

Oct. 12, 1937.

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2,095,292

STRIP FEEDING AND IMPRINTING APPARATUS

Filed Aug. 4, 1933

5 Sheets-Sheet 1

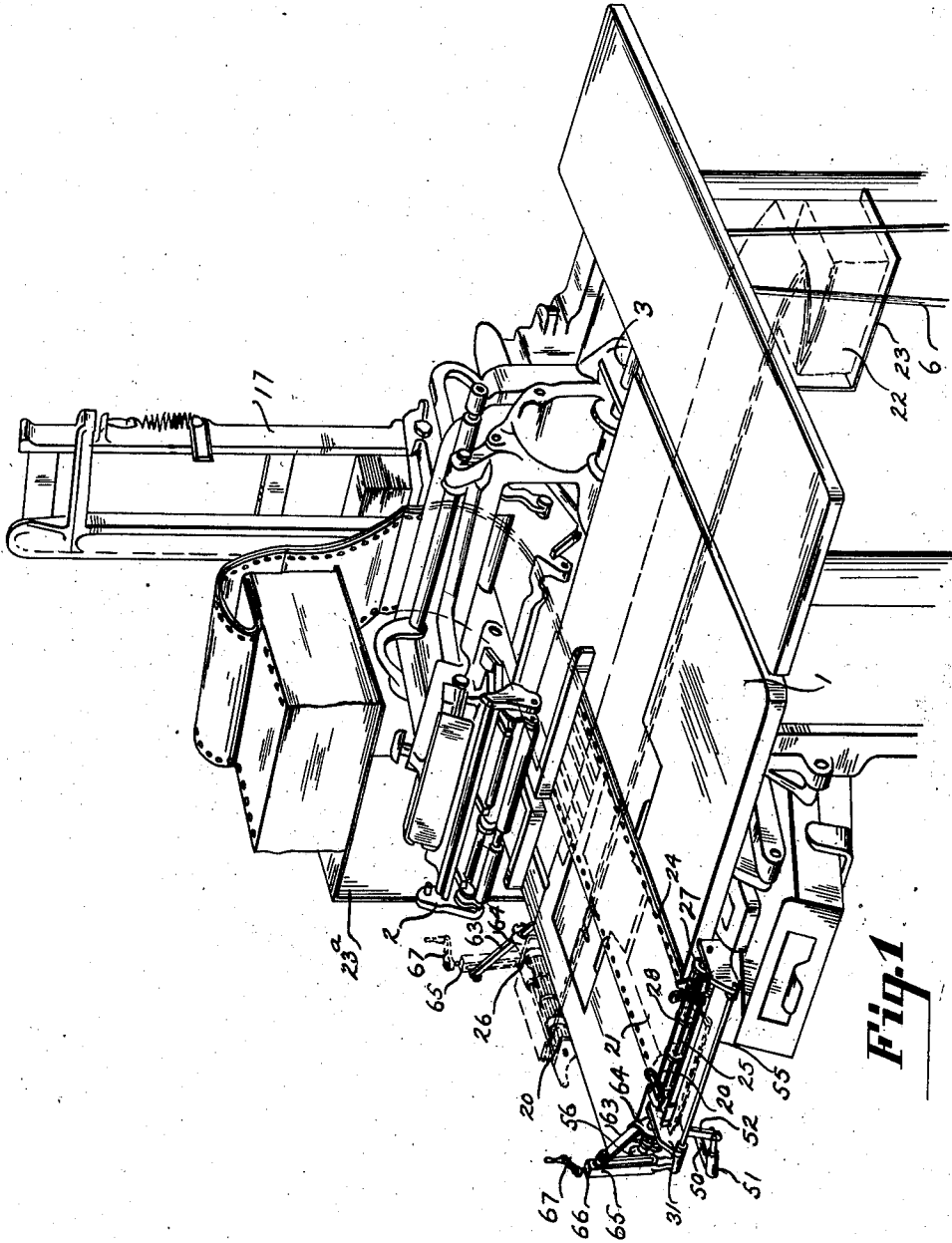


Fig. 1

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5 Sheets—Sheet 2

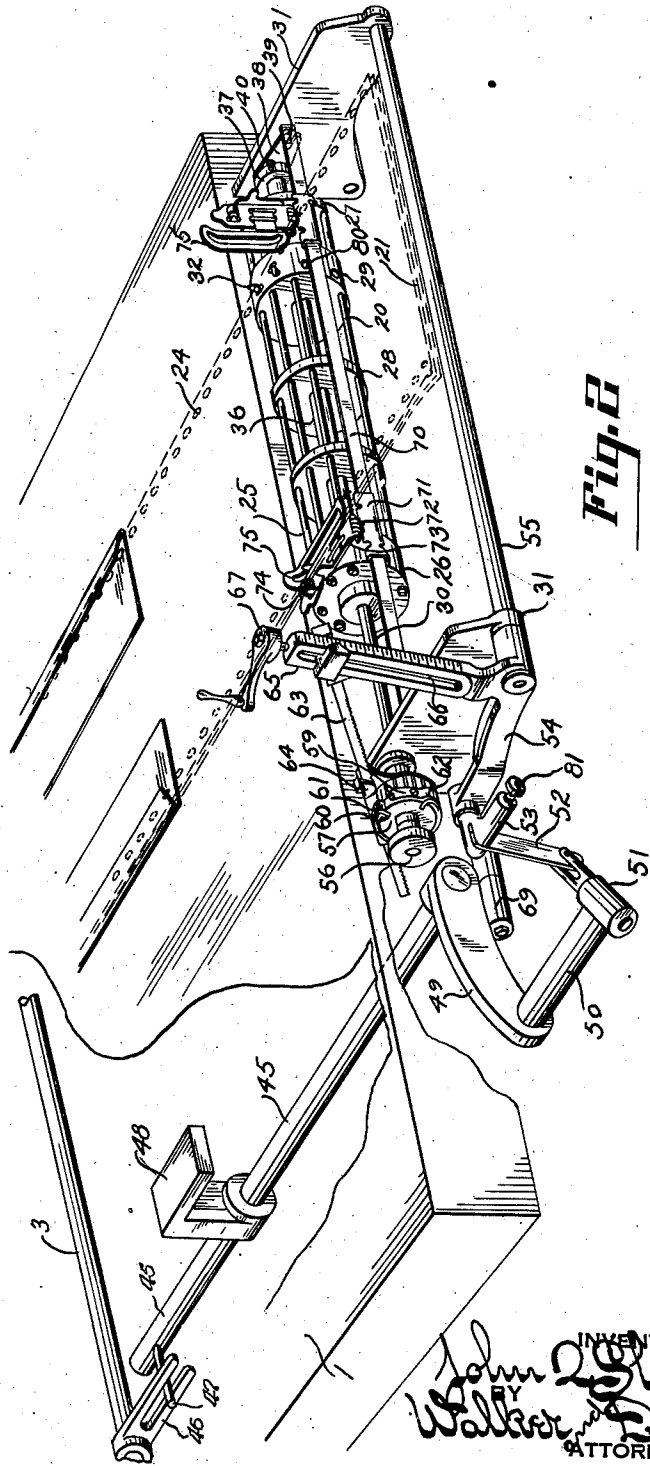


Fig. 2

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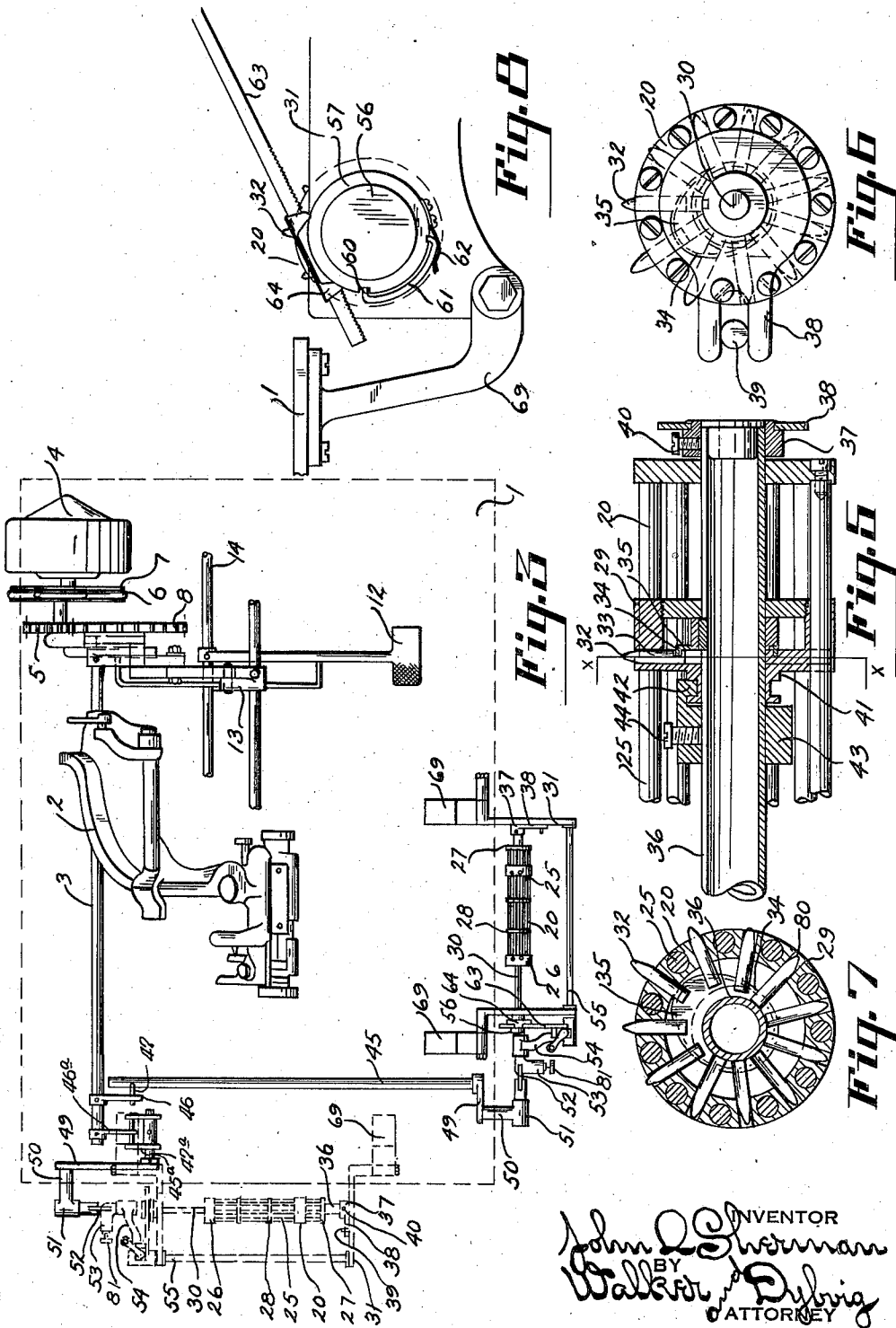
