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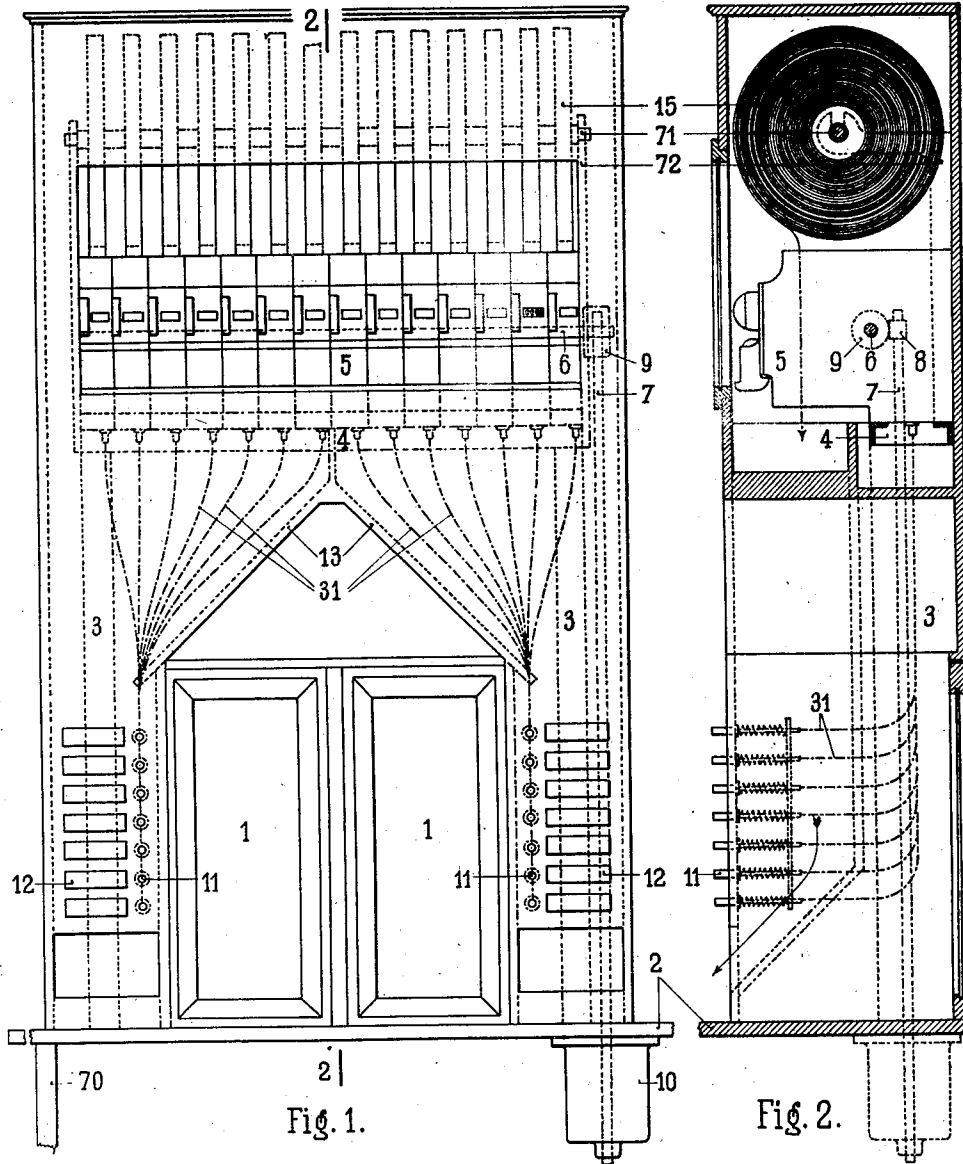
1,529,639

F. ELLER

SYSTEM FOR PRINTING AND DELIVERING TICKETS AND THE LIKE

Filed Sept. 12, 1924

2 Sheets-Sheet 1



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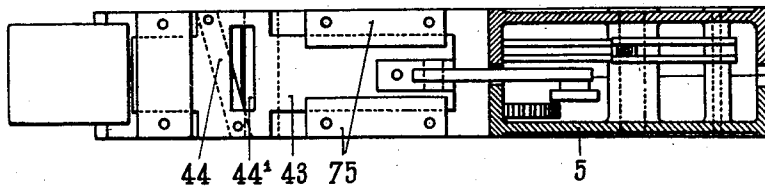


Fig. 5.

