A. KIPARSKI.

APPARATUS FOR AUTOMATICALLY TOTALIZING TICKETS.

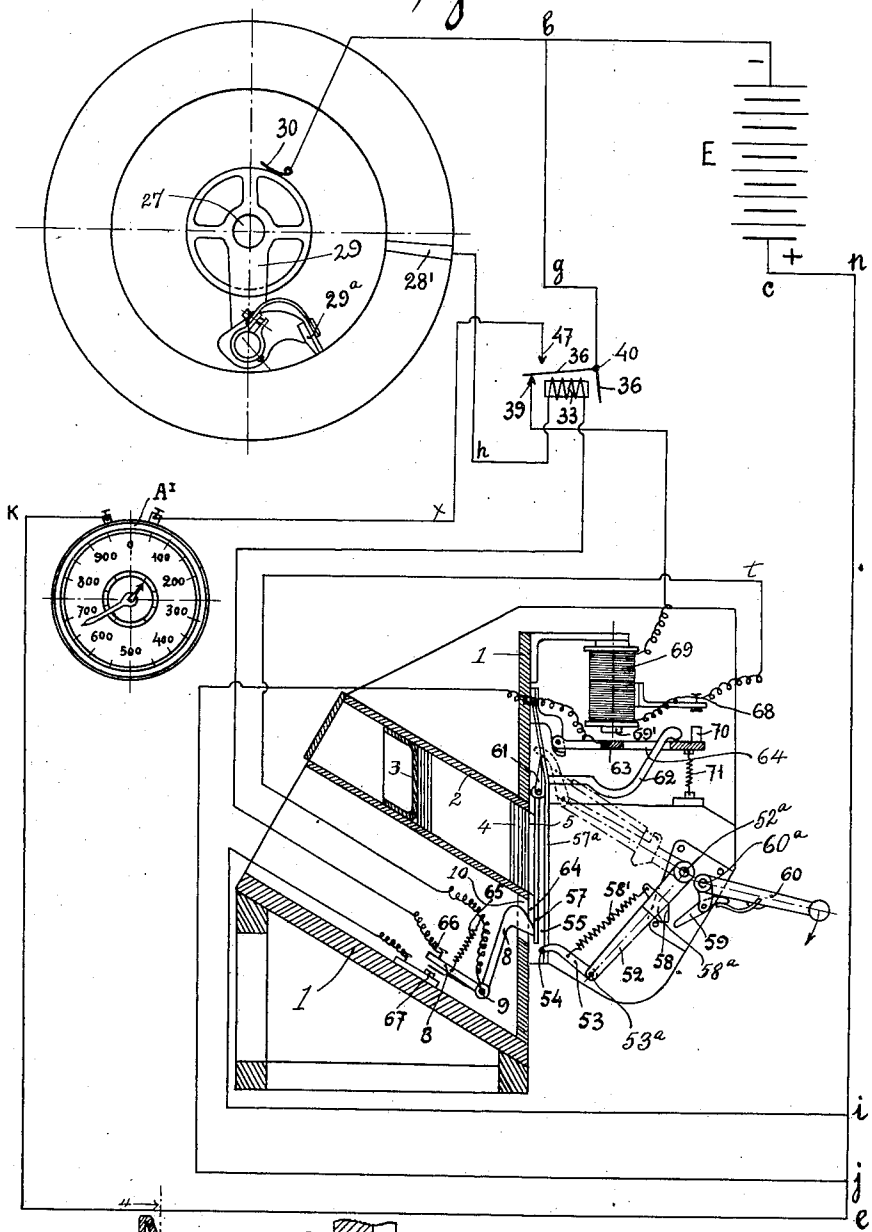
APPLICATION FILED OCT. 8, 1913.

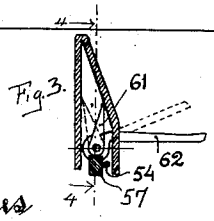
1,101,453.

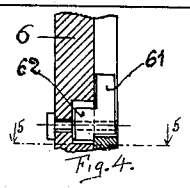
Patented June 23, 1914.

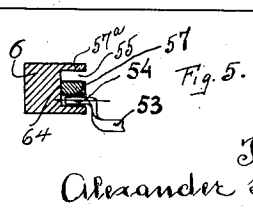
2 SHEETS—SHEET 1.

