Feb. 23, 1954 H. RUTISHAUSER ET AL 2,670,068

APPLIANCE ON TYPEWRITING, CALCULATING, OR BOOKKEEPING MACHINES FOR AUTOMATICALLY SETTING A TOP SHEET TO A PREDETERMINED LINE

Filed Oct. 24, 1950 5 Sheets-Sheet 1

Fig. 1.

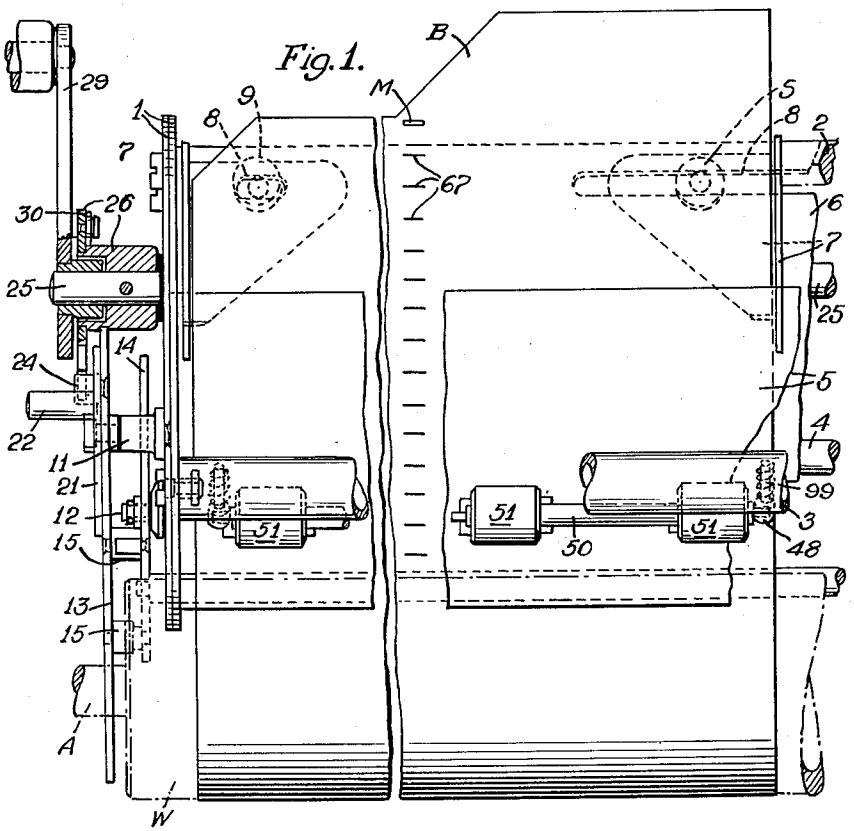
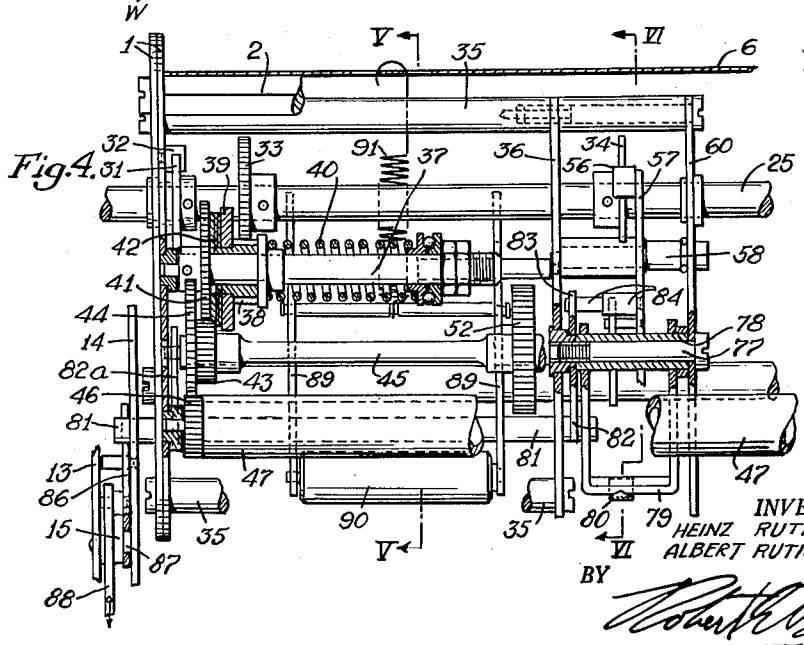


Fig. 4.



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Fig. 2.

