

P. ANDRES.

TICKET PRINTING AND RECORDING MACHINE FOR BOOKING OFFICES.

APPLICATION FILED NOV. 28, 1910.

Patented Feb. 11, 1913.

3 SHEETS—SHEET 1.

1,052,641.

Fig. 1.

3837 Reich König	22 III. Hechingen H.L.B.	Sigmaringen 3 Hofgarten P.Z. 1,60M
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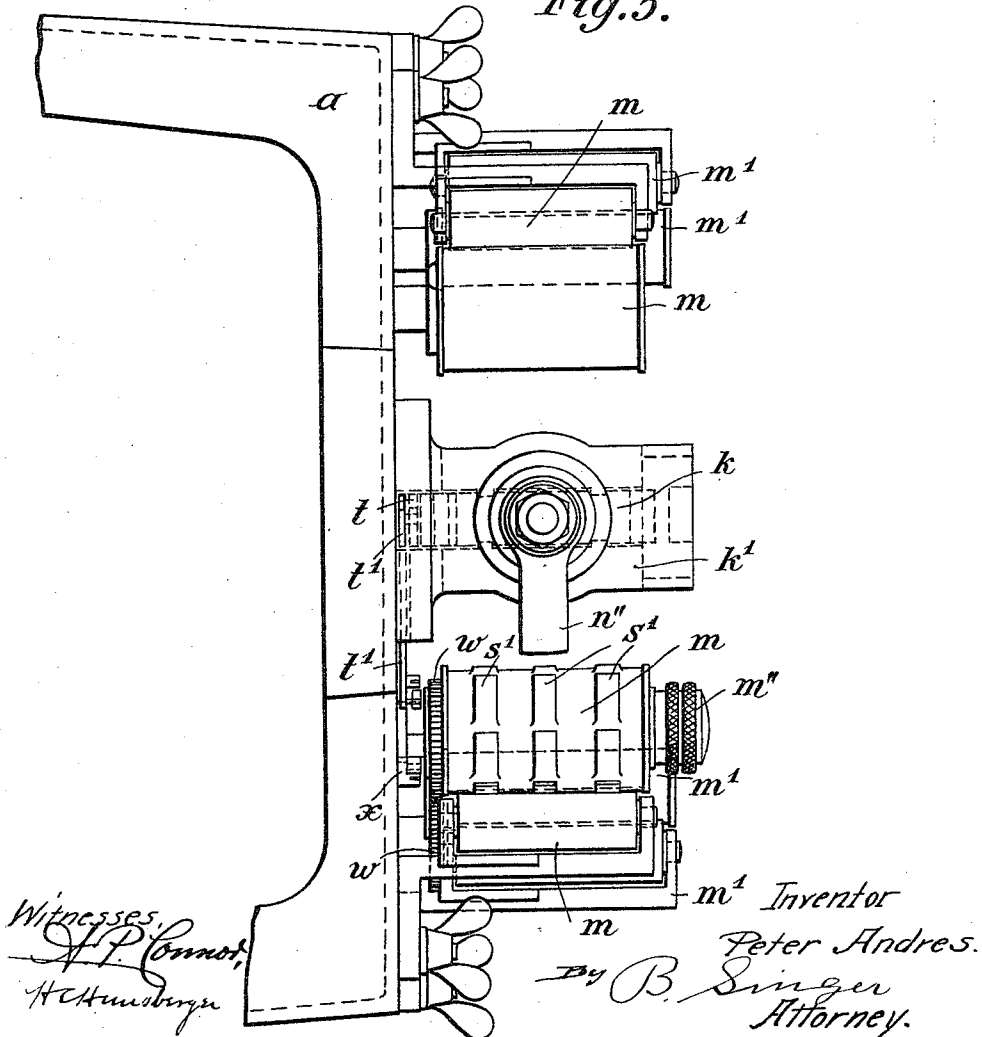
3837 Reich König	22 III. Hechingen H.L.B.	Sigmaringen 3 Hofgarten P.Z. 1,60M
3838 Reich König	22 III. Hechingen H.L.B.	Schlaif P.Z. 0,40M
3839 Reich König	22 III. Hechingen H.L.B.	Bingen H. 2. 2,80M über Gännerberg P.Z.

