TICKET PRINTING MACHINE

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This invention relates to ticket printing machines and relates more particularly to improvements in machines for printing tickets which are fed through the machine in continuous strip form.

Ticket printing machines of the character set forth are utilized extensively in the garment industry for printing "lot" numbers or other identifying data upon clothing tickets which are to be attached to garments.

A machine for such purpose is more fully described in United States Patent No. 1,566,242 granted August 26, 1924, on an invention of John Alwyn Keller. The type of machine there described is limited, however, to the printing of only one ticket in a strip at a time thus necessitating a multiplicity of operations for the printing of all the clothing tickets required for the cutting and assembly of a complete garment.

Inasmuch as a set of clothing tickets comprising all the "garment" or "size" tickets and all the "shade" or "joker" tickets to be attached by the cutter or tailor to the cut pattern parts or units of a complete garment, such as, for example, a suit consisting of coat, vest and trousers may consist of as many as eight separate ticket units, the imprinting with such a machine of all the tickets of such a set with "lot" numbers, or other identifying data, such as "cutting" ticket numbers and/or "model" names, may require as many as eight separate and distinct printing operations.

In order to reduce the number of operations required for the printing of a set of clothing tickets for a complete garment, ticket printing machines for imprinting "lot" numbers, or other identifying data on a plurality of ticket units in a single operation have been devised and have met with certain uses. However, certain practical difficulties attendant upon the maintenance in a printing drum of a line of type of a length sufficient to permit the satisfactory printing of more than a limited number of ticket units in a single printing operation and the need for stocking uneconomic quantities of expensive type have limited such machines to a size adapted to print only a few clothing tickets in a single operation.

An object of this invention therefore is to provide an improved ticket printing machine for imprinting clothing tickets in continuous strip form with identifying data, which is of particular advantage and utility in effecting economy in type costs, in reducing the number of operations herefore required to print a multiple unit set or sets of clothing tickets and which will promote greater efficiency in point of speed with which the printing may be accomplished and in convenience and simplicity of operation.

Other and further objects of this invention will appear from the following description and the appended claims.

In the accompanying drawings which form a part of the instant specification and are to be read in conjunction therewith and in which like numbers refer to like parts throughout the several views:

Fig. 1 is a view in plan showing ticket printing machine embodying this invention with parts cut away to show the arrangement of a continuous ticket strip in the machine.

Fig. 2 is a view in elevation taken along line 2—2 of Fig. 1.

Fig. 3 is a plan view of the under part of the guide member shown in Fig. 2.

Fig. 4 is a view in elevation with parts in section of the ticket printing machine shown in plan view in Fig. 1.

Fig. 5 is a view in elevation with parts in section showing the detent of Fig. 4 in depressed position.

Fig. 6 is a view in elevation taken along line 6—6 of Fig. 4.

Fig. 7 is a view in elevation of the left hand end of the ticket printing machine shown in Figs. 1 and 4.

Fig. 8 is a plan view of a plurality of sets of clothing tickets in continuous strip form each set consisting of all the "size" and "joker" tickets required for a three piece garment.

Fig. 9 is a view in elevation taken along line 8—8 of Fig. 4, and

Fig. 10 is a view in elevation taken along line 10—10 of Fig. 4.

In general, this invention comprises an improved ticket printing machine including, without limitation, a revolutely mounted printing drum manually, slidably movable into operable printing relationship with a platen member at any one of a plurality of printing stations into which the platen member is divided, the printing drum being adapted to imprint one or more tickets with identifying data with each complete revolution in a clockwise or counter-clockwise direction.

Referring now more particularly to the accompanying drawings, there is illustrated a ticket printing machine to which this invention and improvements are adapted, and 15 is a framework formed with bearings 16 and 17 in which is
journaled the shaft 18 of a platen member 19 keyed for rotation with the shaft 18 by means of a longitudinally extending key member 33.

