Feb. 25, 1936. C. W. BRENN 2,031,928

TYPEWRITING MACHINE

Filed Dec. 8, 1931 2 Sheets-Sheet 1

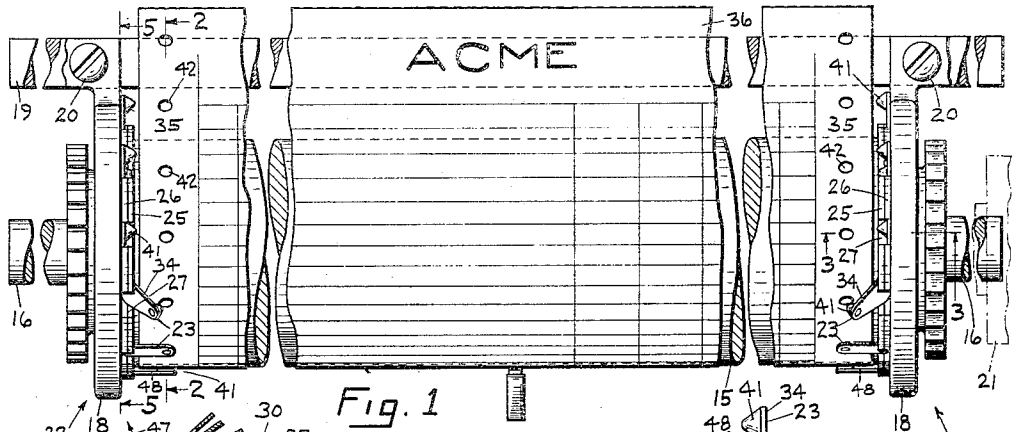

Fig. 1

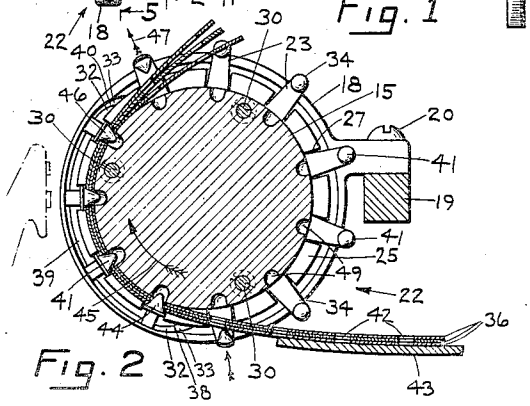

Fig. 2

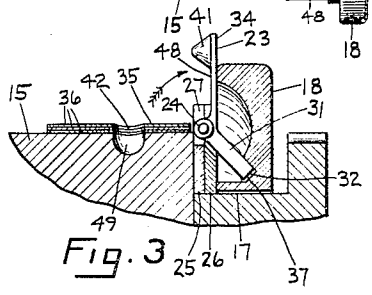

Fig. 3

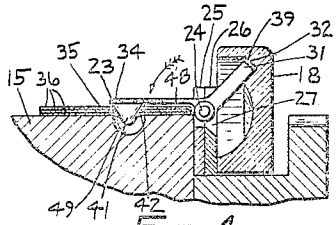

Fig. 4

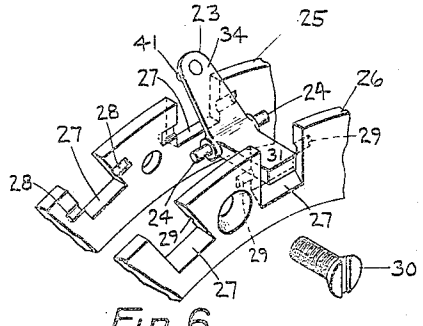

Fig. 6

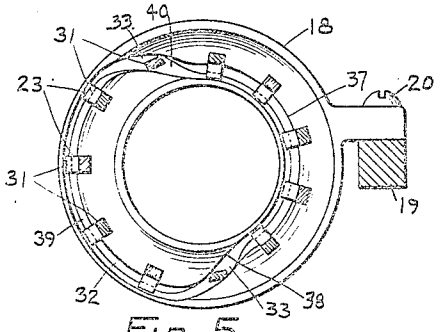

Fig. 5

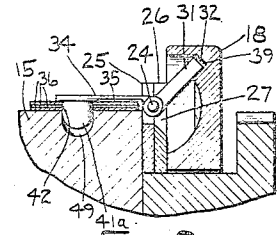

Fig. 8

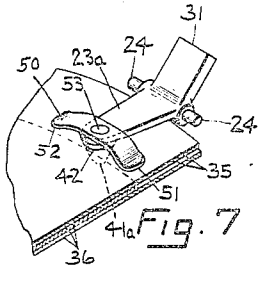

Fig. 7

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TYPEWRITING MACHINE

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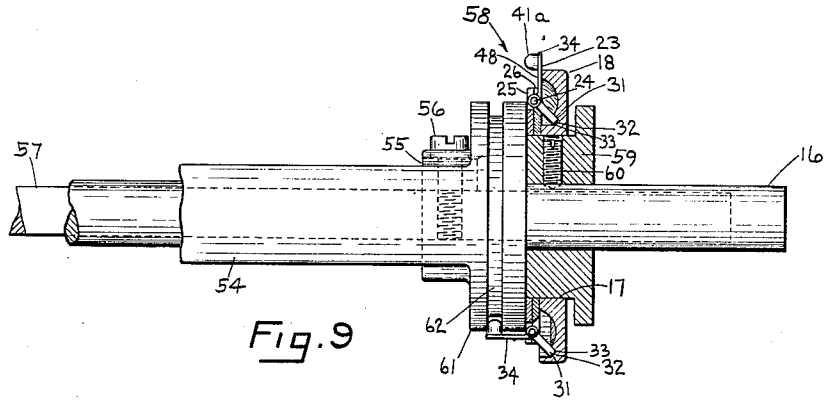

Fig. 9

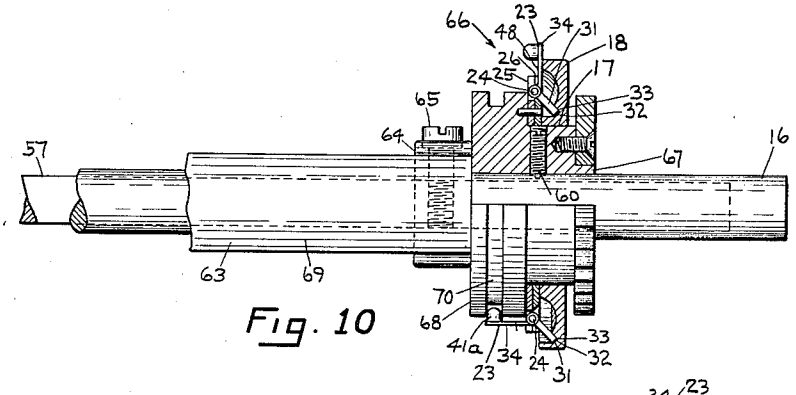

