

Jan. 31, 1950

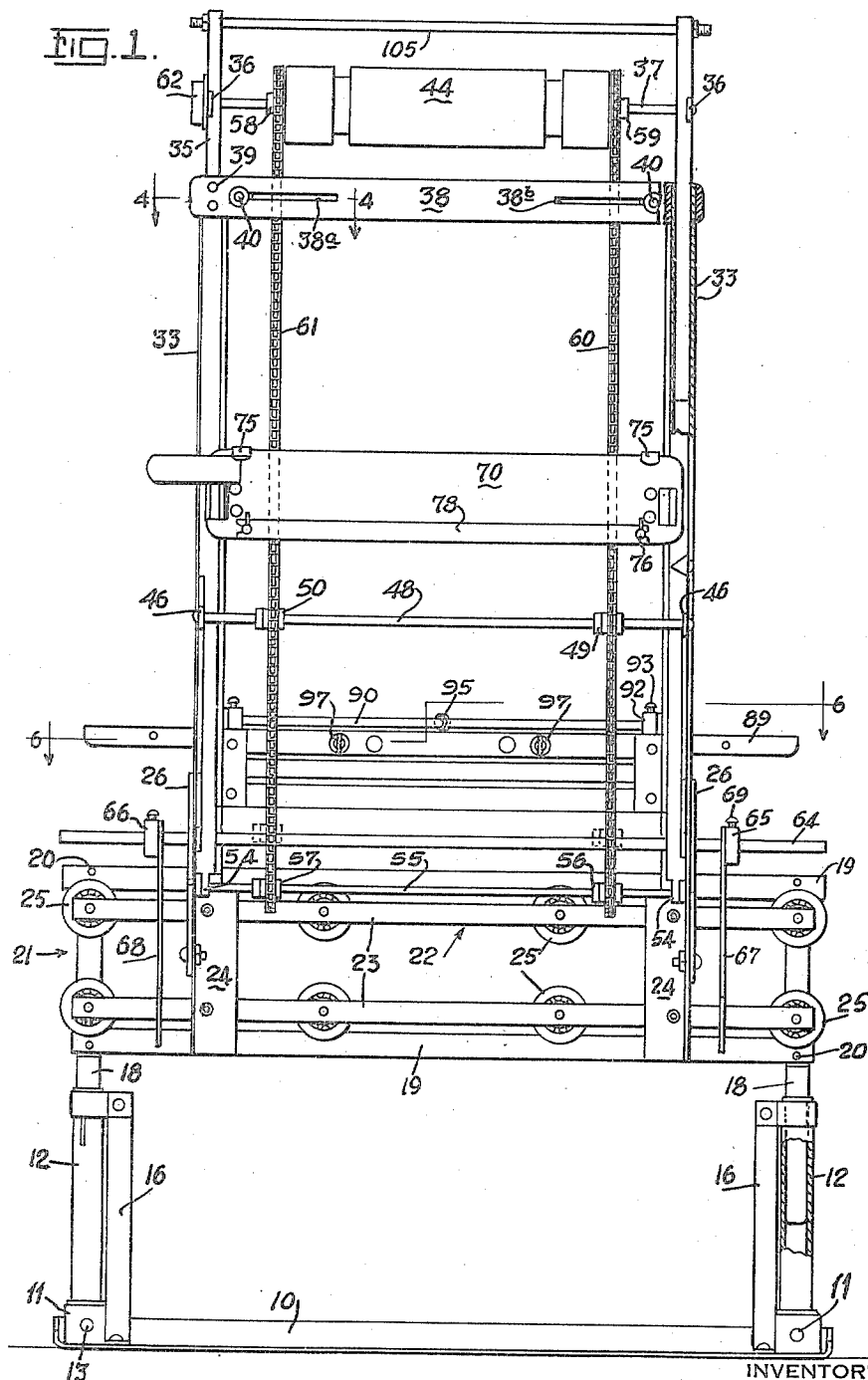
H. F. SADGEBURY ET AL

2,495,985

MANIFOLDING ATTACHMENT FOR TYPING MACHINES

Filed May 14, 1945

6 Sheets-Sheet 1



INVENTORS
HERMAN F. SADGEBURY,
ROBERT N. WARD,
BY
Toulmin & Toulmin
ATTORNEYS

Jan. 31, 1950

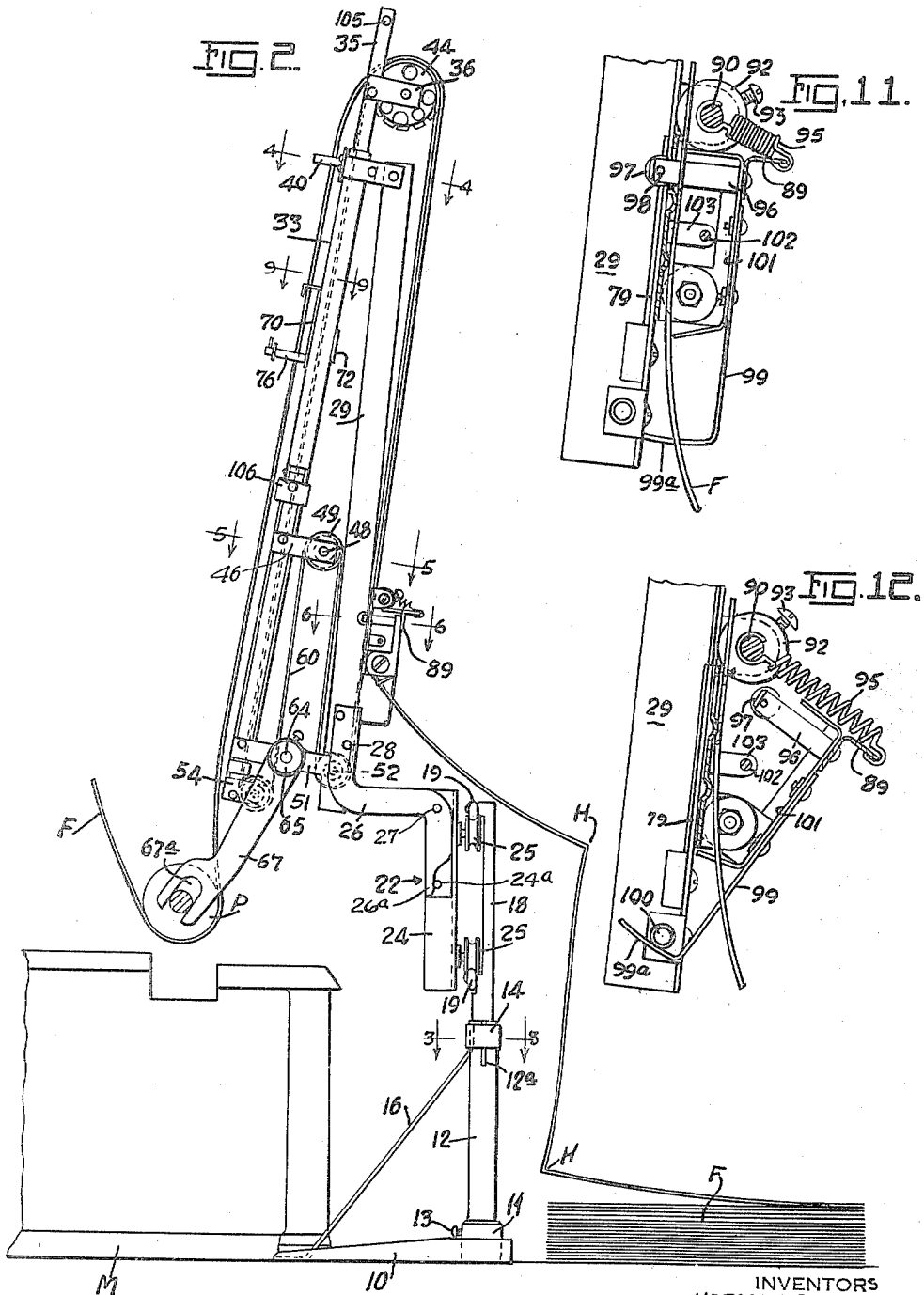
H. F. SADGEBURY ET AL

2,495,985

