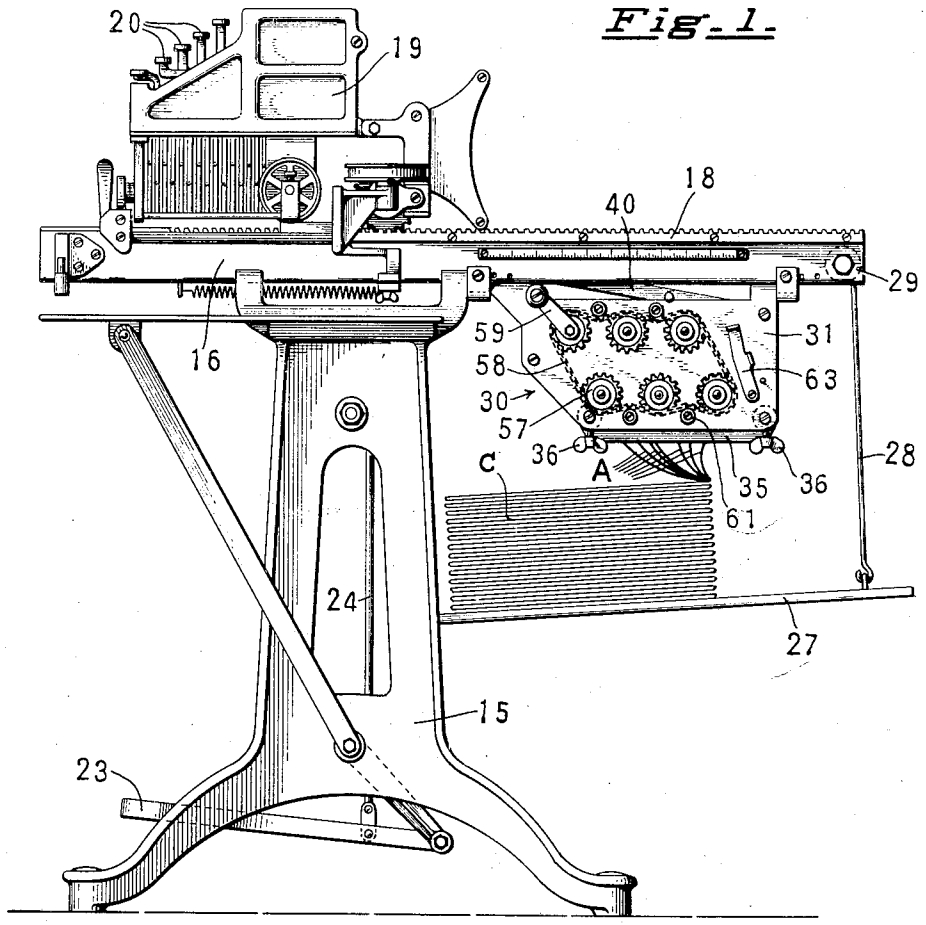
Aug. 16, 1932. W. J. WISWALL 1,872,206

CARBON MANIFOLDING APPARATUS

Filed May 11, 1928 5 Sheets-Sheet 1

Fig. 1.



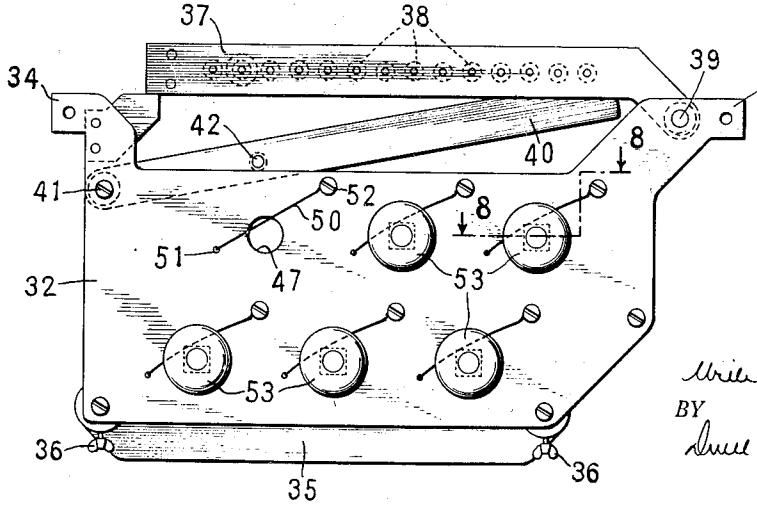


Fig. 2.

INVENTOR.
William J. Wiswall
BY
Russell Dunn Anderson
ATTORNEYS.

Aug. 16, 1932. W. J. WISWALL 1,872,206

CARBON MANIFOLDING APPARATUS

Filed May 11, 1928 5 Sheets-Sheet 2

Fig. 3.

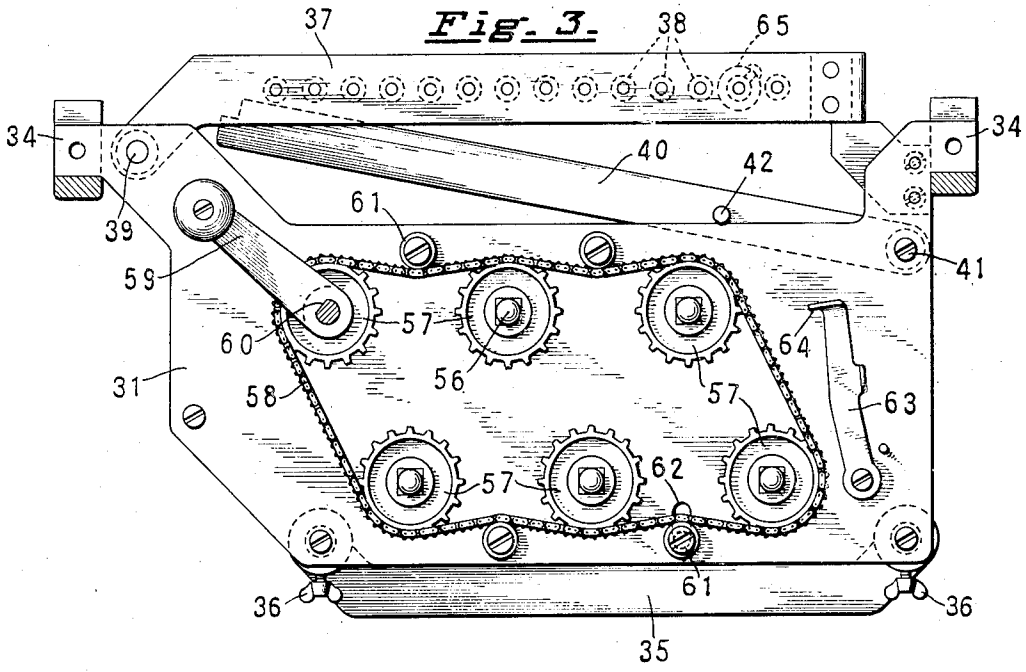
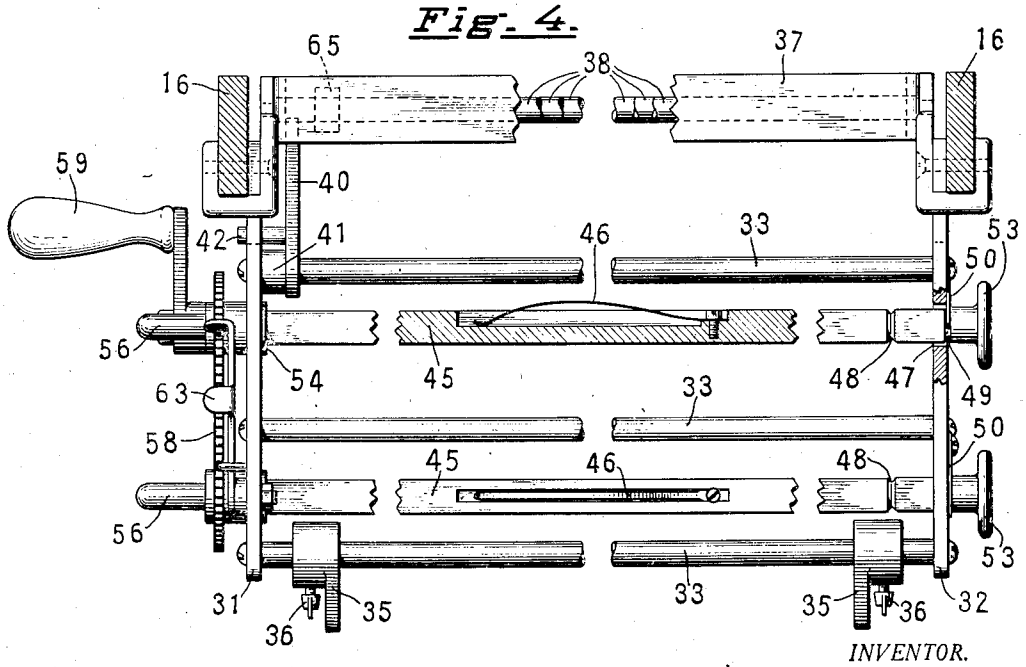


