A. MARSH

TICKET REGISTERING AND PUNCHING MACHINE

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To all whom it may concern:

Be it known that I, Albert Marsh, subject of the King of Great Britain and Ireland, residing at 185 Lauderdale Mansions, Lauderdale Road, Maida Vale, London, England, have invented a new and useful Ticket Registering and Punching Machine, of which the following is a specification.

My invention relates to a registering machine for stamping or punching tickets or the like for use in theatres, music halls, cinemas and on race-courses and other places where a number of tickets have to be issued.

The object of this machine is to enable a complete and accurate registration to be obtained of all tickets issued, so that the money paid for the same may be accurately checked.

The machine is adapted to be used for stamping or punching any convenient number of tickets of different denomination or price values, such as for instance as in theatre tickets it may be used for boxes, stalls, dress circle, upper circle, pit and so on, each class of ticket being registered on a separate indicator so that the correct amount of the takings may be estimated from the different dials.

According to this invention, I employ a punch or stamp of convenient construction preferably provided with a plunger having a suitable perforating punch or die at its lower end, and adapted to be operated by a suitable lever through the medium of a cam or other mechanism so as to cause the punch or die to perforate or stamp a ticket placed beneath it.

The punch is mounted on a suitable base, upon which is erected a framework to support the registering indicators and the mechanism through which they are actuated. Around this structure is provided a suitable casing so that it is totally enclosed, and a plate is provided in front of the mechanism through which the figures on each of the counters show, and apertures are provided in this plate through which project the operating handle for actuating the punch and a series of triggers for setting the mechanism to register upon any one of the registering counters. Upon one side of the casing is mounted a suitable door which is normally locked, but which may be opened by an authorized person provided with the key to enable the counters to be reset at zero after the takings have been checked.

Any number of registering counters of suitable construction are provided, and means are arranged in connection with the triggers associated with each of the counters so that any one of them may be interconnected with the punch so as to cause each operation of the punch to be registered on one of the dials. Means are provided to prevent the operation of the punch unless it be interconnected with one of the registering dials so that tickets cannot be punched without being registered. Means are also provided to prevent more than one counter being actuated by one operation of the punch, and these means may be so arranged that the movement of one trigger to interconnect any one counter with the plunger will automatically disconnect any other counters which may be in engagement, and will thus prevent any possibility of one operation of the plunger being registered upon more than one counter.

In order to prevent tickets of high denomination or great value being registered on the counter intended to register tickets of low denomination and small value and thus confuse the accounts, means are provided to adjust the shape or size of the mouth or opening through which the ticket is inserted to engage it beneath the punch or stamp. The tickets of various denomination or price are made in corresponding shapes or sizes. A movable plate or other means is arranged to be moved to different positions in accordance with whichever trigger is moved to place any particular counter in engagement so that it will be operated.

Any convenient registering counters of known type may be employed, and it is preferred to use a type in which the counters may be instantly and easily reset to zero when required.

The arrangement and construction of the various parts of the mechanism described above may be varied to suit different requirements and any suitable number of counters may be arranged in conjunction with a single punch, the various triggers being arranged either above each other or in any other suitable relative positions. Any number of punches or machines may be arranged side by side in a suitable casing, thus enabling many different types of tickets to be punched and registered by a single operator. All tickets issued must be punched or stamped by the machine in order to ren-
under them available for use, and any such punching of the tickets will consequently be registered by the machine, and the price paid for each ticket must therefore be accounted for.

In order that my invention may be readily understood, reference is made to the accompanying drawings, in which—

Figure 1 is a perspective view of the exterior of a registering machine for stamping or punching tickets or the like according to my invention and arranged within a suitable casing.

Figure 2 is a plan and Figure 3 is a side elevation of the machine removed from the casing.

Figure 4 is a side elevation of a portion of the mechanism showing the manner of engaging a counter arm and the method of actuating the same by the punch or stamp.

Figure 5 is a similar view to Figure 4 but showing the punch depressed and the lowermost counter arm actuated by its movement.

Figures 6 and 7 are rear elevation and side elevation respectively of the lower portion of the mechanism.

Figure 8 is a front elevation of the mechanism with the lower portion of the cover plate broken away to show the method of actuating a movable plate for regulating the size of the aperture through which the tickets have to be passed, and

Figure 9 is a detail of this movable plate.

