

March 19, 1935.

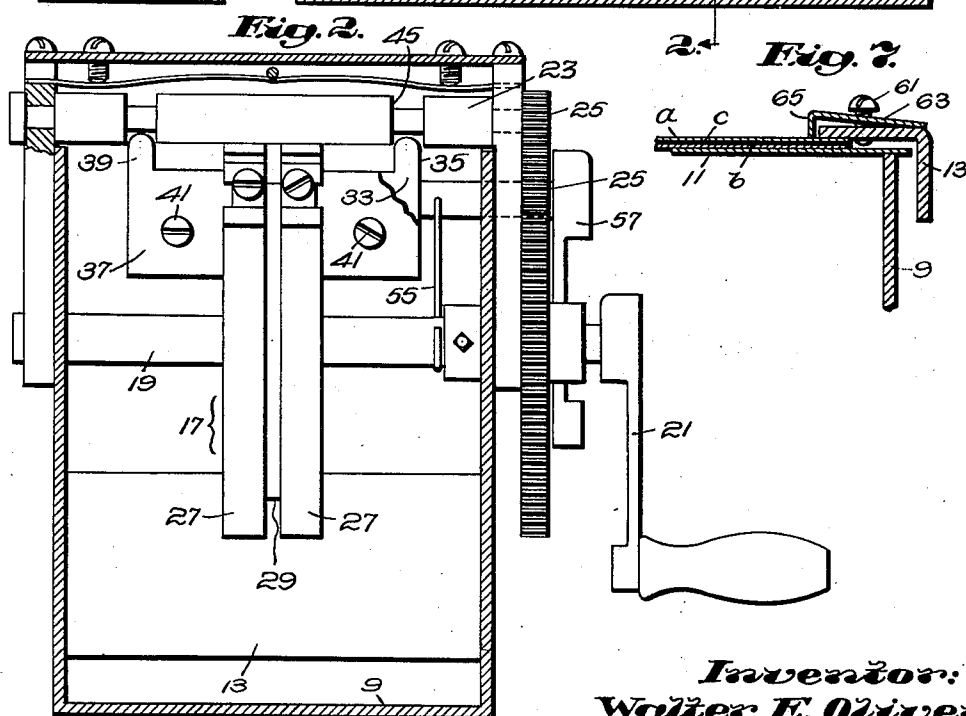
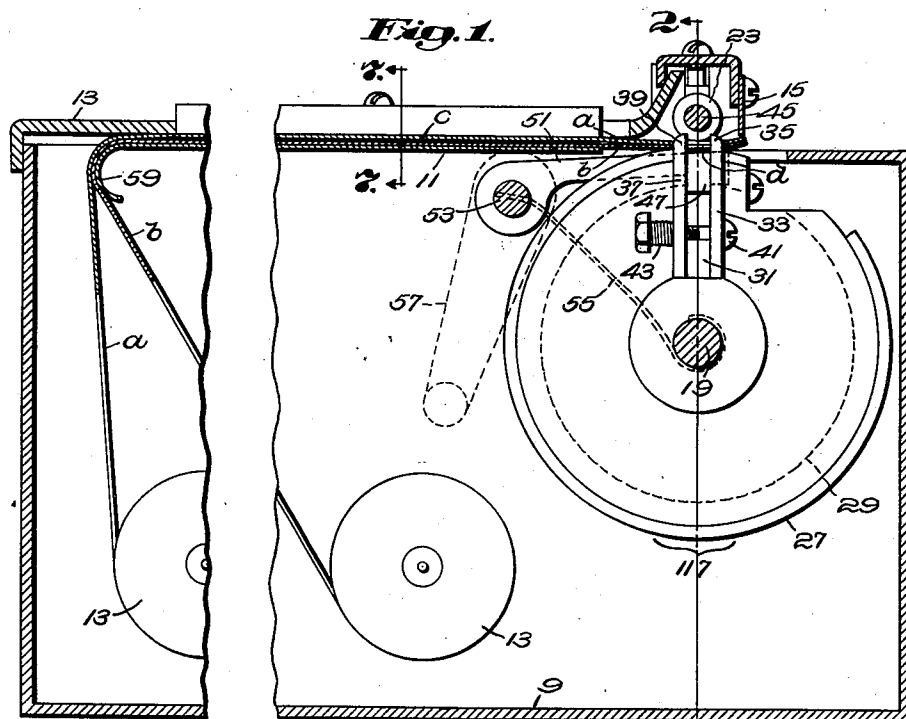
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1,995,189

STRIP CONTROL MEANS FOR MANIFOLDERS

Filed Jan. 29, 1929

2 Sheets-Sheet 1



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Fig. 3.

