

March 7, 1933.

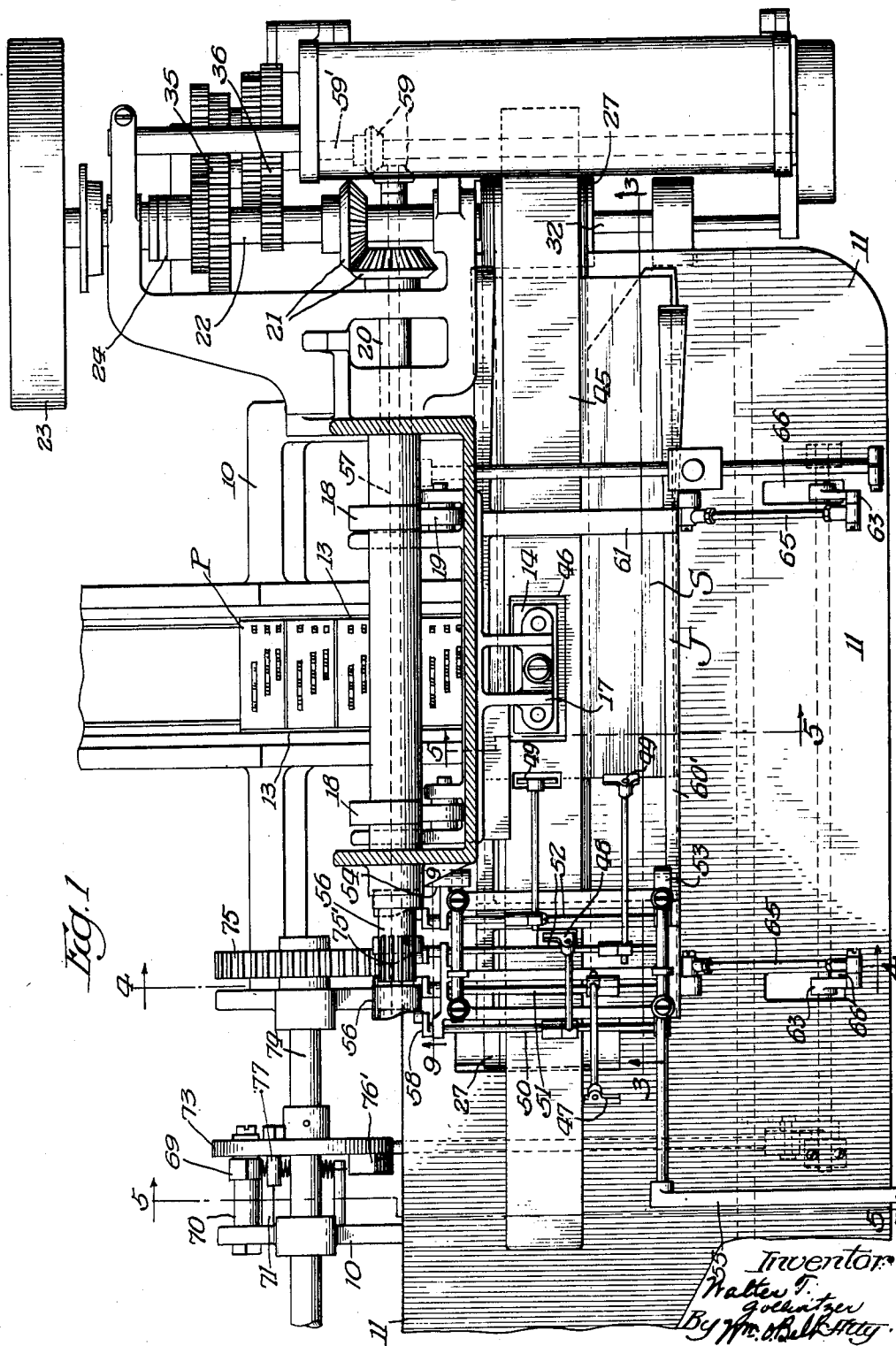
W. T. GOLLWITZER

1,900,281

ADDRESSING MACHINE

Filed Sept. 9, 1929

4 Sheets-Sheet 1



March 7, 1933.

