

Jan. 13, 1953

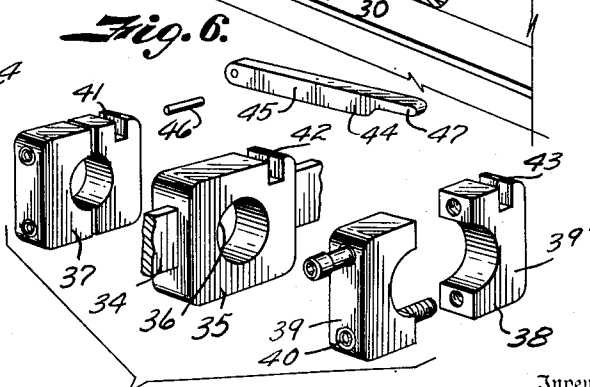
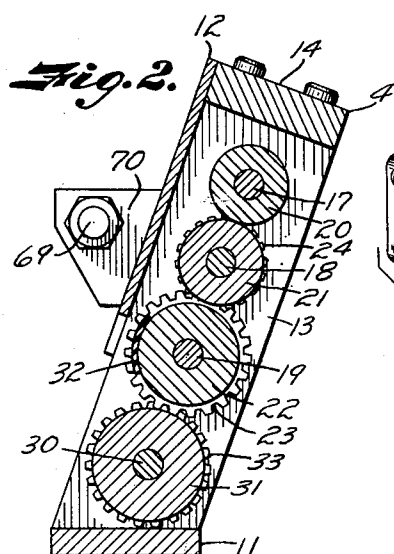
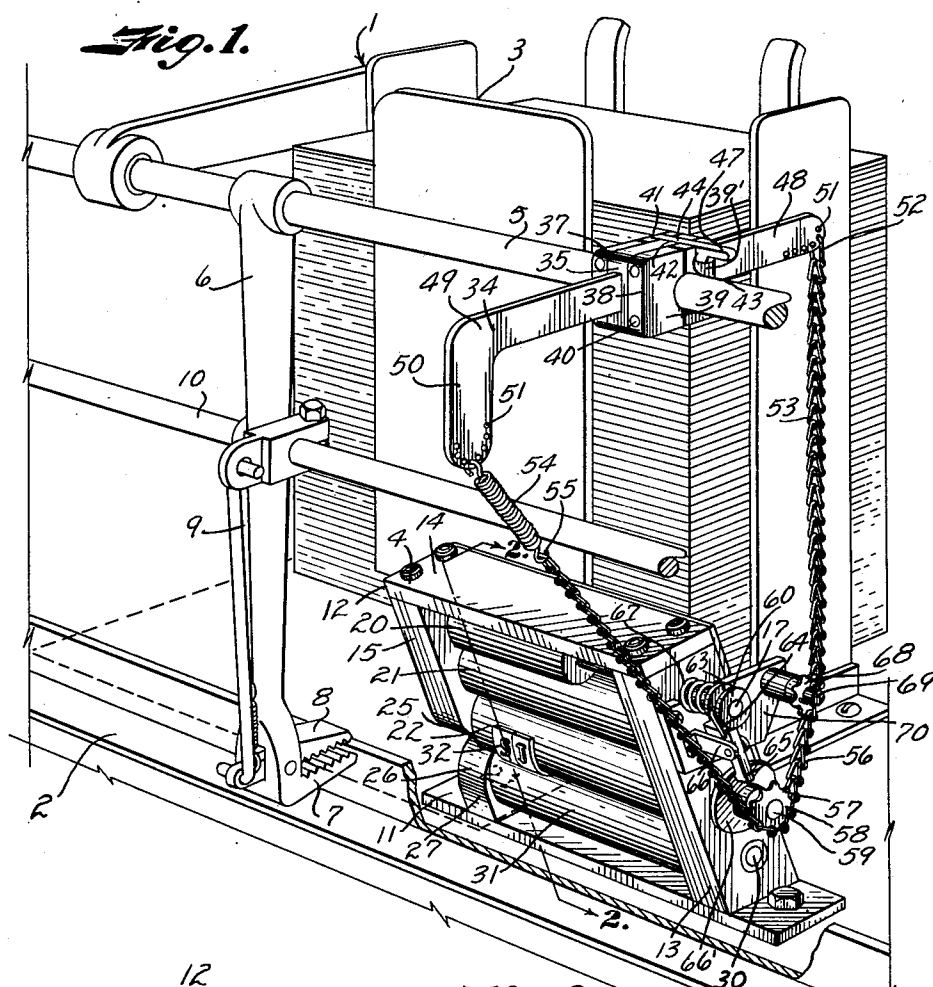
R. E. SKOW

2,625,102

KEY INSIGNIA PRINTER

Filed Aug. 23, 1950

2 SHEETS--SHEET 1



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2 SHEETS—SHEET 2

Fig. 3.

