

M. LEBEIS.  
TICKET PRINTING AND REGISTERING APPARATUS.  
APPLICATION FILED DEC. 27, 1906.

899,671.

Patented Sept. 29, 1908.

7 SHEETS—SHEET 1.

Fig. 1

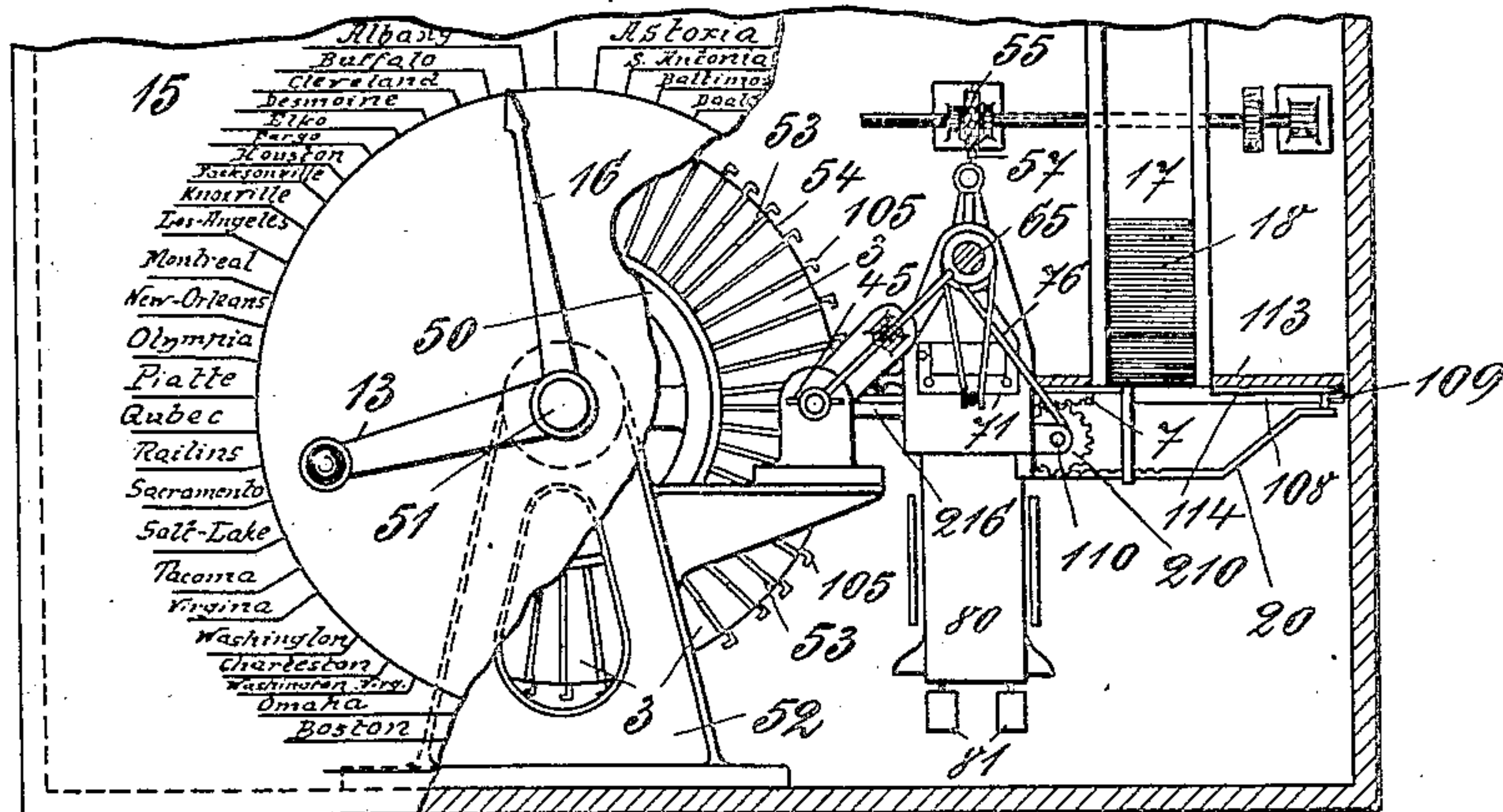
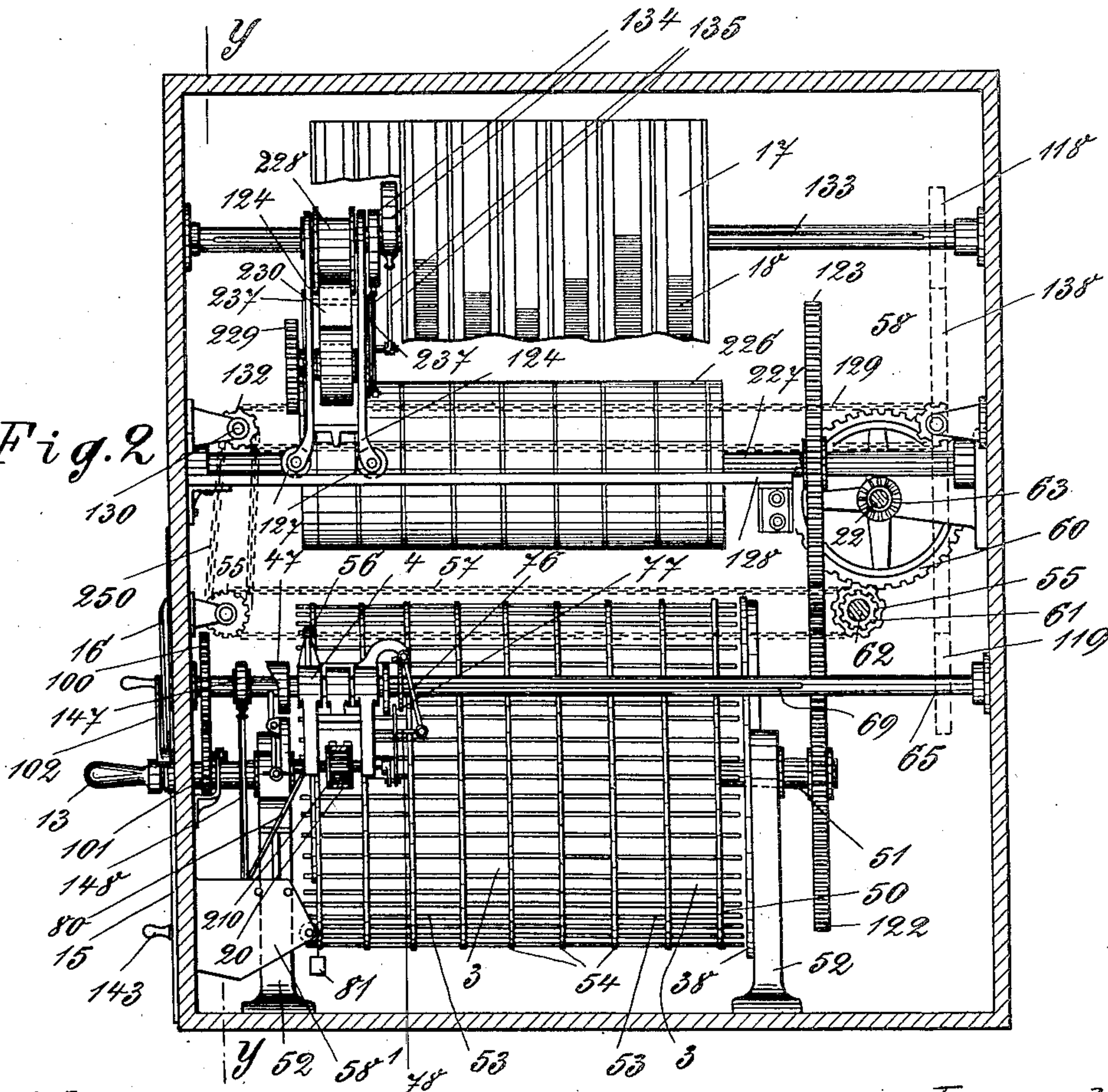


Fig. 2



Witnesses:  
Nikolaus Meier  
Carl Meyer

Inventor:  
Marten Lebeis

M. LEBEIS.  
TICKET PRINTING AND REGISTERING APPARATUS.  
APPLICATION FILED DEC. 27, 1906.

899,671.

Patented Sept. 29, 1908.