Fig. 2.

630822 III. 10,15 V. Königstr. Domplatz Rebenstr. 0,15M	Umsteigestelle
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630822 III. 10,15 V. Königstr. Domplatz Rebenstr. 0,15M	Umsteigestelle
630922 III. 10,20 V. Parklor-Marktplatz	0,10M
631022 III. 10,20 V. Parklor-Stuthof	0,20M
631122 III. 10,20 V. Parklor-Marktplatz	0,10M

Fig. 5.



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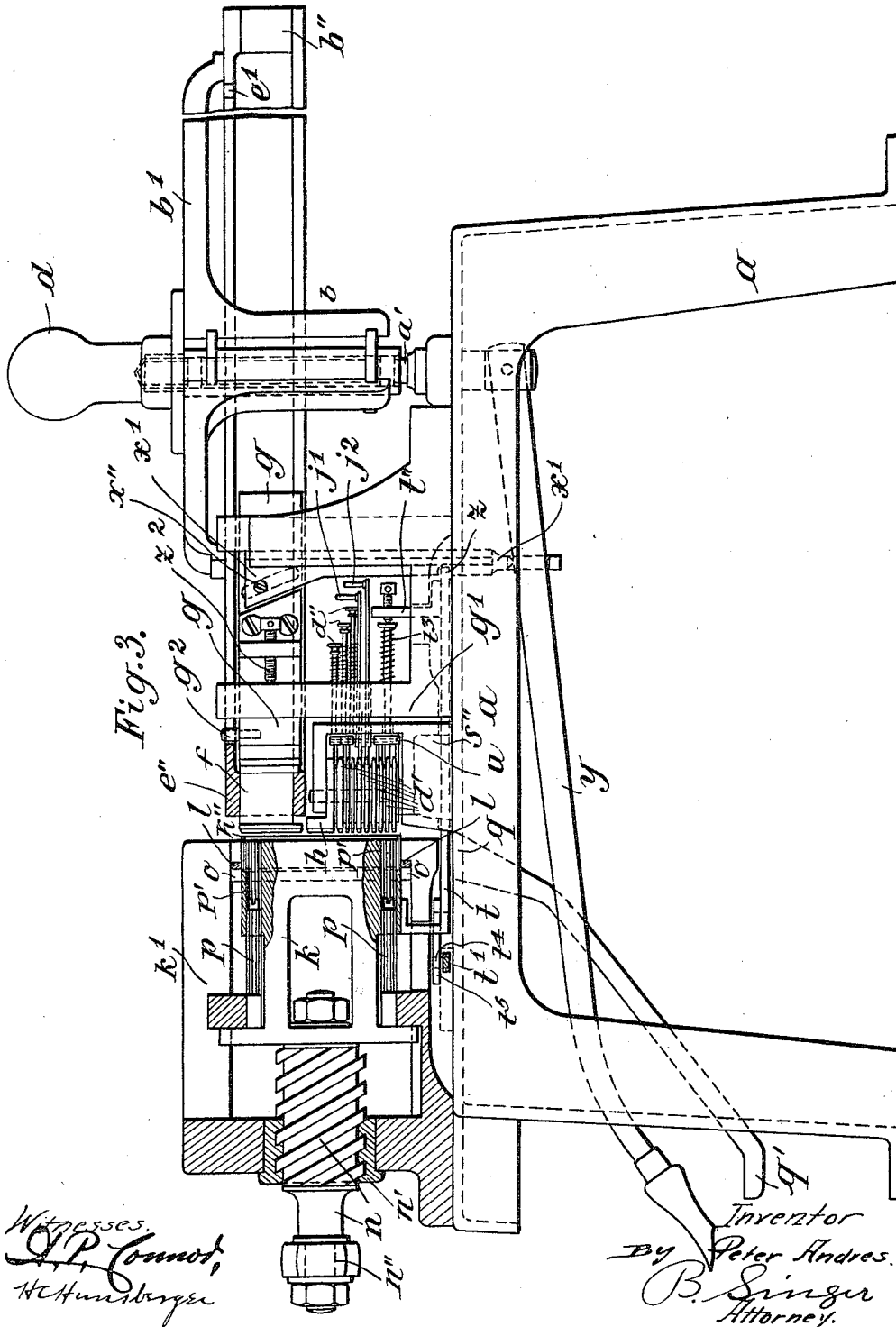
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3 SHEETS—SHEET 3.

