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K. SOMIESKI ET AL
ADDING MACHINE
Filed June 3, 1937

Serial No.
146,302
2 Sheets-Sheet 1

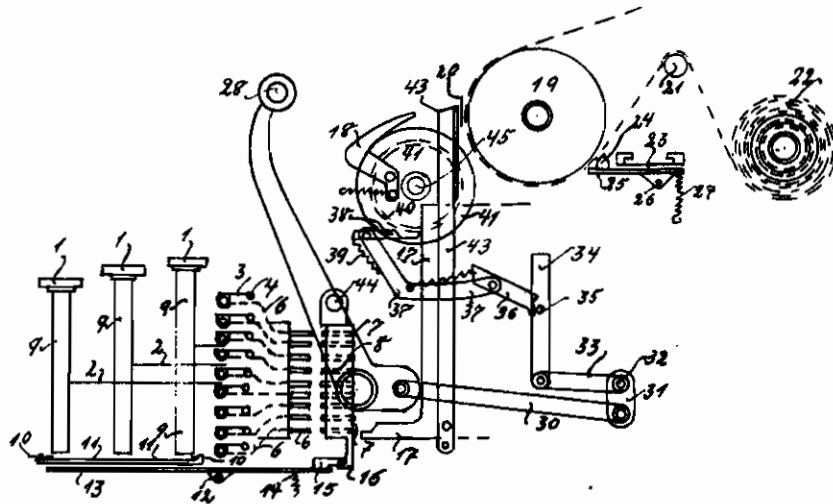


Fig. 1.

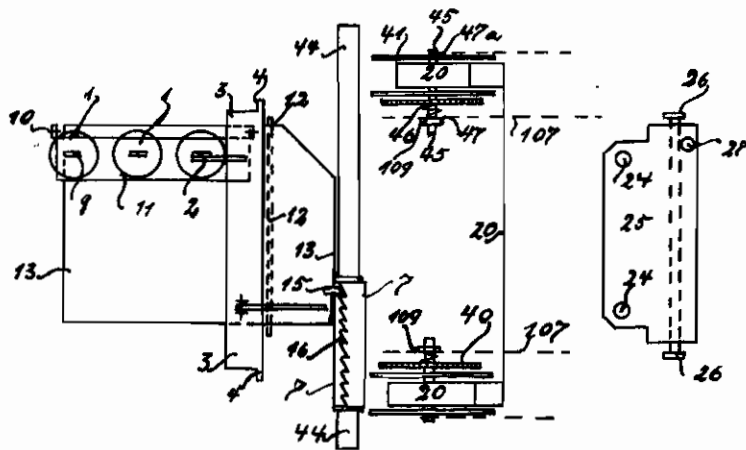


Fig. 2.

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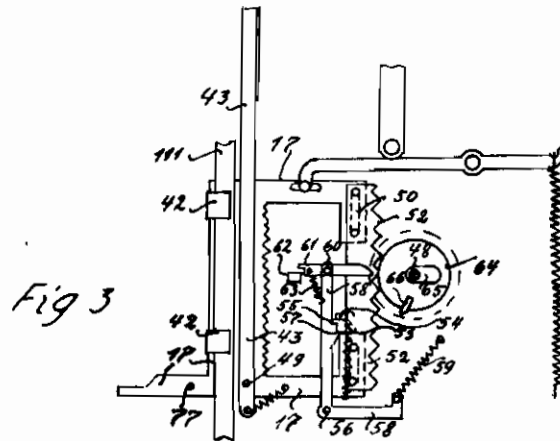


