Nov. 8, 1938. J. HANDLEY 2,135,574

TICKET PRINTING AND ISSUING MACHINE FOR TOTALIZATORS

Filed Aug. 29, 1936 5 Sheets-Sheet 1

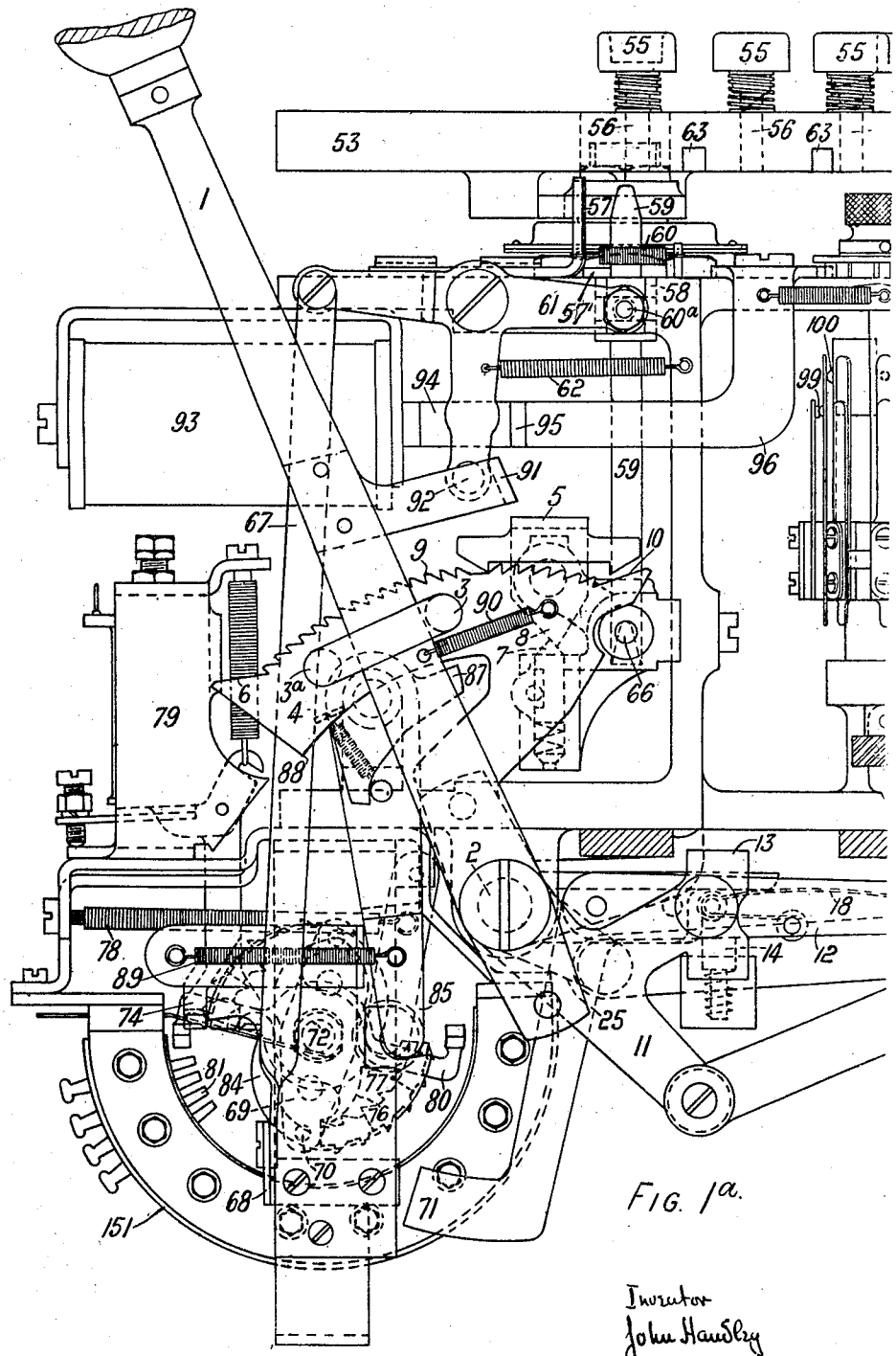


FIG. 1a.

Inventor
John Handley
By
Pennie, Davis, Marvin & Edmonds.
Attorneys.

