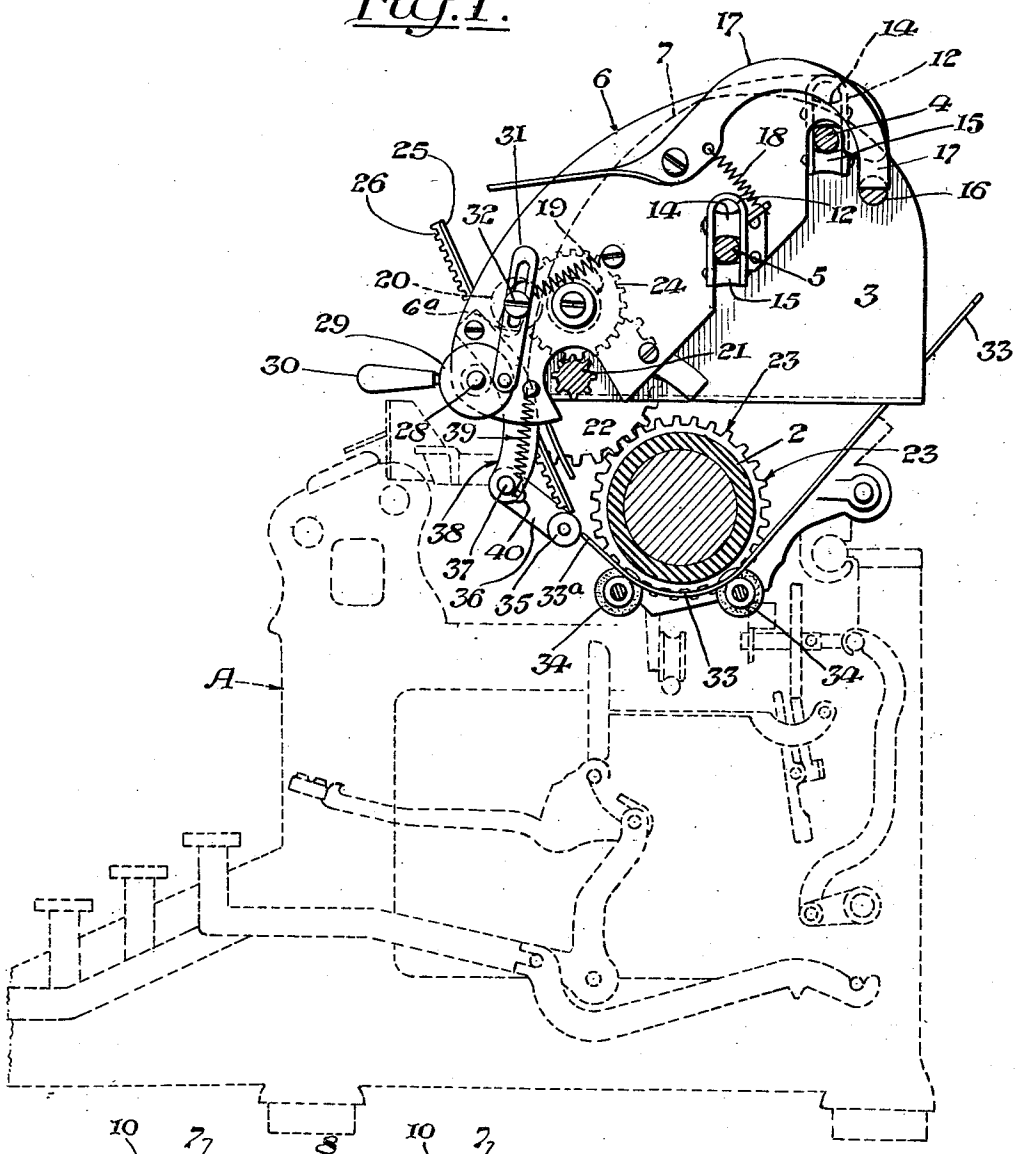
Nov. 14, 1950 W. A. EAGAN 2,530,156

SHEET FEEDING MECHANISM FOR BILLING MACHINES

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Fig. 1.



