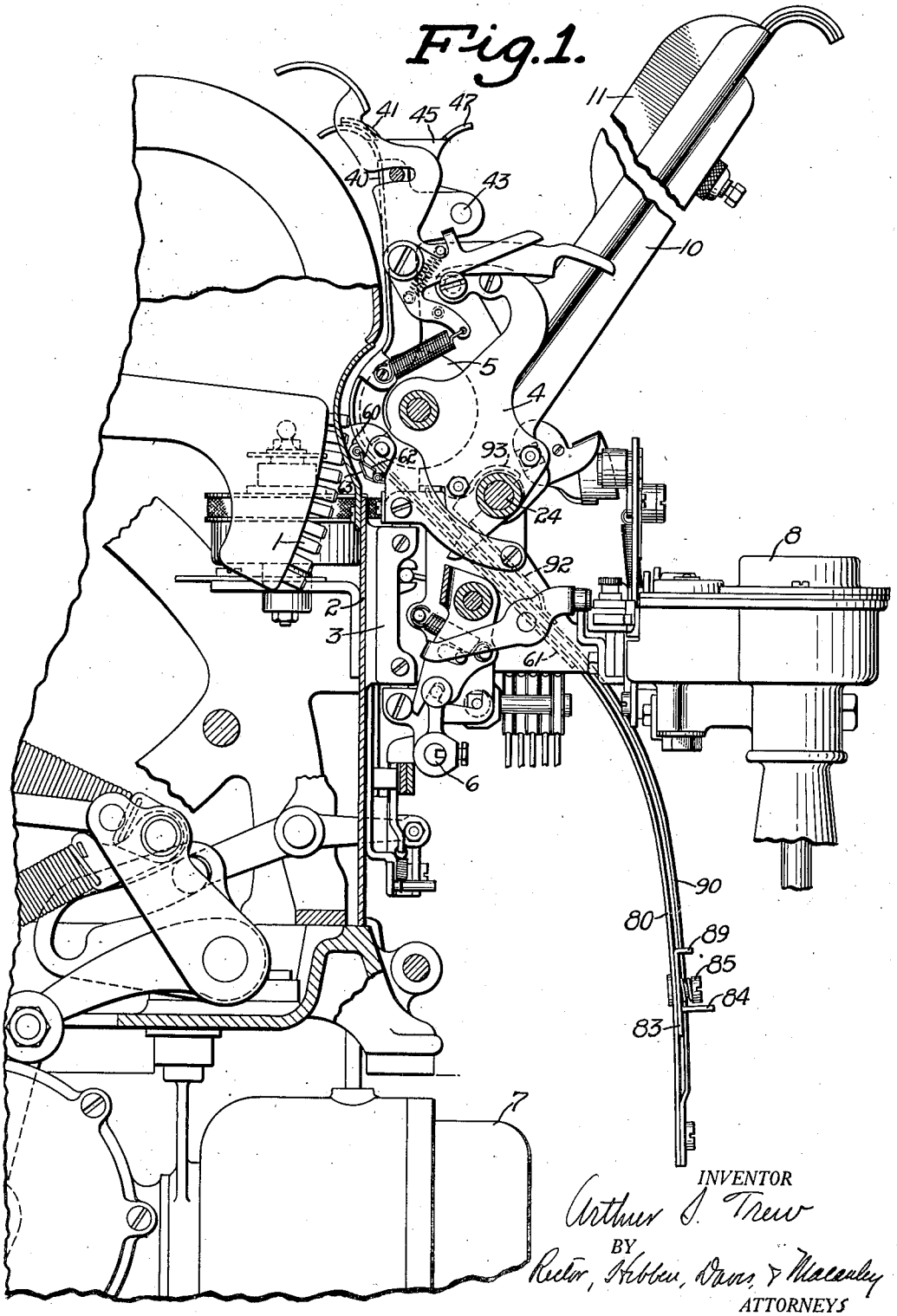
June 24, 1930. A. S. TREW 1,767,721

CARRIAGE EQUIPMENT FOR ACCOUNTING MACHINES

Original Filed July 3, 1924 6 Sheets-Sheet 1

Fig. 1.



