July 29, 1924. 1,503,100

DE WITT C. HARRIS

TYPEWRITER CARRIAGE

Filed Sept. 1, 1921 4 Sheets-Sheet 1

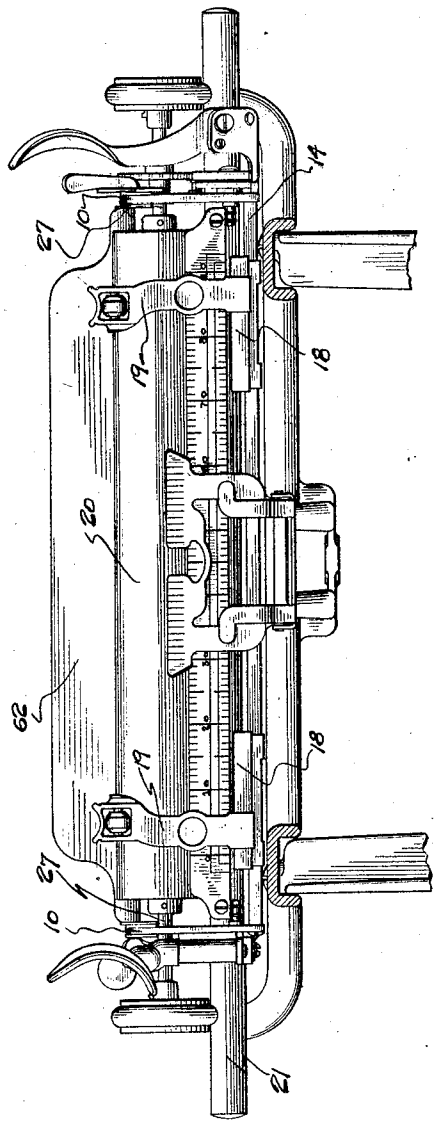


Fig. 1

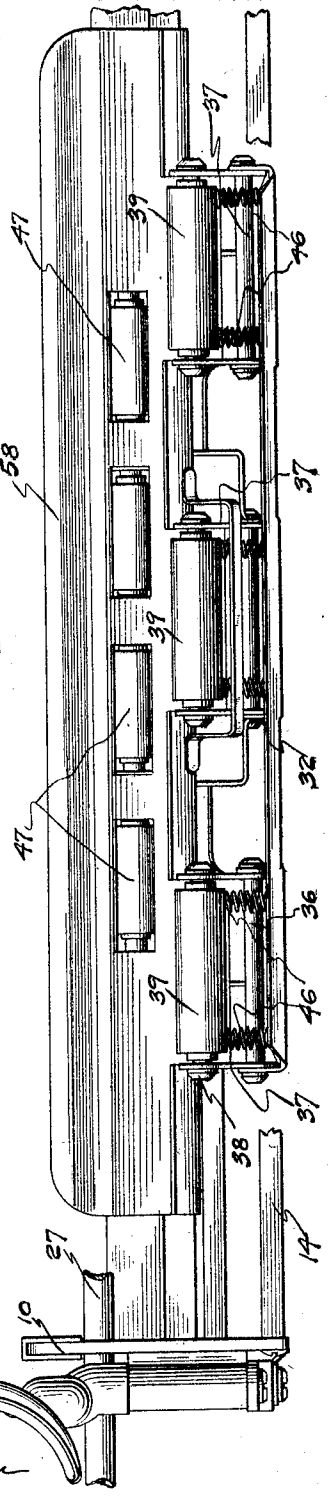


Fig. 2

Witness
John E. Titus

Inventor
