July 28, 1936. J. Q. SHERMAN 2,049,085

MANIFOLDING ATTACHMENT FOR WRITING MACHINES

Filed June 12, 1930 4 Sheets-Sheet 1

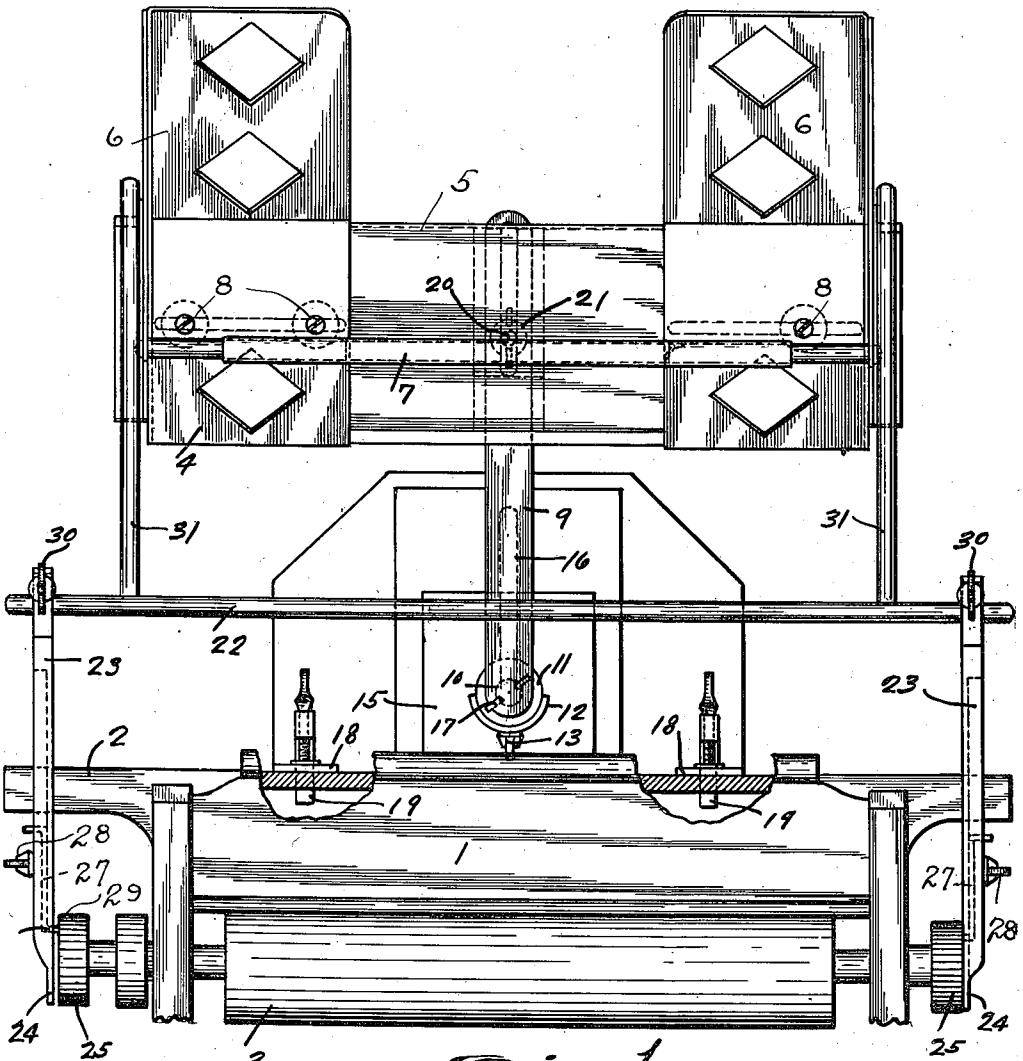


Fig. 1.

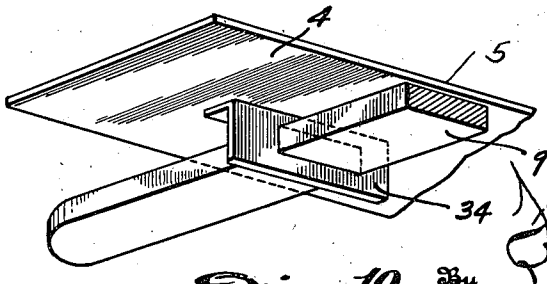


Fig. 10.