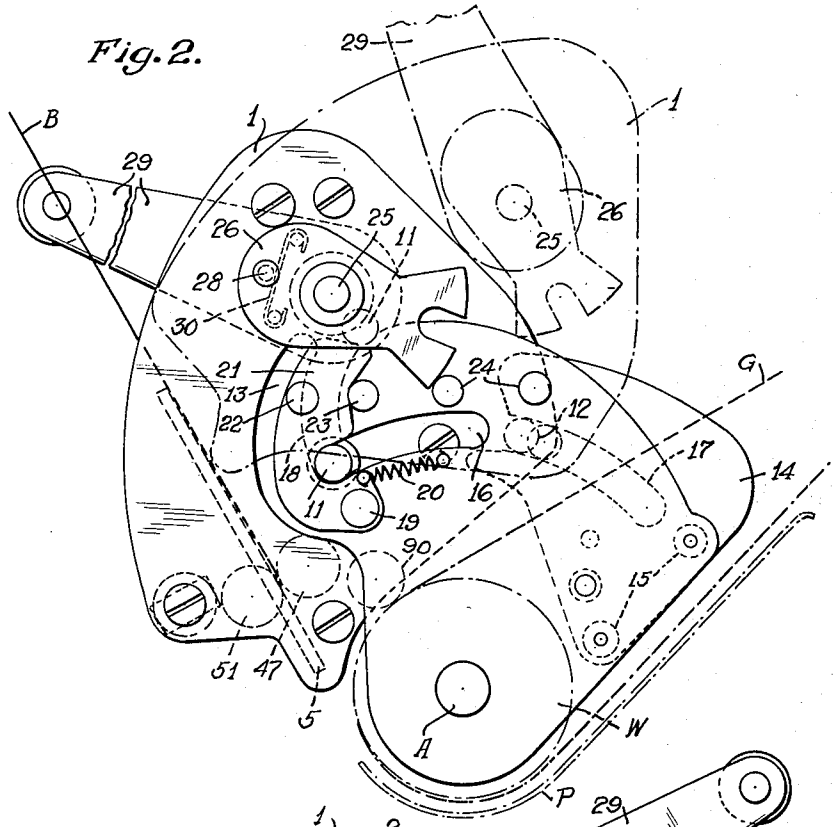
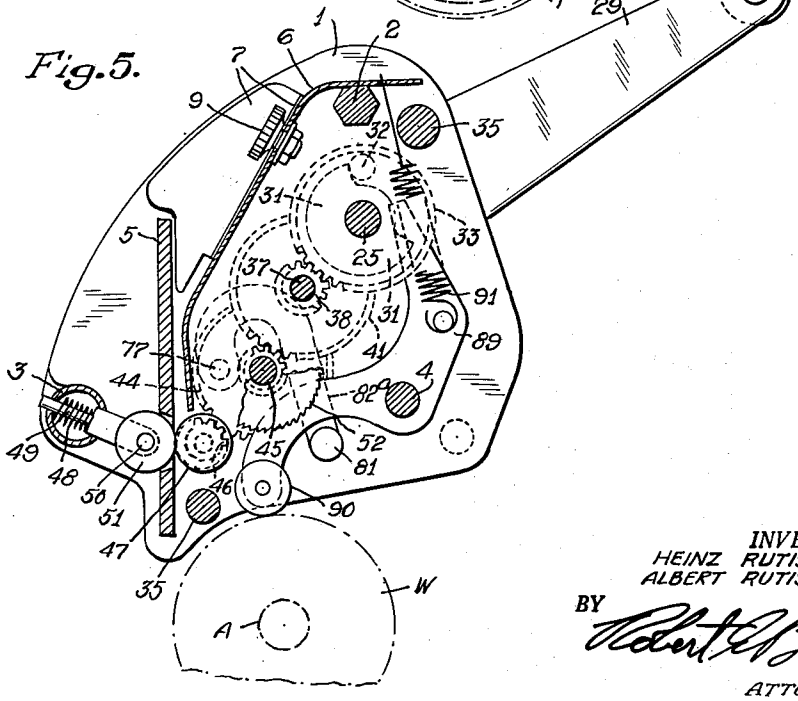


Fig. 5.



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Fig. 3.

