

Nov. 12, 1935.

C. F. WEBB

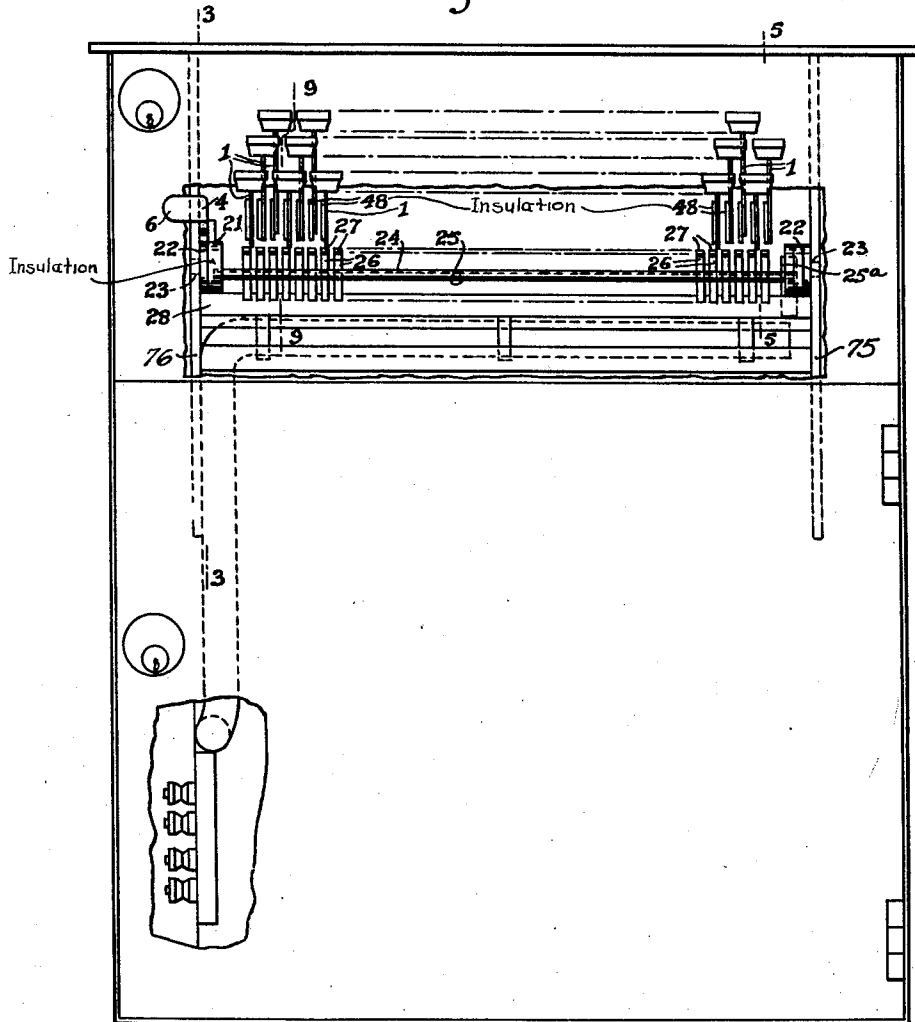
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TICKET PRINTING AND ISSUING MACHINE

Filed Feb. 6, 1930

7 Sheets-Sheet 1

Fig 1.



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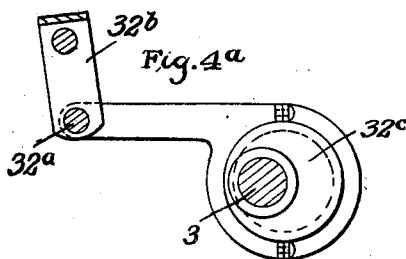
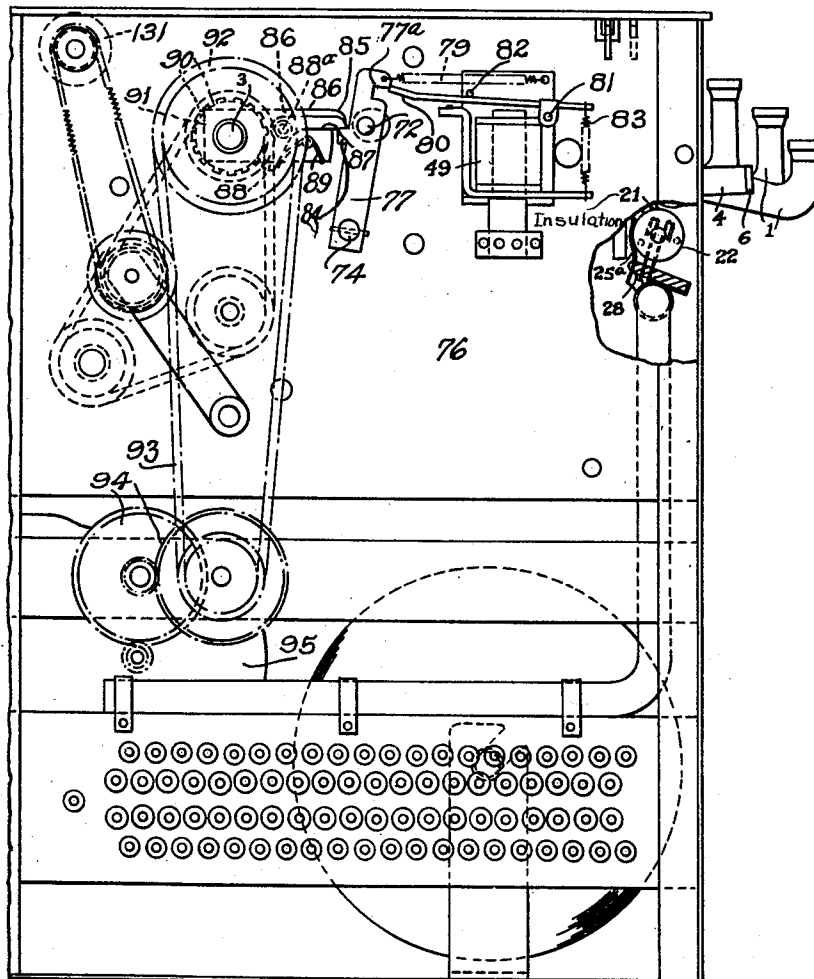
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TICKET PRINTING AND ISSUING MACHINE

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Fig. 2.