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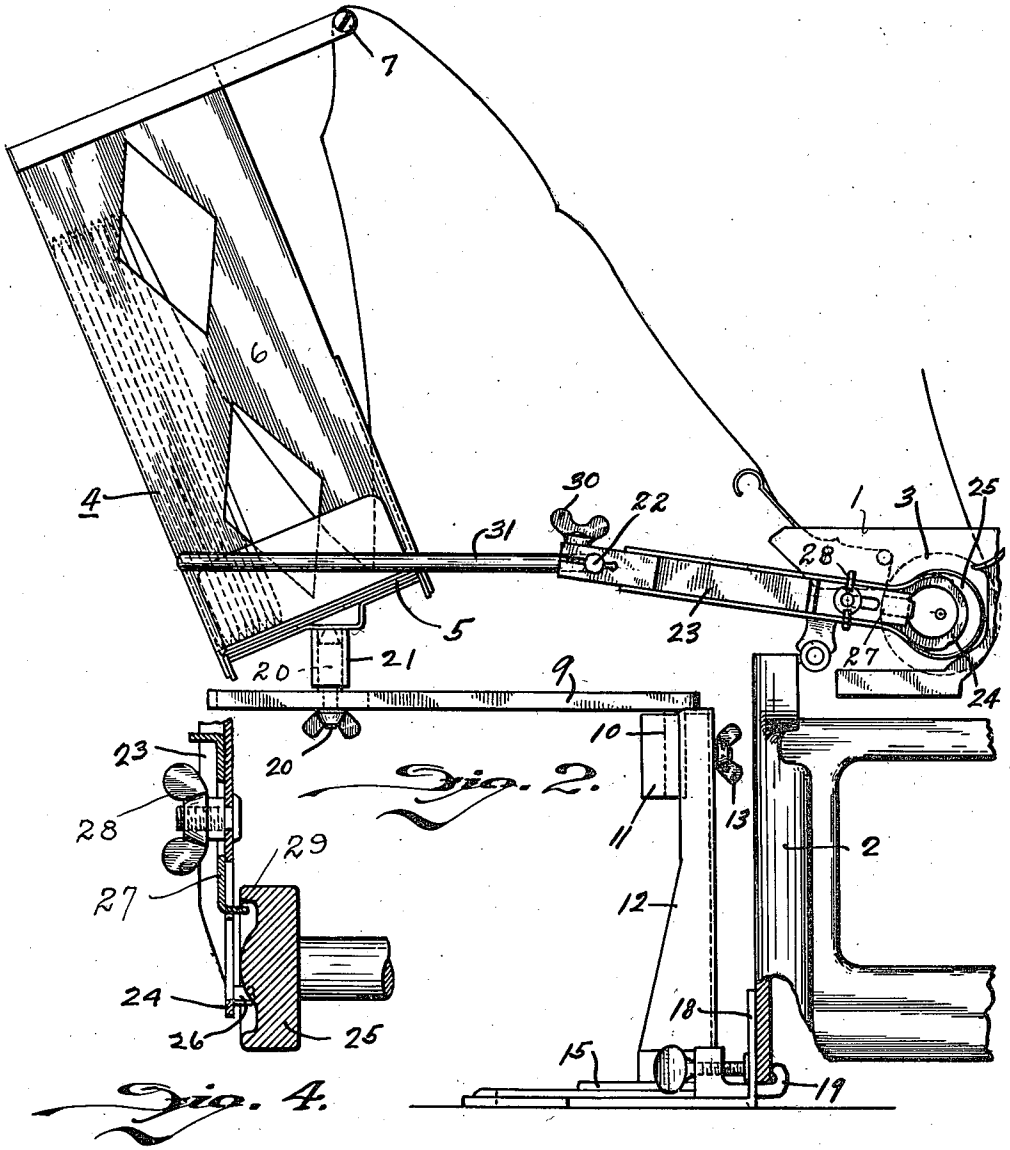


Fig. 2.

Fig. 4.

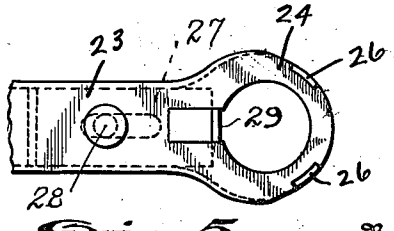


Fig. 5.

