

April 2, 1957

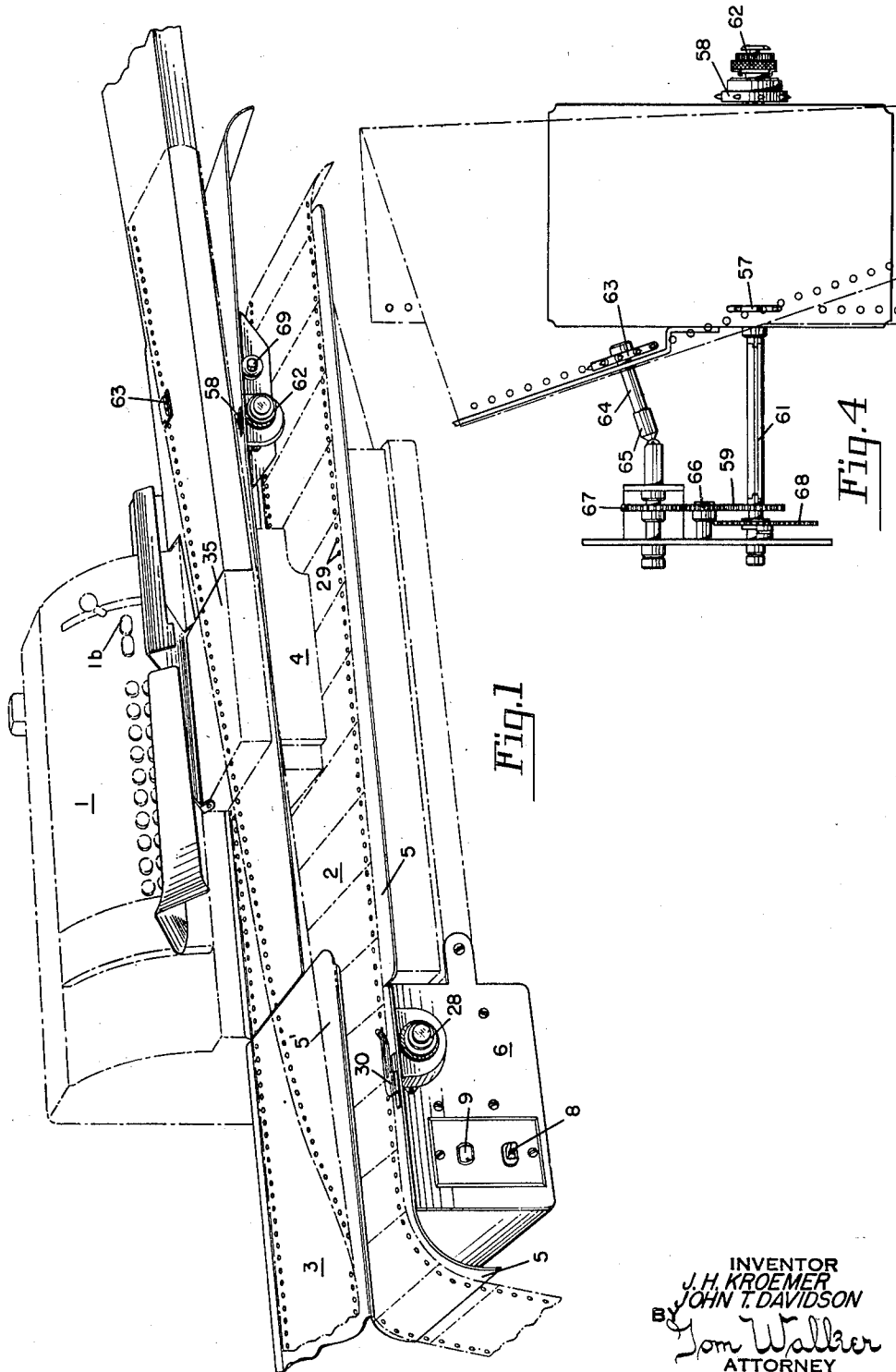
J. T. DAVIDSON ET AL

2,787,464

INTERMITTENT FEED MEANS FOR SUPERPOSED RECORD STRIPS

Original Filed May 22, 1947

3 Sheets-Sheet 1



INVENTOR
