April 18, 1961 TAKAYASU INOUE 2,980,226

POCKET SIZE CHECK WRITER

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FIG. 1.

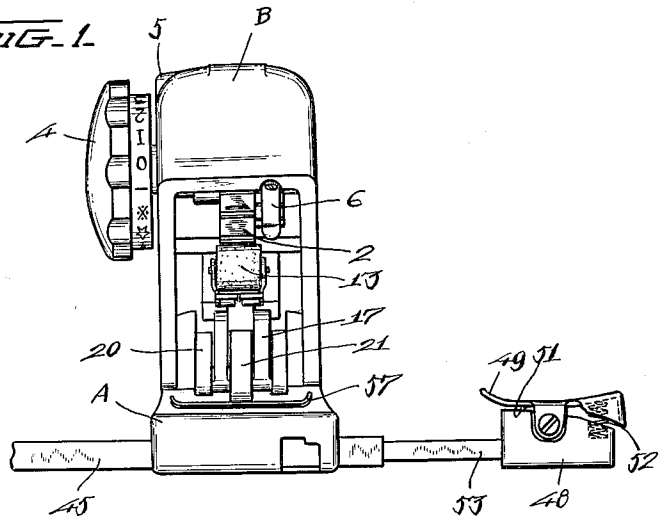
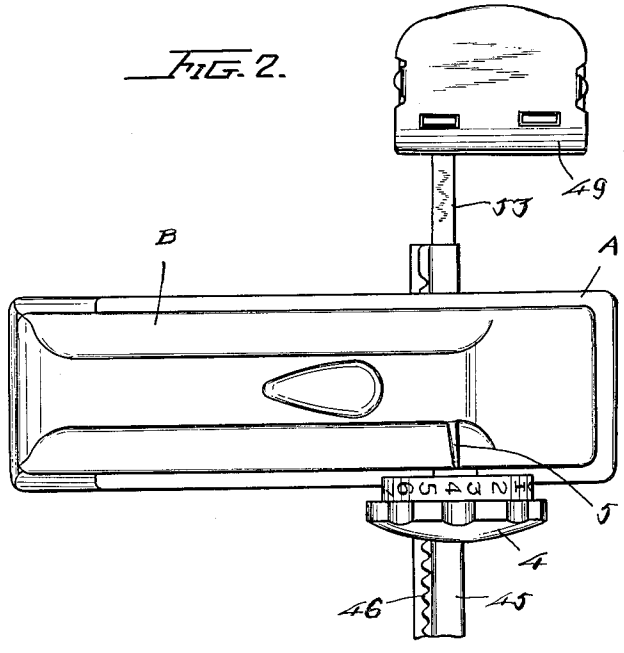


FIG. 2.



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FIG. 3.

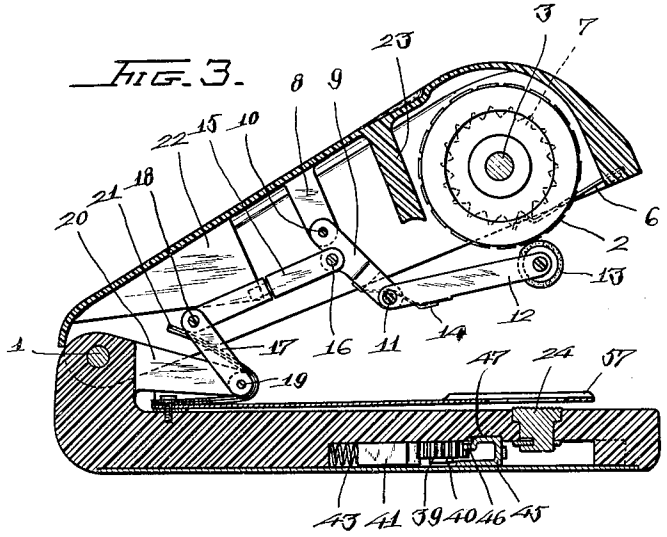


FIG. 4.