7 SHEETS—SHEET 2.

Fig. 3

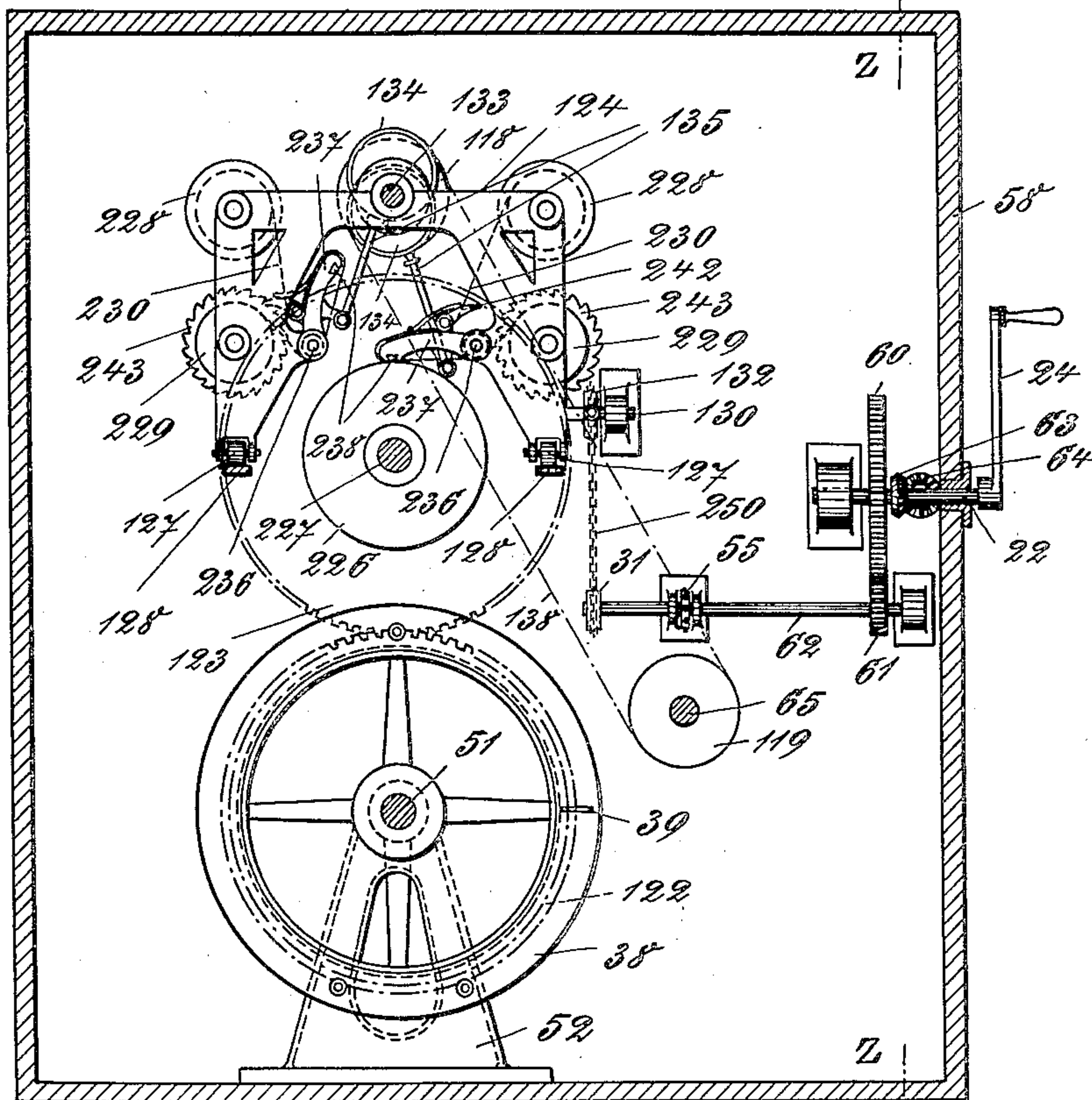
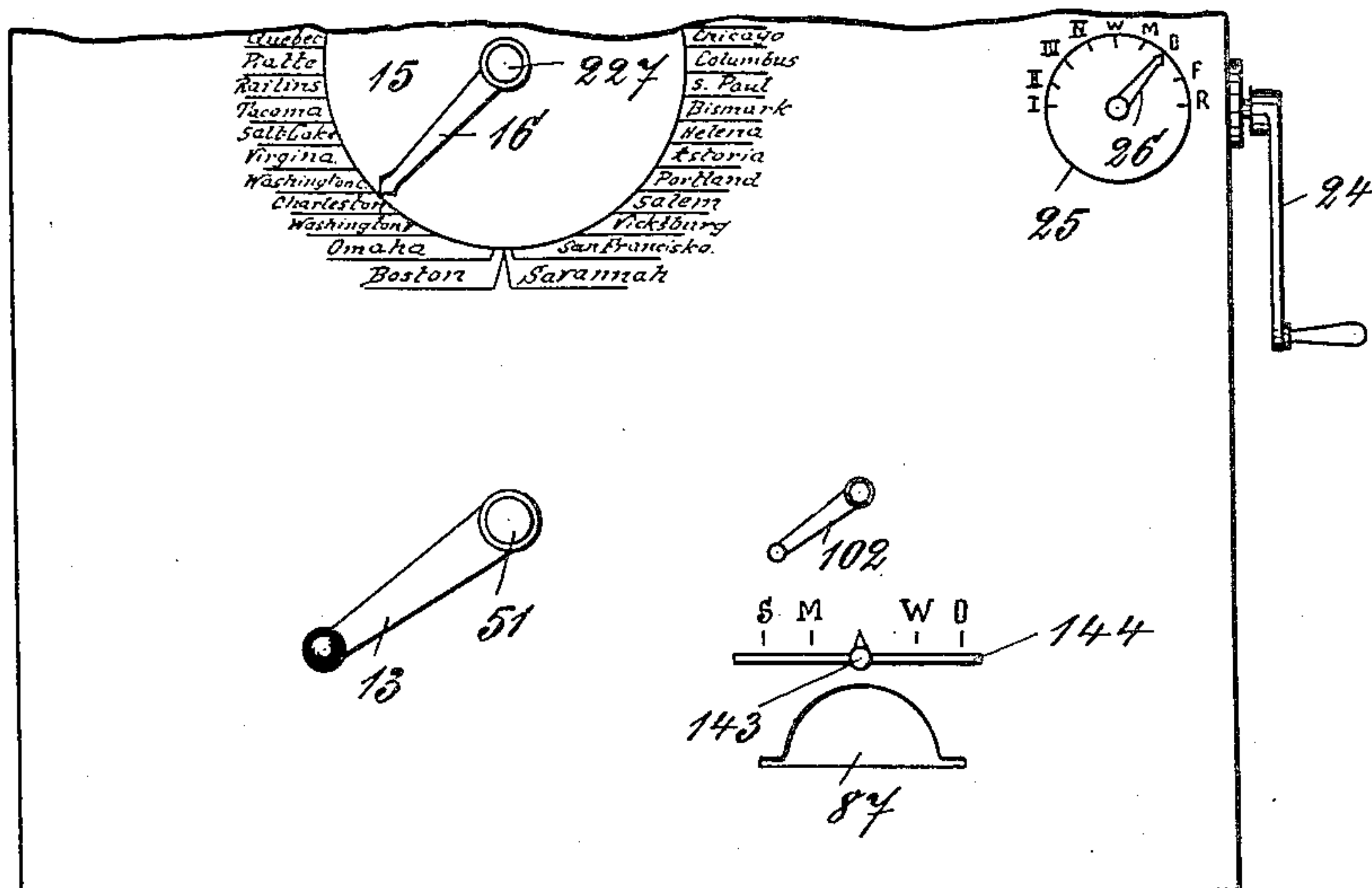


Fig. 4



Witnesses:  
Karl Hagen  
Carl Hagen

Inventor:  
Martin Lebeis

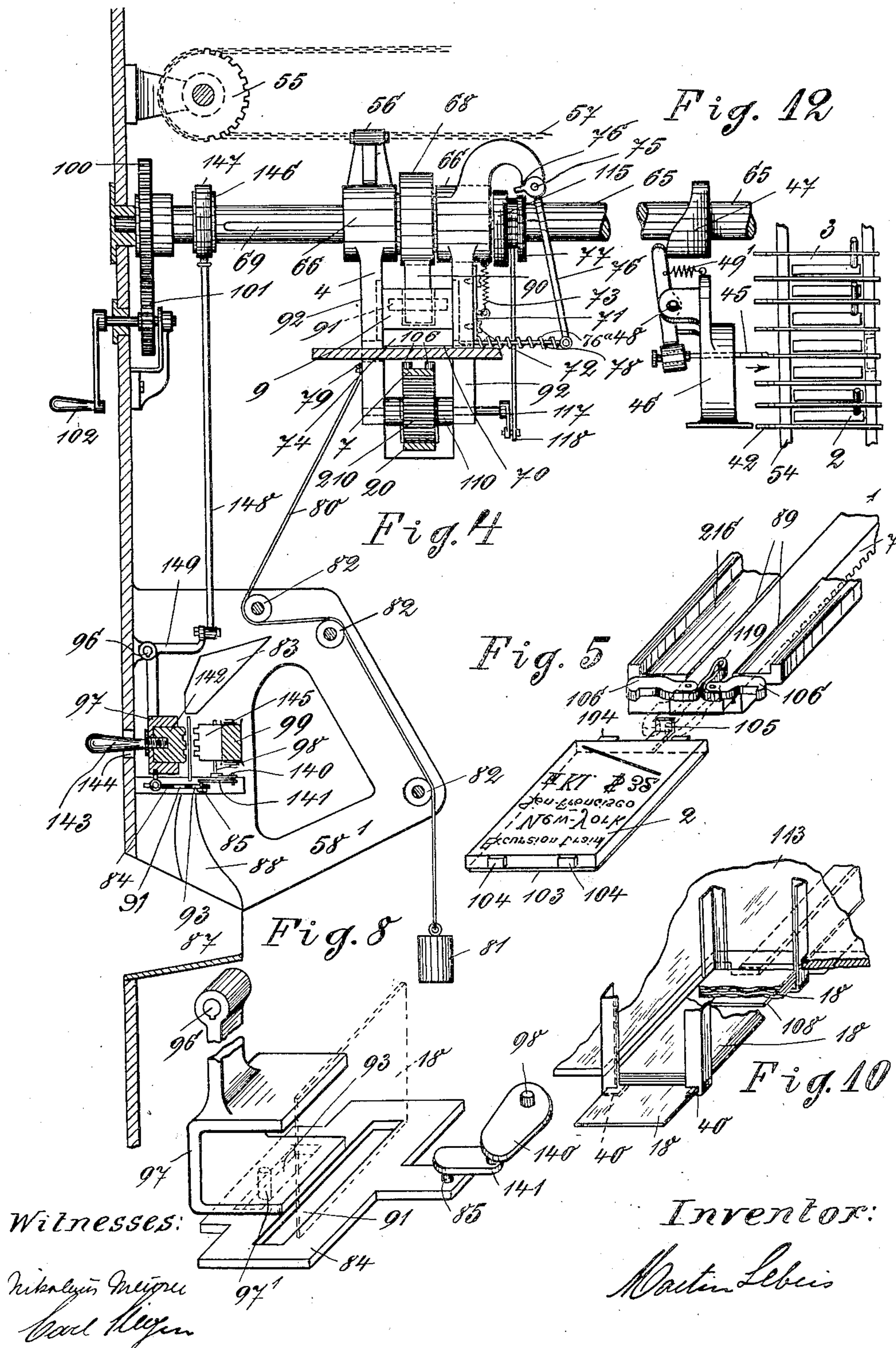


# TICKET PRINTING AND REGISTERING APPARATUS.

Patented Sept. 29, 1908.

7 SHEETS—SHEET 3.

899,671.



