H. KONERMAN.

MEASURED DELIVERY AUTOGRAPHIC REGISTER.

APPLICATION FILED APR. 28, 1915.

1,166,996. Patented Jan. 4, 1916.

Fig. 4.

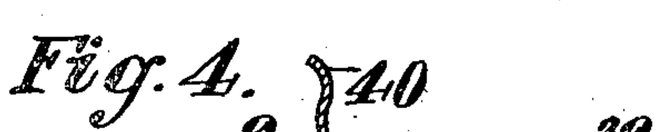


Fig. 1.

Fig. 2.

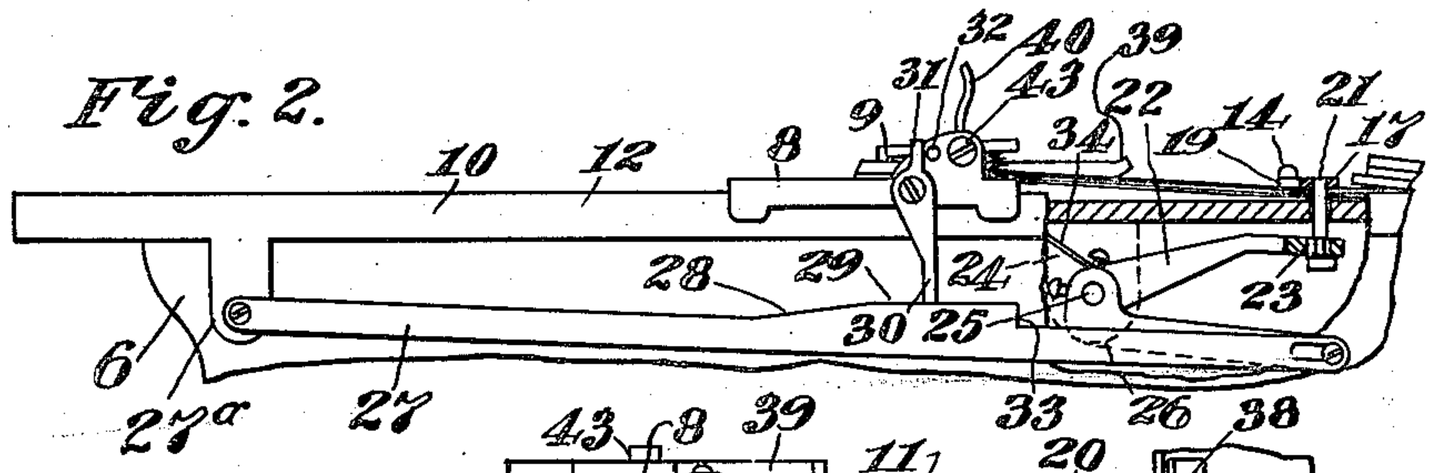
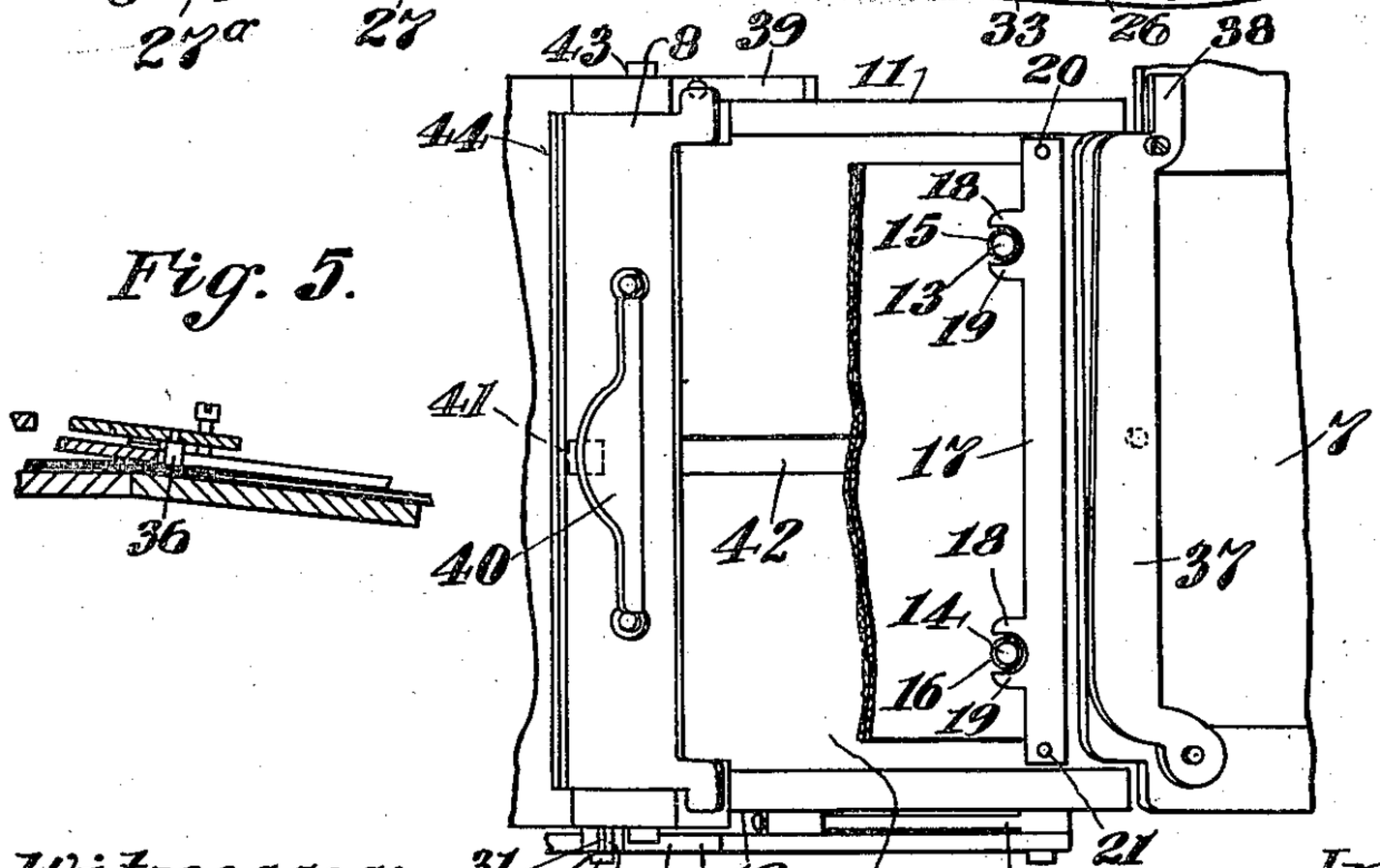