Fig. 4.



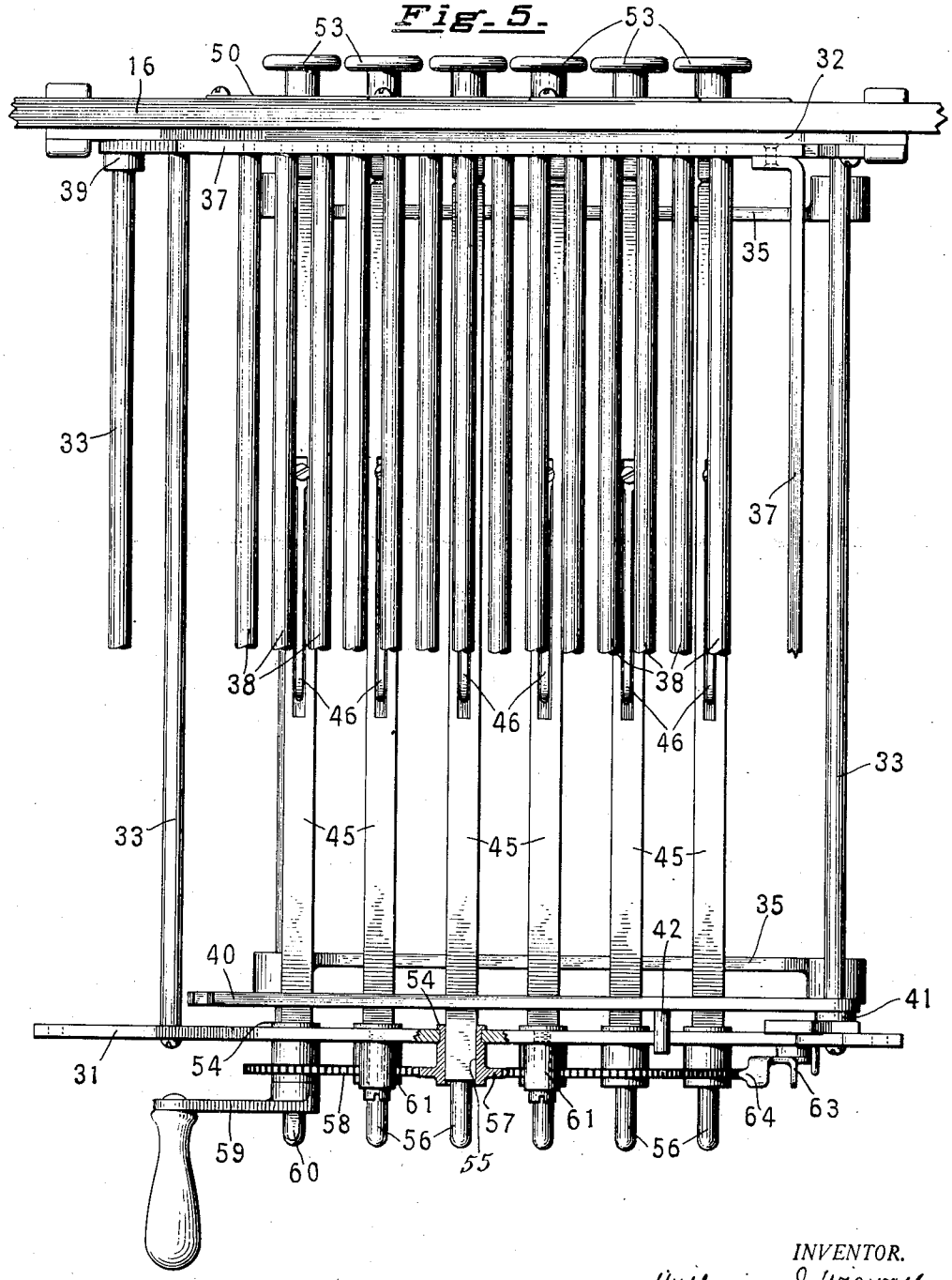
INVENTOR.
William J. Wiswall
BY Duell Dunn & Anderson
ATTORNEYS.

Aug. 16, 1932. W. J. WISWALL 1,872,206

CARBON MANIFOLDING APPARATUS

Filed May 11, 1928 5 Sheets-Sheet 3

Fig. 5.



INVENTOR.
William J. Wiswall
BY
Dunn & Anderson
ATTORNEYS.

Aug. 16, 1932. W. J. WISWALL 1,872,206

CARBON MANIFOLDING APPARATUS

Filed May 11, 1928 5 Sheets-Sheet 4

Fig. 6.