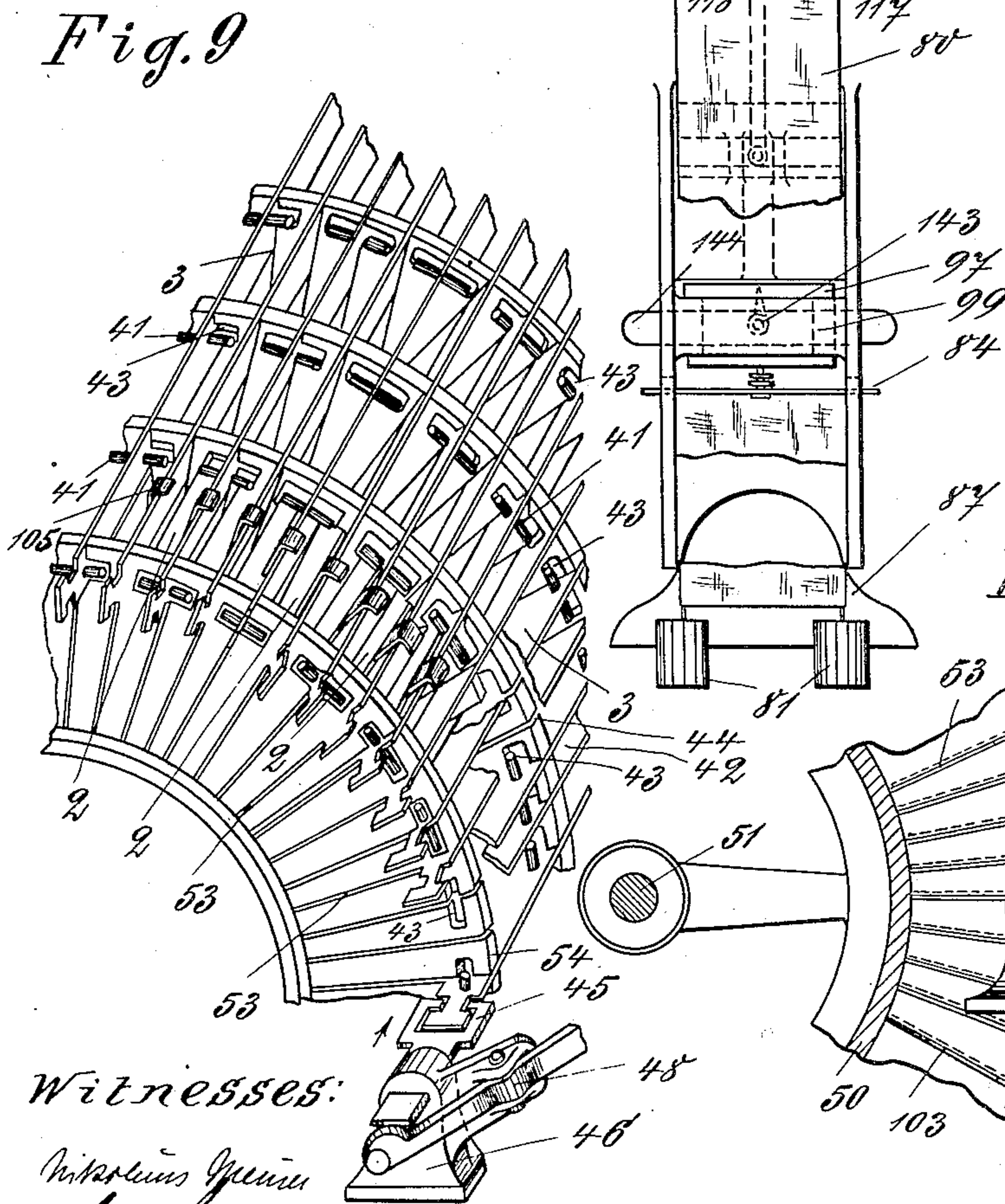
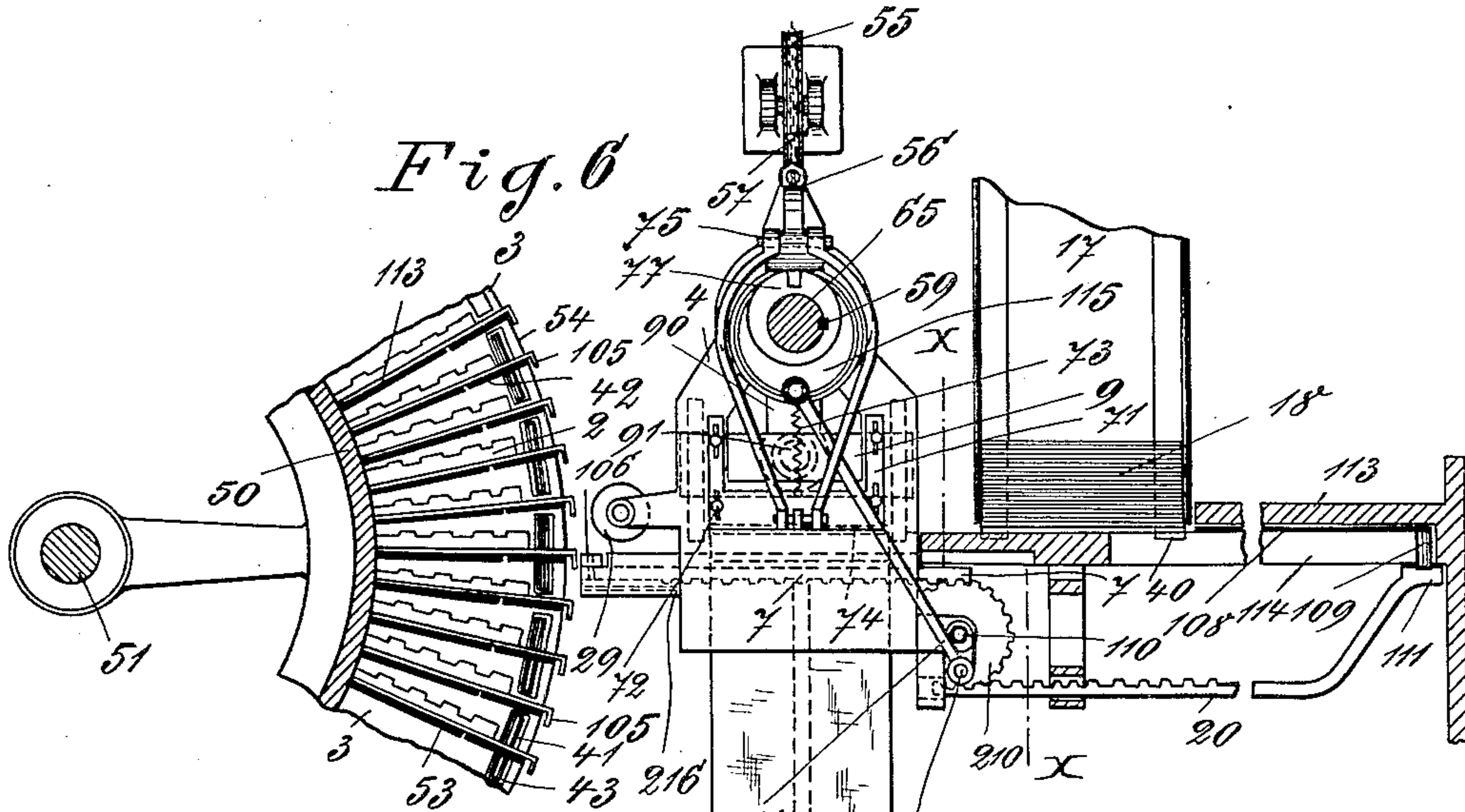


M. LEBEIS.  
TICKET PRINTING AND REGISTERING APPARATUS.  
APPLICATION FILED DEC. 27, 1906.

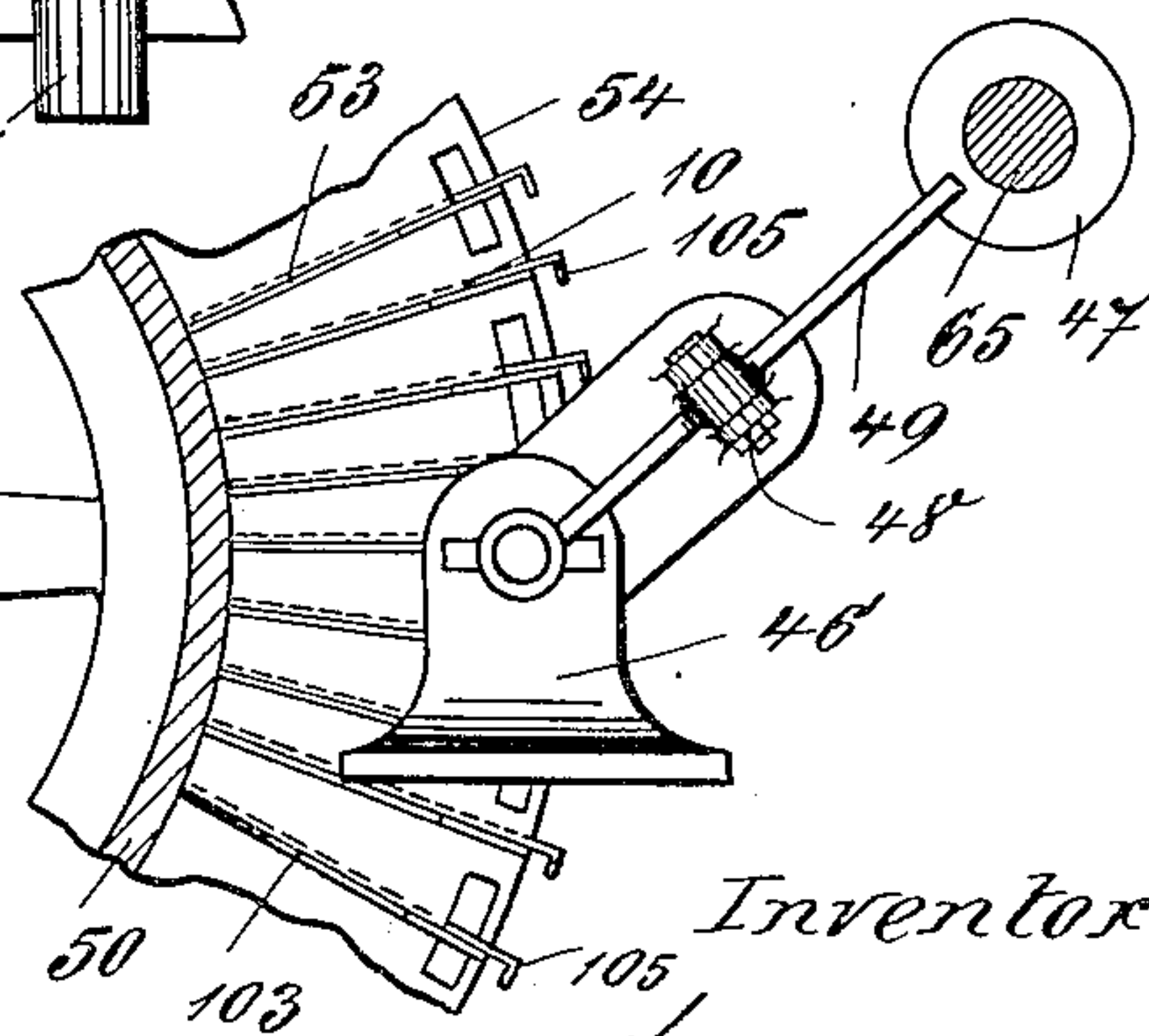
899,671.

Patented Sept. 29, 1908.

7 SHEETS—SHEET 4.



*Fig. 11*



Witnesses:

*Witnesses:*  
*Walter J. Quinn*  
*Carl H. Hagen*

Inventor:

*Martin Lebeis*



# TICKET PRINTING AND REGISTERING APPARATUS.

Patented Sept. 29, 1908.

7 SHEETS—SHEET 5.

**Fig. 13**

This diagram shows a mechanical assembly. A large circular component on the right is divided into segments, some of which are numbered 2, 4, 103, 105, 50, 51, 52, 44, and 68. A central vertical shaft or rod is labeled 251. To the left of the circular component is a complex mechanism with various gears, levers, and springs, labeled with numbers including 257, 258, 253, 255, 17, 65, 18, 259, 210, 261, 265, 262, 264, 263, 108, 106, 103, 260, 9, 2, 4, 54, 105, and 252. A dashed line labeled 'V' indicates a vertical plane of symmetry or section.

**Fig. 15**

This diagram shows a similar mechanical assembly, but with a different configuration of parts. The large circular component on the right is labeled 52. The central vertical shaft is labeled 251. The mechanism on the left is labeled with numbers including 257, 258, 253, 255, 17, 65, 18, 259, 210, 261, 265, 262, 264, 263, 108, 106, 103, 260, 9, 2, 4, 54, 105, and 252. A dashed line labeled 'V' indicates a vertical plane of symmetry or section.