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MANIFOLDING ATTACHMENT FOR WRITING MACHINES

Filed June 12, 1930 4 Sheets-Sheet 3

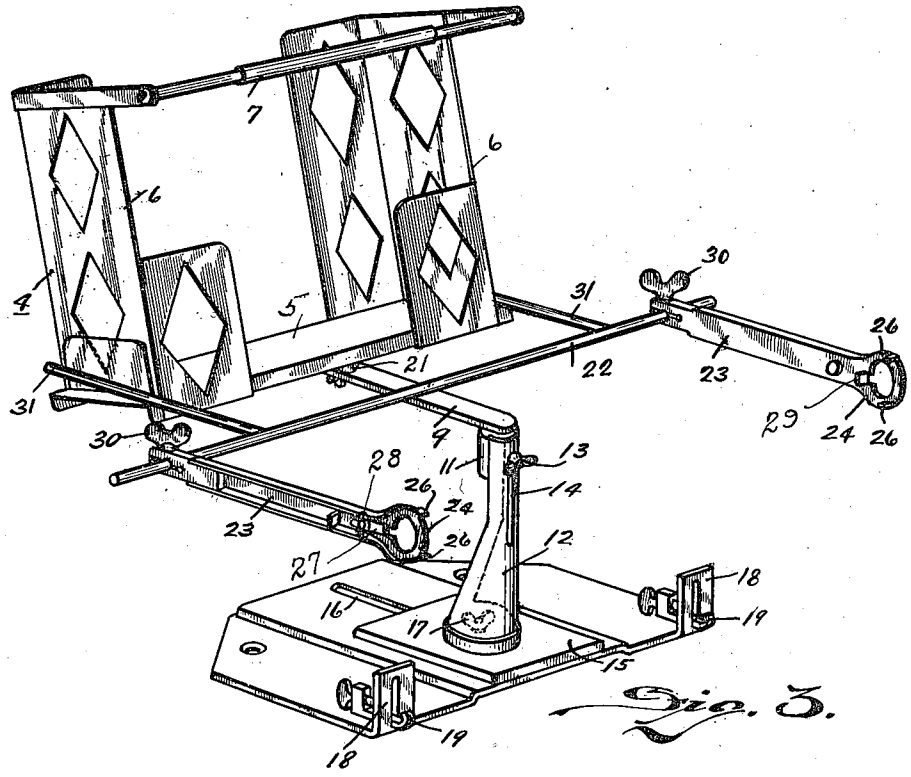


Fig. 5.

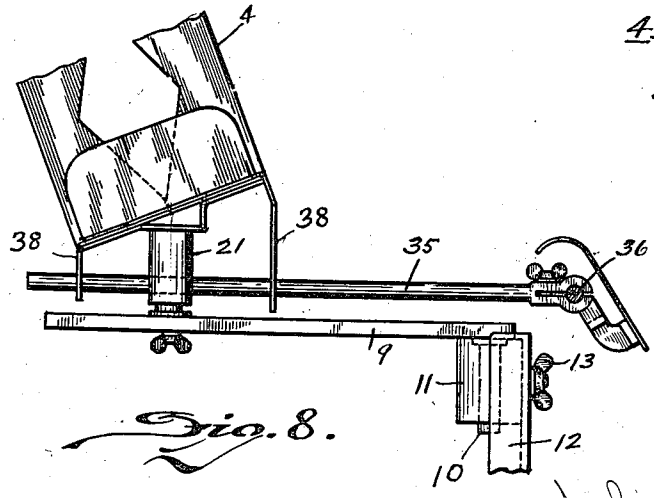


Fig. 8.

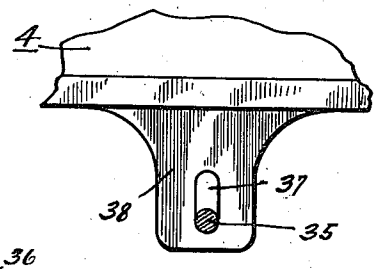


Fig. 9.