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STRIP FEEDING AND IMPRINTING APPARATUS

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5 Sheets-Sheet 3



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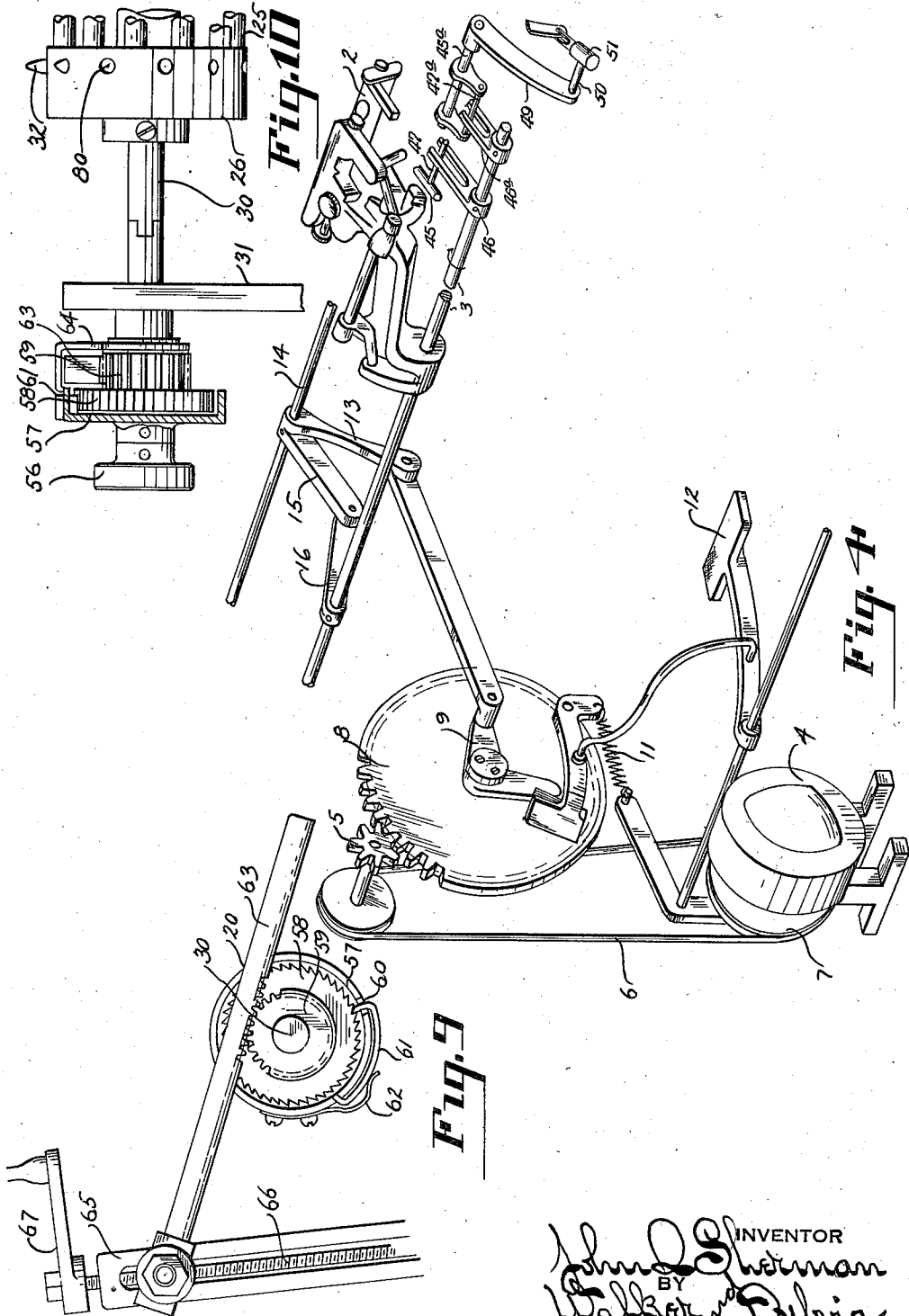
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STRIP FEEDING AND IMPRINTING APPARATUS

Filed Aug. 4, 1933

5 Sheets-Sheet 4



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STRIP FEEDING AND IMPRINTING APPARATUS