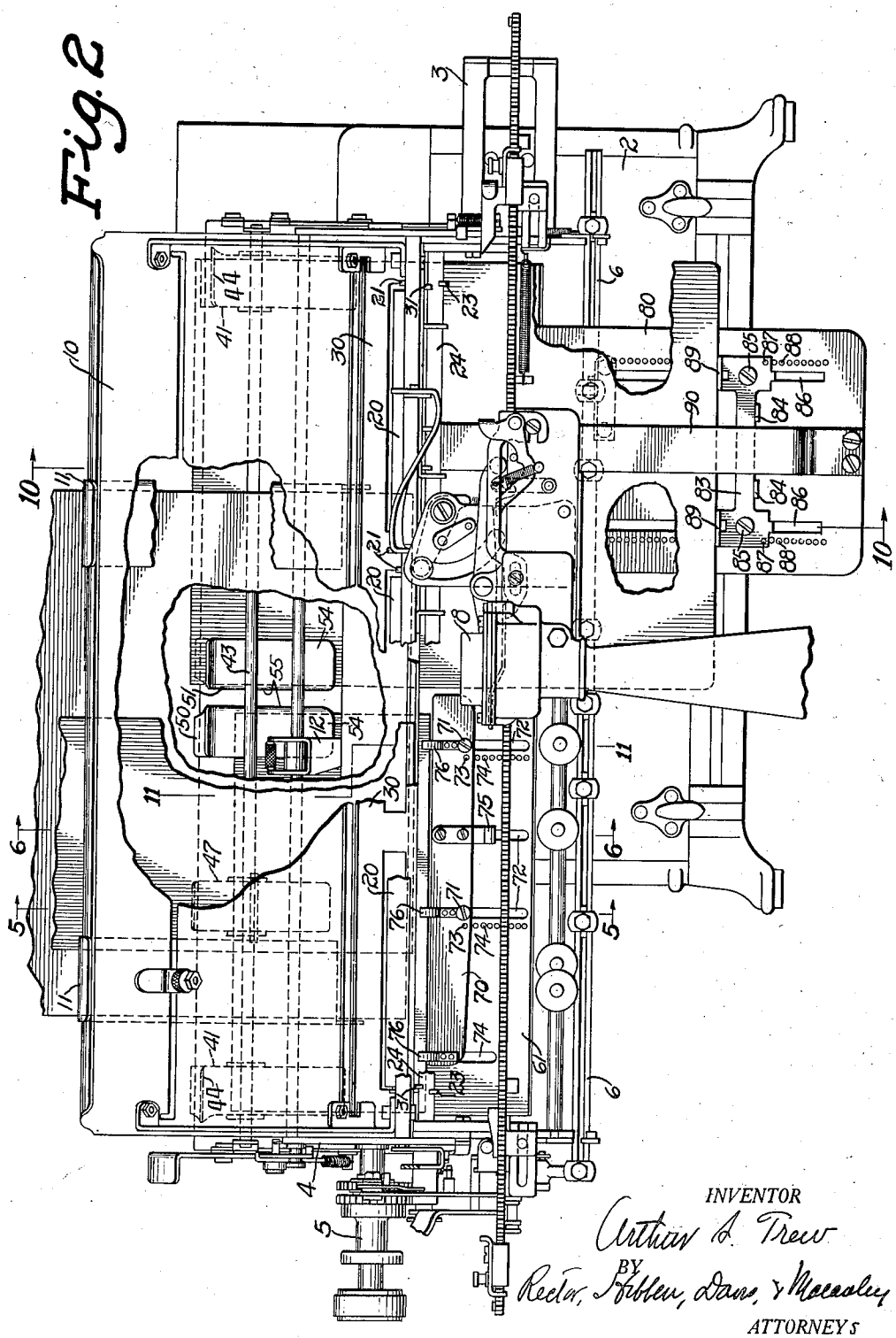
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CARRIAGE EQUIPMENT FOR ACCOUNTING MACHINES

Original Filed July 3, 1924 6 Sheets-Sheet 2

Fig. 2



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CARRIAGE EQUIPMENT FOR ACCOUNTING MACHINES

Original Filed July 3, 1924 6 Sheets-Sheet 3

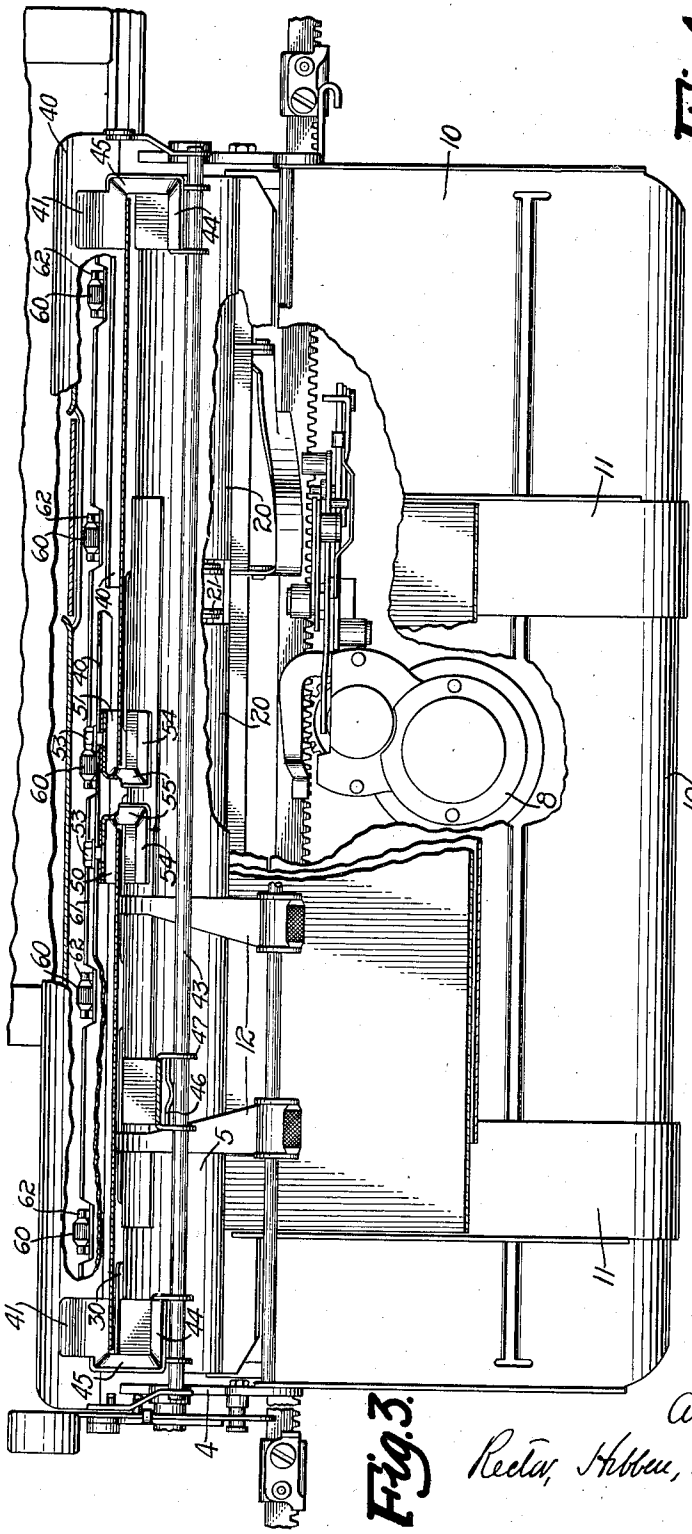


Fig. 3.