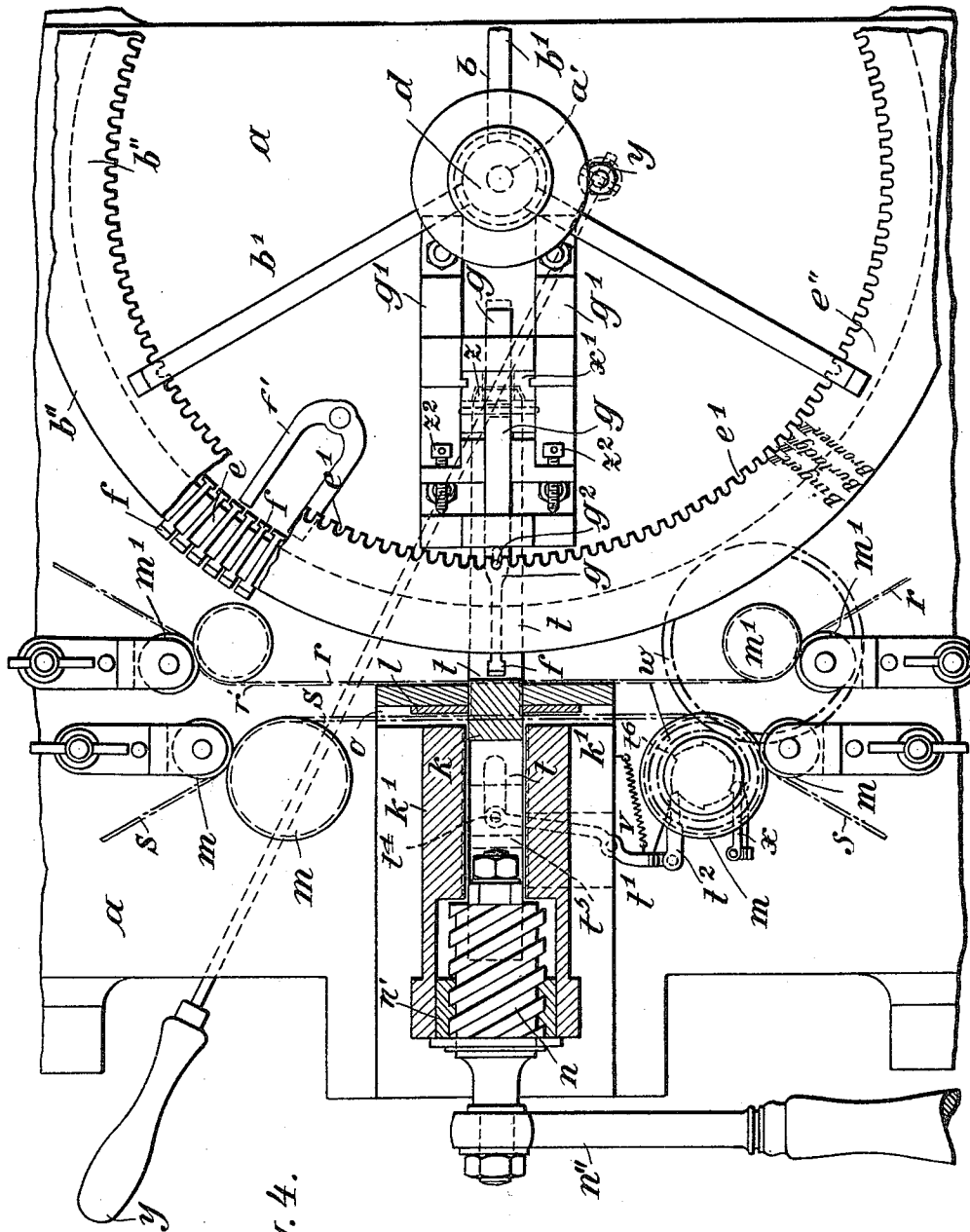


Fig. 4.

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UNITED STATES PATENT OFFICE.

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TICKET PRINTING AND RECORDING MACHINE FOR BOOKING-OFFICES.

1,052,641.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed November 28, 1910. Serial No. 594,473.

To all whom it may concern:

Be it known that I, PETER ANDRES, a citizen of the German Empire, and a resident of Hechingen, Germany, have invented new and useful Improvements in Ticket Printing and Recording Machines for Booking-Offices, of which the following is a specification.

My present invention relates to ticket printing and recording machines, for ticket offices, where it is desired to print the ticket at the time of purchase, and at the same time, provide a duplicate impression of the subject matter thus printed and a checking means for the receipts of such office, or for other purposes which may be desirable in connection with the management of transportation companies or the like. The construction of the machine is such that it has the capacity of printing a large number of tickets, each with different subject matter thereon, such as the change in the name of the place of destination for which the ticket is issued, the mileage, or the fare charged in accordance therewith.

The principal objects of my invention are, first, to provide a machine which is compact, that is, one which will occupy a minimum space in proportion to its capacity and consistent with the operation of these several parts; second, to print both the ticket and recording strip simultaneously from the same composition or combination of type, thus avoiding discrepancies between the two; third, to so dispose the elements of the device that all fares collected, mileage or the like will appear one under the other on the recording strip, in proper relation to facilitate computing the total; fourth, to adapt the device for indicating that the ticket is for a child, (kind), or return trip, (Rückf.), or that the ticket is for an adult and "one way only"; and fifth, to so dispose the carrying member of certain sets of type that it may be substituted by another member carrying different sets, and thus enlarge the capacity of the machine when it is necessary to provide for such.