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5 Sheets-Sheet 5

Fig. 11

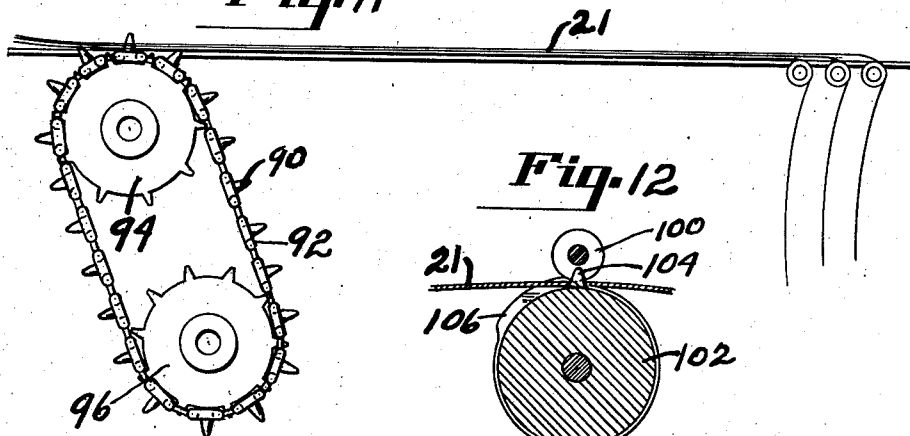


Fig. 12

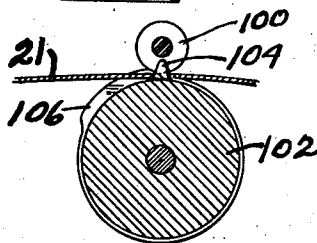


Fig. 13

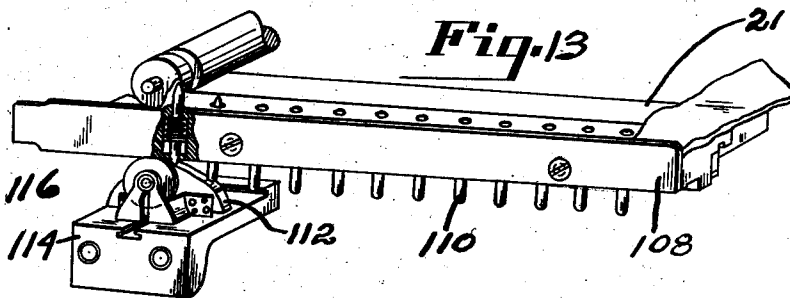


Fig. 14

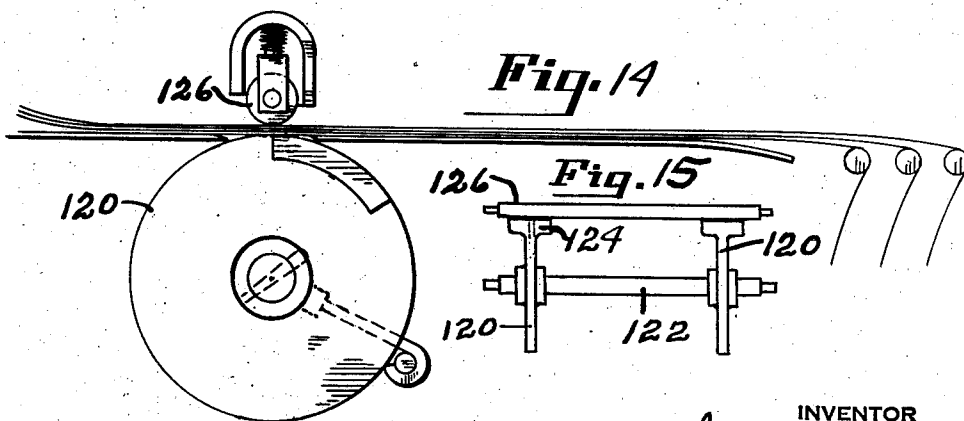
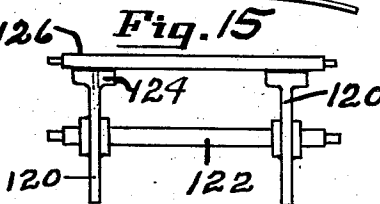


Fig. 15



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UNITED STATES PATENT OFFICE

2,095,292

STRIP FEEDING AND IMPRINTING APPARATUS

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Application August 4, 1933, Serial No. 683,612

40 Claims. (Cl. 101—47)

This invention pertains to imprinting machines for producing successive impressions upon continuous strips of stationery, usually consisting of successions of series connected detachable forms, and comprises the cooperative association therewith of positive pin type feeding means, by which multiple superposed strips of impression receiving material are intermittently advanced past the impression receiving position in synchronism with the operation of the imprinting apparatus, and in the event such strip bears impressions of printed forms the feeding attachment serves to maintain accurate alignment and registry of such forms.

While the present strip feeding mechanism is applicable to a wide range of imprinting apparatus wherein a continuous strip of record material is intermittently advanced past an imprinting position including various forms of printing and recording apparatus, computing, tabulating and billing machines, typewriters and the like, in synchronized relation with which the feeding mechanism is automatically actuated, for illustrative purposes, but with no intent to unduly limit the scope or application of the invention, it is herein shown and described as incorporated in a conventional addressograph machine.

The present strip feeding and aligning attachment includes a pin-type feeding roller having spaced groups of radial pins, which progressively engage in series punched holes in the superposed impression receiving strips and is actuated through a step by step movement by operation of the imprinting mechanism.

Inasmuch as the present feeding and aligning attachment is intended for application to imprinting and addressing machines now in use which present their printing elements in only one position, in order that the impression may be made in either of alternative positions on the strips, the feeding mechanism is interchangeable from one position to another relative to the imprinting mechanism whereby the impression receiving strips may be fed in either of different angularly disposed paths of travel past the impression receiving position.

To accommodate material of different widths the groups of feeding pins are adjustable axially of the roll toward and from each other and the pins of the respective groups are preferably, though not necessarily mounted for reciprocatory motion, wherein they are automatically projected into and withdrawn from engagement with the strips in longitudinal directions substantially perpendicular to the plane of the material.

The object of the invention is to simplify the construction as well as the means and mode of operation of strip-feeding mechanism applicable to imprinting and addressing machines, whereby it will not only be cheap in construction but will be efficient in use, automatic in action, uniform in operation, and unlikely to get out of repair.

A further object of the invention is to improve the feeding mechanism of imprinting and addressing machines, whereby they will be adapted to operate upon continuous strips of series connected printed form but will be further adapted to produce manifold copies at each operation, the printed forms upon superposed strips being maintained accurately in registry with each other.

A further object of invention is to provide automatic continuous strip feeding mechanism for imprinting and addressing machines intermittently operable to advance the impression receiving strip step by step in synchronism with the imprinting operation.

A further object of invention is to provide means for enabling manifolded impressions to be made in alternative positions relative to the impression receiving material without changing the printing and plate-feeding mechanism of the imprinting or addressing machine.

A further object of invention is to provide strip-feeding mechanism engageable with an imprinting machine in alternative positions for feeding impression receiving strips at will, in different directions, past the printing position.

A further object of invention is to provide variable stroke mechanism for the feeding mechanism, which will be simple in construction, accurate in operation and capable of varying the degree of advance movement of the strips through a wide range of adjustment.

A further object of invention is to provide strip-feeding mechanism for imprinting or addressing machines, embodying the advantageous features and desirable characteristics herein-after described.

A further object of invention is to provide strip feeding mechanism for feeding accurate and equal length portions of strips at each cycle of operation so as to automatically register certain desired areas of the portions of strips with the feeding mechanism.

With the above primary and other incidental objects in view that will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof and the mode of operation, or their

equivalents, as hereinafter described and set forth in the claims.

In the accompanying drawings wherein is shown the preferred but obviously not necessarily the only form of embodiment of invention, Fig. 1 is a perspective view of a typical addressing machine to which the present invention has been applied.