*Inventor:*

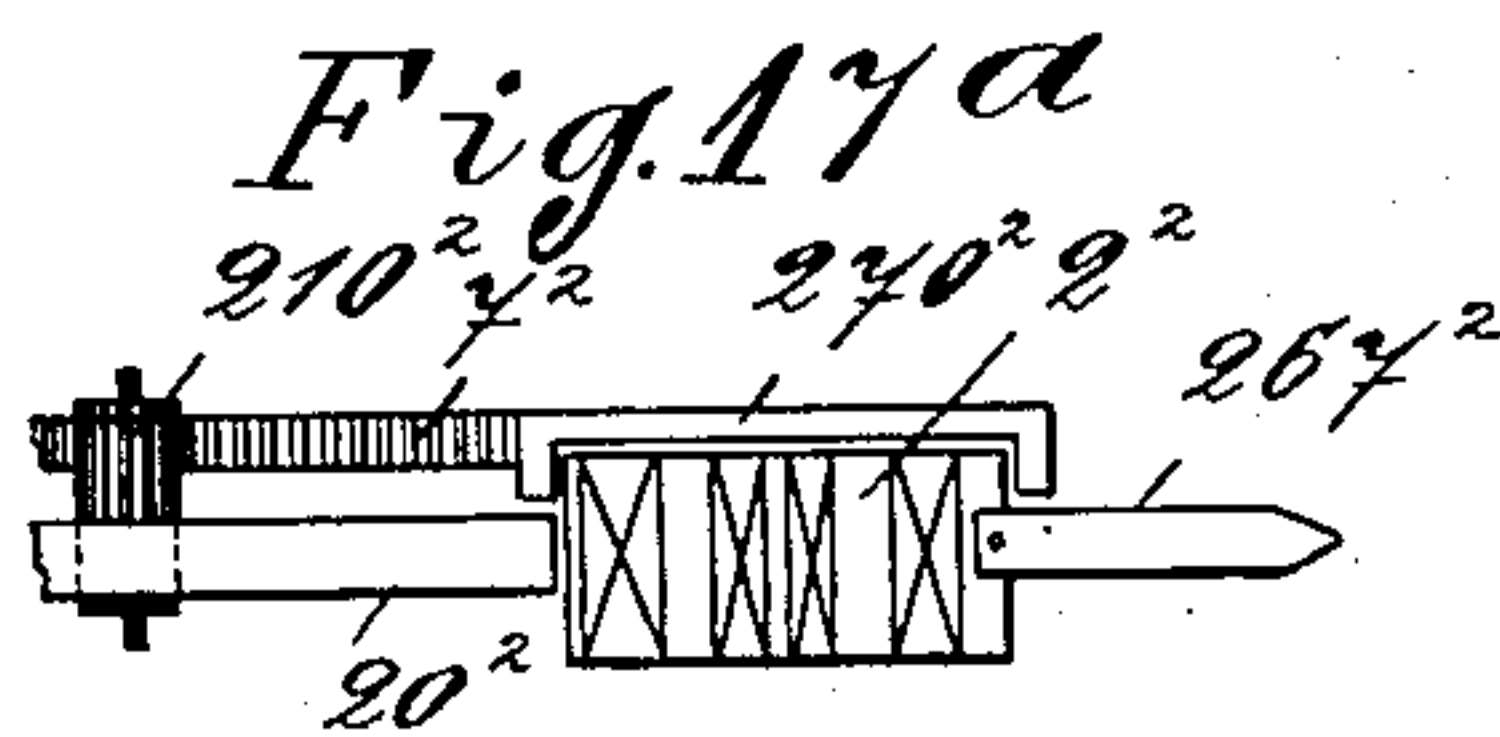
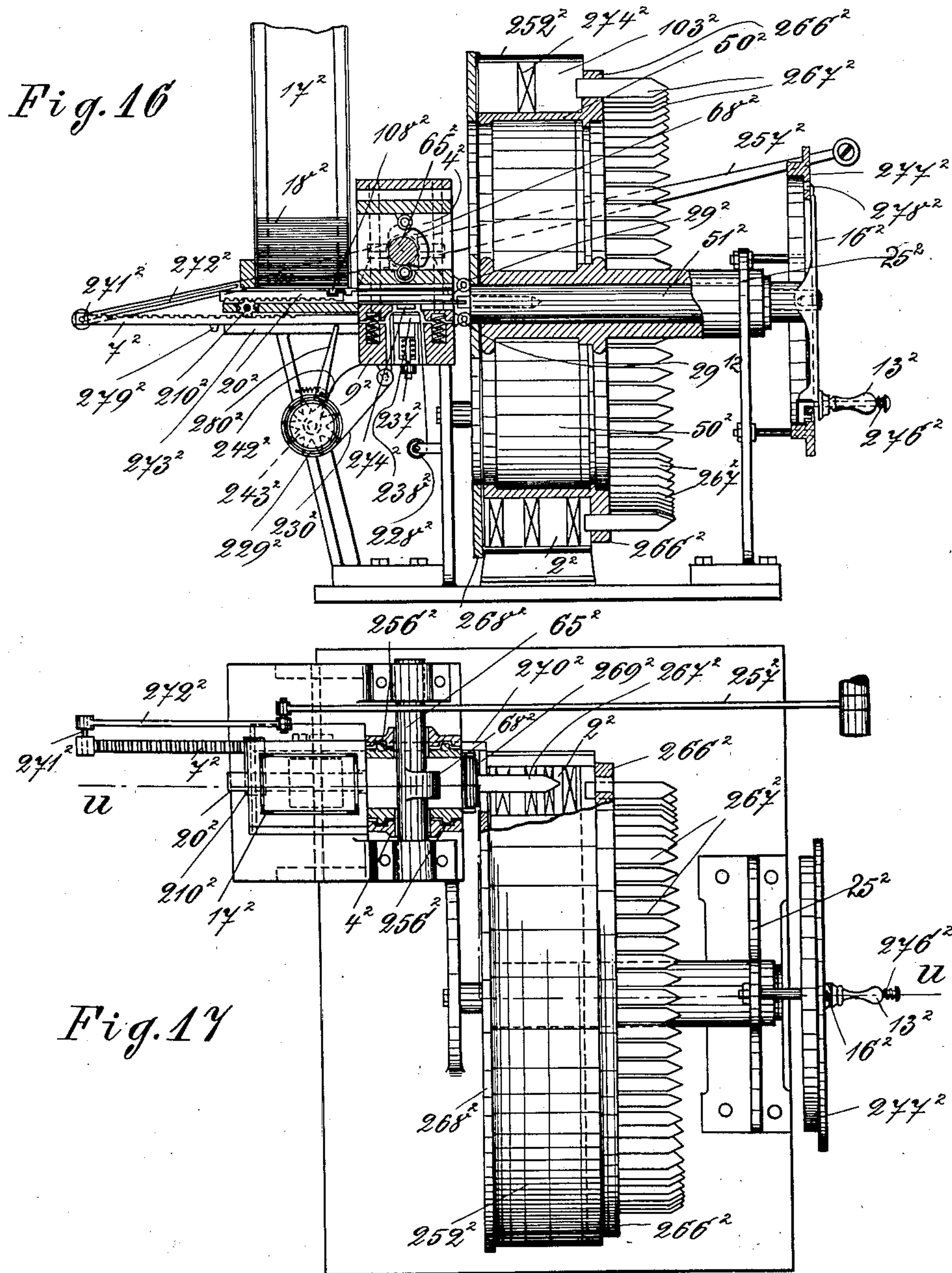
Oskoluis Muench  
 Carl Hagen

Martin Lober

TICKET PRINTING AND REGISTERING APPARATUS.

Patented Sept. 29, 1908.

899,671.