DeWitt C. Harris

By Miller Chinnock & Parker
Attys

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DE WITT C. HARRIS

TYPEWRITER CARRIAGE

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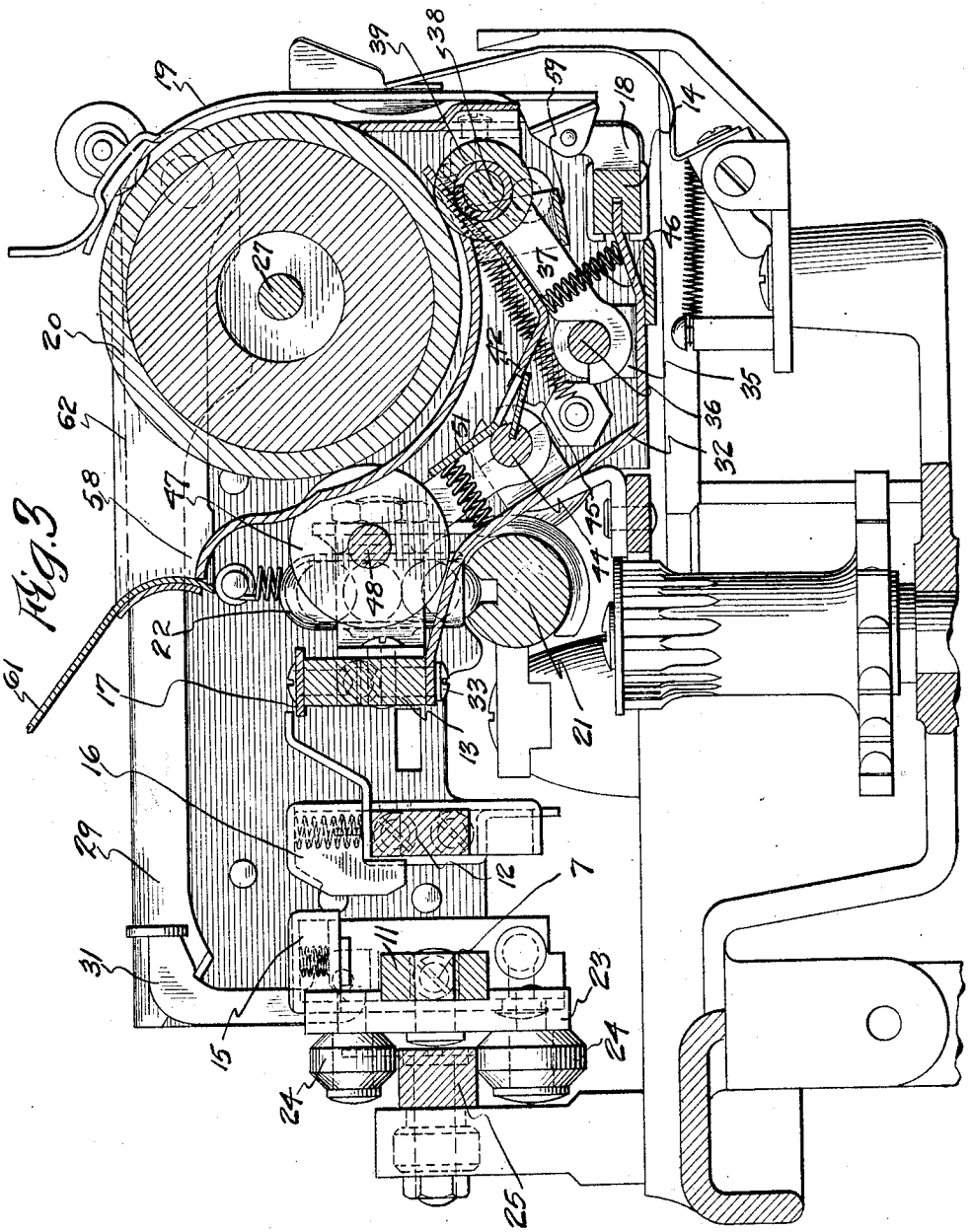