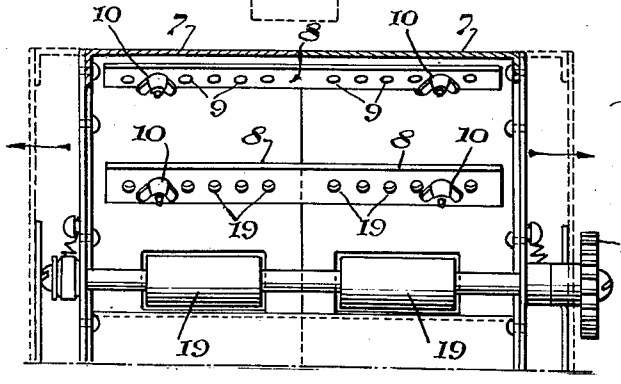




Fig. 2.

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SHEET FEEDING MECHANISM FOR BILLING MACHINES

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Fig. 3.

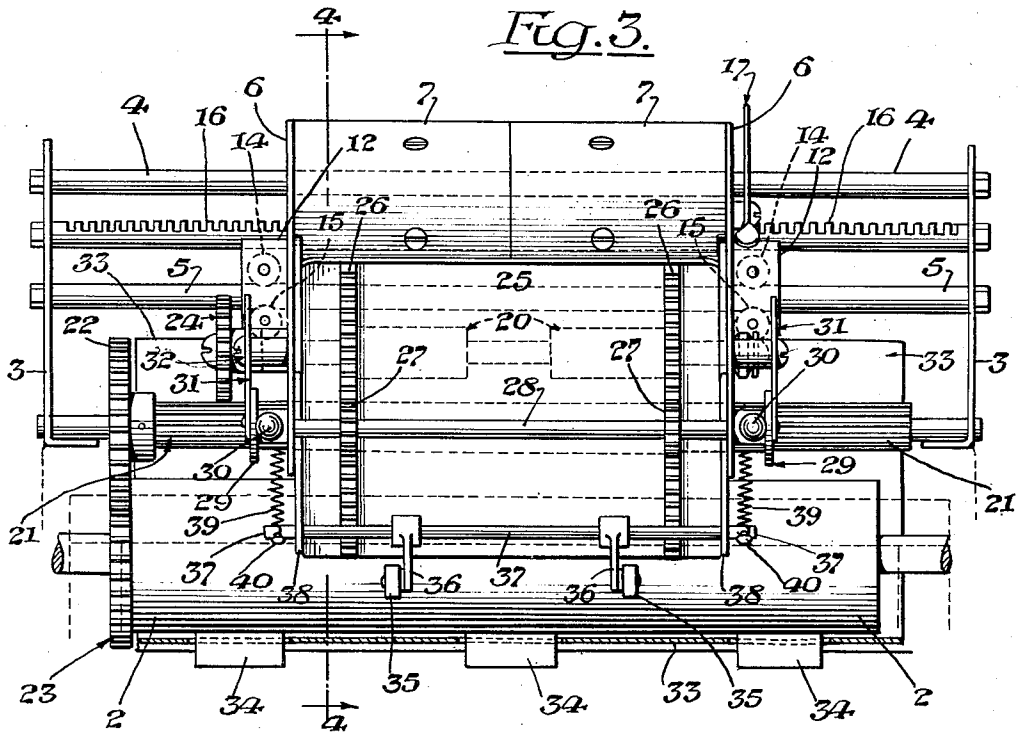
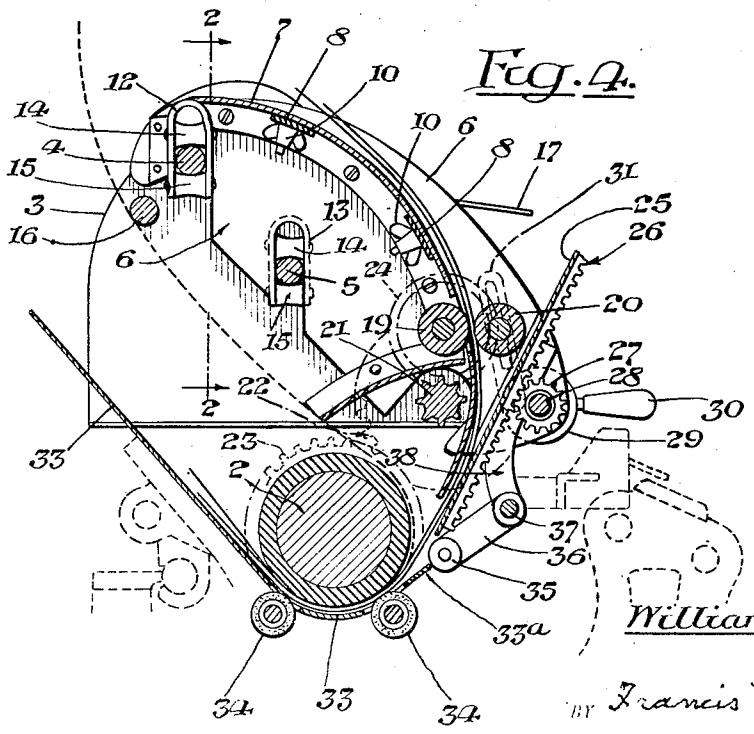