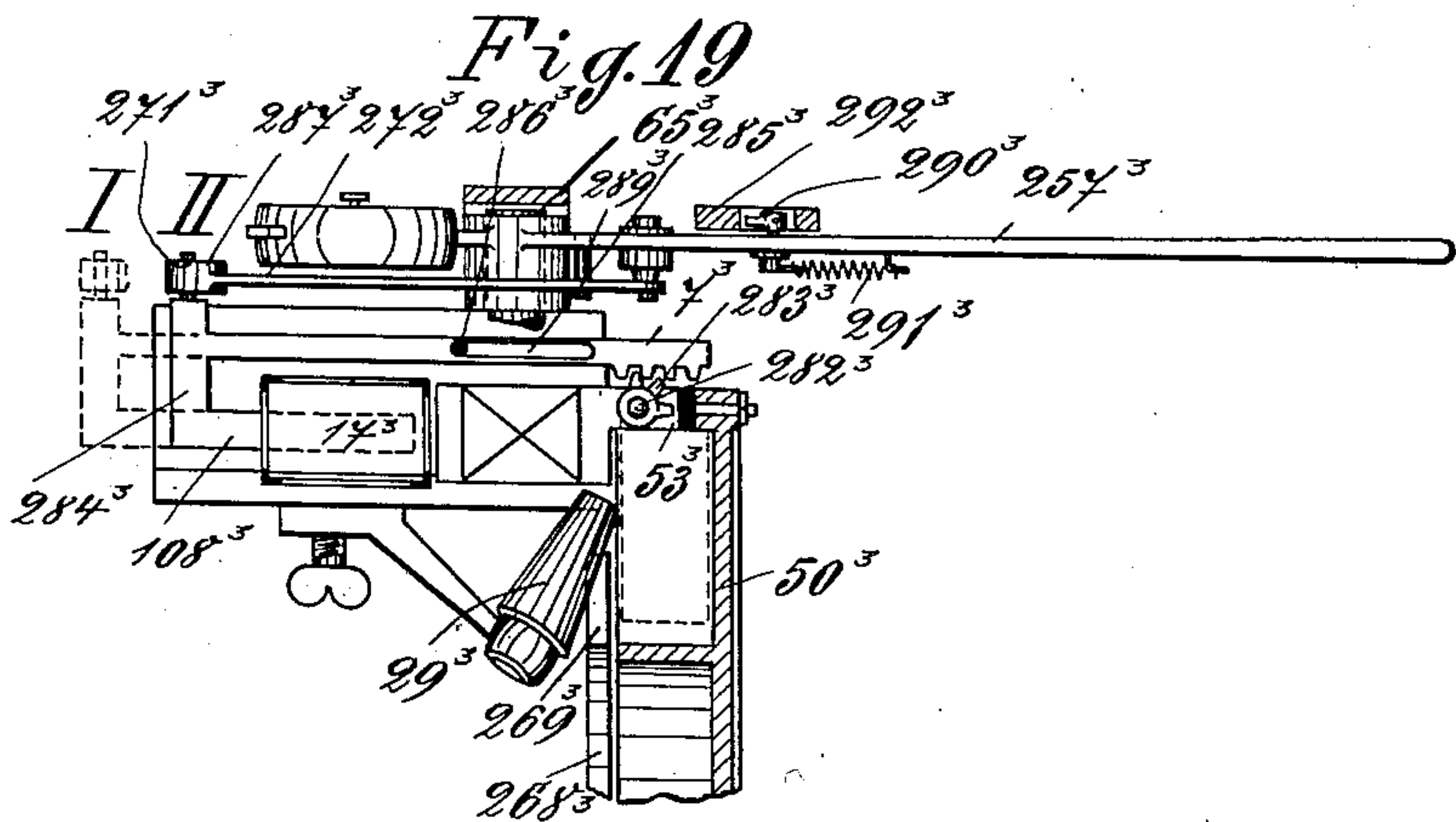
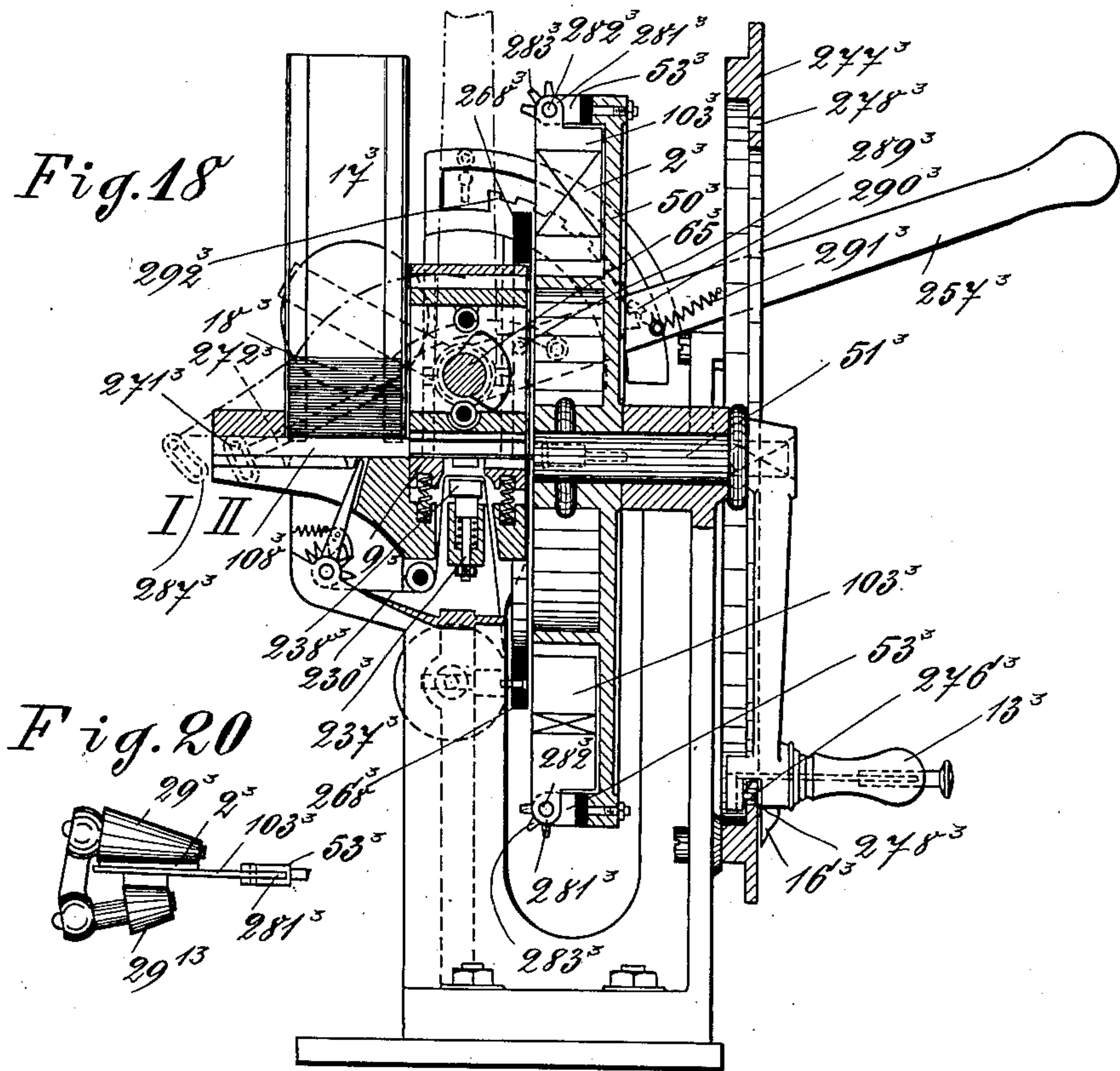
*Witnesses:*

Viktorius Müller  
David Meyer

*Inventor:*

Martin Luber





Witnesses:  
*William M. Munn*  
*Carl Hoyer*

Inventor:  
*Martin Lebeis*



# UNITED STATES PATENT OFFICE.

MARTIN LEBEIS, OF KALK, NEAR COLOGNE, GERMANY, ASSIGNOR TO REGINA MASCHINENFABRIK, G. M. B. H., OF KALK, NEAR COLOGNE, GERMANY.

## TICKET PRINTING AND REGISTERING APPARATUS.

No. 899,671.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed December 27, 1906. Serial No. 405,115.

*To all whom it may concern:*

Be it known that I, MARTIN LEBEIS, a citizen of the Empire of Germany, residing at Kalk, near Cologne-on-the-Rhine, in the Empire of Germany, have invented a new and useful Ticket Printing and Registering Apparatus, of which the following is a specification.

My invention relates to a new kind of apparatus for printing and registering railway tickets and the like, in which loose type plates, either alone or in combination with carriers, are disposed in a rotatable drum, from whence they can be severally withdrawn for their introduction into a printing device simultaneously with a ticket blank, so that the latter may be printed, after which it is discharged and the type plate is returned to the drum.

Means are provided for adjusting the rotatable drum by turning it and for adjusting the printing device with regard to the rotatable drum, so that the type plate for the desired station name and the desired kind of ticket can be brought into a proper position with regard to the printing device, before it is withdrawn from the drum and placed in the printing device for the impression. The type plates may be withdrawn from the drum and returned to the same either in a radial direction or in a direction parallel to the drum, or they may be turned with their carriers around pins in the periphery of the drum. From this it follows, that the construction of the apparatus may be varied in many respects without departing from the spirit of my invention.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 shows the lower part of an apparatus, partly in elevation and partly in a vertical section through the line  $y-y$  in Fig. 2, this apparatus comprising a rotatable drum with radial compartments for loose type plates, Fig. 2 is a vertical longitudinal section through the apparatus on the line  $z-z$  in Fig. 3, Fig. 3 is a vertical cross section through the same on the line  $y-y$  in Fig. 2, parts being omitted, Fig. 4 is the left lower part of Fig. 2 on an enlarged scale and shows the printing device, Fig. 5 is a perspective view on an enlarged scale and illustrates the manner, in which a type plate can be coupled with a slide, Fig. 6 is an elevation of the

printing device, seen in the direction from right to left in Fig. 4, and a cross section through a part of the drum, Fig. 7 is an elevation of the lower part of a modified front side of the apparatus, Fig. 8 is a perspective view on an enlarged scale of a part of a second printing device which will be referred to later on, Fig. 9 is a perspective view on an enlarged scale of a part of the drum, Fig. 10 is a perspective view and illustrates the manner, in which the lowermost ticket blank is ejected from the respective channel of the reservoir, Fig. 11 is a view of a locking and unlocking device for the drum, Fig. 12 is a side view of the same, Fig. 13 illustrates a modified apparatus with a drum, in which the type plates with their carriers are radially movable, and is on the left side a vertical section through the apparatus on the line  $w-w$  in Fig. 14 and on the right side an elevation, Fig. 14 is on the left side a horizontal section through the same on the broken line  $v-v$  in Fig. 13 and on the right side a plan, Fig. 15 is a detail to illustrate the manner, in which a type plate can be coupled with a rack, Fig. 16 shows a further modification of the apparatus, in which the type plates with their carriers are movable in a direction parallel to the drum shaft, and is a vertical section through the apparatus on the broken line  $u-u$  in Fig. 17, the right standard being shown in elevation, Fig. 17 is a plan of the same, the printing device being shown in section, Fig. 17<sup>a</sup> is a detail, which will be referred to later on, Fig. 18 shows a further modification of the apparatus, in which the carriers of the type plates are mounted in the periphery of the drum to rock in radial planes, and is a vertical longitudinal section through the reservoir and the printing device in one plane and through the drum in another plane, Fig. 19 is a plan of the reservoir, the printing device and the operating lever and a horizontal section through part of the drum, and Fig. 20 is an elevation of the inking device.

Similar characters of reference refer to similar parts throughout the several views.

Figs. 1 to 12 illustrate a ticket printing and registering apparatus with a rotatable drum from which the type plates can be withdrawn in a radial direction. Within a suitable casing 58 two standards 52, 52 are disposed, in which the shaft 51 of a horizontal drum 50 is mounted to turn. The drum 50 is divided by



annular disks 54, 54 into several, here eight, parallel sections and the latter are each divided by radial plates 53, 53 into compartments 3, 3, the number of which is like that of the station names on the dial 15 on the outside of the casing 58. Into each compartment 3 of the drum 50 a single type plate 2 can be loosely placed. The type plates in every horizontal row of compartments in the same radial plane are destined for the same station name, but the type plates in each of the eight parallel sections of the drum are for different station names which are shown on the dial 15 and are for one kind of ticket. For example the first section of the drum 50 may hold type plates 2, 2 for first class tickets, the second section those for second class tickets, the third section those for third class tickets, the fourth section those for return tickets, the fifth section those for dog tickets and so on.

The disks 54, 54 are provided with radial slits 44, 44 (see Fig. 9) and slots 43, 43 at right angles thereto. In the slits 44, 44 strips 42, 42 are mounted to longitudinally move, while they are prevented from getting off by hoops (not shown) placed round the peripheries of the disks 54, 54. The strips 42, 42 form continuations of the radial plates 53, 53 and are provided with locking pins 41, 41, which are adapted to normally occupy one position shown at Fig. 12 with reference to the two upper and the one lower strips 42, 42 and to engage in the other position in the slots 43, 43 in the disks 54, 54, see the intermediate strip 42 in Fig. 12. In the former case the pins 41, 41 of every strip 42 will prevent the type plates 2, 2 in the two rows of compartments 3, 3 above and below the strip 42 from falling off during the rotation of the drum. In the latter case the pins 41, 41 will release the said type plates and permit the respective type plate in the upper row of compartments to be withdrawn. The left ends of all the strips 42, 42 in Figs. 2 and 12 are so cut out, as to form T pieces, which can severally pass through a corresponding cut of a lock 45 during the rotation of the drum 50 in either direction. This lock 45 is mounted to longitudinally move in a suitable support 46, in which a two-armed lever 49 (see Fig. 11) is mounted to rock about a pin 48. The lower arm of the lever 49 is in any known manner pivotally connected with the lock 45. A helical spring 49<sup>1</sup> tends to hold the lock 45 in its normal position, so that the T shaped ends of the several strips 42, 42 may pass through the cut of the lock 45. The same helical spring 49<sup>1</sup> presses the upper arm of the lever 49 against a cam disk 47 fastened on a horizontal shaft 65, which is mounted to turn in suitable bearings on the insides of the casing 58, this shaft 65 being parallel to the drum 50. It will be seen, that during one revolution of the shaft 65 the cam disk 47 will push the re-

spective strip 42 inwards in the direction of the arrow in Fig. 12 by means of the lock 45, so as to release the type plates 2, 2 in the two rows of compartments 3, 3 above and below the strip 42. On the lever 49 being released by the cam disk 47 the helical spring 49<sup>1</sup> will return the shifted strip 42 into its normal position. A ring 38 (see Fig. 3) fastened in the casing surrounds the right end disk 54 of the drum 50 in Fig. 2 and is provided with a radial slot 39 (see Fig. 3), into which the right end of either strip 42 in Fig. 2 can engage, if the strip 42 is pushed inwards by the cam disk 47, so as to lock the drum 50 and to prevent it from shifting, as long as the respective type plate 2 is withdrawn from its compartment 3. Thus the type plate 2 on being returned is prevented from getting into a wrong compartment 3.