Fig. 2 is a perspective view of the strip feeding mechanism, forming the subject matter hereof, and its actuating connections to the imprinting mechanism.

Fig. 3 is a detail plan view of the power mechanism by which motion is transmitted to the strip feeding attachment.

Fig. 4 is a detail perspective view of the power transmission mechanism.

Fig. 5 is a longitudinal sectional view through a portion of the strip feeding roller including one of the pinwheel units.

Fig. 6 is an end elevation of the stripfeeding roller.

Fig. 7 is a transverse sectional view on line X—X of Fig. 5 intersecting the pinwheel unit.

Fig. 8 is a side elevation of the intermittent actuating mechanism for the stripfeeding roller and detachable mounting bracket.

Figs. 9 and 10 are detail views of the intermittent actuating mechanism.

Figs. 11, 12, 13, and 14 disclose modifications of the feeding device.

Fig. 15 shows another view of the modification disclosed in Fig. 14.

Like parts are indicated by similar characters of reference throughout the several views.

It has heretofore been more or less common practice to feed continuous strip stationery through addressograph machines, tabulating apparatus and analogous imprinting mechanisms by means of frictional feeding devices operating either intermittently or continuously. At the present time the use of printed forms in continuous series connected relation having predetermined restricted areas in which a legend is to be imprinted is quite common. Due to slippage or creep of the strip material, which errors become cumulative and finally cause the imprint to be misplaced or offset outside or beyond the designated area, it has been found quite impossible by such frictional feeding devices to maintain the requisite registry and alignment of a strip or strips and effect accurate measured uniform advancement of the strip necessary to insure presentation of such restricted predetermined areas exactly in imprinting position.

The present positive pin type feeding device operating in synchronism with the imprinting apparatus solves this problem of registry and alignment of the strip and uniform feeding advancement thereof and its subsequent arrest with a prescribed area in predetermined position whereby the registration of the impression areas with the imprinting means is maintained with such sufficient accuracy that the imprinting apparatus may be automatically and continuously operated at relatively high speed without the necessity of constant attendance and supervision of an operator.

Inasmuch as the spacing of succeeding impression receiving areas of a stationery strip may vary according to the different lengths of forms or different arrangement of imprinted matter thereon, it is necessary that the feeding means be capable of regulation by which it may be variously adapted to accurately feed forms of dif-

ferent lengths, and minutely adjusted to bring the extent of feeding movement into exact agreement with the length of the forms.

In Fig. 1 of the drawings there is shown, for illustrative purposes only but with no intent to limit the scope or application of the invention, a typical imprinting for addressing machine to which the present invention is applicable.

Briefly described, this imprinting machine includes a table 1, over which is positioned a vibratory presser head 2 mounted for vertical swinging motion upon a rockshaft 3 located beneath the table 1 and intermittently oscillated by pedal controlled actuating mechanism as is illustrated in Fig. 4.

The imprinting or addressing machine is driven from an electric motor 4, which drives a gear pinion 5 by means of the belt 6 and pulley 7 to rotate the driving gear 8, with which the pinion meshes, and to which is intermittently connected by a suitable clutch a driving crank 9. The crank 9 is provided with a stop arm engaged by a spring actuated detent 11, which in turn is controlled by the pedal 12.

Upon depression of the pedal the detent is withdrawn to release the crank 9, which then turns in unison with the driving gear 8.

The crank 9 is connected by a pitman with a rock arm 13 upon a rock shaft 14 from which motion is transmitted by interconnecting rock arms 15 and 16 to the main actuating shaft 3 upon which the presser head is mounted, and from which motion is transmitted to the strip feeding mechanism.

Vertically disposed at the rear of the addressing machine is a magazine 17 for stencils or individual printing plates which are consecutively fed from the magazine 17 to printing relation with the presser head 2 by successive operations of the machine.

Such stencils or printing plates are automatically interchanged preparatory to each succeeding imprinting operation. Ordinarily impressions from such stencils or printing plates are effected on separate strips of paper, envelopes, wrappers, tags and the like.

The imprinting or addressing machine, as heretofore described, forms no part per se of the present invention.

The present invention enables successive impressions to be made from consecutive printing plates or stencils in either of alternative positions on continuous strips of series connected printed forms supplied either singly or superposed one upon another and maintained in alignment and registry by the feeding mechanism, whereby manifold copies are produced and the strips printed upon accurately and consistently in predetermined areas.

To enable the impressions to be successively imprinted on either a single strip or manifolded upon superposed strips of series connected forms progressively advanced past the impression receiving position, at which it is brought to rest between each advance movement, there is supported beyond the margin of the table 1 a strip feeding roller 20 by which continuous superposed strips of impression receiving material 21 are progressively fed from a supply packet 22 thereof, located upon a supporting shelf 23 overhanging the table 1 from which these strips pass beneath the imprinting presser head 2 and thence across the table 1. These strips may also be put up in rolls, if desired, and mounting means provided therefor.

While the strip feeding roller 20 may be of solid construction and may be provided with stationary studs or pins engageable in marginally punched feeding holes 24 in the strip 21, it is preferably of a cage-like construction as illustrated in the drawings, comprising an annular series of circumferentially spaced, longitudinally disposed rods 25, interconnected at their ends in stationary heads 26 and 27 and medially interconnected by spacing discs 28 through which rods 25 extend and which are slidably mounted for axial movement thereon.

Included in the cage-like roller construction are two pinwheel units, one of which may comprise the stationary head 26 and a second head 29 slidably adjustable axially along the rods, or in lieu thereof, both of the pinwheel units may be slidably adjustable axially along the rods 25 toward and from each other.

This cage-like roller structure is mounted upon a rotary shaft 30, journaled in spaced supporting brackets 31 detachably connected with the table 1.

Although as before stated the strip engaging pins of the spaced pinwheel units may be fixed in their carrying heads, in order to facilitate the engagement and disengagement of the pins with the perforations of the strips 21 and to enable the stripping of the strips from the pins without mutilation or disturbance, the feeding pins are preferably retractable within their carrying heads, and are automatically progressively reciprocated in unison with the rotation of the feeding roller.

The heads or carriers 26 and 29 of the pinwheel units are provided with radial bores to receive the reciprocatory taper pointed pins 32. The pins 32 are laterally notched at 33 for engagement with the lateral flange 34 of an eccentric control cam 35 about which the pins travel in unison with the rotation of the feeding roll. As the pins 32 approach the high point of the control cam 35 they are progressively projected beyond the periphery of the carriers or heads 26 and 29, and after having passed the high point of the cam, the pins are retracted within the peripheries of the carriers or heads.

There are only a few pins extended beyond the periphery of the pinwheel unit at any time for engagement with the marginally punched strip 21. The cams 35 of the respective pinwheel units are carried upon a sleeve 36 concentrically surrounding the roller shaft 30.

Since the pinwheel units are slidably adjustable for accommodation of strips of different widths, the control cam 35 of one or both of the pinwheel units is splined upon the rock sleeve 36 for axial sliding motion but subject to unison rocking motion therewith to adjust the point of projection of the pins into proper relation with the strips.

Secured to the extremity of the sleeve 36 beyond the end of the roller is a disc-like head 37 having a bifurcated arm 38 straddling a stud 39 projecting from one of the supporting brackets 31.

The head 37 is fixedly secured to the sleeve 36 in any position of rotative adjustment of the latter by means of a set screw 40, thereby holding the control cams 35 in their proper position of rotative adjustment to project the pins into feeding engagement with the marginally punched strips 21.

The adjustable pinwheel unit or units, as the case may be, is provided with a laterally project-

ing flange or hub 41 having rotative engagement beneath an overhanging segmental flange 42 upon a collar 43 slidably adjustable upon the sleeve 36 and fixedly engageable therewith in adjusted position by a set screw 44.