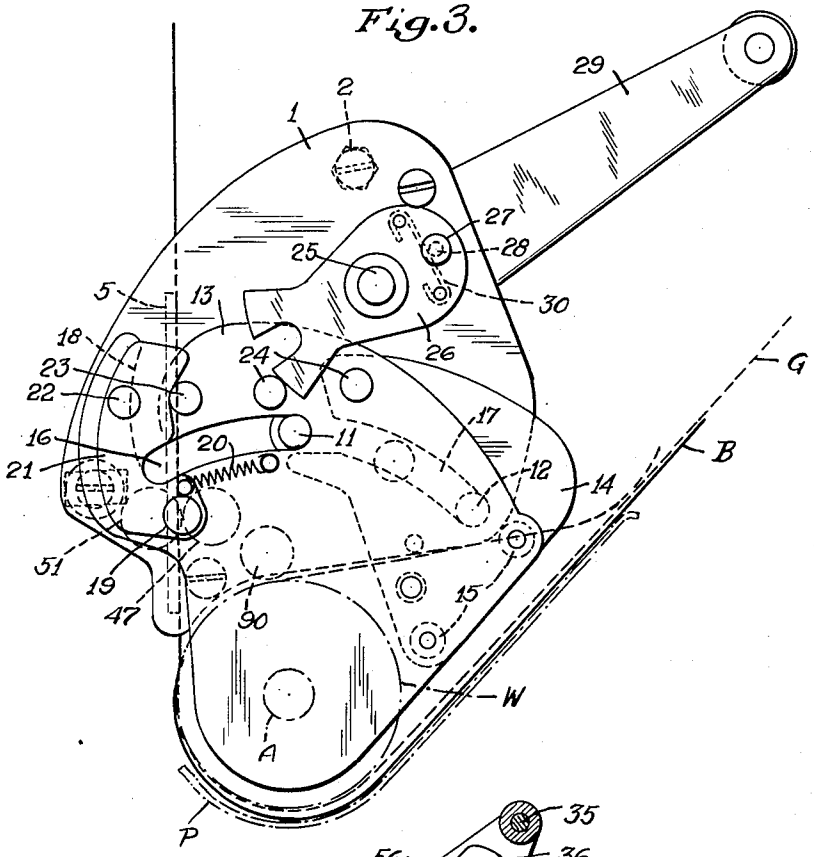
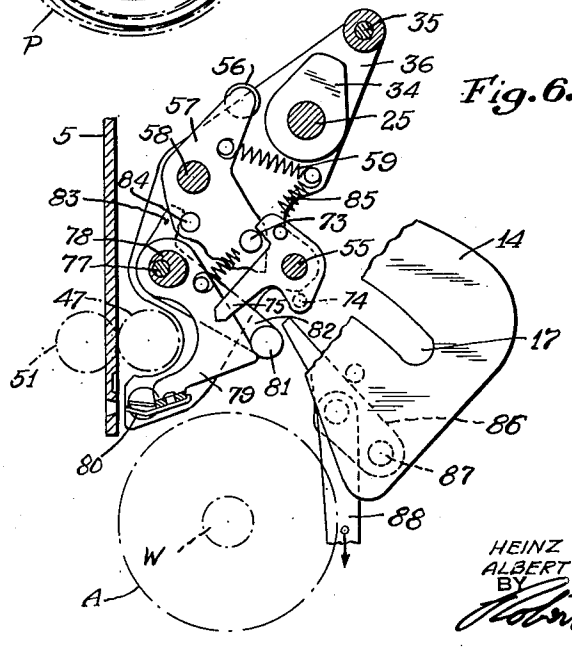


Fig. 6.



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Fig. 8.