J. H. KROEMER
JOHN T. DAVIDSON
BY *Tom Walker*
ATTORNEY

April 2, 1957

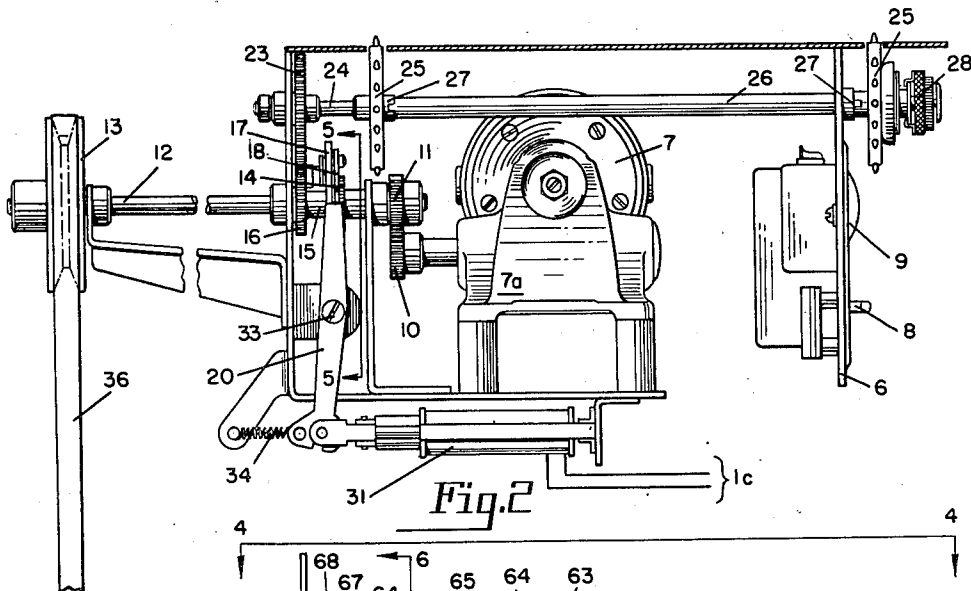
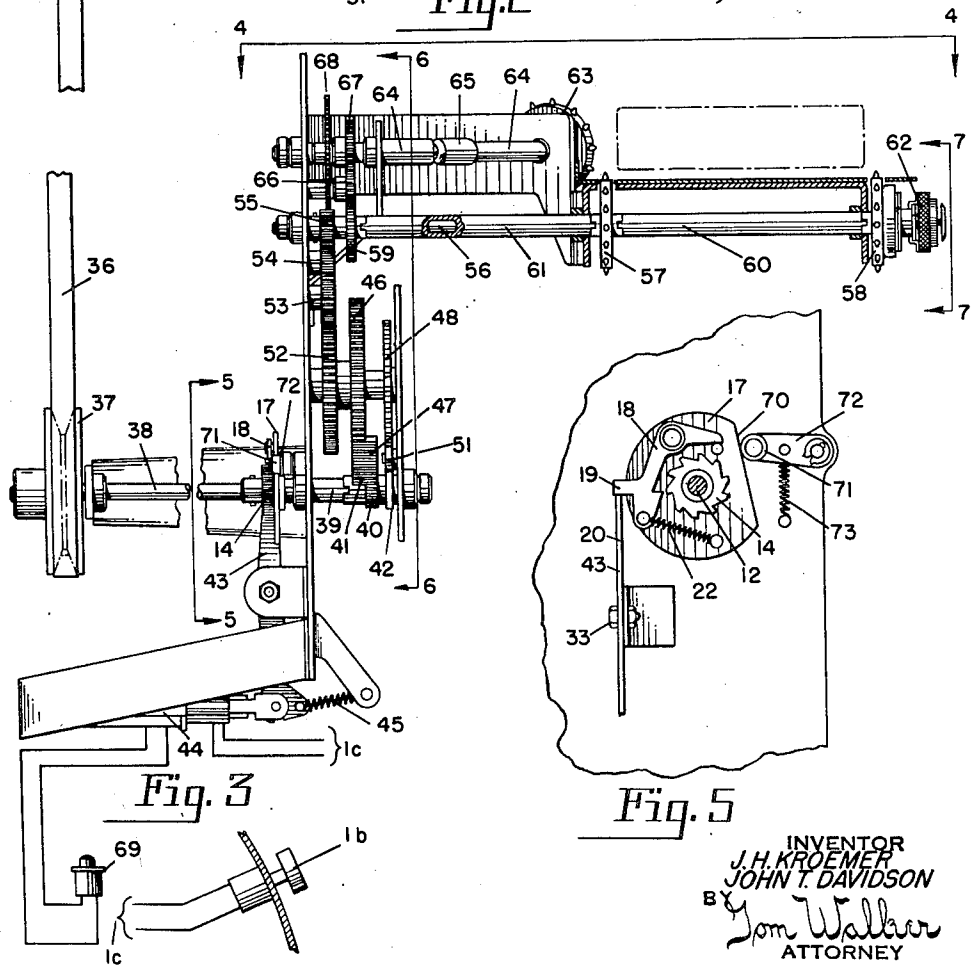
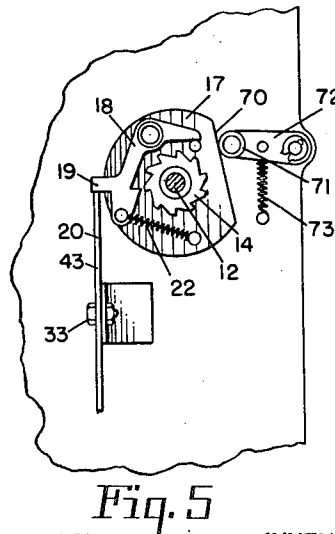
J. T. DAVIDSON ET AL

