April 28, 1959 W. EICHENBAUM ET AL 2,883,929

ROTARY DUPLICATING APPARATUS

Filed Nov. 10, 1953 2 Sheets-Sheet 1

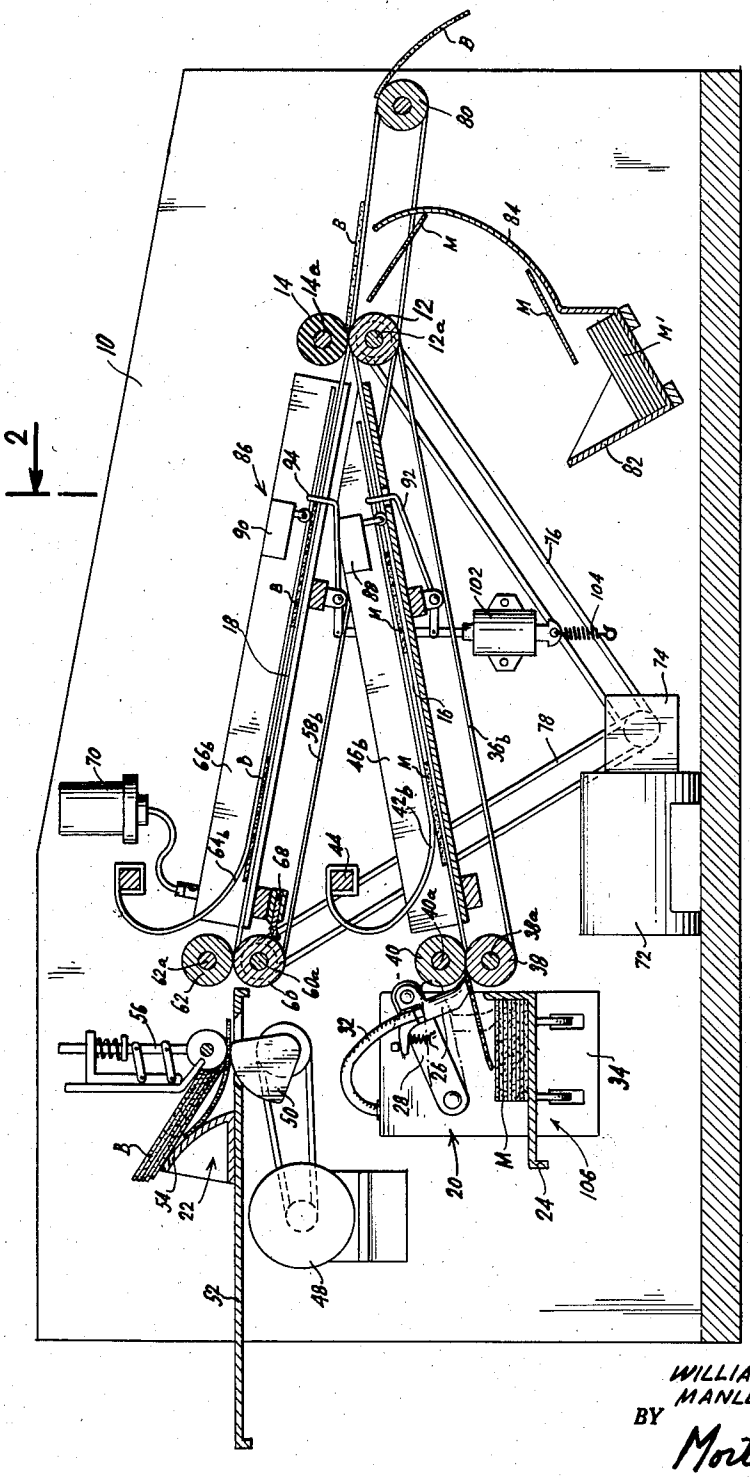


FIG. 1.

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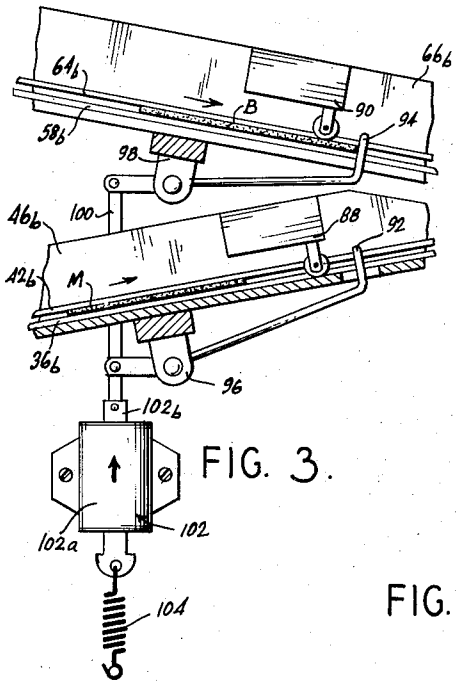


FIG. 3.