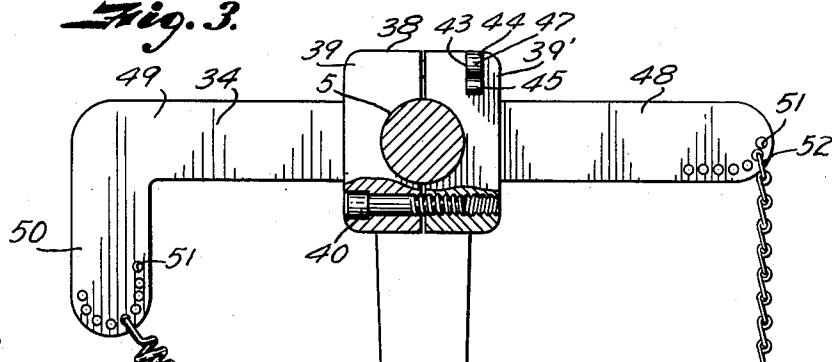


Fig. 4.

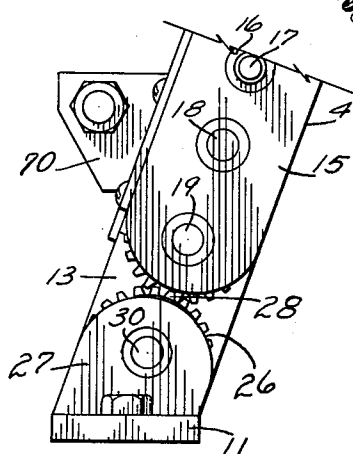
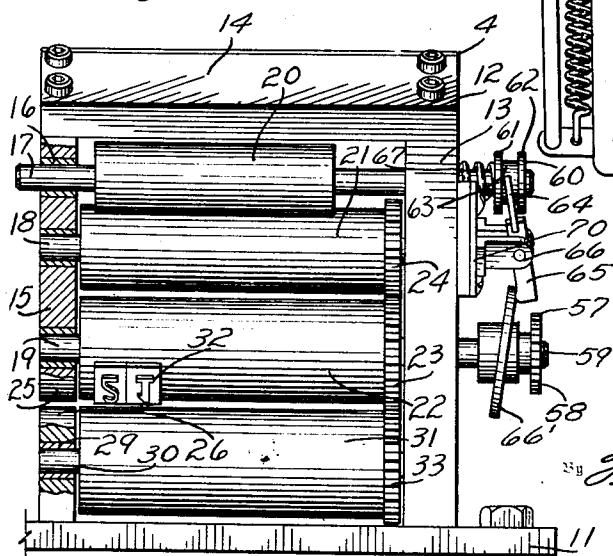


Fig. 5.



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UNITED STATES PATENT OFFICE

2,625,102

KEY INSIGNIA PRINTER

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10 Claims. (Cl. 101—232)

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This invention relates to a printer particularly adapted for application of key insignia to self-addressed envelopes, cards, coupons, order blanks and the like. For example, business firms doing advertising directly through the mails, by magazines, newspapers, or other sources desire to ascertain the ultimate effect of such advertising. They therefore mark self-addressed envelopes, cards, and the like with key insignias and enclose them with letters of solicitation and advertising literature sent direct to the public or in response to inquiries from any of the various advertising sources which they employ. They also desire to know the number of return responses to particular advertising in different areas and to various classes and fields of trade so that the success and value of their advertising methods may be appraised in accordance with responses from the different advertising proceedings as indicated by the key insignias on the self-addressed envelopes or other of the inserts that have been sent out and returned.

In this manner they make their advertising expenditures more profitable and direct them to the most likely areas and classes from which business may be obtained. Another reason that the key insignia is used is to assure that responses enclosed in the self-addressed envelopes are delivered to the proper department of the business.

It is obvious that a great number of key insignias are required and when the key insignias are printed at the time of printing the envelopes, a separate stock of envelopes must be printed for each different insignia to be used, thus, large stocks of differently printed envelopes are required to be on hand, and in fact many of them may be left over after a key insignia is discontinued.

It is therefore the principal object of the present invention to provide a small inexpensive printer for applying the key insignia to the self-addressed envelopes or other returnable contents at the time they are assembled with other inserts and placed in the mailing envelopes to be sent out.