W. T. GOLLWITZER

1,900,281

ADDRESSING MACHINE

Filed Sept. 9, 1929

4 Sheets-Sheet 2

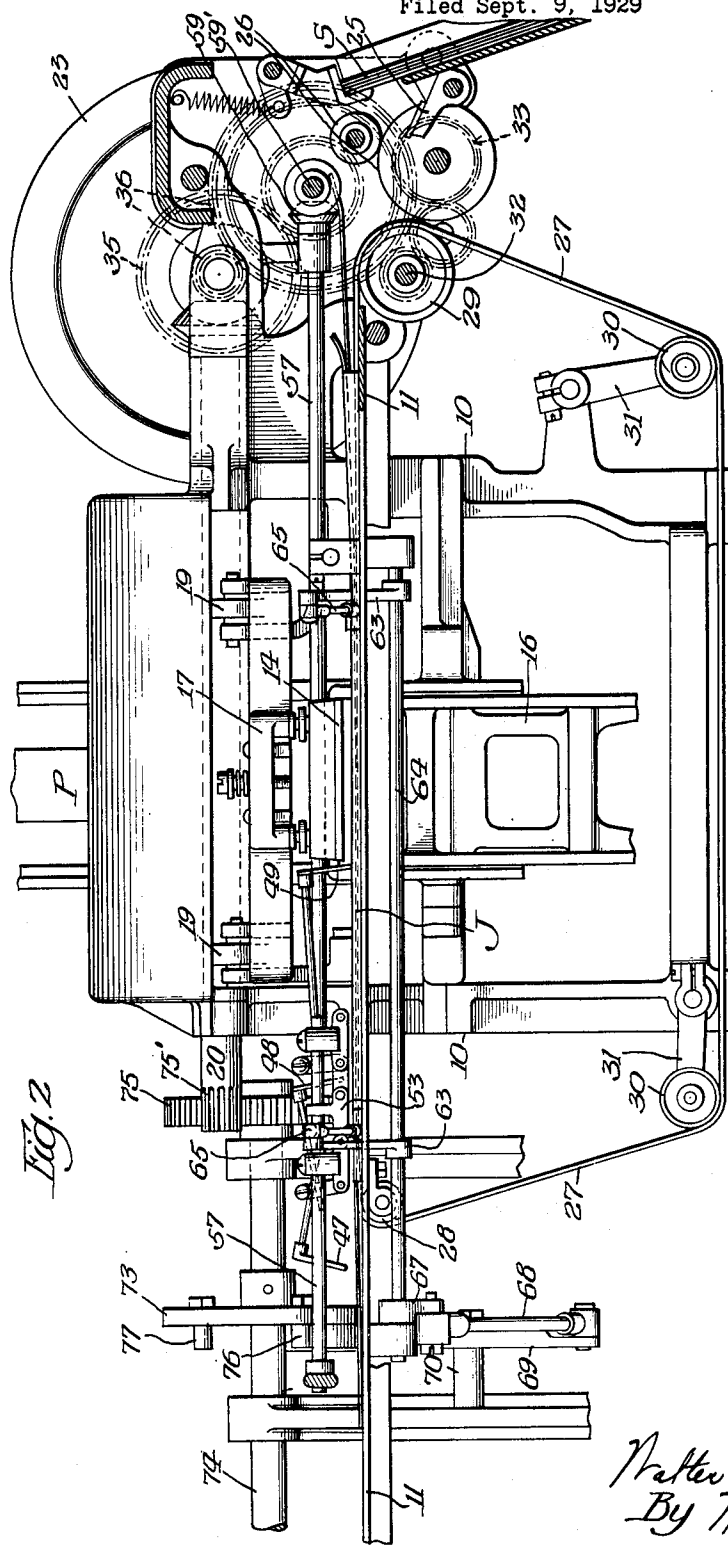
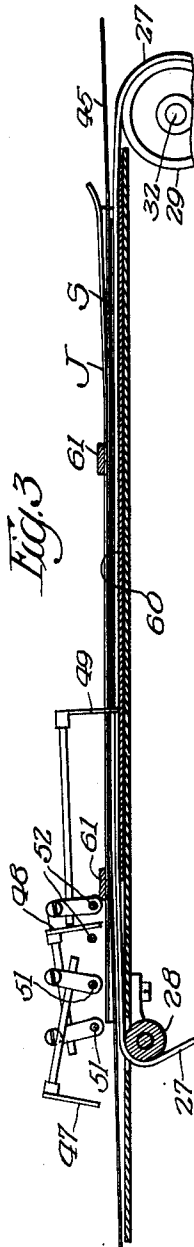