The collar 43 is adjustable to and fro in unison with the axial sliding adjustment of the pinwheel unit, and by its subsequent fixed engagement with the sleeve 36 it holds the pinwheel unit in adjusted position while permitting free rotative motion thereof.

In the drawings one of the pinwheel units 26 is shown stationary mounted, and as comprising one of the terminal heads supporting the spaced rods 25. It is to be understood, however, that this head also may be made adjustable axially in the manner heretofore described.

The feeding roller is intermittently actuated through step by step movement from the rock shaft 3 which also actuates the presser head 2 of the imprinting machine. The movement of the strip occurs alternately with periods of rest during which the presser head operates to imprint the strip.

If the strip-feeding attachment is positioned upon the table 1 to feed the strips transversely to the plane of oscillation of the presser head 2 as is shown by dotted lines in Fig. 1, the feeding roll is actuated directly from the shaft 3. To the contrary, when the feeding roll is positioned upon the table 1 as shown by solid line in Fig. 1 whereby the strips 21 are advanced past the imprinting position in a direction coincident with the plane of oscillation of presser head 2 the feeding roll is actuated from a second shaft 45 operatively connected with the presser head shaft 3 and disposed at right angle thereto as shown in Fig. 2. As is illustrated in Fig. 2, the presser head shaft 3 is provided with a bifurcated rock arm 46 within which engages a rock arm 47 upon the auxiliary shaft 45 which is mounted in suitable bearings 48 beneath the table top 1.

The auxiliary shaft 45 extends beyond the margin of the table 1 where it carries a rock arm 49 from which projects a stud 50 having at its extremity a swivel head 51. A link 52 connects the swivel head 51 with a second swivel head 53 upon one arm of a bell crank lever 54 mounted upon shaft 55 journaled in the roller brackets 31.

The link 52 is detachably connected with the swivel head 53 of the bell crank lever 54 by means of a spring actuated retractable plunger 52.

The swivel heads 51 and 53 accommodate the interconnecting link 52 to the differential movement of the rock arms 49 and 54 in transverse planes.

For transmitting the rocking motion of the bell crank lever 54 to the strip-feeding roll there is provided upon the roll shaft 30 beyond the supporting bracket 31 a pawl and ratchet mechanism actuated by a reciprocatory rack bar connected with the bell crank lever.

Fixedly secured to the extremity of the roll shaft 30 is a knob 56 for hand adjustment of the roll and adjacent thereto there is pinned or otherwise secured to the shaft 30 a flanged disc 57. Loosely journaled upon the shaft 30 within the recess of the flanged disc 57 is a ratchet wheel 58 to which is fixedly attached a gear pinion 59.

The periphery of the flanged disc 57 is provided with a slot 60 through which projects the engaging end of a pawl 61 mounted upon the disc 57 for oscillatory motion and urged into en-

agement with the ratchet wheel 58 interiorly of the disc by a leaf spring 62.

The pawl 61 interengages the disc 57 with the ratchet wheel 58 for unison rotation in one direction but permits independent oscillation of the ratchet wheel 58 in reverse direction.

A rack bar 63 intermeshes with the gear pinion 59 with which it is held in engagement by a guide plate 64 loosely pivoted upon the shaft 30 beside the gear pinion 59 and having a flanged portion overhanging the rack bar 63.

This guide plate is free to change its position about the shaft 30 in accordance with change of angular position of the rack bar. At its opposite end the rack bar 63 is pivotally connected with a sliding head 65 adjustable longitudinally upon the slotted arm of the bell crank lever 54.

A screw stem 66 provided with a crank handle 67 is provided in the end of the bell crank lever for adjusting the slidable mounting 65 of the rack bar 63 toward and from the fulcrum connection of the bell crank lever and thereby varying its throw.

By such adjustment the range of reciprocatory motion of the rack bar may be varied to correspondingly vary the degree of rotative adjustment of the gear pinion 59 and ratchet wheel 58.

The variation of the pivotal connection of the rack bar 63 toward and from the center of oscillation of the lever 54, and thereby the extent of the feeding movement, enables accommodation of forms of different length, and furthermore the screw adjustment of the slide 65 enables the regulation of the feeding movement into exact agreement with the selected form length. Obviously, an error of even one thousandths of an inch overthrow or underthrow becomes serious since such error is cumulative and after a run of a thousand forms the impression would fall a full inch out of the prescribed position. The fine adjustment afforded by the screw stem 66 overcomes such difficulty.

The pawl 61 is so arranged that the disc 57, and with it the feeding roll shaft and roller cage, are actuated to advance the marginally punched strips 21 upon outward swinging motion of the bell crank lever 54, the reverse movement thereof being idle.

Thus the throw of the feeding roll may be increased or diminished at will, thereby permitting accurate advancement of the impression receiving strips 21 through greater or less degree of movement.

As ordinarily constructed, an imprinting or addressing machine is arranged to feed the stencils or printing plates from the magazine 17 to printing position in such relation as to effect the imprint transversely of the strips 21 when being fed from the packet 22 upon the shelf 23 past the imprinting position in a direction coincident with the plane of oscillation of the presser head 2.

It is quite desirable, however, to be able to effect an impression in a position longitudinally of the strip without, however, the necessity of changing the mechanism of the addressing machine.

To this end a second supporting shelf 23a is provided to receive the packet of impression receiving strips from which strips are fed across the table in a direction transverse to the plane of oscillation of presser head 2 and at substantially right angle to the direction of movement of strips from the shelf 23 as shown by solid lines in Fig. 1. This alternative direction of feed-

ing movement of strips is indicated by dotted lines.

To accommodate such change of direction of feeding movement of the strips, the roll supporting brackets 31 are detachable from the table and are reengageable with an adjacent side of the table at right angle to its former position as shown by dotted lines in Fig. 1 in which position the roll is actuated directly from the rock shaft 3 without the use of the auxiliary shaft 45.

For this purpose the rock shaft 3 is provided with a second slotted arm 46a engaging with a rock arm 47a upon a short countershaft 45a. The countershaft 45a is provided with a rock arm 49 carrying a stud 50 and swivel head 51 and also a connecting link 52 quite similar to such parts carried by the auxiliary shaft 45. This arrangement enables the actuation of the pin type feed device in alternation with the imprinting operation in whichever relative position it may be mounted. The construction is such that in either position of the pin type feeding device, the actuating means is operated idly in one direction as the presser head 2 descends, and is effective to advance the pin type feeding means during return movement of the presser head.

The retractable plunger 51 enables the swivel head 53 of the bell crank lever 54 to be quickly connected with and disconnected from the link 52 carried by either the shaft 45 or the shaft 3, according to the position in which the feeding roll is to be mounted.

The feeding roll brackets 31 are detachably engageable with hangers 69 depending from the table 1 in both the positions in which the roll is to be mounted. Thus by disconnecting the swivel head plunger 51 and disconnecting the brackets 31 from the hangers 69 the feeding roll and its actuating mechanism may be transferred from one side to the other of the machine, thus enabling the impression receiving strip to be fed in either of two directions at right angle to each other.

For the purpose of retaining the marginally punched strips in engagement with the feeding pins 32 during feeding operating, slotted paper guides are provided which override the pinwheel units. These guides are slidingly mounted upon a transverse bar 70 interposed between the roll supporting brackets 31 and adjustable thereon to agree with the positions of the pinwheel units.

Each of the paper guides comprises a slide 71 engaging the bar 70 to which is hinged at 72 an arm 73 extending inwardly in overlapping relation with the pinwheel unit and provided at its free end with a roller 74 traveling upon the head or carrier beside the pins.