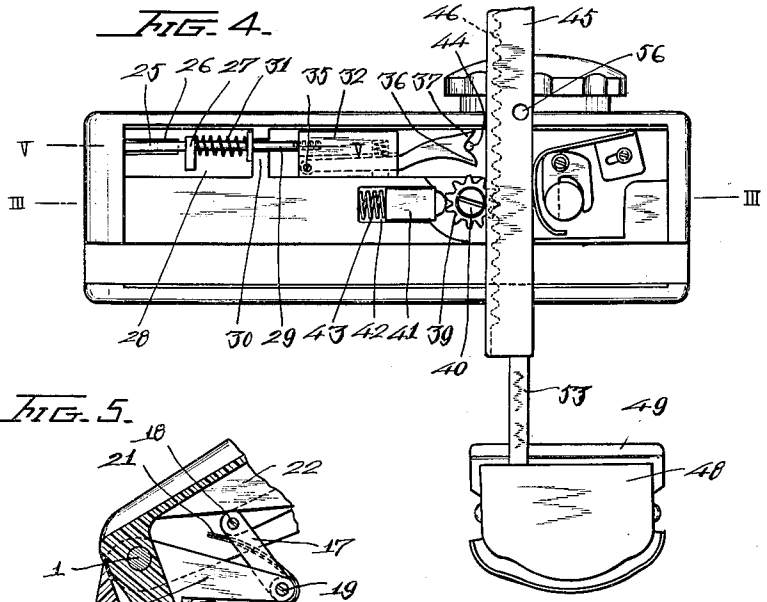


FIG. 5.

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FIG. 6.

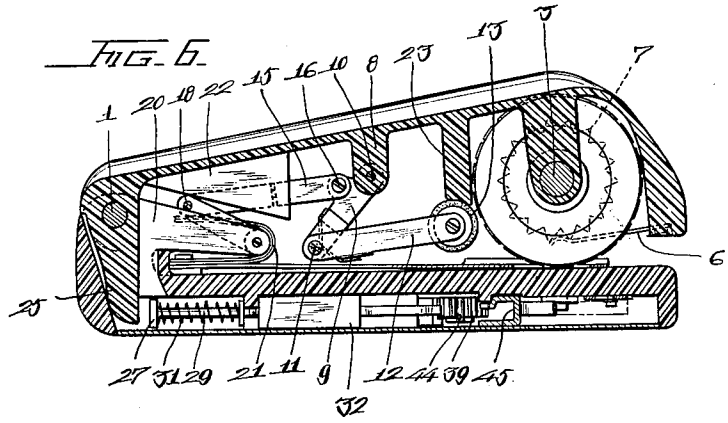
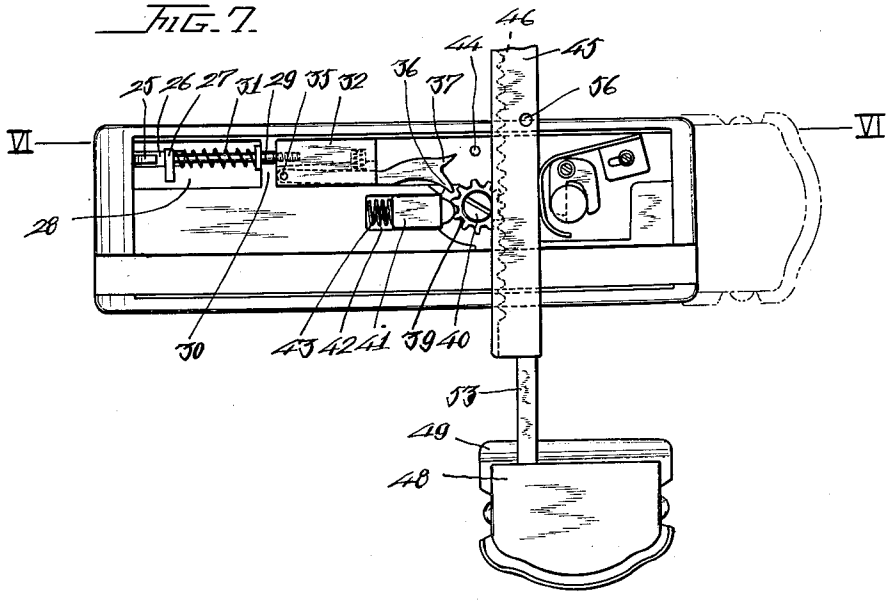


FIG. 7.