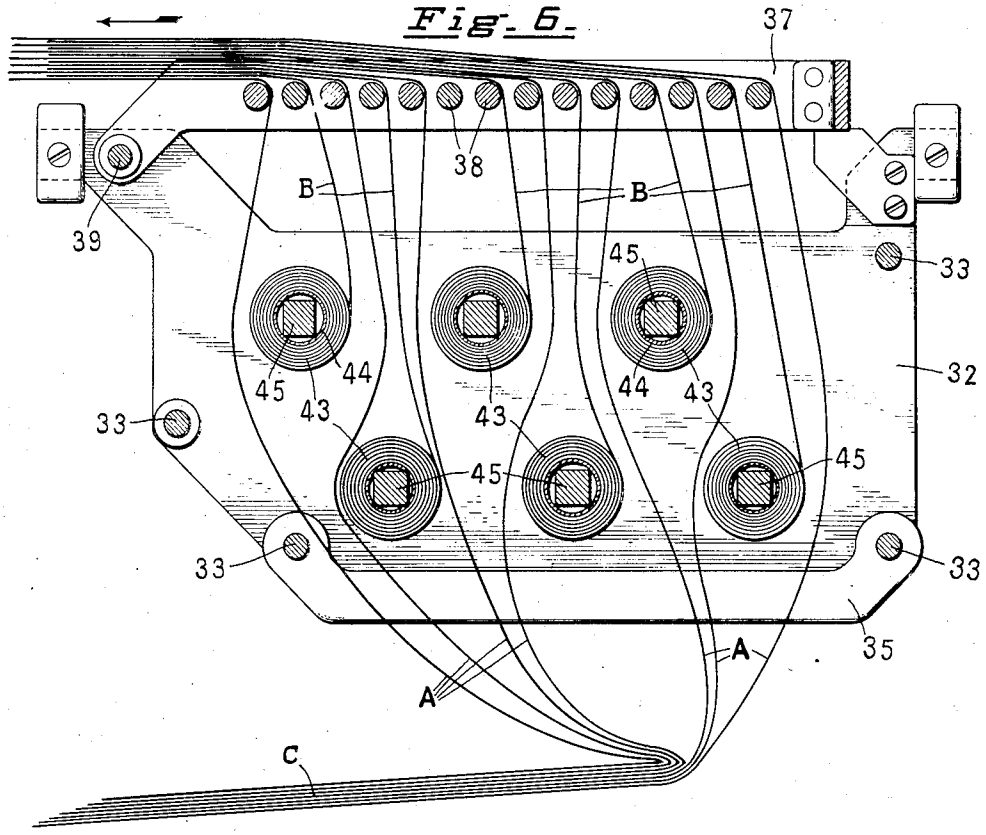
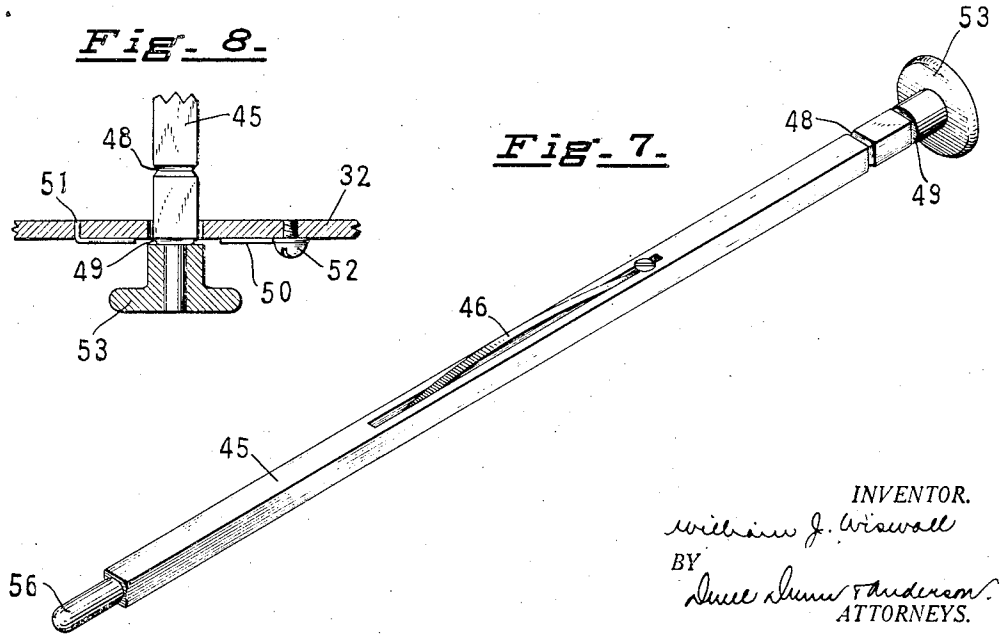


Fig. 8.

Fig. 7.



INVENTOR.
William J. Wiswall
BY
Duell Dunn & Anderson.
ATTORNEYS.

Aug. 16, 1932. W. J. WISWALL 1,872,206

CARBON MANIFOLDING APPARATUS

Filed May 11, 1928 5 Sheets-Sheet 5

Fig. 9.