Fig. 4.




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SHEET FEEDING MECHANISM FOR BILLING MACHINES

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Fig. 5.

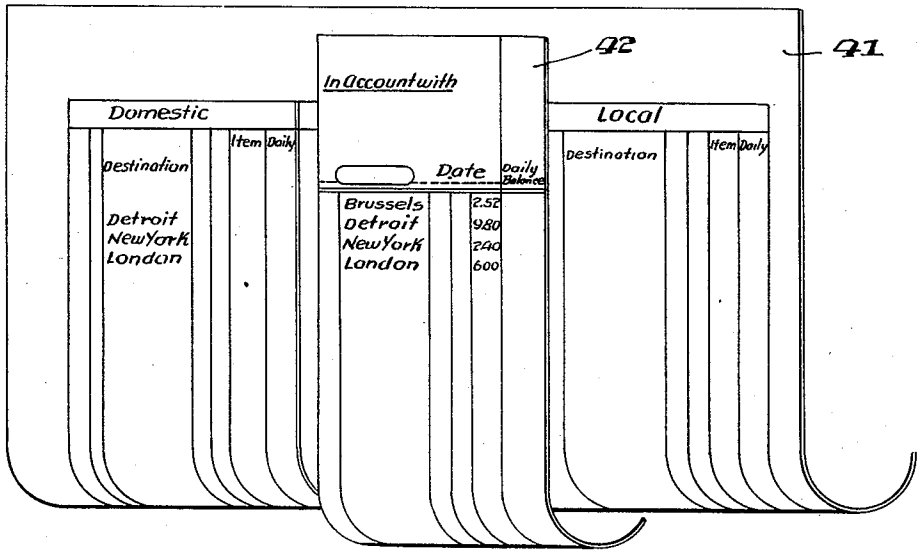
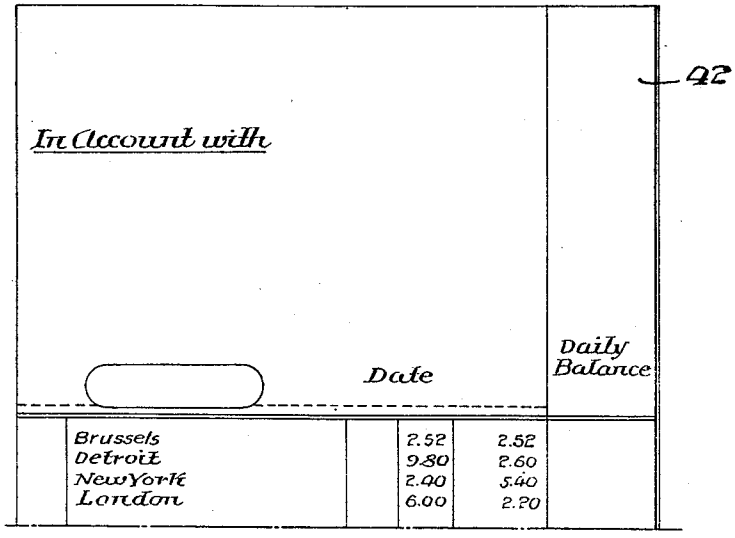



Fig. 6.