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FIG. 8.

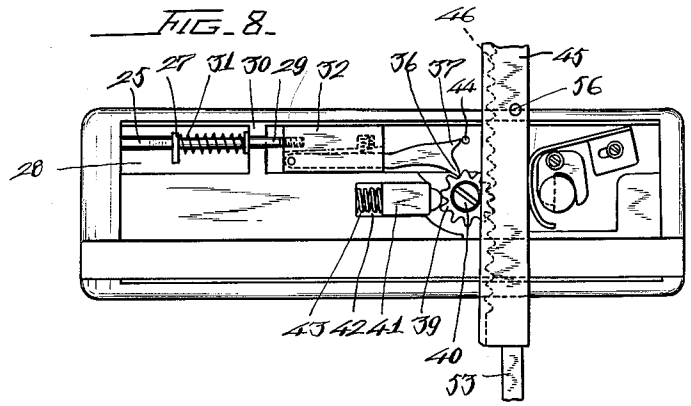


FIG. 9.

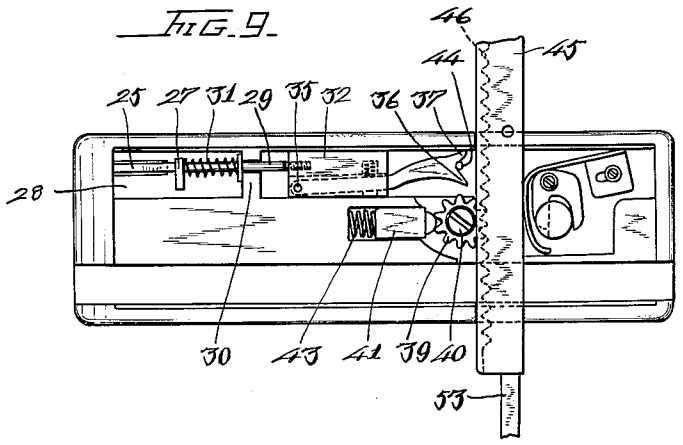
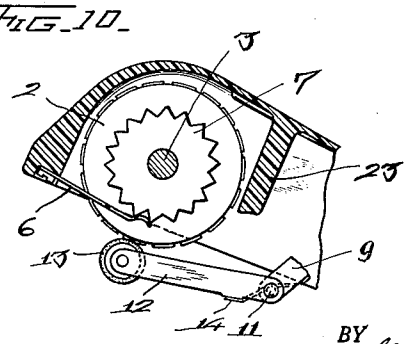


FIG. 10.