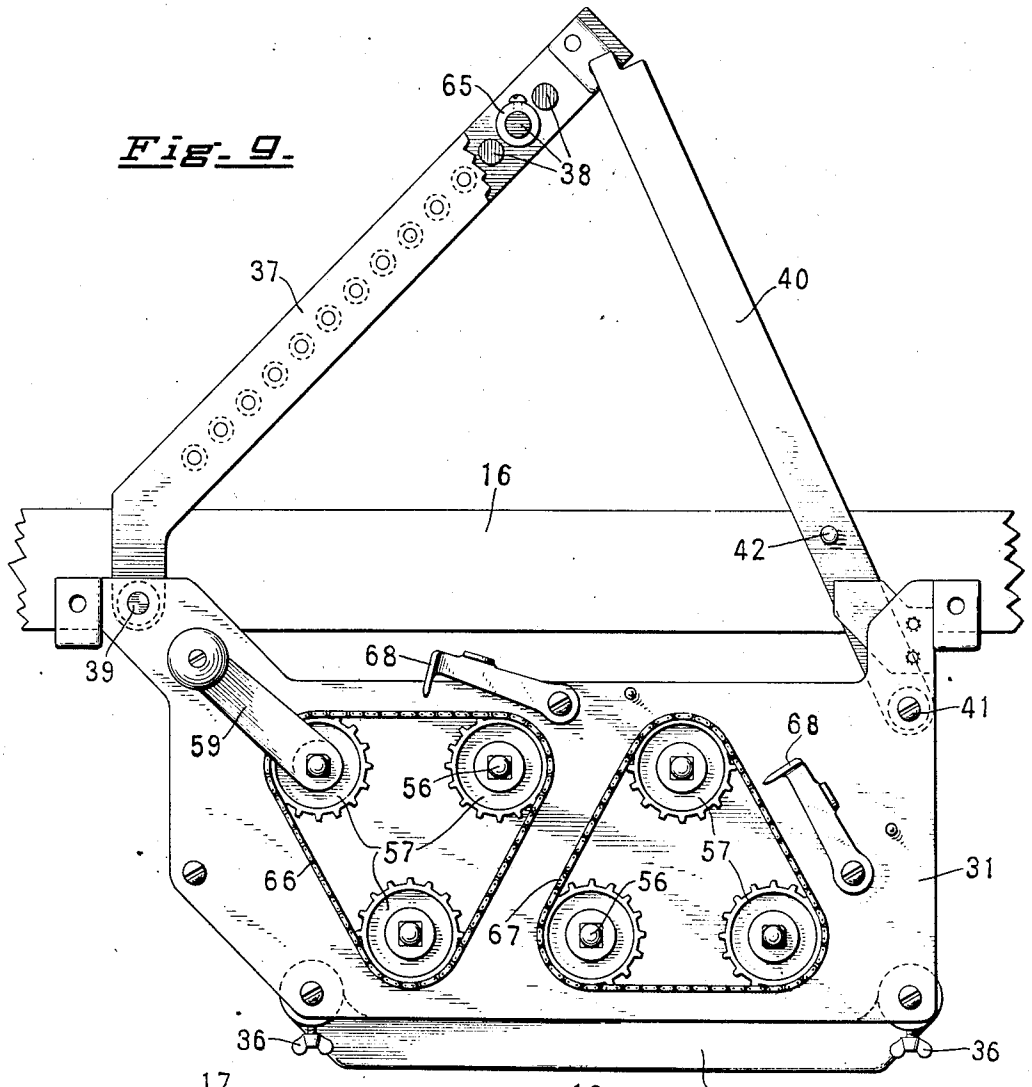
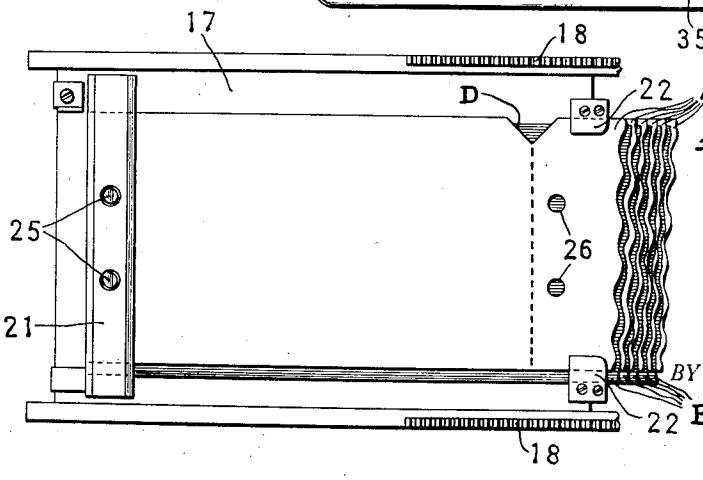


Fig. 10.



INVENTOR.
William J. Wiswall
BY
Duell Dunn & Anderson
ATTORNEYS.

Patented Aug. 16, 1932 1,872,206

UNITED STATES PATENT OFFICE

WILLIAM J. WISWALL, OF PORTLAND, OREGON, ASSIGNOR TO AMERICAN SALES BOOK COMPANY, LIMITED, A CORPORATION OF ONTARIO, CANADA

CARBON MANIFOLDING APPARATUS

Application filed May 11, 1928. Serial No. 276,965.

This invention relates to improvements in manifolding machines such, for example, as typewriting machines or the like, and more particularly with reference to certain phases the invention relates to improvements in apparatus for supporting and manipulating carbon or similar transfer sheets.

It is a general object of the invention to provide in machines of the class mentioned an improved apparatus for supporting and manipulating the transfer sheets whereby more satisfactory manifolding may be accomplished.

Another object is to provide in machines of the class mentioned, an improved apparatus for supporting and positioning the transfer sheets relatively to the record strips or sheets which, while being durable and easy and satisfactory of manipulation, is simple in construction and inexpensive in manufacturing costs, and moreover is adaptable for use in machines of existing construction without any considerable alteration of the latter.

A further and more particular object of the invention is to provide in machines of the class mentioned using continuous longitudinal travelling form sheets or record sheets, an improved carbon or transfer sheet supporting apparatus adapted to support one or a plurality of continuous longitudinally travelling carbon or similar transfer sheets.

A further object is to provide in machines of the class mentioned, adapted for using continuous longitudinally travelling form sheets, an improved supporting mechanism whereby continuous transfer sheets may be supported for longitudinal travelling movement so as to permit fresh lengths or stretches of the transfer sheets to be brought into manifolding position, while the used stretches may be severed and discarded.

Still another object of the invention is to provide in machines of the class mentioned, an improved supporting apparatus for a plurality of carbon sheets whereby the latter may be adjusted longitudinally, either individually or collectively, and whereby the carbon sheets may be adjusted to overlap the record sheets in different degrees so as to effect selective transfer of inscriptions to the record sheets.

A further object is to provide for typewriting machines of the flat platen type an improved transfer sheet adjusting mechanism whereby said sheets may be adjusted longitudinally of the bed or platen of the machine.

A further object is to provide in machines of the class mentioned, an improved transfer sheet support having a plurality of carbon carriers or spools arranged to permit threading therebetween of the continuous traveler record strips, whereby the carbon sheets may be conveniently interleaved with the record strips in loading the machine and supported in convenient relation for adjustment, and for satisfactory manifolding when the machine is loaded.

Another object is to provide in machines of the class mentioned, utilizing continuous longitudinally travelling record strips, an improved separator arrangement for separating the record strips and carbon sheets and preventing undue friction therebetween during the manifolding operation.

Another object is to provide in machines of the class mentioned utilizing continuous longitudinally travelling record strips, an improved guide arrangement for the record strips and transfer sheets whereby different widths of record strips and different widths of carbon sheets may be conveniently utilized so as to effect selective inscription.

A further object is to provide in machines of the class mentioned, an improved mounting and operating mechanism for individual supporting spools for the carbon sheets.

Another object is to provide an improved carbon supporting arrangement for single platen manifolding machines whereby sep-

arate sets or forms of different nature such, for example, as invoices and bills of lading, may be conveniently utilized, one set of forms being written upon and then the other set later inscribed by means of a single shift of the forms into writing position upon the platen.

Other objects will be in part pointed out in the following detailed description of an illustrative but preferred embodiment of the invention, and will be in part obvious in connection therewith.

The invention accordingly comprises the features of construction in combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a more complete understanding of the nature and objects of the invention reference is had to the following detailed description and to the accompanying drawings in which:—

Figure 1 is a side elevation of a billing machine of the flat platen type, embodying the invention;

Fig. 2 is an enlarged side elevation of the transfer sheet supporting unit detached from the machine, showing the opposite side thereof from that seen in Fig. 1;

Fig. 3 is an enlarged side elevation thereof viewing the same side as seen in Fig. 1;

Fig. 4 is a fragmentary enlarged plan view of the transfer sheet unit, parts being broken away and in section to facilitate disclosure;

Fig. 5 is an enlarged plan view of the transfer sheet unit showing the spacing rods or guides for the form or record sheets and for the transfer sheets;

Fig. 6 is an enlarged vertical, central, longitudinal section, through the transfer sheet support, showing the transfer sheet rolls diagrammatically;

Fig. 7 is a perspective view of one of the supporting spindles for the transfer sheet spools;

Fig. 8 is a fragmentary section taken substantially on the line 8—8 of Fig. 2,

Fig. 9 is a side elevation of the transfer sheet unit similar to Fig. 3, but showing a modification of the driving mechanism for the transfer sheet spools, and

Fig. 10 is a fragmentary plan view of one end of the machine showing the platen and the record and carbon sheets in position thereon.