MANIFOLDING ATTACHMENT FOR TYPING MACHINES

Filed May 14, 1945

6 Sheets-Sheet 2



INVENTORS
HERMAN F. SADGEBURY,
ROBERT N. WARD,
BY
Toulmin & Toulmin
ATTORNEYS

Jan. 31, 1950

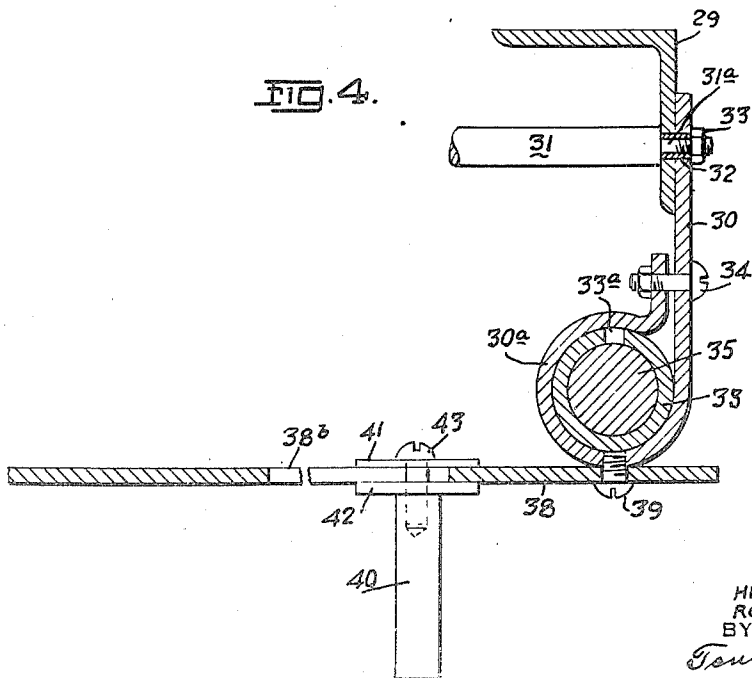
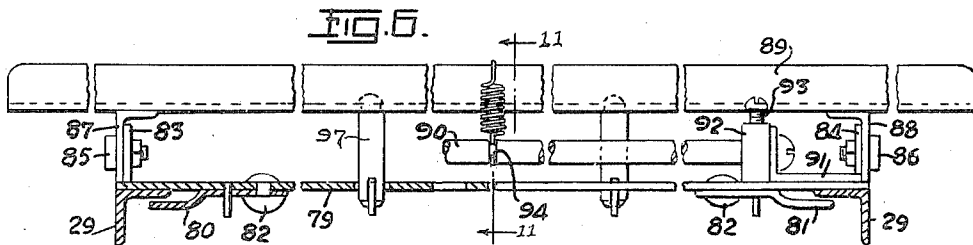
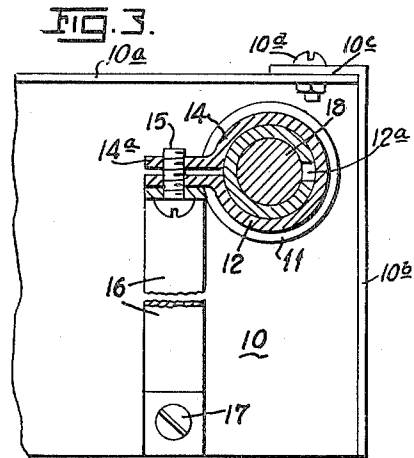
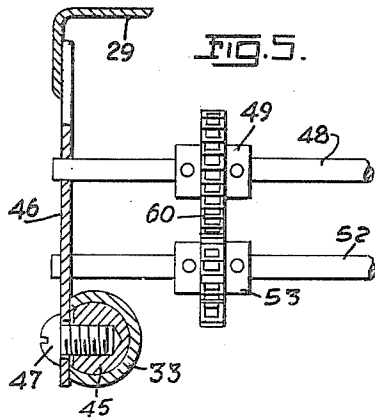
H. F. SADGEBURY ET AL

