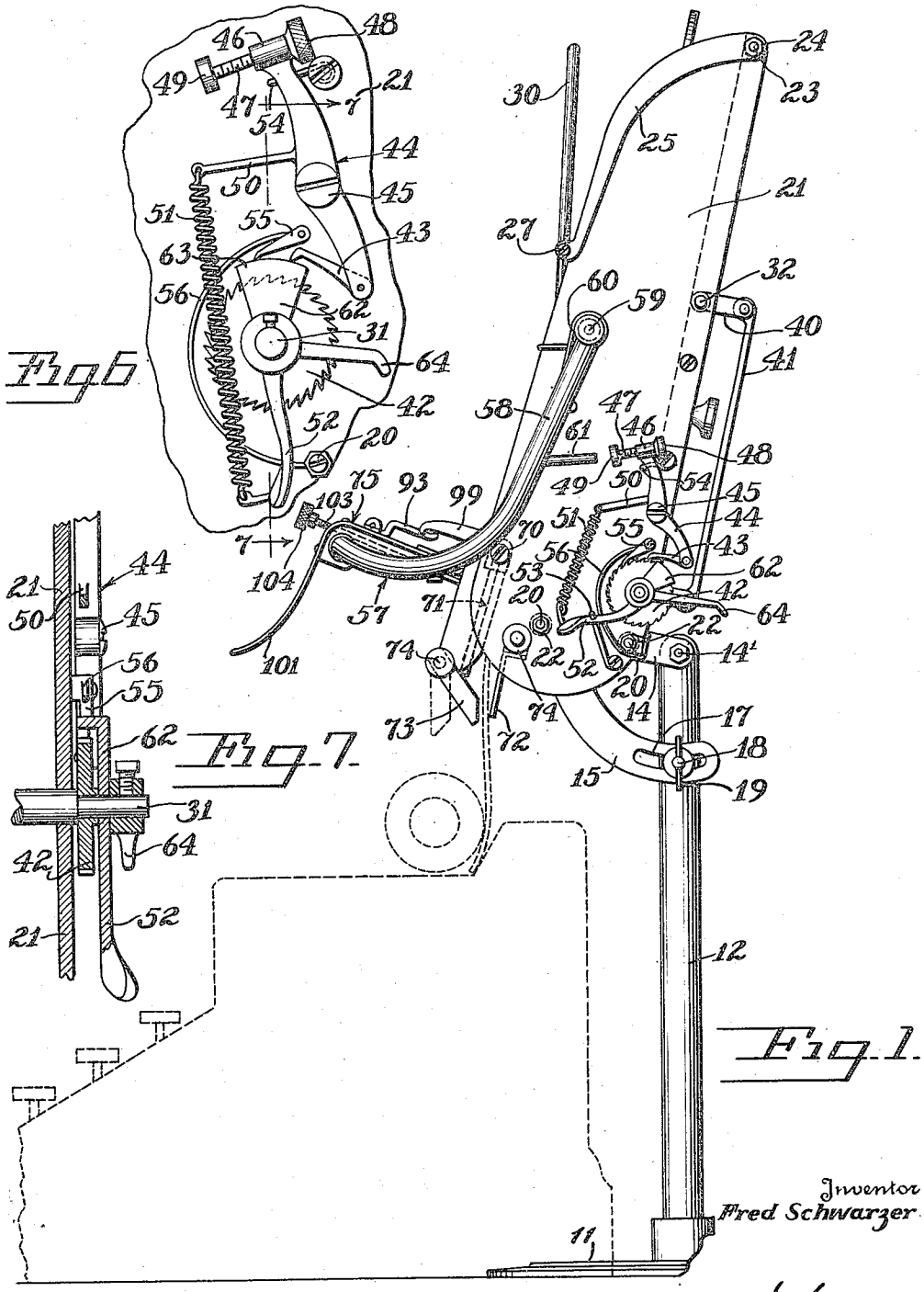
March 13, 1951 F. SCHWARZER 2,545,387

PAPER FEEDING DEVICE

Filed Sept. 19, 1946 4 Sheets-Sheet 1



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PAPER FEEDING DEVICE