Fig. 2

Fig. 3



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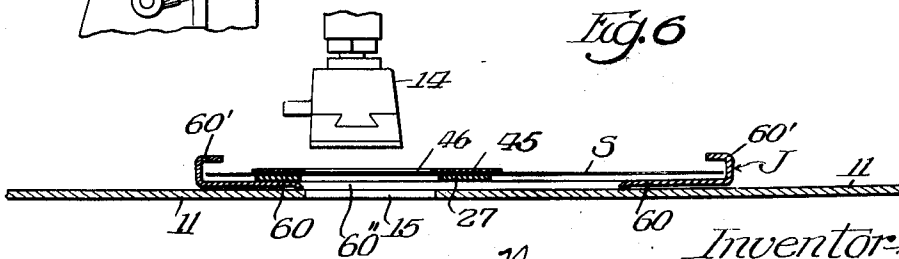
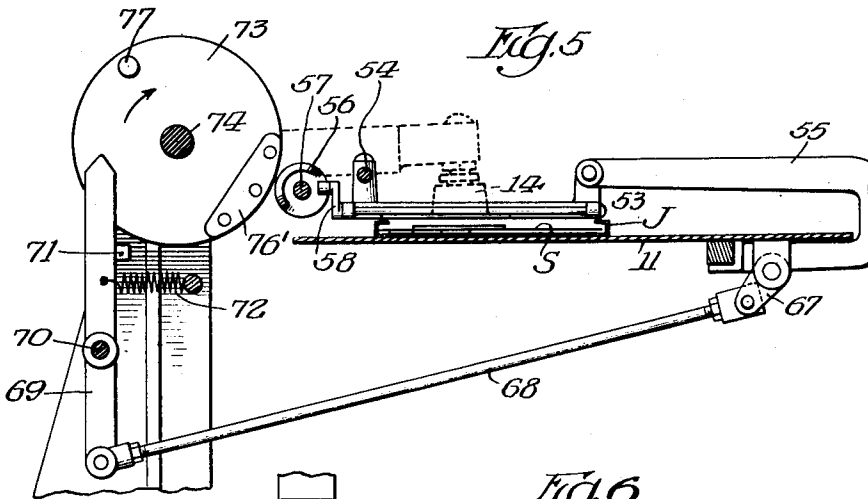
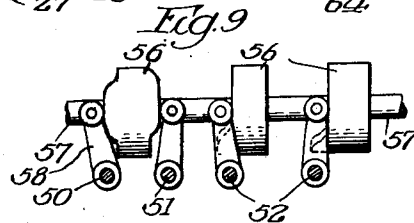
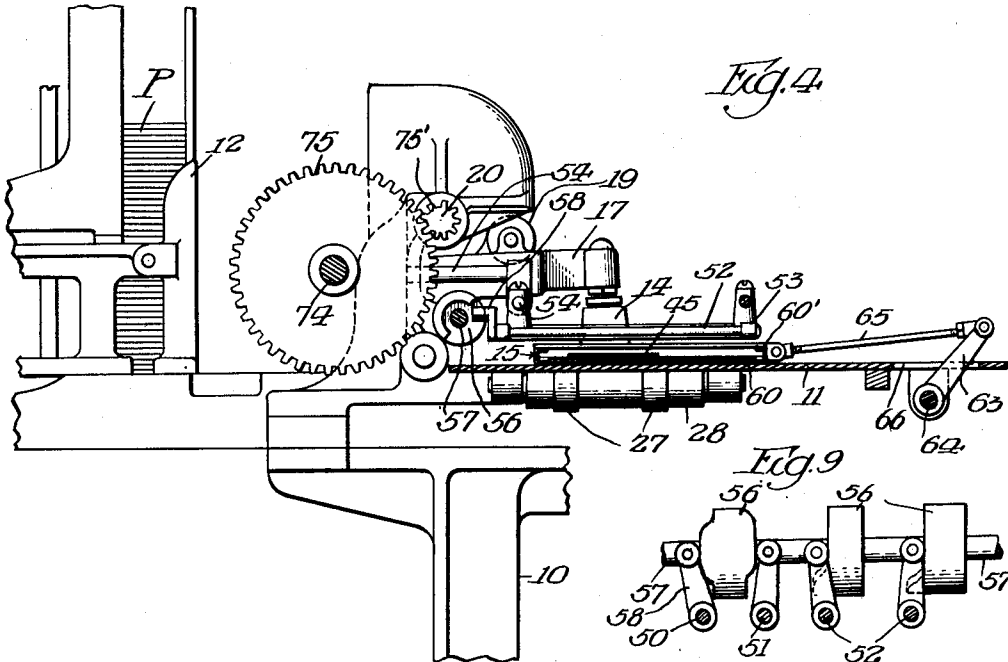
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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