Fig. 1.









Witnesses

Inventor

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his Attorneys

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1,101,453.

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2 SHEETS—SHEET 2.

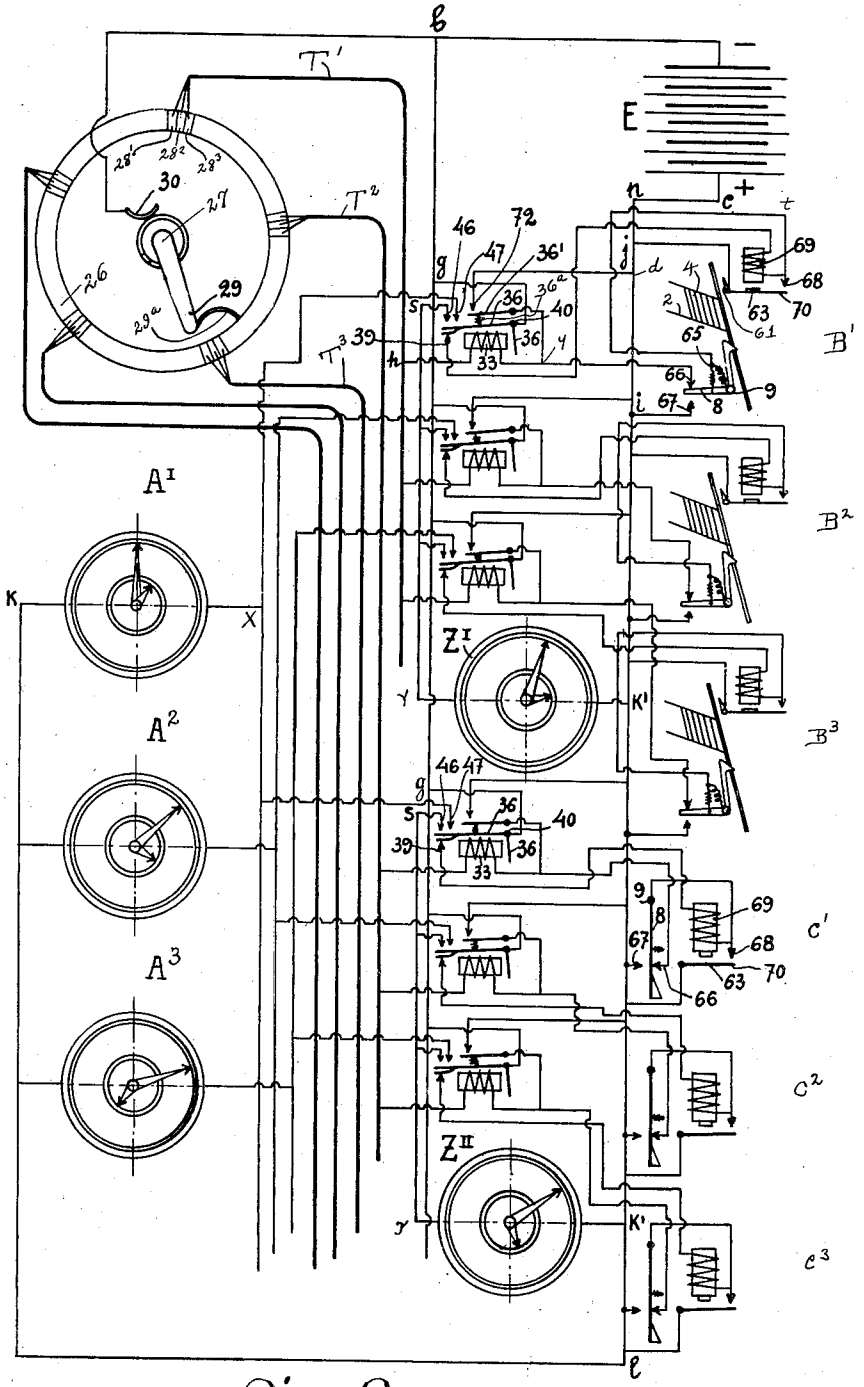


Fig. 2.

Witnesses

Inventor
Alexander Kiparski

his Attorneys

UNITED STATES PATENT OFFICE.