2,787,464

INTERMITTENT FEED MEANS FOR SUPERPOSED RECORD STRIPS

Original Filed May 22, 1947

3 Sheets-Sheet 2



INVENTOR
J. H. KROEMER
JOHN T. DAVIDSON
BY *Tom Walker*
ATTORNEY

April 2, 1957

J. T. DAVIDSON ET AL

2,787,464

INTERMITTENT FEED MEANS FOR SUPERPOSED RECORD STRIPS

Original Filed May 22, 1947

3 Sheets-Sheet 3

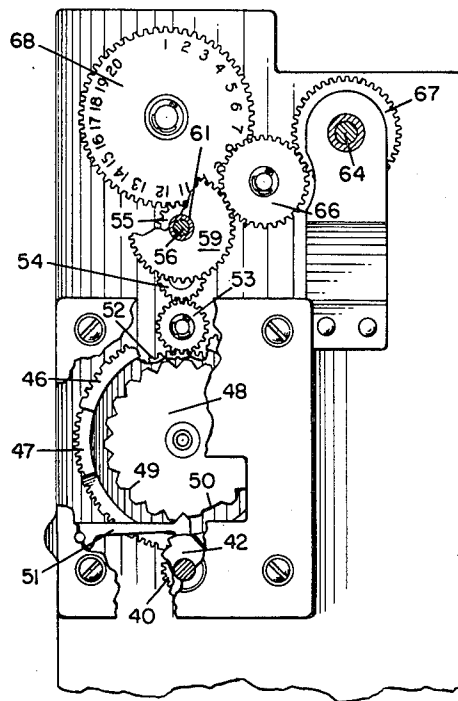


Fig. 6

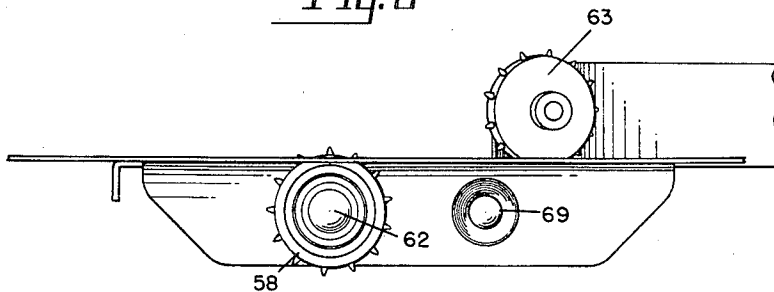


Fig. 7

INVENTOR
J. H. KROEMER
JOHN T. DAVIDSON
BY *Tom Walker*
ATTORNEY

1

2,787,464

INTERMITTENT FEED MEANS FOR SUPERPOSED RECORD STRIPS

John T. Davidson and John H. Kroemer, Dayton, Ohio, assignors to The Standard Register Company, Dayton, Ohio, a corporation of Ohio

Original application May 22, 1947, Serial No. 749,640, now Patent No. 2,660,428, dated January 24, 1953. Divided and this application January 7, 1953, Serial No. 330,036

3 Claims. (Cl. 271—2.4)

This invention pertains to strip feeding and imprinting apparatus, and more particularly to differential feeding mechanism for advancing superposed record strips simultaneously through step by step movements of different extent while progressively reversing one of the strips by turning its under side uppermost, and momentarily arresting both strips with prescribed areas thereof in registry at an imprinting position.

For illustrative purposes, but with no intent to unduly limit the scope or application of the invention, it is herein shown and described in association with a conventional cash register mechanism which embodies imprinting and accumulating devices controlled by a series of manually depressible keys. The present strip feeding apparatus in association with such register mechanism may be employed for check writing or listing purposes.