Fig. 7

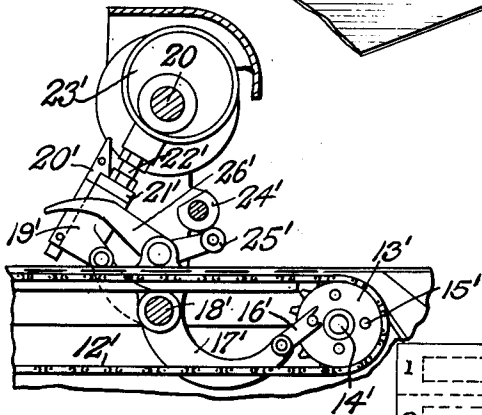
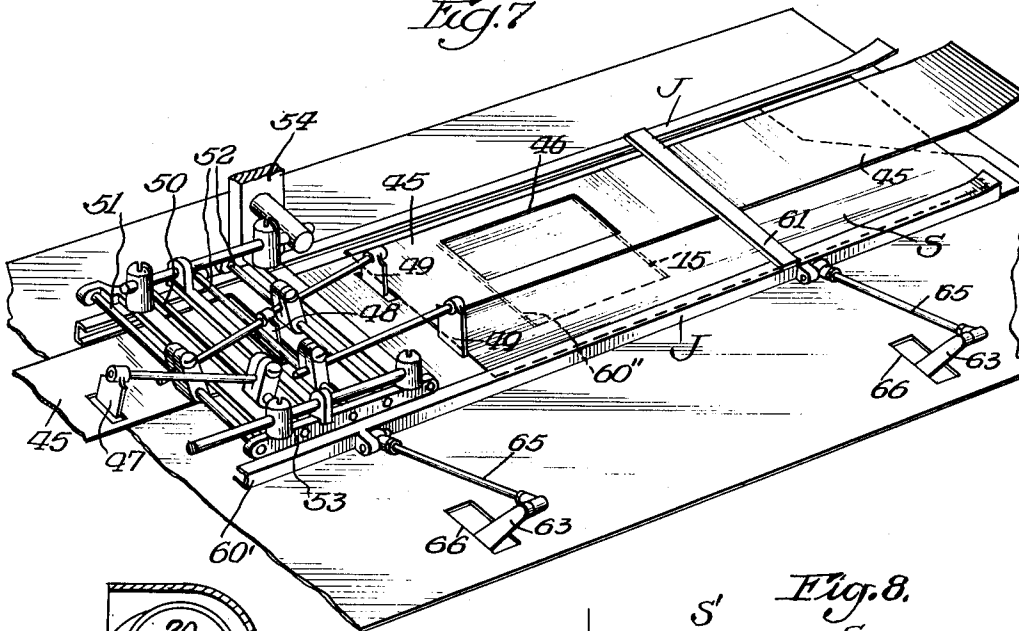
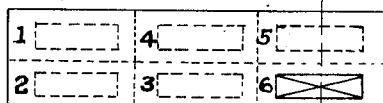
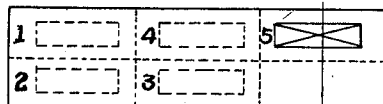
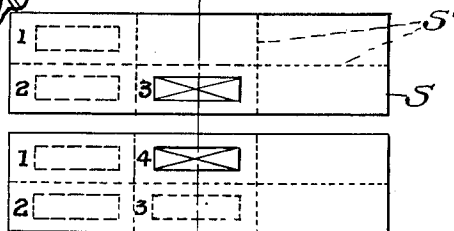
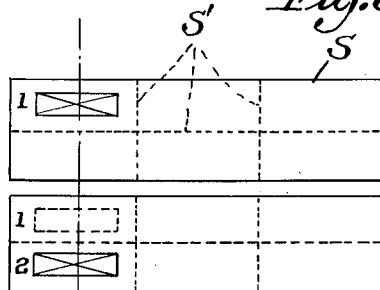


Fig. 8a

Fig. 8.



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UNITED STATES PATENT OFFICE

WALTER T. GOLLWITZER, OF CHICAGO, ILLINOIS, ASSIGNOR TO ADDRESSOGRAPH COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE

ADDRESSING MACHINE

Application filed September 9, 1929. Serial No. 391,141.

My invention relates to addressing machines in which addresses and like information is printed on sheets from individual printing devices successively fed through printing position.

The principal object of my invention is to provide an improved machine of this type in which the printed address can be repeated on a plurality of different portions of the sheet and I accomplish this object by moving the sheet through printing position longitudinally step by step and laterally in either direction to distribute the impressions on the sheet.

Other objects of my invention will appear hereinafter.

In the drawings:

Fig. 1 is a plan view of an addressing machine embodying my invention;

Fig. 2 is a front elevation of the machine shown in Fig. 1;

Fig. 3 is a detail vertical section on the line 3—3 of Fig. 1;

Fig. 4 is a detail vertical section on the line 4—4 of Fig. 1;

Fig. 5 is a detail vertical section on the line 5—5 of Fig. 1;

Fig. 6 is an enlarged transverse detail section of the machine table and jogger frame;

Fig. 7 is a perspective of the jogger frame and associated finger stops;

Fig. 8 is a diagrammatic view showing the sequence and distribution of printing impressions on the sheet;

Fig. 8a is a detail view of the means controlling the printing device feed; and

Fig. 9 is a detail section on line 9—9 of Fig. 1 showing the stop finger operating cams.