Fig. 3.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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MEASURED-DELIVERY AUTOGRAPHIC REGISTER.

1,166,996. Specification of Letters Patent. Patented Jan. 4, 1916.

Aplication filed April 28, 1915. Serial No. 24,583.

To all whom it may concern:

Be it known that I, HARRY KONERMAN, a citizen of the United States of America, and resident of Newport, county of Campbell, State of Kentucky, have invented certain new and useful Improvements in Measured-Delivery Autographic Registers, of which the following is a specification.

This inventi n relates to improvements in autographic re sters and particularly to autographic registers of the measured delivery manifolding type. In registers of this type the sheets are drawn from between the interleaved carbon sheets by means of a sliding carriage, to the end of the travel of the carriage, which travel is adjustable to regulate the extent of movement thereof to correspond with the length of the printed record forms being used. A manually operated clamp is provided on the carriage for securing the sheets thereto during the forward sheet withdrawing motion of the carriage, and the clamp is adapted to be released from engagement with the sheets during the return motion of the carriage to its original position, so that the record sheets will be left in their withdrawn or extended position. With the carriage returned to its original position the extended sheets are torn off in uniform lengths against a knife edge provided on the carriage. Each sheet has printed upon it a tabulated form. Hence it is desirable that the form upon each sheet shall register with that upon adjacent sheets. Heretofore, in using autographic registers of this type the sheets have become disalined and out of adjustment to such an extent during the operation of the register, that the corresponding spaces of printed forms on the several superimposed sheets would not properly register, one with the other. This necessitated frequent manual adjustment to bring the sheets into perfect registration so that the corresponding spaces of the superimposed sheets would register to produce the same notations in the same space of the different sheets when the record was made in the proper space on the top original sheet. This difficulty is created by the variation in the lengths of the different superimposed sheets, due to the "stretch" of the material of which the sheets are manufactured. This stretch is much greater in some sheets than in others because of the variation in the density of material of the sheets, and results in a slight unavoidable buckling which occurs during the process of manufacture. As a result of this, imperceptible distortions or ridges in the sheet or web of paper, occur at certain points, and during the printing operation and subsequent rewinding operation of the sheet under high tension, these convolutions will be smoothed out or stretched. This causes the printed part of the web at these points of buckling, to be of greater length than corresponding parts printed on the perfect parts of the web and for this reason when several sheets are employed and one or more happen to be imperfect, the objectionable and annoying disalinement of the printed forms of the superimposed sheets occurs.

An object of my invention is to automatically aline and adjust the superimposed sheets so that the forms printed thereon will be in perfect registration with one another and so that no matter how many record sheets are withdrawn from the register, each series to be withdrawn will be maintained in perfect alinement. This and other objects are attained in the device described in the following specification and illustrated in the accompanying drawings in which;

Figure 1 is a fragmental side elevation of a register embodying my invention with certain parts shown in section to more fully illustrate details thereof. Fig. 2 is a fragmental elevation similar to Fig. 1 but showing the parts embodying my invention, in different operative positions from that shown in Fig. 1. Fig. 3 is a fragmental plan view of a register embodying my invention. Fig. 4 is a sectional detail view of the sheet withdrawing carriage embodying certain details of my invention. Fig. 5 is a fragmental sectional view of a detail of the mechanism embodying my invention.