Other objects of my invention will be set forth hereinafter, in connection with the detailed description, and more particularly pointed out in and by the appended claims.

In the drawings, forming a part of this specification:—Figures 1 and 2 are face views of a ticket and recording strip, showing the manner in which the subject matter

recorded on the ticket is also recorded on the recording strip. Fig. 3 is a side elevation of the machine embodying my invention, parts being shown in vertical central section to disclose details of construction. Fig. 4 is a plan view of the same, parts being broken away and shown in central horizontal section to disclose details of construction. Fig. 5 is an end elevation of parts of the device shown to the left of Fig. 4.

Similar characters refer to similar parts throughout the several views.

In the drawings, *a* designates a bed plate or frame which carries a spindle shaft *a'* for the reception of a type carrying wheel *b*, rotatable thereon, and provided with a knob *d* to facilitate handling and turning of the wheel. The wheel *b* includes a rim *b''* carried by arch-shaped spokes *b'*. The rim *b''* is provided with a plurality of radially extending webs *e*, spaced apart from each other to form guide means therebetween for the webs of a plurality of eye-shaped type bars *f*. Each type bar carries type arranged to print or impress the name of a station, fare, etc., on the surface of an object, such type being preferably disposed to read extending crosswise the periphery of the rim *b''*. As shown in Fig. 4 of the drawing, the upper face *e''* of rim *b''* has indicated thereon, matter to designate the subject matter of the type directly therebelow and in the same radial plane of type bar, and formed in the face *e''* are notches *e'*. Each type bar *f* is permitted to move radially a limited distance controllable by the flanges thereof contacting with the adjacent webs *e*, and a magnet *f'* may be carried by the frame *a* and disposed in proximity to the type bars to normally draw them to their inward limited position, or in other words, with the type face next adjacent the webs *e*. To facilitate this, the bars *f* may be made of material attracted by the magnet or be of other desired material and provided with a portion so attracted, disposed in operative relation to the magnet.