2,495,985

MANIFOLDING ATTACHMENT FOR TYPING MACHINES

Filed May 14, 1945

6 Sheets-Sheet 3



INVENTORS
HERMAN F. SADGEBURY,
ROBERT N. WARD,
BY
Foulmin & Foulmin
ATTORNEYS

Jan. 31, 1950

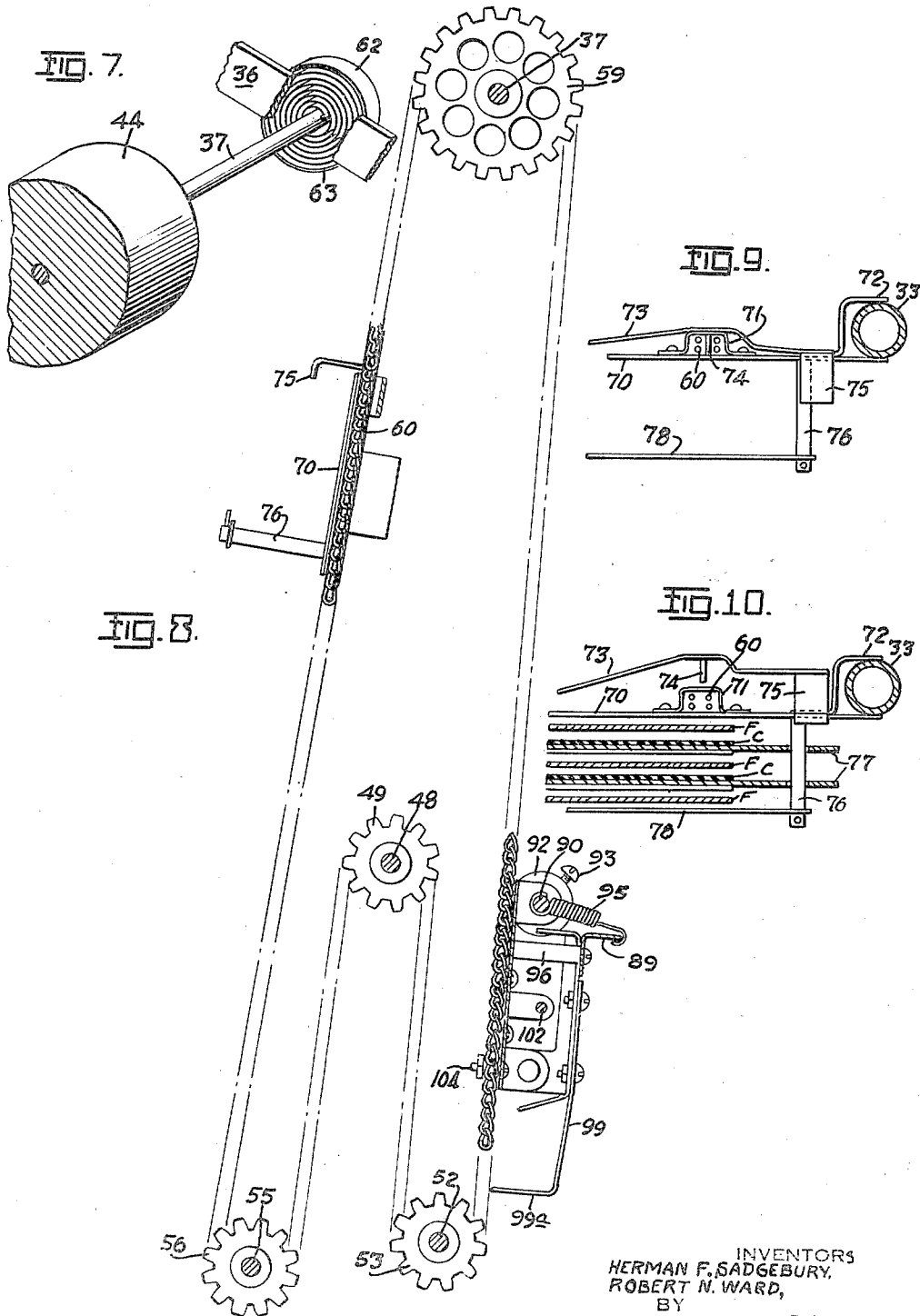
H. F. SADGEBURY ET AL

2,495,985

MANIFOLDING ATTACHMENT FOR TYPING MACHINES

Filed May 14, 1945

6 Sheets-Sheet 4



INVENTORS
HERMAN F. SADGEBURY,
ROBERT N. WARD,
BY

Toulmin & Toulmin
ATTORNEYS

Jan. 31, 1950

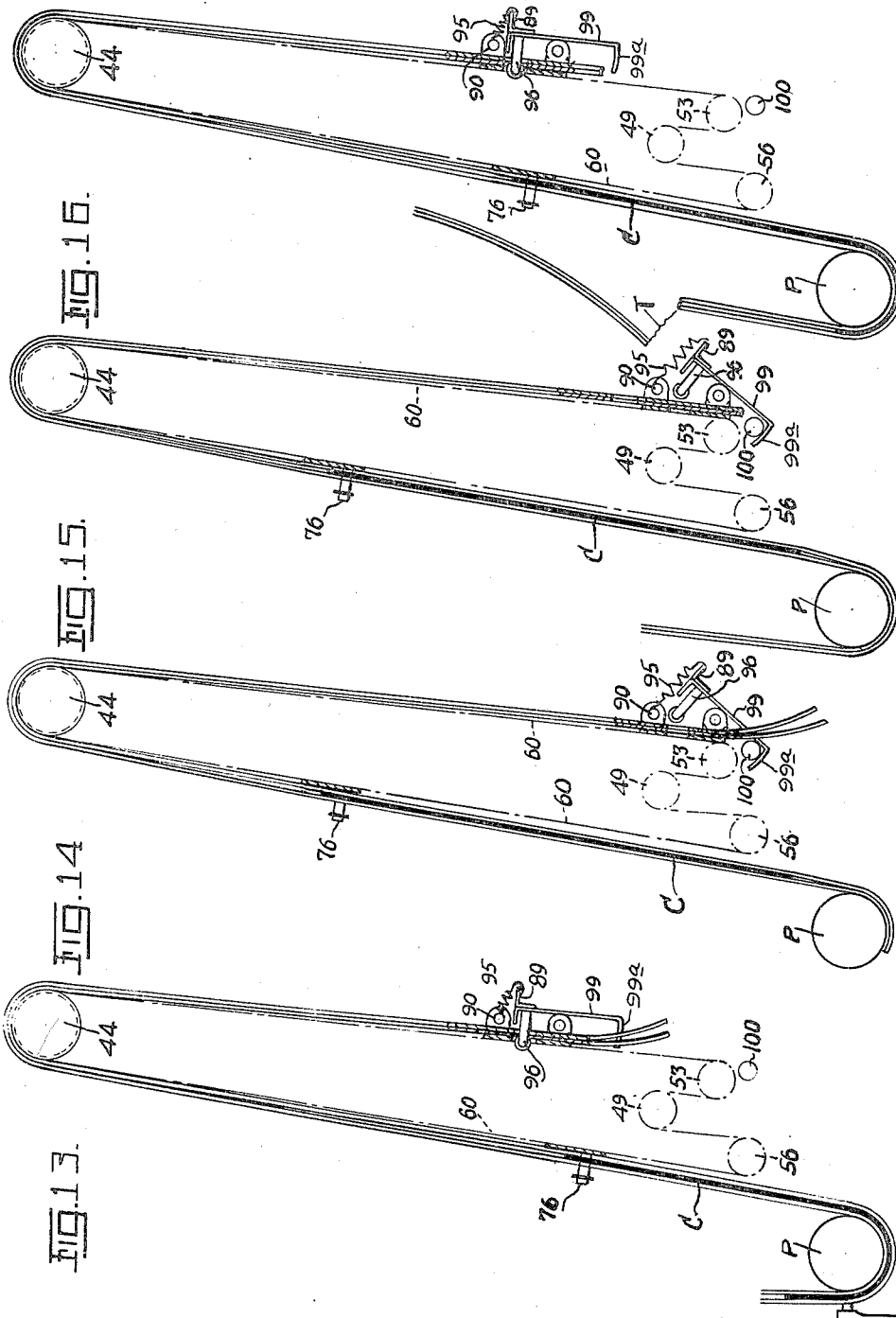
H. F. SADGEBURY ET AL

2,495,985

MANIFOLDING ATTACHMENT FOR TYPING MACHINES

Filed May 14, 1945

6 Sheets-Sheet 5



INVENTORS
HERMAN F. SADGEBURY,
BY ROBERT H. WARD,
Toulmin + Toulmin
ATTORNEYS

Jan. 31, 1950

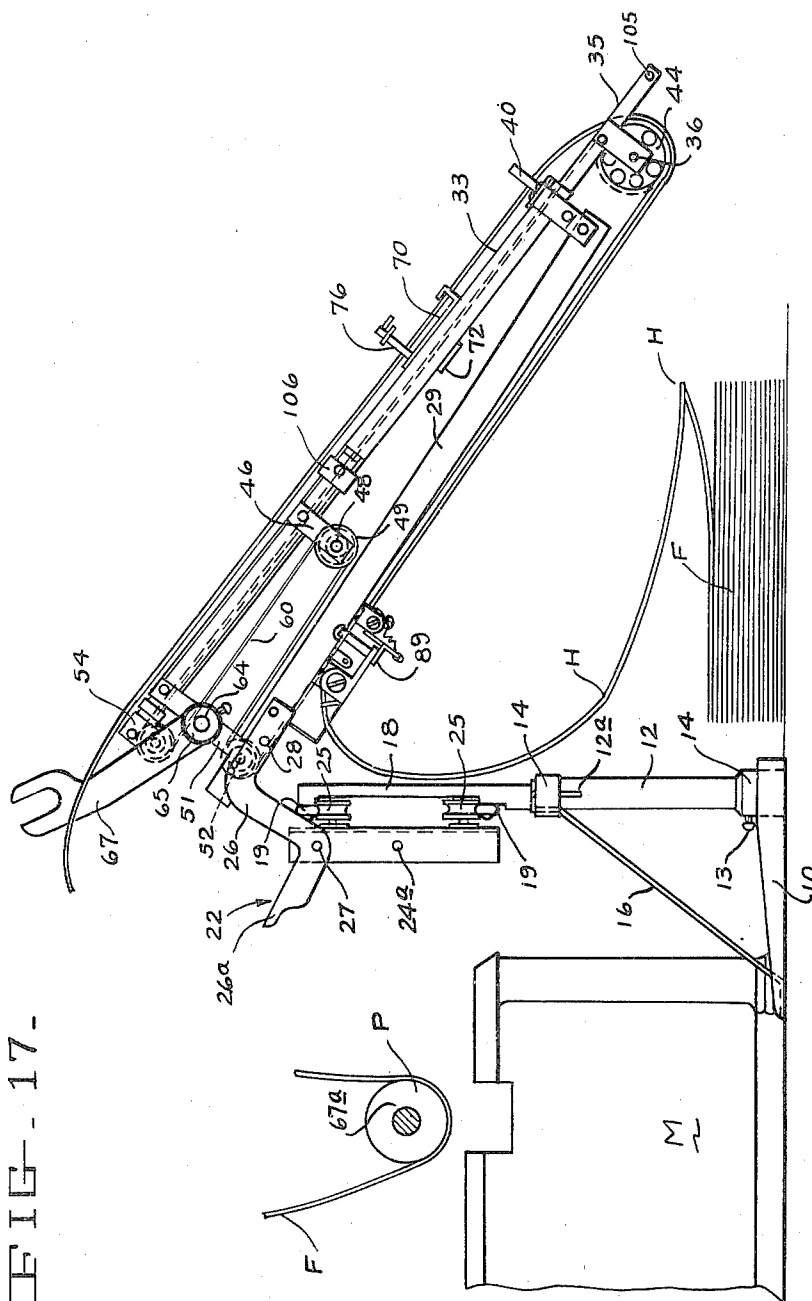
H. F. SADGEBURY ET AL

2,495,985

MANIFOLDING ATTACHMENT FOR TYPING MACHINES

Filed May 14, 1945

6 Sheets-Sheet 6



INVENTORS
HERMAN F. SADGEBURY
ROBERT N. WARD

BY

Toulmin & Toulmin
ATTORNEYS

UNITED STATES PATENT OFFICE

2,495,985

MANIFOLDING ATTACHMENT FOR TYPING MACHINES

Herman F. Sadgebury and Robert Nelson Ward,
Dayton, Ohio, assignors to The Egry Register
Company, Dayton, Ohio, a corporation of Ohio

Application May 14, 1945, Serial No. 593,698

14 Claims. (Cl. 197—126)

1

This invention relates to a speed feed manifolding attachment for typing machines having a platen mounted upon a carriage for translation past a fixed typing location.

It is a purpose of the invention to provide an attachment that may be adapted for use with numerous kinds and makes of machines of the type aforesaid, and one that may be readily attached and detached, whereby a given machine may be quickly shifted from manifolding to other kinds of work.

One object of the invention is to mount the moving parts of the attachment upon a track quickly and easily adjusted in a vertical direction.

Another object is to provide connections whereby the moving parts of the attachment may be easily attached to and detached from the carriage of the typing machine.

Another object is to provide moving parts positively feeding superposed webs or sheets of paper, interleaved with sheets of carbon paper into typing relation with the platen and to automatically retract the carbon paper sheets as a unit to a position to begin a new typing operation, while maintained in interleaved positions between said webs.

A further object is to provide means positively holding the superposed webs in proper relation and moving with them during line spacing movements, but manually releasable from the webs and movable independently to a position engaging the webs for the next succeeding typing operation.

A still further object is to provide a frame construction in an attachment of the character described and using a plurality of endless chains or other band elements, wherein the effective lengths of the chains may be quickly and easily varied and the chains given the proper tension.

Another object is to provide a novel connection between the chains or other elements, as in the preceding paragraph, and the carbon paper attaching mechanism, whereby all parts connected to the chains may be quickly adjusted into proper relation.