The drum shaft 51 is at its front end rigidly connected with a hand-crank 13 and an indicator 16 and it will be obvious, that by means of the hand-crank 13 the drum can be adjusted by turning, regard being had to the indicator 16, which should point at the desired station name in the dial 15.

Above the drum 50 a shaft 227 parallel to it is mounted to turn in suitable bearings on the insides of the casing 58 and has fastened on it a registering type drum 226. The two shafts 51 and 227 are connected by means of two like gear wheels 122 and 123, so that the two drums 50 and 226 will be turned simultaneously in opposite directions and through the same angles, if the hand-crank 13 is turned. The registering type drum 226 serves for registering the tickets printed. Consequently it has as many parallel sections in the longitudinal direction as the drum 50 and each of its sections has as many type sections as each section of the drum 50 has compartments 3, 3. Each of these type sections contains the number of a station, the class or sort and the price of the ticket. Of course the type sections in the several sections of the drum 226 are arranged in the reverse of the order, in which the type plates 2, 2 are disposed in the several sections of compartments 3, 3. For example the type sections in four horizontal rows on the first consecutive sections of the drum 226 may be arranged as follows:

33 P. I 2.90	33 P. II 2.20	33 P. III 1.50	33 P. IV .80
37 P. I 3.20	37 P. II 2.40	37 P. III 1.60	37 P. IV .80
43 P. I .50	43 P. II .40	43 P. III .25	43 P. IV .15
44 P. I .90	44 P. II .70	44 P. III .50	44 P. IV .25

In each of these four groups the first column comprises the numbers of the several station names, the second column the kinds of trains (in this instance denoted by P = passenger train, or it may be a F for fast train or a T for through-train or a S for saloon-train and so on), the third column the classes of cars (I = first class, II = second class and so on) and the fourth column the prices of tickets (in this case in German currency).



On a suitable table 113 within the casing 58 a reservoir 17 is disposed, which comprises eight vertical channels in the same central planes as the type plates 2, 2 in the opposite sections of the drum 50. The lower edges of the eight channels in the reservoir 17 are provided with lugs 40 (see Fig. 10) for supporting the columns of ticket blanks 18, 18, which latter are charged into the channels from above. An ejector 108 is disposed for every channel of the reservoir 17 on the under side of the table 113 and is mounted to move in suitable grooves. Each ejector 108 is provided with a pendent pin 109, which is guided in a slot 114 of the table 113.

Two frame parts 92, 92 are suspended from the already mentioned shaft 65 by means of two eyes 66, 66, which are adapted to slide on the shaft 65. The parts 92, 92 are combined by means of a suitable table with the extension 216, so that a movable frame is thus formed, in which two racks 7 and 20 are mounted to longitudinally move and also a shaft 110 is mounted therein to rock. On this shaft 110 are fastened a crank 117 and a gear wheel 210, which latter meshes with the two racks 7 and 20. The rack 20 is doubly bent and is provided at its end 111 with a recess, in which the pin 109 of either ejector 108 can engage. It will be understood, that the rack 20 on being moved in either direction will take along with it the respective ejector 108. Between the two eyes 66, 66 an eccentric 68 is disposed, which can move on the shaft 65 and is prevented from turning thereon by a spline engaging in the longitudinal groove 69 of the shaft 65. The strap of the eccentric 68 is cast in one piece with a rod 90, which is pivotally connected with a movable platen 9 by means of a pin 91. The movable platen 9 is guided in suitable grooves in the frame parts 92, 92. A forked ticket blank support 70 is disposed above the table of the printing device 4 and its two vertical arms 71, 71 are guided on the one frame part 92 by means of small screws 72, 72, which engage in slots of the arms 71, 71. A helical spring 73 presses the ticket blank support 70 upwards and holds it in such a position, that the lowermost ticket blank 18 in either channel of the reservoir 17 on being ejected by the ejector 108 (see Fig. 10) will be placed on the support 70. The platen 9 during its downward motion will meet the ticket blank 18 and move it downwards with the support 70 for pressing it on the type plate 2, so that the helical spring 73 will be stretched. On the platen 9 moving upwards the strained helical spring 73 will return the support 70 with the printed ticket upwards, whereby this ticket is detached from the type plate 2. Two cam disks 115 and 77 are rigidly connected and are so connected in any known manner with the one eye 66, that they are obliged to partake in the motion of the

frame of the printing device 4 along the shaft and in the rotation of the latter. A bell-crank lever 76 is mounted to rock on a pin 75 on a suitable projection of the one frame part 66. The horizontal arm of the lever 76 is made to bear on the periphery of the cam disk 77 and its vertical arm is pressed away from the next frame part 92 by a spring 76<sup>a</sup> and is pivotally connected with an ejector 78.

It will now be evident, that the printed ticket on the support 70 will be discharged from the printing device 4, the moment the support 70 attains its initial position and the cam disk 77 acts upon the horizontal arm of the lever 76. An inking roller 29 is mounted to turn in suitable arms of the two frame parts 92, 92 (see Fig. 6) and serves for inking the respective type plate 2 during its passage from its compartment 3 to the table and back. The cam disk 115 is provided with a groove, in which a pin on the connecting rod 118 engages and the latter is pivotally connected with the crank 117 already mentioned above. It will be seen, that during one revolution of the shaft 65 the cam disk 115 will by the parts 118, 117 and 110 put the gear wheel 210 into two oscillations in both directions for simultaneously reciprocating the two racks 7 and 20 in opposite directions. The shaft 65 can be turned from without by means of a hand-crank 102 (see Fig. 4), its shaft and two gear wheels 101 and 100. The left frame part 92 in Fig. 4 is provided with an arm 56, which is connected with an endless chain 57. The latter passes over two chain wheels 55, 55 fastened on two horizontal shafts, which are mounted to turn in suitable brackets in the casing 58. The one shaft 62 can be turned from without by means of a hand-crank 24, its shaft 22 and two gear wheels 60 and 61. Thereby the printing device 4 can be shifted along the drum 50 and the reservoir 17. Fastened on the shaft 22 is a bevel wheel 63, which meshes with another bevel wheel 64. The latter is fast on a horizontal shaft, which is mounted to turn in suitable bearings in the casing 58 and carries at its external end an indicator 26 (see Fig. 7), that will show the momentary position of the printing device 4 on a dial 25. This dial 25 has marks for indicating the several kinds of ticket, such as for example I, II, III, IV, W, M, D, F for first, second, third and fourth classes, for workmen tickets, military tickets, dog tickets, fast train tickets and so on in accordance with the number of sections in the drum 50 and that of channels in the reservoir 17. Obviously the number of sections in the drum 50 and that of channels in the reservoir 17 may be increased or decreased in accordance with the kinds of tickets to be printed.

Every type plate 2 may be a galvano or a stereotype, a steel stamp or the like, which is fastened on a steel plate 103. The latter is



provided with four lugs 104, 104 and a hook 105, see Fig. 5. The four lugs 104, 104 project a little above the faces of the types, so as to protect them from damages during the motion of the drum 50, they serving as feet, when the type plate 2 is turned with its face downwards and rests on the opposite radial plate 53. The hook 105 may project downwards and is adapted to be seized by two hooks 106, 106, which are mounted to rock on two vertical pins at the end of the rack 7 and are normally spread by means of a spring 119. The rack 7 moves in a groove 89 in the projection 216 and in the table of the printing device 4 and this groove 89 is made so deep, that the upper faces of the two hooks 106, 106 are slightly beneath the level of the surface, on which the type plate 2 is made to slide. The groove 89 is adapted to fold the two hooks 106, 106 on the rack 7 being withdrawn, so that the two hooks 106, 106 will engage the hook 105 and thereby couple the type plate 2 with the rack 7. Thus the type plate 2 can be withdrawn from its compartment 3 and placed on the table for the impression. When after the impression the type plate 2 is pushed back into its compartment 3 by the rack 7, the two hooks 106, 106 will on leaving the groove 89 be opened by their spring 119 to release the type plate 2. It should be noted, that in Fig. 5 the type plate 2 is shown as placed further off from the table 216 for the sake of clearness, while in reality it is placed nearer to the table 216 as is shown in Fig. 6.

A strap 80 is attached to the printing device 4 at 79 and is led over rollers 82, 82 in suitable brackets 58<sup>1</sup>. It is tightened by means of weights 81, 81, so that during the horizontal motion of the printing device 4 the strap 80 can follow and will for any position of the printing device form an inclined chute, on which the discharged ticket can slide downwards to the front of the casing 58.

The platen 9 of the printing device 4 is shown as connected with a part 74, which may contain on both sides numbering and dating devices of any known construction (not shown), so that the ticket blank 18 may be not only printed, but also numbered and dated. In the apparatus illustrated in the drawings, however, a separate numbering and dating device is provided on the inside of the front wall of the casing 58 as follows. A shaft 96 (see Fig. 4) is mounted to turn in the two brackets 58<sup>1</sup> and has fastened on it an arm 149, which is rigidly connected with the strap 147 of an eccentric 146 fastened on the shaft 65. On the shaft 96 a pendent lever is mounted to longitudinally move, while it is prevented from turning on the shaft 96 by a spline engaging in a groove of the same. The lower end of this lever is shaped to form a U-shaped casing 97, in which a type plate 142 can be secured by means of a screw-

threaded handle 143. The latter passes through a horizontal slot 144 of the casing 58 to without (see Fig. 7) and can be seized by the operator for horizontally adjusting the type plate 142 according to a convenient scale. The type plate 142 may have several distinct type sections, either or several of which may be printed off on the back of the ticket 18. The casing 97 is on the lower face provided with a pin 97<sup>1</sup>, which engages in a slot 93 of a slide 84. This slide 84 is on both sides guided in suitable grooves in the two brackets 58<sup>1</sup> and is provided with a cross slot 91 parallel to the slot 93 and the shaft 96 and with a hole for a pin 85. The cross slot 91 is made sufficiently long to permit the ticket 18 (see Fig. 8) to pass through it. A platen 99 is secured in the two brackets 58<sup>1</sup> and is provided with a numbering and dating device 145 of any known construction, the spindle 98 of which carries an arm 140. The latter is pivotally connected with the slide 84 by means of a link 141 provided with the said pin 85. It will now be understood, that for the normal position of the lever 97 its pin 97<sup>1</sup> bears against the left side of the slot 93 and the slide 84 occupies such a position, that the ticket 18 falling off the strap 80 and guided through a hopper 83 will fall with its lower edge on the slide 84 along the slot 91 as is indicated by dotted lines in Fig. 8. When the casing 97 with the type plate 142 under the action of the eccentric 146 moves from left to right in Figs. 4 and 8, its pin 97<sup>1</sup> will first move in the slot 93 without shifting the slide 84, so that the ticket 18 is still prevented from dropping. Only at the moment at which the type plate 142 presses the ticket 18 against the numbering and dating device 145 will the pin 97<sup>1</sup> strike the right side of the slot 93 and thereby shift the slide 84 to the right. Then the slot 91 will be beneath the ticket 18, so that the latter on being released from the type plate 142 will be permitted to drop through the slot 91 and a channel 88 into a discharging pocket 87 (see Figs. 4 and 7).