Rigidly mounted upon the frame *a* is a support *g'* adapted to carry a reciprocable plunger *g* which is positioned to act toward and force outwardly any one of the type bars which may be disposed in alinement thereto and in its plane of movement. The movement of the plunger *g* may be conveniently provided for through a lever *y* and

connecting rod x' movable thereby, such connecting rod being provided at substantially right angles to the plunger g and operatively connected thereto, to actuate the same through the pin and slot arrangement x'' . Thus, by raising the lever y the connecting rod x' imparts a receding movement to the plunger g with respect to the type bar, and downward movement of the lever y , similarly forces or extends the type bar outwardly responsive to action of the plunger. The plunger carries a lug q^2 adapted to enter the notches e' provided adjacent the type bars being actuated, and thus prevent rotation of the wheel while the plunger is forward. It is desirable, as will subsequently appear, that the distance the actuated type bar is moved by the plunger g in a radial direction, be regulated and with this end in view, I provide screws z^2 carried by the plunger g and adapted to engage a portion of the support g' to thus limit forward actuation of the plunger.

Rigidly positioned with respect to the frame a , to present the peripheries of a plurality of rotatable disk members d' in alignment with the plane of type upon the extended type bar f , is a support s'' which carries such disks. The subject matter, which the type upon the peripheries of these disks may impress upon an object, may vary as circumstances may require. For instance, the bottom four disks may contain numbers each 0 to 9, and be actuated successively by plunger t to impress the number of actuations of the machine, or, in other words, the number of tickets printed. The next superjacent disk to the numbering disks may contain the words "Return trip", (Rückf.), and also a cross hatched bar, either of which characters may be placed in operative relation to the extended type bar f , by the lever j^2 , and similarly, the next superjacent disk may carry type set for the word "Child", (kind), and the cross hatched bar, similarly operated by a lever j' . The remaining disks may carry type for any other subject matter which is desirable, such as approximately the hour and minute the ticket is issued, and actuated by spring controlled plungers d'' . I may also rigidly position upon the support, a type bar h containing the distinctive mark, to designate who is the agent issuing the ticket.

By reference to Fig. 3, it will be seen that the type surface of type bar f , which is extended, may be aligned to that of the disks d' and type bar h , through the set screws z^2 .

The structure hereinbefore described in detail comprises mechanism for presenting type arranged to print or impress subject matter upon the tickets, and in operative relation to such mechanism is means for simultaneously cutting the body of the ticket to be printed from a strip and presenting it to

the type surface, a recording strip, and ticket strip feeding mechanism. This mechanism is positioned in operative relation to the type presenting mechanism and comprises a guide frame k' rigidly carried by the frame a , a reciprocable plunger k carried thereby, and a device for reciprocating the plunger which may consist in a worm n operable in a fixed collar n' provided with internal threads complementary to said worm, and a handle n'' for rotating the worm, the worm end being operatively connected to the plunger to reciprocate it responsive to actuation by the handle n'' .

The frame k' is provided with slots o through which the ticket strip, indicated at s , may be passed crosswise the path of movement of the plunger k . The face of the plunger k directed toward the assembled type, is recessed to provide a platen, and the margins formed as knife edges k'' to provide for the desired cut in the strip s to form the ticket body. This cutting is facilitated by a die l which is rigidly carried by the frame k' and positioned at the opposite side of the strip from which the knife edges of the plunger enter the same.