ALEXANDER KIPARSKI, OF ST. PETERSBURG, RUSSIA.

APPARATUS FOR AUTOMATICALLY TOTALIZING TICKETS.

1,101,453. Specification of Letters Patent. Patented June 23, 1914.

Application filed October 8, 1913. Serial No. 794,167.

To all whom it may concern:

Be it known that I, ALEXANDER KIPARSKI, residing at St. Petersburg, Russia, have invented certain new and useful Improvements in Apparatus for Automatically Totalizing Tickets, of which the following is a specification.

My invention relates to improvements in automatic ticket registering apparatus of the general character as that described in U. S. Patents Nos. 1,083,839 and 1,083,840, January 6, 1914, granted to me, and in my pending application, filed July 8, 1912, Serial No. 708,271.

The object of my invention is to register tickets issued from various boxes and to provide positive means for preventing further issuance of a ticket from a box until the preceding ticket issued therefrom has been registered.

A further object of my invention is to provide means for effecting this registration in a definite progression, thereby insuring registration of each ticket even if tickets are issued simultaneously from several or all of the various ticket boxes.

In the accompanying drawings, in which the same reference characters indicate corresponding parts, in the several views, Figure 1 is a vertical section through a ticket box, together with a register and a periodic circuit closer. Fig. 2 is a diagrammatic view of a system of ticket boxes and registers. Fig. 3 is an enlarged view in vertical section of certain parts shown in Fig. 1. Fig. 4 is a vertical section on line 4—4 of Fig. 3, looking in direction of the arrows. Fig. 5 is a horizontal section of Fig. 4, looking down.

1 is the main frame of the ticket box, carrying the ticket receptacle 2, provided with the follower 3 and carrying tickets 4. The tickets pass out through the opening 5, into the slot 64, formed by mounting the flat piece 57 parallel to the plane of the opening 5, the width of the slot being about that of the thickness of a single ticket. The aforementioned member 57 is carried by the piece 6, vertically mounted on the frame, and to one side of the opening 5. Besides carrying this member 57, said piece 6 carries the vertically mounted piece 57^a, forming the slot 55 of about the size of slot 64.

Pivotally mounted on the piece 57 is the tongue 61; rigidly attached to this tongue is the arm 62 which projects through the opening 64 in the armature 63. It is evident that the arm 62 may be raised without affecting the armature, while raising the armature will lift the arm 62 and thus swing the tongue 61 to the left to close the opening to the slot 64. Normally the parts are as shown in Fig. 1, the tongue closing the opening to slot 55, relatively to a downwardly moving member; to a member upwardly moving from slot 55, the tongue will be shifted momentarily to the left, and after it has passed, will revert to its original position due to the action of gravity on the arm 62.

The ticket ejecting means consists of the following parts: A handle 60 is pivotally mounted at 60^a on the casing; pivotally mounted at 52^a is the arm 52, on which is pivoted at 53^a the arm 53; this arm 53 carries a finger 54 that moves in the slot 55. The arm 52 is provided with a collar 58^a, which is made with an inclined face 58. A pawl 59 is mounted on handle 60, adapted to engage with said face 58 when the handle 60 is depressed. A spring 58′ is attached to the arm 53 and collar 58^a, to keep the arm 53 continually retracted.

The ticket ejecting means operates as follows: Upon depressing the handle 60, the pawl 59 contacts with the face 58^a of the collar 58 and raises the arm 52, which raises arm 53, and carries the finger 54 upward in the slot 55. The finger 54, upon reaching the tongue 61, pushes it over, at the same time lifting the arm 62 and slips by, whereupon the arm 62 and tongue 61 drop back to their original positions. Upon releasing the handle 60, arms 52 and 53 drop back to their original positions, and in so doing, the finger 54 guided into the slot 64 by the tongue 61, passes down the slot and presses the ticket out at the bottom of the slot. Helical springs, not shown in the drawings, may be provided around the pivots 52^a and 60^a to aid in carrying back handle 60 and arm 52 to their original positions. Pivoted at 9, there is a bent lever 8, one end of which projects through an opening 10 into the slot 64. Electric wires are attached to this lever at 66 and at 9. Opposite the point 66, there is located a contact 67. A retracting spring 65 keeps the end of the lever pressed into the slot 64. The contacts 66—67 are at such a distance that they will touch when the lever 8 is pressed back, consequent upon the passage of a ticket down the slot 64.