Fig. 3

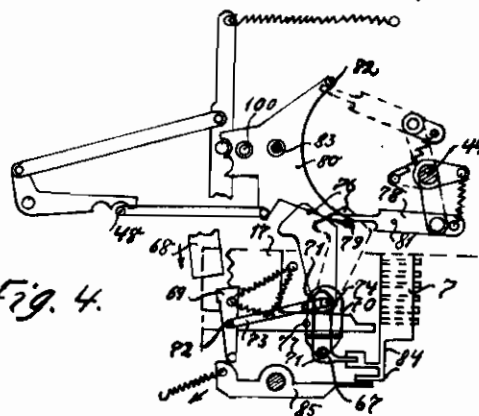


Fig. 4

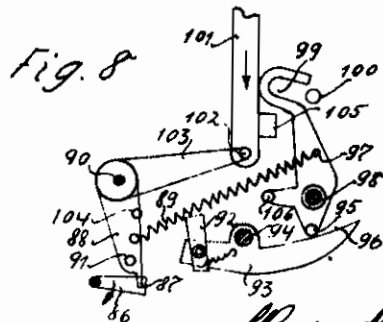
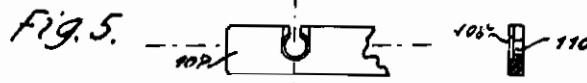


Fig. 8

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ALIEN PROPERTY CUSTODIAN

ADDING MACHINE

Kurt Somieski, Hamburg, and Emil Dietzel, Harburg, WI, Germany; vested in the Alien Property Custodian

Application filed June 3, 1937

Mechanical calculators are known in the most various makes. There are machines with the key mechanism acting on a case with small blocks, this block case acting again on the proper counting mechanism, so that the addition takes place and can be made visible at any time. However, these machines offer so far still the difficulties of all complicated machines, viz. they are easily subject to sources of errors; on the other hand their manufacture is very expensive, so that there is a tendency to simplify the machines. The present invention serves to realize such aim, because the whole of organs are so arranged that they lie organically closely side by side, to avoid unnecessary lengths of levers, and furthermore to obtain the shortest ways and plainest devices for the effect wanted.

The principal idea of the invention therefore consists firstly in the arrangement of the devices already known in principle, in their relations to one another, in such a manner that between the so-called key basket and the proper counting mechanism is placed the stop box, while the carriage guide on the back of the machine joins immediately the counting mechanism. By doing so the shortest ways will be obtained, and the plainest connections for the actions of the various parts on one another, which will form still important singular characteristics of the invention, resulting, however, in their singular parts immediately by the compilation and pressing together of these single parts arranged locally as belonging together, but not resulting positively without character of invention, being combined merely in the sense of unity.

As to the key basket, there have been hitherto always difficulties of uniting the different keys in their arrangement, every time varying, so that the strokes corresponding to the operation of the block box of each key could be arranged vertically one over another, which is necessary for technical reasons. One has proposed for this purpose difficult rods of levers and such the like, without meeting with the plainest solution of the problem. This is effected, according to the invention, in the simplest manner, by arranging between the block box following immediately the key basket, as per invention, and the key levers continued to their fulcrums, a blind-like flap-device extending over the whole width of the key basket, containing as many flaps, as the number of single keys to be operated. Then it will be relatively simple, to construct a connection from each key to the flap, necessary for the operation of the blind flaps, because it does not matter for

the operation of the flap in what place the lever engages. The blind flaps, are placed, as usual, conveniently rotating on their centre points. This arrangement affords the possibility of disposing the movement of the blind flaps, because they extend over the entire width of the key basket, for the operation of the block box and of the strokes to transfer on same, in any place of the blind, but the whole of flaps vertically one above another. Thereby you will be able of connecting the key levers to the blind flaps at discretion, the key levers being able to take any position, different in relation to the blind flaps, but that you can choose for the transfer of the movement of the blind flaps, engaging points lying exactly vertically one over another, viz. in a straight line, because the movement of the flap extends equally over the whole width. The movement of any key of the key basket, f. i. of 10 keys by mediation of the blind range on a vertical range of movements, it being possible to use always the shortest lever movements and above everything straight lined movements.