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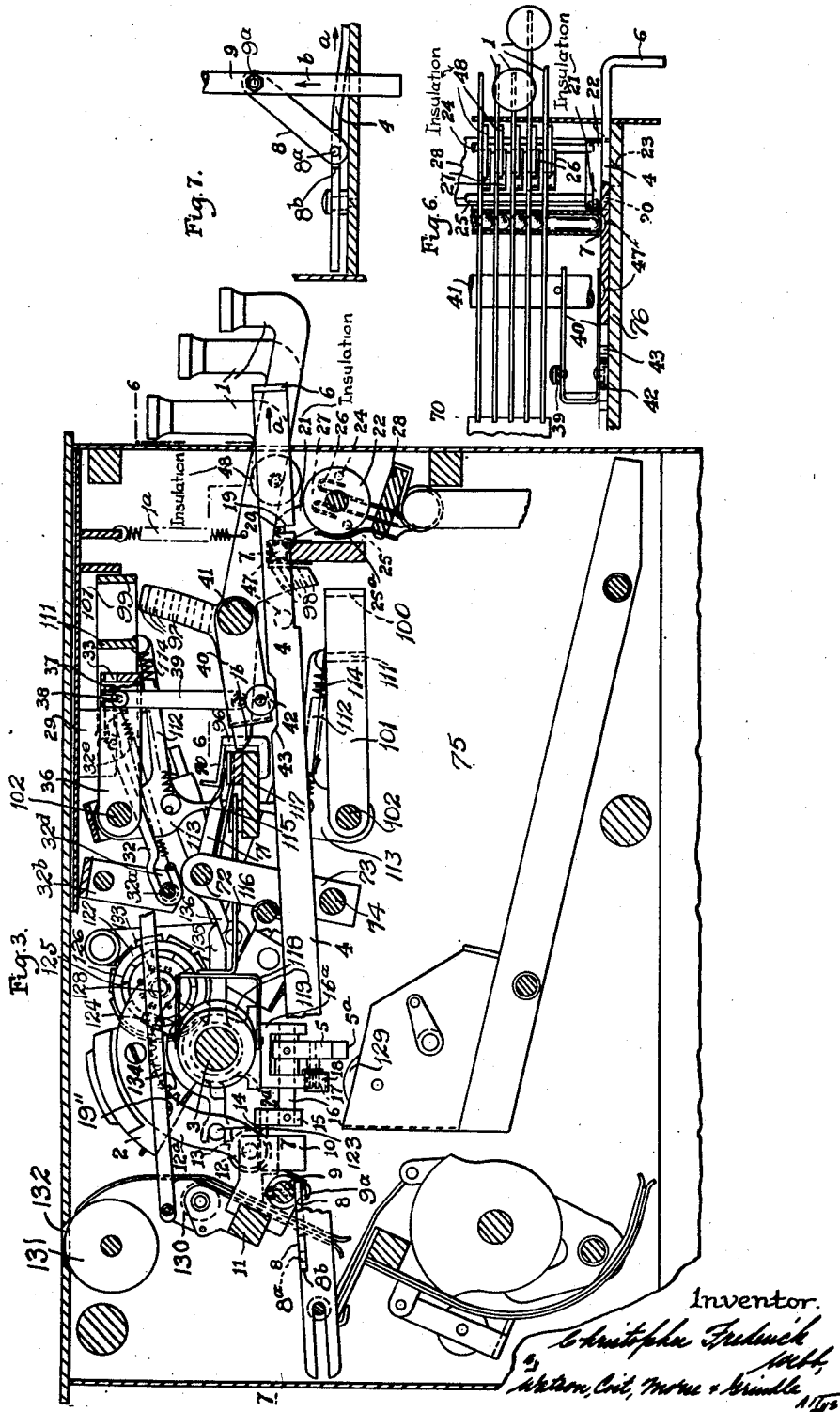
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TICKET PRINTING AND ISSUING MACHINE

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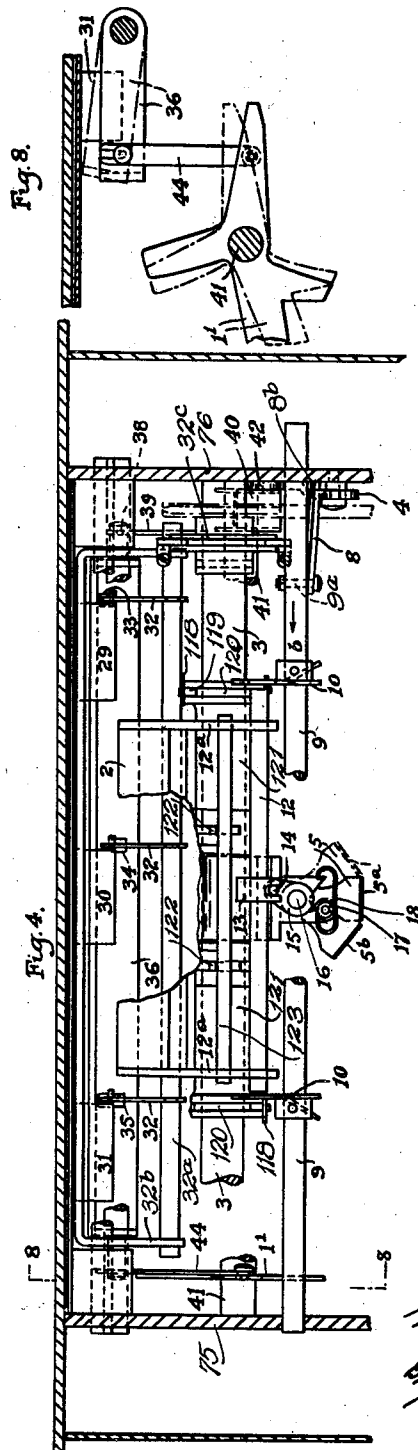
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TICKET PRINTING AND ISSUING MACHINE

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7 Sheets-Sheet 4



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2,020,594

TICKET PRINTING AND ISSUING MACHINE

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7 Sheets-Sheet 5

Fig. 5.