On both sides of the registering type drum 226 two rails 128, 128 (Figs. 2 and 3) are secured in the casing 58 and a horizontal shaft 133 above the drum 226 is mounted to turn in suitable bearings. This shaft 133 is connected with the shaft 65 by means of two chain wheels 118 and 119 and an endless chain 138, so that both shafts will turn simultaneously and synchronously. A carriage consisting of two frame plates 124, 124, several stays and four wheels 127, 127 is provided and is arranged to move on the two rails 128, 128, while it is guided by the upper shaft 133. An arm of the carriage is connected with an endless chain 129, which passes over two chain wheels on two shafts. The one 130 of these two shafts is connected with the shaft 62 by means of an endless chain 250 and two chain wheels 132. It will



be seen, that the carriage 124, 124 is obliged to partake in the motion of the printing device 4. The carriage 124, 124 contains two independent registering mechanisms, which are constructed as follows: On either side (see Fig. 3) two paper rolls 228 and 229 are mounted to turn in the two frame plates 124, 124 and the lower paper roll 229 is rigidly connected with a ratchet wheel 243. A shaft 236 is mounted to rock in the two frame plates 124, 124 and has fastened on it a hammer 237 and an arm (see Fig. 2) and loose a guiding roller and a checking pawl which latter engages the ratchet wheel 243. The said arm is pivotally connected with the rod 135 of an eccentric 134. The two eccentrics 134, 134 are so connected with the carriage 124, 124 in any known manner, that they can longitudinally move on the shaft 133 and are prevented from turning thereon. The two hammers 237, 237 are provided with two guiding rollers, two pads 238, 238 of india rubber or the like and two spring-pressed pawls 242, 242, which latter are adapted to periodically engage the two ratchet wheels 243, 243 and to feed thereby the paper strips 230, 230. The two paper strips 230, 230 are unwound from the two upper paper rolls 228, 228, conducted over the four guiding rollers and the two pads 238, 238 and wound on the two lower paper rolls 229. The two hammers 237, 237 are arranged to strike one after the other with their pads 238, 238 the same type section on the drum 226, so that the two paper strips 230, 230 will receive the same impressions. The one paper strip 230 is destined for the operator and the other paper strip 230 for the superintendent, it being inclosed in any suitable casing (not shown) in the carriage.

This type printing and registering apparatus operates as follows: The hand-crank 13 is turned to adjust the drum 50 for the desired station name in accordance with the dial 15 and the indicator 16. The hand-crank 24 is turned to adjust the printing device 4 and the carriage 124, 124 with the registering mechanisms for the desired sort of ticket in accordance with the dial 25 and the indicator 26. The handle 143 is adjusted according to the scale above the slot 143 for obtaining the desired print on the back of the ticket. Then the handle 102 is turned, so as to cause the shaft 65 to make one revolution. In consequence of this the cam disk 47 will push inwards the respective strip 42 (Fig. 12) in the drum 50 by means of the parts 49 and 45, so as to unlock all the type plates 2, 2 in the two rows of compartments 3, 3 above and below the strip 42 and to lock the drum 50. The cam disk 115 will simultaneously move the two racks 7 and 20 in opposite directions by means of the parts 118, 117, 110 and 210, so that the two hooks 106, 106 on the rack 7 will be folded and will couple the respective

type plate 2 with the rack 7 for withdrawing the type plate 2 from its compartment 3 and for placing it on the table of the printing device 4, while the rack 20 will eject the lowermost ticket blank 18 from the respective channel of the reservoir 17 to the ticket blank support 70 by means of the ejector 108. Of course the type plate 2 will have been inked by the inking roller 29 during its motion. The eccentric 68 will move the platen 9 downwards and press it with the ticket blank 18 on the type plate 2 to produce the impression. After the impression the platen 9 moving upwards will release the printed ticket, whereupon the cam disk 77 will eject the ticket from the support 70 to the strap 80 by means of the parts 76 and 78. The cam disk 115 will return the two racks 7 and 20 to their initial positions, so that the type plate 2 is returned to its compartment, whereupon the cam disk 47 will release the lever 49, which under the action of the helical spring 49<sup>1</sup> will move the strip 46 back to its initial position and thus lock all the type plates 2, 2 and at the same time unlock the drum 50. The ticket sliding down the strap 80 falls through the hopper 83 on the slide 84 between the type plate 142 and the numbering and dating device 145, whereupon the eccentric 146 will actuate the lever 97 by means of the rod 148 for producing the impressions on the two sides of the ticket. When the eccentric 146 returns the type plate 142 to its initial position, the ticket so liberated will drop through the slot 91 of the slide and through the channel 88 into the discharging pocket 87, from whence it can be taken off. The slide 84 moved back by the lever 97 will produce the feed of the known numbering wheel in the device 145 by means of the parts 85, 141, 140 and 98.

Where so preferred, the indicator 16 may be placed on the shaft 227 instead of on the drum shaft 51 and the dial 15 may be transferred accordingly, as is shown at Fig. 7. In this case the operator may be able to better watch the moving indicator 16 while he turns the hand-crank 13. The endless chains 57 and 129 may be replaced by two racks and the endless chain 250 may be replaced by a vertical shaft mounted to turn in both the printing device 4 and the carriage 124, 124 and put in gear with two horizontal shafts by means of bevel wheels, the two horizontal shafts carrying pinions for engaging in the said two racks.

The ticket printing and registering apparatus just described may be modified in that the type plates are fastened on plates, which are radially guided in the drum and are arranged to be partially withdrawn therefrom in such a manner, that the type plates themselves are severally fully introduced into the printing device for the impression, after which they are returned with the plates into



the drum. Such an apparatus is illustrated in Figs. 13 to 15 and is constructed as follows: In two standards 52<sup>1</sup>, 52<sup>1</sup> on the base plate a shaft 51<sup>1</sup> is mounted to turn, which has fastened on it a drum 50<sup>1</sup> and a hand-crank (not shown) by means of which the former can be adjusted in a similar manner as described above. The drum 50<sup>1</sup> consists of several (here five) disks 54<sup>1</sup>, 54<sup>1</sup> besides the end plates and the disks 54<sup>1</sup>, 54<sup>1</sup> are each provided with radial grooves 44<sup>1</sup>, 44<sup>1</sup>, in which plates 103<sup>1</sup>, 103<sup>1</sup> are guided. Each plate 103<sup>1</sup> has fastened on it a type plate 2<sup>1</sup> and is provided with a lug 105<sup>1</sup>, which can be seized and released by two spring-pressed hooks 106<sup>1</sup>, 106<sup>1</sup> on a rack 7<sup>1</sup> in a similar manner as described above, see Fig. 15. A mantle 252<sup>1</sup> of sheet metal incloses the drum 50<sup>1</sup> and is rigidly connected with the base plate by suitable feet. This mantle serves for preventing the plates 103<sup>1</sup>, 103<sup>1</sup> with the type plates 2<sup>1</sup>, 2<sup>1</sup> in the lower half of the drum 50<sup>1</sup> from sliding and falling off. It is provided with a horizontal slot 251<sup>1</sup>, through which any of the several plates 103<sup>1</sup>, 103<sup>1</sup> can be mostly withdrawn from the drum 50<sup>1</sup>. On suitable legs a table 260<sup>1</sup> is provided, on which a carriage 74<sup>1</sup> is transversely guided by means of the two longitudinal grooves shown in Fig. 13. In this carriage 74<sup>1</sup> the rack 7<sup>1</sup> mentioned above is mounted to reciprocate, the same as a second rack 20<sup>1</sup>, and the two racks 7<sup>1</sup> and 20<sup>1</sup> mesh with a pinion 210<sup>1</sup> on a shaft journaled in the carriage 74<sup>1</sup>. An extension of the upper rack 20<sup>1</sup> is provided with a knob 259<sup>1</sup>, which the operator can seize for simultaneously moving the two racks 7<sup>1</sup> and 20<sup>1</sup> in opposite directions. On the carriage 74<sup>1</sup> is disposed the printing device, which comprises a stationary frame 4<sup>1</sup> and a movable frame 253<sup>1</sup>. The latter is vertically guided in the former by means of its four ledges engaging in four grooves 256<sup>1</sup>, 256<sup>1</sup> and is provided with a roller 255<sup>1</sup> above and a projection 254<sup>1</sup> below. In the upper parts of the two legs a horizontal shaft 65<sup>1</sup> is mounted to rock, which passes through holes in the stationary frame 4<sup>1</sup> and through slots 258<sup>1</sup> in the movable frame 253<sup>1</sup> and is provided with a longitudinal groove 69<sup>1</sup>. It can be actuated in any suitable manner, for example by means of a handle 257<sup>1</sup>. A cam 68<sup>1</sup> is mounted on the shaft 65<sup>1</sup> to longitudinally move with the two frames 4<sup>1</sup> and 253<sup>1</sup>, while it is prevented from turning on the shaft 65<sup>1</sup> by a spline engaging in the groove 69<sup>1</sup>. The cam 68<sup>1</sup> is adapted to act upon the roller 255<sup>1</sup> above for raising the frame 253<sup>1</sup> and upon the projection 254<sup>1</sup> below for pressing the frame 253<sup>1</sup> with the platen 9<sup>1</sup> downwards. The platen 9<sup>1</sup> may be yieldingly connected with the frame 253<sup>1</sup> in any known manner, for example by means of helical springs or the like, and is provided with a spring-pressed ticket blank support similar to that described

above with reference to Figs. 4 and 6. It is also provided with an inking roller as shown. The lower rack 7<sup>1</sup> is adapted to partially withdraw the respective plate 103<sup>1</sup> from the drum 50<sup>1</sup> in the manner already described above over the two guiding surfaces 89<sup>1</sup>, 89<sup>1</sup> (Fig. 15) on the carriage 74<sup>1</sup> and to place the type plate 2<sup>1</sup> beneath the platen 9<sup>1</sup>. The upper rack 20<sup>1</sup> is directly connected with the ejector 108<sup>1</sup>, which serves for ejecting the lowermost ticket blank 18<sup>1</sup> from the respective channel of the reservoir 17<sup>1</sup> to the blank ticket support beneath the platen 9<sup>1</sup>. The reservoir 17<sup>1</sup> is secured on the upper parts of the two legs, so that the carriage 74<sup>1</sup> is permitted to move with its parts beneath the reservoir 17<sup>1</sup>. A horizontal bar 263<sup>1</sup> is fastened on suitable arms on the two legs and is provided with several (here four) notches 264<sup>1</sup>, 264<sup>1</sup> of triangular cross section. A locking lever 261<sup>1</sup>, 261<sup>1</sup> is mounted to rock in suitable pendent arms on the carriage 74<sup>1</sup> and its arm 262<sup>1</sup> is pressed downwards by a helical spring 265<sup>1</sup>, so that it may engage with a sharp edge at its free end in either of the four notches 264<sup>1</sup>, 264<sup>1</sup>. Thus the carriage 74<sup>1</sup> with the printing device will be secured in the vertical central plane of either channel in the reservoir 17<sup>1</sup> and of the corresponding section of the drum 50<sup>1</sup>.