A set screw 21 threaded received in the head of the set screw 21 is preferably recessed below the periphery of the platen member.

The platen member 19 is generally of cylindrical contour and provided with spaced apart lands 24, 25, 26 and 27 of cylindrical contour and of slightly larger diameter. These lands divide the platen member into a plurality of printing stations 25, 26 and 30 encased by jacket 31, 32 and 33 respectively, of rubber or other compressible material suitable as a printing bed.

The land 25 is formed with a cam surface 24 which, upon revolution of the platen member 19, is adapted to engage and depress a detent member 35 for a purpose which will be more fully described hereinafter and the platen member is formed at each printing station with planar divergent peripheral portions 26 and 25 for facilitating the installation and removal of the jackets 31, 32 and 33.

The shaft 18 projects at one end from the bearing 16 and carries a gear 38 which is fixed to the shaft to turn therewith by means of a set screw 37 and is formed with a slot 30 which, when coaxially aligned with a slot 35 in the bearing 16, forms a guide for fixing the angular relationship of the platen member to the printing drum as will be described more fully hereinafter.

A revolving shaft 46 slotted throughout its length to pass the continuous keyway 41 is keyed at one end in a bearing member 42 by means of a key 43 so that the shaft 40 and bearing member 42 may be rotated as a unit. The bearing member 42 is journaled in a mounting 44 detachably secured to the framework 15 by bolts 45 and 46, and the shaft 46 is journaled at its other end in an arm 47 of the framework 15.

A thrust bearing 48 positioned within a recess in the arm 47 is secured to the shaft 40 for rotation therewith, by means of a pin 50 and serves to position the shaft 40 in its longitudinal relationship to the platen member 19 and to prevent longitudinal movement of the shaft 40 in one direction.

The shaft 40 projects at one end from the arm 47 and carries a gear 51 fastened thereto by a set screw 52 threaded received in the gear hub and extending into the keyway 41 and carries a crank 53 similarly secured thereto by means of a set screw 54.

The arm 47, gear 51 and crank 53 are provided with slots 55, 56 and 57 respectively which, when coaxially aligned, form a guide for fixing the angular relationship of the platen member to the printing drum as will be described more fully hereinafter.

65 The shaft 40, of cylindrical contour throughout its length, is formed with circumferential peripheral locking and positioning recesses 58, 59 and 60 and a printing drum 61 of cylindrical contour which is longitudinally slidable mounted thereon and is keyed thereto so as to rotate therewith by means of a removable pin 62 which slidable engages the keyway 41. The printing drum 61 is adapted to be positioned on the shaft 40 and releasably locked thereto in operable printing relationship to the platen 19 at any one of the printing stations 25—28—30 by means of releasable locking mechanism engageable with the indexing key member 50 as will be more fully described hereinafter.

The printing drum 61 is formed with individual type slots 53, 64 and 65 which are adapted to receive suitable lines of type 55, 57 and 68 secured in the printing drum much in the manner of a printer's key in a printing stick between a pair of annular plates 59—70 by means of the respective type screws 71, 72 and 73 threadedly received in the plate 59. The annular plate 63 is detachably secured to the printing drum 61 by means of threaded members 74 and 75 and the annular plate 76 is detachably secured to the printing drum 61 by an annular end plate 78 and threaded member 76.

The printing drum 61 is of a length equal to the width of the printing station between any pair of the lands 24 to 27 inclusive and carries 30 pairs of arcuate strip feeding elements 77 and 78 mounted on the printing drum on an axis concentric with the axis of the shaft 40. Each of the strip feeding elements 77 and 78 has a radius substantially equal to the distance between the outer periphery of the shaft 46 and 47 and the axis of the shaft 40. The strip feeding elements 77 and 78 are preferably detachably connected to the printing drum 61 by means of pairs of set screws 75—78 and 80—82 respectively so that they may be replaced with strip feeding elements of greater or less radius to accommodate ticket strips of varying thickness.