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FIG. 11

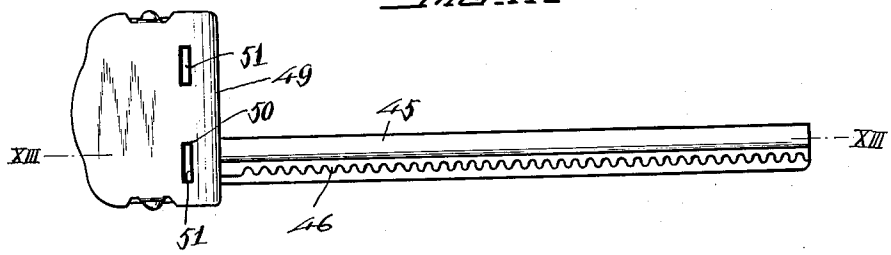


FIG. 12

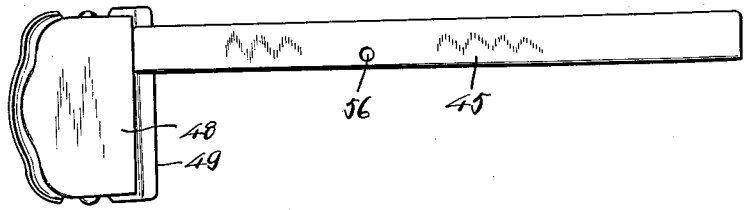


FIG. 13

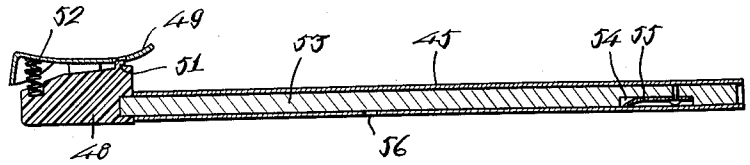


FIG. 14

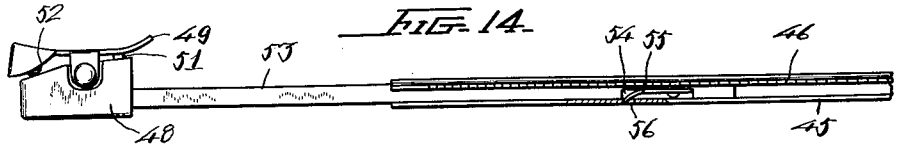
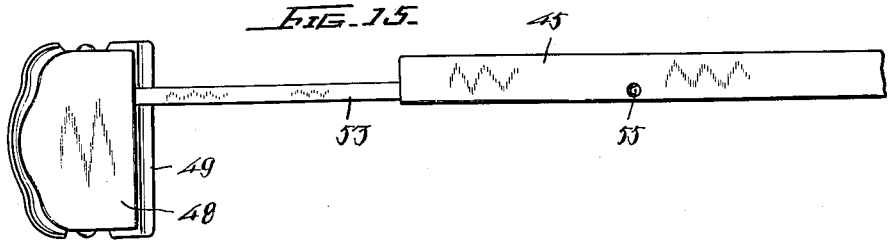


FIG. 15



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POCKET SIZE CHECK WRITER

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Filed Oct. 22, 1959, Ser. No. 848,114

1 Claim. (Cl. 197—6.4)

This invention relates to a pocket size check writer and has for an object the provision of a pocket size check writer which is designed to prevent forgery or other falsification of letters or figures printed on a check or securities, and which may be simply operated by hand.

This invention provides a pocket size check writer comprising a base stand provided with a paper feeding mechanism, and an operating lever having a printing wheel and ink applying means and adapted to be opened automatically by swinging upwardly under the action of a spring about a pivot at the rear end of the base stand, said ink applying means being so constructed that an ink roller is pressed against the under surface of the printing wheel at the open position of the operating lever and is retracted by pressing down the operating lever and said paper feeding mechanism being so constructed as to engage with the operating lever to rotate a driving gear wheel over a given angle by the upward swinging motion of the operating lever so as to move a paper feeding rod engaged with the gear wheel over a given length.

The paper feeding mechanism comprises a check printing paper feeding rod adapted to be inserted into a transverse guide groove in the base stand to move slidably therealong, in engagement with a gear wheel pivoted on the base stand, by a rack formed along one side of the feeding rod itself, a guide member slidably mounted on the base stand being connected to a drive rod having two forked ends formed integrally therewith at its forward end, a push rod connected to the rear end of the guide member being arranged in opposition to the lower end of the projecting part at the rear end of the operating lever, said drive rod being pressed downwardly by the action of a spring embedded in a cavity of the guide member so as to engage with the gear wheel by one of its forked ends, a pin fixed on the underside of the base stand being arranged to engage with the other of the forked ends so as to release said one forked end from engagement with the gear wheel whereby the check printing paper is fed over a given length together with the transverse feeding rod.