Referring to the drawings for a detailed description, the embodiment of the invention there shown is applied to a billing machine of the flat platen type and embodying features of construction known to those skilled in the art. This machine embodies a supporting pedestal 15 carrying at its upper portion a bed indicated generally at 16.

On the bed of the machine is mounted in substantially horizontal position a flat platen 17 and at opposite lateral edges of the platen are supporting rails 18, upon which is mounted for longitudinal movement backwardly and forwardly over the platen, a typewriting machine 19. This typewriting machine, as will be understood by those familiar with this art, may be mounted for lateral movement upon a carriage mounted for longitudinal movement on the rails, and carries type bars (not shown) operated by keys 20 for striking and writing upon the surface of the form or record sheets carried by the flat platen.

Also, it will be understood that the typewriting machine is moved longitudinally over the platen to effect line spacing and is moved laterally upon its supporting carriage to effect letter spacing.

At the forward end of the platen 17 is transversely disposed a strip-clamping and cutter bar 21 suitably mounted for operation by appropriate control mechanism for vertical movement, so as to be moved into gripping contact with the form sheets or record strips A.

Spaced rearwardly from the clamping bar 21 and at opposite lateral edges of the platen are clamping lugs 22 also mounted for vertical movement and having portions extending inwardly to overlie the edges of the record strips A and also the carbon or transfer sheets which are indicated at B.

Operating mechanism for these forward and rearward clamping members, whereby they may be controlled by the operator to release or grip the strips, is provided, including the pedal 23 pivotally mounted on supports at the lower part of the pedestal 15. The pedal may be connected to suitable controlling mechanism for the clamping members (not disclosed herein) by means of a connecting link 24.

If desired, aligning pins 25 may also be mounted at the forward end of the platen, these being adapted to enter aligning apertures 26 in the record strips.

The construction and operation of the clamping and aligning mechanism need not be further described herein as they will be understood by those skilled in the art.

At the rear side of the machine, beneath the bed 16, there is a record strip supply support 27 which may be in the form of a plate, as shown, attached at its inner end to the pedestal 15, and suspended at its outer end by links 28, which may be connected at their upper ends to a transverse bar 29 extending between the side frame members of the bed. One or more supply pads C which may be in the form of a zigzag folded pack, as shown, may be carried by the supporting plate 27 in position so that the record strips A passing

therefrom may be threaded into superposed manifolding relation over the platen 17.

Preferably, immediately above the supporting plate 27, there is mounted a transfer sheet supporting unit indicated generally at 30. This supporting unit may be in the form of a frame having side frame plates 31 and 32 spaced apart and connected by tie rods 33. The transfer sheet supporting unit is preferably provided with supporting and attaching lugs 34 which may form continuations of the side plates, as shown, and by means of which the unit may be detachably mounted at the underside of the rear end of the bed 16 so as to lie intermediate the supply pack C and the writing platen 17. Any preferred attaching or clamping means may be provided for securing the lugs 34 to the bed of the machine.

Paper guide bars 35 may be carried by the lower tie rods 33 being preferably mounted thereon for lateral adjustment and provided with clamping screws 36 for securing them in adjusted position. These guide bars cooperate with the edges of the traveller record strips A to guide them from the supply pad into correct position between the side plates of the carbon or transfer unit 30.

A supporting frame 37 carrying guide bars or rollers 38 for the record strips A and for the transfer or carbon sheets is supported at the upper part of the transfer sheet supporting unit. This supporting frame is positioned so as to lie substantially between the side frame members of the bed 16 of the machine, and the guide bars thereof lie when in operative position approximately in the plane of the platen 17.

The frame 37 may also be pivotally supported preferably at its forward edge as indicated at 39, whereby it may be swung upwardly into inclined position to facilitate threading of the record strips and transfer sheets over the guide bars 38 during loading of the machine. In order to support the frame 37 in inclined position, a brace 40 is pivoted at one end thereof as at 41 to the side plate 31. A lug 42 may be provided upon the brace 40 cooperating with the side plate 31 to support the brace in inoperative position. When it is desired to elevate the frame 37 the supporting brace 40 is swung upwardly (as shown in Figure 9) the upper end thereof contacting with the outer or end plate of the supporting frame.

Mounted between the side plates 31, 32 of the transfer sheet unit are a plurality of carbon or transfer sheet rolls indicated generally at 43, each having a length of carbon sheet B wound thereon as clearly shown in Fig. 6. There may be as many of these transfer sheet spools as desired, dependent upon the number of transfer copies for the particular work in hand. In the embodiment shown there are six spools for use in a seven part device. Each roll is preferably provided with a core or spool 44 to which the end of the sheets B may be attached in any preferred manner.

The rolls 43 are preferably arranged so as to provide passageways therebetween through which the record strips A may pass from the slide pack C to the guide rollers 38. For this purpose, as shown the rolls may be arranged in two layers, the rolls of the upper layer being staggered vertically with those of the lower layer. These rolls, therefore, function as spacers or separators for the reaches of record strip A.

Each roll 43 is carried by a rotary supporting spindle 45 rotatably mounted in appropriate bearings carried by the respective side plates 31 and 32. As shown in Figs. 4 and 7 the spindles 45 may be provided with leaf springs 46 secured at one end in recesses formed in the spindles and having the opposite ends rounded and contacting with the bottoms of the recesses. The springs 46 are tensioned to bow outwardly intermediate their ends so as to frictionally contact with the inner surface of the cores 44 so as to form a friction clutch between the core and spindle. If desired, some other suitable well known form of driving connection may be provided between the spindles 45 and the cores 44, that shown being illustrative merely.

As best shown in Figs. 4 and 8, each spindle 45 may be conveniently supported for rotation in the frame plate 32 by means of a circular aperture 47 through which the end of the spindle extends. The spindle is preferably square in cross-section, or of other non-circular cross-section, but the corners, which may be rounded, provide sufficient support with the circular bearing apertures.

Peripheral grooves 48, 49 are provided near one bearing end of the spindle 45 being spaced apart longitudinally thereof and extending continuously all the way around the spindle. A locking spring 50 is mounted on the outer face of the frame plate 32 adjacent each spindle and extends transversely of the latter in position to enter one or the other of the grooves 48, 49 dependent upon the longitudinal adjustment of the spindle. This locking spring as disclosed is in the form of a spring wire having one end thereof, as at 51, anchored to the frame plate 32 while the other end is secured to said frame plate by means of a screw 52 whereby the locking spring may be adjusted.