Projecting laterally from the arm 73 is a slotted extension 75 having its ends upturned and its slot registering with and spanning the feeding pins 32 which project through said slot, but not contacting therewith, so as to permit free movement of the punched forms under complete control of the aligning pins.

The superposed marginally punched strips 21 pass between the pinwheel unit and the slotted paper guide portion 75. The pins 32 project loosely through the registering feeding holes 24 in the strips and thence through the slot in the guide extension 75.

In Fig. 2 the paper guide at the right is shown elevated about its hinge connections 72 to afford access to the feeding pins for properly engaging

the punched strips therewith preparatory to the feeding operation. At the left in Fig. 2 the guide is shown in its normal operative position. Any suitable retainer pawl engaging the ratchet wheel 58 or frictional means may be utilized to prevent back lash or reversal of the feeding roll.

While the pinwheel feeding device, as shown, may be used, other pin feed structures well known in the art, such as tapered pins mounted on links of chain belts or mounted in reciprocatory bars, may be used. Feeding devices responding to apertures in the record material either arresting or causing the movement thereof may be used.

In the modification disclosed in Fig. 11 the pins 90 carried by the links 92 of a suitable chain trained over the sprockets 94 and 96 are used for advancing the impression receiving strips 21.

In the modification disclosed in Fig. 12 a combined friction and pin feeding device has been shown, the friction rollers 100 and 102 cooperating to advance the impression receiving strip 21 except for a portion of the time during which the feeding pin 104 engages the strip 21, the friction roller 100 is moved into inoperative position by a cam 106 rotating in unison with the friction roller 102. When the friction roller 100 is in inoperative position the pin 104 is free to align and cause the strip 21 to properly register with the printing position.

The strip 21 in the modification disclosed in Fig. 13 is advanced by a reciprocating carriage 108 carrying the tapered pins 110 which are moved into in and out position by a cam 112. The pin 110 in out position aligns and advances the strip 21. The carriage 108 is supported on rollers 112 carried upon a suitable support 114 and reciprocated by suitable mechanism not shown.

Instead of a pin feeding device a pair of rotatable discs, the periphery of which has a circumference greater than the longest form to be fed, is used for advancing the strip. These discs 120 carried by the shaft 122 are provided with lugs 124 that cooperate with the roller 126 to start feeding the strips after the movement of the strips has been arrested by the narrow portion of disc 120 registering with the aperture provided therefor in the strip. The holes in the record strips, which are aligned with the discs 120, have a larger diameter than the width of the disc so that as the record strip is advanced the same will stop when the holes are located intermediate the disc 120 and the roller 126, the feeding device being then inoperative. The strip will not be advanced until the lugs 124 engage the strips beyond the apertures of the record material, and start the movement of the material so as to cause the apertures in the strip to advance beyond the disc 120 and roller 126 again to advance the form a predetermined distance, which distance is determined by the distance between successive holes in the strip.

It is desirable to remove the strip feeding mechanism from its mounting, at times, for repairs and also to make the machine inoperative. The unit can thus be made detachable for this purpose.

Cross reference is made to divisional application, Serial No. 116,553, filed December 14, 1936, and also to Serial No. 106,158, filed October 17, 1936, for analogous subject matter.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modi-

fication in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

I claim:

1. The combination with an imprinting machine for consecutively feeding to printing position a series of form plates and producing therefrom successive impressions, of strip feeding means engageable with the imprinting machine for advancing and registering a continuous strip of impression receiving material through a step by step movement past the impression receiving position, means for detachably engaging the strip feeding means with the imprinting machine in alternative positions by which the strip may be fed in different directions past such impression receiving position, and operative connections between the strip feeding means and imprinting machine for operating the strip feeding means in either of its positions of attachment.

2. The combination with an imprinting machine having means for consecutively feeding to printing position a series of form plates and producing therefrom successive impressions upon a strip of impression receiving material, of pinwheel strip feeding means engageable in longitudinally spaced holes in the strip of impression receiving material for positively feeding and registering the strip of impression receiving material past the printing position and an operative connection between the strip feeding means and the imprinting machine for intermittently advancing the strip through a step by step motion by the operation of the imprinting machine alternately with the imprinting operation thereof.

3. The combination with an imprinting machine for consecutively feeding to printing position a series of form plates and producing therefrom successive impressions, and including an operating shaft for the imprinting mechanism for intermittently feeding and registering a strip of impression receiving material past the imprinting position alternately with the operation of said mechanism, mounting means for the strip feeding device by which the said feeding device is engageable with the imprinting machine in alternative positions relative thereto whereby an impression receiving strip may be fed in different directions past the imprinting position and means for operatively connecting the feeding device with said operating shaft in either of its positions of attachment.

4. The combination with an intermittently operated imprinting machine of a strip feeding device associated therewith and operative to intermittently advance an impression receiving strip past imprinting position alternately with the imprinting operations of said machine, mounting means for attaching the feeding device to the machine in alternative positions for advancing the strip in different directions past the imprinting position, actuating means common to the imprinting machine and strip feeding device, and

operative connections for actuating the strip feeding device in either of its relative positions of attachment.

5 5. The combination with an intermittently operated imprinting machine of an aligning and registering strip feeding device including a series of traveling feeding pins associated therewith and operatively engageable in longitudinally spaced holes in a strip of impression receiving material to intermittently advance the impression receiving strip past imprinting position alternately with the imprinting operations of said machine, actuating means common to the imprinting machine and strip feeding device, and means for varying the extent of feeding operation of the strip feeding device intermediate succeeding operations of the imprinting machine to effect accurate registry of prescribed areas of the strip with the imprinting position.

20 6. In a strip feeding and printing device wherein a continuous strip of record material receives successive longitudinally spaced impressions, an assembly of traveling aligning and feeding pins engageable in longitudinally spaced holes in the strip, and a printing unit operatively connected thereto for intermittent operation, said aligning and feeding pins being operative to advance the strip in timed sequence with the imprinting operation only when the printing unit is inoperative.

30 7. The combination with a printing plate feeding and imprinting machine of aligning and registering strip feeding means including a series of traveling feeding pins engageable in longitudinally spaced holes in an impression receiving strip and means common to the imprinting machine and strip feeding device for actuating said feeding pins and imprinting machine in alternating timed sequence.

40 8. The combination with a printing plate feeding and imprinting machine of strip feeding means therefor including a pin type feeding device engageable in longitudinal spaced holes in a strip of impression receiving material for positively advancing the material through a step by step movement past imprinting position, imprinting means therefor and means for actuating the pin type feeding device in timed sequence with the imprinting means by the operation of the imprinting machine.

50 9. The combination with a printing plate feeding and imprinting machine having a printing position past which a strip to be imprinted is intermittently advanced of pin type strip feeding means engageable in longitudinally spaced holes in an impression receiving strip for advancing the strip past printing position, a relatively flat guide table located beyond the printing position over which the strip is advanced by the pin type feeding means, and means common to the imprinting machine and strip feeding device for actuating said pin type feeding device and imprinting machine in alternating timed sequence.

65 10. The combination with a printing plate feeding means for feeding a plurality of plates serially into printing position and imprinting means for producing from successive plates spaced impressions on a strip of impression receiving material of a pin type strip feeding device engageable in punched holes in an impression receiving strip for progressively advancing an impression receiving strip past printing position, actuating means common to the imprinting machine and pin wheel feeding device for effecting al-

ternating timed operation thereof and variable stroke means for the strip feeding device whereby the extent of advance movement of the strip may be varied.