Another object is to provide a universal speed feed manifolding attachment that is relatively simple and inexpensive to construct, easily operated, efficient, rapid and positive in operation and that may be held in position simply by resting the weight of the typing machine thereon.

Another object is to provide a universal speed feed manifolding attachment that can be rendered inoperative without removing the typing machine therefrom or removing the manifolding machine from the typing machine.

Other objects and advantages of our invention will become apparent as the description proceeds. In the drawing:

Figure 1 is a view in front elevation, of my

2

manifolding attachment before connection with a typing machine of standard construction,

Figure 2 is a side elevation of my invention as seen from the right, Figure 1,

Figure 3 is a cross sectional view of a portion of the attachment base, taken on line 3—3, Figure 2,

Figure 4 is a section through the upper part of the carriage, taken substantially upon the line 4—4, Figures 1 and 2.

Figure 5 is a section taken on line 5—5, Figure 2, showing the slotted tube and rod therein, together with a bracket for mounting a shaft bearing idler sprockets,

Figure 6 is a cross section taken upon the line 6—6, Figures 1 and 2, showing the mechanism for making certain that corresponding superposed forms of web supply F are maintained in proper superposed relation as they pass through the machine,

Figure 7 is a detail perspective view, partly in section, of the rewinding mechanism for the interleaved carbon sheets,

Figure 8 is a detail view of one of the guiding chains, and the means for connection thereto of the paper forms and interleaved sheets of carbon paper, together with the chain sprockets,

Figure 9 is a detail view, partly in section, of the means for securing the interleaved carbon sheets to the guiding chains whereby said sheets may be automatically retracted after completion of one form into position between the sheets of the next succeeding form, and taken substantially upon the line 9—9 of Figure 2,

Figure 10 is a view similar to Figure 9 but showing three superposed sheets of paper together with two interleaved sheets of carbon paper, with the securing means in retracted position,

Figure 11 is a sectional detail view taken substantially on the line 11—11, Figure 6, showing in closed position, the means for maintaining the superposed paper forms in proper relation,

Figure 12 is a view similar to Figure 11 but showing the paper-engaging standards in position retracted away from the paper,

Figures 13 to 16, inclusive, are diagrammatic views showing the positions of the paper, interleaved carbon sheets, and paper aligning mechanism in various positions of adjustment, and

Figure 17 is a view similar to Figure 2 but showing the manifolding attachment pivoted out of working engagement with the typing machine.