Nov. 8, 1938. J. HANDLEY 2,135,574

TICKET PRINTING AND ISSUING MACHINE FOR TOTALIZATORS

Filed Aug. 29, 1936 5 Sheets-Sheet 2

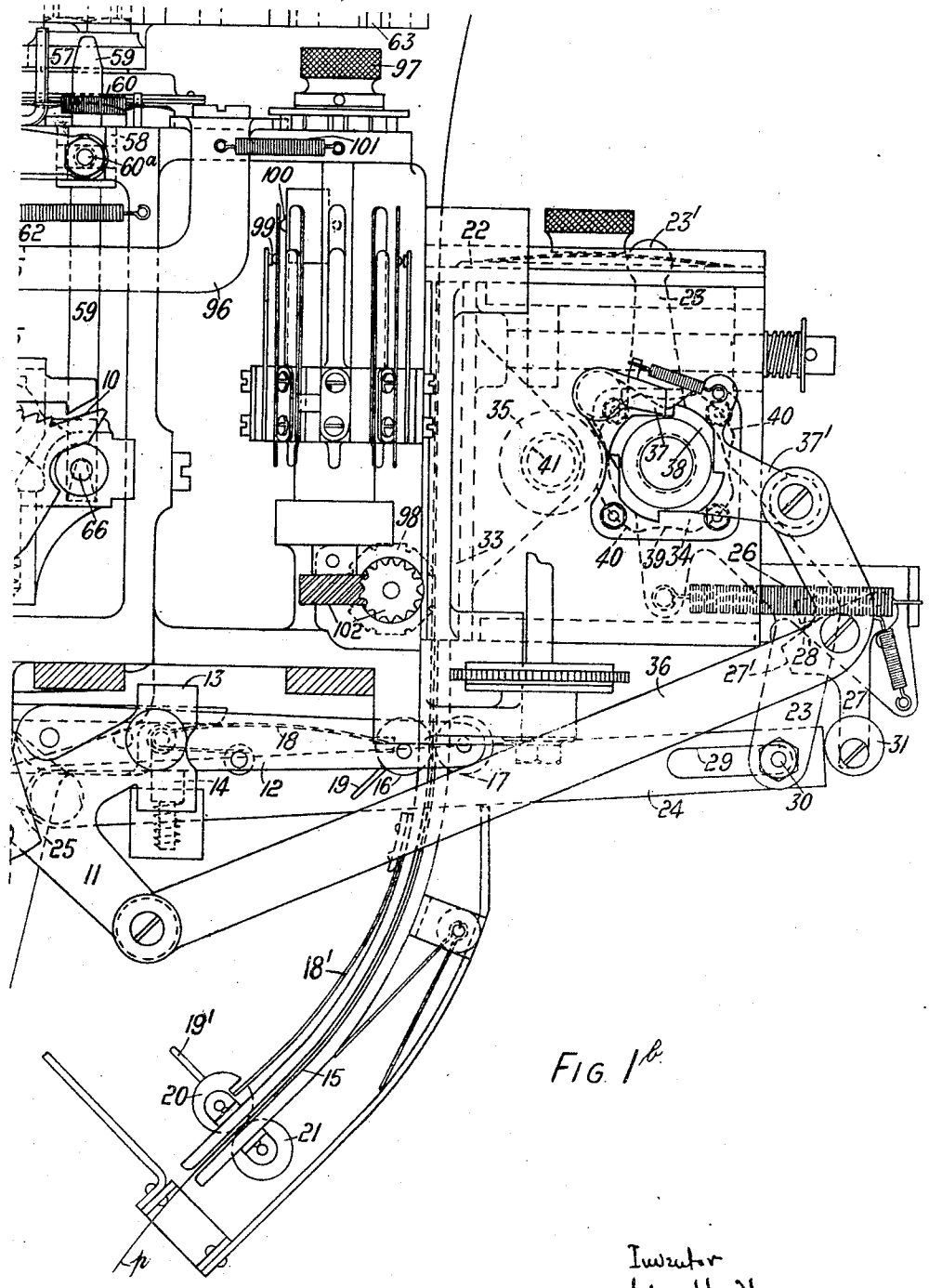


FIG. 1

Inventor
John Handley
By
Pennie, Davis, Marvin & Edmonds
Attorneys