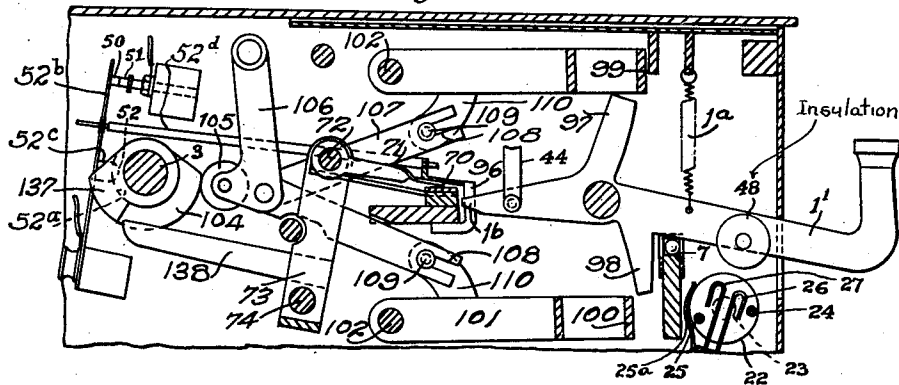
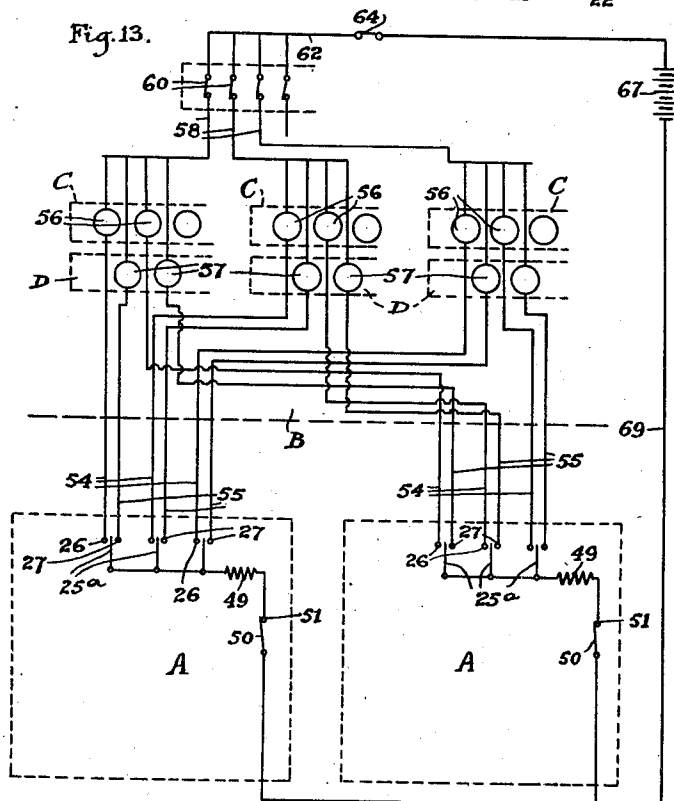


Fig. 13.



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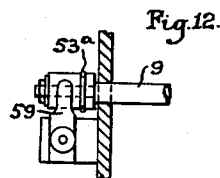
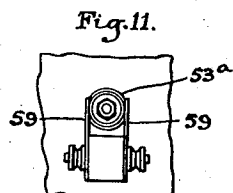
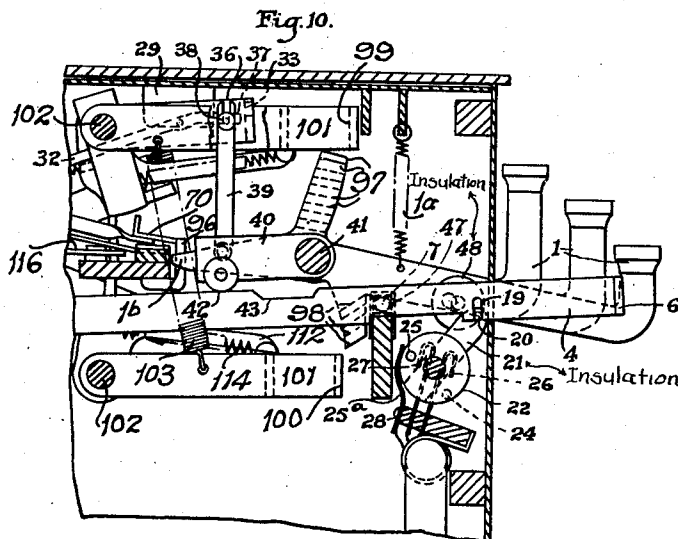
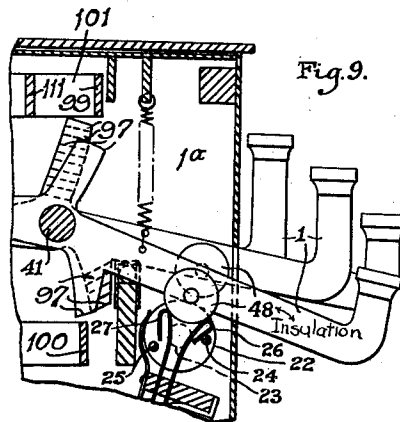
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TICKET PRINTING AND ISSUING MACHINE

Filed Feb. 6, 1930

7 Sheets-Sheet 6



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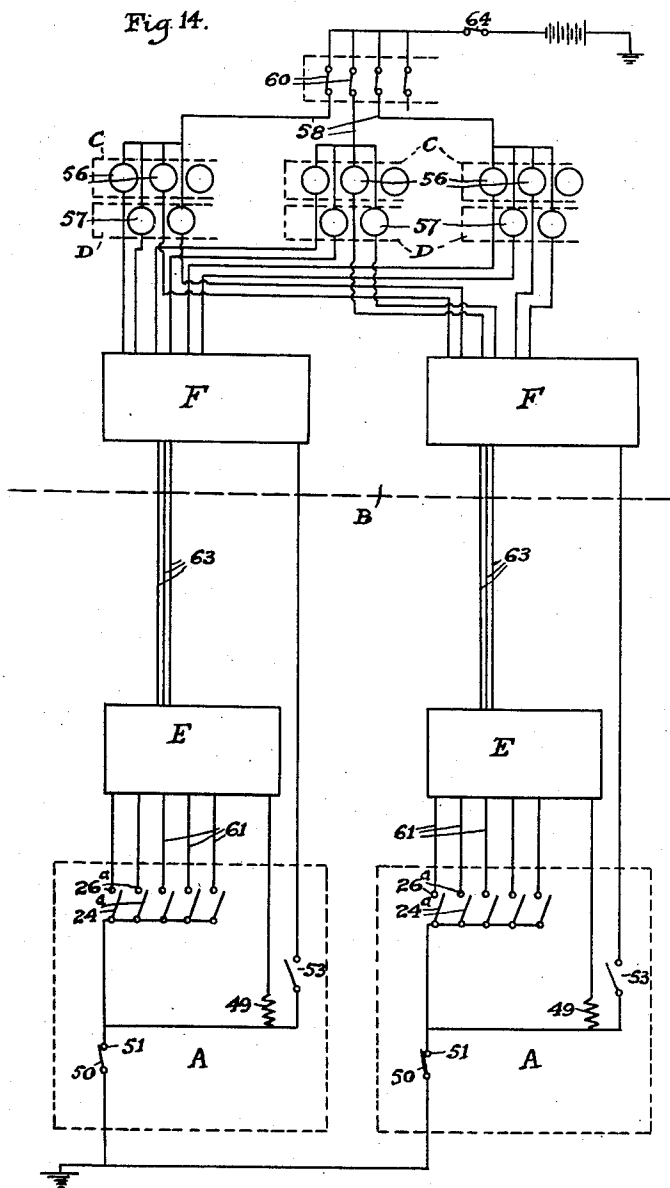
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2,020,594