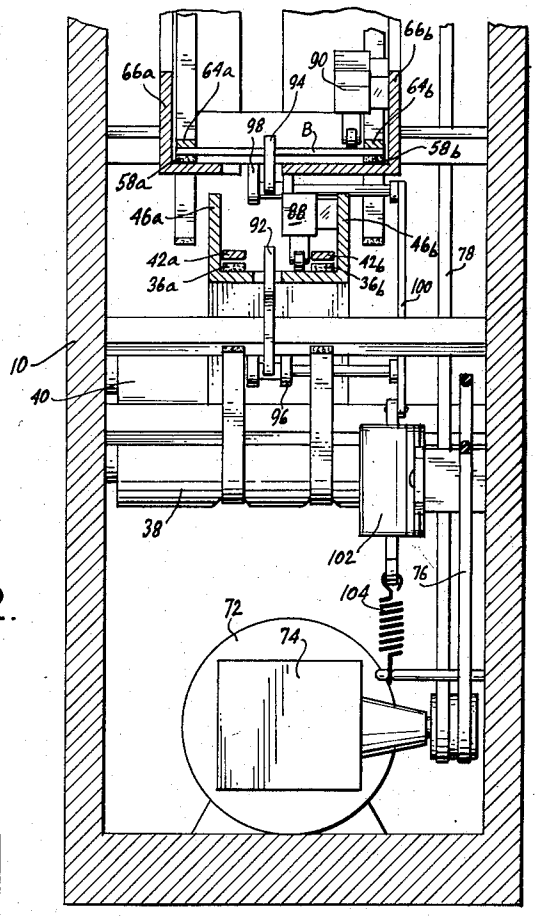


FIG. 2.

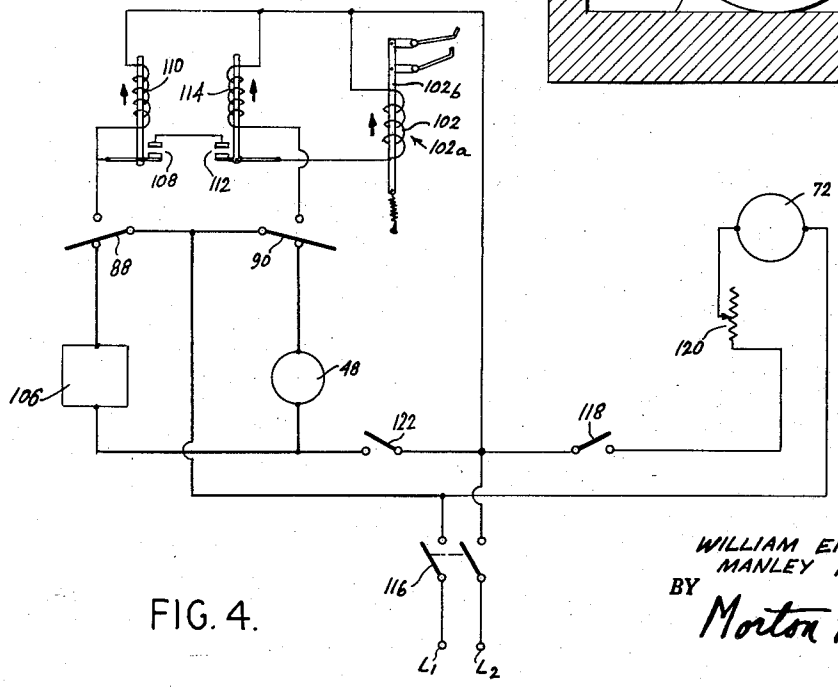


FIG. 4.

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2,883,929

ROTARY DUPLICATING APPARATUS

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Application November 10, 1953, Serial No. 391,199

11 Claims. (Cl. 101—132.5)

The present invention relates to duplicating methods and apparatus, and particularly to an addressograph method and machine for successively bringing masters into transfer relation to impression-receiving sheets. In accordance with one aspect of the invention, mass mailings may be prepared from master paper cards having a typed hectograph impression.