Nov. 8, 1938. J. HANDLEY 2,135,574

TICKET PRINTING AND ISSUING MACHINE FOR TOTALIZATORS

Filed Aug. 29, 1936 5 Sheets-Sheet 3

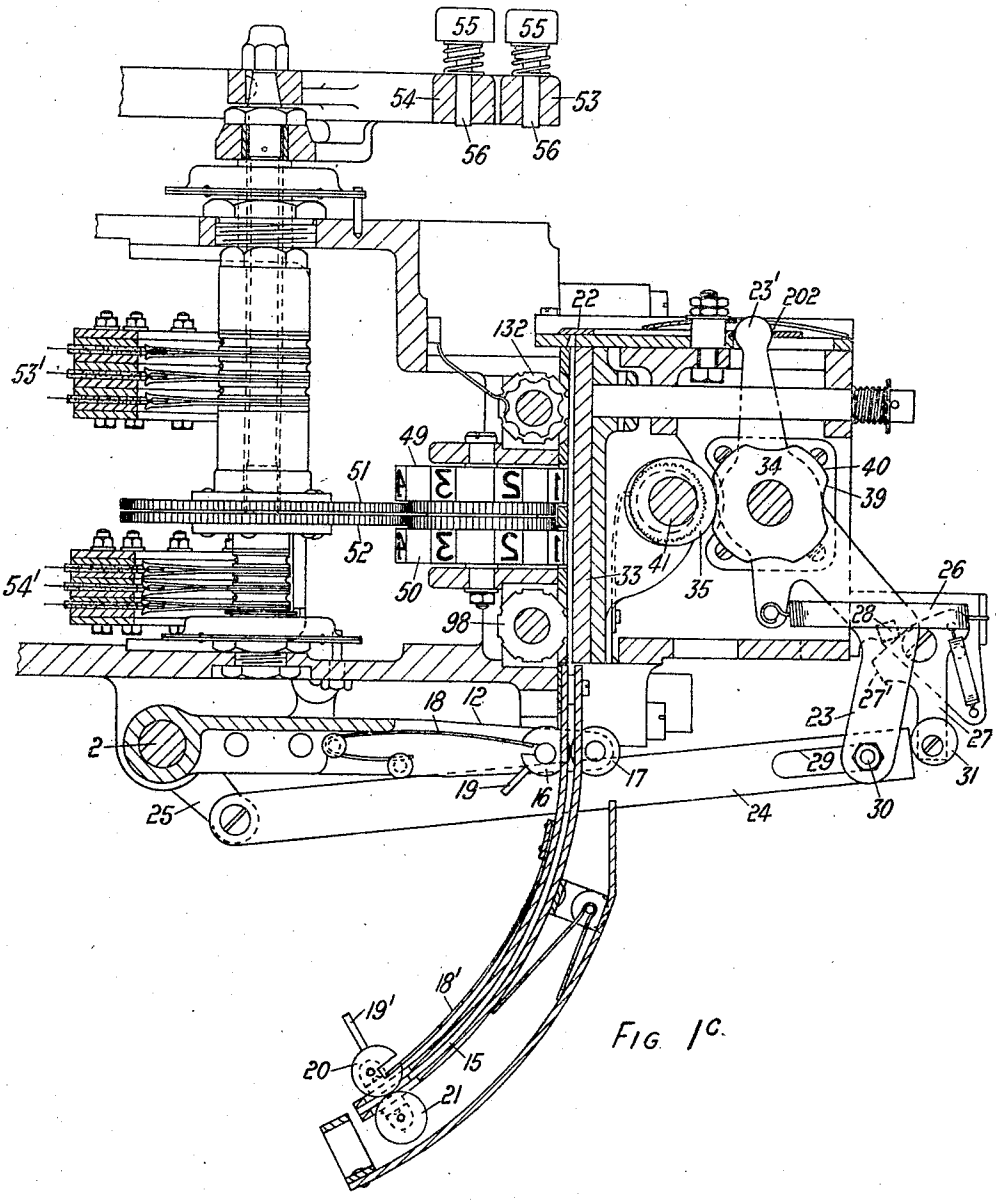


FIG. 1C.

Inventor
John Handley
By
Pennie, Davis, Marvine & Edmonds
Attorneys.