TICKET PRINTING AND ISSUING MACHINE

Filed Feb. 6, 1930

7 Sheets-Sheet 7



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UNITED STATES PATENT OFFICE

2,020,594

TICKET PRINTING AND ISSUING
MACHINEChristopher Frederick Webb, Middlesex, England,
assignor of one-half to Horace Drummond
Black, Middlesex, EnglandApplication February 6, 1930, Serial No. 426,411
In Great Britain April 25, 1929

7 Claims. (Cl. 101-66)

This invention is for improvements in ticket printing and issuing machines and has for its object the provision of a machine wherein an operator may select any desired denomination of a series whilst the impression of the same upon a ticket and the effective operation of a registering mechanism associated with that impression is effected solely upon the actuation of the printing mechanism.

For example, when tickets are printed and issued from a machine in conjunction with a totalizator, it is necessary to print and issue at least two classes of tickets one for a "win" and the other for a "place" bet and to record the number of each series of tickets issued upon appropriate mechanism.

According to the present invention there is provided a ticket printing and issuing machine wherein means operable manually are arranged to select any desired denomination of at least two denominations carried by a printing mechanism and a series of keys each of which is operable manually to select a denomination of a further series of denominations carried by the said mechanism and ensure that the denominations selected by the said means and said key respectively are printed upon a ticket and registered upon a single mechanism associated solely with the two selected denominations.

In order that the invention may be fully understood the same will be described with reference to the accompanying drawings in which:—

Figure 1 is a front elevation of a ticket printing and issuing machine constructed in accordance with this invention and showing portions of the front cover plate of the machine broken away to disclose a key actuated contact mechanism.

Figure 2 is a side elevation of the ticket printing and issuing machine illustrated in Figure 1 and showing a portion of the framework broken away and with the outer cover plate removed.

Figure 3 illustrates upon an enlarged scale a section on the line 3—3 of Figure 1.

Figure 4 is a part transverse sectional rear view of the machine illustrated in Figures 1 and 2.

Figure 4a is a side elevation of an eccentric shown in Figure 4 which is employed for operating registering counters provided in the machine.

Figure 5 illustrates upon an enlarged scale a part section on the line 5—5 of Figure 1, and indicates an electrical make and break device and a key actuated mechanism.

Figure 6 is a sectional plan view on the line

6—6 of Figure 3 showing a portion of a master member 4 broken away.

Figure 7 is a section on the line 7—7 of Figure 3 illustrating details of the mechanism controlled by the master member.

Figure 8 is a section on the line 8—8 of Figure 4 illustrating the mechanism by which a test key controls a counter selector member hereinafter described.

Figure 9 is a part section upon an enlarged scale on the line 9—9 of Figure 1 but showing a key lever in a depressed position.

Figure 10 is a view similar to part of Figure 3 but showing the master member 4 in a different position.

Figure 11 is a detail view of a switch controlled by the master member 4 in a modified form of the invention.

Figure 12 is a side view of Figure 11.

Figure 13 is a diagram illustrating a method of electrically connecting two ticket issuing machines, constructed in accordance with this invention with a central controlling station, and

Figure 14 is a diagram illustrating a modified method of electrically connecting two ticket issuing machines constructed in accordance with this invention with a central control station.

Referring to the drawings, a series of manually depressible keys 1 are pivotally mounted upon a spindle 41 mounted in the machine frame, each key extending through a slot in a front panel of the machine casing and is normally maintained in an uppermost position as indicated in Figure 3 by a spring 1^a. The forward end 1^b of each key is located below the front edge of a universal clutch bar 70 extending across all the keys in the manner shown in Figure 6 which discloses a portion of the bar 70 extending at its forward edge over the ends 1^b of five of the keys 1. The bar 70 is connected at its ends by links 71 (Figures 3 and 5) to a rod 72 arranged parallel to the bar 70 and mounted in the ends of the arms of a stirrup member 73. The stirrup member is fixed to an oscillatable spindle 74 carried in bearings in side plates 75, 76 of the machine frame, the said spindle extending through the plate 76 and having an arm 77, Figure 2, keyed thereon. The rod 72 extends through an aperture 78 formed in the plate 76 and is connected to the upper end of the arm 77. The arm 77 is normally urged to the right in Figure 2 by a spring 79 and bears against the free end of an armature 80 of an electro-magnetic release device for the machine having an electro-magnet 49. The armature 80 is pivoted at 81 and is normally maintained in an upper position

against a stop 82 as indicated in Figure 2, by a spring 83. Energization of the magnet 49 in a manner hereinafter described lowers the armature 80 so that the free end thereof is disposed opposite to a notch 77^a in the arm 77 and would thus no longer prevent the said arm from being moved by the spring 79. The arm 77 is provided with a nose 84 normally disposed beneath a projection 85 of an arm 86 keyed to a shaft 3 which is rotatably mounted in bearings provided in the side plates 75, 76. The nose 84 is also normally disposed beneath the heel 87 of a latch 88 pivotally mounted at 88^a upon the arm 86. A spring 89 is arranged to urge the latch 88 in a clockwise direction, Figure 2, so that if freed by the nose 84 the said latch would be moved so as to extend into one of a series of notches 90 formed around the periphery of a collar 91 freely rotatable upon the shaft 3. The collar 91 is provided with a sprocket 92 which is coupled by a chain 93 and train of gears 94 to an electric driving motor 95.

An electric switch for the motor 95 is adapted to be actuated by the spindle 74 in the manner described in application Serial No. 403,570 which has now matured into Patent No. 1,886,626 and a description of which it is not necessary to repeat in the present application.