Due to the forward movement of the stop box getting necessary by the attendance on the latter, the operation of a stop device, beside the stroke of the lever, will become necessary, permitting the stop box, by the effect of a spring, to advance by one tooth, a well known movement. In order to secure also here the shortest way for the key levers, but on the other side with a view to get the same good effect of the key lever at any position of the key lever, there are provided, by reason of the key levers, three lever flaps, so that the transmission of the key pressure remains always equal, also for the forward movement of the block box.

Beside this general arrangement another arrangement will become necessary, being essential for the simplification of the total installation, viz. the disposition of the stop box on the main driving shaft, on which it is slidable.

A further characteristic of the invention consists of the simplicity of the inking ribbon transport, described in detail by the drawings attached.

Another characteristic of the invention consists of the finish of the rack guide for the counting mechanism. These racks, varying in length, are gulded like two fiat ribbons, overlapping partly, lying one above the other, the end of one ribbon embracing the other lying on top, by means of a buckle-like clamp, such as is described more minutely in the drawings. Thereby results the possibility of sliding both parts telescopically one against the other having, due to

their flat formation, a faultless guide, and to their buckles, slide-like, open or closed, and fixed at the end, a most plain sliding stop. The question of guiding these parts is thus resolved in the simplest manner, in special consideration of the smallest space being wanted thereby.

My last characteristic of the invention consists in the fact that for the obtention of the so-called intermediate sums no special keys, no electric switching installation in connection therewith are required, as hitherto was the case, but to print the intermediate sum you need only, after the key stroke, draw once more the movement lever of the total device, doing in a certain sense, a void draw, which will cause the intermediate sum to be printed. The printing of the intermediate sum is recorded in a special simple way and facilitates that, immediately emanating from the lever mechanism, the total sum remains ready for printing at a certain point of time, switching itself in by a second void draw of the lever, viz. without operating the lever, and this in a manner more minutely described in the drawings.

Consequently it results a total device the manner of working depends of the special kind or composition of the principal invention idea, the formation of the single parts in the stated manner being only possible by this construction, specially also still a plain guide of the carriage for the cylinder carrying the roll for the printing paper. The latter is only limited in its guide by a locking flap pressing from below, so that it cannot deviate from its guide neither to the right nor to the left. Pressing, however, the flap downwards from outside, two catches on the flap will equally be pressed down, which oppose themselves to the forward movement of the flap, so that you can now withdraw the whole carriage from the total device without any difficulty.

The invention is represented in detail by the enclosed drawings, Fig. 1 and 2 representing the total device but in its essential parts, for better inspection, while Figs. 3-8 for better understanding represent single parts, same as

Fig. 3 The change-over and safety of the tens

Fig. 4 The mechanics of the "intermediate sum"

Fig. 5-7 The bearings of the inking ribbon roller

Fig. 8 The change-over device for the total sum viz. for the simultaneous release of the entire counting mechanism.

As shown in Fig. 1 and 2, keys 1 operate on lever flaps 3 by means of levers 2. The lever flaps 3 have a fulcrum 4. On the lower side of lever flaps 3 is disposed a pestle 6 near 5, which operates on the stop box 7. For instance there are fitted nine lever flaps in 3 vertical rows of 3. The levers 2 of the nine keys 1 operate each on a lever flap 3, viz. in staggered form. However, the pestles 6, disposed below the lever flaps 2, lie all exactly one above the other, and so opposite of a vertical row of stoppers 8 of the stop box 7. Key 1, with the aid of levers 2 and 6, will so attend the stoppers 8 of the stop box 7, which rests on the main shaft 44.

Simultaneously with the attendance on stop box 7, a flap 11, turning round the centre point 10, will be pressed down with the key levers 9, flap 11 operating then on a further flap 13 turning round the centre point 12, flap 13 having on one side of its centre point a draw spring 14, bearing the releaser 15, which engages in an indented plate 16 of the stop box 7. By pressing down the flaps 11 and 13 by means of the key lever 9, the releaser 15 will be lifted out of the indented plate

16, causing, simultaneously with the operation of the stop box 7 by means of the pestles or tappets 6, an advance of the stop box by one tooth each time.