In order to reduce the overall size of this check writer, the check paper feeding rod may be withdrawable from a transverse groove in a base stand and is insertable in a longitudinal slot formed in the base stand whereby the overall size of the check writer is reduced.

In order to hold satisfactorily the check paper when it is printed, the check paper feeding rod is provided at its outer end with a paper clip consisting of projections and corresponding holes thereby to hold the check paper. The feeding rod comprises two parts fitted to each other telescopically whereby the length of said rod may be increased corresponding to the transverse width or length of a check paper to be printed.

One embodiment of the invention will now be described with reference to the accompanying drawings in which:

Fig. 1 is a front view of a pocket size check writer according to this invention.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is a longitudinal sectional view taken along line III—III of Fig. 4.

Fig. 4 is a bottom plan view of the check writer with the bottom plate removed.

Fig. 5 is a fragmentary sectional view taken along line V—V of Fig. 4.

Fig. 6 is a longitudinal sectional view taken along line VI—VI of Fig. 7 showing the check writer in a printing position.

Fig. 7 is a bottom plan view of the check writer in the position shown in Fig. 6 with the bottom plate removed.

Fig. 8 is a bottom plan view of the check writer illustrating one stage of operation of a check paper feeding mechanism thereof.

Fig. 9 is a bottom plan view of the check writer illustrating another stage in the feed of the check paper.

Fig. 10 is a fragmentary longitudinal sectional view of a part of the check writer showing brake means for the printing wheel.

Fig. 11 is a plan view of the paper feeding rod.

Fig. 12 is a bottom plan view of the paper feeding rod.

Fig. 13 is a longitudinal sectional view taken along line XIII—XIII of Fig. 11.

Fig. 14 is a longitudinal sectional view of the paper feeding rod showing it in a partly pulled out and locked position.

Fig. 15 is a bottom plan view of the paper feeding rod as of Fig. 14.

As shown in the drawings, this pocket size check writer consists of a base stand A provided at its under side with a check paper feeding mechanism and at its upper surface with check supporting and shifting means, and an operating lever B having a printing wheel and an ink applying roller and pivoted on a pivot **1** fixed at the rear end of the base stand A.

The base stand A and the operating lever B are preferably made of plastic material, such as a synthetic resin, in order to reduce their weight and also to facilitate their manufacture.

The operating lever B is shaped in the form of a casing open at its underside and has a shaft **3** rotatably mounted therein at its free end. To said shaft **3** a printing wheel **2** is rigidly fixed. An operating wheel **4** is fixed to an outwardly extending end of the shaft **3** and by which the printing wheel **2** may be rotated as desired by hand. On the periphery at one side of the printing wheel **2**, a series of caption letters or figures corresponding to those on the printing wheel **2** are marked. On an upper wall of the operating lever B, an arrow **5** is marked so as to be able to select a desired letter or figure. In order to prevent idle rotation of the printing wheel **2**, a spring plate **6** fixed at one side to the operating lever B engages, by its bent tip, with a gear wheel **7** formed integrally with the printing wheel **2**.

To the free end of a support **8** downwardly extending from an inner surface of an upper wall of the intermediate portion of the operating lever B, one end of a link **9** is pivoted by means of a pin **10**. The other end of the link **9** is pivoted by means of a pin **11** to one end of each of a pair of links **12** and the other end of the links **12** support an ink roller **13** rotatably mounted thereon. The ink roller **13** is normally urged into contact with the periphery of the printing wheel **2** by the action of a coil spring **14** which has sufficient energy to bend the link **12** towards the link **9**. One end of a link **15** is pivoted by means of a pin **16** to the intermediate portion of the link **9**. The other end of the link **15** is pivoted to the upper ends of a pair of links **17** by means of a pin **18**. The lower ends of the links **17** are pivoted by means of a pin **19** to forward ends of a pair of parts **20** projecting forwardly from the rear upper portion of the base stand A. The lower end of the link **15** directly below the pin **18** is pressed

upwardly by the action of the upper end of a spring 21 in the form of a V-shape and a lower free end of the spring 21 is fixed on the upper surface of the base stand A.