The universal clutch bar 70 is normally maintained in engagement at its ends with fixed stops 96 one of which is shown in Figures 3, 5, and 10.

Each key 1 is provided with an upper and a lower differential abutment indicated respectively at 97 and 98 which are arranged respectively to co-operate in a manner hereinafter described with an upper and a lower universal setting bar 99, 100. The bars 99, 100 are provided at their ends with limbs 101 which are pivotally mounted at their free ends upon rods 102 carried by the machine frame. The bars 99, 100 are normally urged towards the spindle 41 by a spring 103, Figure 10, but are maintained in the positions illustrated in the drawings by a cam 104, Figure 5, on the shaft 3 which bears against a roller 105 carried by a pivoted arm 106 to the free end of which one end of each of a pair of links 107 is pivotally connected, the other ends of the links being provided with slots 108 into which extend pins 109 carried by extensions 110 provided upon the limbs 101 of the respective bars 99, 100. A bar 111 is connected between the limbs 101 of each setting bar 99, 100 and one arm 112 of a double-armed lever 113 which is pivotally mounted upon the corresponding rod 102 is arranged to bear against the bar 111 through the medium of a spring 114. The other arm 115 of each double-armed lever 113 is operatively connected to one arm of one of a pair of horizontally arranged bell crank levers 116 which are pivotally mounted upon a supporting bar 117 carried by the machine frame. The free end of the other arm of each bell crank lever 116 is provided with a fork 118 in which is mounted a yoke 119 arranged to extend into a groove 120, Figure 4, of one of a pair of sleeves 121 slidably mounted upon the shaft 3. Each sleeve 121 is provided with a forked extension 122 arranged to engage with a guide bar 123 which is carried by a pair of plates 12^a secured to a printing cylinder 2 and the hub 2^a of which (Figure 3) is keyed to the shaft 3.

Each sleeve 121 is provided with a stop 124 one of which is illustrated in Figure 3 which is arranged to co-operate with a series of circumferentially and axially displaced steps 125 formed upon a barrel 126 which is secured to a type wheel 127 which is rotatably mounted upon a spindle

128 carried by the plates 12^a. Each type wheel 127 (only one of which is shown in Figure 3) is urged by a spring in a clockwise direction in Figure 3 in the manner described in the aforesaid Patent No. 1,886,626. In the normal position of the parts illustrated in the drawings the stops 124 and sleeves 121 are located nearest to the printing cylinder 2 in the axial direction of the shaft 3 and a step 125 is arranged in engagement therewith which ensures that a zero type face upon each of the wheels 127 is disposed outwardly from the shaft 3 so as to be located at the same radial distance from the axis of the shaft 3 as the general printing surface of the printing cylinder 2, that is to say, the surface or path generated by the outer faces of the various types on the cylinder which are effective to print when the cylinder rotates. Each type wheel 127 is provided with type faces equally disposed around the periphery thereof numbering 0 to 9 and a corresponding number of steps 125 are provided upon the barrel 126, so that any of the faces may be brought to the outermost or printing position relatively to the cylinder 2, by rotation of the respective type wheel.

The operation of the parts so far described is as follows:—

Depression of a key 1 such as is illustrated in Figure 9, causes the differential abutments 97, 98 to be disposed in the path of movement of their respective setting bars 99, 100 and simultaneously the nose 1^b of the depressed key lifts the universal clutch bar 70 clear of the stops 96. The depression of the key is caused in a manner hereinafter described to actuate a switch mechanism which energizes the magnet 49 so that the armature 88 is moved into alignment with the notch 77^a. The spring 79 thereupon moves the arm 77, rod 72 and clutch bar 70 to the right in Figures 2 and 3 thus causing an oscillation of the spindle 74 which closes the switch for the motor 95. This movement of the arm 77 disengages the nose 84 from below the projection 85 and the heel 87 of the latch 88. The latch 88 is moved by the spring into engagement with one of the notches 90 so that the arm 86 is coupled by the latch to the collar 91 and to the driving motor 95 so that the shaft 3 commences to rotate. The initial rotation of the shaft 3 causes the cam 104 to free the roller 105 and permit the spring 103 to move the setting bars 99, 100 towards the spindle 41. This movement of the bars 99 and 100 is limited by the differential abutments 97 and 98 of the depressed key. The differential movements of the bars 99 and 100 thus effected produces, through the medium of the levers 113 and 116, corresponding differential movements of the sleeves 121 and stops 124 thereon, axially of the shaft 3. The movements of the stops 124 permit the springs of the type wheels 127 to rotate the same until further rotation thereof is prevented by one of the steps 125. The arrangement is such that the differential rotation of the type wheels 127 upon the spindle 128 as effected by any particular key causes the type faces to be brought into the position for printing which corresponds to the number of the key depressed.

The printing surface of the cylinder 2, the outermost type face of the wheels 127 and any other type faces mounted upon the printing cylinder are arranged to be inked by an inking roller 129 and thereafter to print upon a ticket through the medium of an impression roller 130, Figure 3, the printed ticket being delivered through the me-

dium of a friction roller 131 through a slot 132 in the upper panel of the machine casing.

Each type wheel 127 is provided with a pinion formed of pins 133 arranged in mesh with a toothed quadrant 134 (Figure 3) pivotally mounted upon the shaft 3 and each quadrant is provided with an arm 135 which is normally urged through the medium of the spring of the corresponding type wheel against a stop 136 fixed to the rod 72. It will thus be appreciated that movement of the rod 72 to the right in Figure 3 at the commencement of a printing operation removes the stops 136 from the path of movement of the arms 135 so as to permit rotation thereof with the printing cylinder 2 and rotation thereof relatively to the said cylinder as the type wheels 127 rotate upon the spindle 128.

Towards the end of a cycle of operation of the machine a cam 137, Figure 5, keyed to the shaft 3 is arranged to actuate an arm 138 carried by the stirrup member 73 so as to restore the stirrup and rod 72 to the normal position in which the stops 136 are again interposed in the path of the arms 135. This causes a rotation of the quadrants 134 with the printing cylinder 2 to cease as soon as the arms 135 abut against the stops 136 and thereafter rotation of the printing cylinder 2 causes relative movement between the quadrant 134 and the pinions 133 so as to restore the type wheels 127 to the normal zero position.

The restoration of the rod 72 to the normal position by the cam 137 also restores the nose 84 on the arm 77 to the normal position so that as the printing cylinder rotates during the latter part of a revolution the heel 87 abuts against the nose 84 and the latch 88 is disengaged from the notched collar 91 at the same moment as the projection 85 of the arm 86 abuts against the nose 84; the return movement of the rod 72 also causes the return oscillatory movement of the spindle 74 which opens the switch for the motor 95.