One of the present record strips comprises a continuous succession of series connected detachable printed forms such as checks, vouchers, utility bills, invoices, statements or analogous record sheets, advanced one form length at a time past an imprinting position, where the succeeding forms receive entries of sums or amounts and other data determined by operation of the register control keys. The other record strip is concurrently advanced through line by line spaces and simultaneously receives duplicate imprints. This detail or data strip may also be separable at longitudinally spaced intervals upon transverse division lines into individual sheets which may be subsequently collected into book form. In such event the duplicate imprints, thereon are arranged in separate groups, preceded by skip spaces of greater extent than line spaces to accommodate headings for the separable sheets or pages.

The total of succeeding amounts imprinted upon the record forms and duplicated on the detail or data strip is progressively accumulated upon the totalizers of the register mechanism.

The detail or data strip receiving the duplicate record imprints may have been previously inscribed with a succession of names, numbers, or other identifying indicia pertaining to the checks, bills or statements comprising the companion record strip, in association with which the duplicate imprints are to be effected. The register mechanism is ordinarily designed to print downwardly upon the upturned face of the main record strip of series connected detachable printed forms, and upwardly upon the under side of the duplicate record strip. The latter is preferably inserted in the register mechanism in relation with the printing devices thereof in an inverted position, with its inscribed face downwardly to receive the successive duplicate imprints. However, means is provided for progressively reversing a longitudinal portion of the detail or data record strip as it is advanced past the imprinting position whereby one marginal portion thereof bearing the names, numbers or identifying indicia will be overturned and rendered visible through an observation opening, while the opposite marginal portion of the strip remains in downturned position to receive the duplicate imprints.

2

The particular cash register mechanism illustrated in association with the present strip feeding apparatus is of conventional form, and forms no part, per se, of the present invention, other than affording a convenient imprinting and totalizing apparatus for conjoint use with the present strip feeding apparatus.

In lieu of the cash register mechanism shown, the present invention may be associated with other writing or recording apparatus, check writer, addressing machine or tabulator operable upon continuous strip stationery.

Cross reference is made to our copending application Serial No. 749,640, filed May 22, 1947, now Patent No. 2,660,428 issued Nov. 24, 1953, this application being a division thereof, and entitled to all benefits of an effective filing date of May 22, 1947.

The object of the invention is to improve the construction as well as the means and mode of operation of strip feeding and imprinting apparatus, whereby it may not only be economically manufactured, but will be more efficient in use, automatic in operation, uniform in action, having relatively few operating parts, and be unlikely to get out of repair.

A further object of the invention is to provide recording and listing mechanism simultaneously operative upon differentially advanced record strips, and means for accurately presenting differently spaced record receiving areas thereof simultaneously in registry at the imprinting position.

A further object of the invention is to provide strip reversing means for progressively turning the strip upside down in unison with its advancement.

A further object of the invention is to provide an efficient motion transmitting means for actuating the several strip feeding devices in unison.

A further object of the invention is to provide a novel strip feeding mechanism for differentially advancing different strips measured amounts in unison, one with the other.

A further object of the invention is to provide a satisfactory means of controlling the operation of the several strip feeding devices.

A further object of the invention is to provide a strip feeding and imprinting mechanism possessing the advantageous structural features, the inherent meritorious characteristics and the mode of operation herein set forth, or their equivalents.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention intended to be protected by Letters Patent consists of the features of construction, the parts and combinations thereof, and the mode of operation, as herein-after described or illustrated in the accompanying drawings, or their equivalents.

In the accompanying drawing, wherein is illustrated the preferred, but obviously not necessarily the only form of embodiment of the invention,

Fig. 1 is a perspective view of a strip feeding and imprinting apparatus embodying the present invention, associated with a conventional cooperating cash register mechanism.

Fig. 2 is an elevational view of the strip feeding mechanism for progressively advancing the main record strip of series connected detachable form stationery.

Fig. 3 is a similar view of the strip feeding mechanism for progressively advancing the duplicate record or list strip for effecting its reversal.

Fig. 4 is a detail view of the detail or listing strip advancing means on line 4—4 of Fig. 3.

Fig. 5 is a detail view of a one revolution clutch employed in both the main record strip and listing strip feeding mechanism on line 5—5 of Fig. 3.

3

Fig. 6 is a detail sectional elevational view, from the right, on line 6—6 of Fig. 3.

Fig. 7 is a detail view from the extreme right, on line 7—7 of Fig. 3.