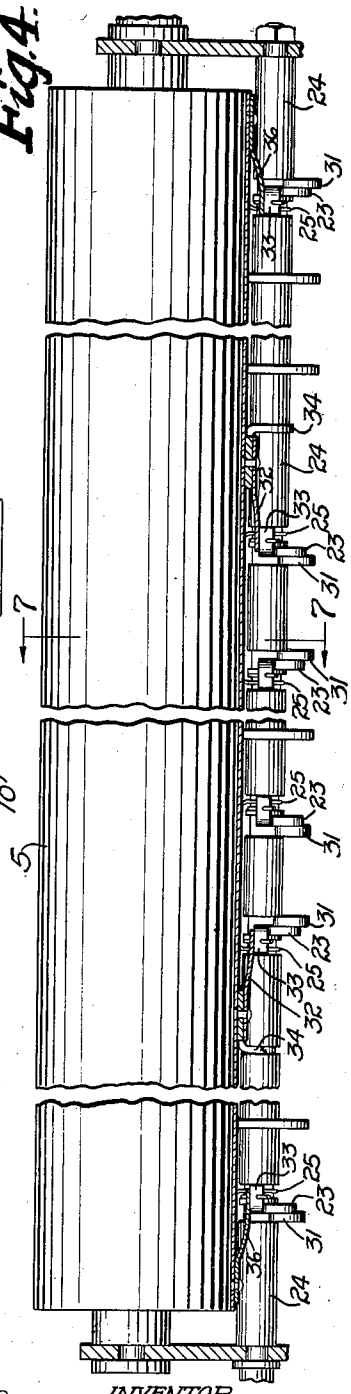


Fig. 4.

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CARRIAGE EQUIPMENT FOR ACCOUNTING MACHINES

Original Filed July 3, 1924 6 Sheets-Sheet 4

Fig. 5.

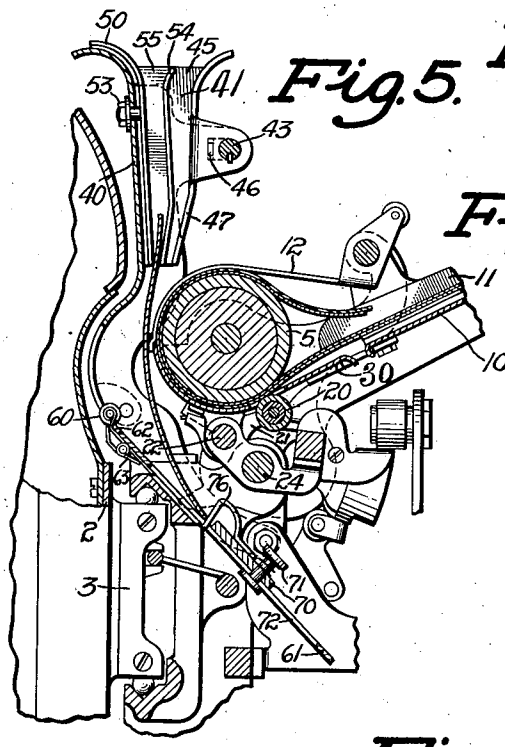


Fig. 9.

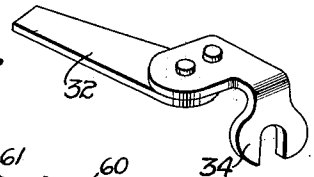


Fig. 8.

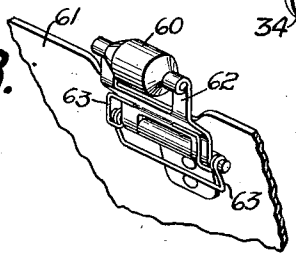


Fig. 6.

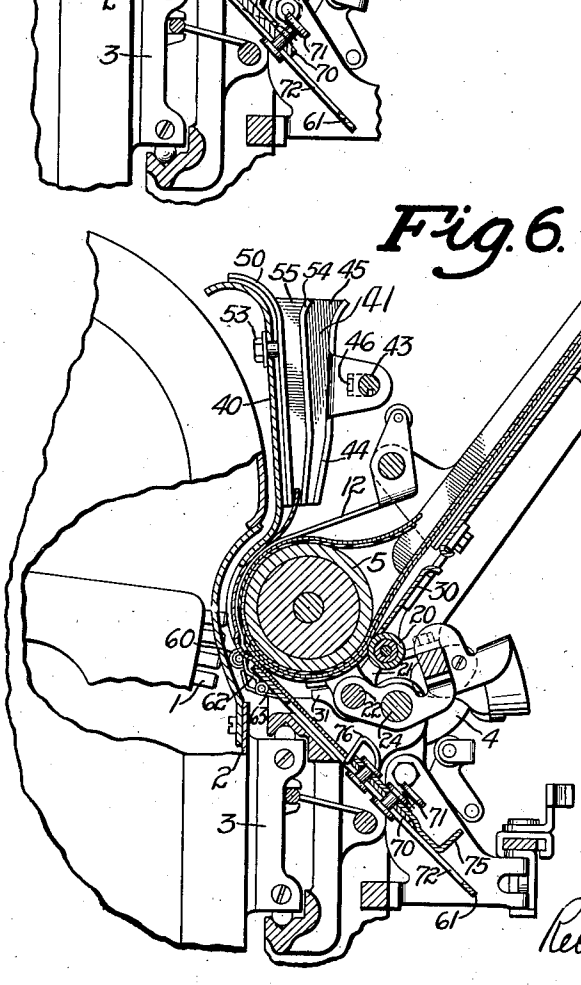
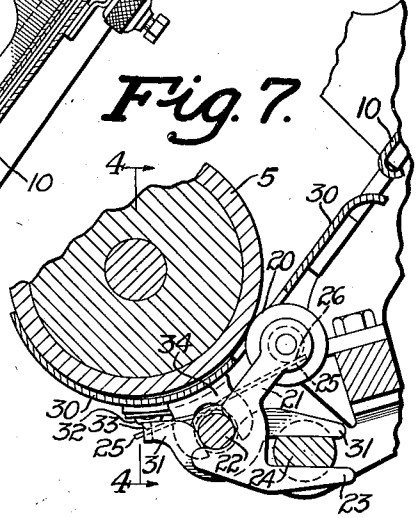