Nov. 8, 1938. J. HANDLEY 2,135,574

TICKET PRINTING AND ISSUING MACHINE FOR TOTALIZATORS

Filed Aug. 29, 1936 5 Sheets-Sheet 4

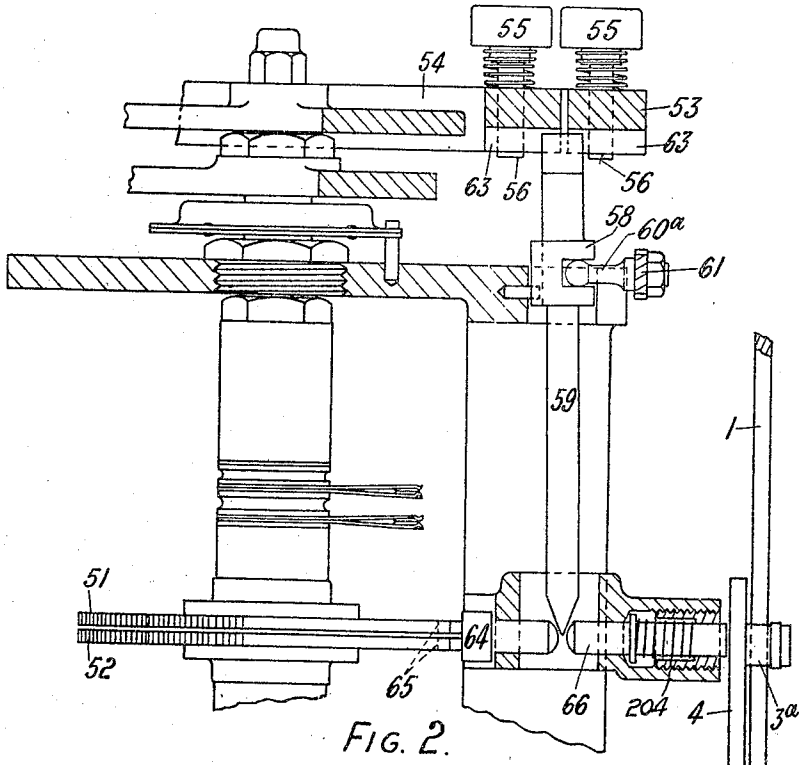


FIG. 2.

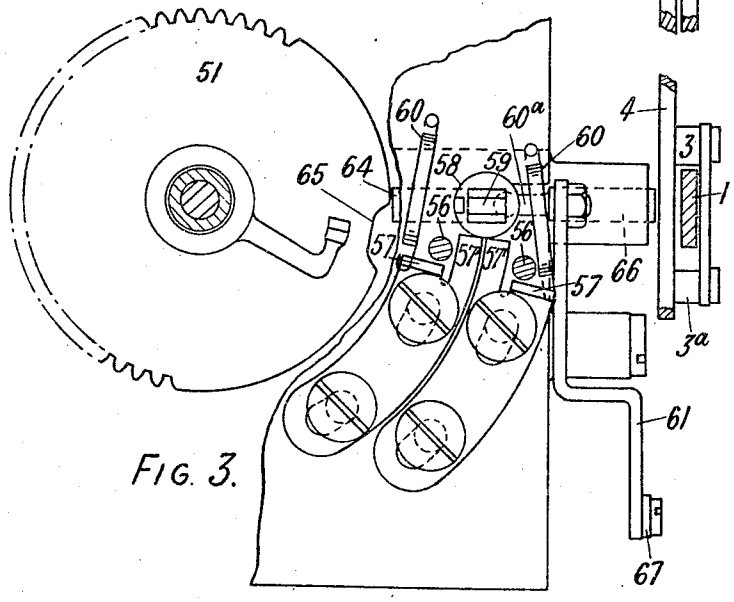


FIG. 3.