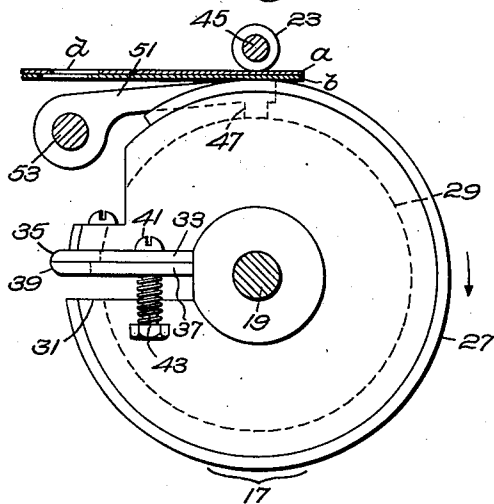


Fig. 4.

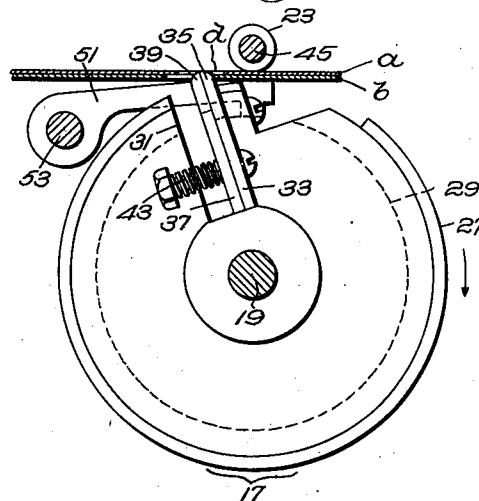


Fig. 5.

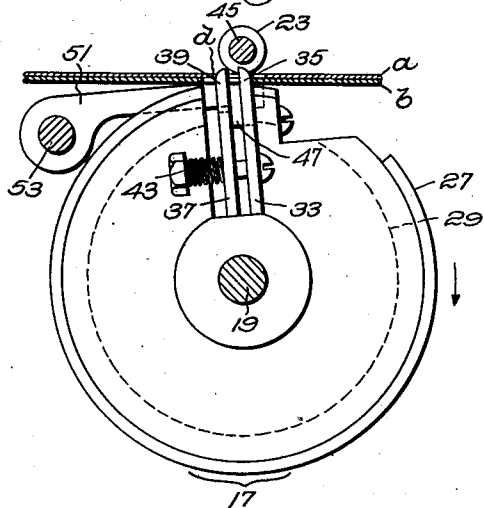
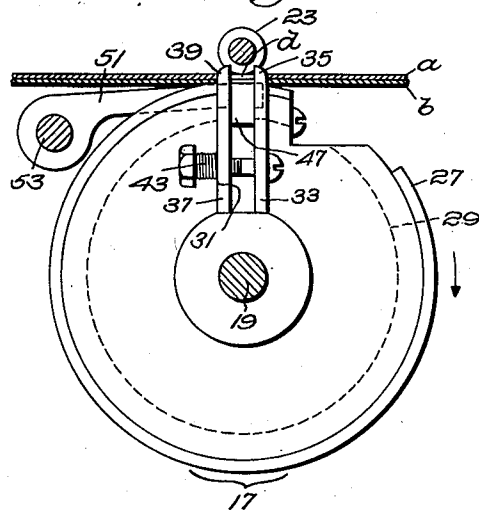


Fig. 6.



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UNITED STATES PATENT OFFICE

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STRIP CONTROL MEANS FOR
MANIFOLDERS

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15 Claims. (Cl. 282—21)

This invention relates to mechanism for controlling the feed of strip material more particularly applicable to use in so-called autographic registers or like manifolders. The object is to provide effective means for exactly positioning the material for use; for example, positioning superposed strips in proper register over a platen for the inscription of multiplicate records thereon.

