April 10, 1945. M. SELDIN 2,373,633

COMBINATION BILLING AND MARKING MACHINE

Filed Feb. 24, 1941 3 Sheets-Sheet 1

FIG. 1

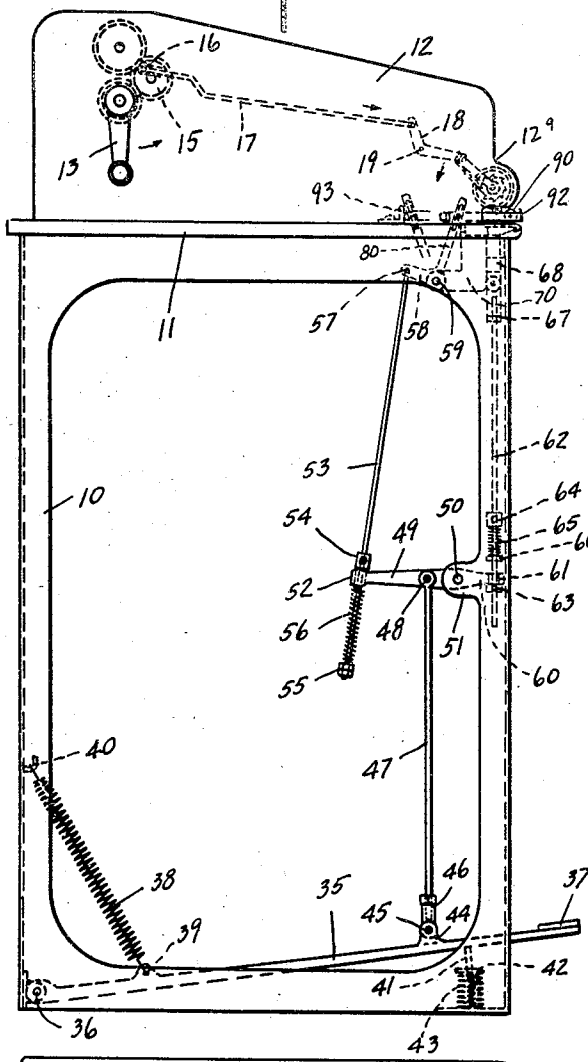


FIG. 2

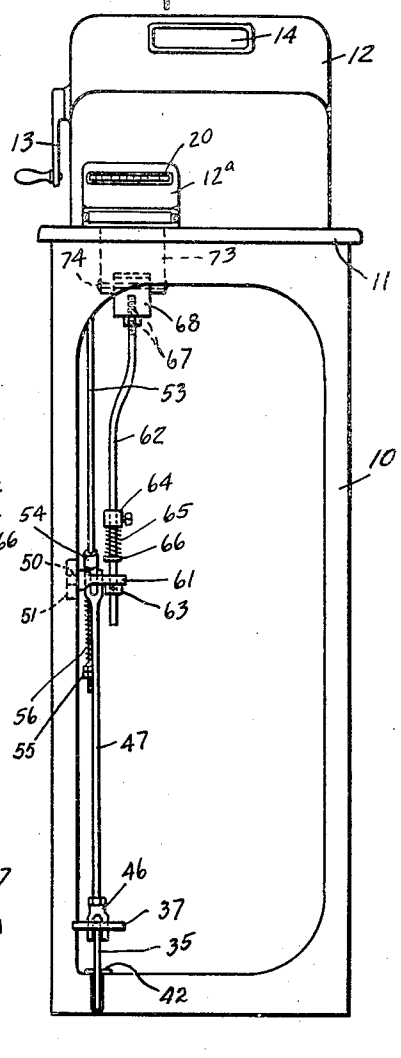
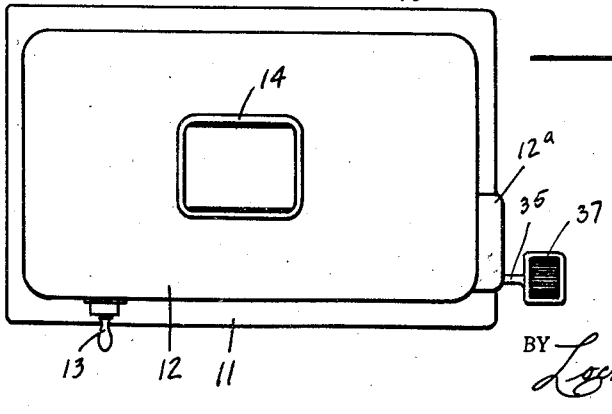


FIG. 3



INVENTOR.
MOREY SELDIN.
BY Lockwood, Goldsmith & Galt,
ATTORNEYS.

