J. FRANK.

DUPLICATING AND ADDRESSING MACHINE.

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1,226,495.

Patented May 15, 1917.

Fig. 3.

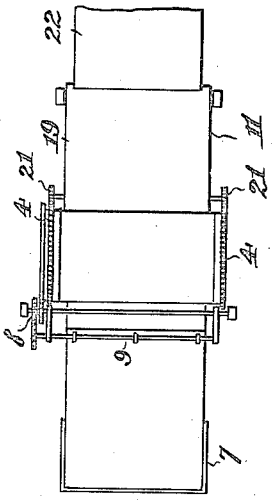


Fig. 1.

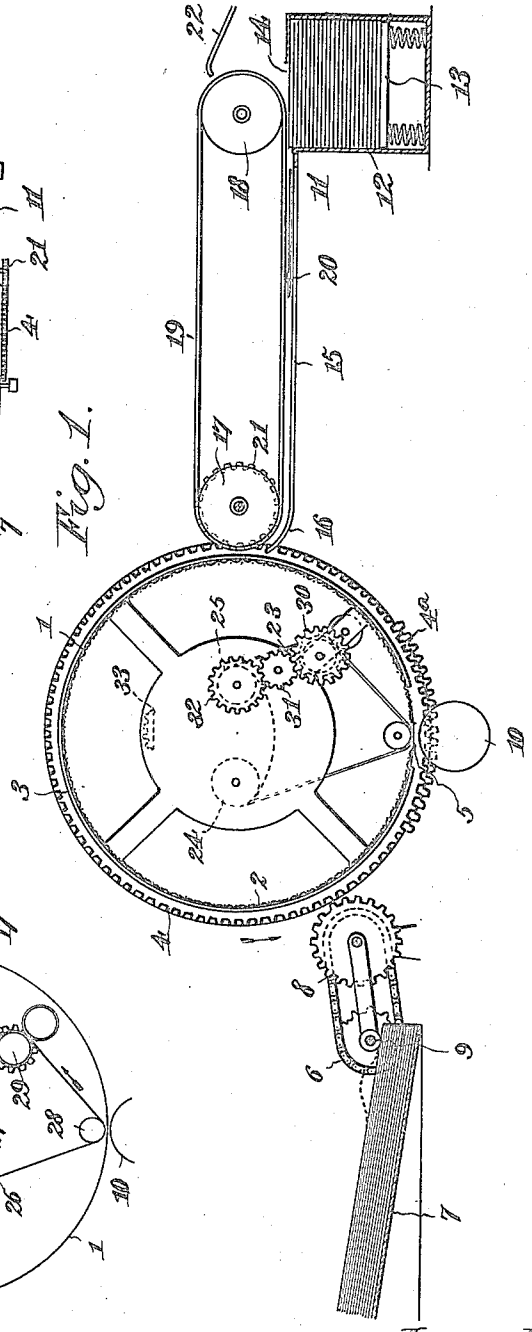
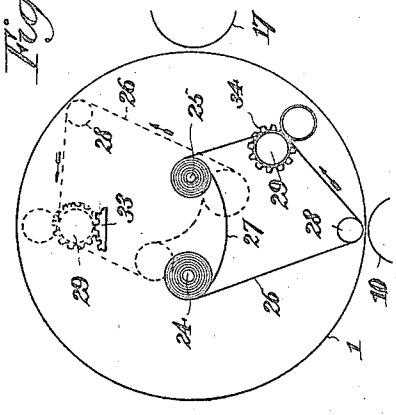


Fig. 2.



Witnesses:

A. V. Doyle.

E. Penick Jr.

Inventor,

Joseph Frank.

By Victor J. Evans,

Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH FRANK, OF NEW YORK, N. Y.

DUPLICATING AND ADDRESSING MACHINE.

1,226,495. Specification of Letters Patent. Patented May 15, 1917.

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To all whom it may concern:

Be it known that I, JOSEPH FRANK, a citizen of the United States, residing at New York, in the county of Bronx and State of New York, have invented new and useful Improvements in Duplicating and Addressing Machines, of which the following is a specification.

This invention relates to duplicating and addressing machines and has for its principal object the provision of a revolving drum or cylinder on which a stencil sheet of the ordinary type may be arranged so that the written matter contained thereon may be properly impressed and printed on a letter sheet as the cylinder is revolved and I have combined with the cylinder, a second mechanism which may be used for the purpose of printing headings upon letter sheets or envelops successively with the operation of printing the sheet with letter matter.