Referring now in detail to the drawing wherein like reference characters identify corresponding parts throughout, M, Figure 2, indicates the frame of a machine of standard construction with which our invention is adapted for use and which may be a typewriter, billing machine, or other machine having a platen P rotatable on its axis to effect

3

line spacing and sweep feeding of the paper, and movable axially to effect letter and word spacing. At F we have indicated a fan-folded stack of paper forms folded along hinge sections and threaded through the attachment and around platen P. While the paper supply has been shown as a folded stack, it will be understood that the invention is not limited to a supply in this particular form, but, if desired, may be in the form of a roll.

A base 10 is formed of sheet metal and has its rear and side edges 10a and 10b upturned and overlapping at the corners, as indicated at 10c, Figure 3. A bolt 10d passes through aligned holes in the overlapping edges to unite them into a reinforcing rim. This base is adapted to be secured in any desired manner to the typing machine with which it is used. The connection may be effected simply by resting the rear portion of the machine on base 10, or it may be made positive as by means of bolts or latches, not shown. A pair of sockets 11 are attached to base 10. A hollow column 12 is secured at its lower end within each socket 11, as by means of a set screw 13. The upper ends of the columns 12 are axially split as at 12a, Figures 2 and 3, to form resilient portions each encircled by a clamp 14 having apertured lugs 14a. Each column 12 is braced at its upper end by a sloping bracket 16 which may consist of a metal strap secured at one end to base 10 by means such as a screw 17. At its upper end, each bracket is secured to the lugs of its clamp 14 by a screw 15 which passes through aligned apertures in the bracket and lugs. A post 18 slidably fits within each column 12 and is secured in vertically adjusted position therein by constriction of the upper split sections of column 12 when screws 15 are turned home to draw lugs 14a together. Screws 15 therefore, perform the dual function of clamping posts 18 in adjusted height and securing brackets 16 to the upper ends of columns 12, to hold the parts rigidly in position.

The posts 18 are rigidly connected together in parallel relation, by tracks 19. These members 18 and 19 are secured together as by rivets 20 to conjointly form a track frame 21 wherein tracks 19 are parallel and substantially coextensive with the width of the machine. By loosening screws 15 the frame 21 may be adjusted in height for the particular machine with which the invention is to be used, after which the said screws are tightened to rigidly hold said frame in the desired position of vertical adjustment.

A carriage, indicated generally by numeral 22, Figures 1 and 2, is formed by bars 23 secured in spaced parallel relation by short strips of angle bar 24. A series of rollers 25 are journaled on anti-friction bearings at spaced points along bars 23. These rollers have their peripheries grooved and are so spaced in a vertical direction as to engage the facing edges of tracks 19 whereby carriage 22 is freely movable along said tracks by and with the axial, type and letter spacing movement of platen P, through connections subsequently described.

Reverse angle brackets 26 are fixed at one end by rivets or bolts 28, to the angle bars 29, as shown in Figure 2, and have their offset ends pivotally connected, as at 27, to the bars 24. The brackets 26 have the depending end portions 26a which abut the pins 24a when the unit is in its Figure 2 position. As shown in Figure 4, bars 29 are interconnected at their upper ends by a spacer rod 31 that also has a reduced threaded

4

portion 31a passing through aligned holes 32 in the adjacent bar 29 and a clamp bracket 30. A nut threaded on said reduced end, acts to secure each bracket 30 in position on its bar 29. It will be understood that the construction shown at Figure 4 is duplicated at the other end of rod 31 whereby the two bars 29 are held in spaced relation at their upper ends.

Each bracket 30 is bent as at 30a, to encircle the upper end of a tube 33. The portion of each tube encircled by clamp 30 is longitudinally split, as at 33a, Figure 4, whereby, when the nut on bolt 34 is tightened, the tube is constricted into binding contact with a rod 35 otherwise axially slidable within and along its tube. An offset bracket 36 is fixed to each rod 35 to extend a short distance rearwardly therefrom. At their free ends, these brackets rotatably support a shaft 37 having fixed thereon a roller 44 over which the paper supply passes, as will be described later.

A guide plate 38 has its ends secured tangentially to the respective circular portions of brackets 30, as by means of screws 39, to thus extend transversely across the upper front portion of the attachment. Plate 38 is slotted as indicated at 38a and 38b, Figure 1, and a pin 40 is fixed in adjusted position in each slot, as by means of washers 41 and 42, and screw 43, as will be obvious from inspection of Figure 4. Pins 40 are intended to be so adjusted as to contact the edges of the paper and guide it downwardly after passing over roller 44. By this construction, on loosening of bolts 34, rods 35 may be telescoped within, or withdrawn from tubes 33, to vary the elevation of roller 44, for a purpose subsequently described.

From Figures 2 and 5, it will be noted that each tube 33 is slotted longitudinally along substantially one-half of its lower length. This slot has an angular extent in cross section less than 180°, so that sections of rod 45 positioned within the tubes, are limited to sliding movement therealong. Each section 45 has a flattened side, as indicated in Fig. 5, into which opens a tapped hole. The flattened side lies substantially below the edges of the tube slot so that an element as 46, may be adjustably fixed along the slotted portion of the tube by tightening a screw 47 passing through the element and engaging the tapped hole in section 45 to thereby bind the section 45 within the tube.

In Figure 5, the foregoing construction is used to mount a pair of arms 46 for adjustment on and along the respective tubes 33. The arms are apertured at their rearward ends and jointly journal a shaft 48 having idler sprockets 49 affixed thereto, so that, by loosening screws 47, arms 46 may be adjusted along tubes 33 to vary the tension in chains 50 and 61 passing thereover and subsequently described in detail. Other sections 45 are used to adjustably mount a guide 106, Figure 2, and a pair of brackets 51, described in detail later. Each arm 46 at its free end, extends into sliding contact with one leg of angle 29, and, midway of its ends, rotatably supports one end of a shaft 48 having fixed thereon a pair of spaced sprockets 49 and 50. It will be noted that rods 35 and 45 are separate and distinct elements. Also, as will be noted from Figure 2, each bar 29 and its associated tube 33 make a small acute angle with each other.

A bracket 51 connects the lower end of each bar 29 with the corresponding end of its associated tube 33. One end of this bracket is secured to tube 33 and rod 45 in the manner explained

in connection with arm 46, while the other, or free end, rotatably supports one end of a shaft 52, both ends being similarly mounted. A pair of sprockets 53 are fixed to shaft 52.

Each tube 33 has a bracket 54 secured to its lower end, and these brackets rotatably support between them, a shaft 55 having fixed thereon, spaced sprockets 56 and 57. All shafts 37, 48, 52 and 55 are parallel. Shaft 37 has sprockets 58 and 59 fixed thereon adjacent the ends of roller 44, and from Figure 1, it will be noted that the previously-identified sprockets at corresponding ends of shafts 37, 48, 52 and 55, are coplanar and are connected by endless chains 60 and 61 passing over the respective sprockets and meshing with the teeth thereon. By this construction, all of the aforesaid shafts are connected for simultaneous rotation, and all passes of the parallel chains move in synchronism.

As will be noted upon Figures 1 and 7, the left hand bracket 36, as viewed in Figure 1, has a housing 62 fixed thereto, within which is positioned a coil spring 63 fixed at its inner end to shaft 37, and at its outer end to housing 62. By this connection, as chains 60 and 61 move synchronously with the paper during line spacing operations, sprockets 58 and 59 act to rotate roller 44 and shaft 37 and to place spring 63 under continuously increasing tension. This tension is sufficient so that, when one form has been printed and the paper has been released (as will be subsequently described), spring 63 acts to reversely move the chains into position necessary to initiate the movement into typing position of the next succeeding form.