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Patented Nov. 14, 1950

2,530,156

# UNITED STATES PATENT OFFICE

2,530,156

## SHEET FEEDING MECHANISM FOR BILLING MACHINES

William A. Eagan, Glen Rock, N. J.

Application December 5, 1947, Serial No. 789,844

5 Claims. (Cl. 197—128)

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This invention relates to sheet feeding mechanism for billing machines of the type provided with a super-carriage movable with and independently of the main typewriter carriage laterally of the typewriter, the present invention being an improvement in part on that shown in Patent No. 2,069,489, granted to me on February 2, 1937.

The principal object of the present invention is to provide a super-carriage similar to that described in my said prior patent with means whereby bills or other papers may be fed into position either from the front or back of the carriage with equal facility; that is to say, without doing away with the normal back feed, means is provided for feeding such papers into the carriage from the front thereof. Other objects and advantages of the invention will appear as the description proceeds.

In the drawings accompanying this specification,

Fig. 1 is a partly sectional side view showing the improved super-carriage mounted on a typewriter of ordinary construction, the typewriter parts being shown in broken lines;

Fig. 2 is a sectional view taken approximately on the line 2—2 of Fig. 4, looking in the direction of the arrows.

Fig. 3 is a front view of the super-carriage showing the same in association with the platen of the typewriter;

Fig. 4 is a transverse sectional view taken approximately on the line 4—4 of Fig. 3;

Fig. 5 is a front view showing the assembly of a bill form and distribution sheet as they pass over the platen of the typewriter; and

Fig. 6 is a front view of the bill sheet on an enlarged scale.

As in my prior patent hereinbefore referred to, the auxiliary or super-carriage comprises a pair of upstanding end plates 3 forming brackets for supporting the attachment, in which plates are secured the opposite ends of an upper track rail 4 and a lower track rail 5 on which the super-carriage is supported for sliding movement laterally of the machine.

The auxiliary or super-carriage comprises a pair of flanged paper guides 6, each having a pair of openings in its side walls adapted to straddle the track rails 4 and 5 respectively, said openings being bordered by flanges 12 and 13 forming brackets in each of which are mounted for free rotation a pair of rollers 14 and 15 engaging the track rails 4 and 5 above and below the same. The complete super-carriage is thus freely movable laterally on the main carriage of the machine independently of any movement of such main carriage, releasable means being provided for positively retaining the super-carriage at any position of adjustment relative to the main carriage, said means comprising a notched rail 16 secured at its opposite ends in the end plates for co-operation with a curved lever 17 pivoted on one of the guide plates 6 of the super-carriage, one end of said lever being formed to engage the successive notches in the rail 16 and normally held in such engagement by a coil spring 18. By depressing the free end of the lever it is caused to disengage the notched rail so that the super-carriage may be shifted to any desired position along the rails 4 and 5.

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As in my patent before referred to, the super-carriage is made up of two separable guide sections 7 which are adjustably secured together by a pair of straps 8 provided with a plurality of openings 9 through any one of which may pass a short bolt secured on the back of each of the members 7 and having a wing nut 10 for securing the straps 8 to said members 7. By this construction the super-carriage may be widened to accommodate different widths of paper.