In the known manner the stop box regulates the proper types 13, which strike with the aid of the automatic hammer 18 against the paper on cylinder 19 with the inking ribbon 20. The cylinder 19 is disposed, with the paper guide 21 and the paper roll 22, on a carriage. The carriage is sliding in the guides 23, being secured by two bolts 24 from lateral dislocation. The bolts 24 are fixed on an elastical flap 25, turning round the centre point 26, and being pressed against the carriage by the spring 27. Turning the handle 28 round its fulcrum 29, the toothed wheel 40 of the inking ribbon cylinders 41 will be operated by means of the rods 30, 31 via the centre point 32, rods 33, 34, stop 35, levers 36, 37 and driver 38 being under spring effect 39, and thereby the inking ribbon is advanced by each printing operation, which can be caused by the handle 20.

The inking ribbon cylinders 41 turn with their shafts 45 and the toothed wheel 40 in bearings 47 and 47a. On the side of the toothed wheel the shaft 45 is lengthened, bearing here a pressure spring 46, placed between the frame of the machine and the toothed wheel, holding the toothed wheel with the ribbon cylinder and shaft 45 with the short end of the shaft, in the bearing 47a. Pressing the inking ribbon cylinder against the spring pressure 46, one end of the shaft in the bearing 47a becomes free, and the whole inking ribbon cylinder can then be easily lifted out of its bearing.

Fig. 3 shows the construction and disposition of the type bearer 17, fixed with clamps 42 to the guide 75. Types 43 are placed revolving in point 49, that they may be stricken against the cylinder by hammers 18 in the known manner. The type bearer is fitted with a long hole each at points 50 and 51, in which, by means of a guide, the rack 52 is gliding. Spring 53 exercises a traction downwards from a projection 54. However, this projection 54 rests on a step 55, fitted to a lever 58 turning round the fulcrum 56. This step has still a further break 57. The turning lever 58 is drawn by a spring 59 at its lengthened arm in the direction of the arrow near the spring. At its upper end lever 58, carried turning at 60, bears a cross lever 61, chamfered at one end, and having at the other end a right-angled notch, resting on the fixed point 62. Spring 63 secures the firm position on the fixed point 62, pulling in the direction of the arrow. Now, the known counting device, resp. the commutation to tens, engages in the rack 52 with wheel 64. At 64 the wheel of a commutation to tens has been drawn. Wheel 64 is carried on shaft 48, and with this shaft the whole of the counting mechanism can be engaged and disengaged gliding in slot 65. This wheel has ten teeth and a catch 66 fitted laterally near the tenth tooth. This catch 66, after one revolution, operates on the lever 61; the same turns round the point 60, whereby the fixed position at 62 will be undone by the rectangular notch in lever 61, the whole lever revolving round its fulcrum 56 by the traction of spring 59. Hereby projection 54 will be liberated from the supporting point 55, and rack 52 with projection 54 will be drawn downwards by spring 53, until projection 54 rests on the second step 57 of the turning lever 58. This motion corresponds to one tooth of the toothed wheel 64, being transmitted to the adjacent rack, viz. always

but from the ones to the tens, from the tens to the hundreds, etc.

The junction of these devices of Fig. 3 to Fig. 1 and 2 will be seen from part 43, which has also been drawn in Fig. 1. The parts have been outdrawn only on account of clearness, to make clear the different figures and their view.

An absolutely reliable working of the transmission of tens is warranted by the disposition of levers 56, 61 and points 62 and 54.