Fig. 10

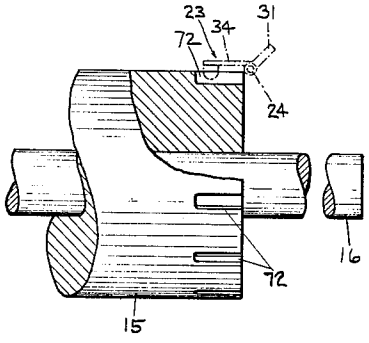

Fig. 12

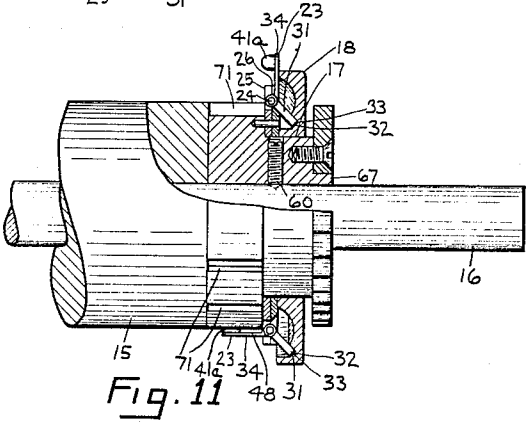

Fig. 11

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UNITED STATES PATENT OFFICE

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TYPEWRITING MACHINE

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Application December 8, 1931, Serial No. 579,681

19 Claims. (Cl. 197—133)

This invention relates to a paper feeding mechanism which may be advantageously used in typewriters and other similar machines in which it is desired to use long strip paper, of continuous form lengths, and having a marginal feeding band usually provided with a longitudinally extending row of feed apertures.