A spring pressed latch 83 having an arcuate portion 84 substantially conforming to the contour of the recesses 59—59—60 is pivotally mounted on a journal element 85 threadedly received in and carried by a shift plate 89 having an annular portion 87 secured between the annular plate 78 and the end plate 76.

A resilient member 88 which is secured to a yoke shaped printing roller shifting arm 83 of the shift plate 88 by means of a threaded member 89 engages the latch 83 as shown. The resilient member 88 presses the latch into engagement with one of the recesses 59—59—60 and thereby provides a means for locking the printing drum 61 into position at any one of the printing stations 28—29—30.

The shifting arm 89 engages an inking roller shifting spool 91 which together with an inking roller 92 is carried on a common bushing 95 concentric with and slidable mounted on a jack-shaft 94.

An arm 95 provided with a lug 98 extends from the shift plate 88 for assisting in releasing the latch 83.

The jack-shaft 94 is supported at one end on a threaded bolt 97 in an arm 98 extending from the framework 15 and is supported at its other end on a threaded bolt 99 in an arm 108 extending from the mounting 44. The jack-shaft is suitably adjusted by the bolts 97 and 99 so that its axis will be parallel to the axis of the shaft 48 and at a distance therefrom at which the inking roller 92 will properly ink the type character of the lines of type 55—57 as the printing drum 61 is rotated and the type characters engage the periphery of the inking roller. The desired adjustment is maintained by tightening the set screws 101 and 102 which are threadedly received in the arms 98 and 103 respectively and are adapted to engage the periphery of the jack-shaft.

A lever 103 having a cam shaped portion 104—75

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is journaled on a bearing 44 carried by the mounting 44 in a recess 106. The lever 103 is adapted to be rotated on the bearing 44 so that its cam shaped portion 104 will engage the circumferential periphery of the bearing 42 and thereby lock the bearing 42, shaft 48 and printing elements 41 against rotation and in any desired position.

The bearing 42 is provided with openings 107, 108 and 109 respectively coaxially aligned with the type screws 71, 72 and 73, which latter are adapted to pass through the respective openings when the locking member is positioned in the slot 40 at the printing station 28.

Indexing plates 110 and 111 are secured to the framework 5 by means of screws 112 and provide a bed upon which a ticket strip 113 is adapted to travel. The indexing plate 110 is provided with a set of indexing holes 114 which are equi-distantly spaced from each other a distance equal to the width of the narrowest ticket in the strip.

The indexing plate 111 is provided with a set of similarly spaced indexing holes 115 located in a similar manner.

A guide or indexing member 116 having a flange 117 is adapted to be mounted on the indexing plate 110 at the locus of one of a set of indexing holes 114. Lugs 118 and 119 extending from the indexing member 116 are adapted to engage related openings in the sets of alignment openings 123 and 124 respectively, located in the indexing plate 111 at either side of the set of indexing holes 114 and thereby to position the indexing member on the indexing plate.

A locking pin 121 having a locking flange 123 is provided with a head 124 which is adapted to be manually engaged and rotated to bring the locking flange 123 in engagement with the under periphery of the indexing plates 110 and 111 securely to the indexing plate. A locking member 118 is positioned at least in part within a recess 124' formed in the head 124 and by engagement with the walls of the recess limits the arc of travel of the locking flange between the locked and unlocked positions.

A separate indexing or guide member 128 similarly formed with a flange 127 and provided with alignment lugs (not shown), a rotatably mounted locking pin having a head 128 and a locking flange 129, and a locking flange travel limit lug 130 is adapted to be positioned on the indexing plate 111 with its alignment lugs (not shown) in engagement with the related openings of the sets of alignment openings 131 and 132 at either side of the set of indexing holes 115 and thereby to position the indexing member 128 on the indexing plate 111 in alignment with the indexing member 116.