Inventor
John Handley
By Dennis, Davis, Marvin & Edwards
Attorneys

Nov. 8, 1938. J. HANDLEY 2,135,574

TICKET PRINTING AND ISSUING MACHINE FOR TOTALIZATORS

Filed Aug. 29, 1936 5 Sheets-Sheet 5

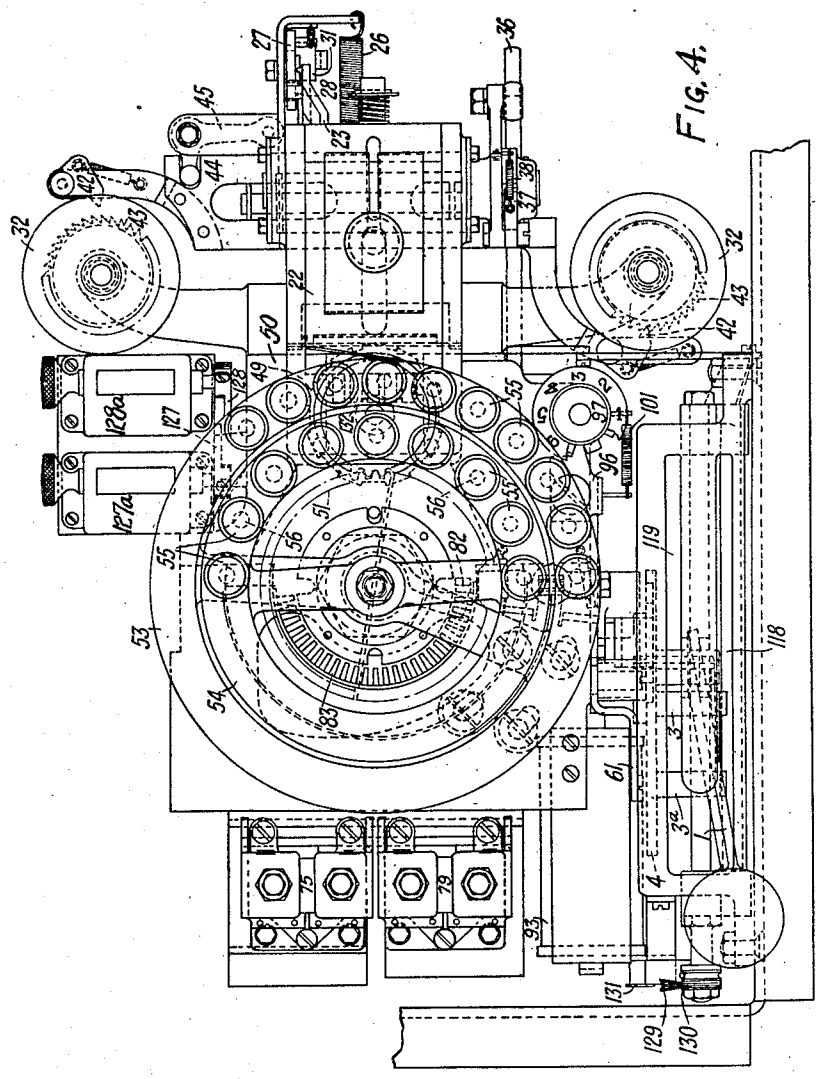


FIG. 4.

Inventor
John Handley
By Pennie, Davis, Marvin & Edmonds
Attorneys

Patented Nov. 8, 1938

2,135,574

UNITED STATES PATENT OFFICE

2,135,574

TICKET PRINTING AND ISSUING MACHINE FOR TOTALIZATORS

John Handley, London, England

Application August 29, 1936, Serial No. 98,522
In Great Britain January 9, 1935

2 Claims. (Cl. 101—66)

The invention relates to improvements in ticket printing and issuing machines for totalizators.

A ticket printing and issuing machine according to the invention is provided with means for selecting number types and corresponding electrical contacts, including a dial or dials provided or each provided with plungers or the like and locking mechanism so arranged that, when the plungers or the like are operated and the dial or dials rotated by them, the dial or dials will stop and be locked at a predetermined position or positions.

The invention is illustrated in the accompanying drawings in which Figs. 1*a* and 1*b* together constitute a side elevation of the machine with its casing and supporting frame removed. Fig. 1*c* is a longitudinal section on a plane parallel to the plane of Figs. 1*a* and 1*b*. Figs. 2 and 3 are a section and a plan, respectively, showing the locking mechanism of the machine. Fig. 4 is a plan view of the machine.

Referring to the drawings, a manually operable printing lever 1 pivoted on a main shaft 2 is engageable alternately with each of two stops 3, 3a mounted on a swinging rack 4. In the operation of the lever 1 to print and issue a ticket, a pawl 5 engages the teeth 9 of the rack 4 in the forward stroke of the lever 1 so that the rack cannot be moved back until it has completed its forward stroke and until the pawl 5 has been rocked by a projection 6 on the rack and a spring-loaded plunger 7 is engaging on the other side from that shown of an abutment 8 movable with the pawl 5. The lever 1 and the rack 4 are then free to return, a projection 10 on the rack restoring the pawl 5 and the abutment 8 to the position shown in Fig. 1*a* when the rack has completed its return stroke. The lever 1 and associated parts are returned by a spring acting through an arm on the main shaft 2 at the remote side of the machine as viewed in Fig. 1*a*.