Fig. 7.



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CARRIAGE EQUIPMENT FOR ACCOUNTING MACHINES

Original Filed July 3, 1924 6 Sheets-Sheet 5

Fig. 10.

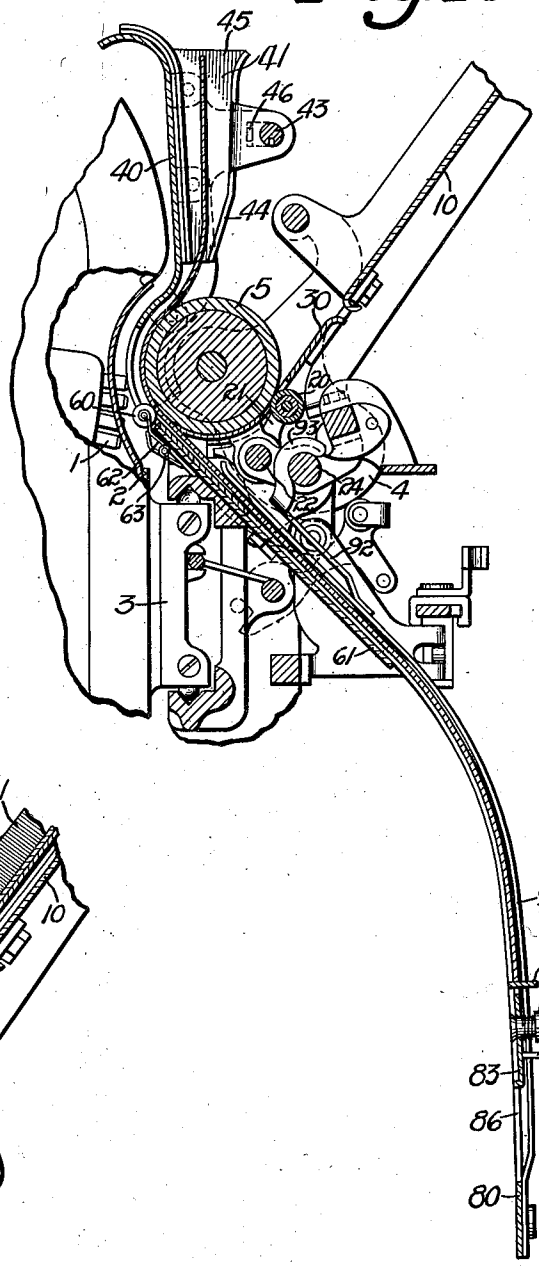
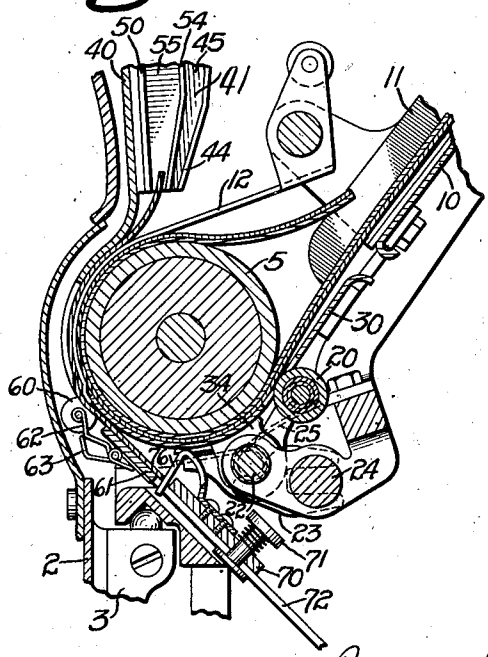


Fig. 11.