April 10, 1945. M. SELDIN 2,373,633

COMBINATION BILLING AND MARKING MACHINE

Filed Feb. 24, 1941 3 Sheets-Sheet 2

FIG. 4

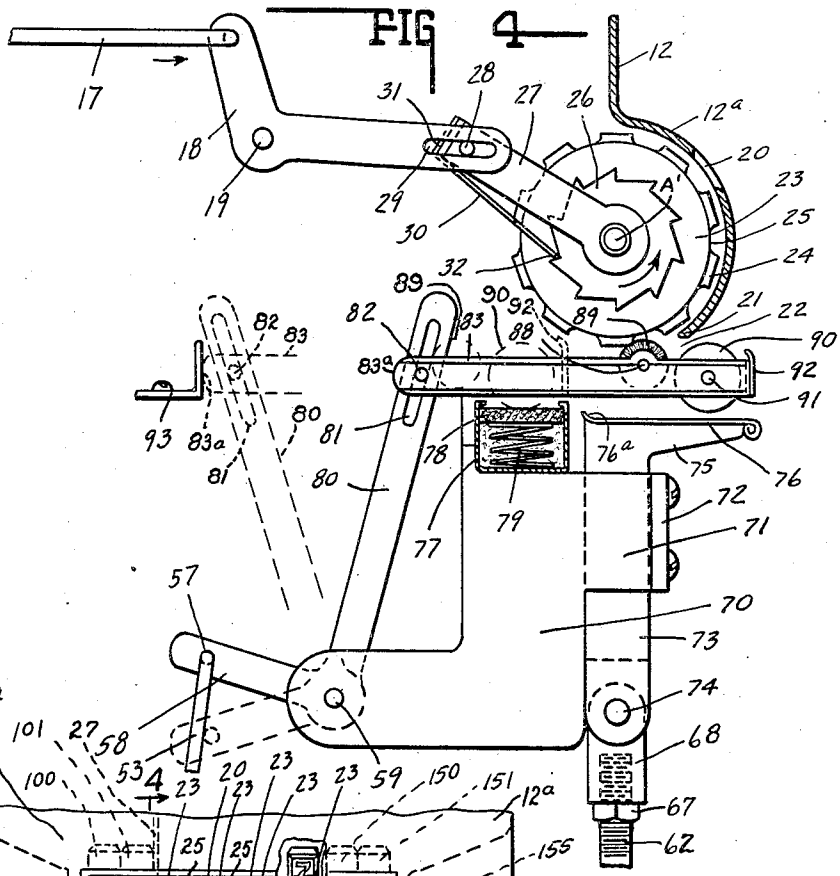


FIG. 5

INVENTOR.
MOREY SELDIN.
BY Lockwood, Goldsmith, Galt,
ATTORNEYS.

April 10, 1945. M. SELDIN 2,373,633

COMBINATION BILLING AND MARKING MACHINE

Filed Feb. 24, 1941 3 Sheets-Sheet 3

FIG. 6

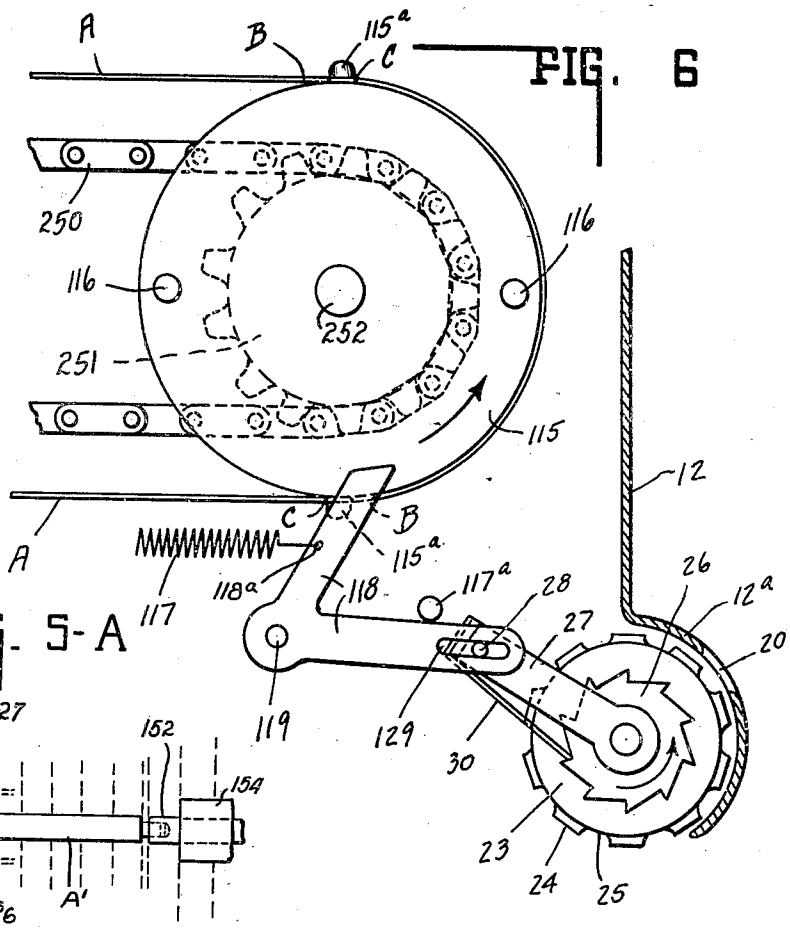


FIG. 5-A

FIG. 7

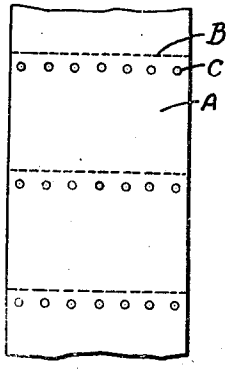
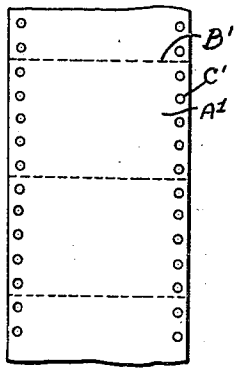