The adjustment required is usually very slight in order to correctly tension the locking springs, and may be accomplished by providing an attaching eye in the spring wire slightly larger than the shank of the screw, this eye being gripped against the adjacent face of the frame plate by the head of the screw.

For turning the spindles individually a

turning knob 53 may be provided for each spindle, being attached to the protruding end thereof in any desired manner. By means of these knobs the spindles may be individually rotated so as to individually adjust the transfer sheets. These knobs may also be used for holding the spindles when they are placed in supporting position or to adjust them longitudinally within the supporting frame to bring either one of the grooves 48, 49 into alignment with the locking spring 50.

At their opposite ends the spindles 45 are supported in bushings or bearings 54 rotatably mounted in the frame plate 31. Each bearing bushing 54 has an inner face positioned inwardly near the inner surface of the frame plate, being there provided with a square seat or socket 55 for the reception of the adjacent square portion of the respective spindle. This construction provides a positive clutch between the bearing bushing and the spindle whereby rotation of the bushing will cause rotation of the spindle. Each spindle 45 is provided at its end opposite the knob 53 with an extension 56 from the squared portion, this extension being preferably circular in cross-section, or having circular bearing surfaces. This circular bearing extension 56 is adapted to rest in the socket 55 of the bearing bushing when the spindle is retracted, thus permitting relative rotation between the spindle and the bearing bushing.

When the spindle is thus retracted, the locking spring 50 lies in the groove 48 so as to retain the spindle and spool in this position. This is for the purpose of permitting individual longitudinal adjustment of each transfer sheet B. It will be observed that each spindle is thus locked by means of the respective spring 50 in each of two longitudinal operative positions.

Attached to, and preferably integral with, each bearing bushing 54 is a carbon roll operating member shown in the form of a sprocket 57. A driving sprocket chain 58 extends around the sprockets 57 as shown in Fig. 3, whereby the sprockets, and thus the carbon rolls 43, may be operated collectively or in unison so as to effect collective adjustment of the carbon sheets. A detachable operating crank 59 is provided for operating the carbon rolls in unison. This crank is provided with a hub which may have a non-circular aperture for the reception of the protruding end or ends of the spindle extensions 56. In order to lock the crank against rotation on the spindle extension, one or more of said extensions may be flattened as indicated at 60 in Fig. 3.

Idler rollers 61 may be mounted adjacent the sprocket chain so as to hold the latter in contact with the sprocket wheels. One or more of these rollers may be mounted for adjustment in a slot 62 formed in the frame plate thus to effect tensioning of the sprocket chain.

For the purpose of locking the carbon rolls in any desired adjusted position, a locking dog 63 may be pivoted to the frame plate 31 having a nib 64 for engaging apertures in the chain so as to lock the latter against movement. By means of this locking arrangement it will be seen that the carbon rolls may be collectively locked in adjusted position when the spindles 45 are seated in the sockets 55 of the bearing bushings.

As shown in Fig. 10 the record strips A may be notched at their edges as indicated at D at regularly recurrent intervals along one edge of each strip. The corresponding notches thus register with each other when the record strips are longitudinally aligned so as to expose the adjacent edges of the carbon sheets B. These notches permit grasping of the exposed edges of the carbon sheets whereby the latter may be adjusted laterally relatively to the record strips for a purpose more fully appearing below.

Adjustable guide collars 65 may be mounted upon the strip guiding rolls 38 so as to be slidable along said rolls and may be secured in adjusted position as desired as by means of set screws. These guides 65 may be mounted upon one or more of the guide bars and may be positioned for engagement with the edges of the record strips or transfer sheets, or both, so as to guide the latter in their passage on to the platen and to maintain them in correct superposed position with relation to each other. For the purpose of effecting selective manifold inscription one or more of the transfer sheets may be made narrower than the others, or one or more of the record strips may be similarly narrower than the others, and in either case the guides 65 may be adjusted so as to engage with the edges of these narrow strips to maintain them in correct position.

Instead of providing a single sprocket chain for driving all of the carbon rolls as above disclosed, the said carbon rolls may be divided into two or more groups, each group having an individual operating means. For example as shown in Fig. 9, the carbon rolls are divided into two groups of three rolls each, one group being driven by a chain 66 and the other by a chain 67. A detachable operating crank 59 may be utilized for the operation of each group of rolls as described above.

Also locking dogs 68 similar to dog 63 above referred to may be pivoted to the frame plate 31 and positioned for engaging the respective operating chains. By means of this arrangement each group of rolls may be separately locked against operation or similarly released. The transfer sheets therefore are capable of being longitudinally adjusted in groups.

If desired also the chains 66 and 67 may be adjusted to vary the tension by means of idler rolls such as rolls 61 already described.

The supply pad C of record strips is placed in position so that the respective record strips A may be led therefrom into position upon the platen. All of the ends of the record strips or form sheets may be brought up through the bottom of the transfer sheet unit and laid across the rear transverse bar 29, all of the carbon spindles 45 and carbon spools 43 having been previously removed. The frame rack 37 carrying the guide bars 38 being moved upwardly and supported in inclined position are shown in Fig. 9, the first or top record strip A is threaded over the inner or lowermost guide bar 38 and the end thereof carried forwardly on the platen where it may be temporarily held by means of a weight. The innermost transfer sheet spool is then held in position and the supporting spindle is inserted through the frame plate 32 and projected all the way through the spool and into the socket 55 of the corresponding bearing bushing 54. The spindle may be retracted slightly with the rounded bearing end 56 thereof resting in the socket so as to permit independent rotation of the carbon roll while the carbon sheet is extended and led over the next adjacent guide bar 38 and in position to overlie the first record strip over the platen.

The next successive record strip is then similarly threaded into position and then the next transfer sheet and so on until all of the record strips and transfer sheets have been threaded into position over the guide bars 38. Both record strips and transfer sheets may be drawn forwardly to the desired extent, the strips slightly farther than the sheets so as to permit the strips to be grasped and pulled forwardly independently of the sheets.

As the transfer sheet rolls are successively inserted into position as described, the successive record strips may be positioned at the stretches thereof extending upwardly from the supply pad C, between adjacent carbon rolls. The carbon rolls thus function as spacers and guides between adjacent record strips as clearly shown in Fig. 6. Also, it will be observed that the guide bars 38 form spacers for the record strips and transfer sheets, which are arranged in alternation over the guide bars. The record strips and transfer sheets are thus separated by means of the guide bars so that binding and friction are effectually prevented as the record strips are fed forwardly on to the platen, and smearing of the record strips by the carbon sheets is prevented.

The guide bar supporting frame is now lowered into operative position as in Fig. 6 and the form sheets are drawn forwardly over the platen to the forward end of the bed of the machine, care being taken to place them and the transfer sheets beneath the rearward clamping lugs 22, the pedal 23 being depressed. The forward ends of the record strips are next placed beneath the forward clamping bar 21 and if aligning pins 25 are employed the apertures of the strips will be placed over these pins. The forms of all of the record sheets will thus be placed in correct longitudinal alignment over the platen 17.