The rack 4 is secured on the main shaft 2 together with a bracket 11 which is engageable at 13, in the forward stroke of the lever 1, with one of two paper feed arms 12 disposed one on each side of a strip *p* of ticket-forming paper and adapted to perform conjoint swinging movement about the axis of the main shaft 2 under the action of the bracket 11. A spring-loaded plunger 14 is provided to allow the bracket 11 to continue its return travel to actuate a guillotine trip device after the feed arms 12 and therewith the paper strip *p* have come to rest.

The paper strip *p* travels up a guide 15 when gripped between rollers 16 and 17 carried by each feed arm 12. The roller 16 is eccentrically journalled, has a roughened surface, is urged in gripping direction by spring 18, and may be rotated in releasing direction by manipulation of a pin 19 whereby to free the paper strip *p*. The rollers 16, 17 thus constitute a feeding device with a self-tightening grip. Retaining rollers 20 and 21 are provided at the lower end of the guide 15 to prevent the paper strip *p* slipping backwards, and a spring 18' and a release pin 19' are provided for these rollers also. When the feed arms 12 swing downwardly to the bottom of the guide 15, the rollers 16 and 17 slide over the paper strip *p* which is held by the rollers 20 and 21 and, when the arms 12 swing upwardly the paper strip *p* is pushed upwardly through the machine to be cut off by a guillotine blade 22. The strip-feeding device above described forms the subject of U. S. Patent No. 2,068,914.

The guillotine blade 22 is actuated from the lever 1 by an arm 25 secured to the shaft 2, and a link 24 connecting the arm 25 with the lower end of a lever 23 of which the upper end 23' penetrates a slot 202 in the blade 22 which is opened during the forward or printing stroke of the lever 1 when the feed arms 12 are moved downwardly. When the blade 22 is fully open a spring 26 is stretched by the lever 23 and the lever 23 is retained by a detent 27 presenting a face 27' which engages a stop 28 on the lever 23. The link 24 travels forwardly on the return movement of the lever 1 as the paper strip is fed and a slot 29 in the link 24 passes over a pin 30 in the lever 23 until the forward end of the link 24 engages an adjustable eccentric roller 31 on the detent 27 which releases the lever 23 whereupon the spring 26 actuates the blade 22 to cut off the printed ticket.

Printing is effected through a carbon ribbon carried on spools 32 and adapted to be squeezed between type and a platen 33 by a cam 34 engageable with a roller 35 mounted in the platen. The cam 34 is rotated through 90° on each forward stroke of the printing lever 1 by a link 36, pawl-lever 37', pawl 37 and ratchet wheel 38. The cam 34 has four recesses 39 and four cam faces 40. The recesses 39 provide ample clearance between the platen 33 and the type for paper and ribbon feed whilst the cam faces 40 give intense pressure when the clearance has been taken up. The roller spindle 41 is eccentric and adjustable to vary the printing pressure. The roller 35 and the cam 34 run in anti-friction bearings.

The ribbon, stretched between the two rotary spools 32, is fed in either direction by one or another of the two pawls 42 each engageable with

a ratchet wheel 43. The pawls are mounted on a reciprocatory carrier 44 actuated by a bell-crank 45 which is connected by a link 45' to the link 24. Two type wheels 49 and 50 are rotated to the required printing position by gear sectors 51 and 52 actuated by dials 53 and 54 provided with plunger keys 55 which are numbered to correspond with units or tens, or with winners or seconds. These plunger keys 55 are selected as required, depressed by the fingers of the operative and the dials 53, 54 rotated by them in a clockwise direction, until stopped, by the engagement of the depressed key spindles 56 with trip plates 57 presenting tongues 57' which normally obstruct, as shown in Fig. 1a, the boss 58 of a vertical plunger 59. When engaged by the key spindles 56, the trip plates 57 are retracted against the action of springs 60, as shown in Fig. 3, whereby the tongues 57' release the plunger 59 which is lifted by a pin 60a on a control lever 61 urged by a spring 62, and locks both of the dials 53, 54 by engaging slots 63 in said dials as shown in Fig. 2. An inner plunger 64, which when the dials are in their zero or test ticket position engages in a recess 65 in the gear sectors 51, 52, is thrown outwards when the dials are rotated (Figs. 2 and 3) and displaces an outer plunger outwardly, the lower end of the plunger 59 being withdrawn from between the plungers 64 and 66 when the plunger 59 ascends. Such motion of plunger 66 is accomplished by the outward movement of plunger 64 against plunger 59 which in turn engages the inner end of plunger 66, plunger 59 being pivotally mounted about its actuating pin 60a. The lower end of the plunger 59 is wedge-shaped and, when withdrawn from between the plungers 64 and 66, permits the plunger 66 to move inwardly by effort of spring 204 (Fig. 2) out of the path of the rack 4, thus permitting operation of the printing lever 1.