Referring first to Fig. 8 which shows diagrammatically the order and distribution of the printed impressions on the sheet, the sheet S illustrated, is representative of a form used by insurance companies in connection with the notification of subscribers of premiums due and is described simply to illustrate a sheet having a plurality of groups of information data each requiring the same address impression, in a location on the sheet different from that of the other impressions.

It is customary for insurance companies to

send to subscribers first a notice that a premium is due and later if the premium has not been paid within a given time to send another notice. When the premium is paid a receipt is mailed to the subscriber. It is also necessary to retain copies of each of these mailing pieces. These forms are all printed on the single sheet S which is scored or perforated along the lines S' to divide the sheet into sections so that after the printing operations are completed the pieces or sections may be separated by tearing the sheet on the scored lines. The sections may each have general or form information previously printed thereon, and blanks are provided for the insertion of individual information, such as the subscriber's name and address, amount of premium and date due, policy number, etc. The individual information is contained on the individual printing or addressing devices, and this same information is repeatedly printed on the several sections of the sheet. In the present instance the sheet is divided into six substantially equal sections representing the three notices above mentioned and three copies thereof, hence six impressions of the individual information are needed on the sheet. The machine shown in the drawings is arranged to perform six successive printing operations before the printing device and sheet are removed from printing position and the next printing device and sheet are brought into printing position.

The machine shown in the drawings has a suitable frame 10 which supports a flat horizontal table member 11 in its top portion along which table the sheets move through printing position. The individual printing devices P which contain the several lines of printing characters, are stacked in the magazine 12 at the rear of the frame. These printing devices are successively taken from the bottom of the stack and moved along a guideway 13 to printing position beneath platen 14 which operates to press the sheet upon the printing device. The guideway 13 for printing devices extends just beneath the machine table 11, a suitable opening 15 being provided in this table which exposes the printing device in printing position. The printing de-

vice and guideway 13 extends forward to direct the printing devices to a discharge chute 16, Fig. 2. Any suitable or well known mechanism may be used for feeding the printing devices to printing position, holding them in printing position while the desired number of impressions are made therefrom, and removing them from printing position. Means for moving the printing devices include chains 12' arranged on opposite sides of the printing device guideway and the forward ends of these chains are directed around sprockets 13' mounted on the shaft 14'. On one of these sprockets, pins 15' are provided successively engageable by a pawl 16' mounted on a rocker 17' pivotally mounted on a shaft 18' carried by the bed of the machine. The rocker 17' is connected to a sleeve 19' having a latch 20' thereon engageable with a shoulder 21' on a plunger 22' actuated from a cam 23' mounted on the platen operating shaft 20. In a manner to be described, a cam shaft 57 is rotated in timed relation with the platen shaft 20 and on this shaft there is a cam 24' engageable by a roller 25' mounted on the rocker 26', and when the roller 25' moves onto a drop in the cam 24' the rocker 26' disconnects the latch 20' from the shoulder 21' to thereby interrupt movement imparted to the rocker 17' and therefore movement of the printing devices will be interrupted. Thus, if six impressions are to be made from a printing device moved into printing position the drop on the cam 24' will only engage the roller 25' during the last of the operations of the platen and therefore a new printing device will be moved into printing position when a new series of impressions are to be made. If a greater or less number than six impressions were to be made from the printing device, the cam shaft 57 would rotate in a ratio relative to the platen shaft operation equal to the number of impressions to be made and therefore this control of the printing device feed would be in accordance with the requirements.

The stamper or platen arm 17 which carries the platen 14 is pivotally mounted in the frame and is intermittently lowered and raised into and out of printing contact with the printing devices by means of the cams 18 which engage rollers 19 on the stamper arm. The cams 18 are mounted on a shaft 20 which is connected by beveled gears 21 to the main driving shaft 22 of the machine. The main shaft carries a pulley 23 which is driven from any suitable source of power, and a clutch 24 is provided for starting and stopping the mechanism.

The sheets S to be printed are contained in an angularly disposed stack at the right hand side of the machine, Fig. 2, from which they are taken one at a time by the feeder bar 25 and inserted between the feed rolls 26. The feed rolls 26 feed them on to the carriers or

belts 27 which travel along the top of the table 11. These belts are endless and travel around the pulleys 28, 29 and 30. Pulleys 28 and 29 are mounted just beneath the machine table, and pulleys 30 are positioned some distance below the machine table and are mounted on adjustable arms 31 by means of which the proper tension may be applied to the belts to properly stretch them along the top of the machine table. The belt pulleys 29 are mounted on the shaft 32 and are driven by the train of gears 33. The gears 33 and the sheet feed rollers are driven in proper timed relation and at the proper speed from the main shaft 22 by means of the trains of gears 35 and 36, Figs. 1 and 2. The foregoing arrangement for removing the sheets from the stack and positioning them on the carriers or belts 27 is described in the Duncan Patent No. 1,488,677, patented April 1, 1924.