As mentioned above, it will be remembered that depression of the pedal raises both the rearward clamping lugs 22 and the forward clamping and tearing bar 21 so that the strips may be placed in position therebeneath. Also as is common in machines of this type, depression of the pedal may first release the forward clamping bar 21 and then release the rearward lugs 22, and the reverse sequence is followed when the pedal is raised.

The record strips being thus held by the aligning pins 25 or otherwise, the transfer sheets may be collectively drawn rearwardly as desired for transfer purposes by turning the crank 59 to turn all of the carbon rolls 43, the spindles 45 being at this time completely inserted with the squared portions seated within the sockets 55. The pedal is now released thus clamping both record strips and transfer sheets forwardly and rearwardly of the platen and tightening and smoothing them to eliminate wrinkles and air pockets.

The machine is now ready for beginning the writing work in hand. All of the transfer sheets may be similarly adjusted together during progress of the work in case it is desired to bring new portions of the transfer sheets into transfer positions. The transfer sheets may thus be adjusted about the width of a line of type or less when the active parts thereof become worn by use. All of the transfer material may thus be used up, so that none may be wasted.

When it is desired to remove worn parts of the transfer sheets and to bring fresh parts into the field of operations, this may be readily accomplished by the arrangement described. A particularly advantageous feature of the arrangement is that the forward parts of the transfer sheets, which ordinarily become depleted earlier than the rearward parts, may be readily selectively removed.

When it is desired to remove the worn portions of the transfer sheets, said sheets may be adjusted by means of the adjusting mechanism described so as to bring the line upon which it is desired to sever them into alignment with the severance lines between adjacent forms of the record strips. This relative adjustment may also be similarly accomplished by drawing the record strips forwardly until the severance line thereof is brought into alignment with the desired severance line of the transfer sheets. The lock 63 for the transfer sheet operating mecha-

nism may then be released and all of the transfer sheets and record strips grasped and pulled forwardly together to bring the severance line thereof into alignment with the forward or cutting edge of the combined clamping and cutter bar 21. Both the record strips and transfer sheets may now be severed across the cutting edge.

This severance leaves all of the transfer sheets and record strips even at the cut-off line. It is therefore necessary to draw the transfer sheets backwardly some little distance to permit the operator to grasp the next set of forms of the record strips in order to extract them from the machine without at the same time grasping the transfer sheets. There are several ways of accomplishing this.

Either prior to severance of the strips and sheets, or thereafter if desired, the strips may be moved laterally with reference to the transfer sheets so that the edges project a short distance at one edge thereof to permit these being grasped or gripped against the bed without at the same time grasping the transfer sheets in such a manner as to obstruct rearward movement thereof. Another manner of accomplishing this is to have the record strips slightly wider than the transfer sheets and projecting at one edge of the latter whereby they may be individually grasped.

Also lateral separation of the record strips and transfer sheets may be accomplished by means of the notches D in the strips permitting grasping of the exposed edges of the carbon sheets so as to move them laterally slightly with reference to the record strips. These notches D may also be utilized for separating the severed ends of the carbon sheets from their positions between the severed forms.

The record strips or carbon sheets being thus separated or staggered in edge-wise direction, the projecting edges of the transfer strips may be gripped by the operator against the bed of the machine while at the same time the crank 59 is operated to simultaneously draw the forward ends of the carbon sheets rearwardly to the desired distance to provide clearance at the forward ends of the record strips. The pedal may now be released again gripping the work sheets in position and the machine is again ready for writing.

In case it is desired to effect selective transfer, one or more of the carbon sheets may be retracted by means of the adjusting mechanism described so that the forward end thereof lies rearwardly of the forward ends of the other carbon sheets. In this manner, certain matter may be omitted from one or more of the record strips. It will be understood that this may be readily accomplished by retracting the proper spindle 45 so as to release the driving clutch with the bearing bushing 54 by freeing the forward squared end of the spindle from socket 55, the lock spring 50 then running in a groove 48 of the spindle.

If it is desired to sever the worn forward end of one only of the carbon sheets, or of any number less than the whole number, this may be readily accomplished by the mechanism described.

It will readily be seen that any carbon sheet not desired to be severed may be retracted by means of the individual adjusting mechanism therefor as fully described.

Selective transfer along the lateral edges of the record strips may be readily accomplished by providing one or more relatively narrow transfer sheets or record strips, these being guided and held in position as above described by means of the guides 65 mounted upon guide bars 38. Data may thus be omitted from one or more of the record strips.

The improved mechanism may be also utilized to great advantage when it is desired to use different sets of forms for different business transactions without entirely unloading the machine. This can be done with very little trouble.

For example in the embodiment disclosed, a record strip supply for a 4-part invoice may be supported upon the plate 27 and also a record strip supply for a 4-part bill of lading. The 4-part bill of lading is threaded up with the carbon paper in place and laid over the rearward transverse rod 29 while the 4-part invoice is threaded into writing position and being written upon. When it is desired to write the bill of lading, the invoice set is slipped off of the platen and laid down over the front roller or guide 38 so as to be out of the way. The other set is then placed in position upon the platen for writing the bills of lading. This is a very simple operation effecting considerable saving of time.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination with a manifolding machine having a platen for supporting traveler record strips, of a transfer sheet support upon said machine, a plurality of transfer sheet carriers carried by said support and each positioned so as to adjustably support a transfer sheet for longitudinal adjusting movement in the path of movement

of said record strips, said transfer sheet carriers being supported for adjustment longitudinally thereof, means for effecting group adjusting actuation of said carriers when in one longitudinal adjustment thereof, and means for effecting individual adjusting actuation of said carriers when occupying another longitudinal adjustment.

2. The combination with a manifolding machine having a platen for supporting traveler record strips and a type carrier mounted to write on the strips positioned on said platen, of a transfer sheet supporting frame mounted upon said machine, a plurality of transfer sheet carriers carried by said frame and each positioned so as to support a transfer sheet for longitudinal adjusting movement in the path of movement of said record strips, and separate means for individually and collectively operating said carriers so as to adjust the transfer strips longitudinally either simultaneously or individually.

3. The combination with a manifolding machine having a flat platen for supporting traveler record strips and a type carrier mounted to write on the strips positioned on said platen, of a transfer sheet supporting frame mounted upon said machine, a plurality of rotary transfer sheet spools detachably carried by said frame so as to be removed and replaced during loading of the machine and each spool being positioned so as to support a transfer sheet for longitudinal adjusting movement in the path of movement of said record strips, common driving mechanism for collectively driving said spools to simultaneously adjust the transfer sheets, and clutch mechanism for each of said spools whereby the latter may be disconnected from the driving mechanism and the spools individually turned so as to effect individual adjustment of the transfer sheets.