FIG. 8



INVENTOR.
MOREY SELDIN.

BY Lockwood, Goldsmith & Galt,
ATTORNEYS.

Patented Apr. 10, 1945

2,373,633

UNITED STATES PATENT OFFICE

2,373,633

COMBINATION BILLING AND MARKING MACHINE

Morey Seldin, Indianapolis, Ind.

Application February 24, 1941, Serial No. 380,090

3 Claims. (Cl. 234—2)

This invention relates to a marking system suitable for laundry and dry-cleaning establishments and their affiliated collection agencies.

In the garment dry-cleaning business, by way of example, the garments to be cleaned and pressed are either picked up at the household by trucks and delivered to pressing establishments or are delivered directly to the cleaning establishments for both cleaning and pressing. Garments also are brought in by the customer to the pressing establishment or the collection and delivery truck of the pressing establishment picks up the garments, as aforesaid. These garments then are sent to the central cleaning station, cleaned and returned to the pressing establishment, and then are picked up therefrom by the customer or are delivered by the delivery service of that pressing establishment. Usually three-day service is customary—that is, the clothes left one day are returned in cleaned and pressed condition on the third day.

Each pressing establishment marks the garments either on the pocket of the trousers, the sleeve of the coat, the lining of the vest, or marks a tag which is suitably secured to each garment. The tag indicates the number of pieces to the garment and also the arbitrary number assigned to the garment, as well as the symbol or letter or number of the agency transmitting the garment to the cleaning establishment.

The pressing establishment or the cleaning and pressing establishment makes out the bill to the customer and attaches it to the cleaned garment. This contains the name and address of the owner of the garment or householder or customer, together with a designation of the garment and the price of the service rendered.

It will be quite apparent that with this system of marking that the opportunity for error is many fold and it is a well known fact that the present normal loss in this industry incident to errors in marking by reason of transposition of numbers, data and the like, is about one-half of one percent.

The present invention, therefore, is directed to the elimination of this error and the impossibility of making the same, and also, is directed to a simplification of the present system of marking garments.

The industry at the present time marks certain garments that are to be cleaned and pressed and returned the same day or in two days with a certain designation. For example, regardless of the day sent, Monday is designated as the first day and so on up to Saturday, which is designated the sixth day. Thus, all concerned know that a certain garment has to be delivered on the designated day. Therefore, if a garment is picked up on Friday and marked for sixth day delivery, it must be completed and delivered on the following day. If it is marked #1, it is to be completed and delivered on the following Monday. If it is marked #2, it is to be delivered on the following Tuesday.

The present invention is directed to a system of marking which is relatively automatic in a certain sense and which is foolproof, which is expeditious and which is so arranged it can selectively designate the several collection agencies.

The chief object of the invention is to provide a marking system, whereby all the aforesaid disadvantages of the present garment marking systems are eliminated and all of the advantages as hereinafter pointed out are obtained.

The chief feature of the invention consists in providing a marking arrangement operatively interconnected with a manifolding or billing arrangement which upon actuation for or in sheet movement, automatically advances the marking arrangement in accordance with billing arrangement operation and which marking arrangement is manually repetitiously operated, if desired, all without advancing, thereby permitting the clerk to make a complete billing record and of the desired number of copies for all concerned, including the customer, and simultaneously permit the marking of all the garments with the desired legending to prevent loss or mixup of said garments by reason of erroneous marking.

Other objects and features of the invention will be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings,

Fig. 1 is a side elevational view of one embodiment of the invention.

Fig. 2 is a front elevation thereof.

Fig. 3 is a top plan view thereof.

Fig. 4 is an enlarged side elevation of the garment marking advanceable mechanism, the inking mechanism, and the manifold device operable connection to the advanceable portion of the marking mechanism; a portion of the inking mechanism and a portion of the manifold device casing being shown in section, dotted lines indicating the retracted position of the actuating portion of the inking mechanism, the view being taken on line 4—4, Fig. 5.

Fig. 5 is a front broken away elevational view of certain of the mechanism shown in Fig. 4, the frame slideway for the movable inking mechanism being shown in section.

Fig. 5A is a diagrammatic elevational view of the coaxial shafting illustrated in Fig. 5.

Fig. 6 is an elevational view of a modification of the invention shown in Fig. 4 and of the upper part thereof only, the portion of the manifold device cover illustrated being shown in section.