Innumerable business establishments, especially those engaged in finance and installment selling operations, have a pressing need for a speedy and economical system for preparing and repeatedly handling mass mailings. Although the use of conventional addressograph equipment is functionally suitable, it is often unfeasible to use this equipment due to the initial installation cost, as well as the continuous expense of preparing metallic addressograph plates. Frequently, the situation arises where anywhere from a few to several hundred mailings are needed for a single addressee. This range is usually too small to merit the relatively large cost of the addressograph equipment, yet too large for individual typing without prohibitive expense. In an attempt to meet these problems, further systems have been devised using masters of stencil paper supported within relatively thick and rigid frames. These systems likewise present difficulties, especially from the standpoint of the initial cost, and the difficulties encountered in preparing and handling the masters.

It has been found that optimum results are obtainable with relatively flexible paper master cards having hectograph impressions which may be prepared, handled and stored speedily and conveniently, the initial preparation requiring only the conventional equipment needed for typing hectographs.

Accordingly, it is an object of the present invention to provide a new and improved duplicating machine for successively bringing paper-stock masters having hectographed impressions into transfer relation to impression-receiving blanks. Although the invention is especially advantageous in mass mailings with masters having hectograph impressions, it is to be expressly understood that the applications are virtually coextensive with the known uses of duplicating and addressograph machines.

Duplicating equipment conventionally employs printing rollers or platens which are intermittently fed with successive masters and impression-receiving blanks to be brought into transfer relation. Although it is generally possible to automatically deliver the prepared masters and blanks to the printing rollers substantially at the same feed rate, experience has indicated that conventional feeder means preclude high speed operation with the required degree of reliability. In this respect, it is not uncommon for a feeder to skip, resulting in the failure to deliver a master or blank for the impression-transfer operation. This tendency becomes more pronounced, when handling bendable stock, such as flexible paper masters.

Accordingly, it is a further object of the present invention to provide addressograph equipment designed for

high-speed handling of masters and blanks, with minimum risk of faulty operation as by skipping in delivery of masters and/or blanks. It is within the contemplation of the invention to provide a positive control and check which assures tandem delivery of prepared masters and blanks to the printing rollers of duplicating equipment.

Certain objects of the invention are realized by the provision of coincidence-detecting means which are effective to preclude delivery of unpaired blanks and masters to the printing rollers. In accordance with a preferred embodiment of the invention, roller-type duplicating equipment is provided having separate feed paths arranged to deliver masters and impression-receiving blanks to the printing or reproducing rollers. Sensing means are arranged at selected locations along the separate feed paths for determining coincidence of a master and a blank prior to advance of a coinciding pair for the printing operation. The sensing means in turn control appropriate mechanisms which, after sensing pairing, permit delivery of successive paired masters and blanks to the reproducing rollers.

As a further feature of the invention, individually controllable feeders are provided for the separate delivery paths, which are rendered inoperative while successive pairings are checked. This avoids backup of the masters and impression-receiving blanks along the individual feed paths and the incident risk of fouling the feeders.

The above and still further objects, features and advantages of the present invention will be best appreciated by reference to the following detailed description of a presently preferred embodiment, when taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is an elevational view, with parts sectioned, showing an addressograph embodying features of the present invention;

Fig. 2 is a transverse sectional view, taken substantially along the line 2—2 of Fig. 1 and looking in the direction of the arrows;

Fig. 3 is an enlarged fragmentary sectional view showing the details of coincidence detecting mechanisms arranged along the feed paths for the masters and blanks and in advance of the printing rollers; and,

Fig. 4 is a schematic diagram showing a presently preferred control and sensing circuit in accordance with the present invention.

Referring now specifically to the drawings, there is shown in Figs. 1 and 2 an addressograph machine embodying features of the present invention which broadly includes a frame **10**, cooperating printing rollers **12**, **14**, individual feed paths **16**, **18** converging toward the printing rollers **12**, **14** for delivering masters and impression-receiving blanks to the rollers, and respective delivery mechanisms **20**, **22** for initially disposing the masters and blanks along the feed paths **16**, **18**.

The cooperating printing rollers **12**, **14** are respectively mounted on shafts **12***a*, **14***a* journaled by bearings on the frame **10**. The uppermost roller **14** is preferably of a yieldable, hard rubber material to assure adequate peripheral contact with the lower roller **12** for printing superimposed masters and impression-receiving blanks when delivered in face-to-face relation.

The master feeding mechanism **20**, which delivers successive masters M to the feed path or guide **16**, may be of any conventional type, but preferably is pneumatically operated to assure positive pick-up of single masters. The details of the well known pneumatic delivery or feed mechanisms **20** are unimportant and for the present purposes it will suffice to point out that the same includes an upwardly movable feed bag **24** carrying the stack of the masters M, and a rockable pneumatic pick-up head **26** which is supported on a lever **28** and is arranged for compound movement from a broken-line pick-up posi-

tion immediately over the stack of masters M, to the full-line drop-off position adjacent the feed path 16. Pneumatic pressure is derived through an inlet conduit 32 which is connected through to appropriate closed system 34 including a pump, an accumulator, and an electrically operable pressure "on-off" switch, all of well known construction. The switch, which may be electrically displaced to the "off" position, is arranged such that pressure to the pick-up head 26 may be periodically interrupted to preclude lifting of successive masters although the head continues to rock between the full and broken line positions of Fig. 1.