A guard strip 45 extends along the top of the table just above the belts in position to maintain the sheets in frictional engagement with the belts, this frictional engagement being sufficient to carry the sheet along with the belts but adapted to yield and allow the belts to run when the sheet is stopped into printing position. The guard strip has a rectangular opening 46 for the platen which registers with the opening in the table in printing position.

A series of stop fingers 47, 48 and 49 are positioned above the path of the sheet along the table and are adapted, when projected into the path of the sheet, to engage the leading end of the sheet and hold the sheet while the stamper arm operates to print the impression upon the portions of the sheet which is held by the fingers in printing position. The stop fingers are carried at the ends of arms which are mounted on the rock shafts 50, 51 and 52 respectively and by which the stops are swung vertically into and out of the path of movement of the sheet. The rock shafts are supported in a suitable frame 53 which in turn is supported by the bracket arms 54 and 55 on the frame of the machine.

The stop fingers are operated by a series of cams 56 which are carried on the cam shaft 57. The cams have cam surfaces on their side faces and are engaged by roller crank arms 58 on the ends of the rock shafts 50, 51 and 52, Figs. 4, 5 and 9. The stop fingers are operated in definite timed relation to the operation of the platen arm so that after the printing impressions are made on the portion of the sheet in printing position the stop fingers are raised to release the sheet and permit the belts to advance the sheet and present the next portion thereof in printing position. The cam shaft 57 is driven by beveled gears 59 from the shaft 59', this shaft being connected to and driven at the proper speed by the gear train 36.

The sheets, as they leave the feed rolls, enter a jogger frame J which is positioned to slide

laterally in either direction on top of the machine table 11. This jogger frame comprises a flat plate member 60, the longitudinal edges 60' of which are turned upwardly and inwardly to form two parallel guide channels or grooves. These edges are strengthened by cross bars 61 across the tops thereof. The guide channels are spaced apart a slightly greater distance than the width of the sheet and form a guideway which engages the parallel long edges of the sheets in such manner as not to interfere with the free movement of the sheet by the traveling belts. The end portions of the side edges extend beyond the end of the plate member 60 so as to guide the sheet past the group of stop fingers without interfering with said stop fingers. The plate member also has a central opening 60'' large enough to register with the openings 15 and 46 in printing position. The jogger frame has a bodily movement transversely of the longitudinal movement of the sheet for the purpose of shifting the sheet laterally in either direction to position different portions of the sheet in printing position. Although the belts travel through the jogger frame and thereby ride on the upper side of the jogger frame, they are not spaced apart enough to interfere with the lateral movement of the frame.

The jogger frame is connected to a pair of rocker arms on the rock shaft 64 by means of the pivotal links 65 above the table 11, the table having openings 66 through which the arms extend. The shaft extends along beneath table 11 and has an arm 67 pivotally connected by the link 68 with an operating lever 69. The lever 69 is pivoted at 70 on the frame and is normally held against a stop 71 on the frame by the spring 72 anchored to the frame. The lever 69 is rocked to shift the jogger frame from normal position by means of a cam 73 on the shaft 74. This shaft is driven by the platen arm shaft 20 through the gears 75 and 75' on the shafts 20 and 74 respectively. The cam 73 has an elongated cam member 76 which shifts the jogger frame and holds it in shifted position while two stamping or printing operations take place. The cam also has a pin 77 which engages the lever 69 and shifts the jogger frame for a period long enough for the stamper arm to complete one printing operation. The speed of the cam and the position of the cam members thereon are arranged in a definite timed relation to the operation of the stop fingers and the uniformly intermittent printing operations of the platen arm.

Fig. 7 shows diagrammatically the relative positions of the printed impressions on the sheet and the sequence in which these operations are performed. As before mentioned the sheet is scored on the longitudinal transverse dotted lines S' which divides it into six sections each of which represents

a position in which a printing impression is to be made. The small dotted rectangles within the sections represent the printed impressions, and the rectangles in full lines having diagonal crossed lines therein represent the impression being printed. The printed impressions are numbered from 1 to 6 to designate the order or sequence in which they are made. In the present machine the sheets are superposed above the printing devices, and it is to be understood that in Fig. 7 the rectangles represent printed impression on the underside of the sheet.