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CARRIAGE EQUIPMENT FOR ACCOUNTING MACHINES

Original Filed July 3, 1924 6 Sheets-Sheet 6

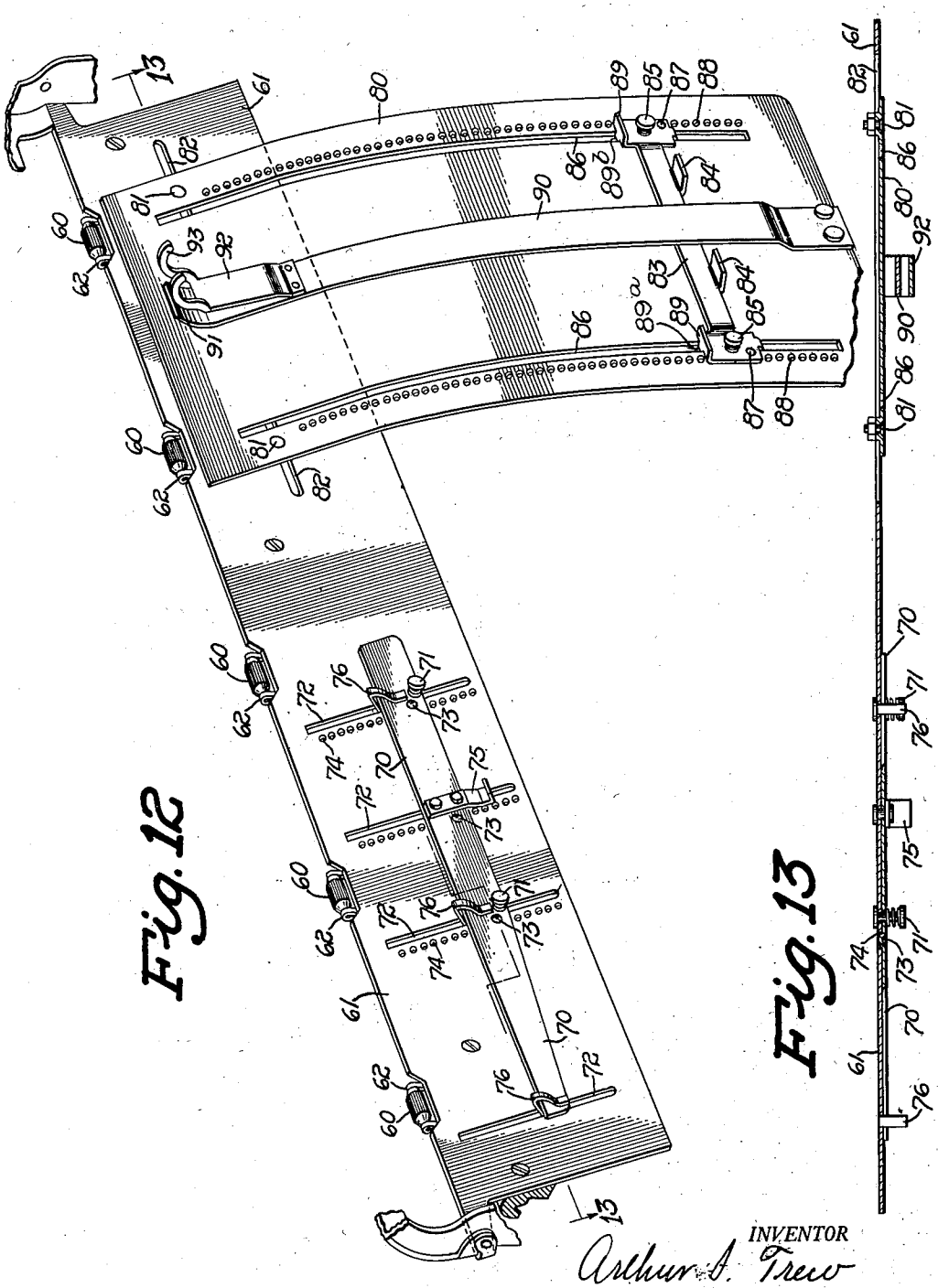


Fig. 12

Fig. 13

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UNITED STATES PATENT OFFICE

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CARRIAGE EQUIPMENT FOR ACCOUNTING MACHINES

Original application filed July 3, 1924, Serial No. 724,086. Divided and this application filed March 16, 1927. Serial No. 175,642.

This invention relates to carriage equipment for accounting machines. It relates particularly to equipment for adapting the well-known Burroughs type of machine for public utility accounting work, although not necessarily limited to this use or to the Burroughs type of machine. The present application is a division of my co-pending application, Serial No. 724,086, filed July 3, 1924, now Patent No. 1,723,668.

The general object of the invention is to provide an improved means for enabling the paper carriage of an accounting machine to handle a plurality of different types of work sheets at the same time, as for example, ledger sheets, bills, proof sheets, and the like.

More specifically the object of the invention is to provide an improved means for guiding, collating, and feeding a plurality of work sheets in an accounting machine.

Other objects and advantages of the invention will hereinafter appear.

An embodiment of the invention is shown in the accompanying drawings in which:

Fig. 1 is a right hand side elevation of the rear portion of an accounting machine with the invention applied thereto, parts of the machine being broken away and some parts being omitted to disclose the invention more clearly.

Fig. 2 is a rear elevation of the machine with one of the paper tables and some of the work sheets broken away.

Fig. 3 is a top plan view of the carriage equipment with some of the parts broken away and others shown in sections.

Fig. 4 is an elevation of the platen and a section through the carrying frame and the floating paper pan, the section being taken substantially on the line 4—4 of Fig. 7.

Fig. 5 is an irregular vertical section taken through the paper carriage substantially on the line 5—5 of Fig. 2.

Fig. 6 is a vertical section through the carriage substantially on the line 6—6 of Fig. 2.

Fig. 7 is an enlarged fragmentary view through part of the carriage equipment, the section being taken substantially on the line 7—7 of Fig. 4.

Fig. 8 is a fragmentary perspective view of one of the pressure rollers on the carriage.

Fig. 9 is a detail perspective view of one of the spring supporting devices for the floating paper pan.

Fig. 10 is still another vertical section through the paper carriage, the section being taken substantially on the line 10—10 of Fig. 2.

Fig. 11 is a large fragmentary section taken substantially on the line 11—11 of Fig. 2.