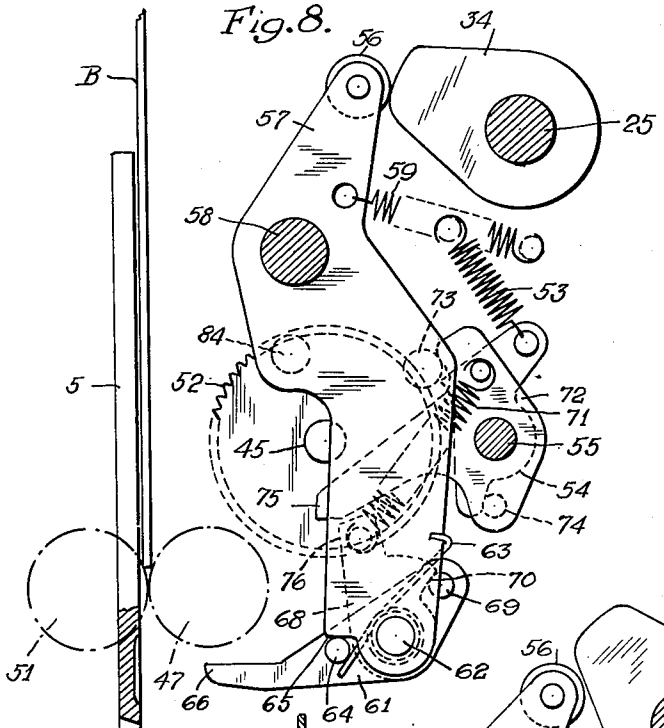
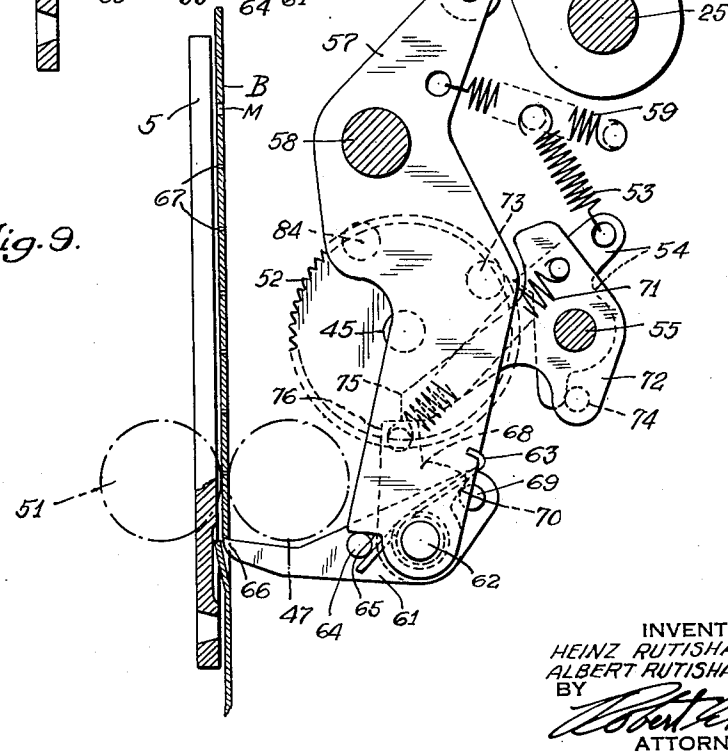


Fig. 9.



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Filed Oct. 24, 1950 5 Sheets-Sheet 5

Fig. 10.

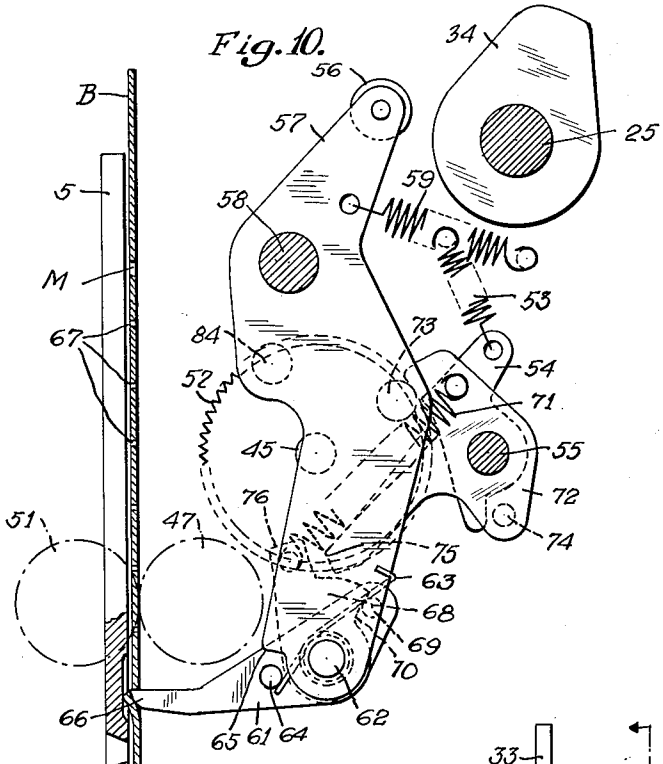


Fig. 7.

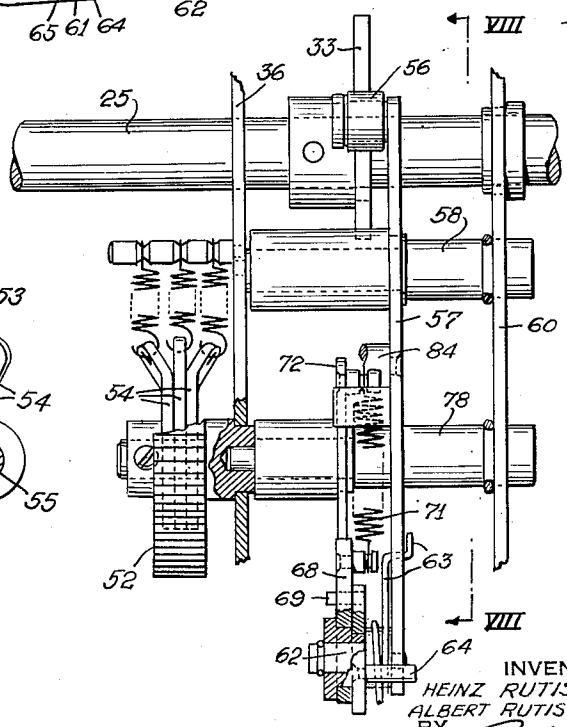
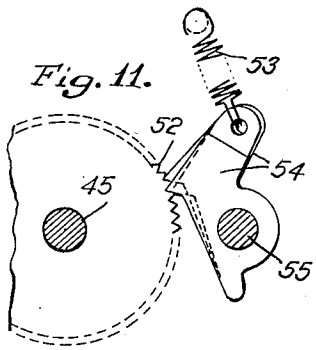