11. The combination with an imprinting machine whereby predetermined legends are imprinted in spaced relation lengthwise of a strip of impression receiving material progressively advanced past an imprinting position of pin type aligning and registering strip feeding device engageable in longitudinally spaced holes in an impression receiving strip for progressively advancing the impression receiving strip past a printing position, actuating means common to the imprinting machine and strip feeding device for actuating the feeding device and imprinting machine in timed sequence and variable stroke means for the strip feeding device whereby the extent of advanced movement of the strip may be varied to accurately present prescribed areas thereof in registry with the imprinting position.

12. The combination with printing plate feeding and imprinting machine of a pin type strip feeding device engageable in marginally punched holes in an impression receiving strip and adaptable for advancing an impression receiving strip in different directions past the imprinting position and actuating means common to the feeding device and imprinting machine for operating the strip feeding device in timed relation with the imprinting machine.

13. The combination with a printing plate feeding and imprinting machine of an aligning and registering strip feeding device, engageable in punched holes in an impression receiving strip and adaptable for advancing an impression receiving strip in different directions past the imprinting position and actuating means common to the feeding device and imprinting machine for operating the strip feeding device in timed relation with the imprinting machine.

14. The combination with a printing plate feeding and imprinting machine of an aligning and registering strip feeding device engageable in holes punched in an impression receiving strip and adapted to advance an impression receiving strip intermittently past the imprinting position, said aligning and registering strip feeding device being removably mounted for easy detachment and interchangeable adjustment.

15. In a printing plate feeding and imprinting machine a feeding device for feeding plates in consecutive order to an imprinting position and aligning pin type registering strip feeding mechanism engageable in relatively spaced holes in a strip of impression receiving material operatively connected with said feeding mechanism for feeding the impression receiving strip past the plate imprinting position, said strip feeding mechanism being inoperative during the plate imprinting operation.

16. In combination: a frame including a table and mechanism for feeding printing plates serially into printing position thereon; feed-means for aligning and advancing separate continuous form stationery strips over said table into impression receiving position above the printing plate in printing position; presser mechanism for pressing said stationery against said plate; and driving means for actuating said mechanisms intermittently in timed relation.

17. A device as specified in claim 16, in which the feed-means comprises movably mounted register pins adapted to engage register perforations provided in each form length stationery.

18. The combination with a printing machine wherein a succession of printing plates are fed seriatim into imprinting position and a presser cooperates therewith to impress stationery positioned in impression receiving relation thereto of a stationery holder disposed above said presser mechanism from which zig-zag folded continuous-form stationery may be led into impression receiving position, and feed mechanism adapted to advance said stationery intermittently one form length in timed relation to the movement of said printing plates.

19. In combination with a printing machine adapted to impress automatically a different legend at each operation upon successive lengths of stationery fed therethrough, feed mechanism for advancing said stationery comprising a rotatable wheel having outwardly extending register pins, a slotted guide plate for preventing displacement of the stationery from the pins during the feeding engagement therewith and means for rotating said wheel intermittently in timed relation to the operation of the printing machine.

20. A device as specified in claim 19 in which means for rotating the wheel comprises a ratchet wheel, an oscillatable pawl in engagement with the ratchet wheel, a reciprocatory member operatively connected with the pawl, and a swinging arm receiving motion from the printing machine for actuating the reciprocatory member.

21. In combination, a printing machine having a frame provided with a table over which stationery strips are advanced past a printing position, a magazine of printing plates disposed at the rear of said table, from which printing plates are shifted seriatim to printing position, a source of supply for a plurality of separate strips of continuous form stationery, feeding and aligning means for advancing said strips past the imprinting position, a platen, means for actuating the platen relative to the stationery strips and positioned printing plate to impress a legend upon said strips, and actuating means for energizing the stationery feeding and aligning means in timed relation with the shifting of the printing plates and operation of the platen.

22. A device as specified in claim 21, in which stationery feeding means comprises a register pin movably mounted on said table and adapted to engage register perforations provided in said strips.

23. In combination with a printing machine having an upright plate magazine, and a bed extending from the base thereof relative to which plates are transferred in succession from the magazine to a printing position, feeding means therefor, a movable platen disposed over and coacting with the positioned printing plate, means for supporting continuous form stationery, means disposed in front of the magazine for guiding said stationery relative to printing position, and intermittently actuated stationery feeding mechanism operated in timed relation with respect to said printing machine.

24. In a strip imprinting and feeding mechanism, whereby predetermined legends are imprinted in spaced relation lengthwise of a strip of impression receiving material, having a printing position past which a strip to be imprinted is fed, imprinting means therefor including relatively movable platen and type members intermittently operable for imprinting the strip, a flat bed portion located beyond the imprinting position, pin type feeding means engageable in longitudinally spaced holes in the strip for inter-

mittently drawing the strip past the printing position and over said bed and for arresting the strip with a prescribed area thereof in registry with the printing position and an actuating means for advancing the pin type feeding means in synchronism with the operation of the imprinting means.

25. In a strip feeding and imprinting apparatus whereby predetermined legends are imprinted in spaced relation lengthwise of a strip of impression receiving material, having an imprinting position past which the strip is intermittently advanced, coating type and platen members for imprinting the strip at longitudinally spaced intervals, a pin type feeding means having progressive engagement in longitudinally spaced holes in the strip, a relatively flat guide bed located beyond the imprinting position over which the strip is intermittently drawn by the movement of the feeding means to present successive prescribed areas thereof in registry with the imprinting position, and an operative connection between the platen and the pin type feeding means whereby the latter is actuated to advance the strip by the movement of the platen.

26. A device as specified in claim 16 in which the feed means comprise a wheel equipped with register pins adapted to engage register perforations provided in each form length of stationery and a locking device to lock said wheel against retraction while the pressure mechanism is in engagement with the stationery.

27. A device as specified in claim 16 in which the feed means comprise a wheel equipped with register pins adapted to engage register perforations provided in each form length of stationery, ratchet mechanism adapted to rotate said wheel in but one direction, said wheel being automatically held against movement while the pressure mechanism is in engagement with the stationery.

28. A strip feeding and imprinting mechanism whereby predetermined legends are imprinted in spaced relation lengthwise of a strip of impression receiving material, having an imprinting position past which a strip to be imprinted is intermittently advanced, including imprinting devices for impressing the strip at longitudinally spaced intervals, actuating means therefor, a pin type strip feeding device having progressive engagement in longitudinally spaced holes in the strip for advancing the strip past the imprinting position and thereafter arresting the strip with a succeeding predetermined portion thereof in registry with the imprinting position, an operative connection between the pin type feeding device and the actuating means for the imprinting devices for operating the pin type strip feeding device in synchronism with said imprinting devices, and means for automatically locking the pin type strip feeding device in its advanced position during the strip imprinting operation.

29. In a strip feeding and imprinting apparatus whereby predetermined legends are imprinted in spaced relation lengthwise of superposed strips of impression receiving material progressively advanced past an imprinting position, a frame including a table, imprinting mechanism for imprinting the strips at spaced intervals, feed mechanism for aligning and advancing separate continuous form stationery strips over said table and past impression receiving position relative to the imprinting mechanism and arresting the stationery strips with a prescribed area thereof in registry with the imprinting position, impression means for pressing the stationery and imprinting

mechanism one against the other, and driving means for actuating said mechanisms in intermittently timed relation.

30. In a strip feeding and imprinting apparatus whereby a succession of predetermined legends are imprinted in spaced relation lengthwise of superposed strips of impression receiving material progressively advanced past an imprinting position, a frame including a table, imprinting mechanism for imprinting the strips at spaced intervals, feed mechanism for aligning and advancing separate continuous form stationery strips over said table and past impression receiving position relative to the imprinting mechanism and arresting the stationery strips with a prescribed area thereof in registry with the imprinting position, including movably mounted register pins adapted to engage register perforations provided in each form length of stationery, impression means for pressing the stationery and imprinting mechanism one against the other, and driving means for actuating said mechanisms in intermittently timed relation.