Accordingly, the ink roller 13 is held in contact with the lowermost letter or figure on the printing wheel 2 when the operating lever is held in an uppermost position. Also the upper ends of the links 17 are urged to engage lower surfaces of a pair of inclined guide parts 22 formed integrally with the inner side of the rear end of the operating lever B and are guided slidably along said lower surfaces when the operating lever B is moved.

Therefore, the operating lever B is normally held in an opened position as shown in Fig. 3 by the action of the spring 21. When the operating lever B is pressed downwardly, the upper ends of the links 17 are guided rearwardly along the lower surfaces of the guide parts 22 so as to swing the links 17 about the pin 19 and consequently the link 9 is swung rearwardly about the pin 10 by the link 15 so that the ink roller 13 is retracted to be received by a lower end of a hanging abutment 23 formed integrally with an inner side of the operating lever B. Accordingly, the printing wheel 2 assumes a position to print upon a check paper placed on a lower matrix 24 which is fixedly embedded and has a notched surface to leave a series of notches on the check paper after printing. Said position of the printing wheel 2 is shown in Fig. 6. When the operating lever B is released, the parts of the check writer assume the position shown in Fig. 3.

The operating lever B has a downwardly projecting part 25 at its rear end loosely passing through an opening 26 formed at a corresponding rear end of the base stand A. This projecting part may be reinforced at its side by a metal plate of proper form, if desired. The projecting part 25 is arranged in opposed relationship to a movable plate 27 slidable in a longitudinal guide groove 28 on the underside of the base stand A. A rear end of a push rod 29 is fixed to said movable plate 27 and said push rod 29 is loosely passed through and adapted to be reciprocated in a supporting plate 30 formed integrally with the base stand A. While the operating lever B is being swung by the action of the spring 21 from a printing position shown in Fig. 6 to an opened position shown in Fig. 3, the projecting part 25 pushes the movable plate 27 together with the push rod 29 forwardly against the action of a spring 31 located between the movable plate 27 and the supporting plate 30. To the forward end of the push rod 29 a guide member 32 is fixedly connected to slide forwardly and rearwardly in the guide groove 28. In a guide slot 33 formed in the guide member 32, the rear end of a drive rod 34 is pivoted by means of a pin 35 as shown in Fig. 9. Said drive rod 34 has two forked ends 36, 37 at its forward end, and one forked end 36 is adapted to be engaged by the action of a spring 38 with a gear wheel 39 pivotally mounted on a shaft 40 which is mounted at the underside of the base stand A. Said gear wheel 39 is prevented from idle rotation by the engagement of a tip of a brake member 41 with the teeth of the gear wheel 39. Said brake member 41 is slidably mounted in a cavity 42 formed on the underside of the base stand A and serves to stop idle rotation of the gear wheel 39 by the action of a spring 43.

As above described, when the downwardly projecting part 25 of the operating lever B pushes the push rod 29 forwards, the forked end 36 of the drive rod 34 engages the teeth of the gear wheel 39 (see Fig. 8), and when the gear wheel 39 is rotated over a given angle by the forked end 36, the other forked end 37 engages a pin 44 fixed at the underside of the base stand A so as to release the forked end 36 from the teeth of the gear wheel 39 (see Fig. 9). Accordingly, a check paper feeding rod 45 having rack teeth 46 along its one side geared with the teeth of the gear wheel 39 and inserted slidably in a transverse groove 47 formed at the underside of the base stand A is moved toward the left side (in Fig. 2) over a given length when the gear wheel is rotated. If desired, this feeding rod may be arranged to move toward the right side.