Fig. 11.



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UNITED STATES PATENT OFFICE

2,670,068

APPLIANCE ON TYPEWRITING, CALCULATING, OR BOOKKEEPING MACHINES FOR AUTOMATICALLY SETTING A TOP SHEET TO A PREDETERMINED LINE

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Application October 24, 1950, Serial No. 191,886

Claims priority, application Switzerland October 26, 1949

10 Claims. (Cl. 197—127)

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The present invention relates to an appliance on typewriting, calculating or bookkeeping machines for automatically setting a top sheet to a predetermined line, wherein a feeler member cooperates with a marking on the top sheet when the latter is inserted and a further marking is made in the top sheet each time after an entry has been made.

According to the invention the appliance has a driving device and, driven by this through a gear means, a forwarding roller for the top sheet; and in addition a brake controlled by the feeler member is provided, this brake locking a part of the gear means with the forwarding roller when the feeler member arrives at a particular mark of the top sheet.

In the appliances for this purpose which have hitherto become known, the feeler member enters a perforation representing the marking of the top sheet and prevents its being carried further. This arrangement has the drawback that the material of the top sheet, which is relatively little resistant, is stressed in the perforation, so that the accuracy of setting is often not all that could be desired.

As a driving device a handcrank, a rotating knob or an electric motor can be provided, whereby the last-mentioned can be switched on temporarily to rotate the forwarding roller, or it can remain switched on continually and be connected by a coupling when needed for the drive of the forwarding roller.

The appliance is preferably swivellable with respect to the writing roller of the typewriting, calculating or bookkeeping machine, so that the introduction of the top sheet can be effected more easily and unhindered by the basic sheet present in the machine.

In the accompanying drawing one execution of an appliance according to the invention is illustrated by way of example, parts being omitted in the separate figures for the sake of clearness. In the drawing

Fig. 1 shows a front view of the appliance with certain parts in part section or broken away,

Fig. 2 is a side view of the appliance,

Fig. 3 is a side view of Fig. 2 with the parts of the appliance in another position,

Fig. 4 is a view similar to that according to Fig. 1, but with the inner covered part omitted,

Fig. 5 is a cross-section on the line V—V in Fig. 4,

Fig. 6 is a cross-section on the line VI—VI in Fig. 4,

Fig. 7 is a detail of Fig. 4 on a larger scale;

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Figs. 8 to 10 show a section on the line VIII—VIII in Fig. 7 with the parts in different positions, and

Fig. 11 is a detail on a larger scale.

At each of its two ends, the appliance as drawn has a side wall 1 formed of two plates lying on each other, only the one at the lefthand side being shown in the drawing. These side walls 1 are rigidly connected together by rods 2, 3 and 4 running parallel to each other. Plates 5 and 6 are fitted between the two side walls 1 and fixed in a manner not shown. These two plates 5 and 6 form a guide for the top sheet B, to be introduced into the appliance. For the lateral guiding of this sheet B, angle-shaped bent stops 7 are provided on the plate 6, adjustable in slots 8 and fixable by means of screws 9.

On the outer side of the side wall 1 roller pins 11 and 12 are fixed, by means of which the appliance can be detachably fixed on plates 13 and 14; of these plates, the plates 13 are firmly connected to the typewriting, calculating or bookkeeping machine by the shaft A of the paper roller W and, in a manner not illustrated, to the side bearing of this shaft A. The plate 14 is connected to the plate 13 by means of the feet 15.

The plates 13 have a slot 16 concentric with the shaft A in order to take the pins 11, and the plates 14 have an arcuate slot 17 in order to take the pins 12. The plates 13 have a further arcuate slot 18, which runs from the front end of the slot 16 upwards, where it is open. A latch 21, which can be swivelled about a pin 19 against the force of a spring 20, keeps the slot 18 normally closed by lying in front of the slot. A handle 22 allows the latch 21 to be swung away from the stop 23 on the plate 13. The plate 13 carries two pins 24, whose purpose will be explained later.