Referring to the drawings, the punch or stamp comprises a suitable plunger 1 mounted in a frame 2 and normally pressed in an upward direction by a spring 3. On the lower end of this plunger are supported a series of pins 4 adapted to co-operate with a die 5 so that when the plunger is depressed they will act to perforate any ticket which may be placed between them and the die. The plunger may be actuated by means of an operating lever 6 arranged to turn about a pivot 7 in the frame 2 of the punch and this operating arm 6 has a cam surface 8 which engages the top of the plunger 1 so as to cause it to be depressed when the lever is moved down.

The frame 2 is mounted on a suitable base 9 and a framework 10 of metal strips is erected on this base and the frame 2 of the punch and supports a series of registering counters 11, shown in the drawings as four in number but any other convenient number may be arranged in connection with a punch. The framework 10 also supports the mechanism through which the counters are actuated. Around this structure is provided a casing 12 and an opening 13 is provided in the front covered by a plate 14 having apertures 15 therein through which the dials of each counter may be readily seen. This casing completely encloses the mechanism with the exception of the operating handle 16, by which the plunger of the perforating punch may be actuated. This projects through a slot 16 near the lower end of the plate 14 covering the opening 13 in the case 12 so that it may be readily actuated by the operator's hand. A small door 17 is provided in the side of the case 12 by means of which access may be obtained to the small knurled discs 18 by which the counters may be reset to zero when required. This door is provided with a suitable lock so that only specially authorized parties may obtain access to its interior, thus preventing any possibility of tampering with the mechanism or alteration of the counters.

Upon the end of each counter is provided a lever 19 by means of which the counter may be operated when the lever is oscillated. The counters 11 are mounted one above the other at convenient intervals, so that they may be operated by means of a vertical bar 20 adapted to slide in guides in one end of each of the plates 21 supported in the framework 10. The lower end of this bar 20 is connected by a pivoted link 22 to a lever 23 pivoted on the frame 2 of the punch at 24. This lever 23 is in turn connected by a link 25 to one end of a lever 26 fixed upon the end of the pivot pin 7 of the operating lever 6 so that when the lever 6 is moved down so as to actuate the punch, it will also draw down the slideable bar 20 through the medium of the lever 26, link 25, lever 23 and connecting link 22.

In order to enable any one of the counters 11 to be actuated when the punch is operated so as to register this operation upon its dial, a series of hooks 27 are pivoted upon the slideable bar 20, one to each of the counters 11. These pivoted hooks 27 are normally turned back as shown in connection with the second counter at the top of Figures 4 and 5. These pivoted hooks 27 are adapted to be turned so as to engage over a projecting pin 28 upon the end of the actuating lever 19 of the counter 11 as indicated in connection with the lowermost counter 11 in Figs. 4 and 5. In order to move these pivoted hooks into engagement with their counter actuating lever 19, a series of pivoted trigger plates 29 each having a trigger 30 are arranged, one in connection with each counter 11, and its pivoted hook 27. Each trigger plate 29 is provided with a pin 31 at its end, upon which the pivoted hook rests when in the disengaged position. If the trigger 30 be depressed, the plate 29 will be raised and will turn the pivoted hook 27 so that it will engage over the pin 28 on the lever 19 of the counter 11, so that when the slideable rod 20 is drawn down when the punch is operated, then the lever 19 will be drawn down to actuate the counter 11 and register the operation of the punch upon its dial.
To prevent the plunger from being operated so as to punch or stamp a ticket without this operation being registered upon one of the counters, a pivoted locking stop is mounted so as to engage in a recess in the pivoted operating lever, so as to prevent this from being moved whilst the stop is in the engaged position. This stop 32 is fixed upon a pin 33 pivoted in the frame 2, and is provided with a short lever 34 (Fig. 7) connected by a link 35 to a larger lever 36 fixed upon the end of a shaft 37 supported in the framework 10 at the rear of the machine. Upon the other end of this shaft 37 is a finger (Fig. 3), and a similar finger 38 is provided on a corresponding shaft 37 supported in the frame 10, and associated with each of the separate counters 11. These fingers 38 are all interconnected by a long connecting link 39 pivoted at 40 to each of the fingers 38. Upon each of the pivoted trigger plates 29 associated with the triggers 30 is provided a circular projection 41, which, when the cam plate is raised into a position to engage its pivoted hook 27 with the lever arm 19 of a counter 11, this circular projection will engage against and lift the corresponding finger 38 so as to disengage the pivoted stop 32 and allow the operating lever 6 to be moved. Since all these fingers 38 are interconnected by the link 39 the engagement of any one of the hooks 27 with the actuating arm of its counter will release this stop and allow the plunger to be operated.