Further objects of the invention are to provide a printer of this character that is adapted to be associated with, and operated by the conventional mechanism for assembling the self-addressed envelopes and other inserts such as letters of solicitation, advertising literature, or the like for insertion in the mailing envelopes.

In accomplishing these and other objects of the invention, I have provided improved structure,

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the preferred form of which is illustrated in the accompanying drawings wherein:

Fig. 1 is a diagrammatic view of a collecting conveyor and mechanism for feeding self-addressed envelopes or the like onto the conveyor and equipped with a key insignia printer embodying the features of the present invention and which is adapted to operate in synchronism with mechanism for removing the envelopes from the stack.

Fig. 2 is a vertical section through the printer on the line 2—2 of Fig. 1.

Fig. 3 is a side elevational view of the printer and the operative mechanism therefor.

Fig. 4 is a fragmentary view of the opposite side of the printer.

Fig. 5 is a front elevational view of the printer, part of the frame being shown in section to illustrate the bearing support of the various rollers.

Fig. 6 is a perspective view of the parts of the printer actuating lever, its mounting and latch for connection thereof with the oscillatory shaft of the withdrawal mechanism.

Referring more in detail to the drawings:

1 designates a portion of an automatic inserting and sealing mechanism as used in assembling and inserting letters, advertisements, self-addressed envelopes and the like within mailing envelopes. The mechanism 1 includes an assembling conveyor 2 along which are arranged a series of supports 3 for containing stacks of inserts to be placed in the mailing envelopes. Only the stack support means for a self-addressed envelope is shown, since it is at this station that a key insignia is preferably applied to the envelopes by means of a printer 4 constructed in accordance with the present invention and actuated by an oscillatory shaft 5 forming a part of the mechanism 1. The shaft 5 carries arms 6 at each station adapted to swing to and from the lower portion of the stack to successively remove the bottom envelope and drop it upon the conveyor 2. The arm 6 includes a fixed jaw 7 and a pivoted jaw 8 that is actuated by a link mechanism 9 on a shaft 10 which effects closure of the jaws when in position to engage the lowermost envelope and to withdraw the envelope as the arm 6 swings backwardly over the conveyor 2 in which position the jaw 8 is automatically opened to drop the withdrawn envelope onto the conveyor 2. The structure thus far described specifically forms no part of the present invention with the exception that the oscillatory shaft 5 is used in actuating the printer 4 as the withdrawn envelope is drawn therethrough.

The printer 4 includes a base plate 11 carrying a frame 12 which includes an upwardly and forwardly extending post 13 carrying at its upper end a transverse plate 14. The opposite end of the plate carries a depending bracket 15 having bearings 16 cooperating with registering bearings in the post for mounting shafts 17, 18 and 19 carrying an inking roll 20, an ink transfer roller 21 and a printing plate cylinder 22 respectively. The inking roll shaft 17 is relatively longer than the shafts 18 and 19 and the inking roller 20 is relatively shorter than the roller 21 so that the inking roller may be reciprocated for distributing ink on the transfer roller. The inking roller operates in rolling contact with the ink transfer roller but the ink transfer roller and printing plate cylinder are spaced apart in accordance with the thickness of the printing plate later described. The ink transfer roller is driven from the printing plate cylinder by inter-meshing gears 23 and 24 as best shown in Fig. 5.

The bracket 15 terminates in a preferably rounding lower end 25 which cooperates with a corresponding shaped end 26 of an upright bracket 27 to form a pass 28 through which the envelopes are drawn during the movement from the stack to the conveyor 2.

Rotatably mounted in registering bearings 29 in the bracket 27 and post 13 is a shaft 30 carrying an impression cylinder 31 having the surface thereof spaced from the surface of the plate cylinder 22 in accordance with the thickness of the printing plate indicated at 32. The impression cylinder carries a gear 33 that meshes with the gear 23 of the printing plate cylinder to drive the impression cylinder and facilitate movement of an envelope therebetween when contacted by the printing plate 32. The printing plate 32 may be composed of rubber or like composition bearing the desired insignia and is secured in proper position on the surface of the printing plate cylinder by a sticky back commonly used in the printing industry for attaching such plates to printing plate cylinders.

In order that the printing plate and impression cylinders are driven in timed relation with the movement of the arm 6, the oscillatory shaft 5 carries a rock lever 34. The rock lever 34 includes a hub portion 35 having a bearing opening 36 for loosely receiving the shaft so that the shaft may oscillate independently of the lever. The lever is retained from longitudinal movement on the shaft by collars 37 and 38 in the form of mating blocks 39 and 39' that are clamped about the shaft by suitable fastening devices such as screws 40 as best shown in Fig. 6.