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MANIFOLDING ATTACHMENT FOR WRITING MACHINES

Filed June 12, 1930 4 Sheets-Sheet 4

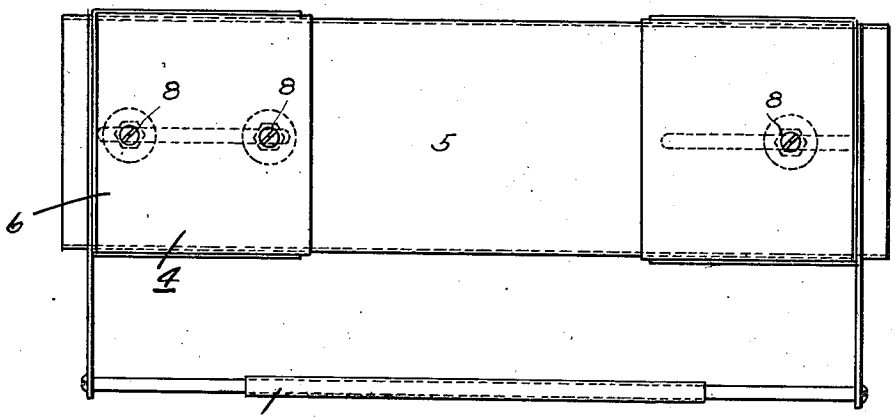


Fig. 6.

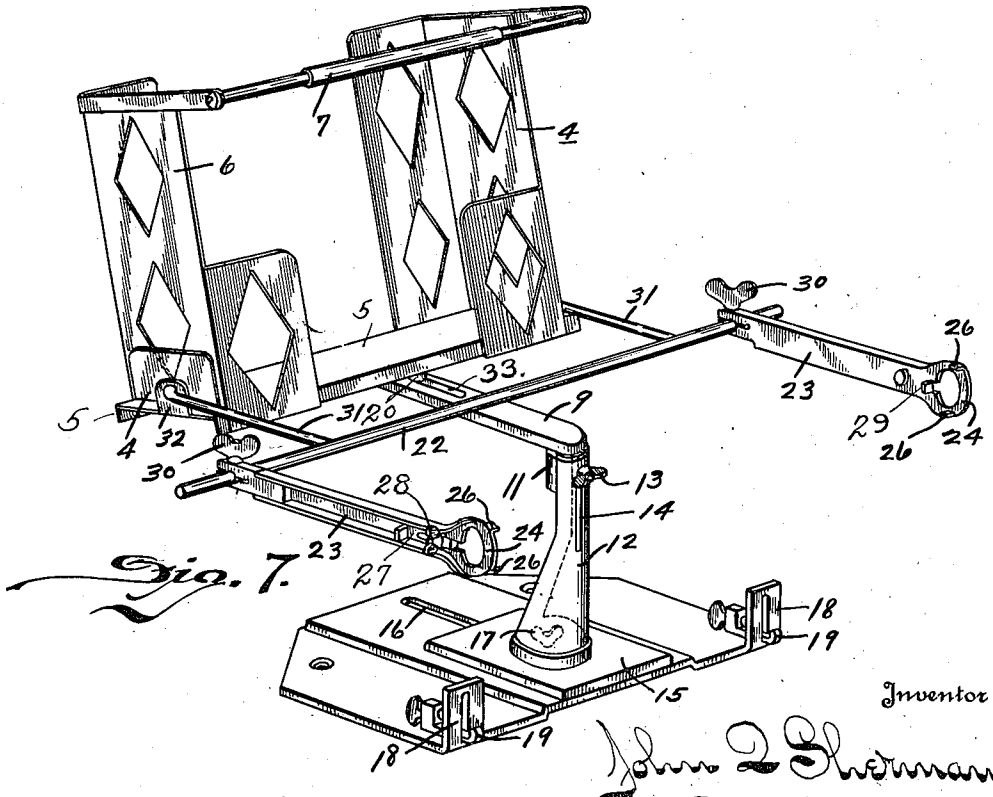


Fig. 7.

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UNITED STATES PATENT OFFICE

2,049,085

MANIFOLDING ATTACHMENT FOR WRITING MACHINES

John Q. Sherman, Dayton, Ohio

Application June 12, 1930, Serial No. 460,764

11 Claims. (Cl. 197—133)

This invention relates to manifolding attachments for typewriters, billing machines, and the like, and more particularly to a paper carrier for supply strips of record and carbon material which are preferably though not necessarily, superposed one upon the other and reversely folded into zigzag form.