In Figs. 3 and 4 of the drawings, the plunger is illustrated as having passed through the strip s , carrying with it the ticket body cut therefrom and about to force it for receiving an impression of subject matter in accordance with the arrangement of type, it being understood that the cutting edges k'' are spaced sufficiently to provide the desired margin about the printed subject matter of the ticket and thus will not contact with the type mechanism.

The contacting of the margins of the ticket bodies with the walls of the knife edges may be sufficient to retain the ticket body in the recess or upon the face of the plunger k , however, it may be desirable to provide springs, needles for engaging the ticket body on the rear near its margin, or the like, (not shown in the drawings) for retaining it in place for the purpose of being printed. To eject the ticket body after having been printed or impressed two pins p are rigidly carried by the frame k' and enter cylindrical bores p' in the plunger k and open to the ticket body receiving opening, the length of the said pins being such as to extend from the said recess when the plunger is drawn, in receding direction to the type, and consequently forces the printed ticket body out of its recess, whereupon it falls through opening q and is delivered on ledge q' in an accessible position.

A recording strip r is interposed between the plunger k and the ticket body, and the type and consequently receives the direct impression of the type.

The impression upon the strip may be produced simply by pressure of the type

against the strips, or by printing in colors. If the first mentioned method is employed, it is only necessary to have one ticket strip and one recording strip. When the latter method is used, additional ink carrying strips or ribbons are to be used. The utilization of these ink strips is possible in various ways. The ink strips of the described kind may be carried, like in a typewriter, and may coincide in its movement with the ticket strip or the recording strip. Inking means such as a strip r' covered on both sides with ink (double carbon paper) may be wound up together with the recording strip so that the ticket body is imprinted on its front and the recording strip, of transfer paper, is imprinted on its rear. This ink strip sensitive on both sides produces an impression on both the ticket body and recording strip and is especially well adapted to be used as an additional controlling strip, the inked paper being so sensitive that any additions or erasures would be detected. If the ink ribbon is guided together with the ticket strip on the front thereof, through the slot o , a portion will be punched from the ink ribbon and which is identical in size with the body punched from the ticket strip. By this means a duplicate of each ticket issued is obtained, said duplicate being well adapted for checking purposes in the same manner as a continuously printed recording strip, and being also well adapted for permanent record. If the ink ribbon is pasted to the ticket strip at its upper and lower margins, the strip cannot be advanced separately, and it is impossible to print a ticket without printing, at the same time, a duplicate made of the ink ribbon. The impression may even be colored without use of an ink ribbon if the main color of the ticket strip is covered by a thin strip of paper pasted thereon and being of a different color, this strip is then punched out by the type of the type bars.

The ticket strip may be provided with special markings on the back, as for instance, the name of the railroad issuing the ticket. The number of cuttings in the ticket strip may also afford means for recording the number of tickets issued.

The before mentioned disks d' which are adapted to record the number of tickets printed may be actuated by a lever t carried by the plunger k , such lever carrying an up-standing portion t'' which engages a spring controlled tappet t^3 in operative advancing relation to the adding disks d' . Upon each reciprocation of the plunger k , a number mechanism is advanced one digit. The end of this lever is adapted to enter a recess, indicated at z , formed in the connecting rod x' , and this locks such connecting rod against movement, at the period when the impression of the type is being manipulated.

I provide positive feed mechanism for the ticket strip s , the ink strip, if such is used, and the recording strip r , by mounting feed rolls m , for the former, and m' for the latter. Two adjacent rolls m and m' are geared together, as at w , so that the former advances more rapidly than the latter, the purpose of which is obvious from an inspection of Fig. 1 or 2, in which s is the printed ticket and r a portion of the recording strip containing an impression of the ticket illustrated, and subsequent impressions, it being desirable to economize in the recording strip and consequently the impressions are placed closer together thereon, than would be desirable in connection with the tickets.