Fig. 7 is a view of the paper sheet (top perforated type illustrated in Fig. 6).

Fig. 8 is a similar view of a side perforated type of paper sheet.

In the drawings, 10 indicates an openwork frame having a table or platform 11 at the top thereof which supports or to which is suitably secured a billing or manifolding device. Herein 12 indicates the outer cover or casing of such a conventional device. Also 13 indicates the cover exposed portion of the usual manually operable crank of such a device, one oscillation of the crank simultaneously ejecting the several copies of the invoices, the paper for which is normally exposed through the opening 14, see Figs. 2 and 3, in said cover. The paper roll supply and the details of the feeding mechanism associated therewith and operable by the handle 13 are intentionally omitted since this billing or manifolding arrangement is of conventional character.

Suffice to state, however, there is included either as a part of the billing and manifolding arrangement or as an addition thereto, if not provided therein, a wheel 15, see Fig. 1. This wheel is the power source for the advancing of the marking device step by step advanceable portions in accordance with handle operation.

As it is well understood in the billing and manifolding art, one operation of the handle 13 will simultaneously eject a previously recorded sheet or duplicate sheets exposed through the opening 14 and will position a second record receiving sheet arrangement of singular or multiple character for subsequent data reception. The billing paper and the like, usually is serially numbered for each invoice as is well understood in the billing and manifolding art and the number of copies made are from two to five, or as many as is necessary.

In the present form of the invention, see Fig. 1, the wheel 15 is provided with an eccentric pin 16. A rod 17 has one end connected to pin 16 so that the rod is reciprocated in the usual manner upon oscillation of the eccentric pin. The rod opposite end is pivotally connected to one end of a bell crank 18 pivoted at 19. Every time the handle 13 is actuated, the rod 17 will be actuated for advancing the marking device step by step advanceable portion or portions one number or step.

Reference now will be had more particularly to Figs. 4 and 5. The casing or cover 12 is extended forwardly as at 12a and includes a sight opening 20 and terminates at 21 forming an opening 22. The advanceable device includes a plurality of axially aligned printing wheels 23 each having printing indicia 24 thereon. Between said indicia on each wheel and in the resulting gap are the legends 25. The spacing between the opening 22 where printing occurs and the sight opening 20, is such that when the numeral 1 of one wheel is positioned for printing at opening 22, the legend "1" of the same wheel simultaneously is exposed at the sight opening 20. Any suitable number of printing wheels may be utilized and as shown in Fig. 5. The five central wheels are printing wheels operable by the advancing mechanism.

Numbering devices include a plurality of axially aligned wheels, such as 23 in Fig. 4, and coaxial therewith is a ratchet 26. This ratchet is rigid with the "unit" wheel so that as the ratchet, having ten teeth, is rotated, tooth by tooth, the unit wheel is advanced unit digit by digit. When this wheel is moved from "9" forward to zero the units wheel picks up the tens wheel and advances it one-tenth of a revolution. In turn when the tens wheel is advanced from "9" to "0" simultaneously with the advance of the units wheel advancing from "9" to "0" the hundreds wheel is advanced from "0" to "1" or one-tenth of a revolution. The successive wheels, of which five are illustrated, are similarly advanced. Naturally, when all wheels print "9" an additional advance will rotate all wheels to "0" and this completes the series. Another advance then prints "1" prefixed by the number of naughts equal to the number of wheels less one. Thereupon additional advance repeats the numbering series as described. The actual connections for effecting wheel to wheel advance is not illustrated herein for it is well known in the numbering device art. The common shaft "A'", see Figs. 4, 5 and 5A, is rigid with the units wheel and ratchet 26 and is suitably supported and in turn oscillatably supports an arm 27 which is mounted coaxially with said printing wheels. It extends toward the bell crank lever 18 and mounts a pin 28 which rides in an elongated slot 29 of said lever 18. Spring 30 is secured at 31 to the free end of arm 27 and terminates at 32 in operative relationship to the ratchet 26. Whenever the handle 13 is actuated, that is, rotated counter-clockwise in Fig. 1, the gear 15 is rotated and through eccentric pin 16 the rod 17 is reciprocated to and fro once toward the right and then toward the left in Fig. 1, thereby tilting the bell crank 18 clockwise a predetermined amount and thence returning the bell crank 18 counterclockwise a like amount.

In the clockwise movement of the bell crank 18, the relative stiff spring 30 is forced downward, see Fig. 4, which causes the ratchet 26 to rotate an amount equal to one tooth only because of the lost motion connection between the bell crank 18 and arm 27. Upon cessation of clockwise tilting of the bell crank, the spring tooth or dog passes over the tip of the next ratchet tooth and seats in the root thereof, as shown in Fig. 4. Therefore, the ratchet and the unit printing wheel is advanced but one number or digit.