The check paper feeding rod 45 has attached at its left hand end a head 48 having a paper clip 49 thereon (Fig. 13). The paper clip 49 has two openings 50 at the portion to catch the check paper. The head 48 has also two projecting parts 51 at the corresponding portion to the openings 50. As the clipping end of the paper clip 49 is urged to press, by means of a spring 52, against the head 48, the projecting parts 51 enter the openings 50. When a check paper is caught by the clip 49, the projecting parts 51 push the paper end into the openings 50, consequently the check paper will not loosen and come off the clip. It is very important to catch and hold the check paper in printing. In the printing operation, a considerable shock is given to the paper, and the printing of letters or figures is done by a number of small notches on the matrix 24 and the printing wheel 2. Hence, when the paper moves towards the left hand side over a given length after printing one letter or figure, the paper will be detained by the matrix 24. This detaining force tends to obstruct the regular feeding of paper, so that the letters or figures are often printed at irregular intervals. According to the clip device of the present invention, however, perfect and satisfactory holding of the paper is obtained.

The check paper feeding rod 45 may be modified as shown in Figs. 14 and 15 so that its length may be varied to allow for varying widths of check paper. The check paper feeding rod 45 consists of a sleeve into which an additional rod 53 is slidably inserted. The head 48 with the paper clip 49 thereon is fixed at the end of the rod 53. The additional rod 53 has a cavity 54 at the right hand end portion and therein is arranged a spring pawl 55 directed towards the head 48. The rod 45 has a hole 56, so that when the additional rod 53 is in the expanded position, the pawl 55 engages with the hole 56 so as to retain the additional rod 53 in that position.

A check paper pressing plate 57 has its rear end fixed on the rear end of the base stand A and the check paper is loosely held between said plate 57 and the base stand A. After printing one letter or figure the check paper caught by the clip 49 at one end is moved toward the left hand side over a given length, and the next desired letter or figure on the printing wheel 2 is brought into the lowermost position to be contacted with the ink roller 13 by the proper operation of the operating wheel 4.

When the operating lever B is pressed downwardly to effect the next printing operation, the projecting part 25 of the operating lever is swung rearwardly about the pivot 1, and the push rod 29, the guide member 32 and the drive rod 34 are retracted by the action of the spring 31 to a position as shown in Fig. 7 in readiness to make the next feed of the check paper.

When this check writer is not in use, the check paper feeding rod 45 is withdrawn from the transverse groove 47 in the base stand A and is inserted into a longitudinal receiving slot 58 in the base stand A as shown by a dot and dash line in Fig. 7, so that the transverse size or width of this check writer is reduced and it may conveniently be carried in a pocket.

What I claim is:

A pocket size check writer comprising a base stand provided with a paper feeding mechanism and a paper feeding rod holder, and an operating lever having a printing wheel and ink applying means and adapted to be opened automatically by swinging upwardly under the action of a spring about a pivot at the rear end of the base stand, said ink applying means comprising an ink roller which is pressed against the under surface of the printing wheel at the open position of the operating lever and is retracted by pressing down the operating lever and said paper feeding mechanism comprising a driving gear wheel, a paper feeding rod mounted in said rod holder and engaged with the driving gear wheel, and means engage-

able with the operating lever to rotate the driving gear wheel over a given angle by the upward swinging motion of the operating lever so as to move the paper feeding rod engaged with the gear wheel over a given length, said paper feeding rod consisting of a main racked sleeve and an inner slidable additional rod having a stop pawl which engages with a hole in the main sleeve whereby the length of said feeding rod may be increased corresponding to the size of a check paper to be printed, and said check paper feeding rod being provided at its outer end with a paper holding device consisting of a paper

clip and openings provided therein and projecting parts formed on a head of the paper feeding rod whereby the check paper is satisfactorily held and clipped between said openings and projecting parts at the printing operation.

References Cited in the file of this patent

UNITED STATES PATENTS

115,763	Moody	June 6, 1871
1,549,784	Middleton et al.	Aug. 18, 1925