Heretofore, it has been customary to provide a pressure roller mechanism adapted to grip the paper strip or superposed strips snugly to a rotatable platen, or to a main feeding roller, in order to pull successive forms across the platen. While this arrangement works very satisfactorily in typewriters and like machines where only a single sheet and duplicate copies thereof are to be worked upon it is not always satisfactory in machines where it is desired to have an uninterrupted supply; for instance, as in the use of a continuous strip or strips, from a large roll or series of rolls, or from a zig-zag folded pack of strips.

In order to insure a nonslipping movement of the strips and to maintain the strips in proper superposed relation it has also heretofore been a common practice to provide the strip paper with longitudinally extending rows of feed apertures adapted to cooperate with sprocket wheels on the platen or on a feed roller. But, this arrangement had the disadvantage of tending to prevent the pile of superposed strips from moving into close engagement with the platen or the feed roll when the feed apertures were inadvertently somewhat undersize and allowed undue relative shifting of the strips in the superposed pile when the feed apertures were somewhat oversize.

Also, with the solid sprocket wheel arrangement, when the paper strips are firmly in engagement with the platen there is a tendency for the sprocket wheel pins to continue to carry the paper with the platen beyond the desired point. Accordingly, suitable stripping means were needed.

To feed a thick pile of superposed strips a long pin is necessary. This in itself is a disadvantage both in stripping the paper strips off the pins and in the entering of the pins into the apertures at the introductory side of the platen for the top end of each pin tends first to engage the top of the paper in back of the feed apertures and then to move forwardly upon the paper until it moves into registry with the feed aperture.

It is an object of the present invention to provide a feed mechanism which will obviate the difficulties and disadvantages above referred to and yet which will positively advance the paper strips and maintain them in constant alignment and registration at the line of writing. With the arrangement of the present invention, in its present preferred form, the strips are pressed into firm engagement with a platen or a main feed roller of a writing machine so that a frictional drag will be insured between the strip paper and roller to lighten the load imposed upon the paper strips in the feeding band section which normally is its weakest part, and which takes the full load in usual sprocket wheel arrangements.

More specifically, the present invention provides a plurality of fingers mounted for rotation with and for movement inwardly toward and outwardly from the feed roller, or other backing member, and having means to automatically move them into paper engaging relation as the feed roller is rotated. The fingers may be yielding and they may, and preferably do, carry pins or studs adapted to be automatically moved into engagement with feed apertures in the paper strips to align the strips relative to the platen and to insure proper superposed relationship between all the strips of the pile during the feeding operation.

Other features and advantages will hereinafter appear.

In the drawings—

Figure 1 is a top plan view of the platen of a typewriting machine with the feed of the present invention applied thereto.

Fig. 2 is a side sectional view, taken on line 2—2 in Fig. 1.

Fig. 3 is a detail sectional view of a single clamping and aligning finger of the present invention, taken on line 3—3 in Fig. 1.

Fig. 4 is a view similar to Fig. 3, but shows the finger in its lowered operative position.

Fig. 5 is a detail view of the cam which controls the clamping fingers, taken on line 5—5 in Fig. 1.

Fig. 6 is an exploded view of a section of the clamping finger assembly.

Fig. 7 is a perspective detail view of a modified form of clamping finger in operative position relative to a pile of paper strips.

Fig. 8 is a fragmentary view similar to Fig. 4 of a modified form of aligning stud on the clamping finger of the present invention.

Fig. 9 is a fragmentary view of a modified form of the present invention applied to a machine with a stationary segmental platen.

Fig. 10 is a view similar to Fig. 9 which shows this form of the present invention with a rotatable collar underlying the clamping finger so that the paper strips may be clamped relative thereto.

Figs. 11 and 12 are fragmentary views of modified forms of stud supporting structures.

The feeding mechanism, of the present invention, for advancing paper strips may be made as an auxiliary device to be added to typewriting and like machines already in the field; however, in the present description it will be treated as being applied to platens especially made for the purpose, and while it is, in its preferred form, shown as applied to a typewriting machine with a rotatable platen its use should not be limited strictly thereto for it is within the purview of this invention to have the feed mechanism of the present invention applied to typewriters having a fixed platen over which the paper slides, as shown in the two modified forms of the present invention in Figs. 9 and 10.