31. In a strip feeding and imprinting apparatus whereby a succession of predetermined legends are imprinted in spaced relation longitudinally of superposed strips of impression receiving material progressively advanced past an imprinting position, a frame having a table, imprinting mechanism for imprinting the strips at spaced intervals, feed mechanism for aligning and advancing separate continuous form stationery strips over said table and into impression receiving position relative to the imprinting mechanism and arresting the stationery strips with a prescribed area thereof in registry with the imprinting position, including a series of reciprocatory feeding pins, a movable carrier therefor, means for effecting reciprocatory movement of the pins into and out of engaging relation in spaced holes of the strip incident to the movement of the carrier, impression means for pressing the stationery and imprinting mechanism one against the other, and driving means for actuating said mechanisms in intermittently timed relation.

32. A strip feeding and imprinting apparatus whereby a succession of predetermined legends are imprinted in spaced relation longitudinally of a strip of impression receiving material having an imprinting position past which a strip having therein a longitudinal succession of spaced holes is intermittently advanced, cooperating type and platen members for imprinting the strip at longitudinally spaced intervals, a flat bed contiguous to the imprinting position over which the strip is advanced, strip feeding means including a series of feeding pins progressively engageable in the holes in the strip, a movable carrier in which the feeding pins are mounted for reciprocating motion into and out of feeding engagement in the longitudinally spaced holes in the strip, means for imparting thereto reciprocatory motion by movement of the carrier, and actuating means controlled by the operation of the imprinting apparatus for intermittently advancing the carrier alternately with the cooperation of the platen and printing members to present successive prescribed areas of the strip in registry with the imprinting position.

33. A strip feeding and imprinting apparatus whereby a succession of predetermined legends are imprinted in spaced relation longitudinally of a strip of impression receiving material having an imprinting position past which a strip having therein a longitudinal succession of spaced holes

is intermittently advanced, cooperating type and platen members for imprinting the strip at longitudinally spaced intervals, a flat bed contiguous to the imprinting position over which the strip is advanced, strip feeding means including a series of traveling feeding pins progressively engageable in the spaced holes in the strip, and having a circuitous path of travel, a portion of which is substantially tangential to the said flat bed, beyond the surface of which the pins are progressively projected into engagement with the strip, a carrier for the traveling pins, and means for automatically projecting and retracting the pins into and out of engagement in succeeding holes in the strip as they approach and leave that portion of their path which is substantially tangential to the surface of said flat bed, and an operative interconnection with the imprinting apparatus for intermittently advancing the carrier in synchronized relation with the imprinting cooperation of the platen and type members to present successive prescribed areas of the strip in registry with the imprinting position.

34. A strip feeding and imprinting apparatus having an imprinting position past which a strip having therein a longitudinal succession of spaced holes is intermittently advanced, cooperating type and platen members for imprinting the strip at longitudinally spaced intervals, a flat bed contiguous to the imprinting position over which the strip is advanced, strip feeding means including a series of traveling feeding pins progressively engageable in the spaced holes in the strip, a carrier therefor directing the traveling pins through a circuitous path of travel, a portion of which is substantially tangential to the said flat bed, beyond the surface of which the pins successively project into engagement in holes in the strip as they approach such substantially tangential portion of their path and from which they are disengaged as they leave that portion of their path which is substantially tangential to the flat bed, and actuating means common to the imprinting apparatus and strip feeding means for advancing the carrier alternately with the imprinting cooperation of the platen and type members, through a predetermined cycle of operation.

35. In a strip feeding and imprinting apparatus wherein a succession of individual imprint control elements are automatically fed serially from a supply thereof into operative position and having an imprinting position past which a strip to be imprinted is intermittently advanced, imprinting devices for impressing the strip at longitudinally spaced intervals, actuating means therefor, a pin type strip feeding device having progressive engagement in longitudinally spaced holes in the strip for advancing the strip past the imprinting position, and an operative connection between the pin type feeding device and the actuating means for the imprinting devices for operating the pin type strip feeding device in synchronism with said imprinting devices.

36. A strip printing and feeding apparatus wherein a continuous strip of series connected detachable forms is periodically advanced past an imprinting position of such apparatus, characterized by an aligning and registering strip feeding mechanism for successively advancing the strip one form length at a time and accurately registering prescribed areas of succeeding forms of said strip with the imprinting position including a series of traveling feeding pins operatively engageable in longitudinally spaced holes in the

strip of series connected forms to intermittently advance the strip of forms alternately with the imprinting operation of said apparatus, driving means for actuating the strip feeding and imprinting mechanisms in timed sequence, and adjusting means for minutely adjusting the length of the feeding movement imparted to the strip by the feeding mechanism into agreement with the length of the forms being fed to establish accurate registry of prescribed impression receiving areas of the succeeding forms with the imprinting position of the apparatus.

37. A strip printing and feeding apparatus wherein a continuous strip of series connected detachable forms is periodically advanced past an imprinting position of such apparatus, characterized by an aligning and registering strip feeding mechanism for successively advancing the strip one form length at a time and accurately registering prescribed areas of succeeding forms of said strip with the imprinting position including a series of traveling feeding pins operatively engageable in longitudinally spaced holes in the strip of series connected forms to intermittently advance the strip of forms alternately with the imprinting operation of said apparatus, driving means for actuating the strip feeding and imprinting mechanisms in timed sequence, and adjusting means for varying the extent of feeding movement of the strip feeding mechanism for adapting the feeding mechanism to advancement of forms of different lengths.

38. A strip feeding and imprinting apparatus wherein a length of impression receiving material is periodically advanced through a step by step movement past an imprinting position of such apparatus to receive imprinted legends thereon at predetermined spaced intervals, characterized by aligning and registering feeding mechanism for successively advancing the impression receiving material one predetermined space at a time and accurately registering a succeeding prescribed area of the impression receiving material in imprinting position including a series of traveling feeding pins operatively engageable in longitudinally spaced holes in the length of impression receiving material to intermittently advance the material alternately with the imprinting operation of the said apparatus, driving means for actuating the material feeding and imprinting mechanisms in timed sequence,

and adjusting means for minutely adjusting the length of feeding movement imparted to the impression receiving material by the feeding mechanism into agreement with predetermined spacing of the impressions to be effected to thereby establish accurate registry of the prescribed impression receiving spaced areas of the material with the imprinting position of the apparatus.

39. A strip feeding and imprinting apparatus wherein a length of impression receiving material is periodically advanced through a step by step movement past an imprinting position of such apparatus to receive imprinted legends thereon at predetermined spaced intervals, characterized by aligning and registering feeding mechanism for successively advancing the impression receiving material one predetermined space at a time and accurately registering a succeeding prescribed area of the impression receiving material in imprinting position including a series of traveling feeding pins operatively engageable in longitudinally spaced holes in the length of impression receiving material to intermittently advance the material alternately with the imprinting operation of the said apparatus, driving means for actuating the material feeding and imprinting mechanisms in timed sequence, and adjusting means for varying the extent of feeding movement of the material feeding mechanism for adapting the feeding mechanism to advancement of the impression receiving material different distances to thereby vary the relative spacing of succeeding impressions thereon.

40. In a strip feeding and imprinting apparatus wherein predetermined legends are imprinted in spaced relation lengthwise of a strip of impression receiving material, and including means for advancing the imprinting element to a definite impression imparting position, the combination of a frame, imprinting mechanism for effecting an impression at a fixed line, pin type feeding mechanism for aligning and feeding superimposed stationery strips past said fixed line, and driving means for making said impression and feeding said strip alternately, said means being adjustable for effecting a variation in amount of feed of the strip without change in the timing of the impressions, whereby absolute registry of impressions with predetermined lines on said strips is maintained.

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