E is a source of current: the letters *c*, *n*, *i*,

j, etc., are placed at various points in the several circuits to aid in tracing out these circuits.

69 is an electro-magnet, provided with the beforementioned armature 63 and core 69′; a contact 70 on said armature is adapted to contact with contact 68 mounted just above, when the armature is drawn up; the armature may be provided with a retracting spring 71.

33 is a relay device, provided with an L-shaped armature 36.

A mechanical circuit closer is provided, consisting of a rotating member 29, rotating about the pivot 27 and carrying the brush 29^a; this brush is adapted to periodically contact with a lamina 28′, as the member 29 is rotated in any suitable way; A′ is a register, actuated by electric impulses in any well-known way. The use of these various parts will appear in the operation of the device.

In one unit, as shown in Fig. 1, of the system, there are three circuits to be considered; these are described and claimed as the primary, secondary and tertiary circuits. The operation of this unit is as follows: Upon the passage of a ticket down the slot, lever 8 is pressed back and contacts 66—67 closed, closing the circuit: points E, *c*, *n*, *i*, contacts 67, 66, point 9, point *t*, point 68, magnet 69, point 39, through armature 36, points 40, *g*, *b*, back to the battery. This is the primary circuit and it is evident that after the withdrawal of the ticket, the lever 8 is pushed to the right by the spring 65 acting on it, the contact 67—66 broken, and so the primary circuit is broken. The primary circuit, while closed, energized the magnet 69, which attracted the armature 63 and closed the contacts 70—68. Thus another circuit, as follows, was closed: points E, *c*, *n*, *j*, armature 63, contacts 70—68, magnet 69, point 39, armature 36, points 40, *g*, *b*, back to the battery. This is the secondary circuit and it acts, by its passing through the magnet 69, to maintain contacts 70—68 closed and so keep the magnet energized, which, as pointed out above, holds the armature up, which lifts the arm 62, which swings tongue 61 to the left and closes the entrance to slot 64 and so prevents further issuance of tickets. With the secondary circuit thus closed, when the brush 29^a contacts with the lamina 28′, a third circuit, as follows, is closed: points E, *c*, *n*, *j*, armature 63, contacts 70—68, point *t*, point 9, lever 8, point 66, relay 33, point *h*, lamina 28′, brush 29^a, arm 29, brush 30, point *b*, back to the battery. This is the tertiary circuit and it energizes the relay 33 which attracts armature 36, and thus performs two functions; first, by breaking the passage of the current from point 39 to armature 36, it breaks the secondary circuit, which releases the armature 63, and thus allows the arm 62 and tongue 61 to return to their original positions for allowing the issue of another ticket; secondly, it closes a circuit through the registering device, as follows: points E, *c*, *n*, *l*, *k*, register A′, points *x*, 47, armature 36, points 40, *g*, *b*, back to the battery. So it is evident that since each issuance of a ticket puts in operation means to prevent further issuance, which means is only released when registration of that ticket is made, each ticket is sure to be registered.

In Fig. 2, there is diagrammatically shown a ticket registering system. B′, B^2 and B^3 represent ticket boxes, all issuing tickets of the same class; A′, A^2, and A^3 are registers for boxes B′, B^2 and B^3, respectively. Z′ is a register for registering the total tickets issued of any one class; the circuits are so arranged that each actuation of either A′, A^2 or A^3 will actuate Z′, so that the reading of Z′ will be the total of A′, A^2 and A^3. Similarly, C′, C^2 and C^3 are ticket boxes of another class; their individual registers, that would correspond to A′, A^2 and A^3 of the first class are not shown; their total register is Z^2, corresponding to Z′. T′, T^2, T^3, etc., are trunk lines, each line carrying wires from one class of boxes. Each of these wires is connected to an individual lamina on the commutator 26; thus the wire from box B′ may be connected to lamina 28′, that from box B^2 to lamina 28^2, and so on. The line T^2 carries the leads from boxes C′, C^2, C^3, to their individual laminæ. It is evident, therefore, that the above-mentioned registering circuits are closed successively, and not simultaneously, so that simultaneous issuance of tickets will not hinder registration of each ticket.