The paper used with the feeding mechanism of the present invention may be either a single form or a single record form with alternate transfer and copy sheets; or, it may be a single continuous record strip or a superposed pile of continuous transfer and copy strips. Because of the various applications possible for the present invention and because it will readily be understood by those skilled in the art as to how the platen and feed mechanism of the present invention is intended to be applied to typewriting machines and the like the main frame, key board, and other general details of such machines are not shown in the present drawings.

Referring now in detail to the drawings there is shown a platen 15 having a shaft 16 adapted to rotate in any suitable bearing (not shown). It may also be rotatably mounted in bearings 17 portions of plates 18 which are fixed to a bar 19 with screws 20, the bar in turn being fastened to a machine frame or carriage (not shown). The platen may be rotated in the now well-understood manner, manually by a knob 21 at the end of the shaft 16 or automatically by a suitable ratchet or other similar drive mechanism as in teletype machines.

Now, of particular importance, according to the present invention there is provided a paper feeding mechanism 22 comprising a plurality of levers 23 with means to automatically move them seriatim relative to the platen 15 to an inoperative position part of the time during the operation of the machine as shown in Fig. 3, or into an operative paper strip clamping and aligning position, as shown in Fig. 4. Although just one feeding mechanism 22 on one side of the machine will work quite satisfactorily better results are obtainable with two, one on each end of the platen, especially when feeding wide strip paper.

Preferably, these levers 23 are pivotally mounted on pins 24 in a pair of plates 25 and 26 having a plurality of slots 27 adapted to accommodate the levers and having shallow channel recesses 28 and 29 adapted to accommodate the pivot pins 24 and the plates in turn are fastened to the end of the platen 15 with screws 30. After the levers are so assembled the cam plate 18 is moved into engagement with an arm 31 portion of the levers as shown in Figs. 1 to 5, inclusive, and the cam plate suitably fixed against rotation on the bar 19 portion of the machine frame or platen carriage, as hereinbefore described. This cam plate is provided with an annular clearance channel 32 and with a camming groove 33 adapted to accommodate the arms 31 on the levers 23 to move a clamping finger 34 portion thereof, into contact with a feeding band 35 section of paper strips or strips 36, in a clockwise and anticlockwise direction in conformity with the tortuous path of the groove as the platen 15 is rotated and as the plate 18 remains stationary.

To this end the camming groove 33 is at the back of the cam plate 18 provided with an inner dwell 37 which cams the arm 31 part of the levers 23 in a direction away from the platen 15 as shown in Fig. 3 to maintain the levers in a raised inoperative position and is provided with a rise 38 at its lower section which in turn cams the levers toward the platen successively as the platen is rotated, until the arm moves into an outer dwell 39 portion of the camming groove which keeps the finger in its lowered operative position relative to the platen, as shown in Fig. 7, to clamp the paper 36 relative thereto during one section of the rotation of the platen, from the introductory to the outlet points of the feed mechanism 22, as shown in Fig. 2, and then near the top of the cam plate a fall 40 of the cam groove serves to again swing the levers 23 about their pivot 24 into the raised inoperative position again. In the lowered operative position the fingers serve to move the paper strips 36 close to the platen 15, establish a good frictional pull between the paper and platen and serves to clamp the paper to the platen. In order to prevent too much friction being imposed by the arms 31 working hard against the camming groove 33 while the fingers are in the operative position and so that divers thickness and quantity of strips may be accommodated by the main feed roller 15 the clamping finger 34 section of the lever 23 is preferably made of spring steel or made sufficiently thin to be resilient when it is moved into operative engagement with the paper on the platen.

Although the fingers 34 alone may be used to clamp the paper to the platen in the manner just described in detail they are, according to the present invention, provided with studs 41 to align the paper and insure a nonslipping feed. These studs may be of any desired shape or conform substantially with feed apertures 42 in the feeding band 35 of the continuous paper strip 36, which may be either a single strip or a plurality of superposed interleaved record and transfer strips, and may have the feed apertures in one or more of said strips, and at one or both sides of the strips.

In manufacturing the set of paper strips 36 the first feed aperture is preferably notched in the front end of the advancing strip so that it is merely necessary to slide the advancing slip over the apron 43 until the notched section engages the first closed finger 34, at 44 in Fig. 2, or the first feed aperture may be located the equivalent of the space between the two holes in back of the lead end of the advancing or first record strip so that the closed or plain end of the pack engages the side of the first closed stud 44 so that upon further rotation of the platen 15 and a slight manual forward push of the pack the next finger which closes moves a stud 41 into the first feed aperture and thereafter the pile of strips is automatically pulled by the fingers 34 and studs 41 as the platen is rotated further, either manually or automatically, as hereinbefore pointed out.