Fig. 3

Witness:
John E. Titus

Inventor
De Witt C. Harris
By Miller Chimacke & Locker
Attys

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DE WITT C. HARRIS

TYPEWRITER CARRIAGE

Filed Sept. 1, 1921 4 Sheets-Sheet 3

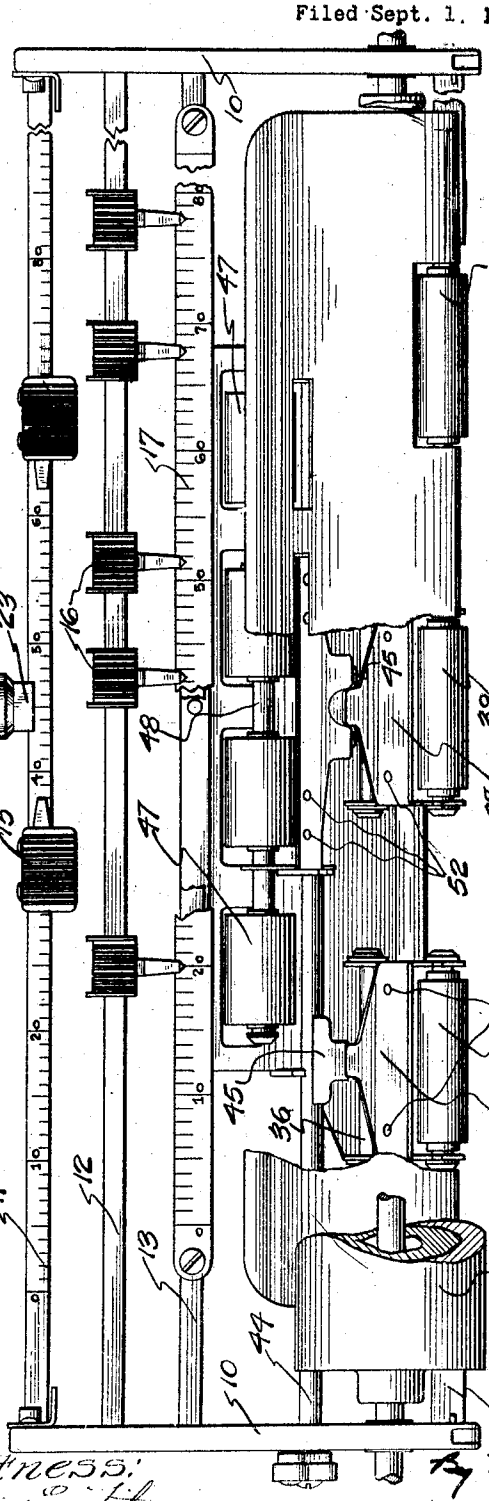


Fig. 4

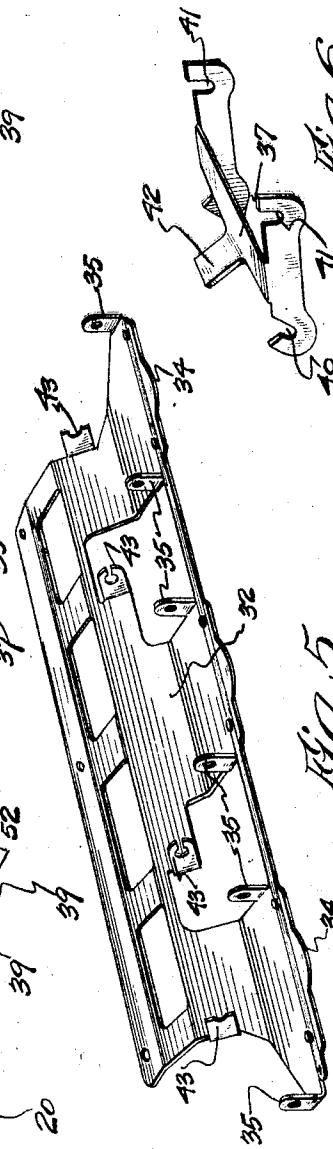


Fig. 5

Fig. 6

Witness:
Jr mi C. Tilus

Inventor
De Witt C. Harris
By Mason Chisholm & Parker
Attys

July 29, 1924. 1,503,100

DE WITT C. HARRIS

TYPEWRITER CARRIAGE

Filed Sept. 1, 1921 4 Sheets-Sheet 4

Fig. 7

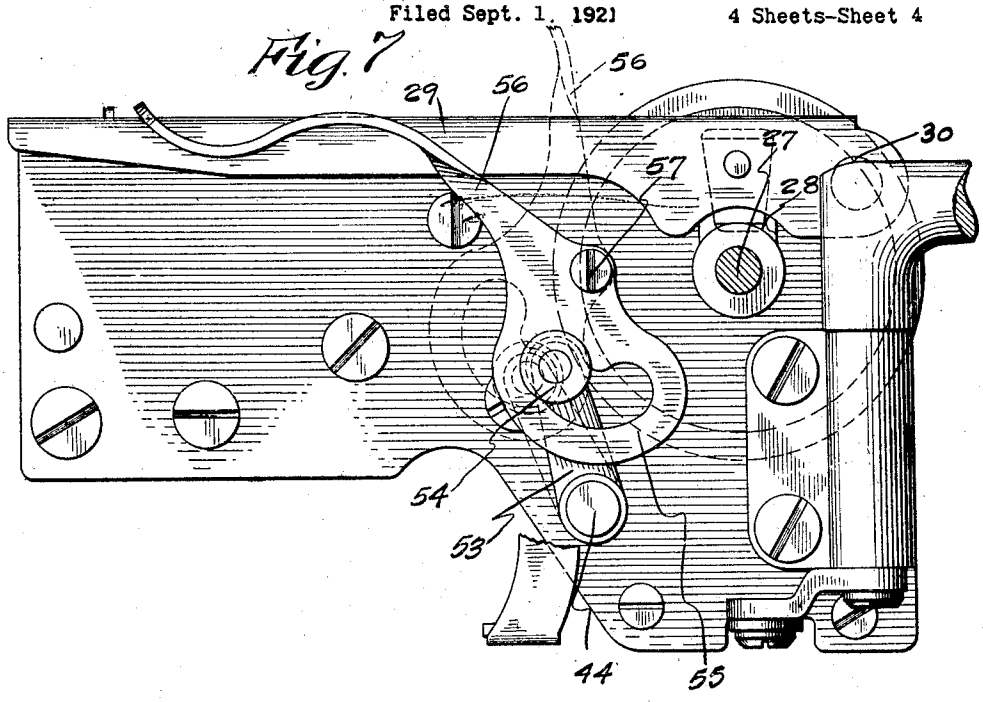