During the latter part of the rotation of the shaft 3 the cam 104 operates to restore the bars 99 and 100 to their normal position as illustrated in Figure 5.

When the ticket issuing machines according to this invention are employed for issuing tickets as receipts for bets in conjunction with a totalizer, the type wheels 127 are employed for printing upon the tickets the number of the horse or other competitor in respect of which the tickets are issued. In this instance, it is also necessary to print the word "win" or the word "place" upon each ticket in accordance with the type of bet made.

To this end a master member 4 is slidably mounted in guides in the machine frame and extends through the front of the machine casing where a finger piece 6 is provided thereon. The master member 4 is arranged to extend through a gate 7 disposed adjacent the underside of the bank of operating keys 1 and is pivotally connected near to the forward end thereof to one end of a link 8 (Figures 3, 4, and 7) by means of a pin 8^a on the member 4 which extends through a hole formed in the end of the link, the said end being accommodated in a recess 8^b formed in the upper edge of the member 4. The other end of the link 8 is pivotally connected by a bolt 9^a to a rod 9 mounted in guides in the machine frame so as to be movable in a direction transverse to the direction of movement of the master member 4.

Two plates 10 are rigidly mounted upon the rod 9 and are arranged to engage slidably with a

guide bar 11 secured to the machine frame (Figure 3). In the stationary position of the printing cylinder 2 a rod 12 slidably mounted in plates 12^a carried by the printing cylinder is arranged between the plates 10. The rod 12 is provided with a grooved collar 13 which is arranged to engage a pin 14 mounted upon a crank 15 secured to a spindle 16 pivotally mounted in a bracket 16^a secured to the boss 2^a of the printing cylinder. The spindle 16 carries the type 10 member 5 (provided with two type faces 5^a, or 5^b) provided with a roller 17 arranged in engagement with a blade spring 18 arranged to maintain either of the type faces 5^a, or 5^b in register with the surface of revolution generated by the printing cylinder 2.

It will be observed that a longitudinal movement of the master member 4 is communicated through the link 8 to the rod 9 which in turn moves the rod 12, collar 13, the said collar moving the pin 14 and thereby rotating the spindle 16 and type member 5 therewith in one direction or the other into one of two alternative positions, one of which is indicated in full lines and the other in dot and dash lines in Figure 4. Thus the position of the master member 4 determines which of the type faces 5^a, 5^b will be arranged in alignment with the surface of revolution generated by the printing cylinder 2, and therefore will be in a position to print upon a ticket when the printing cylinder rotates.

Adjacent the gate 7 the master member 4 is provided with a notch 19 (Figure 3) which engages a pin 20 mounted upon an arm 21 of insulating material secured to one end of a contact device 22 which is insulated and is pivotally mounted in bearings 23 provided in the frame of the machine (Figures 1 and 6).

The arrangement is such that longitudinal movement of the master member 4 causes the contact device 22 to be partially rotated and the position of the master member thereby determines the position of the said device, the two alternative operative positions of which are shown respectively in Figures 3 and 10.

The device 22 is provided with a pair of contact bars 24 and 25 which extend upon either side of two banks of contact blades 26 and 27 mounted upon a carrier 28 of insulating material which is carried by the machine frame.

A pair of the contact blades 26, 27 is disposed beneath each of the keys 1 which are each provided with a disc 48 of insulating material.

A contact brush 25^a mounted upon the carrier 28 bears upon the device 22 and an electrical connection between the contact bars 24 and 25 and its corresponding terminal is thereby obtained.

When the master member 4 is in the position indicated in Figure 3, it will be observed that the depression of a key 1 as indicated in Figure 9 causes the disc 48 thereon to engage between and flex the corresponding contact blades 26 and 27 and causes the blade 26 to engage with the contact bar 24 whilst the blade 27 is not moved sufficiently to enable the same to engage with the bar 25.

The contact of the blade 26 with the bar 24 is utilized, in a manner hereinafter described, to register a bet at a central control station upon the win registering mechanism of the horse corresponding to the key depressed. When the master member 4 is moved into the position indicated in Figure 10, the depression of a key 1 causes a contact to be similarly established between the

corresponding blade 27 and the bar 25, which is utilized to register a "place" bet at a central control station upon the registering mechanism of the horse corresponding to the key depressed.

Three counters 29, 30, and 31 are mounted upon the machine and are each adapted to be coupled by a link 32 to a rod 32^a carried in a swinging frame 32^b which is operatively connected to an eccentric 32^c. Figure 4, keyed to the shaft 3. The rod 32^a extends through a slot 32^d in one end of the link 32 and the closed end of the slotted portion is urged against the rod by a spring 32^e. The normal position of the rod 32^a is shown in Figure 3 and rotation of the shaft 3 causes the eccentric 32^c to move the said rod to the right and back again, the movement to the right permitting the springs 32^e to move the links 32 to the right and the movement of the rod to the left ensuring that positive return of the links. The counter 29 is arranged to be operated in a manner hereinafter described only when tickets are printed upon by the type face 5^a and so register the number of tickets of that character issued by the machine, whilst the counter 30 registers the number of tickets issued which bear an imprint of the type face 5^b whereas the counter 31 registers the aggregate of the counters 29 and 30.

In order to effect the correct selection of the counters by movements of the master member 4, the same is provided with a cam face 43 arranged in engagement with a roller 42 pivotally mounted upon one end of an arm 40 which is pivotally mounted upon a spindle 41 arranged to support the keys 1 of the machine. The arm 40 is connected to one end of a link 39 the other end of which is provided with a slot arranged to receive a pin 38, mounted upon one end of a pivotally mounted selector member 36. The selector member 36 is provided with apertures 33, 34, and 35 arranged in staggered formation at points along the length thereof.

When the eccentric 32^c rotates with the shaft 3, it swings the frame 32^b to the right in Figure 3 and thus enables the springs 32^e to move the links 32 to the right as the rod 32^a carried by the said frame progresses in that direction. It is to be noted however that this movement of the links can only occur when the corresponding aperture 33, 34, or 35 in the member 36 is disposed opposite to an extension 37 on the link 32 so that the said extension can pass through the aperture; otherwise only a very slight movement of the link is effected which is limited by the free end of the extension thereof abutting against the member 36. When a link 32 is permitted to move the full distance to the right with the rod 32^a and is then retracted with the rod to the normal position by the action of the eccentric 32^c, the counter which is operatively connected with the link is actuated and one unit is added thereto.