The operator of the manifold device, when a new supply of paper is supplied to the device, observes the number on the invoice then exposed through the opening 14 and then sets the printing wheels to accord with that number. In other words, the invoice number and the printing wheel numbers are alike. Then as each invoice is made out and manually ejected and a new invoice sheet is automatically presented for record filing, the printing wheel, or wheels, are advanced so that the number to be printed always corresponds to the invoice number exposed through the opening 14. It, therefore, will be apparent that these wheels require adjustment or setting for example, only when a new paper supply is made to the billing and

manifolding portion of the invention, or when due to the operator's negligence in entering a new supply to the housing, or when and if a break occurs in the continuous forms when successive forms are serially numbered, that is continued from one supply to the successive supply.

The method of advancing whereby the tens wheel is advanced one number for each revolution of the unit wheel and the means whereby each succeeding wheel—that is, the hundreds, thousands and tens of thousands wheel is advanced one number per each revolution of the adjacent lower order wheel, has been briefly described hereinbefore and an illustration of the carry over mechanism between wheels is intentionally omitted herefrom since this is an old and well known arrangement in a counting mechanism.

It, however, is to be observed the present invention does show a number at 20, see Fig. 5, which is the same number for printing purposes that is exposed at the opening 22. Some record paper is not numbered consecutively for sequentially connected sheets, so that when such paper, in sequentially connected sheet form or in single continuous strip form, is utilized in the manifolding device, the operator each time an invoice is to be made out must look at the number appearing at sight opening 20 and apply this number to the record sheet then exposed at opening 14 for record receiving purposes. This latter paper supply, however, is not preferred because of the danger of the operator transposing the numbers in applying same to the record sheet then exposed at opening 14.

Reference now will be had more particularly to Figs. 1 and 2. In these figures the numeral 35 indicates a treadle pivoted at 36 on the frame 10. The free end of the treadle includes a foot operable portion 37. The spring 38, having one end connected to the treadle as at 39 and the other and upper end connected to the frame 10 as at 40, normally holds the treadle in elevated relation as shown in Figs. 1 and 2.

Depending from the treadle is a tail portion 41 and associated therewith is an apertured plate 42 resting on the upper end of a cushion structure 43 in the form of a coil spring, the purpose of which will be hereinafter set forth. An anchoring eye portion 44 on treadle 35 and located within the frame but adjacent the foot operable portion 37 is pivotally connected as at 45 to an adjustable connection 46 carried by the lower end of the connecting rod or pull bar 47, the upper end of which is pivoted as at 48 to a lever 49, in turn pivoted at 50 upon an inwardly directed boss 51 of the frame 10.

The lever 49 extends rearwardly from its pivoted connection to the rod 47 and terminates in a bearing of eyelet character and indicated by the numeral 52. Slidably and rockably mounted in said bearing is a connecting rod 53 which, above the bearing, adjustably mounts a stop member 54. The lower end of the rod 53 is provided with a pair of nuts 55 for adjusting the tension of a concentric spring 56. This spring normally tends to pull down on the rod 53 by bearing against the underface of the eyelet portion 52. The upper end of the rod 53 is pivotally connected as at 57 to one arm of a bell crank 58 pivotally mounted as at 59, see Fig. 1, upon a bracket portion 70, see Fig. 4, on the frame 10 and immediately below the table portion 11 as shown.

The forwardly directed end 60 of the lever 49, pivoted at 50 on the frame 10 as aforesaid, is slidably associated by its angular end 61 with a push rod 62. This push rod at its lower free end mounts an adjustable stop 63 below end 61 and thereabove in spaced relation on rod 62 is an adjustable stop 64. Concentric with this push rod between the stop 64 and the lever end portion 61 is the cushion spring 65. The lower end of the spring 65 bears against a member 66 carried by rod 62. The upper end of the push rod 62 includes an adjustable connection as at 67 with a member 68.

Reference now will be had more particularly to Figs. 4 and 5 wherein the member 68, the upper ends of the connecting rods 53 and 62 of the previously described structures are illustrated. Between these two rods there is rigidly mounted upon the frame 10 the housing and bracket arrangement 70 having a pair of spaced forwardly directed wings 71 closed by an end plate 72 constituting a tubular guide for a plunger 73 pivotally connected at its lower end as at 74 to the aforesaid member 68. The upper end of this plunger is laterally enlarged as at 75 and thereon is mounted a pressing member 76, as shown in Fig. 4. 75—76 indicate the platen and 76a a tag or material or garment guard, preventing such tag, material or garment from extending inwardly toward the ink pad in an amount sufficient to have engagement.

Adjacent the reciprocable plunger and platen (73—75 respectively) there is mounted a yielding retainer structure 77 which mounts an inking pad 78 normally constrained upwardly by the spring 79. This inking pad is longitudinally received by the retainer arrangement 77 and the pad face is exposed upwardly. The other arm 80 of the bell crank 58 extends upwardly as indicated in Fig. 4 and is operatively associated with a cleaning and inking structure by means of an elongated, longitudinal slot 81 in the upper end of member 80 and in which is mounted a transverse connecting member 82 supported by a carriage structure for reciprocation thereof.