Succeeding fingers move through the rise 38 of the cam groove 33 and are cammed thereby into engagement with the pile of strips 36 to move successive studs 41 into succeeding feed apertures 42 in the paper strips, and are maintained in this paper clamping position while the lever arm 31 rides in the outer dwell 39 until the arm rides in the fall 40 of the camming groove which serves

to automatically move the fingers and studs, one after another, out of engagement with the pile of strips, into the position shown in Fig. 3, approximately at the point where it is desired to lead the paper from the platen to a point of disposal or further use.

Thereafter, as the platen is rotated the arms 31 of succeeding fingers ride in the inner dwell 37 of the cam groove 33 to be maintained in the raised or inoperative position, as shown in Fig. 2, until they approach the feed side of the platen again whereupon the lobe or rise 38 of the groove serves to again cam the finger into engagement with the pile of paper strips. This is an extremely simple and efficient arrangement. No springs are needed to move the clamping fingers into either the operative or inoperative positions and because the finger 34 is yielding or resilient, no adjustment is necessary even though the thickness of the pile of strips or of the feeding band section 35 thereof vary considerably. Further, there is no tendency for the sprocket pins or studs 41 of the present invention to hold the pile of strips away from the platen as they initially engage with the platen, nor for the pins to continue to carry the paper around with the platen at the outlet side thereof as with solid sprocket wheel arrangements heretofore proposed.

With the feeding mechanism of the present invention the fingers 34 tend to move the paper 36 toward the platen as the paper is moved toward a working position or line of writing thereon, as shown by the arrow 45 in Fig. 2, and the uppermost closed finger 46 tends to hold the paper to the platen while the immediately advanced finger and the stud 41 carried thereby, shown by the arrow 47, is, under the influence of the fall 40, being removed from the paper strips.

If desired, the studs 41 may be omitted from the clamping fingers 34 and the latter used alone to hold the pile of paper strips to the platen during a portion of its rotation. The platen thus serves to take up some of the load or to frictionally seize the paper and pull it from the source of supply so that the full load is not imposed upon the clamping fingers. If this arrangement is used the flat underside 48 along of the finger 34 moves firmly into engagement with the top face of the feeding band 35 section of the pile of strips 36, to firmly engage it with the platen 15, and moves out of engagement with the platen at the outlet side under the influence of the fall 40 and inner dwell 37, as pointed out hereinbefore.

The length of studs 41 may be such that it touches the outer face of the platen just as the underside 48 of the spring arm engages the top face of the feeding band. Preferably, however, the studs are made slightly longer and the platen is provided with a circular row of apertures 49 to accommodate the point of the stud, as is shown in Figs. 2 to 4. Also, the studs may, as shown in Figs. 1 to 5, inclusive, be slightly larger in diameter than the feed apertures 42 so that they serve to centralize the feed apertures in the various strips and so that the studs rather than the fingers yieldingly force the pile of strips against the platen.

In the modified form of clamping finger 34 shown in Fig. 8, the stud 41*a* is substantially a straight round pin of the same diameter as the feed apertures 42, and slightly pointed at its outer end so that it passes through the feed apertures in the various superposed strips readily to positively align them relative to each other and the pointed section thereof passes into the apertures 49 in the platen which fits this form of pin and thereby takes up some of the pulling strain which might otherwise be fully imposed upon the yielding finger. With this form the resilient finger 34 is preferably arranged to engage the top face of the pile of strips to force them into solid engagement with the platen rather than to depend upon the stud 41 for accomplishing this function.

In the modification shown in Fig. 7, the lever 23*a* is preferably made solid like the arm 31 and a separate thin flat spring 50 with double spaced contacts 51 and 52 is provided to force the pile of strips 36 into firm engagement with the platen. The connection between the spring and the finger may be accomplished by having a shank 53 on the stud 41*a* made slightly longer than normal and then heading it over the top of the flat spring 50. This form is advantageous over the two forms heretofore described in that it may be more economically made for it is rather costly to make a lever 23 with a heavy arm 31 and a thin resilient finger 34. It has a further advantage when used with the form of stud 41*a*, shown in Fig. 8, by supporting the feeding web 35 of the pile of strips 36 on the platen to a point closer to the finger 47 and stud 41*a* which is being moved out of engagement therewith at the outlet side of the platen so that if there is a close fit between the stud 41*a* and the feed apertures 42 the resilient strap at 51 tends to pull the paper from the stud as the latter is moved to its inoperative position.