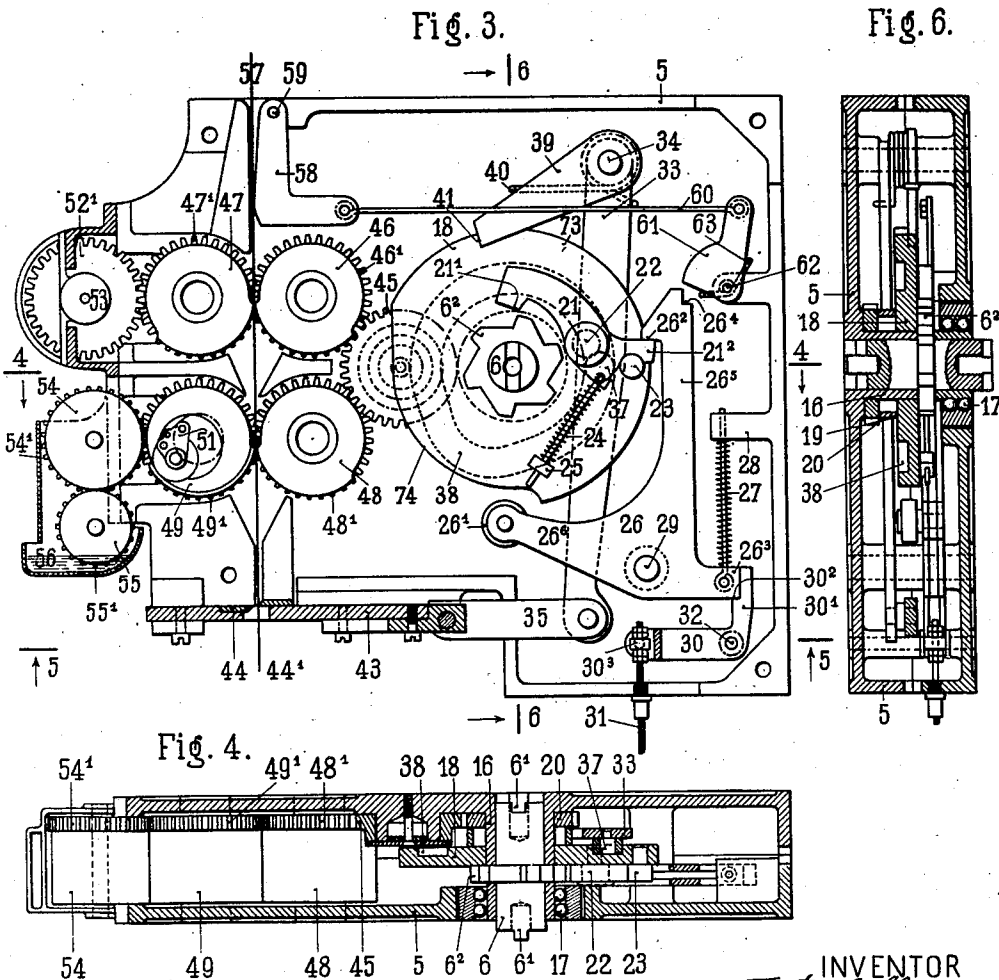


Fig. 6.

Fig. 4.

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UNITED STATES PATENT OFFICE.

FRITZ ELLER, OF BERLIN-TEGEL, GERMANY.

SYSTEM FOR PRINTING AND DELIVERING TICKETS AND THE LIKE.

Application filed September 12, 1924. Serial No. 737,301.