The flange 127 of the indexing member 128 is preferably equipped with a resilient member 133 for compressing a ticket strip such as the ticket strip 111 against the surface of the indexing plate 111 to prevent shifting or twisting of the ticket strip in the channel formed between flange 127 and the indexing plate 111. Flanges 134 and 135 extending inwardly from the respective opposite ends of the framework 15 over the indexing plates 110 and 111 and in spaced relation thereto form channels therewith for guiding a ticket strip through the machine in either direction.

A resilient member 138 is secured by means of the bolt 45 between the mounting 44 and the flange 134 for pressing a ticket strip such as the ticket strip 111 against the indexing plate 111 to prevent the ticket strip from twisting as it is fed to and passes through the machine.

A detent supporter member 137 secured to one end of the framework 5 by means of suitable bolts 136 carries the spring pressed detents 135, 140 and 141 which are radially moved in suitable openings in the framework 15 and are adapted to engage the ticket strip 113 in the notches formed between successive tickets and thereby to prevent movement of the ticket strip except during a printing operation. The shaft 142 of the detent 135 threaded engages a member 143 in which shafts 144 and 145 of the detents 140 and 141 respectively are radially mounted. The shafts 142, 144 and 145 are provided with suitable lock nuts and/or spring tension adjustments. Thus, it will be observed that by depressing the detent 35, the bar 143 which is threadedly mounted thereon will be moved out wardly and the detents 140 and 141 thereby retracted simultaneously with the detent 35.

In the operation of the improved ticket printing machine of this invention, the printing drum 61 is first rotated into position in which the type slots 62—64—65 are uppermost by rotating the shaft 40 by means of the crank 53. The printing drum may then be locked in this position by rotating the lever 103 on the shaft 105 until the cam shaped surface 114 of the lever engages the rim of the bearing 42 with sufficient pressure to lock the bearing against rotation in the mounting 44. The printing drum 61 is now in position for the installation of the desired line or lines of type.

The printing drum 61 is preferably of a width such that it may be used for printing at least three clothing ticket units, namely one “garment” or “size” ticket and two “shade” or “joker” tickets, with identifying data, in a single operation.

In Fig. 1, the printing drum 61 is shown in which it would appear when set up with type characters in the lines of type 66—67—68 for imprinting each ticket unit of a set of three clothing tickets with a “lot” number, a “cutting” ticket number and a “model” name. The type slot 63 contains the necessary type characters for imprinting each ticket unit of a set of three ticket units with the same “lot” number and the respective groups of type characters are separated from each other in the type slot 64 by spacing bars or “slashes”. The surface of the printing drum 61 is preferably provided with markings or grooves serving as references for the guidance of the operator in spacing the groups of type characters in the type line so that the “lot” number will be imprinted on the respective ticket unit in the desired location with respect to the edges of each ticket unit in the set.

The type slots 64 and 65 are set up in a similar manner with spaced groups of type characters, the groups in the slot 64 representing the same “cutting” ticket number and the groups in the slot 65 representing the same “model” name. After the type has been set in the slots in the desired fashion, it is locked therein by screwing the type screws 71, 72 and 73 until the relatively 75.
short lines of type are securely fastened in the respective type slots without danger of buckling and the machine is now ready for conducting the printing operations.

The operator now inserts into the machine from either the front or rear, but preferably from the rear, a strip of clothing tickets preferably consisting of successive sets of ticket units in initially integral and separable relation. In Fig. 8, there is depicted such a strip of clothing tickets consisting of successive sets of clothing tickets each of which sets consists of all the "size" tickets and all the "joker" or shade tickets on the machine is now ready for conducting the printing operations. In Figs. 1 and 8, three tickets units of each of five desired sets of clothing have been printed by successive clockwise movements of the crank 53 before the printing drum is moved into the position shown in Fig. 1 by raising the latch 53 and sliding the printing drum into position at the printing station 23.