The primary, secondary and tertiary circuits in Fig. 2 correspond to those in Fig. 1. The diagrammatic representation of connections for boxes C′, C^2, and C^3 is somewhat different from that for boxes B′, B^2, and B^3, the principle, however remaining the same. In the system shown in Fig. 2, there is shown a fourth circuit, that through the total registers Z′ and Z^2, which I shall designate as the class total circuit. This circuit: E, points *c*, *n*, *k*′, register Z′, points *r*, *s*, 46, armature 36, points 40, *g*, *b*, back to the battery, is closed when any one of the above mentioned tertiary circuits are closed, and simultaneously with the closure of circuits through any one of the registers A′, A^2, or A^3. Inasmuch as the closure of the tertiary circuit breaks the secondary circuit, which in turn breaks the tertiary circuit and may break it too soon to make thoroughly accurate registration possible, I provide a circuit which operates to delay the interruption of the circuits through the

registers consequent upon the breaking of the tertiary circuit. To carry this out, I provide an auxiliary armature 36′, just above armature 36 and spaced therefrom by a small spring 36ª. The circuit is completed, upon closure of the tertiary circuit, as follows: E, points *c*, *n*, *d*, contact 72, armature 36′, point *y*, relay 33, point *h*, line T′, lamina 28′, and through the circuit closer back to the battery. This circuit, then, keeps the contacts 36—46 and 36—47 positively closed and the circuits through the registers closed, as long as the brush 29ª is in contact with the lamina corresponding to the box in question.

I do not wish to be limited to the exact details shown, as changes may be made within the spirit and scope of the invention.

I claim:—

1. In an apparatus for automatically totalizing tickets, the combination with a ticket box, of means for issuing tickets therefrom, a primary electric circuit adapted to be closed during said issuance, mechanical means operated by electro-magnetic means in said primary circuit adapted to stop further issuance of tickets, a secondary circuit adapted to be closed by electro-magnetic means, energized by the closing of said primary circuit, adapted to maintain said stopping means in stopping position, a tertiary circuit, a make and break device therein, said tertiary circuit adapted to be closed by the coaction of electro-magnetic means, energized by closure of said secondary circuit and said make and break device and adapted to operate electro-magnetic means to close circuits through registering devices, said last-mentioned electro-magnetic means adapted to break said secondary circuit.

2. In an apparatus for automatically totalizing tickets, the combination with a ticket box of means for issuing tickets therefrom, a primary electric circuit adapted to be closed during said issuance, mechanical means operated by electro-magnetic means, energized by the closure of said primary circuit, adapted to stop further issuance of tickets, a secondary circuit adapted to be closed by electro-magnetic means energized by the closing of said primary circuit, adapted to maintain said stopping means in stopping position, a tertiary circuit, containing electro-magnetic means adapted to operate means to close circuits through registering devices, and further adapted to operate means to break said secondary circuit, said tertiary circuit adapted to be closed by electro-magnetic means, energized by the closing of said secondary circuit.

3. In an apparatus for automatically totalizing tickets of various classes, the combination of separate ticket boxes for the various classes, independent means for issuing tickets therefrom, a series of primary electric circuits adapted to be closed during such issuance, mechanical means operated by electro-magnetic means in said primary circuits, adapted to prevent further issuance of tickets from any given box, a corresponding series of secondary circuits adapted to be closed by electro-magnetic means energized by the closing of the respective primary circuits and adapted to maintain said stopping means in stopping position, a corresponding series of tertiary circuits, a periodic make and break device therein, said teritary circuits adapted to be closed upon coaction of said make and break device and of electro-magnetic means energized by the closure of said secondary circuits, and adapted to close circuits through individual registering devices for each box and through registering devices for each class of boxes.

4. In a ticket registering apparatus the combination with registering devices of ticket issuing means, comprising a ticket box, a slot for delivery of tickets therefrom, a finger moving in said slot, adapted to press out tickets, means for closing said slot after delivery of a ticket, said closing means adapted to open said slot upon completion of registration of said ticket.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER KIPARSKI.

Witnesses:
H. A. LOVIAQUINE,
M. ARONOLE.