The register embodying my invention consists of a frame 6 having a writing table 7 over which the form sheets are drawn, and a reciprocating carriage 8 provided with a clamp 9 adapted to draw the record sheets from the writing table platen during the withdrawing operation. The carriage 8 is adapted to reciprocate on a table 10 provided with guides 11 and 12 for the carriage. Permanently mounted and extending upwardly from the surface of the table

10 over which the carriage is adapted to reciprocate, are stationary pins 13 and 14 adapted to engage apertures 15 and 16 formed in the superimposed sheets. These apertures are provided at regularly disposed intervals corresponding with the length of the ticket or slip to be withdrawn from the register, and each sheet is provided with these apertures for the purpose of bringing the sheets into alinement as they are forced over the pins 13 and 14. In order to force the sheets over pins 13 and 14 the following mechanism is provided. This mechanism consists of a plate 17 provided with two sets of fingers 18 and 19 adapted to extend on each side of the pins for the purpose of forcing the paper over them when the plate is moved downwardly into engagement therewith. The plate 17 is permanently mounted on rods 20 and 21 reciprocally mounted in the table 10 over which the carriage 8 reciprocates. At their lower ends, these rods 20 and 21 are provided with annular grooves and a lever 22 located on each side of the frame and having a slot 23 adapted to engage the groove in each pin, is pivotally mounted in bearing lugs 24 extending downwardly from the table 10, by means of a shaft 25 extending transversely from one bearing lug 24 to the opposite bearing lug 24. Secured to the outer end of this shaft is a lever 26 to the outer end of which a bar 27 is pivotally attached. This bar preferably extends the entire length of the table 10 and is pivotally mounted at its opposite end in a bearing lug 27ª formed adjacent to the end of the table 10. By moving the lever 27 downwardly so as to swing the levers 26 and 22 in their journal lugs 24, the pins 20 and 21 and their connected plate 17 will move downwardly to force the apertures of the sheets over their respective registering pins 13 and 14. For the purpose of automatically giving the bar 27 movement at a certain period of the movement of the carriage 8 I have provided an inclined edge 28 and an elevated edge 29 adapted to be engaged by a pawl 30 secured to the carriage 8. This pawl is provided with an upwardly extending projection 31 adapted to engage an abutment 32 during the return movement of the carriage 8, to hold the lower end of the pawl in engagement with the inclined surface 28 and elevated surface 29 when the bar 27 is forced downwardly to bring the plate 17 into contact with the sheets while pressing them over their alining pins 13 and 14. After the end of the pawl has engaged the inclined surface 28 and the elevated surface 29 during the return motion of the carriage, the pawl is permitted to leave the elevated surface at a step 33 provided in the bar 27. This releases the bar and permits the levers 26 and 22 to move the plate 17 upwardly under the influence of a leaf spring 34 secured to the lever 22 and pressing against the under face of the table 10. The carriage is provided with an inclined edge 35, see Fig. 4, over which the sheets pass during the return motion of the carriage. As the carriage reaches the end of its travel adjacent to the pins 13 and 14, the paper is lifted from the pins by the inclined edge 35, so that when the carriage is again operated to withdraw record sheets, the paper will be disengaged from the pins and will not become again engaged until the next adjacent apertures are brought to register therewith. In order to avoid losing the alinement of the sheets after they have been brought over their alining pins and before the clamp 9 has again engaged the sheets after having removed them from the alining pins, I have provided means consisting of a pressure pin 36 mounted in a spring plate 37 extending transversely of the register and provided with a projection 38 adapted to be engaged by a finger 39 extending from one side of the carriage 8. This pressure pin is adapted to be brought into engagement with the surface of the sheets of paper after they have been alined by the pins 13 and 14, previous to the removal of the sheets from the pins by the inclined surface 35. The finger 39 upon the return of the carriage is brought into engagement with the projection 38 and causes the plate 37 and the pin 36 to be pressed downwardly into gripping engagement with the sheets.