Fig. 12 is a detailed perspective view of the guide plates and their adjustable devices for supporting the work sheets.

Fig. 13 is a horizontal section taken substantially on the line 13—13 of Fig. 12.

The invention is shown applied to a Burroughs accounting machine and inasmuch as the basic principles of this machine are well known and are described in numerous patents, the mechanism of the machine proper will not be described in any detail. Numeral keys (not shown) are employed for setting up the various items and controlling the extent of movement of actuators which carry printing types 1 that are presented to the printing line. The back panel 2 supports a track 3 upon which runs a paper carriage designated generally by the reference numeral 4. The carriage has a rotatable platen 5 mounted in a rocking frame which is described in detail in said parent application, but, since an understanding of this part of the carriage is not necessary for an understanding of the present invention, the present specification will not be lengthened by adding a description of the rocking frame.

The paper carriage tabulates from column to column and is automatically returned to its first columnar position by mechanism described in Rinsche Patent No. 1,580,534, April 13, 1926, to which reference is made. The carriage has a tabulating bar 6 carrying suitable stops which may be positioned in various locations to automatically control the functions of the machine as explained,

for example, in Muller 1,397,774, November 22, 1921. The machine is driven by an electric motor 7 in substantially the same manner as described in Vincent Patent No. 866,750, September 24, 1909. Suitable connections 8 are provided by means of which the motor also drives the carriage, the same being described in the Rinsche patent heretofore mentioned. An understanding of the details of the motor drive and of the tabulating equipment of the carriage is not necessary for present purposes, it being sufficient to understand that the carriage tabulates, that it carries a platen which is automatically line-spaced, and that the platen is movable to and from printing position.

Main work table or support

The carriage has a main supporting table in the form of a plate 10 extending across the carriage and provided with laterally adjustable guides 11 slidably mounted on the plate and provided with locking means for holding them in their various adjusted positions, all as described in Rinsche Patent #1,208,375, December 12, 1916. The plate 10 forms a high, steep support which guides the paper usually called a record sheet so that it will fall by gravity into the opening between the platen and the feed rollers. The lateral guides position the paper laterally and their adjustability permits them to be suitably positioned for different widths of paper. The paper is guided around the platen from the rear and upward and rearwardly by narrow guiding fingers 12, adjustably mounted on a cross shaft of the machine, as shown in Fig. 6.

Feeding rollers and paper pan for main table

The record sheet on the support 10 is fed around the platen by rotation of the latter which co-acts with pressure feed rollers 20 (Fig. 7). Each pressure feed roller is supported on a pair of arms 21 which are shaped to fit around a shaft 22 and each arm has a rearward extension 23 which bears against the flat under side of a control shaft 24. The pressure feed rolls 20 are yieldingly urged against the platen by means of springs 25 which encircle the shaft 22 and have their rearward ends engaging under shouldered portions of the pressure feed roll supporting arms at the point 26.

When the platen is moved away from the printing line to its Fig. 5 position, the record sheet is fed around the platen with the pressure rollers engaging it and pressing it against the platen. When the sheet is inserted the pressure rollers may be released by the usual hand lever for this purpose common to Burroughs machines, thereby turning the shaft 24 to cam the arms 21—23 clockwise and the arm 31 counterclockwise, in this way freeing the sheet from pressure so that it may be adjusted.

A curved floating paper pan 30 extends for substantially the entire length of the platen and under it from its forward edge to the rear and upwardly some distance as shown in Fig. 7. This pan is carried by the forward ends of arms 31 whose rearward ends extend into notches on the top of the control shaft 24. The pan is urged toward the platen by the same springs 25 which urge the feed rolls 20. The one set of springs thus serves to perform two functions. The pan is yieldingly supported on the arms 31 by means of leaf springs 32 (Figs. 4 and 9) which bear at their free ends on laterally extending lugs 33 on the arms 31. The other ends of the springs are fixed to angle brackets 34 which in turn are fastened to the pan. These brackets have their downwardly extending portions slotted to fit loosely over the shaft 22 which serves to support the pan in position. The leaf springs are bent downwardly toward their free end to an extent such that they normally urge the floating pan against the platen. The pan is thus yieldingly supported and it is free or floating so that it can easily adjust itself to different thicknesses of paper.

At each end of the floating pan, leaf springs 36, similar to the springs 32 are securely fastened and the free ends of these springs likewise engage off-set lugs 33 to assist in holding the floating pan in yielding contact with the platen.

When the shaft 24 is rocked by the device common to Burroughs machines, it cams the arms 31 counter-clockwise and lowers the forward ends of the arms to permit the floating pan to move away from the platen. At the same time the arms 21—23 are moved to move the feed rollers away from the platen and there is thus an opening under and to the rear of the platen for the insertion and removal of the record sheet.

This manner of mounting the pan enables the record sheet with its carbons to be easily inserted without buckling or bending as often happens in the usual form of floating pan without the yielding supporting means.

Supplementary paper guides and supports

In addition to the main paper table 10, supplementary paper guides and supports are provided near the forward side of the platen for guiding work sheets around the front of the platen.

A front guide plate 40 is provided which extends slightly beyond the full length of the platen and is supported by the paper carriage. The lower portion of this guide plate is curved to extend partially around the front of the platen as illustrated in Fig. 10 and this is secured to the paper carriage by suitable fastening means.

Supported at opposite ends of the carriage and to the rear of the guide plate 40 are side chutes or guides 41 which are alike except that one is right and the other left handed. They are mounted on a cross rod 43 supported by the carriage and they have rear walls 44 whose lower portions extend forwardly which serve to guide the work sheets toward the front of the platen as well as end portions 45 which position the sheets laterally. The chutes are slidably mounted on the cross rod 43 so that they may be adjusted to accommodate different widths of paper and they are held in adjusted position by friction springs 46 which bear against the cross shaft.