My invention may be understood from the following description of an autographic register, the construction of which serves as an exemplification of the invention, such description being taken in connection with the accompanying drawings, wherein:

Fig. 1 is a broken longitudinal section through an autographic register, the construction of which constitutes an illustrative embodiment of the invention;

Fig. 2 is a section on the line 2—2 of Fig. 1 with parts broken away;

Figs. 3, 4, 5 and 6 are fragmentary views illustrating the feeding means in different phases of its movement; and

Fig. 7 is a fragmentary section on the line 7—7 of Fig. 1.

Referring to Figs. 1 and 2 of the drawings, the machine there shown is organized in a suitable box-like casing 9, in the upper part of which is a suitable platen 11 exposed through a frame-like cover 13 over which platen a number of strips of paper are led in superposed relation from a suitable source of supply, herein separate rolls 13. To illustrate the invention I have illustrated two such strips *a* and *b*, but any reasonable number might be used. Interposed between the strips where they pass over the platen is carbon paper *c*. After inscription the strips may be fed forward and sections thereof torn off at the ledger blade 15. To provide for the feed of the strips they may be perforated at regular intervals therealong with holes *d* which provide for the registration of the same over the platen in the manner hereinafter described and may also be utilized for the purpose of filing the records. What has been described so far does not differ in essence from mechanisms found in many types of autographic registers.

The strips are drawn forward over the platen 11 by means of a feeding mechanism more particularly embodying features of the invention. Herein I provide means for feeding the strips for a distance approximately equal to the distance between the successive holes *d* and cooperating means thereafter precisely to position and register the strips. The primary feeding

means herein takes the form of a segmental feeding disc 17 carried on the rotary shaft 19 adapted to be turned by a hand crank 21 at the exterior of the case 9, the disc cooperating with a roller 23 slidably mounted in spring-pressed boxes just above the plane of the platen 11 and driven at substantially the same surface speed as the disc 17 by means of the gearing 25. The feeding face of the disc 17 may be in the form of a separable strip or tread 27. This construction permits treads of different length to be used on a central disc body of a given size interchangeable for different machines to provide for feeding sections of strip of different lengths. The primary feed accomplished by the disc depends in amount on the circumferential length of the tread 27. Thus in Fig. 3 tread 27 is shown in feeding position. When the rear end of the tread passes the twelve o'clock position, the feeding mechanism is entirely idle until the parts reach the position of Fig. 4, as will hereinafter be explained. As best seen in Fig. 2, the disc 17 may be of duplex aspect, being herein provided with a central groove 29 for a purpose which will hereinafter appear.

The auxiliary means for completing the positioning of the strip material on the platen herein comprises fingers which enter the holes in the strip and provide gages against which the rear sides of the holes are drawn by auxiliary feeding means, the latter herein taking the form of additional fingers which engage the forward or leading walls of the holes to draw forward the strips against the gages. In the embodiment of the invention shown the two sets of fingers fit together so that cooperating elements of the two sets enter the holes in the strip as one and this compound finger expands in the hole by a differential movement of its parts.

In the structural embodiment of this conception herein shown the disc 17 is provided with a radial recess 31 circumferentially out of register with the feeding periphery thereof and secured against the leading wall of this recess there is provided a plate 33 having projecting fingers 35, two fingers being shown at opposite sides of the center line of the strip to provide for even draft thereon. A similar plate 37 having aligning fingers 39 may be mounted to slide on the pins 41 projecting rearwardly from the plate 33, the plate 37 being normally yieldably pressed into contact with plate 33 by the springs 43 encircling said pins, the position shown in Figs. 3 and 4, but it may be drawn away therefrom through the position shown in Fig. 5 until it makes contact with the opposite side of the recess 31 in the position

of Fig. 6. The roll 23 is cut away at 45, as best shown in Fig. 2, to pass the fingers 35 and 39.

The top plate 33 between the fingers 35 may be aligned with the bottom of groove 29, as appears most clearly from Fig. 3, while the central portion of the plate 37 may project above the bottom of that groove to permit it to be engaged by the bill 47 of a hook 51 mounted on a rock shaft 53, the rock shaft being normally pressed by spring 55 (see Fig. 2) in such manner that the bill of the hook engages the bottom of the groove 29. This hook serves as a stop to halt the orbital or rotative movement of plate 37 with the disc 17 while permitting the fingers 35 to continue their travel for a limited distance. The rock shaft 53 may be provided with a lever handle 57 (see Fig. 2) at the exterior of the casing to permit the hook to be swung counterclockwise to release the parts.