The feed path 16, receiving successive masters M from the pneumatic feeder 20, includes a pair of side-by-side conveyor belts 36*a*, 36*b* trained about an input roller 38 and about the lower printing roller 12, which is appropriately grooved. The input roller 38 is supported on a shaft 38*a* journaled by appropriate bearings on the frame 10 and cooperates with a further input roller 40 supported on a rotatable shaft 40*a*.

Hold-down finges 42*a*, 42*b* cooperate with the conveyer bands 36*a*, 36*b* to guide the advance of successive masters along the upwardly-inclined feed path from the feeder 20 toward the printing rollers 12, 14. Preferably, the hold-down fingers 42*a*, 42*b* are elongated lengths of springy steel constrained at one end upon a cross bar 44 and arranged substantially coextensive with the feed path along opposite sides of the masters M. Cooperating with the hold-down fingers 42*a*, 42*b* and the conveyer bands 36*a*, 36*b* are lateral-confining guides 46*a*, 46*b* each in the form of an angle iron, which precludes side to side displacement of successive masters during feed along the path or guideway 16.

The feeder 22 for delivering successive impression-receiving blanks B, such as cards or letters to be addressed, is of the mechanical type, such as the well known Pitney Bowes kicker type, and includes an electric drive motor 48 connected through an appropriate belt and pulley coupling to a sectoral kicker member 50 which extends through an elongated slot provided in a feed bed 52. The feed bed 52 carries an adjustable prop 54 which maintains the impression-receiving blanks B in position for delivery to the blank feet path 18, appropriate resilient hold-down mechanisms 56 being associated with the kicker member 50. The mechanical feeder 22 operates in a well known manner and delivers successive blanks to the input end of the feed path 18 which is similar in all material respects to the feed path 16.

Briefly, the feed path 18 is formed side-by-side conveyer bands 58*a*, 58*b* extending over and beyond the grooved printing roller 12 and over an input roller 60 adjacent the feeder 22. The input roller 60 is supported on a rotatable shaft 60*a* and cooperates with a further input roller 62 likewise supported on a shaft 62*a*. Overlying the respective bands 58*a*, 58*b* are resilient hold-down fingers 64*a*, 64*b* and cooperating with the superposed pairs of conveyer bands and hold-down fingers 58*a*, 64*a*, and 58*b*, 64*b* are the lateral-confining members 66*a*, 66*b* which may be adjustable, as indicated by the arrows in Fig. 2, to accommodate blanks of various widths.

Adjacent the input end of the blank-feed path 18, there is arranged an appropriate mechanism for wetting the undersurface of successive blanks B being delivered to the feed path 18. The blank-wetting mechanism includes a wick or the like 68 in contact with input roller 60 which is gravity saturated from an overhead reservoir 70. Other systems for preparing the blank for the impression-transfer operation are contemplated.

A common electric drive is provided for the respective band-type conveyers 36*a*, 36*b*, and 58*a*, 58*b* which is seen to include an electric drive motor 72 connected via an appropriate reduction gearing unit 74 and connecting belts 76, 78 to the grooved rollers 12, 60. Although the friction belt drive is connected directly to the roller 12 which serves a dual function, namely as part of both the conveying and printing systems, it is to be understood that the conveyer and printer may be independently driven.

The side by side conveyor bands, 58*a*, 58*b* of the blank-feed conveyer extend past the grooved printing roller 12 to a further roller 80. It will be appreciated that the stock of the blanks B is somewhat wider than the masters M. Accordingly, the extension of the conveyer bands 58*a*, 58*b* to a location beyond the printing rollers 12, 14 forms a simple type duplex take-off. The wider blanks B may be separated from the masters M and removed by the continuation of the feed path 18 to a drop-off station, while the narrower stock may fall from the printing rollers 12, 14 directly into an appropriate collection bin or box 82.

As will subsequently be appreciated, the use of the upwardly feeding mechanisms 20 for the masters M, requires inversion of the successive blanks after the impression-transfer operation. For this purpose a deflecting member 84 is arranged at the take-off location for the masters M and is disposed to flip the masters M over after leaving the printing rollers 12, 14 and prior to entering the collection bin 82.