The modification shown in Fig. 9 shows the present invention applied to a writing machine of a somewhat different type wherein there is provided a stationary segmental platen 54 mounted upon a rotatable shaft 16 and provided with a rearwardly extending arm 55 adapted to be connected through a screw 56 to a crossbar 57 or other suitable stationary part of a machine frame or carriage (not shown) to prevent rotation of the platen with the rotatable shaft 16. The feeding mechanism 58 is otherwise substantially the same as the form shown in Figs. 1 to 6, inclusive, comprising a plurality of levers 23 pivotally mounted on studs 24 in plates 25 and 26 on a collar 59 which is fixed to the rotatable shaft with a set screw 60 to be rotatable therewith, and the cam plate 18 engages with arms 31 on the levers 23 to control the same. The cam plate extends rearwardly where it is fixed to the crossbar 57 similar to the connection between the platen 54, arm 55 and bar 57, or similar to the showing in Fig. 1.

With this form of the present invention the clamping finger 34 portion of the levers 23 are preferably provided with the form of stud 41*a* shown in Fig. 8, of substantially the same diameter as the feed apertures 42 in the paper strips 36 and adapted to pass through the entire pack, but the finger 34 is proportioned so that it does not clamp the paper. Also, the stationary platen is provided with a hub 61 underlying the feeding band 35 section of the paper strip 36 and instead being provided with a plurality of small apertures 49 adapted to receive the aligning studs 41, as shown in Figs. 1 to 4, inclusive, there is provided a continuous circular recess 62 adapted to clear the studs 41*a* and allow them to move in a circular path therearound.

In operating this form of the present invention the paper strip 36 is passed to the platen 54 from the introductory side of the machine, and as the

shaft 16 and connected feeding mechanism 58 are rotated the fingers 23 are rotated on their pivots 24 toward the hub 61 under the influence of the cam plate 18, as with the preferred form of the invention shown in Figs. 1 to 6, inclusive, and the stud 41a passes through the apertures 42 in the paper strips 36 and into the circular recess 62 to thereafter pull the paper strips over the stationary segmental platen 54 for successive lines of writing.

In some machines it may be preferred to use the segmental form of platen and yet retain the advantages of clamping the paper strip for rotation with the feeding means so that the full load is not borne by the feed apertures 42 in the paper strip 36. This may be accomplished with the modified form of the present invention in Fig. 10 which is similar to that form shown and described in connection with Fig. 9. It comprises a stationary segmental platen 63 mounted upon the rotatable shaft 16 and held against rotation by a rearwardly extending arm 64 connected to a crossbar 57 with a screw 65. The feeding mechanism 66 of this form of the invention comprises a sleeve 67 adapted to support the plurality of fingers 23 on pivot pins 24 between the pair of plates 25 and 26 for rotation with the shaft through the screw connection 60. The arms 31 portions of the levers 23 engage with the cam grooves 33 of the cam plate 18 which is fixed against rotation by a connection to the crossbar 57.

With this form of the invention the sleeve 67 is provided with an integral or interconnected collar 68 of such a diameter that its periphery is on a plane with a face 69 of the segmental platen 63 and of a width preferably substantially the same as the feeding band 35 section of the paper strips 36 used in the machine, and is provided with a groove 70 so that either the clamping fingers 34 shown in Figs. 1 to 6, the form shown in Fig. 7, or the form shown in Fig. 8 may be used and so that the paper strips may be clamped, as well as aligned, relative to the rotatable feeding mechanism and be drawn by the latter across the segmental platen.

Various forms of stud supporting or clearance apertures may be provided in the platen 15 or feeding mechanism 66 in place of the small apertures 49 shown in Figs. 1 to 4, inclusive, and the circular recesses 70 shown in Fig. 10. One such possibility is shown in Fig. 11 wherein the sleeve 67, of that form of the invention shown in Fig. 10, is provided with slots 71 adapted to permit the studs 41a to pass all the way through the paper strips 36 and part way into the sleeve. These slots may be made considerably wider than the stud diameter to serve merely as a clearance or may be made to engage the side of the studs 41a sufficiently to prevent undue strain being imposed upon the resilient or yielding clamping finger 34 portion of the levers 23. In Fig. 12 there is a somewhat similar modification showing a set of clearance apertures 72 extending longitudinally partially across the full platen 15 of that form of the invention shown in Figs. 1 to 8. Also, if desired, the circular grooves 62 and 70 shown in Figs. 9 and 10 may be used in the platen 15 of that form of the invention shown in Figs. 1 to 6, inclusive.