In order that the hub portion of the lever may be selectively connected with the shaft to rock therewith, the clamp collars 37 and 38 and hub portion 35 of the rock lever have transverse notches 41, 42, and 43 to accommodate a latch 44 including a bar 45 that fits snugly within the notches. The bar 45 is pivoted within the notch 41 on a transverse pin 46. The bar is of sufficient length to provide a projecting handle 47 by which it may be swung into and out of the notches 42 and 43. The rock lever 34 includes a rearwardly extending arm 48 and a forwardly extending arm 49 having a depending terminal 50. The terminal 50 and the end of the arm 48 are each provided with a series of apertures 51 for adjustably connecting an end 52 of a chain 53 and a coil spring 54 connected to the other end 55 of the chain 53 whereby the chain forms a depending loop 56 engaging the teeth 57 of

a sprocket 58 that is mounted on a projecting end 59 of the printing plate cylinder shaft 19 as best shown in Figs. 1 and 5. It is thus obvious that when the shaft 5 is oscillated the rock lever 34 is actuated to move the chain to oscillate the printing plate cylinder.

The inking roller shaft 17 projects through the post 13 of the frame and carries a collar 60 having spaced circumferential flanges 61 and 62 forming an annular groove 63 therebetween and adapted to be engaged by the end 64 of a lever 65 pivotally mounted on a bracket 66 carried by the post 13 in position to be engaged by a wobble plate 66' having driving connection with the sprocket 58 and printing plate cylinder shaft. It is obvious that as the wobble plate oscillates, the lever 65 is rocked to effect movement of the collar 60, shaft 17, and inking roller in one longitudinal direction relatively to the ink transfer roller. A spring 67 is provided to return the inking roller in the opposite direction, the spring being sleeved over the shaft and having one end bearing on the side of the post 13 and its opposite end against the collar 60.

In order that the chain may adequately clear the rock lever, the chain is guided by an idler sprocket 68 that is rotatably mounted on a stud 69 projecting from a plate like bracket 70 attached to the outer face of the post 13 and which preferably mounts the bracket 66 pivotally mounting the rock lever 65 as best shown in Fig. 3.

The printer thus described is attached along side the conveyor and in position so that as the envelopes are withdrawn from the stack with portions thereof being passed between the printing plate and impression cylinders to effect printing of a key insignia thereon by means of the plate 32. It is obvious that the printing plate may be positioned anywhere along the length of the cylinder so that the insignia is printed in desired position. When it is desired to stop the printing operation, the latch 44 is lifted out of the notches 42 and 43 and swung retractively upon its pivot pin. The shaft 5 may then continue to oscillate while the rock lever remains idle thereon. When the desired number of mailing pieces have been completed, the printing plate may be removed and replaced with another insignia to print another series of enclosures which are subsequently inserted in mailing envelopes.

From the foregoing it is obvious that a simple and relatively inexpensive printing mechanism has been provided which may be used as an attachment in an inserting and sealing mechanism so that inserts such as self-addressed envelopes or the like may be printed with the desired key insignia while they are moving to the position for insertion in the mailing envelopes. Therefore, the key insignia are applied only as required.

What I claim and desire to secure by Letters Patent is:

1. In an inserting and sealing machine a gathering conveyor, means for supporting a stack of inserts along side of the conveyor, an oscillatory shaft, a gripper on the shaft for moving an insert from a stack to said gathering conveyor, a printer in the path of the insert engaged by said gripper, a rock lever on the shaft having oppositely disposed arms, a drive sprocket on the printer, a chain operating over the drive sprocket and having ends attached to the arms of the rock lever for actuating the printer in synchronism with the gripper.

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2. In an inserting and sealing machine a gathering conveyor, means for supporting a stack of inserts along side of the conveyor, an oscillatory shaft, a gripper on the shaft for moving an insert from a stack to said gathering conveyor, a printer in the path of the insert engaged by said gripper, a rock lever loosely mounted on the shaft and having oppositely disposed arms, means for selectively connecting the rock lever with the shaft to be actuated thereby, a drive sprocket on the printer, a chain operating over the drive sprocket and having ends attached to the arms of the rock lever for actuating the printer in synchronism with the gripper.

3. An apparatus of the character described including a frame having a pass at one side, printing plate and impression cylinders having journaled support in the frame above and below said pass respectively, a driving connection between the cylinders, a rock lever, a sprocket having rotative connection with one of the cylinders, a chain having ends connected with opposite ends of the rock lever and operating over said sprocket to oscillate the cylinders.