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

The present embodiment of the invention comprises an attachment or supplemental mechanism, which as shown in Fig. 1 is mounted upon a conventional cash register 1. The supplemental mechanism is actuated independently of the cash register driving means and differentially advances record strips 2 and 3 past imprinting devices enclosed in a box like housing 4. The imprinting devices within the housing 4 are actuated by operation of the cash register machine under control of manually depressible keys on the front of the cash register 1. The imprinting devices, which are a part of the cash register 1, operate downwardly to impress indicia upon the previously positioned form or section of the record strip 2, and are simultaneously operated in an upwardly direction to impress like indicia upon the under side of the record strip 3. Such imprinting devices are component parts of the cash register 1.

Both strips 2 and 3 are fed simultaneously in opposite directions past the imprinting position. Strip 2 is fed from right to left past the imprinting position, while the upper tally or detail strip 3 is advanced from left to right past the imprinting position. Although being advanced simultaneously, the respective strips 2 and 3 are advanced different distances during each feeding operation.

The record strip 2 which comprises a continuous strip of series connected detachable checks, utility bills, invoices, or analogous forms, is advanced face upwardly over a strip guide 5 and thence beneath the printing device housing 4. The strip 2 is advanced independently of the detail strip 3, but in unison therewith by feeding mechanism contained within a housing 6 dependent beneath the strip guide 5, at the left of Fig. 1.

Form strip feeding unit

The feeding unit illustrated in Fig. 2, for advancing the record strip 2 is actuated by an electric motor 7. The circuit for the motor 7 is controlled by a manual switch 8 on the side of the housing 6. Once the switch 8 is closed, the motor continues to operate until the switch is again opened. A signal light 9 in the motor circuit indicates that the motor is in operation. The motor 7, acting through a reduction gear train within the housing 7a drives a gear pinion 10 meshing with a pinion 11 fast upon a shaft 12 which carries a drive pulley 13.

Adjacent the gear pinion 11 the shaft 12 carries a small ratchet wheel 14. Contiguous thereto in surrounding relation to shaft 12 is a loose sleeve 15 having at one end thereof a gear pinion 16. At the opposite end thereof adjacent to the ratchet wheel 14, is a disc 17 supporting a spring actuated pawl 18 engageable, when released, with the ratchet wheel 14. The pivoted pawl 18 is provided with an arm 19 projecting beyond the periphery of the disc 17 and engageable with the extremity of an oscillatory lever 20, to automatically disengage the pawl from the ratchet wheel 14. The sleeve 15 and disc 17 carrying the pawl 18, intermittently engageable with the ratchet wheel 14, forms a one revolution driving clutch for intermittently connecting the sleeve 15 and gear pinion 16 with the shaft 12. Upon completion of each rotation of the sleeve 15 and disc 17 with the shaft, the protruding arm 19 of the pawl 18 engages the end of the upstanding lever 20. Thereupon the pawl 18 is oscillated, against the tension of its retracting spring 22, out of engagement with the ratchet wheel 14, thus arresting the rotation of the sleeve 15 and gear 16.

The gear 16 meshes with a driven gear 23 upon a transverse pin wheel shaft 24 which carries two concen-

4

tric axially spaced pin wheels 25. The pin wheels 25 are loosely mounted on the shaft 24 and are interconnected for unison rotation by an intermediate coupling sleeve 26 having interlocking clutch engagement 27 at each end with the respective pin wheels. The interconnected pin wheels are adjustably connected to the shaft 24 for unison rotation by a conventional variable coupling 28, such as commonly employed upon typewriters.

The purpose of the variable coupling 28 is to enable the forms comprising the record strip 2 to be initially correctly located relative to the point of engagement of the printing devices. After adjustment the variable coupling is locked to positively interengage the pin wheels 25 and shaft 24 for unison rotation. The pin wheels 25 progressively engage in longitudinally spaced marginally punched feed holes 29 in the record strip 2. The pin wheels 25 engage with the record strip 2 coincident with a pair of slotted paper guide fingers 30 of which only one appears in Fig. 1. The intermeshing gears 16 and 23 are so proportioned that one complete rotation of the gear 16 incident to engagement of the pawl 18 with the ratchet wheel 14 and its subsequent release by engagement of the strip arm 19 with the end of the movable lever 20, will rotate the pin wheels sufficiently to advance the strip 2 the distance of one form, check, bill or invoice.