As hereinbefore stated, the distinguishing feature of the present invention is the provision of a front feed whereby a bill sheet may be fed into the super-carriage from the front without disturbing the position of a distributing sheet which may be in position in the main carriage of the typewriter. For this purpose a pair of feed rollers 19 and 20, normally in contact with each other are disposed at some distance above the platen 2, the shaft of roller 19 being mounted for rotation in the end walls of the separable carriage members 7, while roller 20 is mounted for movement toward and away from roller 19 as hereinafter described. The shafts of both of said rollers are formed of tubular telescoping members whereby they may be lengthened or shortened in conformity with the adjustment of the carriage members 7 toward and away from each other. For transmitting rotary motion to said rollers 19 and 20 a shaft 21 grooved or fluted over its entire length is mounted for rotation in the end brackets 3 and is provided at one end thereof with a gear 22 in mesh with a gear 23 secured on the shaft of the typewriter platen 2. A gear 24 secured on the shaft of the roller 19 is in mesh with the fluted ribs of the shaft 21, so that rotary motion of the platen will be transmitted to the roller 19, the ratio of the gearing being such that in the normal operation of the machine a bill sheet

passing between the rollers 19 and 20 will be moved the same distance as the distribution sheet on the platen whenever the latter is rotated by manipulation of the usual lever.

A front shield in the form of a plate 25 is disposed between the flanges of the end plates 6 in tangential relation to the lower portion of the periphery of the typewriter platen 2, the opposite ends of said shield being slidable in grooves formed in the inner surfaces of the flanges 6. On the outer or front side of the shield 25 are two racks 26 the teeth of which are engaged by a pair of pinions 27 secured on a rod 28 the opposite ends of which pass through openings in the end flanges 6 of the super-carriage and have secured thereon a pair of cam disks 29 each having a radially extending arm or lever 30 for manual operation of the disks. As shown in Fig. 1, each end wall 6 of the super-carriage is provided with a forwardly inclined cam slot 6a (shown partly in full and partly in dotted lines), through which slots pass the opposite ends of the shaft of the roller 20, and pivoted on each of the cam disks in eccentric relation thereto is a link 31 provided with an elongated slot through which passes a headed pin 32 threaded into one end of the shaft of the roller 20, whereby when the arms 30 are swung upward from the position shown in Fig. 4, the roller 20 will, by reason of the cam slots 6a, be caused to move forwardly and downwardly in response to the force exerted thereon by the links 31 and thus be moved out of contact with the roller 19 so that a bill form can be readily passed downward between said rollers 19 and 20 until it strikes the lower portion of the shield 25, which will serve to direct the bill form toward the platen 2. To assist in guiding the bill form, either with or without a carbon sheet after the lower edge of the form has passed beyond the lower edge of the shield 25, I provide an under-platen guide 33, the rear portion of which is inclined upward and forms a plane surface over which paper fed either from the front or back of the machine may travel. The lower portion of said guide 33 extends below the platen and is curved to conform to the curvature of the platen, openings being cut in said curved portion to accommodate the usual rollers 34 and permit them to engage the surface of the platen when the operating lever provided in all typewriters for that purpose is released. The front edge 33a of said under-platen guide beyond said openings is straight and unbroken so as to present no resistance to sheets of paper passing from the shield 25 toward the platen.

In order to assist in preventing passage of either the bill form fed from the front or the sheets fed from the back from passing out between the opposing edges of the shield 25 and the under-platen guide when the shield has been moved upward from the platen a pair of rollers 35 are provided, said rollers being disposed near the opening between the lower edge of the shield 25 and the front edge 33a of the under-platen paper guide 33, so that when the bill form leaves the shield 25 the rollers will resist any tendency of the bill form to turn out between the shield and the front edge of the guide 33. The said rollers 35 are mounted for free rotation on stub shafts carried by arms 36 each of which is provided with a hub secured on a rod 37, the opposite ends of said rod being mounted in brackets 38 secured on the end members 6 of the super-carriage. A pair of coil springs 39, each anchored at one end on one of the end members 6 of the super-carriage and secured at its opposite end to a pin 40 extending radially from the rod 37, normally retain the rod in position to maintain the rollers 35 close to the gap between the lower edge of shield 25 and the front edge of the under-platen guide 33.