To all whom it may concern:

Be it known that I, FRITZ ELLER, a citizen of Germany, residing at Berlin-Tegel, in the State of Prussia, Germany, have invented certain new and useful Improvements in Systems for Printing and Delivering Tickets and the like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in systems for printing and delivering tickets and the like, and the object of the improvements is to provide a system by means of which an official is enabled to print and deliver any of a large number of tickets without leaving his seat at the gate or counter. With this object in view my invention consists in providing a system in which a group or groups of printing apparatus are disposed at a suitable part or parts of a room and connected with the attendant's place by delivering and controlling means, the delivering means being arranged to deliver the printed tickets to the attendant's place and the operating members for the said controlling means being located at a part or parts within the reach of the attendant, so that the attendant is enabled to print and take up the tickets from any of a large number of printing apparatus without leaving his seat.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawings in which the same reference characters have been used in all the views to indicate corresponding parts. In said drawings,

Fig. 1, is an elevation showing the official's gate, the tables indicating the tickets, the printing apparatus and the push buttons controlling the same, looking from the inside of the official's room,

Fig. 2, is a section taken on the line 2—2 of Fig. 1,

Fig. 3, is a sectional elevation showing one of the printing apparatus,

Fig. 4, is a horizontal section taken on the line 4—4 of Fig. 3,

Fig. 5, is a bottom view of Fig. 3 partly in section on the line 5—5 of Fig. 3, and

Fig. 6, is a section taken on the line 6—6 of Fig. 3.

In Fig. 1 the numeral 1 indicates a gate or window through which the official sells

the tickets to the passengers. Below the gate there is a table 2 supported on suitable legs or pillars 70. From the gate there rise a pair of uprights 3 which provide a support for a cross-member 4 on which a group of printing apparatus are mounted which are disposed within cases 5. All the printing apparatus comprise a common driving shaft 6 mounted in the side walls of the casings 5 and adapted to be rotated by an electromotor 10 through the intermediary of a vertical shaft 7 and a worm gearing 8, 9. Above the cases 5 a shaft 71 is mounted in brackets 72, which carries rolled strips 15 of paper or card board. The delivery ends of the printing apparatus are disposed above chutes provided by inclined boards 13 adapted to direct the tickets delivered from the printing apparatus either to the right or left hand side of the table 2. Normally all the printing apparatus are out of operation, and they are adapted to be selectively coupled to the rotary shaft 6 by means of push buttons 11 and Bowden cables 31 disposed in two sets at opposite sides of the gate 1. At the side of each button 11 there is a plate 12 indicating the impression of the ticket printed by the printing mechanism controlled by the push button.

The printing mechanism is shown in detail in Figs. 3 to 6. As shown the shaft 6 is made in sections one for each of the printing mechanisms, and the sections are mounted in a sleeve 16 made integral with one of the side walls of the case 5 and in an anti-friction bearing 17 disposed in the opposite wall of the casing. At the ends the shaft sections are formed with coupling jaws 6¹ by means of which adjacent shaft sections can be connected with each other. Each of the shaft sections is made integral with a series of coupling teeth 6². At the side of the said teeth a cam disk 18 is rotatably mounted on the sleeve 16, which disk is provided with a circumferential cam face comprising a concentric portion 73 and a portion 74 of reduced radius, and with a cam groove 38. On the sleeve 16 a gear wheel 20 is rotatable which is connected with the cam disk 18 by a ring 19. On a bolt 22 secured to the cam disk a pawl 21 is rockingly mounted which is formed at one end with a claw 21¹ adapted for coupling engagement with the coupling teeth 6². A rearwardly extending arm 21² of the pawl is acted upon by a spring 24 bearing

on a lug 25 secured to the cam disk 18, and it is normally engaged by a nose 26² of an arm 26¹ of a bell crank lever 26 mounted on a bolt 29 secured to one of the walls of the casing 5. When thus engaged by the nose 26² the arm 21¹ bears on a pin 23 secured to the cam disk 18. A second arm 26¹ of the said bell crank lever 26 carries a roller 26¹, which is in position for engagement with the peripheral cam faces 73 and 74 of the cam disk 18. A third arm 26³ of the bell crank lever is acted upon by a coiled spring 27 bearing on a lug 28 projecting from the wall of the casing and tending to rock the bell crank lever 26 with its nose 26² out of engagement with the arm 21² of the pawl 21. The arm 26³ bears on a shoulder 30² of an arm 30¹ of a bell crank lever 30 mounted on a bolt 32 secured to the wall of the casing. The lever 30 shows an eye 30³ engaged by the Bowden cable 31. At its top end the arm 26³ shows a shoulder 26⁴ which is adapted to be engaged by a rocker 61 mounted at 62 and acted upon by a spring 63. At the side of the cam disk 18 there is a lever 33 which is rockingly mounted on a bolt 34 secured to the side wall of the casing, and which is connected at its bottom end with a link 35 jointed to a slide 43 guided in suitable guide ways 75 and carrying a blade 44 cooperating with a blade 44¹ secured to the bottom wall of the casing 5. At a part intermediate its ends the lever 33 carries a roller 37 engaging in the cam groove 38 of the disk 18. The cam groove 38 is formed so as to impart reciprocating movement to the lever 33 and the blade 44 upon rotation of the disk 18. The bolt 34 carries a pawl 39 acted upon by a spring 40 tending to hold the same in engagement with a notch 41 of the cam disk for locking the same as against rotation in clockwise direction.