A projecting pin 42 is provided at the upper corner of the outer face of each trigger plate 29 and is adapted to engage a wedge-shaped catch 43 of a series of retaining levers 44 pivoted to the framework 10, (Fig. 3) and interconnected by a connecting link 45 pivoted at each of the outer ends of the levers at 46. When any one of the triggers 30 is depressed, the pin 42 on its trigger plate 29 will engage the wedge-shaped catch 43 on the retaining lever 44 so as to raise all these levers by turning them about their pivotal connection to the framework 10. When the projecting pin 42 passes the wedge-shaped catch 43, the retaining lever will then fall by gravity and engage the pin 42, so as to hold the trigger plate 29 and retain the hook 27 in engagement with the lever 19 on the counter 11. When however another trigger 30 is depressed, the projecting pin 42 on its trigger plate will lift the retaining levers 44 and allow the other trigger and its trigger plate and pivoted hook to return to its normally disengaged position under the action of suitable springs. In this manner no trigger will remain in the depressed position when another is depressed, and consequently only one counter can be actuated at each operation of the plunger.

In order to prevent tickets of high denomination and great value being registered upon the counter intended to register tickets of low denomination and small value, a pivoted plate 47 (Figs. 3, 8 and 9) is arranged over the slot 48 through which the ticket is inserted by placing it upon the platform 49 in front of the case 12 in which the mechanism is mounted. This plate 47 is pivoted at one end to the frame 2 of the punch, and is connected at its free end by a link 50 to a lever 51 (Figs. 3 and 8) supported upon the framework 10. This lever supports the lower end of a bar 52, the upper end of which is supported on a link 53 pivoted to the framework 10. This link 53 is located between the uppermost and the second counter 11, and the bar 52 is provided with three notched projections 54, 55, and 56 adapted to be engaged respectively by a lifting pin 57 on each of the trigger plates 29 of the second, third and fourth counters respectively. In operation if the uppermost trigger be moved to engage the topmost counter, it will not affect the pivoted plate 47. If the second trigger be operated the pin 57 will engage the notch 54 so as to raise the plate 47 a short distance bringing the notched projection 53 over one end of the slot 48 through which the ticket is to pass, thus reducing the width of the slot by a small amount so that it will not accommodate the more expensive tickets which have to be registered upon the topmost counter. If the third or fourth triggers be operated, the same effect will be produced but the plate 47 will be raised a greater extent owing to the different distance between the lifting pins 57 and the corresponding notches 55 and 56. This will result in the notched projection 53 being brought over the slot 48 when the third trigger is operated, and the still greater notch 60 being brought into position when the fourth trigger is operated. This will successively reduce the effective width of the slot 48 so that it can only accommodate a successively smaller ticket in each case. The result of this arrangement is that if the higher priced tickets be made of correspondingly greater width they cannot be inserted through the slot, whilst the trigger of a counter registering lower priced tickets is depressed. This prevents high priced tickets being punched and registered upon a counter registering low priced tickets, and thus prevents any fraud or confusion, whilst it is obviously against the operator’s interest to register low priced tickets on a counter registering the sale of high priced tickets.

Whilst the construction illustrated in the drawings and described above is a convenient and effective method of carrying out my invention, it should be clearly understood that I do not restrict myself to the
details of construction, which may obviously be varied in many ways without departing from the broad nature of the invention, the object of which is to ensure a correct and effective tally of tickets issued which cannot be tampered with or falsified by the operator or other persons so as to defraud the parties on whose behalf the tickets are issued.

I claim:

1. In a ticket registering and punching machine, a punch of convenient construction adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, means for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, and means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter.

2. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, a series of trigger plates, one for each counter for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated and means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter.

3. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, means for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a trigger associated with each trigger plate, a pin on each trigger plate adapted to actuate the pivoted hooks to engage their counters, and a further pin for releasing the punch locking means.

4. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, means for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a trigger associated with each trigger plate, a pin on each trigger plate adapted to actuate the pivoted hooks to engage their counters, and a further pin for releasing the punch locking means.

5. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, means for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a trigger associated with each trigger plate, a pin on each trigger plate adapted to actuate the pivoted hooks to engage their counters, and a further pin for releasing the punch locking means.
7. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, a series of trigger plates, one for each counter, for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a receptacle into which ticket to be punched is inserted, a movable plate covering the opening thereto, a connection from the plate to a notched link co-operating with projecting pins on the trigger plates, so that each trigger plate will move it to a different extent to vary the opening to the receptacle for the ticket.

8. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, means for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a trigger associated with each trigger plate, a pin on each trigger plate adapted to actuate the pivoted hooks to engage their counters, a further pin for releasing the punch locking means, a receptacle into which ticket to be punched is inserted, a movable plate covering the opening thereto, a connection from the plate to a notched link co-operating with projecting pins on the trigger plates, so that each trigger plate will move it to a different extent to vary the opening to the receptacle for the ticket.

9. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, a series of trigger plates, one for each counter, for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a trigger associated with each trigger plate, a pin on each trigger plate adapted to actuate the pivoted hooks to engage their counters, a further pin for releasing the punch locking means, a receptacle into which ticket to be punched is inserted, a movable plate covering the opening thereto, a connection from the plate to a notched link co-operating with projecting pins on the trigger plates, so that each trigger plate will move it to a different extent to vary the opening to the receptacle for the ticket.
one of the hooks is in position to actuate a counter, a trigger associated with each trigger plate, a pin on each trigger plate adapted to actuate the pivoted hooks to engage their counters, a further pin for releasing the punch locking means, a series of notched retaining levers, a series of projecting pins on the trigger plates to move the lever and engage the notch thereof to retain the trigger plate and pivoted hook in the engaged position, and a link connecting all the notched levers so that when one trigger plate is moved it will raise all the notched levers and release any other trigger plate.

15. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, a series of trigger plates, one for each counter, for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a trigger associated with each trigger plate, a pin on each trigger plate adapted to actuate the pivoted hooks to engage their counters, a further pin for releasing the punch locking means, a receptacle into which ticket to be punched is inserted, a movable plate covering the opening thereto, a connection from the plate to a notched link co-operating with projecting pins on the trigger plates, so that each trigger plate will move it to a different extent to vary the opening to the receptacle for the ticket, a series of notched retaining levers, a series of projecting pins on the trigger plates to move the lever and engage the notch thereof to retain the trigger plate and pivoted hook in the engaged position and a link connecting all the notched levers so that when one trigger plate is moved it will raise all the notched levers and release any other trigger plate.

16. In a ticket registering and punching machine, a punch adapted to be operated to punch or perforate a ticket placed beneath it, a lever for operating the punch, a frame in which the punch and lever are mounted, a slidable rod interconnected with the punch, a series of counters, a series of pivoted hooks on the slidable rod, one for each counter, a series of trigger plates, one for each counter, for placing each one of the pivoted hooks so as to engage and actuate its counter when the punch is operated, means for preventing the operation of the punch unless one of the hooks is in position to actuate a counter, a receptacle into which ticket to be punched is inserted, a movable plate covering the opening thereto, a connection from the plate to a notched link co-operating with projecting pins on the trigger plates, so that each trigger plate will move it to a different extent to vary the opening to the receptacle for the ticket, a series of notched retaining levers, a series of projecting pins on the trigger plates to move the lever and engage the notch thereof to retain the trigger plate and pivoted hook in the engaged position and a link connecting all the notched levers so that when one trigger plate is moved it will raise all the notched levers and release any other trigger plate.
each trigger plate will move it to a different extent to vary the opening to the receptacle for the ticket, a series of notched retaining levers, a series of projecting pins on the trigger plates to move the lever and engage the notch thereof to retain the trigger plate and pivoted hook in the engaged position and a link connecting all the notched levers so that when one trigger plate is moved it will raise all the notched levers and release any other trigger plate.

17. In a ticket registering and punching machine, a punch, a frame mounted on the punch, a lever for operating the punch, a series of registering counters, a slidable rod connected to the punch operating lever so as to be moved when the punch is operated, a series of pivoted hooks on the slidable rod, one for each counter, a series of trigger plates each having pins each adapted to lift one hook to engage its counter, retaining levers to hold the trigger plate in the engaged position, a link connecting all these retaining levers, a locking stop to prevent operation of the punch when this stop is engaged, a series of pivoted fingers on the frame, interconnected by a link, a connection from one of the fingers to the locking stop, a series of projecting pins on each trigger plate to lift the fingers and release the locking stop.

18. In a ticket registering and punching machine, a punch, a frame mounted on the punch, a lever for operating the punch, a series of registering counters, a slidable rod connected to the punch operating lever so as to be moved when the punch is operated, a series of pivoted hooks on the slidable rod, one for each counter, a series of trigger plates each having pins each adapted to lift one hook to engage its counter, retaining levers to hold the trigger plate in the engaged position, a link connecting all these retaining levers, a locking stop to prevent operation of the punch when this stop is engaged, a series of pivoted fingers on the frame, interconnected by a link, a connection from one of the fingers to the locking stop, a series of projecting pins on each trigger plate to lift the fingers and release the locking stop.

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