Filed Sept. 19, 1946 4 Sheets-Sheet 2

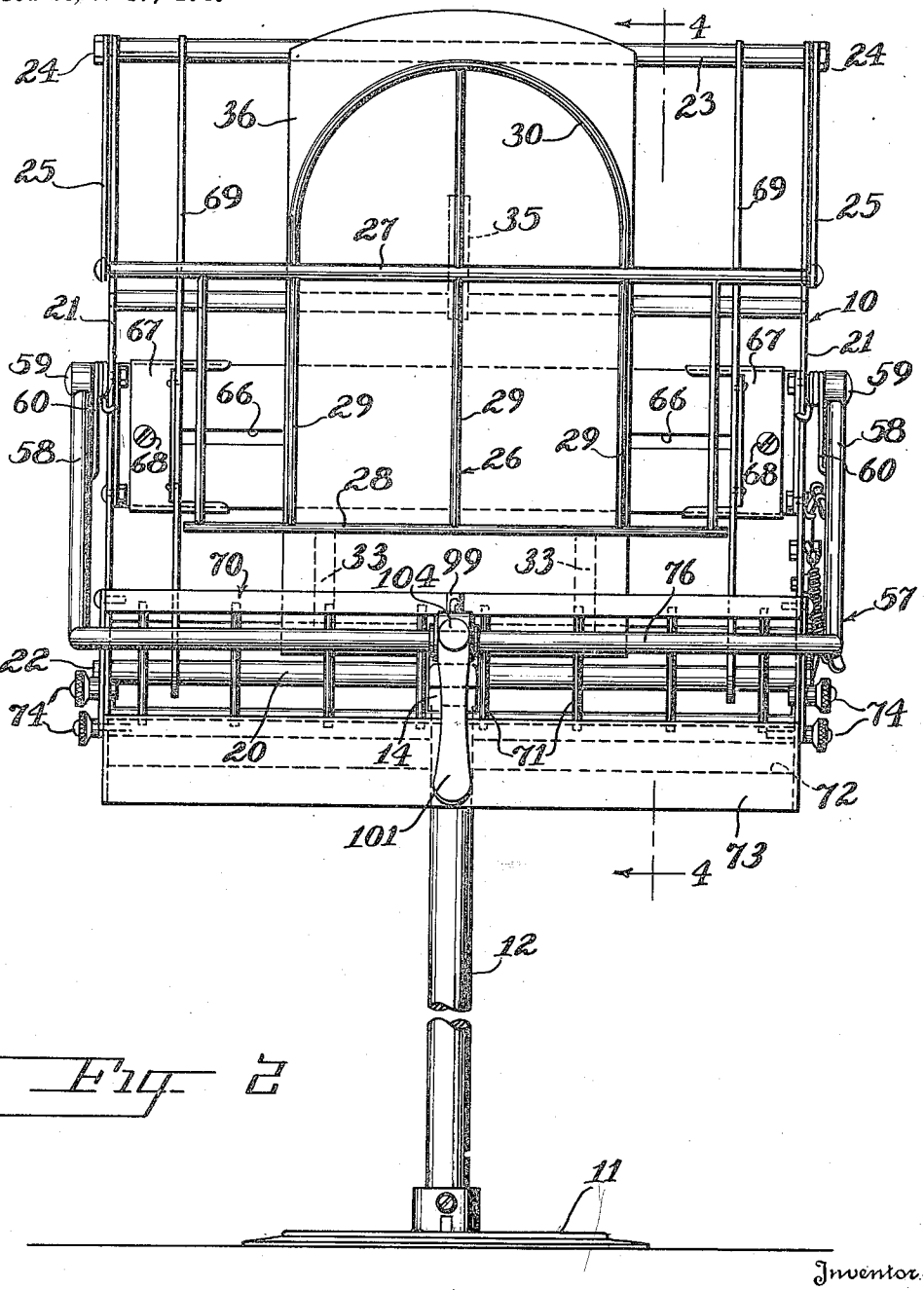


Fig. 2

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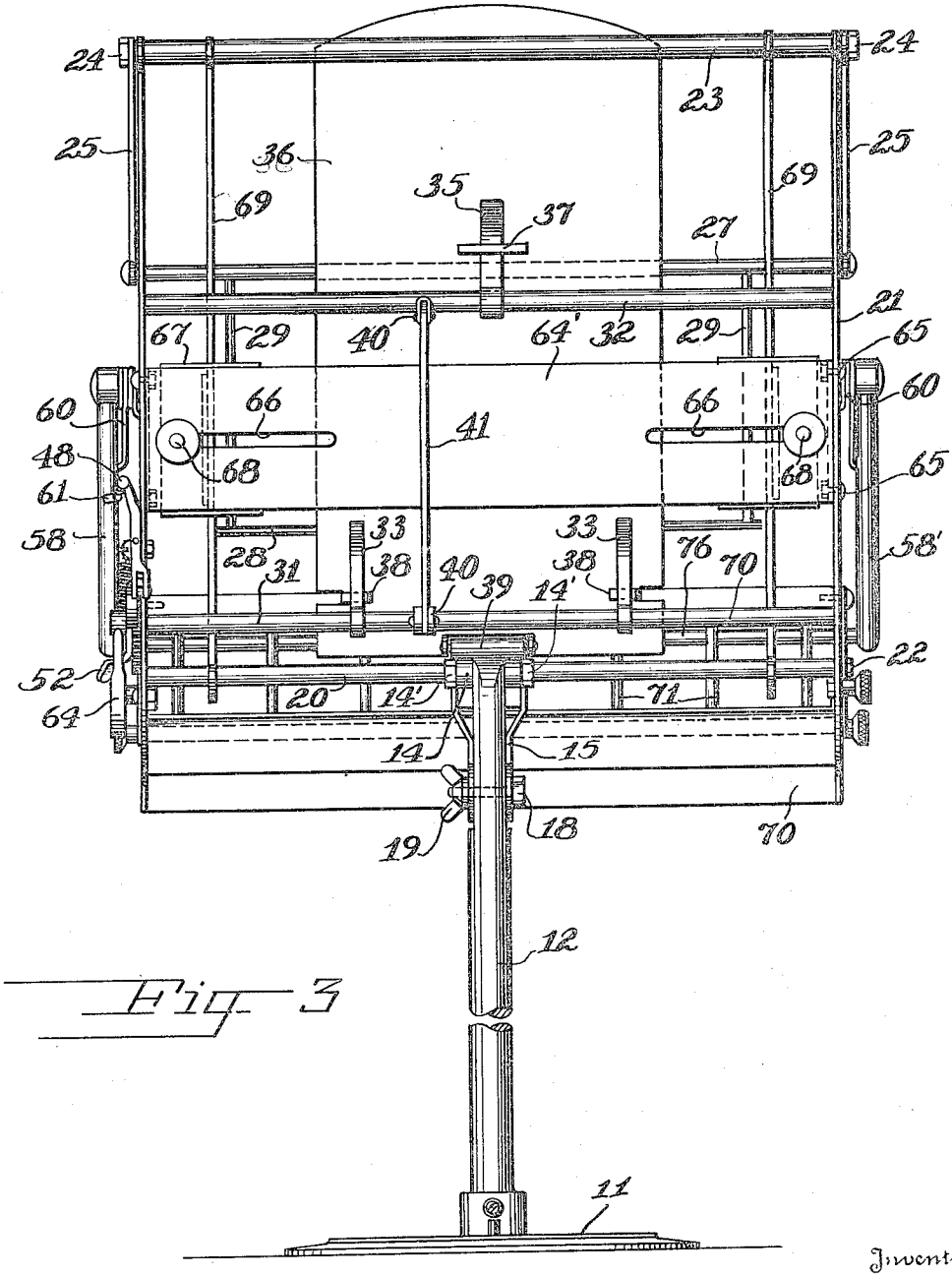