Other variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new and for which it is desired to obtain Letters Patent, is:—

1. In a typewriting machine a rotatable platen adapted to support a paper strip at the line of writing of the machine, said paper strip having a longitudinally extending row of feed apertures and said platen having a circular row of apertures spaced substantially like the paper strip apertures; a plurality of fingers pivotally mounted on the platen for rotation therewith and for movement toward and from the platen and the paper strip carried thereby; studs on the fingers; and means for automatically moving said fingers seriatim toward the strip paper on the platen and the studs on said fingers into engagement with the feed apertures in the strip paper and into the platen apertures as the platen and fingers carried thereby are rotated toward the line of writing.

2. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine; a plurality of fingers mounted for rotation with the platen and pivotally mounted for movement toward and from the platen and the paper strip carried thereby; and means for automatically moving said fingers seriatim toward the paper strip on the platen as the platen and fingers are rotated toward the line of writing.

3. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine; a plurality of yielding fingers mounted for rotation with the platen and pivotally mounted for movement toward and from the platen and the paper strip supported thereby; and means for automatically moving said fingers seriatim into yielding engagement with the paper strip on the platen to clamp the paper thereon as the platen is rotated.

4. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine, said paper strip having a longitudinally extending row of feed apertures and the platen having a circular row of apertures therein spaced substantially like the paper strip feed apertures; feeding means for the paper strip including a plurality of studs normally free of the apertures in the platen and mounted for rotation coordinately with the platen and for movement toward and from the platen and the paper carried thereby; and means for automatically moving said studs into engagement with the apertures in the strip paper on the platen and into the platen apertures as the platen and studs are rotated toward the line of writing.

5. In a typewriting machine a rotatable platen, adapted to support a paper strip having a longitudinally extending row of feed apertures, and the platen having a circular row of apertures spaced correspondingly with the paper strip apertures; a plurality of studs; means for pivotally mounting said studs on the platen, adjacent the apertures therein, for rotation with and for movement toward and from said platen and the paper carried thereby; and means for automatically moving said studs into engagement with the apertures in the strip paper and apertures in the platen as the platen and studs are rotated toward the line of writing.

6. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine, said paper strip having a longitudinally extending row of feed apertures and said platen having a circular row of apertures underlying the paper strip apertures; a plurality

of fingers mounted for rotation with and for movement toward and from the platen and the paper strip carried thereby; studs on the fingers; and a stationary plate having a channel therein adapted to cooperate with the fingers and automatically move them seriatim into and out of engagement with the strip paper on the platen and move the studs carried thereby into and out of engagement with the apertures in the strip paper and apertures in the platen as the platen and fingers carried thereby are rotated toward the line of writing.

7. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine; a plurality of fingers for clamping said paper on the platen, spaced around and mounted for rotation with the platen and for movement toward and from the platen and the paper strip carried thereby; and a plate having a channel therein adapted to cooperate with the fingers to automatically move them seriatim into and out of paper clamping position as the platen and the fingers carried thereby are rotated toward and from the line of writing.

8. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine, said paper strip having a longitudinally extending row of feed apertures and said platen having a circular aperture underlying the paper strip apertures; a plurality of fingers spaced around and mounted for rotation with the platen and for movement toward and from the platen and the paper strip thereon; studs on the fingers; and a cam adapted to cooperate with the fingers and automatically move them seriatim into and out of engagement with the strip paper on the platen and move the studs carried thereby into and out of engagement with the apertures in the strip paper and aperture in the platen as the platen and fingers carried thereby are rotated toward and from the line of writing.

9. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine; a plurality of fingers for clamping said paper on the platen, mounted for rotation with the platen and pivotally mounted for movement toward and from the platen and the paper strip carried thereby; and a cam adapted to cooperate with the fingers to automatically move them seriatim into and out of paper clamping position as the platen and the fingers carried thereby are rotated toward and from the line of writing.

10. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine, said paper strip having a longitudinally extending row of feed apertures and said platen having an aperture underlying the paper strip apertures; a plurality of fingers spaced around and mounted for rotation with the platen and for movement toward and from the platen and the paper carried thereby, for clamping said paper on the platen; studs on the fingers; and a cam adapted to cooperate with the fingers and automatically move them seriatim into and out of clamping engagement with the strip of paper on the platen and move the studs carried thereby into and out of aligning engagement with the apertures in the strip paper and aperture in the platen.

11. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine, said paper strip having a longitudinally extending row of feed apertures and said platen having a circular row of apertures spaced substantially like the paper strip apertures; a sprocket mechanism adapted to clamp the paper strip to the platen and to pass through said feed apertures in the strip paper to align the paper and insure coordinate movement with the platen; and means for rendering said sprocket mechanism operative for clamping the paper to the platen and aligning the paper relative thereto through a predetermined section of its periphery and as it is rotated toward the line of writing.

12. In a typewriting machine a rotatable platen, adapted to support a paper strip at the line of writing of the machine, said paper strip having a longitudinally extending row of feed apertures and said platen having a circular row of apertures spaced substantially like the paper strip apertures; a sprocket mechanism exteriorly of the platen mounted for rotation with and for movement toward and from the platen, and adapted to pass into said feed apertures in the platen to align the paper and to insure coordinate movement with the platen; and means for rendering said sprocket mechanism operaive relative to the platen and the paper thereon through a predetermined section of its periphery and as it is rotated toward the line of writing.

13. In a writing machine a feed roller, adapted to support a paper strip having a longitudinally extending row of feed apertures; means exterior of the feed roller and beyond the ends thereof adapted to rotate therewith and to move toward the feed roller and toward the paper strip thereon; studs on said means adapted to move into the paper feed apertures in the paper strip when said means is moved toward the feed roller; and means for automatically moving said first-named means during a predetermined portion of the rotation of the feed roller.

14. In a writing machine a main feed roller for advancing a paper strip, said paper strip having a longitudinally extending row of feed apertures and the feed roller having a circular row of apertures spaced substantially similar to the paper strip feed apertures; a plurality of studs; means for mounting said studs for rotation with and for movement toward and from said main feed roller to pass through the paper strip apertures and into the apertures in the main feed roller for aligning the paper relative thereto and clamp it thereon; and other means for automatically moving said studs toward and from the paper strip on the platen as the platen is rotated.

15. In a writing machine having a platen to support a paper strip provided with a marginal longitudinally extending row of feeding apertures; paper feeding means including a backing member; a plurality of arcuately spaced studs rotatably mounted for movement about the axis of the backing means said studs being spaced correspondingly with the feeding apertures in the strips and being individually mounted for movement through said apertures inwardly toward and outwardly from the paper strip and the backing member; and means for so moving the studs automatically at predetermined places in their rotation about the axis of the backing member.

16. In a writing machine a platen adapted to support a paper strip having a marginal longitudinally extending row of feed apertures; a roller for advancing said paper; a plurality of arcuately spaced studs mounted for rotation with and for movement toward and from said roller; and

means for automatically moving said studs from a location remote from the area covered by the paper on the platen into aligning and pulling engagement with the paper strip apertures at predetermined stations in the rotation of the roller.

17. In a writing machine a platen adapted to support a paper strip having a marginal longitudinally extending row of feed apertures; a feed roller for advancing said paper; a plurality of studs; means for mounting said studs for rotation with said feed roller and for movement toward and from the feed roller and the paper strip thereon; means for automatically moving said studs into and out of engagement with the paper strip apertures seriatim at a predetermined station in the rotation of the main feed roller; and a double contact spring carried by said stud and adapted to maintain the paper in firm engagement with the main feed roller at a point close to where the immediately advanced stud is being automatically moved from the feed aperture in the strip paper by said automatic means.

18. In a typewriting machine, a rotatable platen adapted to support paper strips having marginal feed-controlling apertures; and a plurality of studs mounted exteriorly of the platen for rotation therewith and for movement toward the paper and the platen, said studs having a basal dimension greater than the dimension of the apertures in the paper so that the studs not only enter the apertures in the paper but engage the walls of the apertures and by such engagement hold the paper against the platen.

19. A device for printing on positively driven stationery, comprising in combination, a platen, holding means associated with the platen for pressing the paper against the surface of the platen, and instrumentalities for causing the holding means, the stationery, and the platen to positively move together during feeding, whereby the holding means will not drag on the stationery during the process of feeding.

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