The recording operation is initiated by depression of one or more of the cash register value keys which are effective to setup a sum in dollars and cents and perhaps some accompanying indicia, to be printed upon the strip, check, bill or invoice, and sets the mechanism to accumulate the sum upon the register totalizer upon subsequent operation of the register mechanism. The actual imprinting operation is then effected by actuation of one of the operation determining keys which effects operation of the imprinting devices within the housing 4 to imprint the amount at a predetermined position on the advanced form, check or bill, and also on the detail strip 3. It also effects simultaneously accumulation of such amount upon the register totalizer. These are the normal intended functions of the cash register mechanism. In addition, thereto the cash register key 1b is especially adapted when depressed to close through the cash register mechanism an electric circuit 1c, which energizes a solenoid 31, the reciprocatory core of which is connected with the lower end of the oscillatory stop lever 20 pivoted at 33 to retract the lower end of the lever 20 against the resistance of its spring 34. By such movement the upper end of the lever 20 is withdrawn from beneath the protruding arm 19 of the spring biased pawl 18 to enable its engagement with the ratchet wheel 14. The disc 17, sleeve 15 and gear 16 are thereby rotated through one complete rotation of shaft 12. At the limit of such rotation the pawl is again automatically disengaged by contact with the end of the pawl arm 19 with the stop lever 20. Thereupon the advancement of the record strip 2 ceases until a cash register key 1b is again depressed.

Detail strip feeding unit

The superposed data strip 3 is advanced in unison with the advancement of the strip 2 of forms, but through much shorter distances. The strip 3 is advanced through successive line spaces whereas the strip 2 is advanced a form length at each operation. The lengths of the forms may vary and the feeding means must be correspondingly changed, by interchange of gear elements of different sizes.

The detail or data strip 3 is advanced over the strip guide 5', at the left of Fig. 1, face side downwardly. The detail or data strip 3 has been previously passed through an addressing machine, a typewriter or other imprinting apparatus by which a series of names to whom the forms, checks, bills or other records comprising the strip 2 pertain, or the list bears a succession of identifying indicia

5

in association with which an amount agreeing with that imprinted on the corresponding form of strip 2 is to be imprinted. As before stated the cash register imprinting devices are such that while the imprinting of the forms of strip 2 is effected downwardly on the upturned face of strip 2, other printing devices of the cash register are operative upwardly against the downturned face of the detail or data strip 3. Such oppositely directed imprint operation is a peculiarity of the instant cash register mechanism. Other embodiments of printing devices may be substituted therefor.

It is desirable however that the operator be able to definitely ascertain the name of the particular person whose form, check, bill or the like is being concurrently imprinted. The previously imposed identification imprints, being on the under side of the record strip 3 as it is advanced from its source of supply, at the left of Fig. 1, the record strip 3 is partially folded over in a diagonal form, enabling the identification imprints to become visible upon the overturned portion, and the record strip is progressively advanced in such position. In overfolding the margin of the strip bearing the identification imprints, it is turned over a guide block 35, which also serves as a platen for the upwardly directed imprinting devices against the portion of the record strip extending over the housing 4 and beneath the platen block 35. By continuing the advancement of the strip 3 with the overturned margin fed progressively diagonally, and while the opposite or under margin is fed in a straight path the strip is eventually entirely overturned face upwardly.

The detail or data strip feeding mechanism is illustrated in Fig. 3. The feeding unit is driven by a belt 36, from the pulley 13 of the form strip feeding unit, Fig. 2. The drive belt 36 engages a pulley 37 upon a shaft 38. Loosely mounted on the shaft 38 is a sleeve 39 which carries a gear pinion 40 having a segment 41 of increased thickness or width and in spaced axial alignment therewith a cam 42. The sleeve 39 with the gear 40 and cam 42 are detachably engageable with the shaft 38 by a single revolution clutch mechanism of the same construction before described, which is illustrated in Fig. 5.

That is to say, the shaft 38 carries fast to it a ratchet wheel 14. Adjacent to the ratchet 14 a disc 17 is attached to the sleeve 39. To the disc 17 is pivoted a spring actuated pawl 18 engageable with the ratchet wheel 14. The engagement of the pawl 18 is effective to temporarily connect the sleeve 39 together with the gear pinion 40 and the cam 42 to the shaft 38 for unison rotation therewith. An arm 19 integral with the pawl 18 protrudes beyond the periphery of the disc 17. At the completion of each rotation of the sleeve 39, gear 40 and cam 42, in unison with the shaft 38, the arm 19 engages with the extremity of an oscillatory lever 43, which corresponds to the lever 20 of the form strip feeding unit, Fig. 2. Engagement of the arm 19 with the lever 43 automatically disengages the pawl 18 from the ratchet wheel 14 against the tension of its retracting spring 22. To initiate the advance of the detail or data strip 3, the lever 43 is automatically withdrawn by energization of a solenoid 44 to retract the lower end of the lever 43 against the yielding resistance of its spring 45.