Fig 3

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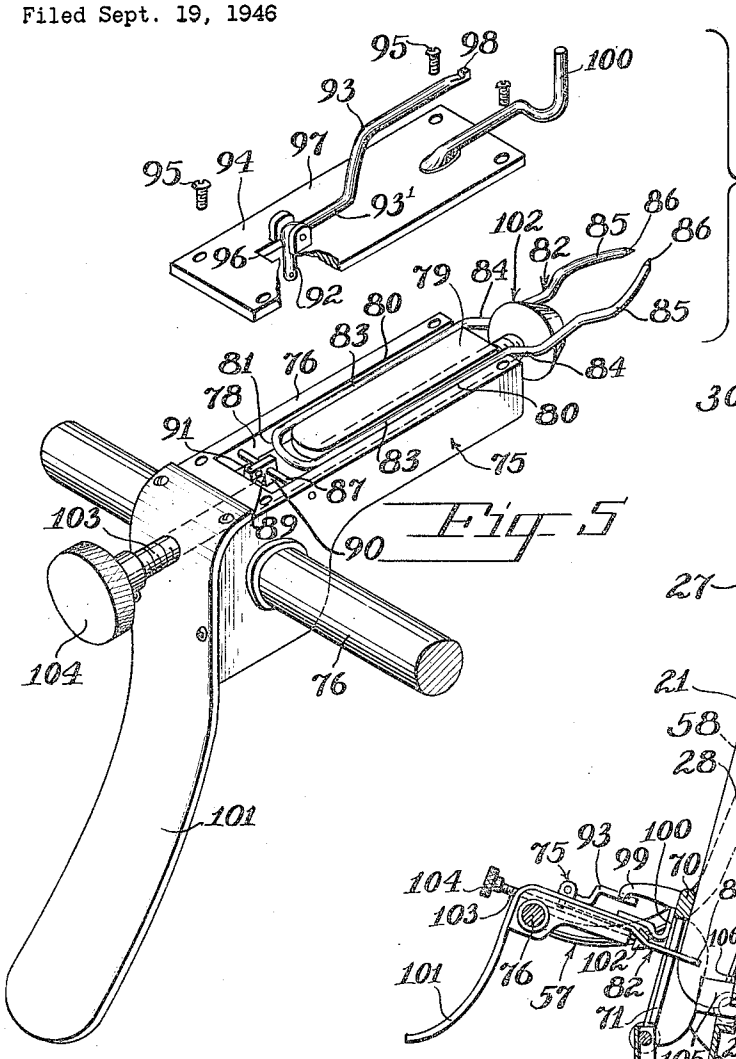


Fig 5

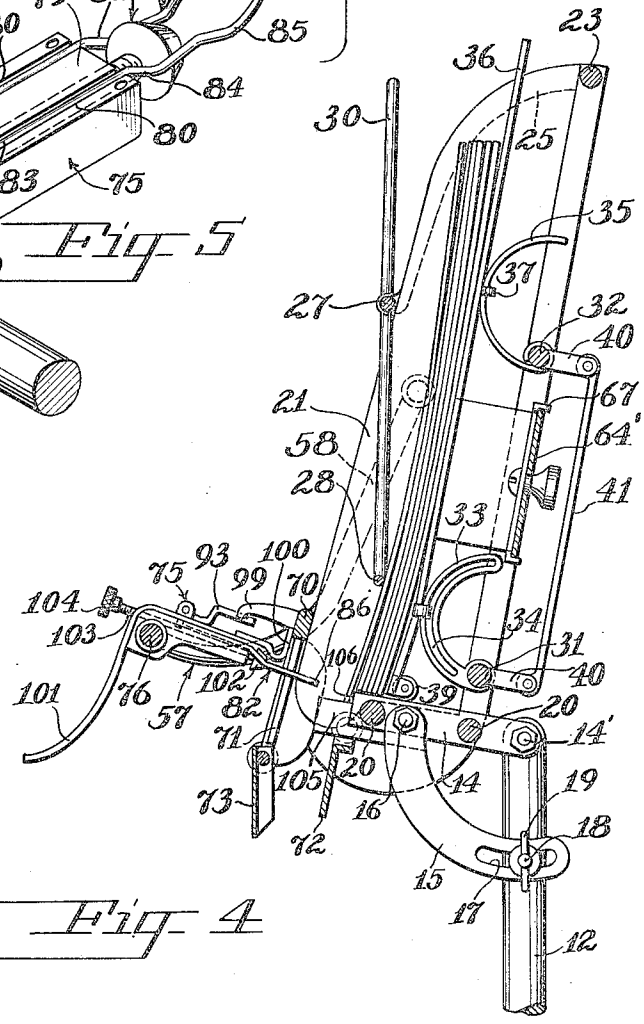


Fig 4

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UNITED STATES PATENT OFFICE

2,545,387

PAPER FEEDING DEVICE

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Application September 19, 1946, Serial No. 698,001

23 Claims. (Cl. 271—18)

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This invention relates to a paper feeding device and it consists in the constructions, arrangements and combinations herein described and claimed.