As clearly shown in Figures 1 and 2, a shaft 64 passes through, and projects a substantial distance beyond, brackets 51. The shaft 64 is secured against axial movement with respect to brackets 51 and at each end carries sleeves 65 and 66 adjustably secured in position axially therealong by means of set screws 69. Each sleeve has fixed thereto an arm 67 and 68, respectively, forked as at 67a, Figure 2, to receive a part of the typing machine with which our invention is to be used, such as the shaft of platen P. It is intended, of course, that these arms 67 when in the position shown in Figure 2, shall connect the platen P and carriage 22, to move axially as a unit.

While to avoid an excessive number of lines, we have shown the paper supply F, Figure 2, as a single sheet, it will be understood that our speed feed attachment has its greatest utility when used in connection with a plurality of superposed strips or forms such as are employed in making out bills, where one original and one or more copies of each bill are desired. Thus, supply F will usually consist in a plurality of superposed strips with aligned hinge joints H and aligned perforations adjacent each hinge line; and in order to make the desired copies of each bill, carbon paper must be interleaved with the superposed forms as they pass around platen P.

For the purpose of providing the required number of sheets of carbon paper that may be used repeatedly and automatically retracted after each form or bill has been completed, I provide a backing plate 70 extending transversely across chains 60 and 61, and having its ends in sliding, guided contact with tubes 33. Plate 70 has loops 71 secured thereto, through which the respective chains 60 and 61 pass. Offset spring arms 72 are secured to each end plate, so shaped and positioned as to lightly contact the respective tubes

33 and hold the plate in sliding contact with said tubes.

A spring arm 73 has both ends shaped as shown at Figures 9 and 10, and is riveted, or otherwise secured at its central portion, to the rear side of plate 70. A pin 74 is secured to each end of arm 73 adapted, when in the normal position shown at Figure 9, to pass through a hole in the corresponding loop 71 and the adjacent link of the chain 60. Means for releasing pins 74 from the chain are shown at 75, in the form of offset lugs attached to, or integral with the ends of arm 73, and projecting forwardly over the top edge of plate 70. When it is desired to adjust the position of plate 70, relatively to chains 60 and 61, the operator simply presses on lugs 75 to retract pins 74 to the position shown at Figure 10, whereupon the plate 70 may be manually adjusted upwardly or downwardly as desired.

Guide pins 76 are secured to project from each end of plate 70 and are so spaced as to receive the apertured ends of strips 77 which strips are attached, in any desired manner, to the upper edges of respective sheets of carbon paper C. In this manner, plate 70 and carbon sheets C, may, at the proper time, be moved upwardly as a unit by the action of spring 63, shaft 37, and chains 60 and 61. Pins 76 are grooved at their outer or free ends, to receive the forked ends of a guard strip 78, extending therebetween.

It is desirable to maintain the corresponding forms of the superposed paper webs in longitudinally aligned position as they pass through the machine, not only so that each line of typing shall have the same relation or spacing with respect to the top and bottom edges of the corresponding forms, but also so that the superposed forms may be easily separated from the web along their hinge lines in a single operation. To this end, we provide the mechanism shown in detail at Figures 6, 8, 11 and 12.

A strip 79 extends across the rear parallel faces of angle bars 29 and is held in sliding contact with said faces by spring fingers 80 and 81, secured to strip 79 as by rivets 82, and engaging the opposite faces of bars 29. Strip 79 has upstanding apertured lugs 83 and 84 at its ends and pivot bolts 85 and 86 pivotally connect the respective lugs with corresponding lugs 87 and 88 secured to an operating bar 89 which, as shown at Figure 1, is sufficiently long so that its ends project outwardly beyond bars 29, whereby bar 89 may be conveniently grasped by the operator. As shown at Figures 11 and 12, bar 89 may be a right-angled strip. By this mounting, bar 89 may be given a pivotal movement toward and from angle bars 29. A rod 90 is secured to strip 79 in a position offset to the rear thereof, by angular brackets 91, each having one arm secured to strip 79 and its other arm apertured to receive the end of rod 90. Collars 92 are mounted upon rod 90 and fixed thereto as by set screws 93 in position abutting the respective facing surfaces of brackets 91 whereby the rod is secured against axial movement. The rod is notched or channeled at its central position as at 94, Figure 6, and a tension spring 95 has one hooked end encircling the rod within the channel to be held thereby against axial movement along the rod. The other hooked end of spring 95 engages over an edge of bar 89 and acts to urge said bar into the pivoted position shown at Figures 6, 8 and 11.

Bar 89 has a pair of standards 96 secured thereto, each so positioned as to lie in the path of a series of preformed superposed apertures in the

paper webs F. The free ends of the standards are slotted to receive a small roller 97, journaled within the slot, on a pin 98. See Figure 11. Thus, when the paper webs F are properly aligned and positioned in the machine, standards 96 will pass therethrough when rotated with bar 89 into the position shown at Figure 11, and the superposed forms are thereby held in correct relative position. As the paper is fed by actuation of platen P, the bar 89 together with all parts attached thereto, move upwardly as a unit in accordance with the paper-feeding movement.

At one end, spaced from the side edges of the paper, an arm 99 having a hooked end 99a, is secured to, and extends downwardly from, bracket 87. A stud 100 is secured to the adjacent angle bar 29 near the lower end thereof and the parts are so related that when the paper-aligning means is at the lower end of its travel, hooked end 99a engages beneath stud 100 when bar 89 is thrust rearwardly to move the parts to the position shown at Figure 12. This construction affords a means whereby the aligning means may be correctly located in position prior to the start of a form-typing operation. If desired, a U-shaped strip 101 may be attached to pivot with bracket 87 and bar 89 and so positioned that one leg acts as a stop against bar 29 limiting the inward position under urge of spring 95, while the other leg acts to limit outward movement as by engagement against bar 29. In order to assure that the paper does not move outwardly when bar 89 is thrust outwardly, that is, to assure that standards 96 and their rollers are always withdrawn from the apertures in the paper, a rod 102 is mounted parallel to, and spaced slightly from, strip 79. This mounting may be effected by means of brackets 103 secured to strip 79. Strip or plate 79 is in contact with chains 60 and 61 and is secured thereto by bolts 104, Figure 8, whereby the paper-aligning means is moved as a unit with said chains. A bar 105 extends between and rigidly joins the upper ends of rods 35.

In Figures 13 to 16, inclusive, we have shown the various significant steps involved in the use of our speed feed attachment; and for simplicity we have shown but two paper webs, with a single sheet of carbon paper C therebetween. It will be understood, however, that any number of webs and interleaved carbon sheets may be used within the physical limitations of this type of manifolding, and the typing machine itself. Figure 13 shows the webs and interleaved paper in typing position over platen P. Pins 74 are in engagement with their respective chains 60 and 61 and standards 96 are engaged within the superposed holes in the paper strips. Therefore, as platen P is operated in line-spacing operations, the paper, chains and standards, move as a unit. As soon as the typing of a form has been completed, the platen is reversely rotated until the carbon sheet is freed therefrom, as indicated at Figure 14. Because of the tension in spring 63, the parts of our attachment are automatically reversely operated during this movement. The operator next presses outwardly upon bar 89 to thereby move the parts to the position shown in Figure 12 wherein the paper is free from the chains 60 and 61. It will be noted that the hook 99a at this time engages with the stud 100. Thereafter, the paper is fed forward a predetermined amount by rotation of the platen thus bringing the file holes in the paper out of register with the standards 96. At this time the operator of the machine may re-

lease the pressure on the bar 89 and the standards 96 will merely ride on the surface of the paper. The entire assembly including the standards is retained in position by the engagement of the hook 99a with the stud 100.