With the printing drum at the printing station 23, the crank 53 is now rotated through successive counter-clockwise revolutions and with each revolution of the printing drum, there is printed one vest "size" ticket and one vest and one pant "joker" ticket. The printing drum is then slid into position at the printing station 33 and the crank 53 is rotated through successive clockwise revolutions and each revolution of the printing drum at the printing station 33 there is printed one pant "size" ticket and one pant "joker" ticket.

Thus, it will be observed that with a minimum of exposure to a large number of successive sets of clothing tickets may be printed with desired identifying data in a quick expeditious manner, type change requirements are minimized, and all the clothing tickets of a complete set of tickets may be maintained in their initially integral and separable relation. It will be observed that provision for printing a wider strip of clothing tickets may be made through the removal of the indexing guide members 116 and 126 so that the printing drum 51 will be able to imprint the desired identifying data upon two "size" ticket and two "joker" tickets in the right-hand printing station. The art in the event that the garment for which the clothing tickets are to be imprinted calls for a set of tickets consisting of fewer ticket units, the printing machine may be set up to accommodate the narrower ticket strip thus called for by positioning the indexing guide members 116 and 126 on the indexing plates 110 and 111 respectively in engagement therewith at the proper locus of the sets of indexing holes 114 and 115. This will be apparent to those skilled in the art.

It will be observed that the relative positions of the detent operating cam 34 and the ticket feeding elements 17 and 18 may be readily present through the medium of the pairs of slots 38-39 and 46-46 in which suitable pins may be inserted while assembly of the machine is being effectuated automatically to position the respective shafts 48 and 18 and gears 23 and 51 in predetermined desired relationship. It will be observed that certain features and sub-combinations are of utility and may be employed without reference to other features and sub-combinations. This is contemplated by and is within the scope of the appended claims. It is further obvious that various changes may be made in details within the scope of the appended claims without departing from the spirit of this invention. It is, therefore, to be understood that this invention is not to be limited to the specific details shown and described. Having thus described this invention, what is claimed is:

1. In a machine for printing tickets, a revoluble plate member having lands dividing its periphery into printing stations; a revoluble shaft; a printing drum mounted on said shaft for rotation;
tion therewith and for movement longitudinally thereof into operable printing relationship to said platen member at any one of said printing stations; and, means on said printing drum adapted to co-operate with said lands to feed tickets to be printed through said machine.

2. In a machine for printing tickets, a revoluble platen member having printing stations; a revoluble shaft; a printing drum mounted on said shaft for rotation therewith and for movement longitudinally thereof into operable printing relationship to said platen member at any one of said printing stations; means connecting said revoluble shaft and said platen member for effecting rotation of one by rotation of the other; means for releasably securing said printing drum against longitudinal movement on said revoluble shaft at a printing station; means on said printing drum and platen member for feeding tickets to be printed through said machine; and, means for securing tickets to be printed against movement in said machine between successive printing operations.

3. In a machine for printing tickets, a platen member revolubly mounted; lands on said platen member dividing it into a plurality of printing stations; a cammed surface on said platen member; a spring pressed detent mechanism adapted to be depressed by said cammed surface during a portion of each revolution of said platen member, and adapted to engage a ticket strip on said table during the remaining portion of each revolution of said platen member; a revoluble shaft; a printing drum mounted on said shaft; said printing drum being keyed to said shaft for rotation therewith and for longitudinal sliding movement thereon; means carried by said printing drum for releasably locking said printing drum to said revoluble shaft at any one of a plurality of printing stations thereon; gear means interconnecting said platen member and said revoluble shaft; manually engageable means for rotating said revoluble shaft; a fixed shaft; an inking roller coaxial with said shaft; said inking roller being revolubly mounted on said fixed shaft and slideable longitudinally thereon; and, means interconnecting said inking roller and said printing drum whereby said inking roller and said printing drum may be moved longitudinally of said platen member as a unit.

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