A still further object of the invention resides in the provision of a feed mechanism for the letter sheets, a feed mechanism for envelops, combining both of said mechanisms with printing devices which are so timed as to be brought into successive operation whereby the heading of the letter sheet is printed immediately prior to transferring the letter matter upon the sheet and then successively with the operation of printing the heading upon the sheet, I have arranged whereby envelops may be fed to the printing mechanism to receive the identical matter which has previously been arranged on the heading of the sheet.

With the above and other objects in view which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangements of parts which will hereinafter be fully described and particularly pointed out in the claims.

In the accompanying drawings, has been illustrated, a single and preferred form of the invention, it being, however, understood that no limitations are necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings:—

Figure 1, is a diagrammatical view of a duplicating mechanism showing the two sets of printing devices, the sheet feeding mechanism, and the envelop feeding mechanism.

Fig. 2, is an end view of the cylinder diagrammatically illustrating the printing devices within the cylinder.

Fig. 3, is a plan view of the duplicator.

The duplicator consists of a revolving cylinder 1, having a foraminous body 2, around which the usual stencil sheet 3, is adapted to be secured so that the written matter contained thereon can be properly transferred on to a letter sheet or other surface. The drum or cylinder may be revolved in any suitable well known manner. At its ends the drum is provided with sets of annular gear teeth 4, for a purpose to be hereinafter explained. The foraminated body 2, is provided with a slot or opening 5. Arranged at one side of the cylinder is a letter sheet feeding mechanism 6, consisting of a table 7, for supporting a stack of sheets and a gear train 8, operatively co-acting with the teeth 4^a, of the cylinder, so that when the latter is revolved, motion will be imparted to said feed mechanism for the purpose of causing the sheets to be singly delivered. The feed mechanism includes a revolving feed roll 9, which operates against the sheets so as to cause the latter to be successively taken over the roll and then discharged beneath the printing stencil 3, of the cylinder and over the roll 10. At the opposite side of the cylinder or drum is a feed mechanism 11, consisting of a container 12, for a stack of envelops, said container including a spring actuated follower 13, which is adapted to advance the package or stack of envelops toward the discharge end 14, of the mentioned container. This mechanism also includes a table 15, which extends toward the revolving cylinder 1, and to a point immediately adjacent to the cylinder. The table is curved upwardly as at 16, to form a deflector. Drums 17 and 18, operatively support an endless belt 19, the lower lead of which is disposed in parallel relation with the table 15. Said endless belt is provided with a set of hooks 20, or equivalent elements which are adapted to come in contact with the usual sealing flap of the envelop as the hooks approach the container 12, and in so doing, the envelops are singly conducted over the table 15, to be operatively presented against the printing cylinder in a manner to be more fully set forth hereinafter. The drum 17, is provided with gear wheels 21—21, which constantly mesh with the gear teeth 4, of the

cylinder 1, whereby when the latter is revolved, continuous motion will be imparted to the endless belt 19. In addition to the described parts, the feed mechanism 11, includes a discharge table 22. The table 22 has its end, adjacent to the endless belt, curved or deflected in the direction of the lead of the belt 19, so that the printed envelops may pass onto the said deflected end of the table and then to the main portion of the table.

As stated, the stencil sheet 3, is of the usual type. In fact the drum or cylinder 1, so far as the printing of the letter is concerned, is the same as the well known revolving cylinder duplicator.

The principal difference in the present duplicator over others for printing sheets consists in a peculiar combination of printing devices whereby a card or heading may be printed upon letter sheets and the same prnting means subsequently used for the purpose of printing cards or addresses upon envelops, and to successively cause the letter sheets to be associated with the stencil sheet 3, in order that the matter contained on the latter may be properly transferred to the former as the cylinders revolve.

In view thereof, I employ a second printing mechanism or device 23, mounted within the cylinder 1, and adapted to revolve therewith. This second mechanism includes companion rolls 24 and 25, the former supporting a stencil web or sheet 26, and a flexible blotting strip 27. The stencil web 26, is fed over a roll 28, carried by the cylinder 1, and disposed directly at one side of the slot 5, in the body 2, of the cylinder so that the stencil web may be exposed from the cylinder and properly presented against the letter sheet and also against the address surface of the envelop as the cylinders revolve. From the roll 28, the web 26, passes over a roll 29 and from thence it is finally taken on to the roll 25, together with the blotting strip 27, as diagrammatically illustrated in Fig. 2. The roll 29, carries a gear wheel 30, which meshes with a gear wheel 31, and the latter, in turn, is arranged in mesh with a gear wheel 32, on the roll 25. In this manner, the stencil web is adapted to be paid from the roll 24, and afterward wound on to the roll 25, as will be understood.