It is an important object of the invention to provide a paper feeding means for use in conjunction with typewriters, billing and similar machines in which manipulation of a single lever effects delivery of an individual sheet of paper, manifold form or the like to the platen of the typing machine.

It is a still further object of the invention to provide a novel construction of sheet or manifold form gripping means, insuring extraction of but a single sheet or form for deposit in the typing machine.

It is a still further and important object of the invention to provide a novel construction of supporting rack for sheets of paper or manifold forms in which a follower device is automatically advanced to bring the sheets or forms into a discharge position upon actuation of a material gripping lever, as well as to provide a simple yet quickly operable means for returning the follower to its initial retracted position for refilling purposes.

Additional objects, advantages and features of invention will be apparent from the following description, considered in conjunction with the accompanying drawings, wherein

Figure 1 is a side elevation of the device employed in conjunction with a typewriter.

Figure 2 is a front elevation of the feeding device.

Figure 3 is a rear elevation thereof.

Figure 4 is a vertical section on the line 4—4 of Figure 2.

Figure 5 is a view in perspective illustrating the sheet gripping means, the cover being removed to illustrate interior parts thereof.

Figure 6 is a fragmentary side elevation of the ratchet release to permit forward or rearward movement of the follower.

Figure 7 is a vertical section on the line 7—7 of Figure 6.

There is illustrated a paper feeder generally indicated by the reference character 10, comprising a suitable foot or support means 11 for mounting of an upright 12 of suitable height so as to dispose the feeder 10 at a proper position above the platen of a typing machine 13 indicated in dotted lines in Figure 1.

Upon the upper end of the upright 12 a combined mounting and follower guide block 14 is hingedly connected as at 14' extended substantially at right angles thereto and intermediate the length of said block respective arcuate shaped arms 15 are pivotally connected as at 16. The arms 15 are spaced apart the width of the block and lie upon opposite sides of the upright 12. The arms are each provided with a bolt 18 mounted in the upright 12, the arms being secured frictionally thereagainst by a wing or other nut 19. Thus, by loosening the nut 19 the block 14 may be angularly adjusted with respect to the upright, as may be required to properly adjust the device with respect to a typing machine.

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As best seen in Figures 2 and 4 a pair of rods 20 are mounted in the block 14 extending transversely therefrom, the outer ends of the rods being of reduced diameter and threaded. Respective side plates 21 are suitably apertured to receive the reduced ends of the rods, the plates being held in rigid spaced relation by means of nuts 32 engaged upon the threaded ends of the rods. An additional rod 23 is secured between upper portions of the side plates and similarly secured by nuts 24, these rods also swingably mounting respective arms 25 for a purpose presently to be explained. The arms 25 extend downwardly beside respective plates 21, the lower ends being provided with aligned apertures for swingably mounting a paper holding means 26. The paper holding means 26 consists of an upper horizontal bar 27 pivotally connected in the apertures of the arms 25 and a lower horizontal bar 28. The bars 27 and 28 are connected by vertical rods 29 spaced apart so as to provide clear vision of material to be placed in the feeder device, as well as to provide weight so as to maintain the material in proper position, which is further assured by reason of the location of the rod 27 above the vertical center of the holding means. As may be seen in Figure 4, the lower bar 28 will always be urged by gravity toward the rear of the feeder device, thus holding the material in neat stacked formation as will be required. Above the bar 27 a loop 30 is formed which functions as a hand grip for elevating and swinging the holding means 26 to a position rear of the device, the swinging movement occuring about the shaft 23.

Between the side plates 21 a pair of rods 31 and 32 are oscillatably mounted, the rod 31 being located at a low point of the plates while the rod 32 is positioned at a point above the medial portion of the plates. Securely fixed to the rod 31, equally spaced from the vertical axis of the device (see Figures 3 and 4) there are a pair of arcuate-shaped levers 33, each lever having a slot

34 for the major portion of their lengths. Upon the rod 32 an arcuate-shaped lever 35 is secured, positioned medially of the rod 32. The levers 33 and 35 mount a follower plate 36 as will now be described, attention being invited to Figures 3 and 4.

Upon the rear face of the follower plate 36 a horizontally disposed loop 37 is fixed, positioned medially thereof and through which the lever 35 is disposed, the arcuate face of the lever 35 resting against the plate. The vertical edges of the follower plate 36 are provided with inwardly turned tongues 38 disposed in respective slots 34 of the levers 33, the arcuate face of these levers likewise contacting the rear face of the follower plate 36.

The follower plate 36 is provided at its lower horizontal edge with a supporting roller 39 adapted to traverse the upper face of the guide block 14.

In order to effect a synchronized movement of the rods 31 and 32 to provide movement of the follower plate, each rod is provided with a rearwardly offset arm 40 connected by a link 41.

The shaft 31 effects movement of the follower plate 36 and outwardly of the right hand side plate 21 as viewed from the front, a ratchet gear 42 is keyed or otherwise secured, actuated in a counterclockwise direction through a pawl 43. The pawl 43 is swingably mounted upon the lower end of a lever 44, the latter being pivotally mounted intermediate its length on the side wall 21, as at 45. The upper end of the lever 44 is formed with a threaded sleeve 46 through which there is engaged an adjusting screw 47 having an operating head 48 and an impact receiving head 49.

A short distance above the pivot 45 of the lever 44, the latter is formed with an arm 50 extended forwardly and substantially at right angles to the lever and terminating in an eye for securement of one end of a helical spring 51. The other end of the spring 51 is anchored to a lever 52 oscillatably mounted on the shaft 31. The spring 51 is held under a slight tension by means of a stop 53, anchored to the side wall and having an extension overlying the lever 52, while a detent 54 anchored to the side wall holds the lever 44 against forward swinging movement.