Fig. 4 shows the commutation devices for the "intermediate sum", caused merely by a void operation of lever 26, without touching a special key. By the void operation of lever 28, lever 69 will be pressed downwards in the direction of the arrow near 68, by means of the stop 68, connected to lever 28 by simple lever mechanism. Thereby the whole stop device 70 of the hooks 71 revolves round the fulcrum 67. Below point 71 there is still a revolving point; because these hooks are all of them fixed on one shaft, and this shaft is again carried in a frame, which is carried underneath the shaft 71 turning separately, that the whole device may be turned away.

Lever 69 is turning at 72, fixed to lever 73, which is again connected, at 74, to the stop device 70. By revolving the stop device 70 the switch lever 78 will be changed to the hatched position, and hooks 71 free pins 77 of the type bearer. If now the lever 28 is operated again, the gliding device 78 does not engage pin 79 of the counting mechanism release 80, because the gliding device 78 by its pin 81 and the commutator plate 76 are guided past the pin 79 of the counting mechanism release. Thereby the counting device remains engaged in the racks 52 and the intermediate sum must appear. If the gliding device is brought into the hatched position by a turn of lever 28, it cannot now engage pin 62 of the counting mechanism release 80, because the latter has not turned pin 79 round the fulcrum 83 by push rod 78. Consequently the counting mechanism rests engaged and ready to account, even after having finished the void draw and the draw for the appearance of the intermediate sum. The stop box 7 keeps lever 69 ever ready for the intermediate sum, by means of its stop 84 above the revolving lever 85, when lever 69 is in rest position.

Fig. 5 shows a single part, viz. the bearing of the inking ribbon, which is also drawn in Fig. 2, showing in enlarged scale, but now in side view, the bearing plate indicated in top view in Fig. 2.

Fig. 6 is a top view of Fig. 5 and Fig. 7, a cross section as per Fig. 5, as it is also represented in drawing as per prescription. Parts

106—110 are therefore the deepenings in part 107, which are not well cognoscible in the other drawings, especially in Fig. 2.

Figs. 5, 6, and 7 show one side 47 of bearing of the inking ribbon rolls. Side 47a of the bearing of the inking ribbon roll is a round closed hole in the wall of the frame of the counting machine. 107 shows here one part of the frame, 17 the circular opening for receiving nut 109 of the inking ribbon shaft (see Fig. 2). 110 shows the opening for the reception of the shaft of the inking ribbon rolls. Due to the fact that by the pressure of spring 46 nut 109 of the ribbon shaft enters the opening 109 of the bearing, the whole ribbon bearing is secured from raising of the ribbon roll. The latter can therefore be removed only by a lateral pressure against spring 48, because only so the nut 109 comes out of the bearing.

Fig. 8 shows the total release. By key "total release" the stop lever 66 will be turned in the direction of the arrow, releasing the hook 67 on the lever 88. The latter will then fly round its fulcrum on shaft 90, placing itself on lever 92 of the revolving lever 93, together with a roll 91. Meantime the mechanism works exactly as for the intermediate sum, viz. the state of the counting mechanism will be printed, because it is still engaged in the racks 52. But when the lever 28 returns, lever 80 presses on lever 92, the revolving lever 93 turns round its fulcrum 94, and this lever, by means of the sliding plane 96 and the roll 95 makes revolve the lever 97 round its fulcrum 96, whereby the sloping sliding plane 99 approaches the roll 100 at the counting mechanism releasing lever 80, raising thereupon this roll 100 by means of the sliding plane 99, displacing thereby the counting mechanism releaser 80 round its fulcrum 63, and removing so the whole of the counting mechanism 64 from the racks 52. The counting mechanism 64 jumps now back to its zero position, viz. the stops 66 will come to lie again under the lever 61. In the meantime slide 101, (which has also operated the rise of roll 100 by the sliding plane 88, by means of the turning lever 103 round the fulcrum 102, this lever 103 operating on a pin 104 at the lever 86) has lowered so far that the plate 103 presses on the stop 106 of the revolving lever 97, turning the latter round its fulcrum 96, whereby roll 100 will be relieved again of the sliding plane 99, returning everything to its original position.

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