The arrangement is such that when the master member 4 is in the position indicated in Figure 3 the aperture 33 in the selector member 36 is disposed opposite to the extension 37 of the link 32 which is arranged to operate the counter 29, the aperture 35 is so dimensioned as to be disposed opposite to the extension of the link of the counter 31, whilst the aperture 34 is maintained out of register with the extension of the link which operates the counter 30, so that when the machine is operated in this position the

counters 29 and 31 will be actuated whilst the counter 30 will remain unaffected.

Upon the master member 4 being moved in the direction of the arrows *a* (Figures 3 and 7) into the position indicated in Figure 10, to displace the rod 9 in the direction of the arrows *b* (Figures 4 and 7) the type member 5 is moved in the manner hereinbefore described and the roller 42, moved by the cam 43 in an upward direction, operates the link 39 and member 36 to ensure that the aperture 34 in the member 36 is moved into register with the extension 37 of the link 32 which is arranged to operate the counter 30, whilst the aperture 33 in the member 36 is moved out of register with the extension 37 of the link 32 which actuates the counter 29 and the aperture 35 is so dimensioned as to remain in register with the extension 37 of the link 32 arranged to operate the counter 31. With the master member 4 in the position described an operation of the machine effects an actuation of the counters 30 and 31 whilst the counter 29 remains unaffected. A test key 1¹ is connected by means of a link 44 to the selector member 36 (Figures 4 and 8) and an operation thereof moves the member 36 into the position indicated in dot and dash lines in Figure 8 where all the apertures 33, 34, and 35 are moved out of register with the extensions 37 of the links 32 so that an operation of the machine by the test key does not effect an actuation of any of the counters.

In order that the machine shall be maintained inoperable whilst the type member 5 is being moved from one position to the other by the master member 4 in the manner hereinbefore described, the said member is constructed so that the full width thereof maintains the gate 7 closed whilst depressions 47 provided at points along the length thereof are of such a depth as to ensure that when the said member 4 is in either of its extreme operative positions one of the depressions is aligned with the gate and provides a free space between a series of balls constituting the gate 7 which permits the depression of one key only at a time between the balls.

When a machine is connected with a central control station for the purpose of registering the number and class of tickets issued thereby an operation of a key 1 establishes an electric circuit which includes the electromagnetic releasing device 49 for the machine (Figure 2) and also contacts 50 and 51 of a make and break device, illustrated in Figure 5, which is arranged to be actuated by a cam in the form of a collar 52^a having a recess 52 and keyed upon the shaft 3', the contact 50 is carried by a spring blade 52^b provided with a projection 52^c which bears against the cam 52^a. A push rod 52^d is arranged to couple the universal bar 70 with the spring 52^b for the purpose of safeguarding the contacts 50, 51 against closure once they have been opened in a cycle of operation, until the very end of the cycle; this is ensured by the cam 137 moving the arm 138 a little further anti-clockwise than the normal position so that when the said cam is operating on the said arm the rod 52^d maintains the contacts 50, 51 separated until the cam 137 releases the arm 138 and permits a slight clockwise movement to the said arm which results in a movement of the rod 52^d to the right into the position shown in Figure 5 and the contacts then close.

Figure 13 illustrates diagrammatically two ticket issuing machines "A" constructed in ac-

cordance with this invention and arranged to print and issue tickets as receipts for bets.

Each ticket printing and issuing machine is arranged in electrical connection with a central control station "B" at which a main relay board is located upon which counters are provided for adding the number of bets which are registered upon each of the horses associated with the keys of the various machines, some of the bets being registered in respect of "win" bets whilst others are registered in respect of "place" bets. In Figure 13 the "win" counters of the individual competitors are indicated diagrammatically at C whilst the "place" counters are indicated diagrammatically at D. Each win or place counter is operable by the individual machines A through the medium respectively of a relay 56 or 57 associated solely with the machine. Various forms of such counting mechanisms are well known and the same do not in themselves constitute any part of this invention, but are shown diagrammatically in the drawings for the purpose of illustrating the manner in which the circuits of the ticket issuing machines according to the invention may be arranged.

Each key of a machine when depressed closes one of two electrical circuits according to the position of the master member through the medium of the contact blade 26 or 27 and contact bar 24 or 25 and the brush 25^a, in the manner hereinbefore described. The contact blades 26 and 27 of each key are connected respectively to separate leads 54 and 55. The leads 54 are each connected to one of the series of electrically operated relay mechanisms 56 for registering the "win" bets on the counters C and the leads 55 are each connected to one of the series of electrically operated relay mechanisms 57 for registering the "place" bets on the counters D. Each of the "win" or "place" mechanisms associated with each key are controlled by switches 60 at the central control station whereby some or all of the keys of each of the machines may be disconnected from the electrically operated mechanisms 56, 57 at the central control station. Thus when a bet is made the operator of a machine "A" moves the master member 4 thereof to the position to indicate whether the bet is a "win" or a "place" bet, and thereupon depresses the key corresponding to the number of the horse upon which the bet is placed. If there is not a runner in the race bearing the number on which the bet has been placed, the switch 60 associated with that number would have been opened manually by an operator prior to the issuing of tickets, at the central control station so as to break the circuit through the corresponding mechanisms 56 and 57 and the electromagnetic release device 49, and in consequence the machine is locked against operation and the registering mechanism and the machine is maintained inoperative. If, however, there exists a runner corresponding to the number of the key depressed and the bet is in respect of a "win" a circuit will be closed through the corresponding spring blade 26, lead 54, the corresponding electromagnetically operated mechanism 56 of the series of registering counters "C" through a lead 58, control switch 60, lead 62, main cut out switch 64, source of electrical energy 67, lead 69, make and break device 50, 51 and the electromagnetically operated release mechanism 49 to the bar 24, whereupon the bet is registered for a "win" upon the appropriate counter C at the central control station and a ticket is printed and issued from the machine bearing the horse number and

"win" denomination. When the master member 4 is moved so as to set the machine for a place bet a corresponding circuit is closed when a key is depressed to actuate a relay 57 to register a "place" bet upon the registering counter "D" at the central control station.

When ticket issuing machines constructed in accordance with this invention are electrically connected to the aforesaid central control station by means of a coding and decoding mechanism in order to effect economy in wiring the electrical arrangements have necessarily to be somewhat modified from those described above.