As a prominent feature of the present invention, positive check and control means 86 are arranged at selected locations along the feed paths 16, 18 for sensing coincidence of a master M and an impression-receiving blank B at a relatively short throw or stroke from the printing rollers 12, 14. The need for the coincidence-detecting station 86 in advance of the printing rollers 12, 14 will best be appreciated when it is recalled that direct feed to the printing rollers from the feeder mechanisms 20, 22 is virtually precluded due to the physical configuration of the respective feeder mechanisms. Further, reliability in system operation, and the assurance that successive masters will serve to imprint a mailing piece or blank, are among the basic requirements for addressograph equipment. A missed master or blank or piling of one master or blank upon another represent situations wherein there is an extreme risk that an account will not be serviced. The function of the coincidence-detecting station is to assure that a paired or tandem set consisting of a single master and a single blank are delivered to the printing rollers 12, 14. In addition, the coincidence-detection station serves to initially dispose the master in a required relation to prescribed areas of the impression-receiving blank. The desirability of this may be appreciated when it is recalled that impression transfer is often in a very limited area which is to be visible through a mailing envelope window or the like.

Although the mechanisms at the coincidence-detection station 86 are of an electro-mechanical nature, it is to be expressly understood at the outset that various detection systems are contemplated which are wholly mechanical, wholly electrical or electronic, or combinations thereof. In the illustrative construction, respective single-pole, double throw microswitches 88, 90 are arranged along the feed path 16, 18 closely adjacent to printing rollers 12, 14. The respective microswitches are lifted and switched over from the position of Fig. 4 in response to contact with the leading ends of successive masters and blanks arriving at the coincidence-detection station 86. Cooperating with the microswitches are respective stops 92, 94 which are arranged in blocking relation to the masters and blanks moving along their respective paths. As seen in Fig. 2, the stops 92, 94 are in the form of fingers extending between the lateral-confining angle members of the respective feed paths. The stops or blocking members 92, 94 are each pivotally mounted on brackets 96, 98 and are connected to a common operating lever 100. It will be appreciated from an inspection of Fig. 3 that clockwise rocking movement of the stops 92, 94 about the respective pivots 96, 98 and through a relatively short displacement will remove the stops from the feed

path 16, 18. The common operating lever or rod 100 is connected to a push-type solenoid 102 of well known construction having an operating coil 102*a* and a movable plunger 102*b* biased in a direction opposite to the arrow by an appropriate spring 104. Upon energization of the solenoid 102 an upwardly directed force will be applied to the plunger 102*b* causing an upward displacement of the rod 100 against the tension exerted by the spring 104. This movement is translated into the required displacement of the stops 92, 94 to bring same into a clearance position relative to the feed paths. Selective displacement of the operating means for the respective fingers 92, 94 is achieved through the provision of a control circuit which energizes the solenoid coil 102*a* only upon coincidence or pairing of successive masters and blanks. Upon inspecting Fig. 4, it will be seen that the circuit includes both microswitches 88, 90 connected in circuit with the operating coil 102*a* and in circuit with a suitable source of line potential or the like L1, L2. Closing of both the microswitches 88, 90 and energization of the solenoid coil 102*a* effects the required removal of the stop members 92, 94. As is well understood, the microswitches 88, 90, which are the sensing elements of the coincidence-detecting station, may be replaced by photocells, gaseous breakdown devices, or other suitable indicators.

As a further feature of the invention, the sensing elements are arranged in conjunction with appropriate relays and control switches to disable or interrupt feed of masters or blanks to the respective feed paths until sensing of successive pairings. For this purpose the controlling element for the pneumatic master feeder 20, designated by the numeral 106, is connected in circuit with the microswitch 88 and across the line L1, L2. The control element 106 may be the electrical "on-off" switch controlling the suction valve of the pneumatic feeder, or as illustrated the motor drive for operating the arm 28. With the microswitch 88 in the position illustrated in Fig. 4, the control or actuating element 106 is energized, corresponding to normal operation and feed of the successive masters. When the circuit is interrupted, as by operation of the switch 88, the pneumatic pickup head 26 no longer rocks between the pick-up and drop-off positions, such that successive masters are not lifted. The required control over the delivery of masters is coordinated to the sensing and pairing of a master at the stop 92 by provision of a normally-open switch 108 and a control relay 110 energized in response to closing of the master-sensing element, namely the microswitch 88. The control relay, when energized, closes the normally-open switch 108. Similarly, the motor control 48 for the mechanical blank feeder 22 or a further control element, such as an electric clutch, is connected in circuit with a normally-open switch 112 and across the line L1, L2. The normally open switch 112 is closed by a relay 114 energized in response to closing of the blank-sensing element, namely the microswitch 90. Further switches, push buttons, and the like may be arranged in circuit with the various components to facilitate control, such as the main or master switch 116 across the line L1, L2, the auxiliary drive motor switch 118 in circuit with a speed control impedance 120 and the main drive motor 72, and the auxiliary switch 122 in circuit with the respective controls for the feeders 20, 22.