It will be apparent that this also holds the chains stationary and therethrough supports the carbon sheets in a stationary position. Accordingly, the operator merely rotates the platen until the form is fed out to the first typing line on the form immediately following the one which has just been typed.

During this last mentioned movement of the forms, the file holes of the succeeding form will move into alignment with the standards 96 whereupon the spring 95 will move the said standards into the file holes, release the hook 99a of the stud 100 and once again interconnect the chains and paper for simultaneous movement. The carbon is thus automatically aligned with the next form by a very simple operation.

When the bar 89 and its attached parts have been moved downwardly into position such that hook 99a is engaged under stud 100, the carbon sheet C has been moved to proper position for the start of a new operation, as shown at Figure 15. The platen is then operated to advance the just-typed form into predetermined position which may be indicated by any suitable gauge or mark on the machine itself. This position is such that a set of apertures in the superposed webs are positioned to be engaged by standards 96. The operator then releases bar 89 so that spring 95 may act to move the standards through said apertures and thus positively connect the aligning means and chains to the webs. The webs and carbon sheet are then advanced to a position as shown at Figure 16 ready to start the typing of a new form. The just-typed form is torn off as indicated at T, Figure 16, and typing is resumed. The entire operation just described is completed in a smooth, continuous and rapid motion requiring only a few seconds at most. Not only does it save large amounts of time over the operations wherein the carbon sheets are interleaved by hand, it also effects a large saving in carbon paper since each sheet may be repeatedly used. Furthermore, by pressing on release elements 75, to withdraw pins 74 from the chains 60 and 61, the operator may shift the carbon sheets slightly up or down to engage said pins with the next succeeding links of the chains whereby to bring fresh unused portions of the carbon sheets into position such that they will be used in the succeeding typing operations. In this way substantially the entire surface of each carbon sheet is used. New carbon sheets are easily inserted simply by snapping the forked ends of strip 78 out of the grooves in pins 76, removing strips 77 and the attached sheets from said pins, applying fresh sheets in an obvious manner, and snapping strip 78 back into position.

As shown, our attachment is easily adapted to a machine simply by resting a part of the machine on base 10. Screws 15 are loosened and posts 18 adjusted to a height such that the forked ends of arms 67 may slip over the hubs of the platen knobs. The set screws fixing arms 67 to shaft 64 are loosened and each arm is adjusted to fit snugly against the inside surface of the adjacent platen knob. These operations require but a few seconds at most so that our attachment may be connected and disconnected rapidly from a standard machine whereby a single ma-

chine may be transferred, almost instantaneously, from standard typing work, to billing operations, and vice versa, to thereby save large sums of money where separate expensive billing machines had to be purchased. The attachment is relatively simple, and easy to attach. It requires no special skill to operate, and an operator can learn to use it quickly and easily.

In Figure 17 the typing machine and manifold- ing attachment are illustrated with the manifold- ing attachment pivoted about the pivots 27 until it is disengaged from the platen P. The mani- folding attachment may rest on the table which supports the machine or may about the upper track 19. In either case the typewriting machine M is free to be used as a standard machine with- out any interference from the speed feed attach- ment. The attachment may be again placed in operative association with the platen P by pivot- ing it about the pivots 27 and engaging the arms 67 with the shaft of the platen P at either end thereof.

While, in order to comply with the patent statutes, we have shown and described a specific embodiment of our invention, numerous altera- tions, modifications, and substitutions of equiva- lent parts, will be obvious to those skilled in this art. Hence, we wish it to be understood that our invention is not to be circumscribed by the precise construction shown but embraces and in- cludes all such alterations, modifications, and substitutions as fall within the scope of the sub- joined claims.

Having now fully described our invention what we claim as new and desire to secure by U. S. Letters Patent is:

1. In an attachment for feeding paper webs and interleaved carbon sheets into a typewriting machine, a frame including a pair of spaced parallel hollow side members and a rod slidably fitting each member to longitudinally adjust the length of the frame, a roller pivotally carried by said rods at the projecting ends thereof, a pair of spaced sprockets at opposite ends of said roller and connected for rotation with said roller, a second pair of sprockets journaled adjacent the ends of said side members remote from said rods, a pair of idler sprockets, arms adjustable on and along said side members and journaling said idler sprockets, and endless band means meshing with and connecting the respective sprockets of each pair, said idler sprockets being disposed relative to the other sprockets to form slack loops in said endless bands to allow for longitudinal adjust- ment of said frame.

2. In a universal manifold'ing attachment for typing machines of the type having a paper car- riage movable in a fixed direction past a typing position, a base, a frame, means mounting said frame upon said base for movement with said platen, said frame including spaced parallel up- right tubes, means guiding paper sheets inter- leaved with carbon sheets downwardly along said tubes into said machine, and including sprockets on said frame interconnected by endless bands, there being longitudinal slots in said tubes at the lower ends of said tubes, rod sections slidably fitting in said tubes, a pair of arms, screw means passing through each arm and slot and engaging a threaded aperture in a corresponding section, whereby each arm is adjustably clamped against the edges of a respective slot, rod means sup- ported by said arms substantially normal to said tubes, and means adjustable on and along said rod means and adapted to engage said carriage

whereby said frame and carriage move as a unit.

3. A frame for a manifold'ing attachment for typing machines comprising interconnected paral- lel tubes each slotted longitudinally, endless bands, means guiding said bands for movement in straight passes along said tubes, and including idler rollers, rod sections slidably fitting each tube, a bracket overlying each slot, screw means passing through each bracket and threadedly engaging a respective section whereby each said bracket is adjustably clamped to the slotted edges of its tube, and means rotatably mounting said idler rollers upon said brackets whereby the tension in said band means may be tightened by adjustment of said brackets.

4. In a manifold'ing attachment, a base, vertically adjustable means carried by said base and comprising horizontal track members, a carriage movably mounted on said track mem- bers, a frame pivotally mounted on said carriage comprising means for feeding interleaved paper webs and carbon sheets, and slotted means pivotally connected with said frame and adapted for engagement with the platen of a typing machine whereby said frame may selectively be positioned about said pivot into operative as- sociation with said typing machine, for use there- with or out of operative association with said typing machine to allow normal use of the typng machine alone without movement of said base relative to the typing machine.

5. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a longitudinally elongatable frame, means at one end of said frame to support paper webs fed from one side of the frame to the other thereof, a continuous length band positioned adjacent each longitudinal edge of said frame having a slack loop therein to allow for longitudinal adjustment of said frame, and means extending between the said bands for feeding paper webs over said frame.

6. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a longitudinally elongatable frame, means at one end of said frame to support paper webs fed from one side of the frame to the other thereof, a continuous length band positioned adjacent each longi- tudinal edge of said frame having a slack loop therein to allow for longitudinal adjustment of said frame, means extending between the said bands for feeding paper webs over said frame, track means supporting said frame for transla- tion with the platen of a typing machine, means supporting said track means for adjusting the elevation of said frame relative to a typing machine, and means extending from said frame for engagement with the platen of a typing machine to cause translation of the frame with the platen of the typing machine.

7. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a longitudinally elongatable frame, means at one end of said frame to support paper webs fed from one side of the frame to the other thereof, a continuous length band positioned adjacent each longi- tudinal edge of said frame having a slack loop therein to allow for longitudinal adjustment of said frame, means extending between the said bands for feeding paper webs over said frame, track means for supporting said frame for trans- lation with the platen of a typing machine, and means supporting said frame upon said track

means and including pivot means to allow rotation of said frame upon said supporting means for selective positioning of said frame in operative association with a platen of a typing machine for use therewith or out of operative association with the platen of a typing machine to allow normal undisturbed use of the typing machine without interference from the feeding attachment.

8. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a longitudinally elongatable frame, means at one end of said frame to support paper webs fed from one side of the frame to the other thereof, a continuous length band positioned adjacent each longitudinal edge of said frame having a slack loop therein to allow for longitudinal adjustment of said frame, means extending between the said bands for feeding paper webs over said frame, track means for supporting said frame for translation with the platen of a typing machine, means supporting said frame upon said track means and including pivot means to allow rotation of said frame upon said supporting means for selective positioning of said frame in operative association with a platen of a typing machine for use therewith or out of operative association with the platen of a typing machine to allow normal undisturbed use of the typing machine without interference from the feeding attachment, and means adjustably supporting said track means to regulate the elevation of said frame relative to a typing machine operatively associated therewith.

9. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a longitudinally elongatable frame, a roller rotatably supported at one end of said frame for conducting a paper web from one side of the frame to the other side thereof, means connected with said roller for supporting an endless band, means at the opposite end of said frame for supporting the endless band for straight-line movement thereof and including means for establishing a slack loop in the endless band, an endless band passing over the supporting means for the same, means connected with said slack loop establishing means to allow adjustment thereof to change the length of the slack loop upon longitudinal adjustment of said frame to retain the said band under operating tension, and means carried by said band for feeding paper webs over said frame.

10. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a longitudinally elongatable frame, a roller rotatably supported at one end of said frame for conducting a paper web from one side of the frame to the other side thereof, means connected with said roller for supporting an endless band, means at the opposite end of said frame for supporting the endless band for straight-line movement thereof and including means for establishing a slack loop in the endless band, an endless band passing over the supporting means for the same, means connected with said slack loop establishing means to allow adjustment thereof to change the length of the slack loop upon longitudinal adjustment of said frame to retain the said band under operating tension, means carried by said band for feeding paper webs over said frame, track means for supporting said frame, means for supporting said frame upon said track means for translation

thereon, and means supporting said track means for adjusting the elevational position thereof, and thus the elevational position of said frame relative to a typing machine operably associated therewith.

11. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a longitudinally elongatable frame, a roller rotatably supported at one end of said frame for conducting a paper web from one side of the frame to the other side thereof, means connected with said roller for supporting an endless band, means at the opposite end of said frame for supporting the endless band for straight-line movement thereof and including means for establishing a slack loop in the endless band, an endless band passing over the supporting means for the same, means connected with said slack loop establishing means to allow adjustment thereof to change the length of the slack loop upon longitudinal adjustment of said frame to retain the said band under operating tension, means carried by said band on one side of said frame for engaging paper webs to feed the same over said roller, and means carried by said band on the opposite side of said frame for supporting carbon tissue between webs of paper being fed along said side of said frame.

12. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a frame consisting of a pair of spaced parallel arms secured together and a pair of elongatable arms disposed respectively adjacent said first-mentioned arms and carried thereby, means carried between said pair of elongatable arms for supporting a paper web passing from one side of the frame to the other side thereof, means carried at each end of each of said elongatable arms for supporting an endless band, means carried by each of said first mentioned arms for supporting an endless band, an idler means adjustable relative to said last-mentioned means and adapted to provide a slack loop in an endless band passing over the supporting means for the same, an endless band passing over the supporting means for the same for straight-line movement adjacent opposite sides of said frame, means carried by the endless bands on one side of said frame for feeding paper webs over said frame, and means carried by said bands on the opposite side of said frame for supporting carbon tissue sheets interleaved between paper webs fed over said frame.

13. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a frame consisting of a pair of spaced parallel arms secured together and a pair of elongatable arms disposed respectively adjacent said first-mentioned arms and carried thereby, means carried between said pair of elongatable arms for supporting a paper web passing from one side of the frame to the other side thereof, means carried at each end of each of said elongatable arms for supporting an endless band, means carried by each of said first mentioned arms for supporting an endless band, an idler means adjustable relative to said last-mentioned means and adapted to provide a slack loop in an endless band passing over the supporting means for the same, an endless band passing over the supporting means for the same for straight-line movement adjacent opposite sides of said frame, means carried by the endless bands on one side of said frame for feeding paper webs over said frame, means carried by

13

said bands on the opposite side of said frame for supporting carbon tissue sheets interleaved between paper webs fed over said frame, track means for supporting said frame, means supporting said frame upon said track means for translation with the platen of a typing machine upon connection of said frame with the platen thereof, and including means for pivotally mounting said frame thereupon to allow for rotation of said frame toward and away from the platen of a typing machine associated therewith.

14. A universal paper feeding attachment for typing machines that have a platen movable past a typing position that includes, a frame consisting of a pair of spaced parallel arms secured together and a pair of elongatable arms disposed respectively adjacent said first-mentioned arms and carried thereby, means carried between said pair of elongatable arms for supporting a paper web passing from one side of the frame to the other side thereof, means carried at each end of each of said elongatable arms for supporting an endless band, means carried by each of said first mentioned arms for supporting an endless band, an idler means adjustable relative to said last-mentioned means and adapted to provide a slack loop in an endless band passing over the supporting means for the same, an endless band passing over the supporting means for the same for straight-line movement adjacent opposite sides of said frame, means carried by the endless bands on one side of said frame for feeding paper webs over said frame, means carried by said

14

bands on the opposite side of said frame for supporting carbon tissue sheets interleaved between paper webs fed over said frame, track means for supporting said frame, means supporting said frame upon said track means for translation with the platen of a typing machine upon connection of said frame with the platen thereof, and including means for pivotally mounting said frame thereupon to allow for rotation of said frame toward and away from the platen of a typing machine associated therewith, and means adjustably supporting said track means for changing the elevation of said frame relative to a typing machine operatively associated therewith.

HERMAN F. SADGEBURY.
ROBERT NELSON WARD.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,998,333	Pfeiffer	Apr. 16, 1935
2,027,612	Pfeiffer	Jan. 14, 1936
2,041,019	Pfeiffer	May 19, 1936
2,053,578	Pfeiffer	Sept. 8, 1936
2,101,433	Jackson	Dec. 7, 1937
2,199,535	Beiderbecke	Dec. 7, 1937
2,298,410	Pfeiffer	Oct. 13, 1942
2,306,616	Copeland	Dec. 29, 1942
2,365,318	Wyrick	Dec. 19, 1944