A holding pawl 55 is pivotally mounted on the wall 21, spring pressed as at 56, so as to engage the teeth of the ratchet gear 42.

A substantially U-shaped lever 57 for actuating the pawl 44 is employed, respective side arms 58—58' being pivotally connected to respective side plates 21, as at 59. Each of the arms 58 and 58' are held in forward elevated positions by means of a spring 60. The arm 58 has a rearwardly directed lug 61 aligned with and adapted to impact the head 49 associated with the lever 44 upon inward swinging movement of the lever 57.

It will be understood that as the lever 57 is moved inwardly beyond the side plates 21, the lug 61 will engage the head 49 effecting a rearward movement of the upper end of the lever 44 with a consequent forward movement of the lower end of the lever. The pawl 43 being mounted on the lower end of the lever 44 counter-clockwise movement will be given the gear 42 and the shaft 31. Upon rotation of the shaft 31 it will be seen that the arcuate levers 33 and 35 will be moved so as to advance the follower plate 36 toward the front of the device and any papers or manifolds supported thereby will be correspondingly advanced for discharge to the platen of a typing machine, as will be described hereinafter.

With the adjusting screw 47 set as shown in Figure 1, actuation of the pawl 44 will advance the gear 42 one tooth. However, by retracting the screw, thus increasing the stroke of the lever 57, the gear may be advanced two or more teeth. Obviously, this adjustment is necessary to accommodate sheets of paper or manifolds which will vary as to thickness.

Repeated manipulation of the lever 57 will advance the follower to its full forward movement and it is then necessary to release the pawls 43 and 55 in order that the follower plate 36 may be returned to its rearward position for deposit of additional paper sheets, manifolds or the like. This is accomplished by the lever 52, attention now being invited particularly to Figures 6 and 7, for an understanding thereof. The lever 52 has an integral extension 62 carrying an arcuate plate 63 concentric with the periphery of the gear 42. The plate 63 normally occupies a position shown in Figure 1 rearwardly of the pawl 43. When it is desired to release the pawls 43 and 55, the lever 52 is moved toward the rear advancing the plate 63 beneath the pawls which will then rest upon the plate as shown in Figures 6 and 7. The shaft 31 may then be rotated by means of a lever 64 which is fixed thereto. Obviously, the lever 64 may be rotated so as to advance or retract the follower.

A transverse plate 64' is connected between respective side plates 21 by bolts 65 or otherwise. The plate 64' is formed with respective slots 66 adjacent the ends for adjustably mounting paper or manuscript guides 67. The guides 67 are in the form of channel members of a width to receive the plate 64' therebetween, each channel member having a bolt 68 slidable in respective slots 66 and a thumb nut for securing the guides in an adjusted position. The guides 67 also include a right angular plate 69 apertured at the ends to slide upon rods 20 and 23. The plates 69 may thus be adjusted toward or away from the vertical center of the device to accommodate different width of paper or manifolds.

A sheet or manifold directing means 70 is rockably mounted between the walls 21 consisting of a rod having a plurality of depending fingers 71 movable to vary the throat opening between guide plates 72 and 73 which are adjustably mounted on the device. It will be seen that the means 70 and the plates 72 and 73 may be adjusted so as to properly direct material to the platen of a typing machine. As shown, a bolt and thumb nut 74 is employed to maintain the guide plates in an adjusted position.

From the descrption thus far given it will be seen that by manipulating the lever 57 the follower plate 36 will be advanced toward the front of the machine and in order that a single sheet or manifold may be removed from the advancing pack, a sheet-manifold gripping mechanism 75 is employed actuated by inward swinging movement of the lever 57.

As best seen in Figure 5, the bight portion 76 of the U-shaped lever has mounted medially thereof an elongated body 77, the upper face of which is provided with a channel 78 adjacent the rear part of the body, the forward portion of the channel being longitudinally divided by a block 79 of a width such as to define a pair of parallel grooves 80, the latter opening upon the rear end of the body 76. The inner end of the block 79 is preferably rounded corresponding to the bight portion

81 of a sheet gripping means 82, now to be described.

The sheet gripping means 82 is formed from a strand of steel wire of suitable length bent intermediately thereof to form the bight portion 81, thus providing a pair of parallel legs 83. The wire is of a diameter considerably less than respective grooves 80, and the legs are of a length stopping short outwardly of the open ends of said grooves, where the wire forming the legs is bent outwardly at an angle as indicated at 84. The wire is then continued in substantially parallel relation for a distance and finally given a slight arcuate shape, as at 85, the terminal ends of the wire being pointed at 86 for the purpose of gripping a sheet of paper, manifold or the like. It will be noted that the curve of the arcuate portions 85 are arranged in opposed relation, thus presenting the pointed ends 86 toward the medial longitudinal axis of the body. The terminal ends of the wire may be properly termed gripping fingers.

Within the channel 78 forwardly of the bight 81, a shaft 87 is mounted to which there is rockably secured a small bell crank lever 89, one leg 90 of which extends downwardly in the path of the bight portion 81. The other leg 91 is apertured for pivotal connection with a lug 92 of a resetting lever 93, now to be described.

A cover plate 94 is employed to close and secure the gripping means 82 within the channel and grooves of the body member and as shown, this is accomplished by machine screws 95. The cover plate is slotted as at 96, permitting swinging movement of the lug 92 and leg 91 and beside the longitudinal edges of the slot a pair of upstanding apertured ears 97 are formed for pivotally mounting the lever 93.