When the printing lever 1 is operated it entrains the rack 4 with it and, until the rack is restored to normal position, it is impossible to release the dials 53, 54 by reason of the fact that the rack obstructs upward displacement of the plunger 66 so that the plunger 59 cannot be depressed until the plunger 66 is freed by restoration of the rack to normal position, it being understood that depression of the plunger 59 is prevented so long as the plunger 66 is held against outward displacement, such outward displacement of the plunger 66 permitting passage between the plungers 64, 66 of the wedge-shaped lower end of the plunger 59.

For the purpose of transmitting counting impulses to registers, there is provided a contactor unit 151 which is actuated from the control lever 61 through a link 67 and a cranked lever 68. When the plunger 59 rises to lock the dials 53 and 54, the lever 68 slides a plate 69, rotatable with the contactor rotor spindle 72, into an operative position so that a pin 70 on the plate 69 is engageable by a lever 71 operable by the printing lever 1. Now, when the printing lever 1 is actuated to print a ticket, the contactor rotor spindle 72 is rotated by the lever 71 until a tooth on an escapement device is checked by the armature 74 of a magnet 75.

As the printing lever 1 returns and a ticket is issued, the rack 4 is retained by the pawl 5 and the lever 1 continues to move, stretching a spring 90 until stopped by the stop 3a. During this continued movement of the lever 1 a catch 91 on the lever 1 strikes a pin 92 on the control lever 61 and this action withdraws the plunger 59 and allows the trip plates 57 to return and to retain the plunger 59, allowing the dials 53, 54 to return to zero under spring action. When a test ticket is required the printing lever 1 is operated with the dials at zero so that the inner plunger 64 is resting in the recess 65 in the gear sectors 51 and 52 and the plunger 59 is not lifted.

If a race number control knob 97 is not in its prescribed setting, or if a non-contestant is dialed, a locking solenoid 93 is energized to actuate a plunger 94 which engages the control lever 61 by a boss 95, preventing the plunger 59 from rising so that the machine cannot be set up.

A locking bar 96 is also withdrawn from teeth of the race number control knob 97 so that a type roller 98 may be rotated through spiral gears 102 by turning the knob 97.

Contacts 99 (Fig. 1b) are closed in turn by an insulated peg 100 which rotates with the knob 97 and a circuit from the control station via any of these contacts is taken to a relay so that the circuit to the solenoid 93 may be broken only when the correct pair of contacts 99 are made, when the solenoid plunger will return urged by a spring 101, and the locking bar 96 will re-engage the race number control knob 97.

For "win" and "place" betting, in addition to positioning the contestant number type, "win" type or "place" type are brought into printing position alternately and mechanism is provided to cause the "win" ticket counter 127a or the "place" ticket counter 128a to operate when corresponding tickets are printed.

The "win"-"place" type movement and counter change over are actuated by the printing lever 1 when it is moved laterally to operate in one or another of guide slots 118, 119, the lateral setting of the lever 1 determining whether the counter 127 is operated to register a "win" ticket or whether the counter 128 is operated to register a "place" ticket.

Features of the machine described and illustrated form also the subject of co-pending application, Serial No. 98,523, filed August 29, 1936, and of Patent No. 2,111,927.

I claim:

1. A ticket printing and issuing machine comprising, in combination, printing types, manually rotatable dials for moving the types selectively into printing position, plunger keys on said dials marked in correspondence with said types, a type being selected by manual depression of the respective key and by rotation of the dials until the rotation is arrested, means co-acting with the depressed key for arresting rotation of the dials, and means co-acting with said dial-arresting means for locking the dials in arrested position.

2. A ticket printing and issuing machine as claimed in claim 1 including a printing mechanism cooperative with the types, operating mechanism for the printing mechanism and a plunger cooperating with the operating mechanism and dial-locking means to lock the operating mechanism against operation, except when the dials are locked by the dial-locking means, and means permitting withdrawal of the operating mechanism locking means when the dials are in zero or test ticket position.

JOHN HANDLEY.