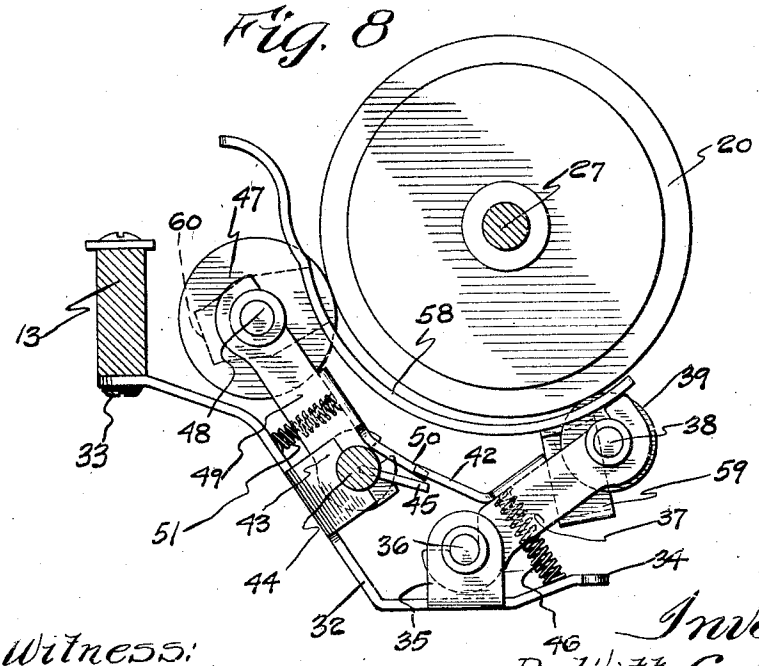


Fig. 8



Witness:
John A. Titus

Inventor
DeWitt C. Harris
By Miller Chindahl & Baker
Attys

Patented July 29, 1924. 1,503,100

UNITED STATES PATENT OFFICE.

DE WITT CLINTON HARRIS, OF PINELAND, FLORIDA.

TYPEWRITER CARRIAGE.

Application filed September 1, 1921. Serial No. 497,648.

To all whom it may concern:

Be it known that I, DE WITT C. HARRIS, a citizen of the United States, residing at Pineland, in the county of Lee and State of Florida, have invented certain new and useful Improvements in Typewriter Carriages, of which the following is a specification.