A typical operating cycle will now be described in detail:

Initially, the masters M are prepared by conventional hectograph-typing equipment from relatively bendable paper cards or the like. The hectograph impressions, which occur on the operative face *m* of the masters M are a mirror image of the final impression to be received on the impression-receiving face *b* of the blanks B. The transfer operation is accomplished when the faces *m*, *b* of the masters and blanks are brought into coextensive and facing relation. Since the master-feeder mechanism 20 feeds upwardly and the blank-feeder mechanism feeds downwardly, the masters are arranged with the hectographed faces *m* uppermost, and the blanks B are arranged with the impression-receiving faces *b* lowermost.

Upon closing of the main and auxiliary switches 116, 118, 122, the drives and the respective feeders 20, 22 begin to deliver masters and blanks along respective feed paths. Specifically, a master delivery operation involves the displacement of the pneumatic pickup head 26 from the pick-up position wherein the uppermost master is lifted by suction and the rocking to the drop-off or release position wherein the driven input rollers 38, 40 causes the first master to be advanced along the feed path 16. Linear displacement of the master along the path 16 is by frictional drive from the band conveyers 36*a*, 36*b* arranged marginally of the master and at a location calculated to preclude interference with the impression-transfer operation. Guiding of the masters along the prescribed linear path is assured through the provision of the lateral-confining elements 46*a*, 46*b* and the appropriate gravity-engaged hold down fingers 42*a*, 42*b*. As to the delivery of the successive blanks B, energization of the motor 48 causes the kicker member 50 to deliver successive blanks B to the driven input rollers 60, 62 of the blank feed path 18. The surfaces of the lower input roller 60 are maintained in a wetted condition with an agent appropriate for the hectograph operation, such as alcohol, and contact the lowermost faces *b* of the successive blanks B. Linear displacement of the blanks B along the feed path 18 is through the friction drive of the band conveyers 58*a*, 58*b*. The feed rate for both the masters and blanks is controlled by the variable resistance 120 in circuit with the conveyer drive motor 72.

In the condition illustrated in Figs. 1 and 2, the leading blank B has reached the stop or blocking member 94 ahead of the corresponding master which is to be brought into tandem relation. Absent the coincidence-detection station 86, the blank and master would not reach the printing rollers 12, 14 in the required relation for transfer even though their respective paths of travel are substantially equal in length. This risk is greater, when it is recalled that a very definite and limited area of the blank is to receive the impression, such as the portion which will subsequently become visible through the mailing window. The unprinted blank arrives at and closes the sensing or detecting element 90, to partially condition the electrically-controlled actuating means for the stop members 92, 94 which now preclude feed of the blanks and of the masters to the duplicating station. Upon operation of the sensing element 90, the drive 48 for the blank feeder 92 is momentarily interrupted and the blank feeder is brought to a momentary standstill awaiting the arrival of the master at the sensing or detecting element 88 along the feed path 16. The solenoid circuit is partially conditioned for energization by closing of switch 112 under control of relay 114. When the master operates its sensing element 88, the previously conditioned circuit for the solenoid coil 102*a* is completed by closing of switch 108 under control of relay 110, and the stop members 92, 94 are removed from the feed paths 16, 18. Thereupon, the paired master and blank are delivered through the relatively short stroke or throw to the printing rollers 12, 14 at which the hectograph portion of the uppermost face *m* of the master is brought into contact with the prescribed area of the wetted undersurface *b* of the blank B. The impression-transfer operation is followed by duplex takeoff and separation of the printed blanks from the masters. The deflecting plate 84 is effective to invert the masters such that the hectographed face *m* is lowermost. Accordingly, when the stack of masters M' is ultimately built up in the bin 82, it will be appreciated that it is merely necessary to turn over the stack and once again the masters

are in position for impressing their respective hectograph patterns on further blanks. After the tandem blank and master leave the coincidence-detecting station **86**, it will be appreciated that the switches **108, 112** are once again restored to their normally-open position by deenergization of their respective relays **110, 114**, and the microswitches **88, 90** return to the position of Fig. 4.

In the event that a master reaches the detection station **86** at a time in the cycle somewhat earlier than the delivery of a blank, the circuit for the delivery of successive masters will be first interrupted until such time as a blank arrives. Operation thereafter is substantially the same as described in conjunction with the early arrival of a blank.