In the present invention there is contemplated a swinging basket or carrier for the manifolding material supply which is applicable to any standard typewriter or billing machine and is mounted upon a horizontal oscillatory arm swinging in unison with the to and fro reciprocatory motion of the typewriter carriage to which the basket and arm are yieldingly coupled to permit independent vertical movement of the carriage as may be necessary. This coupling of the carrier and typewriter carriage may be effected by an arm rigidly secured upon the typewriter carriage and extending through a slot in the basket or in the arm, or vice versa, or as illustrated in the drawings a coupling yoke may be employed having pivotal engagement with the platen roll knobs of the typewriter carriage or other suitable portion of such structure, and extending upon opposite sides of the carrier basket. Such yoke yields vertically with the vertical movement of the typewriter carriage independently of the carrier basket, but shifts the latter in unison with the lateral movement of the carriage. While the swinging carrier arm may be mounted directly upon the typewriter, if desired, it has been shown supported upon a pedestal attached to the typewriter frame by suitable clamps and upon which the pivotal support of the arm is vertically adjustable, the pedestal being further adjustable to and fro relative to the typewriter to accommodate the device to typewriter frames of different designs.

The object of the invention is to simplify the structure as well as the means and mode of operation of manifolding material carriers for typewriters, billing machines, and the like, whereby they will not only be cheapened in construction but will be more efficient in use, positive in operation, automatic in action, easily actuated and unlikely to get out of repair.

A further object of the invention is to provide a manifolding material carrier which will be substantially universal in its application to typewriters and billing machines of different style and design, and which will comprise a unitary structure engageable with a typewriter or analogous machine, without the use of special tools.

A further object of the invention is to provide a manifolding material carrier operable in unison with the typewriter carriage with minimum effort and affording minimum resistance to the normal operation of the typewriter or billing machine.

A further object of the invention is to provide improved means for mounting a manifolding material carrier upon the typewriting or billing machine and to provide adjustable means for adapting such carrier to typewriters and billing machines of different styles.

A further object of the invention is to provide improved coupling means between the typewriter carriage and the manifolding material carrier which while moving the carrier in unison with the travel of the carriage, will permit independent vertical movement of the latter as may be necessary in performing its usual functions.

A further object of the invention is to provide a carrier and actuating means therefor wherein the tension upon the manifolding material will be relieved and the manifolding material be given a preliminary advancing movement during the return travel of the carrier and typewriter carriage preparatory to the succeeding writing operation.

With the above primary and other incidental objects in view, as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation or their equivalents as hereinafter described and set forth in the claims.

Referring to the accompanying drawings wherein is shown the preferred, but obviously not necessarily the only form of embodiment of the invention, Fig. 1 is a top plan view of the swinging carrier or basket for manifolding material and its mounting applied to the typewriter.

Fig. 2 is a side elevation of the assembled carrier and its mounting applied to a typewriter.

Fig. 3 is a perspective view of the carrier and its mounting disconnected from the typewriter.

Fig. 4 is a detail sectional view illustrating the interconnection of the coupling yoke with the platen roll knobs of the typewriter carriage.

Fig. 5 is a detail view of the interior face of the adjustable connecting head.

Fig. 6 is a detail plan view of the carrier basket illustrating its adjustability to manifolding supply packets of different size.

Fig. 7 is a perspective view similar to Fig. 3 illustrating a modification wherein the carrier

basket possesses a to and fro movement in a straight path of travel.

Fig. 8 is a side elevation of a portion of the apparatus illustrating a modification of the coupling means between the carrier and the traveling typewriter carriage.

Fig. 9 is a detail view of the modification shown in Fig. 8.

Fig. 10 is a further detail view.

Like parts are indicated by similar characters of reference throughout the several views.

In the accompanying drawings, 1 indicates a portion of the traveling carriage of an ordinary typewriter or billing machine, and 2 a rear portion of the frame of such typewriter or billing machine and 3 the platen roll thereof. The manifolding material carrier forming the subject matter hereof is adapted to be mounted in the rear of the typewriter or other machine for transverse alternating motion in unison with the to and fro travel of the typewriter carriage. This carrier comprises a basket or holder 4 of suitable shape and proportion to receive the packet of superposed manifolding material. In the event that the manifolding material is superfolded into a zigzag formation, such packet may be laid flat within the basket or receiver 4 and the folds withdrawn from the top of the stack or packet as used, or such packet may be arranged vertically to stand upon the folds at one end of the packet or stack, in which case the folds are withdrawn from the side of the supply packet as used. While the holder or basket 4 may be of latticed or slat construction, it preferably comprises a base 5 on which are adjustably mounted end portions 6 slidingly movable toward and from each other within the limits of slots in which engage clamp bolts 8. At the top of the basket or receiver 4 there is provided a telescopic guide rod 7 over which the strips of manifolding material are drawn from the basket in their travel to the typewriter or billing machine.