The stencil web 26, is adapted to contain the names and addresses to be successively placed upon the letter sheets and envelops as they are fed around the printing cylinder 1.

Located at a fixed point upon the machine is a shifting or tripping device 33, which is preferably in the form of a gear section over which the gear wheel 29, is adapted to pass and to be thereby revolved. This arrangement causes the address portions of the web 26, to be successively alined with the opening 5, in the cylinder 1, as the latter revolves.

In operation, letter sheets are arranged in stack form upon the table 7. Envelops are arranged in stack form upon the follower 13. Motion is then imparted to the cylinder 1, causing the feed mechanism 8, to singly advance the sheets into the immediate presence of the web 26. The name and address of the addressee is then placed upon the letter sheet and as the cylinder is revolved, an envelop is fed into the presence of the web 26, to also receive the identical address matter delivered to the described sheet in the preceding operation. As the cylinder continues to revolve, the sheet is of course operated upon by the usual stencil member 3. When the cylinder has revolved to a position where the gear 29, meshes with the resetting device 33, the web 26, is wound from the roll 24, to the roll 25, causing another or new address surface to be exposed from the revolving cylinder. This operation is repeated as often as the letter sheets are fed under the cylinder as will be understood.

What is claimed as new is:—

1. A printing machine comprising, a revolving cylinder having an opening therein, printing mechanism contained within the cylinder and having an active printing surface exposed beyond the opening, and a set of feeding devices for respectively moving letter sheets and envelops into the presence of the opening to receive an impression of the active printing surface of the mechanism within said cylinder, said devices operating at different points about the cylinder as the latter revolves.

2. A printing machine comprising, a revolving cylinder having an opening therein, printing mechanism contained within the cylinder and having an active printing surface exposed beyond the opening, and a set of feeding devices for respectively moving letter sheets and envelops into the presence of the opening to receive an impression of the active printing surface of the mechanism within said cylinder, said devices operating at different points about the cylinder as the latter revolves, said printing mechanism consisting of companion rolls, a stencil tape adapted to be wound from one of said rolls on to the other, and gearing successively operating as the cylinder revolves to wind the tape from one roll to the other.

3. A printing machine comprising, a revolving cylinder having an opening therein, printing mechanism contained within the cylinder and having an active printing surface exposed beyond the opening, and a set of feeding devices for respectively moving

letter sheets and envelops into the presence of the opening to receive an impression of the active printing surface of the mechanism within said cylinder, said devices operating at different points about the cylinder as the latter revolves, said printing device within the cylinder comprising, a set of rolls, power transmitting means for revolving the rolls, a flexible tape carrying a printing surface or design operatively connected with the rolls, and means disposed in the path of the power transmitting means for imparting successive movements thereto as the cylinder revolves.

4. A printing machine comprising, a revolving cylinder having an opening therein, printing mechanism contained within the cylinder and having an active printing surface exposed beyond the opening, and a set of feeding devices for respectively moving letter sheets and envelops into the presence of the opening to receive an impression of the active printing surface of the mechanism within said cylinder, said devices operating at different points about the cylinder as the latter revolves, said printing device within the cylinder comprising, a set of rolls, power transmitting means for revolving the rolls, a flexible tape having a printing surface or design operatively connected with the rolls, and means disposed in the path of the power transmitting means for imparting successive movements thereto as the cylinder revolves, said second means comprising a toothed segment, the power transmitting means including a gear adapted to intermesh with said toothed segment.

5. A printing machine comprising a revolving cylinder having an external printing surface, internal printing mechanism in said cylinder having an active printing portion exposed exteriorly of the cylinder, means for advancing letter sheets successively to the exposed portion of the internal printing mechanism and to the printing surface of the cylinder, and means for singly conveying envelops to the exposed portion of the internal printing mechanism as the cylinder revolves.

6. A printing machine comprising, a revolving cylinder having an external printing surface, internal printing mechanism in said cylinder having an active printing portion exposed exteriorly of the cylinder, means for advancing letter sheets successively to the exposed portion of the internal printing mechanism and to the printing surface of the cylinder, and means for singly conveying envelops to the exposed portion of the internal printing mechanism as the cylinder revolves, and for subsequently moving the printed envelops away from the cylinder.

In testimony whereof I affix my signature.

JOSEPH FRANK.