4. The combination with a manifolding machine having a flat platen for supporting traveler record strips and a type carrier mounted to write on the strips positioned on said platen, of a transfer sheet supporting frame mounted upon said machine, a rotary transfer sheet spool, a spindle for said spool to support it upon the supporting frame, and a supporting and driving member for each spindle rotatably supported in said supporting frame and having a socket for receiving the end of the spindle, said spindle being shiftable into and out of position to be rotated by said driving member.

5. The combination with a manifolding machine having a flat platen for supporting traveler record strips and a type carrier mounted to write on the strips positioned on said platen, of a sheet supporting frame mounted upon said machine, a plurality of rotary transfer sheet spools, a spindle for each of said spools to support it upon the supporting frame, a supporting and driving member for each spindle rotatably supported in said supporting frame and having a clutch socket for receiving the end of the spindle, said spindle being shiftable into and out of driving relation with said clutch socket, means for individually adjusting said spindles when shifted from driving relation with said socket, and a common driving means operatively connected to each of said driving members.

6. The combination with a manifolding machine having a flat platen for supporting traveler record strips and a type carrier mounted to write on the strips positioned on said platen, of a transfer sheet support mounted on said machine and positioned relatively to said platen so as to support one or a plurality of transfer sheets for longitudinal adjusting movement in the path of movement of said record strips, transversely extending guides for the record strips and for the transfer sheets arranged in alternation with each other for separating said strips and sheets and guiding them into position upon the platen, a movable supporting frame for said guides mounted above said transfer strip support and being movable from operative position into loading position, and guides mounted for adjusting movement longitudinally upon said first mentioned guides and adapted to engage the edges of the strips or sheets to position them upon the platen.

7. In a manifolding machine, in combination, a platen for supporting traveler record strips for manifold inscription, a support for supporting a supply of record strips for longitudinal feeding movement to said platen, a support including a plurality of transfer sheet carriers for individually supporting a plurality of transfer sheets in interleaved manifolding relation with the record strips and for longitudinal adjusting movement to said platen in the path of the record strips, said carriers extending transversely of the machine and arranged to permit threading of the record strips therebetween at parts of said strips between said record strip support and said platen, a plurality of guides positioned between said transfer sheet carriers and said platen and extending transversely of the latter and over which the record strips and transfer sheets are positioned in alternation, a supporting frame carrying said guides in a group and mounted for movement away from normal operative strip guiding position near said transfer sheet carriers to a position remote from the latter into strip loading position, mounting means for said carriers whereby the latter may be individually removed or replaced so as to facilitate loading of the machine, said transfer sheet carriers being supported for adjustment longitudinally

thereof, means for effecting group adjusting actuation of said carriers when in one longitudinal adjustment thereof, and means for effecting individual adjusting actuation of said carriers when occupying another longitudinal adjustment.

8. In a manifolding machine, in combination, a plurality of rotary transfer sheet carriers mounted in parallel relation with each other and each adapted to carry a supply of transfer sheets for the machine, means for simultaneously rotating said carriers so as to longitudinally adjust the respective transfer sheets, means for operatively disconnecting one or more of said carriers from said rotating means, means for supporting the disconnected carrier for independent transfer sheet adjusting rotation, and means for separately rotating the disconnected carrier to effect individual transfer sheet adjustment.

9. An adjusting and supporting device for transfer sheets of manifolding machines, including, in combination, a transfer sheet carrying spool, a rotary detachably mounted spindle supporting said spool for manual removal thereof, a supporting and driving member mounted for cooperation with said spindle, a clutch between said supporting member and said spindle, means for setting said clutch in operative or inoperative condition and a separate manual drive for rotating said spool for transfer sheet adjustment when said clutch is in released or inoperative position.

10. An adjusting and supporting device for transfer sheets of manifolding machines including, in combination, a transfer sheet carrying spool having a bore extending longitudinally therethrough, a rotary longitudinally adjustable supporting spindle non-rotatably engaging said spool in the bore thereof, a rotary spindle supporting and driving member rotatably mounted in the machine framework so as to support said spindle and having a socket for the reception of an end portion of said spindle, and said spindle having longitudinally spaced end portions of different cross-sectional contour, one of which is rotatably engageable in said socket in spindle supporting relation therein and another of which is non-rotatably engageable therein.

11. An adjusting and supporting device for transfer sheets of manifolding machines including, in combination, a transfer sheet carrying spool having a bore extending longitudinally therethrough, a rotary longitudinally adjustable supporting spindle non-rotatably engaging said spool in the bore thereof, a rotary spindle supporting and driving member having a socket for the reception of an end portion of said spindle, and said spindle having longitudinally spaced end portions of different cross sectional contour, one of which upon one longitudinal adjustment of said spindle is rotatably engageable in said socket to rotatably support the spindle therein and another of which upon another longitudinal adjustment of the spindle is non-rotatably engageable therein, and retaining means for retaining said spindle in each of its lonigtudinally adjusted operative positions relatively to said socket.

12. In a manifolding machine, in combination, a rotary transfer sheet carrier including a rotary supporting spindle mounted for longitudinal shifting movement, a rotary spindle supporting and driving member non-rotatably engaging said spindle when shifted in one position and permitting independent rotation when the spindle is shifted to another position, and latching mechanism for holding said spindle in different positions.

13. In a manifolding machine, in combination, a rotary transfer sheet carrier including a rotary supporting spindle mounted for longitudinal shifting movement, a rotary spindle driving member non-rotatably engaging said spindle when shifted in one position and permitting independent rotation when the spindle is shifted to another position, said spindle having longitudinally spaced peripheral grooves and a latching member engageable in each of said grooves for holding said spindle in different positions.

14. In a manifolding machine, in combination, a plurality of transversely extending guides for traveller record strips and for transfer sheets, a plurality of transfer sheet carriers for individually supporting a plurality of transfer sheets, and a supporting frame carrying said record strip and transfer sheet guides in a group, said supporting frame being mounted for upward and forward swinging movement away from normal operative guiding position into strip loading position.

15. In a manifolding machine, in combination, a plurality of transfer sheet carriers each positioned to support a transfer sheet in the path of movement of the record strips used in the machine, driving connections operatively connecting a plurality of said transfer sheet carriers in a group so as to effect group adjustment of the corresponding transfer sheets and separate driving connections for one or more of said transfer sheet carriers independent of said group so as to effect separate and independent transfer sheet adjusting operation of said last mentioned carriers.

16. In a manifolding machine, in combination, a plurality of transfer sheet carriers each positioned to support a transfer sheet in the path of movement of the record strips used in the machine, driving connections operatively connecting a plurality of

said transfer sheet carriers in a group so as to effect group adjustment of the corresponding transfer sheets, separate driving connections for one or more of said transfer sheet carriers independent of said group so as to effect separate and independent transfer sheet adjusting operation of said last mentioned carriers, means for disconnecting said transfer sheet carriers from their respective driving connections, and separate means for independently operating the transfer sheet carriers when thus disconnected to effect individual transfer sheet adjustment.

In testimony whereof I affix my signature.

WILLIAM J. WISWALL.