The basket or receiver 4 is pivotally mounted upon a horizontal swinging arm 9. This arm 9 carries at one end a pivotal stud or pintle 10 journalled within a trunnion block 11 preferably slidingly secured to the top of a supporting pedestal 12 for vertical adjustment. The bearing block 11 is secured at suitable heights upon the pedestal 12 by means of the clamp nut 13 which serves to secure the bearing block 11 at any desired point within the limit of a slot 14 in the pedestal 12. At its lower end the pedestal 12 is adjustable in a fore and aft direction upon a base plate 15 within the limits of the slot 16. It is secured in adjusted position by a second clamp nut 17. This fore and aft adjustment of the standard or pedestal 12 relative to the base plate 15 enables the pedestal to be positioned in such relation as to clear any projecting portions of the typewriter frame or operating mechanism to which the base 15 may be secured. The pedestal base 15 is provided with lugs or ears 18 through which project hook-shaped bolts or studs 19 for engagement with the frame 2 of the typewriter or billing machine to clamp the carrier structure in fixed relation thereto. Adjacent to its free end, the swinging arm 9 carries a pivotal stud 20 preferably though not necessarily adjustable longitudinally of the swinging arm 9 and removably projecting within a socket 21 secured to the bottom of the basket or receiver 4. Thus the basket or receiver 4 is swiveled upon the arm 9 in such manner that the basket 4 may maintain its parallel relation with the typewriter carriage throughout its to and fro swinging motion about the pivotal connection of the supporting arm pintle 10 with the bearing block 11.

For the purpose of flexibly coupling the carrier basket 4 with the typewriter carriage for unison travel, there is provided a coupling yoke comprising the rod 22 extending parallel with the traveling carriage 1 of the typewriter and immediately to the rear thereof, from which rod 22 there projects forwardly a pair of spaced arms 23 adjustably secured upon the rod 22 and carrying at their free ends annular bearing heads 24 which seat within the recesses or depressions ordinarily found in the outer faces of the platen roll knobs 25 of the typewriter carriage 2. It is rather a coincidence that all standard typewriters and billing machines have platen roll knobs formed with depressions or sockets in their faces which differ but little in their shape and sizes. However, to accommodate the coupling yoke to typewriting and billing machines having differently shaped platen roll knobs, the bearing heads 24 of the arms 23 are adjustable to correspond with the particular platen roll knobs with which they are to be engaged. The heads 24 of such arms are each formed with two relatively fixed projecting lugs 26 for engagement in the recess of the platen roll knob 25. Adjustably secured upon each arm 23 is a slide 27 secured in adjusted position by the clamp bolt 28 and carrying a lug 29 cooperating with the fixed lugs 26, and adjustable relative thereto by adjustment of the slide. These lugs form a three point bearing within the recess of the knob and by their relative adjustment are made to fit knobs of different size. The arms 23 are fixedly secured upon the yoke rod 22 by means of clamp or set screws 30. By adjusting the arms 23 upon the rod 22 until the heads 24 are securely but moderately loosely seated within the cavities or recesses of the platen roll knobs 25, the set screws 30 may be tightened to hold the yoke in its adjusted relation with the typewriter carriage. The yoke, however, is capable of swinging motion relative to the typewriter carriage in which the pivotal heads 24 of the yoke turn slightly within the recesses of the platen roll knobs 25.

Secured upon the yoke rod 22 and projecting rearwardly therefrom are two parallel arms 31 which extend upon opposite sides of the carrier basket 4 resting loosely upon the projecting ends of the base 5 of the holder or basket 4.

As the typewriter carriage 1 travels to and fro, the coupling yoke moving with it carries the manifolding material supply basket or holder 4 in unison therewith. However, the basket being carried upon the swinging arms 9 will describe an arcuate path in which it approaches toward the typewriter carriage 1 at the opposite limits of its stroke and recedes therefrom toward the middle of the stroke. However, due to the bearing of the rearwardly extending arms 31 of the coupling yoke on the base 5 at opposite sides of the carrier basket 4, the basket is maintained in its parallel relation with the carriage throughout its full swinging movement in either direction. Being supported upon the free swinging arms 9, the carrier basket 4 even when loaded with ample supply of manifolding material moves freely and offers minimum resistance to the travel of the typewriter carriage 1. During the return movement of the carrier basket in unison with the return of the typewriter carriage preparatory to

the succeeding writing operation, the receding motion of the basket until it passes a central position tends to draw a slight additional amount of manifolding material from the supply, and as the basket passes its center and tends to approach the carriage, the tension upon the manifolding material supply is relieved and a small amount of slack provided, which relieves the typewriter carriage of tension or pull upon the material during the writing operation. This small amount of slack is taken up as the basket moves rearwardly during the initial portion of its swinging stroke, and again accumulates as the basket approaches the typewriter carriage during the latter portion of its swinging movement. However, at no point during the operative or writing movement of the typewriter carriage does the basket exert any strain or undue tension upon the strips of manifolding material.