The lever 93 extends medially and longitudinally of the cover and is approximately the same length, a portion 93' of which rests upon the cover. The lever is upwardly offset and the end thereof is provided with an upstanding bill 98 which normally engages a catch 99 secured to the rod 70 of the machine as may be seen in Figures 1 and 4. The bill 98 and catch 99 are held in engagement due to action of springs 60 associated with arms 58 and 58'.

Upon the cover 94 an upright lug 100 is secured of a height so as to engage the bar 70 to effect inward swinging movement of the depending fingers 71, these fingers acting to guide a sheet of paper, manifold or the like to the opening between the guides 72 and 73.

An operating handle 101 is secured to the forward portion of the body 75 and is substantially broad and suitably curved to present an ample surface whereby pressure of an operator's hand will impart swinging movement to the lever 57.

In order that the spacing of the gripping fingers 86 may be varied to effectively grip paper and manifolds of different thicknesses, there is provided a cam 102 disposed between the legs 83 substantially at the angle portions 84. The cam is mounted upon one end of the screw-threaded rod 103 extended through a threaded bore of the body extending longitudinally and medially thereof, the other end terminating at a convenient point adjacent the handle 101 and having a knurled operating head 104. It will be apparent that by retracting the cam 102, the fingers 86 may move toward each other and properly spaced for gripping thin sheets, while advancing the cam the fingers will be moved away from each other providing a proper spacing for gripping heavier sheets or manifolds.

It is essential that a suitable backing means is provided for a sheet or the like, at the time that the gripping fingers 86 function, and as clearly shown in Figure 4, the block 14 mounts an anvil 105 at its forward end. The anvil 105 is at a lower level than the block 14 affording a shoulder 106 against which a sheet or manifold may rest at the time that the fingers 86 engage the sheet or manifold.

The operation of the gripping mechanism 75 is substantially as follows: the apparatus being properly positioned to the rear of a typing machine with the gripping fingers 86 adjusted to the thickness of the material to be transferred to the typing machine. The material is placed in the machine so as to rest against the follower plate 36, as shown in Figure 4.

The operator now merely exerts inward pressure upon the handle 101, thus moving the arms 58 and 58' inwardly beside the plates 21. The gripping mechanism being carried by said arms, the fingers 86 will be carried forwardly in the direction of the shoulders 106 of the anvil, and since a sheet of material was advanced to a position in front of the shoulder, the pointed ends of the fingers 86 will slightly penetrate the material. At the time of contact with the material the fingers 86 will move backwardly into the grooves 80 bringing the angled portions 84 of the legs into the grooves. Thus the ends of the fingers 86 move toward each other and compress that portion of the material therebetween. As the fingers move backwardly through the grooves the bight 81 strikes the leg 90 of the bell crank, effecting swinging movement of the leg 91 and imparting an upward swinging movement of the lever 93 so as to be in position to engage the lug 92 and catch 99 on return movement of the lever 57. When pressure on the handle 101 is released, the springs 60 urge the lever 57 back to its normal raised position. At the time of engagement between the lug 92 and catch 99 the bell crank will likewise be returned to normal position, the leg 89 acting on the bight 81 to force the fingers 86 to their forward positions effecting release of the material engaged thereby.

When the gripping mechanism was moved forwardly the upright lug 100 engaged the bar 70 and partially rotated it to present the fingers 71 into the path of material to be released from the gripping fingers, thus guiding the material into the throat of the guide plate 72 and 73 for discharge onto the platen of the typing machine. The fingers 71 will be moved to normal position by reason of the inter-engagement between the lug 98 and the catch 99.

It will be understood that upon each actuation of the lever 57, the follower plate 36 will be advanced through actuation of the ratchet 42 and pawl 43 as previously explained, so as to advance material to the operative point of the gripper fingers. When the supply of material is exhausted, and it is desired to replenish the machine it is only necessary to exert a backward pressure on lever 52 so as to release the pawls 43 and 55, when the lever 64 is actuated to rotate the shaft 31 in the proper direction to retract the follower plate.

While I have shown and described a preferred embodiment of my invention, this is by way of illustration only, and I consider as my own all such modifications in construction as fairly fall within the scope of the appended claims.

I claim:

1. A sheet feeding device comprising an up-

right frame, sheet guiding means at the front of the frame, an upright follower plate within said frame and movable in the direction of said sheet guiding means, a lever swingably mounted on said frame, said lever having a sheet gripping and releasing means for discharge into said sheet guiding means, and means operatively associated with said follower plate and engageable by said swinging lever for advancing said follower plate forwardly in incremental stages when said lever is swung forwardly to engage said follower plate advancing means.

2. A sheet feeding device comprising an upright support, an upright frame adjustably mounted on said support, a pair of sheet guiding means at the front of the frame, said sheet guiding means opening downwardly and being adjustable toward each other, an upright follower plate within said frame and movable in the direction of said sheet guiding means, a lever swingably mounted on said frame, said lever having a sheet gripping and releasing means for discharge into said sheet guiding means upon swinging movement of the lever in one direction, and means operatively associated with said follower plate and engageable by said swinging lever for advancing said follower plate forwardly in incremental stages when said lever is swung forwardly to engage said follower plate advancing means.

