printed forms are carried thereby, and Fig. 7 is a cross-section showing a detail of the mounting of the guard, the cross-section being taken along the plane 7—7 of Fig. 3.

Referring to the drawing, a bank of type bars such as 1, 2, 3, 4, 5, etc., is shown in Figs. 1, 4, and 5. Upon the upper surface of the outer end of each type bar a type-carrying element is provided as shown at 1a, 2a, 3a, etc. The shanks 1b, 2b, 3b, etc., of the various type bars are slightly curved towards the rear ends thereof as is shown particularly in Figs. 4 and 5. Each type bar at the rear end is provided with a curved notch or recess for pivotal purposes, as will be described later. The rear end of each type bar also carries a toothed segment with the teeth arranged in an arc about the center of the notched portion of the type bar as shown in Fig. 5. The rear ends of the type bars are mounted in slots 31 of a type bar segment 30 (see Figs. 3 and 7). The type bar segment 30 is arcuate in form as shown in Figs. 1 and 3 and in its upper surface a longitudinal groove 32 is provided in which is mounted the fulcrum rod 33. The fulcrum rod 33 lies in the notched portions at the rear of each of the type bars and forms a fulcrum about which the type bars may be swung during the typing operation.

In order to actuate the type bars, pull bars 1c, 2c, 3c, etc., are provided, one corresponding to each type bar as shown in Figs. 4 and 5. These pull bars are each provided with racks at the rear ends thereof (as shown at 14a in Fig. 5 in connection with the pull bar 1c). As the pull

bar is pulled forward, the rack engages the teeth at the rear end of the type bar and causes it to rotate about the fulcrum rod 33. This enables the type heads to strike the type ribbon 34 (see Fig. 1) and force it against the surface of the platen 35 to thereby print a character upon the perforated paper form 36. The perforations of the form 36 engage with the pins 37 on the platen to keep the printed form properly registered with respect to the platen as the platen is advanced line by line during the printing operation.

In order to select the particular pull bar which it is desired to operate, five shift bars, 41, 42, 43, 44, and 45 are provided as shown in Figs. 4 and 5. These shift bars, as is well known, are notched in such a manner that as the shift bars are shifted longitudinally in certain permutations and combinations, a row of notches will be brought into alignment beneath the pull bar which is to be operated. For simplicity the arrangement of the notches in the pull bar is not illustrated. When the five notches beneath a particular pull bar are in alignment, the pull bar drops into the notches, as shown in connection with the pull bar 14_c in Fig. 5, so that its shoulder 14_e engages the pull bar bail 50. The bail is moved forward at a proper time in the sequence of operations by a mechanism which is not shown and thereby pulls the pull bar forward against the tension of the spring 14_g. The result is that the rack 14_a engaging with the teeth at the rear end of the selected type bar 14 causes it to be swung upward to print a character.

Upon a portion of the frame above the type bar segment 30 a plate 51 is attached as shown in Fig. 1, and this plate serves as a mounting for the ribbon guide 52. As the selected type bar swings upwardly against the ribbon, the type bar head passes between the two elements of the type bar guide 53 to insure that the type will always strike in a proper position on the platen. In this connection it will be noted that the outer or type-carrying ends of the type bars are slightly bent sidewise by increasing amounts as we pass from the two inner type heads 14_a and 15_a outwardly in either direction. This is necessary in order that the type head as it swings about the fulcrum rod 33 will arrive at its striking point in a vertical position. The bending of the outer ends of the type bars as above described is shown in Fig. 4.

As has already been stated, the process of punching the marginal perforations in the paper forms such as 36 (see Fig. 6) results in punchings and other small particles of paper adhering to the forms and these particles become dislodged from the paper during the printing operation, thereby falling down from the front surface of the platen 35 into the groove 32 in the type bar segment 30. From this groove the particles may work their way into the slots 31 in the type bar segment, and since the rear ends of the type bars pivot within these slots, the dislodged particles cause the moving parts to become jammed, thus resulting in service troubles. As will be seen clearly in Fig. 5, the type bar segment is

mounted just below the typing surface of the platen. Consequently the dislodged particles are more apt to fall into the groove 32 and the associated slots unless some means is provided to prevent this action.

In order to prevent these paper particles from falling into the groove 32 and the associated slots, a guard or cover 60 is provided which may be formed by pressing, or molding, or cutting from a sheet of suitable material an element in the form shown in Fig. 2. As will be clear, the guard 60 has perforated tabs 61 and 62 attached thereto for the purpose of securing the guard to the machine. In order to mount it in place the guard is bent into a curved form as shown at 60 in Fig. 3 so that its edge 63 will fit into the narrow groove formed between the upper edge of the type bar segment 30 and the lower curved edge of the plate 51. See particularly Figs. 1 and 3. The guard is then held in place by means of screws 64 and 65 passing through the holes in the tabs 61 and 62. As shown particularly in Fig. 7, the guard 60 closely overlies the longitudinal groove in type bar segment 30. Consequently any small particles of paper falling from the platen 35 will be prevented from entering the groove 32 and the associated slots, but will instead fall down in the spaces between the type bars and their associated pull rods to the bottom of the machine where they will do no harm.

The guard 60 may be made of cardboard, sheet metal, plastic material, etc., or it may be cast, if desired, from any of a number of suitable metals.

It will be obvious that the general principles herein disclosed may be embodied in many other organizations widely different from those illustrated without departing from the spirit of the invention as defined in the following claim.

What is claimed is:

In a typing device, a platen for feeding paper, a type basket including an arcuate type bar segment, an arcuate-shaped support for a ribbon guide, said support being so located above said type bar segment as to form an arcuate space between said segment and said support, a longitudinal groove in said segment, a fulcrum rod in said groove, said groove being open upwardly to permit ready access to said fulcrum rod, transverse slots in said segment, a plurality of type bars so mounted in said slots that they can be swung about said fulcrum rod to strike the paper on said platen, and a removable guard of thin material and bent into an arcuate form so that its rear edge may be inserted into the space between said type bar segment and said ribbon guide support, said guard covering the groove and slots in said type bar segment to prevent particles of paper falling from the platen and interfering with the operation of said type bars, said guard also having tabs attached to the rear edge thereof near its ends, said tabs extending rearwardly over said type bar segment on opposite sides of said ribbon guide support and being attached to said segment.

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