Upon the vertical movement of the typewriter carriage under influence of the shift key as is necessary in the operation of most typewriters to write capitals or symbols, the coupling yoke has a slight pivotal motion relative to the platen roll knobs **25** while the rearwardly extending arms **31** are permitted a slight rocking motion upon the projecting base of the carrier basket. This motion is so limited as not to affect in any way the travel of the swinging carrier basket in its progress through its swinging motion in unison with the reciprocatory motion of the typewriter carriage **1**.

While the holder or basket mounted as before described travels in an arcuate path due to the fixed relation of the mounting pintle or pivotal stud **20** upon the carrier arm **9**, it is quite possible with but little change to cause the holder or basket **4** to travel in a straight path parallel with that of the carriage. Such modification is illustrated in Fig. 7 wherein the rearward ends of the yoke arms **31** are pivoted in ears **32** in the base **5** of the holder **4** to permit a slight vertical swinging motion of the yoke relative to the holder as the typewriter carriage **1** rises and falls, but which resists any horizontal motion of the holder or basket relative to the arms and insures lateral motion of the holder in unison with the writing machine carriage. The arms **31** being pivoted to the holder or basket maintain it in constant spaced parallel relation with the writing machine carriage. To compensate for the differential movement of the swinging carrier arm **9** and the reciprocatory holder or basket **4**, the pintle or pivotal stud **20** affording swivel connection of the holder or basket with the carrier arm is free for to and fro free shifting motion within the slot **33** of the arm **9**. The arm **9** thus supports the holder or basket in all positions of adjustment. The point of connection however varies radially throughout the alternating strokes. Obviously the arm **9** might have sliding motion through a slot or guide collar **34** on the bottom of the holder in lieu of being mounted upon a shifting pivotal stud, as shown in Fig. 10.

In lieu of the coupling yoke heretofore described, there is shown in Fig. 8 a modification wherein a single arm or rod **35** is clamped or otherwise fixedly secured to a transverse rod **36** ordinarily found on the rear of the paper guide of standard typewriter constructions. This rod **35** secured to and moving with the typewriter carriage projects rearwardly through aligned slots **37** in the dependent forward and rearward flanges **38** of the base **5** of the carrier basket **4**. The extension of this rod through the aligned slots **37** in the spaced base flanges serves to keep the basket in aligned parallel relation with the travelling typewriter carriage. The rod **35** is free to extend to greater or less distance through the slots in these dependent flanges **38** as the carrier basket approaches toward and recedes from the typewriter carriage with the to and fro swinging motion of the arm **6**. The elongation of the slots or openings in the dependent flanges **38** through which the rod **35** projects enables the rod to rise and fall within such slotted openings in unison with the rise and fall of the typewriter carriage **1** when operated by the usual shift key. This rising and falling motion of the rod **35** with the vertical movement of the typewriter carriage does not, however, affect nor interfere with the to and fro lateral movement of the carrier basket **3**.

While the coupling yoke has been shown and described as detachably engaged with the platen roll knobs for convenience of application to existing machines, it is obvious that the coupling means may be otherwise mounted upon the writing machine carriage as for example in the manner shown in my prior Patent No. 1,418,480 of June 6, 1922. Likewise, while the present device has been shown and described as especially adapted for use of superfolded or zigzag packets of manifolding material, a supply roll of alternating strips of record and transfer material or separate supply rolls therefor may be mounted upon the carrier or holder as shown in said former patent.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect and the invention is, therefore, claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. The combination with a writing machine including a reciprocatory carriage, of a traveling holder for manifolding material, a swinging arm on which the holder is mounted in balanced relation in a plane parallel to the movement of the carriage for to and fro oscillatory motion through an arcuate path, a mounting for said arm detachably engageable with the writing machine frame, and a yoke carried by the writing machine carriage and having abutting contact engagement with the holder at opposite sides for moving the holder in unison with the travel of the carriage.