The method of operation will be clear from Figs. 3, 4, 5 and 6. In Fig. 3 the feeding movement of the strips to discharge inscribed sections thereof to a position beyond the ledger blade 15 and to bring fresh sections over the platen is in greater measure completed by the cooperation of tread 27 of the rotating feed disc with roll 23. To illustrate the principles of the invention I have shown the holes *d* in the two strips *a* and *b* as somewhat out of register. As the rear end of the tread 27 passes the twelve o'clock position feeding movement of the disc ceases. Substantially at the completion of this movement the fingers 35 and 39, which are then pressed together by the springs 43, roll into the holes *d*, and if one of the strips, as *b*, is lagging in the amount shown, the finger 35 starts to feed it forward. This is the position of Fig. 4. Probably on account of friction between the strips another strip such as *a* may also move and to ensure register the following further operation is effected. As the fingers approach the twelve o'clock position, the bill 47 of hook 51 engages plate 33 and stops further forward movement of the fingers 39 which are then maintained in stationary position projecting through the holes to serve as gage pins against which the rear walls of the holes may be drawn. The fingers 35, however, continue in motion with the disc and, engaging the forward walls of the holes, draw forward the two strips simultaneously or differentially as conditions require until the plate 33 reaches the opposite wall of recess 31 and the parts are locked in position and the feeding movement completely stopped. In this position it will be noted from Fig. 6 that the forward face of the bill of the hook enters behind plate 33 locking the parts against retrograde movement or recoil. The distance between the outer faces of the fingers in the position of Figs. 1 and 6 is chosen as the diameter of the holes *d* and by the cooperation of the parts as described the two strips are exactly registered over the platen. The parts are then in the position of Fig. 1, and after the strips have been written upon, the handle 57 may be depressed to lift up the hook and the crank is then rotated and the fingers by their engagement with the holes will effect an initial feeding movement of the strips and the tread 27 will then come into action to feed forward the main body of the strips until the next set of holes approaches the location of roll 23 and the cycle may be repeated. As the leading edges of the strips pass to the right from the position of Fig. 1, a stripper 58 frees them from fingers 35—39 and guides them out of the machine. This stripper may be a part of the top of the case 9 extending to the right past the location of ledger blade 15

and suitably notched, if desired, to permit fingers 35—39 and treads 27 to pass. After the inscribed sections are torn off, the leading edges of the succeeding sections are left projecting between the stripper and the blade.

As seen in Fig. 1, the strips of paper *a* and *b* may be led directly in superposition over the rear end of the platen 11 (which may be provided with a rounded end 59) without utilizing any tensioning or braking means or separate guiding rolls. To position the paper on the platen and prevent its disarrangement by the traction of the writing instrument thereon, I may (see Fig. 7) loosely attach to the left-hand margin of the frame 13, as by means of the screw 61, an angle bar having a substantially horizontal flange 63 and a vertical flange 65 extending over the inner edge of the frame and overlying the paper on the platen. When an inscription is made on the paper, the left hand may rest on the horizontal flange, pressing the vertical flange down against the paper to clamp the same to the platen and prevent its being disarranged during the writing operation.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention:

I claim:

1. In a mechanism of the class described a feed roll having a circumferential groove, a segmental tread and a radial slot, a member adjacent a wall of said slot having projecting feed fingers, a similar member associated with the first and yieldably held toward the same, a hook running in said groove and having a bill to engage said second member to stop its movement and permit the first member to move away from the same and with said disc, and a roll cooperating with the tread of the feed roll and cut away to pass said fingers.

2. In a mechanism of the class described a feed roll having a circumferential groove, a segmental tread and a radial slot, a member adjacent a wall of said slot having projecting feed fingers, a similar member associated with the first and yieldably held toward the same, a hook running in said groove and having a bill to engage said second member to stop its movement and permit the first member to move away from the same and with said disc, the wall of said slot cooperating with said second member to limit such continued movement and the bill of the hook being of a width then to enter behind said first member to prevent retrograde movement of the feeding means.