In order to provide additional supporting surfaces for the work sheets, guide fingers 47 are slidably mounted on the rod 43 and frictionally held in position by springs similar to the springs 46. The surfaces of these fingers slope toward the front of the platen to guide the work sheets toward the front.

In addition to the two end chutes there are two center guide chutes 50 and 51, one for cooperating with each end chute respectively. These center chutes, instead of being supported on the cross rod 43 are supported on the front paper guide 40, the supporting means comprising a bolt 53 for each chute which extends through a slot in the guide 40 and is adjustably fastened in different positions. In this way the center space is kept free of cross members. Each center chute has a back plate 54 for directing work sheets toward the front of the platen and end portions 55 for guiding the work sheets laterally.

It will be observed that the backplates of the center chutes are not spaced from the front plates as far as the backplates of the end chutes. This is to provide a space between the backplates and the center chutes and the surfaces of the guide fingers which permits papers to be placed behind the center chutes and between their backplates and in front of the guiding fingers.

Supplementary paper feeding means

When the work sheets are fed into the machine through the front work supports and guides, the sheets pass in front of the platen as illustrated in Fig. 5 while the platen is tilted away from the printing line. When the platen is tilted back to printing position it presses the work sheets between itself and a set of feed rollers 60 carried by a plate 61 fixed to the paper carriage. The plate 61 is clearly illustrated in Fig. 12 and one of the feed rollers is shown in detail in Fig. 8. Each of the rollers 60 is mounted on a hinged carrier 62 that is normally urged by a spring 63 in a direction to hold the feed roller against the platen. This spring mounting gives the feed rollers an opportunity to yield slightly so that when the platen is moved to printing position to press the work sheets against the feed rollers these rollers will yield to adjust themselves to the platen surface.

The work sheets are moved upward during operation of the machine by the co-action between the platen and the feed rollers 60 as the platen is advanced by the line spacing mechanism which has not been described as it is of familiar construction on Burroughs machines.

Collating devices for front work sheets

Inasmuch as the front work sheets are dropped in front of the platen as illustrated in Fig. 5 and then fed upwardly, and, in view of the fact that the paper carriage is at the rear of the machine, provision must be made for properly collating the work sheets relative to the record sheet on the main table 10 and also so that the printing will start on the desired line. Accordingly, collating devices have been provided for stopping the work sheets at proper positions. In the machine shown there is provision for inserting two front work sheets side by side in front of the proof sheet and these are of different lengths so that the collating devices for each should be independent of the other. Their construction, however, is quite similar.

The collating support for the shorter or right hand work sheet is best illustrated at the left end of Fig. 12. The plate 61 which carries the feed rollers 60 extends downwardly and to the rear sufficiently to support an adjustable paper supporting member 70, said member being adjustable vertically on the plate by being connected to it by spring-pressed bolts 71 which extend through slots 72 in the plate. A spring is positioned between the nut on the end of each bolt and the face of the plate so as to hold the bolt-head yieldingly against the member 70. The positions of the member 70 are determined by means of spherical projections 73 on the member which enters the circular recesses 74 in the plate 61. A finger piece 75 is provided by means of which the member 70 may be adjusted up and down, the spring pressed bolts being tensioned so that the member may be moved by hand and will stop in any one of the recesses.

Fixed to the supporting member 70 are a series of paper holding stops 76 comprising bent springs whose free ends project into the slots 72. These stops form a ledge for positioning the work sheet when it is dropped in front of the platen. The fact that the free ends of the stops project into the slots 72 permits them to yield when they contact the pan 30 as illustrated in Fig. 11. This seldom occurs, but in the event the col-

lating support is moved upward so as to be close to the floating pan, the yielding mounting prevents contact of these parts from interfering with the operation.

A similar collating support is provided for the work sheets at the left end of the platen or at the right in Fig. 12, except that, in this case, the work sheets are longer and a supplemental downwardly extending plate 80 is attached to the plate 61. This supplemental plate is adjustable laterally by means of its connection to the plate 61 which comprises bolts 81 passing through slots 82 in the plate.

A supporting member 83 is provided, similar to the supporting member 70, having finger pieces 84 for adjusting it. It is slidably mounted on the plate 80 by means of the spring-pressed bolts 85 which pass through slots 86 in the plate. Depressions 87 on the support 83 fitting into recesses 88 on the plate 80 hold the support in adjusted position. Projections 89 on the support 83 form stops for the work sheets and lugs 89^a and 89^b of the support 83 extending into the slots 86 assist in guiding said support 83.

In order to guide the work sheets onto the supplementary plate 80, a guide strip 90 fastened to the lower end of the plate is employed. It extends upwardly substantially parallel with the supplementary plate, its upper end 91 being curved as shown in Fig. 12. This guide stop also carries a second sheet guide and supporting member 92 near its upper end which comprises a thin strip having hooked ends 93 which engage over the shaft 24 as illustrated in Fig. 10. This guide is for the purpose of guiding and supporting an unusually long stub on the end of the work sheet at the left hand end of the carriage or at the right hand end of Fig. 12. It operates in conjunction with the central chutes. For example, if a work sheet with an unusually long stub is employed, it is placed behind the backplates of the central chutes and between them and the paper guide fingers. Then when it passes downwardly it is received between the guide strips 90 and 92, the latter serving to support the sheet and keep it from buckling.