The gear wheel 20 is in mesh with an intermediate gear wheel 45 adapted to transmit rotary movement to two trains of gear wheels 46¹, 47¹, 52¹ and 48¹, 49¹, 54¹, 55¹. The gear wheels 46¹ and 47¹ are connected with feed rollers 46 and 47 having feeding portions corresponding in length to the length of the card or ticket to be printed upon and portions reduced in diameter, and the gear wheels 48¹ and 49¹ are connected with printing rollers 48 and 49. The roller 49 is equipped with types for printing on the ticket, and it shows mechanism 51 for printing successive numbers on the tickets. The gear wheel 52¹ is connected with registering mechanism 53 for counting the number of the tickets delivered by the apparatus. The gear wheels 54¹ and 55¹ are connected with ink applying rollers 54 and 55, the roller 55 being immersed into an ink receptacle 56 provided at the bottom of the casing 5.

Above the rollers 46 and 47 an arm 58 is rockingly mounted at 59 and in position for bearing on the strip of paper 57 coming from one of the rolls 15. The arm is connected by a rod 60 with the rocker 61, and the spring 63 tends to push the rod 60 and the arm 58 towards the left and into engagement with the strip 57.

The operation of the apparatus is as follows:

For taking a single ticket from the apparatus the attendant depresses the push button 11 corresponding to the desired ticket, and thereafter releases the same. Thereby the bell crank lever 30 is rocked through the intermediary of the Bowden cable 31, thus releasing the bell crank lever 26, which is now rocked by the spring 27 with its nose 26² away from the rearwardly extending arm 21² of the pawl 21. The spring 24 throws the pawl into coupling engagement with one of the teeth 6², so that the cam disk 18 is coupled with the rotary shaft 6, and the roller 26¹ engages the portion 74 of reduced diameter of the cam disk. The lever 33 is rocked to the right so that the blade 44 cuts a ticket previously printed, which ticket slides over one of the inclined boards 13 and on the table 2. From the cam disk 18 rotary movement is transmitted to the feed rollers 46, 47 and the printing rollers 48, 49, which, after about two thirds of a complete rotation and after the blade 44 has been retracted into initial position, advance the strip 57 and print thereon the impression corresponding to the ticket, so that a new ticket is passed downwardly and into position for being cut upon the next operation of the machine. After the cam disk has performed about one third of a complete rotation the roller 26¹ gets on the portion 73 of larger diameter of the cam disk, so that the nose 26² is again in position for engagement with the arm 21², in which position it is locked by the lever 30. Therefore, after one rotation of the cam disk, the arm 21² strikes against the nose 26², so that the pawl 21 is rocked out of coupling engagement with the teeth 6² and the cam disk 18 is arrested.

Should the attendant desire to print several tickets he does not release the push button. Therefore the lever 30 is held out of position for engagement with the arm 26³ of the lever 26, which is therefore rocked into position for releasing the pawl 21 immediately after the cam disk has completed one rotation and the roller 26¹ is in position below the portion 74 of reduced diameter of the cam disk 18. Therefore the cam disk 18 is again coupled to the rotary shaft 6 and it begins another rotation in the manner described. The disk 18 is arrested after the attendant has released the push button and the pawl 21 gets into the position shown.

in Fig. 3. In any case the disk can be arrested only in a definite position and after a printing operation has been completed.