This transverse connecting member 82 connects two side members 83 together at their rearward ends. These two members 83 in effect constitute channel members as indicated at 84 in Fig. 5, and the two oppositely and outwardly directed channels slide on the tongues 86 which are inwardly directed and are carried by frame portions 87 integral with or rigid with the entire bracket structure 70, previously described and shown most clearly in Fig. 4. The forward ends of members 83 may be suitably connected together as at 92 and the foregoing constitutes the carriage structure.

Extending across the two members 83 and near the forward end thereof is a shaft 88 which mounts a cylindrical brush 89. This is for type cleaning purposes. This brush is smaller than the inking roll 90 carried by the shaft 91 which forms one forward connection between the two members 83. The shaft 88 is mounted in a plane above that of the shaft 91 so that the smaller brush roll always will clear the inking pad 78, as shown by the dotted lines in Fig. 4, when the inking roll and the brush roll are retracted into dotted line position, which is the position corresponding to when the printed impression or record is made and the inking roll 90 is to be reinked.

The forward end of this carriage structure mounts a guard 92 and the purpose thereof is to prevent any garment or record arrangement from accidentally contacting the inking roll during the

printing operation and also serves to prevent the garment or a part of the record (tag) member from engaging the inking pad 78—see the dotted line position of the guard 92 in Fig. 4. Guard 92 may serve as the forward connector of the channels 33 of the carriage structure. Observe that guard 92 lies inwardly of guard 76a, see dotted lines Fig. 4, and thus completely blocks off the inking mechanism from the garment, etc., subsequently inserted at opening 22 between the printing wheels and platen, the latter elevating the garment to the wheel for printing.

Observe that when the platen is in the normal, lowered, or retracted position, guard 76a thereof does not project sufficiently high to interfere either with roll 90 or guard 92 passing thereover for reinking and protection purposes. The curvature of portion 76a also is such, that as plunger 73 is elevated, it will clear the forward face of guard 92 when the latter is retracted for roll reinking and printing purposes.

When the carriage structure is fully retracted, it will be noted the rearward end 83a of the same engages the stop 93 which stop in effect is an angle member, as shown also in Fig. 1. When the carriage is retracted, the platen 73—75 with the face 76 thereon is projected upwardly. Any garment or record receiving slip, tag, or the like, which then is on the platen, will be legended with the number set up on the several printing wheels.

Referring more particularly to Figs. 1 and 2, it will be noted that upon initial depression of the treadle 35 by foot engagement at 37, there is no compression of cushion 43 until predetermined lowering movement of the treadle occurs. During this initial movement of the treadle the lever arm 49 moves downwardly and counterclockwise, see Fig. 1, and the lever arm forward portion 60 and end 61 moves upwardly counterclockwise.

During this initial movement of treadle 37, it will be observed that lever 60 does not engage the member 66 on rod 62 and hence the platen is not elevated. On the initial lowering movement of the arm 49, the spring 56 is compressed which pulls down on the rod 53 to rotate the bell crank 53 counterclockwise, which tends to draw the carriage rearwardly into stop 93 engagement.

In this particular travel, see Fig. 4, it will be noted that the brush 89 engages the printing portion 24 of the wheels 23 to clean same and then the inking roller 90 follows and inks that printing portion 24. So that, when the carriage is retracted to the left and held against the stop 93, the cleaned and inked legending or printing means 24 is exposed an inked for legending or printing purposes.

Continued downward movement of the treadle, in opposition to the cushion 43, then serves to further compress the spring 56 but since the carriage is now against the stop 93, no further carriage movement is effected.

In this continued lowering movement of the treadle 35 and now in opposition to the cushion 43, the lever arm 60 end 61 engages member 66 slidable on rod 62 and carried by the spring 65 and since the stop 64 on member 62 is rigid therewith, spring 65 is compressed and the platen 75—76 is elevated but such elevation is of course subsequent to carriage withdrawal. Any garment placed on the platen 76 or any tag, ticket or the like, will, when the treadle 35 is depressed sufficiently, be printed. Upon release of the treadle, the platen is retracted or lowered and the garment is removed and then the carriage is projected forwardly for wheel cleaning and inking.

It will be noted that the time cycle of operation is such that no printing record can be made while the carriage is projected forwardly because then the guard 92 prevents presentation of the garment tag, or the like to the record making elements. Also, it will be noted there is no interference between the platen and the carriage movements as well as between the pad and carriage.

It will be noted the force of the spring 65 may be so adjusted by adjusting stop 64 so that only a printing impression will be obtained and the platen pressure force against printing portion 24 will not be sufficient to perforate the garment by reason of excessive pressure. In other words, treadle pressure insofar as both the carriage movement and platen movement is concerned, is of such character that it is cushioned to permit of this relative movement and in timed relation and only the desired printing pressure then being applied to that garment, etc., which is to be marked or legended.