It will be appreciated that the timing between the blank feeder mechanisms **22** and the master feeder mechanisms **20** is no longer of critical importance due to the interposition of the control and check system which is located in such proximity to the printing station to minimize the risk of non-registry between successive masters and blanks. Further, the location of the respective stops from the printing rollers **12, 14** need not be the same, so that blanks of different lengths and usually longer than the masters, may be brought into the require longitudinal relationship with respect to the masters. That is, the trailing or leading portions of the blank may be readily formed with the impression by merely changing the location of the stops through suitable adjusting means, not shown.

Although the described arrangement shows a pneumatic system for the delivery of masters and a mechanical system for the delivery of blanks, it is to be understood that either or both of the delivery mechanisms may be of the mechanical or pneumatic type. From the standpoint of efficient operation and cost considerations, it has been found that the pneumatic delivery mechanisms for the masters makes the system somewhat more reliable.

While in accordance with the provisions of the statutes, we have illustrated and described the best form of embodiment of our invention now known to us, it will be apparent to those skilled in the art that changes may be made in the form of the apparatus and method disclosed without departing from the spirit of our invention as set forth in the appended claims and that in some cases certain features of our invention may be used to advantage without a corresponding use of other features.

What we claim is:

1. In a machine for producing impressions from hectograph masters on work blanks, reproducing means for bringing paired masters and work blanks into hectograph-transfer relation, individual feed paths for delivery of masters and work blanks to said reproducing means, coincidence-detecting means including sensing elements in, dividual to said feed paths, and means in operative relation to said individual feed paths for precluding delivery of unpaired masters or blanks to said reproducing means and simultaneously removable from said feed paths upon sensing of coincidence.

2. A duplicating machine comprising reproducing rollers for bringing hectograph masters and impression-receiving blanks into transfer relation, separate feed paths for said hectograph master and said blanks converging at said reproducing rollers, respective feeder means for delivering masters and blanks to said separate feed paths, a coincidence detector in advance of said reproducing rollers including means individual to said feed paths for sensing pairing of masters and blanks, removable blocking means along said feed paths for obstructing feed of unpaired masters and blanks to said reproducing rollers, operating means common to both blocking means for simultaneously removing same from the respective feed paths in response to sensing of a paired master and blank, and means individual to said feeder means and controlled from the corresponding sensing means of said coincidence detector for periodically interrupting feed of masters or blanks until sensing of a paired master and blank.

3. A duplicating machine comprising reproducing rollers for impressing hectograph masters against impression-receiving blanks, separate feed paths for said hectograph master and said blanks terminating at said reproducing rollers, respective feeder means for delivering masters and blanks to said separate feed paths, a coincidence detector in advance of said reproducing rollers including microswitches individual to said feed paths for sensing pairing of masters and blanks, removable blocking fingers along said feed paths for obstructing feed of unpaired masters and blanks to said reproducing rollers, solenoid operating means for simultaneously removing said blocking fingers from the respective feed paths in response to sensing of a paired master and blank, and means individual to said feeder means and controlled from the corresponding microswitch of said coincidence detector for periodically interrupting feed of masters or blanks until sensing of a paired master and blank.

4. A duplicating machine comprising reproducing rollers for bringing hectograph masters and impression-receiving blanks into transfer relation, band-type conveyers forming separate feed paths for said hectograph master and said blanks arranged in superposed relation and converging at said reproducing rollers, respective feeder means for delivering masters and blanks to said conveyer for movement along said separate feed paths, a coincidence detector in advance of and adjacent said reproducing rollers including means individual to said feed paths for sensing pairing of masters and blanks, removable blocking means along said feed path following said coincidence detector for obstructing feed of unpaired masters and blanks to said reproducing rollers, operating means common to both blocking means for simultaneously removing same from the respective feed paths in response to sensing of a paired master and blank, means individual to said feeder means and controlled from the corresponding means of said coincidence detector for periodically interrupting feed of masters or blanks until sensing of a paired master and blank, and a duplex takeoff following said reproducing rollers for separating said masters and processed blanks.

5. A duplicating machine for transferring a hectograph impression from a master to a mailing piece comprising transfer rollers, a first feed path for delivering masters to said rollers, a second feed path for delivering blanks to said rollers, master-feed means for said first feed path, blank-feed means for said second feed path operated in response to movement of a master past a predetermined location, master-sensing means along said first feed path, blank-sensing means along said second feed path operated in response to movement of a blank past a predetermined location, movable blocking members along said first and second feed paths having a common actuating means, a coincidence detector in controlling relation to the actuating means of said blocking members and responsive only to operation of both said master-sensing means and said blank-sensing means, first disabling means in controlling relation to said master-feed means and responsive to operation of said master-sensing means, and second disabling means in controlling relation to said blank-feed means and responsive to operation of said blank-sensing means.