In the side walls 1, an operating shaft 25 is rotatably supported, this shaft projecting at both ends beyond the walls 1 and carrying on each of these ends a part 26 connected firmly to the shaft 25. This part 26 has a bore 27 into which can be inserted a pin 28 of a handcrank 29 which can be fitted on the shaft-end, a spring 30 entering into a groove of this pin 28 and thus coupling the crank 29 detachably to the shaft 25.

On shaft 25 a disc 31 is fixed, this disc having a long notch cut in it whose ends cooperate with a stop pin 32 arranged on the side wall, so that the moving of the crank is limited to a fraction of a turn. In addition, the shaft 25 carries the toothed wheel 33 firmly fixed to it and also a cam 34. By means of columns 35 a plate 36 is fixed on the side wall 1 situated at the left in the draw-

ing. Between this side wall 1 and the plate 36 a shaft 37 is rotatably supported, and on it a toothed wheel 38 is rotatable, which is in engagement with the toothed wheel 33. The toothed wheel 38 carries a disc 39 which, by a spring 40, is pressed laterally against a toothed wheel 41 fixed on the shaft 37, a friction disc 42 being arranged between the disc 39 and the toothed wheel 41. The toothed wheel 41 meshes with the toothed wheel 43 which, with the toothed wheel 44, is mounted on the shaft 45. Finally, the toothed wheel 44 is in engagement with a toothed wheel 46, which is arranged on one end of a roller 47 for transporting the top sheet B.

The rod 3 is hollow and has six transverse bores which serve as guides for pins 48, whose part lying in the hollow space of the rod 3 carries a compressed spring 49. The outer ends of the pins 48 have a transverse bore; these bores serve as bearings for pins of three shafts 50, on each of which a pair of rollers 51 is arranged. These rollers cooperate with the roller 47 for transporting the top sheet B and project with their periphery through windows in the plate 5.

On the shaft 45 a ratchet wheel 52 is fixed, with whose teeth three pawls 54, loaded by springs 53 and carried on a shaft 55, can be brought into mesh. The noses of the separate pawls 54 are somewhat differently displaced with respect to the teeth of the ratchet wheel 52, in order that one of these noses may certainly fall into a tooth gap of the ratchet wheel and thus lock it.

A roller 56 on a lever 57 cooperates with the cam 34, the lever 57 being swivellable about a shaft 58 against the force of a tension spring 59. The shaft 58 is rotatably supported between the plate 36 and a further plate 60 fixed to the latter. The end of the lever 57 opposite the roller 56 carries a pawl 61, which can swing round a pin 62. A spring 63 tends to press the pawl 61 onto a nose 65 of the lever 57 by means of a pin 64 fixed to the pawl. The end 66 of the pawl 61 serves as a feeling member to contact with the markings 67 of the top sheet, of which markings more will be said later. On the pin 62 a locking disc 68 is arranged. A pin 69 fitted on the pawl 61 projects in front of a stop surface 70 of the locking disc 68, and a spring 71 tends to press the surface 70 on to the pin 69. The spring 71 is stretched between the locking disc 68 and a control part 72 on the shaft 55, the control part 72 cooperating with a pin 73 on the lever 57 and in its turn controlling the pawls 54 by means of a pin 74 arranged on it. An arm 75 of the control part 72 projects to within reach of an arm 76 of the locking disc 68.

On a shaft 77 between the plates 36 and 60 an eccentric bush 78 is supported, on which a stirrup 79 can swing, whose crossbar carries a thin, sharpened tongue 80, serving as a knife. A rod 81, which is suspended for swivelling on arms 82 and 82a, projects against the stirrup 79. The arm 82 is formed in one piece with an arm 83, which projects within reach of a pin 84 on the lever 57. A spring 85 tends to swivel the arms counterclockwise. The plate 14 carries an arm 86, which can swing about a pin 87 on that plate. The arm 86 projects within reach of the rod 81, and a draw rod 88, which is attached to the arm 86, is connected in a manner not illustrated with the line space lever of the typewriting, calculating or bookkeeping machine.

Finally, on the lever arms 89 which can swing about the rod 4, rollers 90 are rotatably supported, which are intended to run on the paper roller W and to press the basic sheet G onto the paper roller by means of the springs 91.

The described appliance is attached as follows to the typewriting, calculating or bookkeeping machine, which is fitted with the plates 13 and 14.