3. A sheet feeding device comprising an upright support, an upright frame adjustably mounted on said support, a pair of sheet guiding means opening downwardly and being adjustable toward each other, an upright follower plate within said frame and movable in the direction of said sheet guiding means, a lever swingably mounted on said frame, said lever having a sheet gripping and releasing means for discharge into said sheet guiding means upon swinging movement of the lever in one direction, a pair of shafts carried by the frame extended transversely behind said follower plate, arcuate shaped levers carried by said shafts and operatively connected to said follower plate, a ratchet carried by one of said shafts, a pawl and lever mounted on said frame, said pawl being in operative engagement with the ratchet gear, a second pawl on the frame and in engagement with the ratchet to hold the latter against rotation in one direction, lever means connected between said shafts for imparting simultaneous oscillation of the shafts, and means on said first named lever for effecting movement of said second named lever and said ratchet gear.

4. The structure of claim 3 in which the shaft having the gear further includes a lever fixed to the shaft for manual oscillation thereof and a freely movable lever, the latter having an extension transversely of said ratchet and concentric therewith and movable beneath each of said pawls for release of said ratchet gear, and spring means for holding the freely movable lever in inoperative position.

5. A sheet feeding means comprising an upright support, an upright frame adjustably mounted on said support, a pair of sheet guiding means at the front of the frame, said sheet guiding means opening downwardly and being adjustable toward each other, an upright follower plate within said frame and movable in the direction of said sheet guiding means, sheet holding means pivotally mounted on said frame including a bar member movable under action of gravity toward said follower plate, a lever swingably mounted on said frame, said lever having a sheet gripping and releasing means for discharge into said sheet guiding means upon swinging movement of the lever in one direction, an anvil on said frame in the path of said sheet gripping and releasing means, and cooperable therewith to effect gripping of a single sheet advanced by said follower plate, a pair of shafts carried by the frame extended transversely behind said follower plate, arcuate shaped levers carried by said shafts and operatively connected to said follower plate, a ratchet gear fixed on one of said shafts, a pawl and lever mounted on said frame, said pawl being in operative engagement with the ratchet gear, a second pawl on the frame and in engagement with the ratchet gear to hold the latter against rotation in one direction, lever means connected between said shafts for imparting simultaneous oscillation of the shafts, and means on said first named lever for effecting movement of said second named lever and said ratchet gear.

6. A sheet feeding device comprising an upright support, a support and guide block adjustably mounted upon said support, said block having a downwardly offset front end forming a sheet rest and anvil, an upright frame carried by said block, a pair of sheet guiding means at the front of the frame, said sheet guiding means opening downwardly and being adjustable toward each other, an upright follower plate within the frame and movable in the direction of said sheet guiding means, sheet holding means pivotally mounted on said frame including a bar member movable under action of gravity toward said follower plate, a pair of oscillatable shafts mounted in the frame extending transversely behind said follower plate, arcuate shaped levers carried by the shafts and operatively connected to said follower plate, a ratchet gear fixed on one of said shafts, a pawl and lever mounted on said frame, said pawl being in operative engagement with the ratchet gear and said lever being under spring tension and having an adjustable impact head, a spring tensioned pawl on the frame and in engagement with the ratchet gear to hold the latter against rotation in one direction, lever means connected between said shafts for imparting simultaneous oscillation of the shafts, means on the gear-carried shaft for releasing both of said pawls, a manually actuated lever on said shaft for oscillating the same and a spring-tensioned U-shaped lever having arms pivotally mounted upon respective sides of the frame, one of said arms having a rearwardly projecting lug for contacting said impact head upon inward swinging movement of the U-shaped lever, and a sheet gripping means on the U-shaped lever consisting of spring fingers adapted to penetrate a sheet or the like positioned in advance of said anvil.

7. A sheet gripping device for use with a paper feeding device wherein upright sheets are advanced forwardly within a supporting frame, a spring tensioned U-shaped lever pivotally mounted upon the sides of the frame, an elongated body member positioned medially of the bight portion of the U-shaped lever, said body having a pair of retractable spring gripping fingers adapted to penetrate and compress the paper between the ends of said fingers upon contacting engagement with paper in advance of an anvil on the frame, and means for projecting said fingers upon outward swinging movement of the U-shaped levers.

8. The structure of claim 7 in which the means for projecting said fingers consists of lever means

within the body in contacting engagement with said retracted fingers, a swinging lever outwardly of the body and operatively connected to said lever means and a catch means on the frame cooperable with the swinging lever to impart swinging movement of said lever means.

9. A sheet gripping device for use with a paper feeding device wherein upright sheets are advanced forwardly within a supporting frame, a spring tensioned U-shaped lever pivotally mounted upon the sides of the frame, an elongated body member positioned medially of the bight portion of the U-shaped lever, said body having a channel formed therein, a block in the channel for the major portion of its length and defining a pair of parallel spaced grooves opening upon the end of the body, a gripping finger disposed in each groove and projecting therefrom and having a connecting part within said channel, the projecting portions of said fingers having opposed angular portions adjacent the open ends of said grooves and oppositely curved portions inwardly of the extremities of said fingers, an anvil on the frame in the path of movement of said fingers whereby paper in advance of said anvil will be penetrated by said fingers and compressed under closing movement of said fingers, lever means within the channel in contacting relation with the connecting part of said fingers, a swinging lever exteriorly of the body operatively connected to said lever means, said swinging lever having an upstanding lug and a catch on the frame adapted to engage said lug upon upward swinging movement of the U-shaped lever and impart movement to said lever means and said gripping fingers.

10. The structure of claim 9 in which a cam device is presented between said fingers, a threaded shaft associated with the cam for advancing and retracting the same to vary the space between the ends of said fingers.

11. The structure of claim 9 in which a paper guide means is oscillatably mounted in said frame in advance of the anvil, and said body member having an upstanding lug adapted to engage said paper guide means to advance the latter under inward swinging movement of said U-shaped lever, said paper guide means being retracted under outward swinging movement of the U-shaped lever due to engagement between the lug of the swinging lever and said catch.