An electrical circuit 1c is closed to energize the solenoid to initiate the feeding operation by manipulation of one or another of the keys 1b of the cash register, after the predetermined amount or indicia to be imprinted has been set up. The cash register is thereby operated to imprint the selected amount and accumulate the same on the totalizer of the machine. The register key for energizing the solenoid 44 to cause advancement of the detail record strip is the same key 1b operated to effect the imprinting and advancement of the form strip 2 as previously described. In fact the initiation of operation of both strip feeding units occurs simultaneously as a single operation. The imprints upon the detail or data strip 3 are effected in

6

successive groups at line space intervals each group being separated by a wider space representing a heading skip for successive forms.

The gear pinion 40 with its laterally extended integral gear segment 41, which is carried by sleeve 39, meshes with a gear wheel 46 also having a laterally extended integral gear segment 47. The gear 46 is the initial member of a gear train which intermittently drives the strip feeding devices to advance the strip through step by step line spacing movements, including one step of longer duration to compensate for the heading space of each group of line spaces.

Such increased advancement compensates for the form heading. The continuous face of the gear pinion 40 is positioned in laterally offset relation with the main continuous face of the gear 46. The lateral extension 47 of the gear 46 is equal in periphery to the peripheral extent of the gear pinion 40. Thus at each actuation of the gear pinion 40 while in mesh with the gear extension 47, the gear 46 is driven a distance equal to the full rotation of the pinion 40 to actuate the strip feeding devices through the longer step. During other rotations of the gear pinion 40 wherein the lateral extension 41 of the gear pinion is in mesh with the main peripheral face of the driven gear 46 to the exclusion of the extension 47, the gear 46 is advanced through only short steps corresponding to line space advancements of the feeding devices, while the main continuous body of the gear pinion travels idly past the gear 46 in a laterally offset path.

Connected with the gear 46 and revoluble in unison therewith is a peripherally notched disc 48, the uniformly spaced notches 49 of which agree with the successive line spacing of the feeding device, and one longer intermediate space 50 corresponds to the heading space skip, before mentioned.

Successively engageable with the notches 49 of the disc 48 is an oscillatory locking pawl or detent arm 51, which is raised by the rotary cam 42 at each rotation of the sleeve 39 to lock the mechanism at the end of each advancing movement of the feeding mechanism and holds it stationary during the imprinting operation.

Connected to the gear 46 at its side opposite the notched disc 48 for unison rotation is a gear wheel 52 which drives through idler pinions 53 and 54, a gear pinion 55 on a pin wheel shaft 56. The shaft 56 loosely carries two axially spaced pin wheels 57 and 58 which are intercoupled with each other and with a further gear pinion 59 by intermediate coupling sleeves 60 and 61. The pin wheels 57 and 58 and coupling sleeves 60 and 61 and the gear pinion 59 are adjustably engageable with the pin wheel drive shaft 56 by a conventional variable coupling 62 which is accessible at the front of the apparatus. By this means the pin wheels may be revolvably adjusted to and fro relative to the driving mechanism to register particular areas of the record strip with the imprinting devices.

The pin wheels 57 and 58 are engageable in marginally punched holes in opposite margins of a supplemental record strip (not shown) to progressively advance the strip in the usual manner without reversal. Such supplemental record strip is necessary for the recording of certain types of business transactions, hence means are provided for the advancement of such supplemental strip in synchronism with the advancement of strips 2 and 3.

However, to advance the record strip 3 with one margin overturned an askew pin wheel 63 engages the overturned punched margin, as is illustrated in Fig. 4, while the pin wheel 57 engages the other punched margin thereof.

The askew pin wheel 63 is mounted on a diagonal shaft 64, having therein a universal joint 65. The gear pinion 59 upon the revoluble coupling sleeve 61 drives through an idler pinion 66, a gear pinion 67 on the universally jointed shaft 64 to drive the askew pin wheel in unison with the pin wheel 57. The askew pin wheel 63 is re-

volubly adjustable by means of the variable 62, in unison with the pin wheels 57 and 58.

Mounted on a stub shaft above pin wheel shaft 61 and meshing with the pin wheel shaft drive pinion 55, is a toothed counter wheel 68 bearing indicia identifying the line spaces as they are advanced to and past the imprinting position.