The side walls 1 are in the position indicated by the chain-dotted lines in Fig. 2. The pins 12 lie already in the slot 17 and the pins 11 on the latch 21. By pressure at right-angles the latch 21 is now swivelled, after which the top sheet B is introduced between the plates 5 and 6 so that its lower edge stands up in the space between the roller 47 and the rollers 51. The part 26 rests with an arm of a forked projection on the first pin 24. The pin 11 then enters slot 16. The corresponding position is represented in Fig. 2 in full lines. The handcrank 29 is then pushed back into the position according to Fig. 3, whereby the appliance takes up the position shown in this figure and in Fig. 4, and the second arm of the forked projection of the part 26 lies behind the first pin 24.

The possibility of swivelling the appliance by the guiding of the roller pins 11 and 12 in the arcuate slots 16 and 17 facilitates the introduction of the top sheet into the appliance, since the latter is each time for this purpose swivelled into the position shown in Fig. 2.

With the swinging of the crank 29, the toothed wheels 33, 38, 41, 43, 44 and 46 are rotated until the disc 31 comes up against the stop 32. The roller 47 thus advances the top sheet B.

The top sheet B has a characteristic mark in the form of a transverse slit M (Fig. 1) made in it previously. At the beginning of the swinging of the crank 29, the roller 56 slides off cam 34, which is mounted on the shaft 25 rotated by the crank 29. The spring 59 swings the lever 57, so that the pawl 61 comes to lie with the end 66 serving as a feeler member against the top sheet B (Figs. 8 and 9). The end 66 then lies in the path of the characteristic mark, i. e. of the slit M in the top sheet B, and enters into it as soon as it comes to lie in front of this end 66 (Figs. 9 and 10). The upper edge of the slit M swings the pawl 61 downwards along with the end 66. In consequence of this, the arm 76 of the locking disc 68 slides away from under the arm 75 of the control part 72 (Fig. 10). The pin 74 frees the pawl 54, and this, under the action of the springs 53, engages with the ratchet wheel 52, which thus locks the shaft 45. The further swinging of the crank 29, then causes only a sliding of the friction discs 42 between the disc 39 and the toothed wheel 41; the roller 47, however, does not turn any further and the top sheet B remains standing at the position determined by the slit M. It is to be noted, that, in the initial position (Fig. 8), the pin 73—through the control part 72—and the pin 74 keep the pawls 54 out of engagement with the ratchet wheel.

Writing can then be done on the top sheet B, the basic sheet G being written on simultaneously in the known manner by means of carbon paper.

If the line space lever of the machine is operated after writing the line, i. e. when posting is completed, the consequence is that the draw rod 88 is moved downwards in the direction of the arrow (Figs. 4 and 6). The arm 86 then swings round the pin 87 and presses with its end against the rod 81. This rod swings the stirrup 79

against the top sheet B and the knife 80 makes a transverse cut in the sheet, so that a new marking 67 is produced in it. When the top sheet B is next introduced in the above-mentioned manner, it will remain standing at the position of this new marking.

As can be seen from Figs. 8 to 10, the plate 5 has a depression opposite the end 66 of the pawl 61, and this end 66 presses the paper of the top sheet, below the cut mark 67, into the depression, so that the upper edge of the paper can move the end 66 downwards.

Naturally the knife could be shaped in such a way that, in place of the cuts 67, slots of rectangular shape or circular perforations are made. The advantage of simple cuts is that they can be applied in the middle of the writing without causing any trouble or inconvenience.

To remove the appliance from the machine, the latches 21 are swung away by means of the handle 22, so that the pins 11 and 12 can be withdrawn from the slots 16 and 17.

When swinging the crank 29 back into the initial position, one arm of the forked projection of the part 26 comes up against the front pin 24, so that the appliance is again swung into the position according to the full lines in Fig. 2, and this facilitates the introduction of the top sheet.

Along with this swinging back of the crank 29, the cam 34 swivels the lever 57. Then the pin 73, through the control part 72 and the pin 74, brings the pawls 54 out of engagement with the ratchet wheel 52, and the pin 84 keeps the rod 81 in a position in which the knife 80 is removed from the top sheet.

In order to be able to alter the distance apart of the cuts with respect to each other within certain limits, the bush 78 can be rotated round the shaft 77 and fixed to it. Since this bush is formed as an eccentric bush and the stirrup 79 is carried on it, the position of the knife is altered when the position of the bush is changed.

The plate 5 consists preferably of transparent material, in order that the entries may not be hidden.

Instead of the handle 29, a rotary knob could be mounted on the end of the shaft 25, or the shaft 25 could be coupled to an electric motor, which could be switched on for the necessary time at each requisite booking or when introducing a new top sheet.

As a characteristic marking on the top sheet, also raised stampings could be provided, which as projections would act on the end 66 of the pawl 61.