One of the rollers m , and more particularly that which is geared to the adjacent roller m' , receives rotation through reciprocation of the plunger k . A lever t' is pivoted to the base, intermediate its ends, one end having a pin and slot connection t^4 through the bar t^5 , with the plunger k , and its other end carrying a pivoted pawl t^2 operating a ratchet wheel t^6 , the lever t' being acted upon by a tension spring v . A catch x prevents reverse actuation of the wheel m in consideration, by also engaging the ratchet wheel t^6 . When the plunger k moves toward the type, the pin and slot connection of lever t' actuates the lever, against action of spring v , positioning the pawl t^2 in engagement with one of the teeth of the ratchet wheel t^6 . The mechanism retains this position until the plunger is drawn backward, and as soon as it is out of the recess in the strip s , formed by the cutting of the ticket body, the strip moves responsive to action of spring v through pawl t^2 , ratchet wheel t^6 and roller m , it being understood that the ticket strip, after leaving the plunger is provided with a number of perforations formed by removing the ticket body. The margins of these recesses are caught by teeth s' on roll m and thus feeding is facilitated. If desirable, the rolls m and m' may be manually rotated by means of the knurled head m'' .

The operation of the device is as follows:—The agent dispensing the tickets, in making the same, first raises lever y , drawing in plunger g and whereby wheel b may be rotated until the desired character is alined to plunger g . Lever y is then lowered and the type bar advanced in operative relation to disks d' and member h . If the ticket is for transportation of a child, or a return ticket, either or both of the levers j' and j^2 are actuated accordingly. The lever n'' is then moved which carries the plunger forward, cuts the ticket body, impresses, or prints the same together with recording strip and upon reverse movement of the lever n'' , the ticket is ejected, the strips ad-

vancing as hereinbefore described. If several tickets of the same kind are called for, the second and others are made by reciprocating the lever *n''*.

5 I claim:—

1. A ticket printing machine comprising in combination, a suitable frame, type stationary with respect to said frame, a disk like support movable with respect to said frame and including a plurality of radially extending guides, a plurality of type bars each including a web positioned between the said guides, and heads at both ends of the web to limit radial movement of the bar with respect to said support, each bar being movable independently of the others, means for advancing and rigidly retaining any one of said type bars independently of the others, with its type surface in alinement with the type surface of said stationary type, mechanism for holding a ticket body, and means for producing relative movement between said last mentioned mechanism and alined type for recording the subject matter of said type upon the ticket.

2. A ticket printing machine comprising in combination, a suitable frame, type stationary with respect to said frame, a support movable with respect to said frame and including a plurality of guides, a plurality of type bars, each including a web positioned between the said guides, a type head at one end and a blank head at the other end of said web, said heads limiting movement of the bar with respect to said support, each bar being movable independently of the others, means for normally retaining said type bars with the type heads against the said guides of said support, means for advancing any one of said type bars independently of the others to position the same with its type surface in alinement with the type surface of said stationary type, mechanism for holding a ticket body, and means for producing relative movement between said last mentioned mechanism and alined type for recording the subject matter of said type upon the ticket.

3. In a ticket printing machine, the combination with settable type, of a guide frame stationary with respect to said type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, knives carried by said plunger at its platen end, a die for said knives coacting therewith to cut a ticket body from a blank, and means for actuating said plunger to cut the ticket body and record the subject matter of said type thereupon.

4. In a ticket printing machine, the combination with settable type, of a guide frame stationary with respect to the type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, knives carried by said plun-

ger at its platen end, a die for said knives coacting therewith to cut a ticket body from a ticket strip, means for actuating said plunger to cut the ticket body and record the subject matter of said type thereupon, and mechanism for advancing the ticket strip, with respect to said knives, to be in a position for providing material for a succeeding ticket after actuation of said plunger.

5. In a ticket printing machine, the combination with settable type, of a guide frame stationary with respect to said type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, knives carried by said plunger at its platen end, a die for said knives coacting therewith to cut a ticket body from a ticket strip, means for actuating said plunger to cut the ticket body and record the subject matter of said type thereupon, and mechanism actuated upon the to and fro movement of said plunger with respect to said type, for advancing the ticket strip, with respect to said knives, to be in position for providing material for a succeeding ticket.