In operation: Assuming that the register is in condition for use, that is, with the carriage returned to its normal position and with the paper lifted from the alining pins 13 and 14, while the finger 39 is in engagement with the projection 38 of the plate 37, the operator makes the proper notation upon the alined sheets on the writing table 7. He then grasps the handle 40 of the clamp 9 mounted on the carriage 8 and pushes the carriage by means of the handle, away from him to the end of its movement along the guides 11 and 12 of the register. This movement is limited by the downwardly extending lug 41 formed on the carriage, being brought into engagement with the end of a slot 42 formed in the table 10. During this movement the sheets which are grasped between the carriage 8 and the clamp 9, are withdrawn from the register until the carriage has reached the end of its movement as above described, at which time the next adjacent apertures 15 and 16 of the sheets are brought to engage the pins 13 and 14. With the apertures of the sheets thus brought into alinement with the pins 13 and 14, the clamp is released by tilting the handle 40 backward so that the clamp bar 9 rocks about its pivot pins 43. The sheets

being free the carriage is drawn back toward the operator while the sheets are permitted to remain in their extended positions. As the carriage is drawn back the pawl 30 engages the inclined surface 28 of the bar 27 and forces the bar downwardly until the pawl engages the surface 29. This downward movement of the bar causes the plate 17 to press its fingers upon the sheets of paper and thereby force the sheets over the alining pins 13 and 14 thus bringing each of the superimposed record sheets into alinement so that the forms printed on the sheets and located on the table 7, will be accurately registered one above the other. This alinement is maintained after the pawl 30 has passed beyond the step 33, shown in Fig. 1, the sheets will remain over the pins until the inclined surface 35 of the carriage 8 has been brought under the sheets adjacent to the alining pins. In order, however, to avoid losing the alinement of the sheets, the finger 39 is brought into engagement with the projection 38 of the plate 37 by further movement of the carriage 8 toward the operator. This causes the pressure pin 36 to hold the sheets against accidental displacement from their alined positions, while the paper is withdrawn from the pins 13 and 14 by the inclined surface 35 of the carriage. This removal of the sheets from their alining pins by means of the inclined surface 35, occurs only at the time that the carriage has been completely returned to its normal position. With the carriage in its normal position the sheets which have been extended and upon which the record has been made, are torn off from the main portion of the sheet by severing them by a stationary knife plate 44 secured transversely of the carriage. Upon again operating the register the carriage is pushed away from the operator thus causing the sheets to be frictionally moved under the pressure of the pin 36 until the finger 39 has released the projection 38 of the plate 37 to release the pressure on the pin. Further movement away from the operator causes the pawl 30 to engage the step 33 and to swing about its pivot pin 45 causing separation of its projection 31 and abutment 32, until the surfaces 29 and 28 have been passed. At this point the previously described operation of releasing the clamp and returning the carriage to its normal position is again carried out.