What we claim is:

1. In a device for automatically setting a top sheet at a predetermined line in typewriting, calculating and bookkeeping machines, wherein a feeler member cooperates with a marking on the top sheet when the latter is inserted and a further marking is made in the top sheet after each entry has been completed, in combination, driving means, a forwarding roller for the top sheet, gear means between said driving means and said forwarding roller, and brake means including a ratchet wheel and at least one pawl controlled by the feeler member for movement into engagement with said ratchet wheel for locking said gear means and thereby locking the forwarding roller when the feeler member engages a marking on the top sheet.

2. A device as defined in claim 1, comprising a plurality of pawls controlled by said feeler member for movement into engagement with said ratchet wheel, said pawls lying in side by side relation with their teeth off-set by a distance less than the distance between adjacent teeth on said ratchet wheel.

3. A device as defined in claim 1, further comprising a slip coupling in said gear means between the driving means and the forwarding roller.

4. In a device for automatically setting a top sheet at a predetermined line in typewriting, calculating and bookkeeping machines, wherein a feeler member cooperates with a marking on the top sheet when the latter is inserted and a further marking is made in the top sheet after each entry has been completed, in combination, driving means, a forwarding roller for the top sheet, gear means between said driving means and said forwarding roller, said feeler member comprising a pawl pivotally mounted at one end of a pivoted lever, a roller at the other end of said lever, a rotatable shaft carrying a cam engageable with said roller to control the pivotal movement of said lever to move said pawl into engagement with said top sheet, and a brake controlled by the feeler member for locking part of said gear means and thereby locking the forwarding roller when the feeler member engages a marking on the top sheet.

5. In a device for automatically setting a top sheet at a predetermined line in typewriting, calculating and bookkeeping machines, wherein a feeler member cooperates with a marking on the top sheet when the latter is inserted and a further marking is made in the top sheet after each entry has been completed, in combination, driving means, a forwarding roller for the top sheet, gear means between said driving means and said forwarding roller, said feeler member comprising a pawl pivotally mounted at one end of a pivoted lever, a roller at the other end of said lever, a rotatable shaft carrying a cam engageable with said roller to control the pivotal movement of said lever to move said pawl into engagement with said top sheet, and a brake controlled by the feeler member for locking said gear means and thereby locking the forwarding roller when the feeler member engages a marking on the top sheet, said brake including a ratchet wheel and at least one pawl engageable with said wheel.

6. A device as defined in claim 5, further comprising a control disc carried by said pivoted lever and engageable by said feeler member upon predetermined movement thereof, and a locking arm normally holding said last named pawl out of engagement with said ratchet wheel, said control disc being engageable with said locking arm to release said last-named pawl upon predetermined movement of said feeler member.

7. In a device for automatically setting a top sheet at a predetermined line in typewriting, calculating and bookkeeping machines, wherein a feeler member cooperates with a marking on the top sheet when the latter is inserted and a further marking is made in the top sheet after each entry has been completed, in combination, driving means, a forwarding roller for the top sheet, gear means between said driving means and said forwarding roller, said feeler member comprising a pawl pivotally mounted at one end of a pivoted lever, a roller at the other end of said lever, a rotatable shaft carrying a cam engageable with said roller to control the pivotal movement of said lever to move said pawl into engagement with said top sheet, a brake controlled by the feeler member for locking said gear means and

thereby locking the forwarding roller when the feeler member engages a marking on the top sheet, and means for making a second marking in said top sheet spaced from said first-named marking, said mark-forming means including an incising member for making a cut in said top sheet.

8. A device as defined in claim 1, further comprising a pivoted stirrup carrying a mark-forming means, and a lever arm for pivoting said stirrup, said lever arm being adapted to be connected to the line space lever of the machine upon which the said device is mounted.

9. A device as defined in claim 1, further comprising a side wall at each side of the device, a pair of roller pins carried by each side wall, and a pair of plates positioned on each side of said device and parallel to said side walls, said pairs of plates having arcuate slots, and the pins carried by said side walls entering into said slots.

10. In a device for automatically setting a top sheet at a predetermined line in typewriting, calculating and bookkeeping machines, wherein a feeler member cooperates with a marking on the top sheet when the latter is inserted and a further marking is made in the top sheet after each entry has been completed, in combination, driving means, a forwarding roller for the top sheet, gear means between said driving means and said forwarding roller, a brake controlled by the feeler member for locking said gear means and thereby locking the forwarding roller when the feeler member engages a marking on the top sheet, and means for forming a second marking in said top sheet spaced from said first-named marking, said mark-forming means including an incising member for making a cut in said top sheet.

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