Reference now will be had more particularly to Fig. 5. In the upper portion of this figure, it will be recalled that there are five number wheels 23 illustrated and that to the left thereof two additional wheels 100 and 101 are illustrated. To the right thereof two additional wheels 150 and 151 are illustrated. These are mounted coaxially wtih the number wheels and are similar thereto for printing purposes.

Wheel 101 has rigid connection with a shaft arrangement 102 having the outer hand wheel 103 thereon and wheel 100 has rigid connection with an encircling shaft portion 104, the outer end of which supports a hand wheel portion 105. Shaft 104 is rotatably supported in stationary portion 12a and the casing is recessed at 12b to nest the hand wheels 103 and 105, same being of dissimilar diameter to facilitate selective manual engagement.

In like manner, wheel 150 is rigid with the shaft 152 and the outer end thereof mounts the hand wheel 153. The wheel 151 is rigid with an encircling shaft 154, the outer end of which mounts the hand wheel 155. These wheels also are offset longitudinally of each other and are exposed in the opposite indented portion 12b of the casing 12 and the forward extension 12a thereof, as shown in Fig. 5. The purpose of these four wheels is as follows:

Hand wheel or knurled knob 153 controls wheel 150 and determines the position of the same. It may be manually adjusted, as desired, such adjustment being observed through the sight opening 20, since the wheels are of the same simultaneous printing and indicating character as the printing wheels 23. In like manner, the knurled hand wheel 155 adjusts the position of the wheel 151, hand wheel 105 adjusts wheel 100 and hand wheel 103 adjusts wheel 101.

It will be remembered that the pressing establishment indicates the date of delivery to the customer and if this is to be indicated by the calendar date, an adjacent pair of these wheels may be adjusted to indicate that date on the garment, or the tag applied to the garment. Numbers 1 to 7 need only be used.

Normally this setting is not changed for a long run, for example, all work received one day would be marked for delivery on a later predetermined date. Should a garment be specially expedited naturally an earlier date would be set up on the wheel, the garment or tag printed, and the previous wheel setting restored.

It also will be remembered that each driver of the delivery truck or of the establishment which collects the garments and presses the cleaned garments, will have a number and this number may be set up in the left hand portion with respect to wheels 100 and 101. If the routes are numbered and there are no more than nine and each route has no more than nine pressing stations or establishments, then the first wheel 101 can be used to designate the route and the second wheel 100 can be used to designate the pressing station or establishment.

If each pressing establishment, as distinguished from the master cleaning station, is provided with a marking and billing device of this character, the operating attendant will, when making out the master invoice to the customer, designate the number of the route by which the pressing establishment is served from the master station and the allocated number of that pressing establishment and also the date the goods are to be returned or delivered to the customer together with the customer's number as shown on the invoice made contemporaneously.

It will be apparent under these circumstances that the left hand wheels require no adjustment as long as the several pressing establishments are not renumbered or the routes are not renumbered, and the invoices are made out at the pressing establishment instead of at the central cleaning plant. Naturally the garment, etc., is ink marked at the same time as described aforesaid when the invoice is made out.

The two wheels 150—151 to the right are adjusted each day for the customary delivery date but in special cases for rush work these wheels may be manually readjusted to indicate rush work. Following marking of the rush work garments, these wheels are readjusted for the conventional delivery date then being utilized. Such adjustment does not affect the series numbering.

This manual adjustment of wheels 150—151 may be made for rushing any one of a number of garments if a number of garments be presented by the same customer and then the readjustment of said wheels can be made to designate normal working, all without any advance of the printing wheels.

It is only when the complete invoice is made up and the invoice is discharged from the manifolding device that the advance automatically occurs to bring up another number for the next customer but this does not disturb the settings of the four wheels 100, 101, 150 and 151.

Insofar as the central cleaning and pressing establishments' use of the invention is concerned, if it is assumed that the area served by the same is divided into not to exceed nine divisions and that certain delivery trucks operate in each division, then when the drivers bring in garments which they have collected at the households, each garment or group of garments, will have attached thereto a memorandum as to the number of garments, name and address of the customer, the work to be performed, and when the same is to be delivered.

The marking operator and bookkeeper at such central cleaning and pressing establishment then sets up the territorial division and driver's number and runs through all the garments brought in by that driver, giving to each customer a definite number, as before stated, insofar as the garments are concerned, making the wheel shift for the delivery date in question, if necessary for special work. One of the right hand wheels, if there is but one driver for each division and the driver so designates, can be utilized to indicate whether the account is a cash or charge account.

The operator of the marking device, as stated, makes out the bill, which is a complete itemization of all garments, for any one customer and all the garments for that customer may be marked either directly on the garment, if possible, or upon linen tags, pinned or clipped to the garment, regardless of the number of garments. Then when a succeeding customer's garments are to be invoiced, the first customer's billing is ejected, the number is automatically advanced and the bill sheet is automatically advanced to correspond. Then the garments of the second customer are marked accordingly and the second customer's invoice prepared. Shaft 252 is rotated step by step manually if desired, or in any other manner conventional to the manifolding art.