Although I have described my improved register as having two alining pins it will be readily understood that one or a plurality of alining pins may be employed and that similar mechanism to that above described may be employed for bringing the apertures of the sheet into registration with the alining pins, while other suitable means for removing the sheets therefrom as well as for holding the sheets against accidental displacement during the removing operation may be provided, without departing from the spirit and scope of my invention as set forth in the appended claims.

I claim—

1. A manifolding autographic register adapted for use with record sheets having a series of apertures and comprising a frame, a table mounted on the frame, a stationary pin mounted in the table, and means adapted to move the sheets to engage the apertures with the pin.

2. In a manifolding autographic register adapted for use with form printed record sheets having a series of apertures, a frame having a sheet supporting table mounted thereon, a stationary pin mounted on the table, and means adapted to move the sheets to engage the apertures with the pin whereby the forms on the sheets will be alined.

3. In combination in a manifolding autographic register adapted for use with record sheets having a series of apertures, a frame adapted to support the record sheets, a stationary pin mounted on the frame, a carriage movably mounted on the frame and adapted to move the record sheets across the pin to bring the apertures in alinement therewith, and a mechanism adapted to engage the apertures with the pin.

4. An autographic register adapted for use with record sheets having a series of apertures, comprising a frame adapted to support the record sheets, a stationary pin mounted on the frame, a carriage movably mounted on the frame and adapted to move the record sheets across the pin to bring the apertures in alinement therewith, mechanism adapted to engage the apertures with the pin, and means adapted to remove the sheets from the pin.

5. In an autographic register adapted for use with record sheets having apertures formed therein, the combination of a frame adapted to support the record sheets, a stationary pin mounted on the frame, a carriage movably mounted on the frame and adapted to move the record sheets across the pin to bring the apertures in alinement therewith, mechanism adapted to engage the apertures with the pin, means adapted to remove the sheets from the pin to permit subsequent movement of the sheets, and a device adapted to maintain the sheets in alinement after they have been removed by said means from the pin.

6. In combination in a manifolding autographic register adapted for use with record sheets having apertures formed therein, a frame adapted to support the record sheets, a stationary pin mounted on the frame, a carriage movably mounted on the frame and adapted to move the record sheets across the pin to bring the apertures in alinement

therewith, mechanism adapted to engage the apertures with the pin and operatively connected with the carriage whereby the apertures will be engaged with the pin after they have been moved into alinement therewith.

7. An autographic register adapted for use with record sheets having apertures formed therein, comprising a frame adapted to support the record sheets, a stationary pin mounted on the frame, a carriage movably mounted on the frame and adapted to move the record sheets across the pin to bring the apertures in alinement therewith, mechanism adapted to engage the apertures with the pin and operatively connected with the carriage to engage the sheets with the pin after the apertures have been brought into alinement therewith, means adapted to remove the sheets from the pin when the carriage is returned to its normal position, and a device adapted to maintain the sheets in their alined positions after removal thereof from the pin.

8. In an autographic register adapted for use with record sheets having apertures formed therein, the combination of a frame adapted to support the record sheets, a stationary pin mounted on the frame, a carriage movably mounted on the frame and adapted to move the record sheets across the pin to bring the apertures in alinement therewith, mechanism adapted to engage the apertures with the pin and operatively connected with the carriage, means adapted to remove the sheets from the pin during return of the carriage to its normal position, and a device for maintaining the sheets in their alined positions and adapted to be operated by the carriage previous to the removal of the sheets from the pin.

In testimony whereof, I have hereunto subscribed by name this 27th day of April, 1915.

HARRY KONERMAN.

Witnesses:
WALTER F. MURRAY,
W. THORNTON BOGERT.