The object of this invention is to provide a typewriter carriage of improved construction in which the parts are of simple form, and are inexpensive to manufacture; in which the parts are so related and arranged that they may be quickly and easily assembled together; in which accuracy in assembling is assured even in the hands of workmen not specially skilled in the art; in which the paper feed rolls and other parts subject to wear or which may need attention from time to time may be quickly and easily removed without the use of special tools; in which the paper feed rolls are mounted in such a manner as to insure effective clamping of the paper against the platen at all points; which will afford maximum efficiency and durability in use with a minimum cost of manufacture and maintenance; and which is mounted in the machine in such a manner that it may be very readily removed from the machine when desired.

In the accompanying drawings, Figure 1 is a front elevation of the carriage and associated parts of a typewriter embodying the features of my invention.

Fig. 2 is a fragmentary front elevation on an enlarged scale showing the paper pan and feed rolls.

Fig. 3 is an enlarged vertical sectional view taken in a plane running from front to rear through the carriage and associated parts of the typewriter.

Fig. 4 is a plan view with certain parts omitted and certain parts broken away to show other parts beneath.

Fig. 5 is a perspective view of the main bracket which supports the feed roll carriers.

Fig. 6 is a perspective view of one of the front feed roll carriers.

Fig. 7 is an elevation of the left hand end of the carriage.

Fig. 8 is a view showing the platen and the feed roll mechanism in end elevation.

For the purpose of disclosing the invention herein I have selected a preferred embodiment but I would have it understood that in describing this particular form of the invention I do not intend to limit the invention in any way to the present disclosure but aim to cover all modifications, equivalents and alternative constructions falling within the scope of the invention as set forth in the appended claims and as limited by the state of the prior art.

In the exemplary embodiment of the invention shown in the drawings my improved carriage comprises a frame consisting of a pair of end plates 10 which are spaced apart and rigidly secured together by a plurality of parallel bars 11, 12, 13, 14.

The bar 11 has a scale on its upper side and carries two adjustable marginal stops 15. The bar 12 carries a suitable number of tabular stops 16 having fingers to cooperate with the scale strip 17 fixed on the upper side of the bar 13. The bar 14 supports a pair of slides 18 carrying pivoted paper fingers 19 which cooperate with the platen 20.

The carriage is supported and guided upon the main track bar 21 by means of a suitable number of ball bearing supports 22 fixed to the forward face of the bar 13. This ball bearing supporting means constitutes the subject matter of a co-pending application, and need not be described in detail herein. A bracket 23 is fixed to the rear face of the bar 11 and carries a pair of rollers 24 projecting rearwardly and embracing a guide bar 25 which is rigidly mounted on the main frame of the typewriter.

The platen 20 has a central shaft 27 which is journaled in notches 28 extending downwardly from the upper edges of the end plates 10, each end of the shaft being confined in its notch by means of a bearing block carried by an arm 29 which is pivoted at 30 (see Fig. 7) on the forward edge of the end plate and extends rearwardly along the upper edge of such plate, the arm being formed of a folded piece of metal arranged to receive the upper edge of the plate between its two sides. The rear end of the arm is arranged to be locked by a latch 31 pivoted at its lower end to the end plate 10.

Beneath the platen 20 is a bracket 32 (see Fig. 5) which is secured at its rear edge to the underside of the bar 13 by screws 33, the forward edge of the bracket being secured to the bar 14 in this instance by lugs 34, on the bracket entering milled slots in said bar 14. At intervals along its length this bracket has perforated ears 35 turned up therefrom, there being in the present instance three pairs of such ears near the forward edge of the bracket, and in each pair of ears is mounted a short shaft 36. A plurality of forward feed roll carriers 37 (see Fig. 6) engage at one end with the shafts 36 and support the shafts 38 of the feed rolls 39 at their free ends. Each carrier comprises two sides and a cross-piece connecting them. Each side has upwardly opening notches 40 and 41 to permit the carrier to engage the underside of its shaft 36 and to receive the feed roll shaft 38. These shafts 36 and 38 have headed ends which overlie the edges of the notches 40 and 41. Each feed roll comprises a rubber body with a central metallic sleeve that receives the shaft 38. The cross-piece of each carrier 37 has a rearwardly extending lug 42 the purpose of which will presently appear.