Assuming that a sheet has been fed to the traveling belts, it is carried longitudinally by said belts into the jogger frame with its edges in the channels of said jogger frame. The stop fingers 49 will be lowered into the path of the moving sheet in time to engage the end of the sheet and stop it with the upper left hand section of the sheet in printing position and the platen arm descends to make the first impression and then rises. The cam member 76 then engages the lever 69 and shifts the jogger frame and sheet transversely into position for No. 2 impression on the lower left hand section of the sheet. After No. 2 impression is made the stops 49 rise and release the sheet, and the stops 48 descend and stop the sheet with the middle portion of the printing position. The cam member 76, however, maintains the sheet and jogger in their shifted positions so that No. 3 impression will be made on the lower middle section of the sheet. As the platen arm finishes No. 3 impression the cam member 76 moves out of engagement with the lever and allows the spring 72 to return the jogger frame and sheet to normal position thus presenting the upper middle section of the sheet in printing position for No. 4 impression. When No. 4 impression is completed the stop finger 52 rises and releases the sheet and the stop finger 47 descends and stops the sheet with the right end section in printing position whereupon No. 5 impression is printed on the upper right section of the sheet. After No. 5 impression is completed the pin 77 engages lever 69 and shifts the jogger frame and sheet transversely to present the lower right end section of the sheet in printing position and while in this position the platen arm completes No. 6 impression. As soon as No. 6 impression has been printed the pin 77 disengages lever 69 and the jogger frame and sheet return to normal position whereupon the stop 47 rises, releases the sheet and permits the belts to carry the sheet endwise from the jogger frame. The jogger frame is now in position to receive the succeeding sheet, and the cycle of operations is repeated.

I am aware that changes may be made in the construction, operation and arrangement of parts without departing from the spirit of the invention, and I hereby reserve the

right to make such changes as fairly fall within the scope of the appended claims.

I claim:

1. In an addressing machine the combination of a printing mechanism embodying changeable printing devices, means for moving a sheet step by step through said printing mechanism to print impressions in a row on said sheet from a printing device, and means for shifting the sheet transversely of the printing mechanism to print other impressions on the sheet from the same printing device and in transverse rows and means for changing the printing device after said impressions have been made therefrom.

2. In an addressing machine of the class described the combination of a printing mechanism, a traveling carrier for moving the sheet longitudinally of itself through printing position, means for stopping the sheet at intervals in its movement to present different portions of the sheet without interrupting operation of the carrier, and means for guiding the sheet during longitudinal movement thereof and for shifting the sheet laterally of itself through printing position to present other and different positions of the sheet in printing position.

3. In an addressing machine of the class described the combination of a printing mechanism, means for moving the sheet longitudinally of itself through printing position, means for stopping the sheet at intervals in its longitudinal movement, and a jogger frame for shifting the sheet laterally of itself through printing position to present different portions of the sheet in transverse rows to printing position.

4. In an addressing machine of the class described the combination of an intermittently operating printing mechanism, a jogger frame for intermittently moving the sheet laterally with respect to the printing mechanism, and means for shifting the sheet longitudinally of itself step by step in said jogger frame.

5. In an addressing machine of the class described the combination of an intermittently operating printing mechanism, an intermittently operating jogger frame movable to shift the sheet transversely of the printing mechanism, and means for moving the sheet longitudinally in said jogger frame and at right angles to the transverse movement thereof.

6. In a machine of the class described the combination of a printing mechanism, means for intermittently operating said printing mechanism, means for moving the sheet longitudinally through printing position, means for stopping the sheet at intervals in its longitudinal movement, and means for guiding the sheet in its longitudinal movement and for shifting the sheet transversely of printing position to present different portions thereof

to the printing mechanism and operable during said intervals.

7. In an addressing machine of the class described the combination of an intermittently operating printing mechanism, a traveling belt carrier for moving the sheet longitudinally through printing position between printing operations, and means for guiding the sheet in its longitudinal movement and for shifting the sheet laterally relatively to the printing position to present different portions thereof to the printing mechanism and operable during said intervals.

8. In an addressing machine of the class described the combination of means for feeding printing devices to printing position, a traveling belt for carrying the sheet through printing position, means for stopping the movement of the sheet at intervals to permit the printing impressions to be made on said sheet, and a jogger frame movable transversely to shift the sheet at right angles to its movement by said traveling belt.

9. In an addressing machine of the class described the combination of an intermittently operating printing mechanism, a sheet guiding and supporting device, constantly operating means for moving the sheet in said device through printing position, means for stopping the movement of the sheet at intervals to present different portions thereof in a row in printing position, and means for moving said sheet guiding and supporting device transversely during said intervals to print the second row of impressions on the sheet parallel with the first row.