6. In a ticket printing machine, the combination with settable type, of a guide frame stationary with respect to the type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, knives carried by said plunger at its platen end, a die for said knives coacting therewith to cut a ticket body from a ticket strip, means for actuating said plunger to cut the ticket body and record the subject matter of said type thereupon, feed rolls engaging the ticket strip, ratchet means associated with said feed rolls, and means operatively connecting said ratchet means and plunger to actuate said feed rolls for advancing the ticket strip with respect to said knives to be in a position for providing material for a succeeding ticket after the actuation of said plunger.

7. In a ticket printing and recording machine, the combination with settable type, of a guide frame stationary with respect to said type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, means for guiding a ticket strip and recording strip crosswise of said platen and type, and in interposed relation therebetween, knives carried by said plunger at its platen end, a die for said knives coacting therewith to cut a ticket body from the ticket strip, and means for actuating said plunger to cut the ticket body and advance the same with the recording strip to said type to record the subject matter thereof upon the ticket body and recording strip.

8. In a ticket printing and recording machine, the combination with settable type, 130

of a guide frame stationary with respect to said type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, means for guiding a ticket strip and recording strip crosswise of said platen and type and in interposed relation therebetween, inking means interposed between said ticket and recording strips, knives carried by said plunger at its platen end, a die for said knives coacting therewith to cut a ticket body from the ticket strip, and means for actuating said plunger to cut the ticket body and advance the same with recording strip to said type, to record the subject matter thereon upon the ticket body and recording strip.

9. In a ticket printing and recording machine, the combination with settable type, of a guide frame stationary with respect to said type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, means for guiding a ticket strip and recording strip crosswise of said platen and type, and in interposed relation therebetween, knives carried by said plunger at its platen end, a die for said knives coacting therewith to cut a ticket body from the ticket strip, means for actuating said plunger to cut the ticket body and advance the same with said recording strip with said type, to record the subject matter thereof upon the ticket body and recording strip, and mechanism for advancing the ticket strip and recording strip with respect to said type to be in position for a succeeding impression of said type after each actuation of said plunger.

10. In a ticket printing and recording machine, the combination with settable type, of a guide frame stationary with respect to said type, a plunger carried by said guide frame and provided with a platen movable toward and from said type, means for guiding a ticket strip and recording strip crosswise of said platen and type and in interposed relation therebetween, knives carried by said plunger at its platen end, a

die for said knives coacting therewith to cut a ticket body from the ticket strip, means for actuating said plunger to cut the ticket body and advance the same with said recording strip to said type to record the subject matter thereof upon the ticket body and recording strip, feed rolls engaging the ticket strip, ratchet means associated with said feed rolls, means operatively connecting said ratchet means and plunger to actuate the said feed rolls, second feed rolls for the recording strip, and speed reducing means operatively connecting said first and second mentioned feed rolls to actuate the latter upon movement of the former, but at a reduced speed with respect thereto.

11. In a ticket printing and recording machine, the combination with settable type, of a guide frame stationary with respect to said type, a plunger carried by said guide frame and provided with a platen movable toward and from the type, means for guiding a ticket strip and recording strip crosswise of said platen and type and in interposed relation therebetween, mechanism for cutting a ticket body from the ticket strip, means for actuating said plunger to advance the ticket body and recording strip to said type to record the subject matter thereof upon the ticket body and recording strip, feed rolls engaging the ticket strip, ratchet means associated with said feed rolls, means operatively connecting the ratchet means and plunger to actuate said feed rolls, second feed rolls for the recording strip, and speed reducing means operatively connecting said first and second mentioned feed rolls to actuate the latter upon movement of the former but at a reduced speed with respect thereto.

Signed by me at Zurich, Switzerland this 16th day of November 1910.

PETER ANDRES.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."