In Fig. 6 there is illustrated a modified form of power or automatic advancing arrangement. In general use today is a billing sheet arrangement, see Fig. 7, with a plurality of holes at or near the top of the sheet for filing purposes. The sheets are sequentially connected together and progressively exposed at opening 14 in cover 12 for data reception.

In the form of the invention illustrated in Fig. 1, the paper is understood to be side edge perforated, this being a patented paper, see Fig. 8 for a simplified disclosure thereof. When handle 13 is actuated, the paper is fed and digit wheel advance automatically follows.

In the manifolding device of the general form, of which Fig. 6 is but a partial representation, it will be observed that A designates the paper sheeting of any number of thicknesses required by the number of copies desired, the same passing around a driving roll 115 having a plurality of diametrically opposed pins 115a thereon to seat in holes provided near the top of the sheet A, see also Fig. 7, the holes being designated by the letter C and the semi-separation between the sheets being designated by the letter B.

A sprocket chain indicated at 250 is engaged with a sprocket wheel 251 rigid with the shaft 252 of the paper feeding drum 115. A crank handle on a casing exposed end of shaft 252 will insure form (paper) advance or other hand drive will suffice.

It will be apparent, therefore, that for each half revolution of the paper feeding drum 115 having the driving pins 115a thereon, there is caused the advance and ejectment of the paper of the manifolding device to the extent of a single manifolding sheet or ticket, the same usually being sequentially numbered although such numbering is not necessarily essential for reasons previously assigned.

In the present form of the invention, the lever 118 of bell or angle type is pivoted as at 119 on a stationary part of the manifolding device, and not shown, and a spring 117 normally constrains the lever in counterclockwise tilted relation so that it bears against a stop 117a carried by a stationary part of the device and not shown. Spring 117 has one end, not shown, secured to a stationary part of the device, also not shown, and the other end is secured at 118a to the actuated arm portion of bell crank lever 118. The forward and lower end of the lever 118 is identical to the forward and lower end of lever 18 shown in Fig. 4 and is similarly associated with the advancing and printing wheels 23 in the same manner as lever 18 and wheels 23 are shown associated in

Fig. 4, although any other form of power transfer device may be utilized to secure step-by-step advance of the units digit wheel 23 whenever an additionally numbered manifold sheet is presented for date reception at opening 14 in the manifolding device proper.

Herein the drum 115 preferably midway between the paper hole seating pins 115a is provided with two longitudinally extending pins 116. Whenever the sprocket chain 250 is actuated for paper feeding, each of the pins 116 for each half revolution of the drum and midway between said half revolution picks up the free and upper end of the lever 118 and tilts the lever clockwise and downwardly, and in the continued movement of the drum to complete the half revolution the then lever engaged pick-up pin 116 or power element permits the lever 118 to escape from such engagement which releases it to its constraint 117 to cause the lever 118 to return to the position where it engages the stop 117a, thus returning the lever to its original or idle position. In this clockwise tilting of lever 118, the unit wheel 23 of the number wheels is advanced in the same manner as wheel 23 in Fig. 4 is advanced.

It is briefly pointed out that should the operator slightly underfeed or overfeed any particular sheet, which is quite possible, the position of the pins 116 on the feeding drum is such that number wheel advance only occurs at the middle of the feeding movement of the sheet. Therefore such possible and customary under or overfeeding of the sheet has no effect on the advancing operation. In other words, there must be a feeding of more than half a sheet or substantially complete feeding of a sheet before number wheel advance automatically occurs.

The two embodiments of the invention herein described, it is believed, include the entire range of present standard manifold sheeting applications, the two types generally being the paper side edge perforated type and the top perforated type, the latter perforations being for subsequent binding purposes, as aforesaid.

In Figs. 6 and 7 the top edge perforated sheet A is separable by tearing along lines B and has top perforations C. In Fig. 8 the sheet A^1 is separable by tearing along lines B^1 and has side perforations C^1. These are available for subsequent binding purposes.

While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The modifications illustrated herein as well as others which will readily suggest themselves to persons skilled in this art, are considered to be within the broad scope of the invention, reference being had to the appended claims.

I claim:

1. In a combined manifolding and marking machine, the combination of means for advancing step-by-step consecutively numbered forms, similarly numbered, step-by-step advanceable printing wheels, a printing platen therefor, means for effecting pressure movement between the platen and wheels for number printing, and means inter-connecting the step-by-step advancing means and the printing wheels for corresponding advance of the latter in accordance with the form advance and the form number.

2. Structure as defined by claim 1 wherein the pressure movement effecting means is discrete from said interconnecting means whereby repetitious printing may be effected while the number remains unchanged and the form remains stationary.

3. Structure as defined by claim 1 wherein the interconnecting means includes a bell crank rockable for each form advance, an oscillating arm having an axis coincident with the wheel axis, a ratchet coaxial therewith and connected to a wheel for step advance thereof, pawl means carried by the arm and oscillatable therewith and having engagement with the ratchet for step advance thereof for each oscillation of said arm, and means operatively connecting said bell crank and arm for ratchet advance with form advance.

MOREY SELDIN.