In Fig. 5 is shown an assembly of a distribution or abstract sheet 41 and a form of bill 42 such as are commonly used in certain businesses, the sheet 41 being divided vertically into a number of main columns designated "Domestic," "Local," etc., said columns being subdivided into secondary columns designated "Destination," "Item," "Daily," etc., while the bill form 42 is also divided into columns to receive the items to be billed to any special customer, all as described in my earlier patent. In the operation of the present machine, however, the distribution sheet and bill form do not have to be fed together into the machine, but, as hereinbefore stated, the distribution sheet may be in place on the platen of the typewriter, it having been fed in from the back in the usual manner, while the bill form may be removed or replaced by a new form without disturbing the position of the distribution sheet. This is accomplished by operation of the levers 30 thereby to move the roller 20 out of contact with roller 19 as hereinbefore described, so as to provide sufficient space between said rollers to permit a bill form with a sheet of carbon paper back of it to be slid down between said rollers and past the lower edge of the shield 25 and thence between the front edge 33a of the under-platen guide and the platen. In the meantime, the rollers 34 having been released from the platen by the usual typewriter lever provided for that purpose, the bill form can be slid between said rollers and platen until it is at the proper height to match with the setting of the distribution sheet. Then the levers 30 are actuated to return the roller 20 into contact with the roller 19, thus nipping the bill form and carbon sheet between said rollers and at the same time the release lever for the rollers 34 is also operated so as to clamp the bill form and distribution sheet together with the intermediate carbon sheet between said rollers 34 and the platen, so that the distribution sheet, carbon sheet and bill form will thereafter be moved together on rotation of the platen in the usual manner.

While I have shown the front feed mechanism described herein associated with a super-carriage which is movable relatively to the main carriage for the special purpose described, it is to be understood that said mechanism may be mounted directly between the upstanding end plates 3 on the typewriter frame without the intervention of a super-carriage whereby the advantages of the front feed can be made available in any typewriter.

Having thus described my invention, what I claim is:

1. A billing machine comprising, in combination, a rotatable platen, means for imparting a step by step rotary motion to said platen, means for feeding sheets of paper to said platen from the back of the machine, means for directing sheets fed from the front of the machine into feeding engagement with said platen, said front feed directing means comprising a shield mounted for sliding movement in a plane tangential to the platen at the front thereof, and means for moving said shield thereby to vary the distance between its lower edge and said platen.

2. A billing machine as set forth in claim 1,

including means flexibly maintained in position to resist passage of said sheets below the lower edge of the shield when the latter is moved away from the platen.

3. A typewriting machine comprising, in combination, a rotatable platen, means for imparting a step by step rotary motion to said platen, means for feeding sheets of paper to said platen from the back of the machine, a pair of end plates supported on the typewriter frame, a feed roller mounted in said end plates for rotary movement at the front of the machine and at a predetermined distance above said platen, a second feed roller mounted for rotation normally in contact with said first feed roller, gearing between said first feed roller and the platen for imparting motion to the roller in synchronism with the motion of the platen, means for shifting said second roller out of contact with the first roller, a shield mounted between said end plates for sliding movement in a plane tangential to the platen at the front of the machine, and means associated with said roller-shifting means for moving said shield thereby to vary the distance between its lower edge and said platen.

4. A typewriting machine as set forth in claim 3, said shield having on its front face a pair of toothed racks and said roller-shifting means having a pair of pinions in engagement with said racks.



5. A billing machine comprising, in combination, a rotatable platen, means for imparting a step by step rotary motion to said platen, means for feeding sheets of paper to said platen from the back of the machine, means for directing sheets fed from the front of the machine into feeding engagement with said platen, said front feed directing means comprising a shield mounted for sliding movement in a plane tangential to the platen at the front thereof, means for moving said shield thereby to vary the distance between its lower edge and said platen, and a guide member disposed below the platen and extending tangentially upward at the rear thereof, the front edge of said guide being in approximate alinement with the lower edge of said shield.

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