6. A duplicating machine for transferring a hectograph impression from one face of a master to one face of a mailing piece comprising transfer rollers, an upwardly-inclined feed path for delivering masters to said rollers with said one face uppermost, a downwardly-inclined feed path for delivering blanks to said rollers with said one face lowermost, master-feed means for said upwardly-inclined feed path operated in response to movement of a master past a predetermined location, blank-feed means for said downwardly-inclined feed path, master-

sensing means along said upwardly-inclined feed path operated in response to movement of a blank past a predetermined location, blank-sensing means along said downwardly-inclined feed path, movable blocking members along said feed paths having a common actuating means, a coincidence detector in controlling relation to the actuating means of said blocking members and responsive only to operation of both said master-sensing means and said blank-sensing means, first disabling means in controlling relation to said master feed means and responsive to operation of said master-sensing means, second disabling means in controlling relation to said blank-feed means and responsive to operation of said blank-sensing means, and a duplex takeoff for said masters and blanks following said transfer rollers having means for inverting said masters.

7. In a duplicating machine including pressure rollers, first conveyer means for delivering successive masters to said pressure rollers, second conveyer means for delivering successive blanks to said pressure rollers, and a coincidence and feed control station at a location relatively close to said pressure rollers for assuring tandem delivery of successive masters and blanks to said pressure rollers, said station including respective sensing elements along said first and second conveyer means, respective stops along said first and second conveyer means in the paths of travel of said masters and blanks, a common electrically operated means for removing said stops simultaneously from the respective paths of travel, and a control circuit including first and second series-connected switches closed selectively by said first and second sensing elements for energizing said common electrically operated means whereby said stops are removed from the respective paths.

8. In a duplicating machine including pressure rollers, first conveyer means having an operating means for delivering successive masters to said pressure rollers, second conveyer means having an operating means for delivering successive blanks to said pressure rollers, and a coincidence and feed control station at a location relatively close to said pressure rollers for assuring tandem delivery of successive masters and blanks to said pressure rollers, said station including respective sensing elements along said first and second conveyer means in controlling relation to the associated operating means, respective stops along said first and second conveyer means in the paths of travel of said masters and blanks, a common electrically operated means for removing said stops simultaneously from the respective paths of travel, and a control circuit including first and second series-connected switches closed selectively by said first and second sensing elements for energizing said common electrically operated means whereby said stops are removed from the respective paths.

9. A duplicating machine for transferring a hectograph impression from a master to a mailing piece comprising transfer rollers, belt conveyers providing a first feed path for delivering blanks to said rollers, master feed means for said first feed path having an electrically energized drive, blank feed means for said second feed path having an electrically energized drive, a master-sensing microswitch along said first feed path, a blank-sensing microswitch along said second feed path, removable blocking members along said first and second feed paths having a common solenoid control, a coincidence detector for energizing said solenoid control and responsive only to operation of both microswitches, said master-sensing microswitch being in controlling relation to the drive of said master feed means, and said blank-sensing microswitch being in controlling relation to the drive of said blank feed means.

10. A duplicating machine for transferring a hectograph impression from a master to a mailing piece comprising transfer rollers, a first feed path for delivering masters to said rollers, a second feed path for delivering blanks to said rollers, pneumatic master feed means for said first feed path, mechanical blank feed means for said second feed path, master-sensing means along said first feed path operated in response to movement of a master past a predetermined location, blank-sensing means along said second feed path operated in response to movement of a blank past a predetermined location, movable blocking means along said first and second feed paths having a common actuating means, a coincidence detector in controlling relation to the actuating means and responsive only to operation of both said master-sensing means and said blank-sensing means, first disabling means in controlling relation to said master feed means and responsive to operation of said master-sensing means, and second disabling means in controlling relation to said blank feed means and responsive to operation of said blank-sensing means.

11. A duplicating machine comprising reproducing rollers for bringing hectograph masters and impression-receiving blanks into impression-transferring relation, separate feed paths for said hectograph master and said blanks converging at said reproducing rollers, respective feeder means for delivering masters and blanks to said separate feed paths, wetting means along the feed path for said blanks, a coincidence detector in advance of said reproducing rollers including switches individual to said feed paths for sensing the presence of masters and blanks, removable blocking fingers along said feed paths for obstructing feed of unpaired masters and blanks to said reproducing rollers, operating means common to both blocking fingers for simultaneously removing same from the respective feed paths in response to sensing of both a master and blank, and means individual to said feeder means and controlled from the corresponding switch of said coincidence detector for individually interrupting feed of masters or blanks until sensing of both a master and blank.

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