3. In a mechanism for feeding perforated strip material a rotary shaft, a feed disc turned thereby, said disc being segmental in form to define a gap in the periphery thereof, a finger projecting outward at the gap in the disc and adapted to turn with the shaft, a second finger yieldably held adjacent the first to permit the two to enter together a hole in a strip, and a catch effective to halt forward movement of the latter finger.

4. In a mechanism for feeding perforated strip material a rotary shaft, a feed disc turned thereby, said disc being segmental in form to define a gap in the periphery thereof, a finger projecting outward at the gap in the disc and adapted to turn with the shaft, a second finger yieldably held adjacent the first to permit the two to enter

together a hole in a strip, and a catch effective first to halt forward movement of the latter finger and thereafter of all said shaft driven devices.

5 5. In a mechanism for feeding perforated strip material, a rotary shaft, a segmental feed disc carried thereby, a feeding finger moving with said disc circumferentially out of line with the feeding periphery thereof, a finger yieldingly pressed to the first and having limited lost motion with respect thereto, and a releasable stop to engage said second finger to check its forward motion with the shaft.

10 6. In a mechanism for feeding perforated strip material, a rotary shaft, a segmental feed disc carried thereby, a feeding finger moving with said disc circumferentially out of line with the feeding periphery thereof, a finger yieldingly pressed to the first and having limited lost motion with respect thereto, and releasable stop means first to engage said second finger and check its forward motion with the shaft and second to lock the feeding mechanism against retrograde movement when said fingers have reached the limit of their relative motion.

25 7. Mechanism for feeding strip material having holes at intervals therealong comprising, in combination with means for feeding the material a distance approximately equal to the distance between successive holes, a pair of separable fingers orbitally movable to enter substantially at the conclusion of such feeding movement together into a hole, releasable means for thereafter checking movement of one of said fingers to cause separation of the two, and means to return said fingers together again on release of such means.

30 8. In a mechanism for feeding perforated strips of material a divided finger adapted to enter holes in the strips and means to cause it to expand therein substantially in the line of feed to position the material.

40 9. In a mechanism for feeding perforated strip material a finger adapted to enter a hole and serve as a gage for the rear wall thereof, a relatively movable finger in advance of the same to draw a strip against said gage by cooperation with the forward wall of such hole, and driving means for said fingers effective to insert them in such hole and to advance the latter finger longitudinally of the strip.

50 10. In a mechanism for feeding perforated strip material a finger adapted to enter a hole and serve as a gage for the rear wall thereof, a rela-

tively movable finger in advance of the same to draw a strip against said gage by cooperation with the forward wall of such hole, and driving means for said fingers effective to insert them in such hole and to advance the latter finger longitudinally of the strip for a limited distance comprising releasable stop means for locking the parts against movement in either direction after such advance.

10 11. Mechanism for feeding strip material having holes at intervals therealong comprising, in combination with means for feeding the strip a distance approximately equal to the distance between successive holes, a pair of fingers, and mechanism for operating said feeding means and sequentially to move said fingers in unison into a hole and to move them differentially therein.

15 12. Mechanism for feeding strip material having holes at intervals therealong comprising, in combination with means for feeding the strip a distance approximately equal to the distance between successive holes, a gaging device operated to enter a hole substantially at the completion of such feeding movement, and auxiliary feeding means for positioning the strip by means of said gage.

20 13. Mechanism for feeding strip material having holes at intervals therealong comprising, in combination with means for feeding the strip a distance approximately equal to the distance between successive holes, a gaging device operated to enter a hole substantially at the completion of such feeding movement, and auxiliary feeding means having a definite limit of travel past the position of such gage for positioning the strip thereagainst.

35 14. In a manifold, in combination with a platen over which superposed strips are drawn, a frame through which said strips are exposed, and a member loosely associated with a side of the frame and having a portion opposing the platen to clamp the strips thereto when manually depressed.

40 15. In a manifold, in combination with a platen over which superposed strips are drawn, a frame through which said strips are exposed, and an angle bar having one flange loosely secured over a side of said frame and forming a rest for the hand and a flange extending toward said platen to clamp the strips thereto when said bar is depressed.

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