Figure 14 illustrates diagrammatically a method of connecting electrically two ticket printing and issuing machines, constructed in accordance with this invention, to a central control station B by means of a coding mechanism E and decoding mechanism F which it is not necessary to describe in detail as such mechanism forms no part of the present invention. It may be stated, however, that the coding mechanism is provided, for example, with a series of relay devices arranged to be actuated selectively by a circuit established by the closing of an electric switch upon the depression of a key in the ticket issuing machine. Depending upon which key is depressed and the consequent actuation of the relay device in the coding mechanism, an electric impulse is sent over one or more lines to the decoding mechanism, it being appreciated that owing to the permutation of the impulses a considerably less number of lines is required to connect the coding mechanism to the decoding mechanism than the number of keys in the ticket issuing machine; for example six lines are sufficient for a machine with forty keys. Upon receipt of the coded impulses by selective relay devices in the decoding mechanism, a circuit is established through a registering relay associated solely with the ticket issuing machine actuated and the particular competitor in respect of which a ticket is issued by the machine.

In the arrangement illustrated in Figure 14 the selective contact device 22 is dispensed with and the depression of a key is arranged to cause one of a series of blades, 24^a electrically connected together to contact with one of a series of contacts 26^a for a purpose hereinafter described.

When the master member 4 is moved to set the machine for printing and issuing tickets for "place" bets it closes a "place" switch illustrated in Figures 11 and 12 and which comprises a ring 53^a mounted upon one end of the rod 9 but insulated therefrom and which in the position of the rod 9 and master member 4 corresponding to the printing and issuing of "place" tickets is arranged to establish electrical connection between a pair of spring blades 59; or the movement of the rod 9 may be made to operate a pair of spring contacts of standard telephone design. The closing of the switch is arranged to close the circuit of an electromagnetically operated switch in a known manner in decoding mechanism F so that the circuit associated with the key depressed is electrically switched over from the "win" leads of the decoding mechanism to the "place" leads thereof whereby a "place" bet will be recorded at the central control station. The win and place switch is designated by the reference numeral 53 in Figure 14.

Referring to Figure 14 and assuming the ticket issuing machines "A" are set for printing and issuing tickets for "win" bets, the depression of a key causes a circuit to be established through the corresponding contact 26^a, lead 61 connected

thereto to the coding mechanism E which codes the number of the ticket in the known manner above referred to and by means of permutated circuits in the leads 63 actuates the decoding mechanism F which then establishes a circuit through the registering relay 56 corresponding to the key depressed and thence by a lead 58, to a control switch 60 thence through the master switch 64, to the negative pole of the source of electrical energy while the other end of the key circuit is connected to earth after passing through the contacts 50, 51.

When the master member 4 is in the position which sets the machine for issuing "place" tickets, the switch 53 is closed and an electromagnetically operated switch (not shown) in the decoding mechanism F switches the impulses conveyed in the leads 63 over to the "place" leads so as to establish a circuit through a registering relay 57 corresponding to the key depressed and thence through a circuit similar to that abovedescribed with relation to the relays 56. The actual control of the decoding mechanism in this way is well known and forms in itself no part of this invention.

It is to be understood that the lines 54 and 55 Figure 13 and lines 61 Figure 14 of each machine may be connected to a switch 60 without necessarily passing through an electromagnetically operated registering device or a coding mechanism.

Although the machine has been described as arranged to issue "win" and "place" tickets and register the issue thereof upon a totalizer mechanism it is to be observed that the machine could be arranged to print, issue and register first and third class railway tickets or any similar variety of tickets.

I claim:

1. In a totalizer ticket printing and issuing machine the combination of a rotary printing cylinder provided with a movable type member having at least two type faces selectable for printing the class of bet by movement of said member and a manually reciprocable master member operatively associated with said type member and operable solely by such reciprocation to move the same selectively only when said type member is in a predetermined non-printing position.

2. In a totalizer ticket issuing machine the combination with a rotary printing cylinder having a normally stationary position, of a type member having at least two different type faces selectable for printing the class of bet by movement of said member and a manually reciprocable master member operatively associated with said type member and operable solely by such reciprocation to move the same selectively only when said printing cylinder is stationary.

3. In a totalizer ticket printing and issuing machine the combination with a rotary printing cylinder having movably mounted thereon a series of competitor printing types of different denominations selectable for printing by movement of said types and manually operable selecting means therefor, of at least two further different types movably mounted on said cylinder for printing the class of bet, a manually operable master member operatively associated with said further types for selectively moving any one

thereof into position for printing on said cylinder and means operable to prevent actuation of the first said manually operable means until the master member is located in one of the class selective positions thereof.

4. In a ticket printing and issuing machine the combination of a rotary printing cylinder, a type member movably mounted on said cylinder and having at least two type faces either of which can be brought selectively into position for printing by movement of said type member, actuating means operatively connected to said type member for selectively moving the same, said means being carried on said printing cylinder and disposed eccentrically thereof and manually reciprocable means separated from but adapted by such reciprocation to co-operate with said actuating means to thereby selectively move said type member.

5. In a ticket printing and issuing machine the combination of a rotary printing cylinder, a type member movably mounted on said cylinder and having at least two type faces either of which can be brought selectively into position for printing by movement of said type member, actuating means operatively connected to said type member for selectively moving the same, said means being carried on said printing cylinder and disposed eccentrically thereof and manually reciprocable means separated from but adapted by such reciprocation to co-operate with said actuating means solely in a predetermined position of said printing cylinder about its axis of rotation to thereby selectively move said type member.

6. In a ticket printing and issuing machine the combination of a rotary printing cylinder, having a predetermined normal stationary position, a type member movably mounted on said cylinder and having at least two type faces either of which can be brought selectively into position for printing by movement of said type member, actuating means operatively connected to said type member for selectively moving the same, said means being carried on said printing cylinder and disposed eccentrically thereof and manually reciprocable means separated from but adapted by such reciprocation to co-operate with said actuating means in said stationary position of said printing cylinder to thereby selectively move said type member.

7. In a ticket printing and issuing machine, the combination of a rotary printing cylinder provided with a movable type member having a plurality of type faces of at least two denominations, a first rod slidable in the machine frame, a manually operable master member operatively connected to said first rod, two abutment members mounted on said first rod, a second rod slidably mounted upon said printing cylinder, and which in a normal stationary position of the printing cylinder is operatively associated with said abutments, said second rod being operatively connected to said type member, whereby said master member is operable to move said type member selectively when said printing cylinder is stationary.

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