The bracket 32 is provided with a second series of upstanding ears 43 which receive a rock shaft 44 that has its ends journaled in the end plates 10. This rock shaft has three keys 45 which underlie the lugs 42 on the forward roll carriers 37. When this shaft is rocked in the direction to elevate the keys 45 the three roll carriers 37 will be swung downwardly about the rods as axes to separate the feed rolls from the platen 20. Coiled compression springs 46 are provided for each feed roll carrier and are arranged to abut against the carrier at one end and the bracket at its other end, suitable fixed studs 52 being provided to engage in the ends of the spring for holding the springs in place.

The rear feed rolls 47 are mounted on a single shaft 48 which is supported in a carrier 49 comprising two sides and a cross-piece similar to the forward carriers 37 (see Fig. 8). The sides are provided with notches in their forward ends to engage beneath the rock shaft 44 and other notches at their rear or upper ends to receive the shaft 48. The sides of the carrier fit snugly between the two middle ears 43 which act to hold the carrier in place. The rear carrier 49 also has a forwardly projecting lug 50 overlying the central key 45 and springs 51 abut at their ends against the carrier and the bracket 32 respectively, said springs tending to hold the rear feed rolls against the platen, and being secured at their ends by studs 52 secured therein.

On one end of the rock shaft 44 is a crank arm 53 (see Fig. 7) having a roller stud 54 on its free end which engages in a cam slot 55 in a lever 56 that is pivoted at 57 to one of the end plates 10. When the lever 56 is swung upwardly and forwardly to the position indicated in dotted lines in Fig. 7 the keys 45 on said rock shaft will by engagement with the lugs 42 and 50 on the roll-carriers swing said carriers away from the platen and hold them in separated position.

A curved paper pan 58 which directly underlies the platen has a depending bail 59 which passes around one of the forward roll carriers so that when the roll carriers are moved away from the platen the said paper pan will also be moved away. This paper pan has suitable spaced apertures to permit the front and rear feed rolls to project therethrough into engagement with the platen. The rear portion of the paper pan has ears 60 projecting rearwardly (see Fig. 8) and perforated to receive the shaft 48 for the rear feed rollers.

The paper shelf 61 is carried by a pair of arms 62 which lie along the inner sides of the end plates 10 and the platen securing arms 29 and are pivoted upon the same pivots 30 as are the said arms 29. This paper shelf may be swung from the position seen in Fig. 3 upwardly and forwardly about the pivots 30 to a position in front of the platen; and by releasing the latches 31 the arms 29 may be similarly swung so as to permit of lifting the platen out of its bearing notches 28 in the end plates 10.

I claim as my invention:

1. A typewriter having, in combination, a carriage frame, a platen journaled therein, a bracket rigidly mounted in said frame beneath said platen and having a plurality of alined pairs of upstanding ears along its forward edge and a plurality of alined upstanding ears positioned rearwardly from the first mentioned ears, a plurality of forward feed rolls, means for mounting each of said feed rolls comprising a carrier having two spaced parallel sides and a connecting cross piece, said sides having upwardly opening notches in opposite ends, a shaft journaled in a pair of said forward ears, one pair of said notches engaging said shaft from beneath, another shaft journaled in the other pair of said notches and having one of said feed rolls mounted thereon, a rock shaft journaled in said frame rearward from the forward ears and having a plurality of laterally projecting keys thereon, a rear feed roll carrier comprising spaced sides and a connecting cross piece, said sides having notches at their opposite ends, the forward pair of notches engaging beneath the said rock shaft, a shaft mounted in the rear pair of said notches, a plurality of rear feed rolls mounted on the last mentioned shaft, springs associated with said forward and

rear feed-roll-carriers and tending to hold the rolls against the platen, a lug on each of said carriers overlapping one of said keys on said rock shaft, said keys being arranged to engage said lugs and swing said feed roll carriers away from the platen when said rock shaft is rocked, and means for rocking said rock shaft.

2. A typewriter having, in combination, a carriage frame, a platen journaled therein, a bracket rigidly mounted in said frame beneath said platen, a plurality of independent feed-roll-carriers each of which has notches at its rear end engaging pivots on said bracket and also has notches at its forward end, a shaft for each carrier mounted in said forward notches, a feed roll mounted on said shaft for each carrier and arranged to engage the platen, springs tending to move said carriers toward the platen, a rock shaft having lateral projections engaging parts on the respective carriers and arranged to swing the carriers away from the platen, and means for rocking said rock shaft.