10. In an addressing machine of the class described the combination of intermittently operating printing mechanism, a sheet guiding frame, a belt traveling through said frame for frictionally propelling the sheet along said guide frame through printing position, means operating in time with said printing mechanism for stopping the sheet at intervals in its movement to present different portions of the sheet in a line to printing position, and means for shifting the guide frame transversely during said intervals for presenting portions of the sheet to printing position in a line parallel to the first mentioned line of impressions on the sheet.

11. In an addressing machine, the combination of a frame, printing mechanism in said frame, continuously traveling belts for carrying the sheets through printing position, cam operated stops for periodically stopping the movement of the sheet to hold different portions of the sheet in printing position, a jogger frame through which said sheets move for shifting the sheet transversely of its line of movement through said frame, and cam operated means timed to shift said jogger frame during the periods said sheet is held by the stops.

12. In a printing machine, printing means

including a printing device, means for moving a sheet relative to the printing means in a cycle to receive successive impressions from said printing device with the second impression transversely alined with the first impression, and the third impression longitudinally alined with the second impression, and means for moving the printing device after said impressions have been made on said sheet whereby another printing device may be substituted for the first printing device.

13. In a printing machine, printing means including a printing device, means for moving a sheet relative to the printing means in a cycle to receive successive impressions from said printing device with the second impression transversely alined with the first impression, the third impression longitudinally alined with the second impression, and the fourth impression transversely alined with the third impression and longitudinally alined with the first impression, and means for moving the printing device after said impressions have been made on said sheet whereby another printing device may be substituted for the first printing device.

14. In a printing machine, printing means, and means for moving a sheet relative to the printing means in a cycle to receive successive impressions from said printing means with the second impression transversely alined with the first impression, the third impression longitudinally alined with the second impression, the fourth impression transversely alined with the third impression and longitudinally alined with the first impression, and the fifth impression longitudinally alined with the first and fourth impressions.

15. In a printing machine, printing means, and means for moving a sheet relative to the printing means in a cycle to receive successive impressions from said printing means with the second impression transversely alined with the first impression, the third impression longitudinally alined with the second impression, the fourth impression transversely alined with the third impression and longitudinally alined with the first impression, the fifth impression longitudinally alined with the first and fourth impressions, and the sixth impression alined with the second and third impressions.

16. In a printing machine embodying printing means which includes parts for moving a printing device into and from printing position, means for moving a sheet to be printed into a plurality of positions relative to said printing position to receive impressions from said printing device at spaced intervals in a longitudinal row, the combination of means for automatically moving said sheet into a plurality of other positions relative to said printing position to receive im-

pressions from said printing device at spaced intervals in a longitudinal row that is transversely spaced from said mentioned row of impressions, and means for preventing operation of the parts for moving said printing device until all of said impressions have been made.

17. In a printing machine embodying printing means which includes parts for moving a printing device into and from printing position, means for moving a sheet to be printed into a plurality of positions relative to said printing position to receive impressions from said printing device at spaced intervals in a longitudinal row, the combination of means for automatically moving said sheet into a plurality of other positions relative to said printing position to receive impressions from said printing device at spaced intervals in a longitudinal row that is transversely spaced from said mentioned row of impressions and including means for insuring the movement of the sheet so that the impressions in one row are in substantial transverse alignment with the impressions in the other row, and means for preventing operation of the parts for moving said printing device until all of said impressions have been made.

18. In a printing machine embodying printing means which includes parts for moving a printing device into and from printing position, means for moving a sheet to be printed into a plurality of positions relative to said printing position to receive impressions from said printing device at spaced intervals in a longitudinal row the combination of automatic means for moving said sheet into a plurality of positions relative to said printing position to receive impressions from said printing device at spaced intervals in a longitudinal row that is transversely spaced from said mentioned row of impressions, and means for operating the automatic means whereby the movement of said sheet into said positions occurs in a cycle in which the longitudinal and transverse movements are alternate.

19. In a printing machine, printing means, means for longitudinally moving a sheet across the machine and into position to receive impressions from said printing means and for discharging the sheet, and means for moving the sheet whereby portions adjacent to and aligned with the first-named portions may be successively positioned to receive impressions from the printing means prior to movement of the sheet from the machine by the first-named moving means.

20. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, means for longitudinally moving a sheet through said printing position whereby said platen may make im-

pressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet
5 transversely of said longitudinal movement, and means for operating said last-named means from the platen operating means.

21. In a printing machine, printing means including a platen and means for operating
10 the same and printing devices sequentially movable through a printing position located relative to said platen, means for longitudinally moving a sheet through said printing position whereby said platen may make im-
15 pressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said longitudinal movement,
20 means for operating said last-named means from the platen operating means and means for repositioning said means for moving said sheet transversely of the longitudinal move-
25 ment after all the impressions have been made on said sheet.

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