2. In a construction of the character described, a holder for strips of manifolding material, a swinging arm upon one end of which the holder is pivotally supported, a fixed support upon which the other end of said arm is pivotally mounted, and an actuating arm carried by the traveling carriage of a writing machine and having loose lateral contact engagement for actuating the holder and swinging arm in unison with the to

and fro motion of the traveling carriage of a writing machine.

3. The combination with a writing machine including a traveling carriage, of a traveling holder for manifolding material associated therewith, coupling means for effecting unison travel of the holder and carriage, and means for shifting the holder to effect a pulling effort upon the manifolding material to relieve the tension thereof by the return movement of the traveling carriage, said last mentioned means including an arm having one end pivotally mounted in fixed relation with respect to the frame of the writing machine and the other end pivotally supporting the holder in balanced relation in a direction parallel to the movement of the carriage.

4. The combination with a writing machine including a traveling carriage, of a traveling holder for manifolding material, a swinging arm upon which the holder is carried, a pivotal connection between the arm and holder, parallel spaced arms extending on opposite sides of the holder and traveling carriage respectively and loosely embracing both said structures to maintain parallel alinement of the holder and carriage and to move the holder in unison with the travel of the carriage.

5. In a construction of the character described, a writing machine including a traveling carriage, a platen roll on said traveling carriage, recessed knobs at the ends of the platen roll, a traveling holder for manifolding material, a coupling yoke connecting the traveling holder and traveling carriage for unison movement, arms on said yoke, bearing heads on said arms seated in the recesses of the platen roll knobs and having rocking motion therein sufficient to compensate for the rise and fall of the traveling carriage independently of the movement of the holder.

6. The combination with a writing machine including a traveling carriage and a platen roll carried thereby, of a traveling holder for manifolding material, coupling means for effecting unison travel of the holder and carriage, and means for transmitting to the manifolding material a feeding motion out of the holder simultaneously with its travel motion and independently of the movement of the platen roll, said last mentioned means including an arm having one end pivotally mounted in fixed relation with respect to the frame of the writing machine and the other end pivotally supporting the holder in balanced relation in a direction parallel to the movement of the carriage.

7. The combination with a writing machine including a traveling carriage and a platen roll carried thereby, of a traveling holder for manifolding material associated therewith, coupling means for effecting unison travel of the holder and carriage, and means for adjusting the tension of the manifolding material by the travel motion of the holder, said last mentioned means including an arm having one end pivotally mounted in fixed relation with respect to the frame of the writing machine and the other end pivotally supporting the holder in balanced relation in a plane parallel to the movement of the carriage.

8. In a device of the character described, a typewriter, a web support, means for mounting the web support for movement on an arc in a substantially horizontal plane, with the axis of the arc toward the typewriter, means for moving the support laterally in synchronism with the carriage of the typewriter, the whole so arranged that the support is closer to the typewriter at the ends of the carriage movements than it is in the center of such movements, to provide a slack in the web mounted on such support.

9. In a web support, a box having sides, means for pivotally supporting the box for arcuate movement in a substantially horizontal plane, an actuating arm having a portion arranged for disposition longitudinally of the box in parallelism with a side, and restraining guide means mounted on the box on opposite sides of the pivot to maintain the parallel relation of the arm and the said side during the actuating transverse movement of said arm, and means to move said arm.

10. In a device of the character described, in combination, a writing machine having a movable carriage, a web support, a swinging supporting arm for the web support having a supporting pivot and having its swinging end disposed away from the writing machine from said supporting pivot, said web support being directly pivotally connected to and supported upon said supporting arm at a point thereof positioned rearwardly of said supporting pivot whereby the web support moves toward the writing machine as said supporting arm approaches one extremity of its swinging movement, and means for swinging said arm and web support in synchronism with carriage movement.

11. In a device of the character described, in combination, a writing machine having a movable carriage, a web support, a swinging supporting arm for the web support having a supporting pivot and having its swinging end disposed away from the writing machine from said supporting pivot, said web support being directly connected to and supported upon said supporting arm at a point thereof positioned rearwardly of said supporting pivot, said supporting pivot being positioned relatively to the writing machine so that said web support is farthest away from said carriage when said swinging supporting arm is in an intermediate position in its swinging movement, and means for swinging said arm and web support in synchronism with carriage movement.

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