3. A typewriter having, in combination, a carriage frame, a platen journaled therein, a bracket rigidly mounted in said frame beneath said platen, a plurality of feed-roll-carriers independently pivoted at their rear ends to said bracket, feed rolls mounted in the forward ends of said carriers and arranged to engage the platen, a single rear feed-roll-carrier pivoted at its forward end to the said bracket, a shaft mounted in the rear end of said carrier, a plurality of feed rolls on said shaft, a rock shaft having lateral projections arranged to engage parts on all of said carriers to move all of the carriers away from the platen, springs tending to move the carrier toward the platen, and means for rocking said shaft.

4. A typewriter having, in combination, a carriage frame, a platen journalled therein, a bracket fixed in said frame beneath said platen, a feed roll carrier having two spaced parallel sides and a connecting cross piece, each of said sides having upwardly opening notches in its opposite ends, a pivot mounted on said bracket and engaging the notches on one end of said carrier, a feed-roll mounted in the notches on the other end of said carrier, a spring engaging said cross piece and said bracket and tending to swing said carrier toward said platen, and means for swinging said carrier away from said platen.

5. In combination, a platen, a stationary bracket, a plurality of pivot devices on said bracket, a plurality of feed-roll-carriers each comprising spaced parallel sides and a connecting cross piece, said sides having a pair of notches engaging said pivot devices and having another pair of notches, a shaft mounted in the second pair of said notches, a plurality of feed rolls each mounted on one of said shafts between said sides of the carrier, springs tending to move said carriers independently toward the platen, and means for simultaneously swinging said carriers away from the platen.

6. A typewriter having, in combination, a carriage frame, a platen journaled therein, a bracket fixed in the frame beneath said platen, a plurality of feed-roll-carriers each having two pairs of open end notches, one pair detachably engaging pivot means on said bracket, and feed rolls journaled respectively in other pairs of said notches, whereby the said feed rolls may be readily removed from said carriers and the carriers may be readily assembled with or disengaged from said bracket.

7. A typewriter carriage comprising, in combination, a frame having end plates with upwardly opening notches therein, a platen having a shaft journaled in said notches, arms pivoted to said end plates at the forward upward corners thereof and extending rearwardly along said end plates to overlie and close said notches, latches detachably securing the rear ends of said arms to said end plates, a paper shelf behind said platen, a pair of arms extending horiontally along the inner sides of said end plates above said platen shaft and having their rear ends secured to and supporting said shelf, the forward ends of the latter arms being pivoted to said end plates on an axis located forwardly of the platen whereby the paper shelf may be swung upwardly and forwardly to a position in front of the platen, the first mentioned arms being also capable of being swung upwardly and forwardly to uncover said notches and permit withdrawal of the platen and its shaft from the frame.

8. A typewriter having, in combination, a frame, a platen having a shaft journaled therein, a paper shelf located readwardly of the platen, and a pair of arms on the rear ends of which said paper shelf is mounted, said arms extending forwardly from said shelf and being pivoted at their forward ends to the frame, whereby said paper shelf may be swung upwardly and forwardly to a position in front of the platen.

9. A typewriter having, in combination, a carriage frame, a platen journalled therein, a bracket rigidly mounted in said frame beneath said platen, a plurality of shafts mounted in alinement on the front part of said bracket, a plurality of feed-roll carriers each mounted on one of said shafts, a rock shaft mounted on said bracket to the rear of said first-mentioned shafts, a feed-roll carrier mounted on said rock shaft, feed-rolls mounted on said carriers and arranged to engage said platen, means on said rock shaft for engaging and moving said feed-rolls away from said plate, and means for rocking said rock shaft.

10. A typewriter having, in combination,

a carriage frame, a platen journalled therein, a fixed pivot mounted within said frame, a feed-roll carrier having notches at one end engaging said pivot and also having notches at its forward end, a shaft mounted in said forward notches, a feed-roll mounted on said shaft arranged to engage said platen, a spring engaging and tending to move said carrier toward said platen, and means engaging parts on said carrier for swinging said carrier about said pivot away from said platen.

In testimony whereof, I have hereunto set my hand.

DE WITT CLINTON HARRIS.