Upon each rotation of the gear wheels the mechanism 51 sets another figure in printing position, so that successive numbers are printed on the tickets. The tickets are counted by the registering mechanism 53.

If the end of the strip has passed the arm 58, the spring 63 rocks the same to the left and rocks the pawl 61 into position for engagement with the shoulder 26⁴. Therefore the lever 26 can not be rocked into position for releasing the pawl 21, so that the printing mechanism is not operated, even if the attendant depresses a push button.

By connecting the printing mechanisms with the attendant's place by the guide ways 13 and the cables 13 a large number of printing mechanisms disposed at any suitable part of the room can be controlled by the official. Since it is not necessary for the official to leave his seat he is enabled to print tickets at high velocity.

I wish it to be understood that my invention is not limited to the relative arrangement of the printing mechanisms and the official's seat, nor to the construction of the guide ways 13 for the tickets and of the controlling means 11, 3 shown in the drawings, the invention generally contemplating a system in which the printing apparatus are out of the reach of the official sitting at the table 2.

I claim:

1. A system for printing and delivering tickets and the like, comprising a group of normally inoperative printing apparatus, driving means therefor, means for individually coupling said printing apparatus with said driving means, means for delivering the ticket from the printing apparatus to a place located at a distance from said group, and means controlling said coupling means, the operating members of said controlling means being located near said place.

2. A system for printing and delivering tickets and the like, comprising a group of normally inoperative printing apparatus, driving means therefor, means for individually coupling said printing apparatus with said driving means, an inclined guide way located below the delivery parts of said printing apparatus for directing the tickets from the printing apparatus to a place located at a distance from said group, and means controlling said coupling means, the operating members of said controlling means being located near said place.

3. A system for printing and delivering tickets and the like, comprising a group of normally inoperative printing apparatus, driving means therefor, means for individually coupling said printing apparatus with said driving means, an official's table located

below said group of printing apparatus, a roof shaped guide way located below the delivery ends of said printing apparatus and above said table for delivering the tickets respectively to opposite sides of said table, and means controlling said coupling means, the operating members of said controlling means being located near said table.

4. A system for printing and delivering tickets and the like, comprising a group of normally inoperative printing apparatus, common driving means therefor, means for individually coupling said printing apparatus with said driving means, means for delivering the tickets from the printing apparatus to a place located at a distance from said group, and means controlling said coupling means, the operating members of said controlling means being located near said place.

5. A system for printing and delivering tickets and the like, comprising a group of normally inoperative printing apparatus, driving means therefor, means for individually coupling said printing apparatus with said driving means, means for delivering the tickets from the printing apparatus to a place located at a distance from said group, means controlling said coupling means for setting the same into coupling position, and automatic means for setting the coupling means in non-coupling position, the operating members of said controlling means being located near said place.

6. In an apparatus for printing tickets and the like, the combination, with a plurality of rotary coupling members and driving means therefor, of rotary members one for each of said coupling members, pawls one on each of said rotary members adapted to be automatically coupled with the coupling member cooperating therewith, rockers one for each of said pawls adapted upon rotation of the rotary members to throw the cooperating pawl out of coupling position, hand operated means for individually setting said rockers in inoperative positions, automatic means tending to set said rockers in operative positions, and printing means operatively connected with said rotary members.

7. In an apparatus for printing tickets and the like, the combination, with a plurality of rotary coupling members and driving means therefor, of rotary cam disks one for each of said coupling members, a locking pawl on each of said disks adapted to be automatically thrown into coupling engagement with the cooperating coupling member, an automatically actuated bell crank lever for each of said cam disks having one arm in position for setting said pawl in non-locking position and one arm in position for engagement with the cam face of said cam disk, said cam face having a por-

tion arranged for permitting said bell crank lever to be rocked out of engagement with said pawl and a portion arranged for returning the bell crank lever into engagement with said pawl, means for each of said bell crank levers for locking the same in position for engagement with said pawl, hand operated means for setting said locking means into non-locking positions, and printing mechanism one connected with each of said cam disks. 10

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

FRITZ ELLER.

Witnesses:

JOHANNES SPITZ,
MARIE FRITZIKS.