12. A sheet feeding device comprising an upright frame adapted to contain a plurality of sheets positioned therein in stack formation edgewise, sheet guiding means at the front of the frame, an upright follower plate bearing against the rearmost of said sheets and movable toward the front of the frame, means at the front of the frame capable of movement to operative position for engaging the foremost sheet of the stack and discharging the same in said sheet guiding means, pawl and ratchet means connected to said follower plate for moving said follower plate forwardly in incremental stages, said pawl and ratchet means being operated by engagement with said sheet engaging means when said sheet engaging means is moved toward said sheets.

13. In a sheet feeding device of the character described, sheet engaging means arranged to engage the foremost of a plurality of sheets positioned in stack formation edgewise, a follower plate bearing against the rearmost of said stack of sheets, pawl and ratchet means connected to said follower plate for moving said follower plate forwardly in incremental stages, said sheet engaging means being operatively associated with said pawl and ratchet means so that when said sheet engaging means is actuated, said follower plate is advanced forwardly in timed relation.

14. A sheet gripping device for use in a sheet feeding machine, a lever swingable toward and away from a stack of sheets in said machine, and sheet gripping means carried by said lever, said means including a pair of spring fingers and channeled means movable relative to said fingers effective to cause the fingers to grip and subsequently release a sheet.

15. Sheet gripping means comprising a pair of spring fingers having their free ends turned inwardly toward each other to define opposed jaws, and channeled means to move said jaws toward each other when said fingers are moved in one direction relative to said channeled member.

16. Sheet gripping means comprising a mounting, a pair of spaced-apart spring fingers slidable in said mounting, and channeled means on said mounting engageable with the fingers when the latter are slid in one direction to move the fingers toward each other.

17. In a sheet feeding mechanism, a hopper adapted to contain a vertically inclined stack of sheets, means for successively withdrawing the top sheet of the stack from said hopper, said means comprising a reciprocal member movable toward and away from said stack, spaced spring fingers carried by said member adapted to pierce the top sheet when moved into pressure contact therewith, said fingers being slidable in said member so as to permit said member to continue movement toward the stack after the top sheet has been pierced by said fingers, means on said member to cooperate with said fingers during such movement to reduce the distance between the fingers to grip the sheet pierced thereby, and means effective when the member has approached the limit of its movement away from the stack to enable said gripping fingers to return to their initial spaced position.

18. In a sheet feeding device wherein a plurality of sheets is positioned therein in stack formation edgewise, a follower plate bearing against the rearmost of said sheets, means connected to said follower plate for advancing said follower plate forwardly in incremental stages, and sheet engaging means including a pair of gripping fingers adapted to penetrate the foremost of said sheets and compress the same between the ends of said fingers upon contacting engagement with said sheet, said sheet engaging means actuating said follower plate advancing means in timed relation therewith when said sheet engaging means is moved toward said sheets.

19. A sheet feeding device comprising a frame adapted to contain a plurality of sheets positioned therein in stack formation edgewise, sheet guiding means at the front of the frame, a follower plate bearing against the rearmost of said sheets and movable toward the front of the frame, pawl and ratchet means operatively associated with said follower plate for moving said follower plate forwardly in incremental stages, and sheet engaging means including a pair of normally spread gripping fingers and a finger contracting member, said gripping fingers being slidable in said member to reduce the distance between said fingers when the fingers are moved in one direction relative to said member, said sheet engaging means being adapted to engage said pawl and ratchet means when said sheet engaging means is moved toward said sheets

whereby said follower plate is advanced forwardly in timed relation therewith.

20. In a sheet feeding device wherein a plurality of sheets is positioned therein in stack formation edgewise, sheet engaging means including a channeled body member and a spring member slidable in said body member, said spring member having a pair of fingers at one end and a pair of inwardly curved shoulders rearwardly of said fingers, said shoulders and said body member being adapted to cooperatively cause the distance between said fingers to be reduced when said spring member is moved in one direction relative to said body member.

21. In a sheet feeding device wherein a plurality of sheets is positioned therein in stack formation edgewise, sheet engaging means including a channeled body member and a spring member slidable in said body member, said spring member having a pair of fingers at one end and a pair of inwardly curved shoulders rearwardly of said fingers, said shoulders and said body member being adapted to cooperatively cause the distance between said fingers to be reduced when said spring member is moved in one direction relative to said body member, and means to initially increase or permit a reduction of the distance between said fingers.

22. In a sheet feeding device, the combination of a frame adapted to contain a stack of sheets positioned therein in edgewise formation, a follower plate bearing against the rearmost of said sheets and movable toward the front of said frame, means to move said follower plate forwardly in incremental stages, and sheet engaging means adapted to remove sheets from said stack and being engageable with said follower plate moving means whereby motion of said sheet engaging means toward said stack actuates said follower plate moving means in timed relation therewith, said sheet engaging means comprising a pair of spring fingers having their free ends turned inwardly toward each other to define jaws and channeled means to move said jaws toward each other when said fingers are moved in one direction relative to said channel member.

23. In a sheet feeding device, the combination of a frame adapted to contain a stack of sheets positioned therein in edgewise formation, a follower plate bearing against the rearmost of said sheets and movable toward the front of said frame, means to move said follower plate forwardly in incremental stages, and sheet engaging means adapted to remove sheets from said stack and being engageable with said follower plate moving means whereby motion of said sheet engaging means toward said stack actuates said follower plate moving means in timed relation therewith, said sheet engaging means comprising a mounting, a pair of spaced apart spring fingers slidable in said mounting, and channeled means on said mounting engageable with the fingers when the latter are slid in one direction to move the fingers toward each other.

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