Operation

From the above it will be clear that a proof sheet or record sheet with carbons and a number of copies may be placed on the main work table 10. This is done while the platen is latched in its tilted position as in Fig. 5. The platen may be rotated by hand to feed the paper around to the desired position which may be determined by a mark on the paper and a collating mark on the work table or by moving the platen rearwardly to observe whether the paper is properly positioned. The paper is guided around the platen and upwardly and to the rear by the floating pan 30 and the guides 12 as previously explained. While the platen is thrown rearwardly the separate work sheets can be dropped in the paper chutes. They pass in front of the platen and downwardly until they strike the collating stops which properly position them relative to the printing line. The platen is then unlatched and swung forward to printing position and the machine is ready to operate.

After an entry has been made, the platen may be thrown rearwardly and the two front work sheets removed and two others inserted which are placed in position in the same manner and automatically stopped in proper collated position by the collating stops which are adjusted for the size of sheets that are used, it being understood that the usual line spacing mechanism is effective to advance the proof sheet after each operation.

In this manner bills and ledger sheets may be made out for each of a large number of customers and a record may be kept at the same time on a proof sheet with a suitable number of copies.

It is to be understood that the structure shown is for purposes of illustration and that variations may be made in it without departing from the spirit and scope of the invention as defined by the appended claims.

I claim:

1. The combination in an acounting machine of a platen movable to and from printing position, a paper table for guiding a record sheet around the platen from the rear thereof, means for holding said record sheet about said platen, a guiding means for guiding work sheets about the platen from the front thereof while the platen is out of printing position, collating stops for automatically arresting the work sheets in proper position relative to the record sheet when said sheets are inserted from the front, and feed rolls automatically engaging said work sheets when the platen is moved to printing position.

2. The combination in an acounting machine of a platen movable to and from printing position, a paper table movable with said platen and positioned to guide a record sheet around the platen from the rear, means for holding said record sheet about said platen, a guiding means for guiding work sheets about the platen from the front thereof while the platen is out of printing position, collating stops for positioning the work sheets relative to the record sheet, a set of feed rolls for the work sheets, and means for moving the platen and paper table to printing position, said feed rolls for the work sheets automatically engaging said work sheets as the platen moves to printing position.

3. The combination in an accounting machine of a platen movable to and from printing position, a paper table movable with said platen, said table being inclined toward said platen to guide a record sheet around it from the rear, means for holding said record sheet about the platen, vertically positioned paper chutes for guiding work sheets about said platen from the front while the platen is out of printing position, a guiding means below the platen carrying collating stops for positioning the work sheets relative to the printing line and the record sheet, and feed rolls automatically engaging the work sheets when the platen is moved to printing position.

4. The combination in an accounting machine of a platen movable to and from printing position, a main paper table for guiding record sheets around the platen from the rear thereof, a paper chute adjacent each end of the platen for guiding work sheets around the same from the front thereof, and a pair of center paper chutes, one for each end chute respectively.

5. The combination in an accounting machine of a platen movable to and from printing position, a main paper table for guiding record sheets around the platen from the rear thereof, an end chute for each end of the platen for guiding work sheets around the same from the front thereof, and two center chutes, one for each of the end chutes respectively, the rear guiding surfaces of said center chutes being farther forward than the rear guiding surfaces of the end chutes.

6. The combination in an accounting machine of a platen movable to and from working position, a main paper table for guiding record sheets around the platen from the rear thereof, a vertically positioned guide plate adjacent the front of the platen, an end chute for each end of the platen for guiding work sheets about the same from the front thereof when it is out of printing position, and a pair of center paper chutes supported by said guide plate, there being one center chute for each end chute.

7. The combination in an accounting machine of a platen movable to and from working position, a main paper table for guiding record sheets around the platen from the rear thereof, a vertically positioned guide plate adjacent the front of the platen, an end chute for each end of the platen for guiding work sheets about the same from the front side thereof when the platen is out of printing position, a plurality of paper fingers having rear guiding surfaces in line with the rear guiding surfaces of the end chute, and center chutes supported by said guide plate, there being one center chute for each end chute and said center chutes having rear guiding surfaces located farther forward than the guiding surfaces of the paper fingers to provide a space between the paper fingers and the rear surfaces of the center chutes.

8. The combination in an accounting machine of a paper carriage having a platen, an outer and an inner paper chute for receiving the edges of one work sheet to guide the same about the platen, an outer and an inner paper chute for receiving the edges of another work sheet to guide the same about the platen, and intermediate paper fingers for guiding the work sheets, said inner chutes being shallower than the outer chutes to permit a portion of a wide work sheet to extend behind the inner chutes and rest on the fingers.

9. The combination in an accounting machine of a paper carriage having a platen, a front guide plate for guiding work sheets about the platen, an outer paper chute secured at its rear to the carriage, an inner paper chute secured at its front to said guide plate, said paper chute serving to receive the edges of a work sheet, a second outer paper chute secured at its rear to the carriage, a second inner paper chute secured at its front to said guide plate, said second chutes serving to receive the edges of a second work sheet, and a plurality of intermediate paper fingers for assisting in guiding the work sheets, said inner chutes being shallower than the outer chutes so that a work sheet which is wider than the distance between its respective chutes may be inserted back of the inner paper chute.

10. The combination in an accounting machine of a paper carriage having a platen, means for guiding work sheets in front of the platen, a plate carried by the carriage, and collating supports on the plate on which the lower edge of the work sheets may rest, said plate having vertical slots and said collating supports being provided with spring-pressed bolts projecting to said slots to permit vertical adjustment of the supports.

In testimony whereof, I have subscribed my name.

ARTHUR S. TREW.