The detail or data strip feeding mechanism, illustrated in Fig. 3 is mounted beneath the continuing record strip guide at the right of Fig. 1 with the driving mechanism in dependent position therebehind. The positions of the pin wheel 58 and askew pin wheel 63 and the variable coupling 62 on the extremity of the pin wheel shaft 56 are visible at the right of Fig. 1. Closely beside the variable 62, Figs. 1 and 7, is shown a push button 69, in the electrical control circuit of the solenoid 44 in multiple with the operation determining key of the cash register or recording mechanism. By depression of the button 69 the detail strip feeding mechanism may be actuated independently of the operation of the cash register or other recording mechanism to advance the detail or data strip 3 into synchronism with the series connected strip of forms, 2, whereby corresponding areas may be positioned in printing position as starting operations.

Returning to the one revolution clutch mechanism (Fig. 5) a vibration dampener unit is provided which prevents any tendency of plate 17 to turn with ratchet 14 although not connected thereto through pawl 18. Plate 17 is provided with a flat 70 against which a roller 71 carried by arm 72 is pressed under influence of a spring 73. In operation, the flat 70 functions much like a cam, in that during rotation of plate 17 by pawl 18, the roller or cam follower 71 rides over the periphery of the plate 17. Upon return of the plate 17 to its normal position (Fig. 5) the spring 73 again retracts the roller 71 into pressure engagement with the flat 70 to maintain the plate 17 stationary while the ratchet 14 continues to rotate independently thereof.

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 modification 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 but one 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.

Having thus described our invention, we claim:

1. A strip feeding apparatus, wherein superposed continuous record strips are differentially and simultaneously advanced relative to a recording position, characterized by a differential strip feeding mechanism having individual means advancing different strips different distances in unison, continuously operating energizing means therefor, a series of clutches intermediate the individual means of the strip feeding mechanism and the energizing means, means for simultaneously tripping said clutches to interconnect the individual means of the strip feeding mechanism with the energizing means, motion transmitting means intermediate the clutches and their respective individual means of the strip feeding mechanism

imparting thereto strip feeding influences of different extent, and means for tripping at least one of said clutches to impart strip feeding influence to a part of the individual means of the strip feeding mechanism.

2. A strip feeding apparatus wherein superposed record strips are differentially advanced relative to a recording position, characterized by separate strip feeding devices one for each of the superposed record strips, each of said feeding devices advancing its particular record strip a predetermined distance in accordance with the spacing of the record receiving areas thereon, a common continuously operative energizing means for said strip feeding devices, means for simultaneously interconnecting said strip feeding devices with the common energizing means comprising a plurality of one revolution clutches, one for each strip feeding device, a plurality of motion transmitting mechanisms one for each clutch and feeding device, each of said motion transmitting mechanisms being so constructed and arranged that its associated feeding device is advanced the required predetermined distance in unison with the rotation of the respective one revolution clutch, at least one of said motion transmitting mechanisms having a positively controlled latch mechanism, including a notched disc, a pawl engageable in successive notches therein to positively arrest the motion transmitting mechanism, and means for actuating said pawl in timed relation with the operation of the one revolution clutch.

3. A strip feeding apparatus wherein superposed record strips are differentially advanced relative to a recording position, characterized by a strip feeding apparatus for simultaneously and differentially advancing the superposed strips predetermined distances in different directions, including a strip feeding device for each strip remotely located with respect to each other, a single energizing means therefor, a one revolution clutch associated with each feeding device interconnecting said device with the energizing means, motion translating mechanism interconnecting each clutch with its associated feeding device translating the one revolution of the clutch into strip feeding influence of the predetermined extent, means for simultaneously engaging each clutch with the single energizing means to actuate each feeding device the predetermined extent, the construction and arrangement being such that the superposed record strips are thereby simultaneously but differentially advanced in unison to bring record receiving areas thereon into registry with the recording position, and means for engaging at least one of said clutches to the exclusion of the others to advance at least one of said record strips into recording position independently of the others.

References Cited in the file of this patent

UNITED STATES PATENTS

480,671	Richards	Aug. 9, 1892
2,160,916	Sherman et al.	June 6, 1939
2,200,308	Sherman et al.	May 14, 1940
2,231,411	Lawrence	Feb. 11, 1941
2,348,059	Daly	May 2, 1944
2,369,441	Daly et al.	Feb. 13, 1945
2,384,807	Bickel	Sept. 18, 1945
2,449,852	Jones	Sept. 21, 1948
2,475,432	Marihart	July 5, 1949
2,512,696	Tappert	June 27, 1950
2,554,827	Helsel	May 29, 1951
2,626,028	Brougher	Jan. 29, 1953