4. An apparatus of the character described including a frame, printing plate and impression cylinders having journaled support in the frame, intermeshing gears connecting the cylinders, a rock lever having oppositely disposed arms, a sprocket having rotative connection with one of the cylinders, a chain operating over said sprocket and having one end connected with an arm of the lever, and a coil spring connecting the other end of the chain with the other arm of the lever.

5. An apparatus of the character described including a frame, printing plate and impression cylinders having journaled support in the frame, a driving connection between the cylinders, a rock arm lever, a sprocket having rotative connection with one of the cylinders, a chain having ends connected with opposite ends of the rock lever and operating over said sprocket to oscillate the cylinders, an ink transfer roller journaled in the frame in rolling contact with a printing plate when applied to the printing plate cylinder, an inking roll having reciprocable and rotatable mounting in the frame in contact with the ink transfer roller, a collar having fixed connection with the inking roller, a rock lever pivoted on the frame having engagement with the collar, and a wobble plate rotatable with one of the cylinders and engaging the rock lever to reciprocate the ink roller, and driving connections between the ink and transfer rollers and one of the cylinders.

6. An apparatus of the character described including a frame, an oscillatory shaft, printing plate and impression cylinders having journaled support in the frame, intermeshing gears connecting the cylinders, a rock lever on the shaft, means for selectively connecting and disconnecting the rock lever in driven connection with said shaft, a sprocket having rotative connection with one of the cylinders, a chain having ends connected with opposite ends of the rock lever and operating over said sprocket to oscillate the cylinders.

7. In combination with an inserting and sealing machine including a gathering conveyor, means for supporting a stack of inserts along side of the conveyor, an oscillatory shaft, a gripper on the shaft for moving an insert from the stack supporting means to the gathering conveyor, a printer in the path of the inserts engaged by the withdrawing means, said printer including a frame having an open pass at one side in regis-

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ter with the path of the inserts withdrawn by the insert withdrawing means, printing and impression rollers carried by the frame and located respectively on opposite sides of the pass, a connection between the printing and impression rollers, a driving member, a connection between the driving member and the printing roller, a rock lever adapted for connection with the oscillatory shaft, and a flexible member operating on the driving member and having ends connected with ends of the rock lever for effecting oscillation of the printing and impression rollers incidental to actuation of the gripper on said oscillatory shaft.

8. In combination with an inserting and sealing machine including a gathering conveyor, means for supporting a stack of inserts along side of the conveyor, an oscillatory shaft and a gripper on the shaft for moving an insert from the stack supporting means to the gathering conveyor, a printer in the path of the inserts engaged by the withdrawing means, said printer including a frame having an open pass at one side in register with the path of the inserts withdrawn by the insert withdrawing means, printing and impression rollers carried by the frame and located respectively on opposite sides of the pass, a connection between the printing and impression rollers, a driving member, a connection between the driving member and the printing roller, a rock lever adapted for connection with the oscillatory shaft, a flexible member operating on the driving member and having ends connected with ends of the rock lever for effecting oscillation of the printing and impression rollers incidental to actuation of the gripper on said oscillatory shaft, a transfer roller carried by the frame for applying ink to the impression roller, an ink applicator roller carried by the frame for applying ink to the transfer roller, a wobble plate connected with the driving member, a rocker arm having pivotal mounting on the frame with one end engaging the wobble plate, and a collar engaged by the opposite end of said arm for effecting axial movement of the inking roller with respect to the other of said rollers.

9. In an inserting and sealing machine, the combination of a gathering conveyor, supporting means for a stack of inserts located alongside of the conveyor, a gripper having oscillatory support transversely of the direction of movement of the conveyor for withdrawing inserts from the insert supporting means and depositing the inserts on the gathering conveyor, means for oscillating the gripper, a printer between the stack supporting means and the conveyor for printing the inserts as they are being carried to the conveyor and while in flight from the stack supporting means to the gathering conveyor, and a driving connection between the gripper oscillating means and the printer for actuating the printer from said oscillating means.

10. In combination with an inserting and sealing machine including a gathering conveyor, means for supporting a stack of inserts along side of the conveyor, and means for withdrawing inserts from said stack and depositing them on the conveyor, a printer in the path of the inserts as they are engaged by the withdrawing means, said printer including a frame having an open pass at one side in register with the path of the inserts withdrawn by the insert withdrawing means, printing impression rollers carried by the frame and located respectively on opposite sides

of the pass to effect printing of the inserts, means connecting the printing and impression rollers, and an oscillatory driving means between the withdrawing means and the printing roller for operating said printer.

ROSS E. SKOW.

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