This ticket printing apparatus operates as follows: The drum 50<sup>1</sup> is so turned by means of the hand-crank with regard to an indicator and a scale, as to bring the horizontal row of type plates 2<sup>1</sup>, 2<sup>1</sup> for the desired station name before the slit 251<sup>1</sup> in the mantle 252<sup>1</sup>. The handle 261<sup>1</sup> is depressed to withdraw its arm 262<sup>1</sup> from the notch 264<sup>1</sup> of the bar 263<sup>1</sup> and the carriage 74<sup>1</sup> with the printing device is shifted on the table 260<sup>1</sup>, so as to bring it into the vertical central plane of the type plate 2<sup>1</sup> for the desired sort of ticket, after which the handle 261<sup>1</sup> is released. If necessary, the helical spring 265<sup>1</sup> will automatically adjust the carriage 74<sup>1</sup> by pressing the sharp edge on the arm 262<sup>1</sup> into the notch 264<sup>1</sup> and thus shifting a little the carriage 74<sup>1</sup>. The knob 259<sup>1</sup> is pushed inwards towards the printing device to cause the rack 7<sup>1</sup> to mostly withdraw the opposite plate 103<sup>1</sup> from the drum 50<sup>1</sup> and to place the type plate 2<sup>1</sup> beneath the platen 9<sup>1</sup>, and at the same time to cause the rack 20<sup>1</sup> to eject by means of the ejector 108<sup>1</sup> the lowermost ticket blank 18<sup>1</sup> from the respective channel of the reservoir 17<sup>1</sup> to the ticket blank support beneath the platen 9<sup>1</sup>. Then the handle 257<sup>1</sup> is forced downwards, so that the cam 68<sup>1</sup> will by means of the frame 253<sup>1</sup> press the platen 9<sup>1</sup> with the ticket blank on the type plate 2<sup>1</sup>, the latter having been previously inked by the inking roller. After the impression the handle 257<sup>1</sup> is turned upwards to detach the printed ticket from the type plate 2<sup>1</sup> and the knob 259<sup>1</sup> is pulled outwards, so that the



lower rack 7<sup>1</sup> will return the plate 103<sup>1</sup> with the type plate 2<sup>1</sup> into the drum 50<sup>1</sup> and the upper rack 20<sup>1</sup> will return the ejector 108<sup>1</sup> to its initial position. The ticket may be withdrawn by hand, or it may be discharged by a device similar to that described above with reference to Figs. 4 and 6.

This ticket printing apparatus may further be so modified, that the plates with the type plates are shifted in a direction parallel to the axis of the drum instead of in a radial direction. Such a modified ticket printing apparatus in combination with a recording mechanism is illustrated in Figs. 16 to 17<sup>a</sup> and is constructed as follows: In suitable standards 25<sup>2</sup> on the base plate a shaft 51<sup>2</sup> is mounted to turn and on this shaft a drum 50<sup>2</sup> and a hand-crank 13<sup>2</sup> with an indicator 16<sup>2</sup> are fastened. On the right standard 25<sup>2</sup> an annular plate 277<sup>2</sup> is fastened by means of suitable stays, this plate 277<sup>2</sup> being provided with a dial and a plurality of holes 278<sup>2</sup> along its internal circumference. The handle of the hand-crank 13<sup>2</sup> is provided with a longitudinal bore or cavity, in which a spring-pressed bolt 276<sup>2</sup> is mounted to longitudinally move, while it is prevented from turning by a spline or a square or the like. The bolt 276<sup>2</sup> is provided at its external end with a knob for depressing it and at its internal end with a hook, which can engage in either of the holes 278<sup>2</sup>. It will be understood, that by depressing the knob on the bolt 276<sup>2</sup> the hand-crank 13<sup>2</sup> will be disconnected from the plate 277<sup>2</sup>, so that it can be turned for adjusting the drum 50<sup>2</sup> in accordance with the dial, the indicator 16<sup>2</sup> pointing at the desired station name. The drum 50<sup>2</sup> has a flange 266<sup>2</sup>, which is provided along its periphery with a series of holes parallel to the axis of the drum. In these holes shanks 267<sup>2</sup>, 267<sup>2</sup> are mounted to longitudinally move, while they are in any known manner prevented from turning. For example the shanks 267<sup>2</sup>, 267<sup>2</sup> may be made square and accordingly also the holes. The several shanks 267<sup>2</sup>, 267<sup>2</sup> are each rigidly connected with a plate 103<sup>2</sup> on which the type plate 2<sup>2</sup> is fastened. Each plate 103<sup>2</sup> is on its lower face provided with a small type plate 274<sup>2</sup> for a registering paper strip 230<sup>2</sup>. In order to prevent the type plates 2<sup>2</sup>, 2<sup>2</sup> not wanted from shifting an annular plate 268<sup>2</sup> is disposed, which is rigidly connected with the left standard 25<sup>2</sup> by means of stays or the like. This plate 268<sup>2</sup> is provided with a slot 269<sup>2</sup>, through which the plate 103<sup>2</sup> with the type plate 2<sup>2</sup> wanted can be withdrawn from the drum 50<sup>2</sup>. A mantle 252<sup>2</sup> may be provided for inclosing the type plates 2<sup>2</sup>, 2<sup>2</sup> on the periphery of the drum 50<sup>2</sup>, if so preferred, and may be supported by suitable feet. This mantle 252<sup>2</sup> is provided with a slit in the same horizontal plane as the slot 269<sup>2</sup>.

On suitable legs a table 9<sup>2</sup> is provided, in which two racks 7<sup>2</sup> and 20<sup>2</sup> are guided and in which a pinion 210<sup>2</sup> (see Fig. 17<sup>a</sup>) meshing therewith is mounted to turn. A spring-pressed plate placed on the table 9<sup>2</sup> serves for receiving either plate 103<sup>2</sup> with type plate 2<sup>2</sup> and is provided with an inking roller 29<sup>12</sup> and a channel for the lower type plate 274<sup>2</sup>. In the table 9<sup>2</sup> the shank 237<sup>2</sup> of a small platen 238<sup>2</sup> is vertically guided, while it is pressed upwards by a helical spring surrounding it. The registering paper strip 230<sup>2</sup> is arranged to be unwound from a paper roll 228<sup>2</sup> and to be wound on a second paper roll 229<sup>2</sup>, it being conducted through suitable holes in the table 9<sup>2</sup> over the spring-pressed platen 238<sup>2</sup> above and a guiding roller below. The paper roll 229<sup>2</sup> is rigidly connected with a ratchet wheel 243<sup>2</sup>, in which a pawl 242<sup>2</sup> on a spring-pressed lever 280<sup>2</sup> can engage for feeding the paper strip 230<sup>2</sup>. The lever 280<sup>2</sup> is loose on the shaft of the paper roll 229<sup>2</sup> and is adapted to be periodically pushed in a direction by a lug 279<sup>2</sup> on the rack 7<sup>2</sup>. Of course the table 9<sup>2</sup> is provided with a slot 273<sup>2</sup>, through which the lug 279<sup>2</sup> and the lever 280<sup>2</sup> can pass. A plate is placed on two side ledges on the table 9<sup>2</sup> (see Fig. 17, in which the side ledges are indicated by dotted lines) and is provided with journals, in which the horizontal shaft 65<sup>2</sup> is mounted to rock. This shaft 65<sup>2</sup> passes through a printing device, which is constructed substantially the same as before, only that the cam 68<sup>2</sup> is made in one piece with the shaft 65<sup>2</sup>, since the printing device 4<sup>2</sup> need not be transversely shifted. For this reason the reservoir 17<sup>2</sup> has a single channel for the ticket blanks 18<sup>2</sup>, 18<sup>2</sup>. The reservoir 17<sup>2</sup> is secured in an opening of the plate supporting the printing device 4<sup>2</sup>. The rack 7<sup>2</sup> is made in one piece with a fork 270<sup>2</sup> (see Fig. 17<sup>a</sup>), the short prongs of which can pass through the said slit in the mantle 252<sup>2</sup> and normally engage in the spaces between the plates 103<sup>2</sup>, 103<sup>2</sup> with type plates 2<sup>2</sup>, 2<sup>2</sup> and the drum flange 266<sup>2</sup> on the one hand and the annular plate 268<sup>2</sup> on the other hand. After the adjustment of the drum 50<sup>2</sup> the respective plate 103<sup>2</sup> and type plate 2<sup>2</sup> will be between the two short prongs of the fork 270<sup>2</sup>, so that they can be thereby withdrawn from the drum 50<sup>2</sup> and again returned. The several shanks 267<sup>2</sup> are preferably made to taper at their free ends, so as to enable them to easily reengage the holes in the flange 266<sup>2</sup> on being returned. The movable frame of the printing device 4<sup>2</sup> is provided with an inking roller 29<sup>2</sup> for inking the respective type plate 2<sup>2</sup> during its passage in either direction. The upper rack 20<sup>2</sup> is connected with an ejector 108<sup>2</sup>, the same as in the preceding apparatus. Fastened on the shaft 65<sup>2</sup> is an operating lever 257<sup>2</sup>, the rear arm of which is pivotally connected with



a pin 271<sup>2</sup> at the external end of the rack 7<sup>2</sup> by means of a link 272<sup>2</sup>.

This ticket printing and registering apparatus operates as follows: The knob of the bolt 276<sup>2</sup> is depressed and the hand-crank 13<sup>2</sup> is turned and adjusted for the desired station-name, after which the knob is released. Then the operating lever 257<sup>2</sup> is turned downwards, so that the rack 7<sup>2</sup> will be moved outwards and will take along with it by means of the fork 270<sup>2</sup> the plate 103<sup>2</sup> with the type plate 2<sup>2</sup>. The latter will be placed beneath the platen, after it has been inked during its motion by the inking roller 29<sup>2</sup>, the same as the lower small type plate 274<sup>2</sup> has been inked by the inking roller 29<sup>12</sup>. At the same time the other rack 20<sup>2</sup> will eject by means of the ejector 108<sup>2</sup> the lowermost ticket blank 18<sup>2</sup> from the reservoir 17<sup>2</sup> to the ticket blank support beneath the platen. The link 272<sup>2</sup> being at its one end a little slotted, the two racks 7<sup>2</sup> and 20<sup>2</sup> with the plate 103<sup>2</sup> and type plate 2<sup>2</sup> will stop a little while the platen with the ticket blank is being pressed on the type plate 2<sup>2</sup> and the type plate 274<sup>2</sup> on the registering paper strip 230<sup>2</sup> and the spring-pressed platen 238<sup>2</sup>. Thereby the nicety of the impressions on the ticket and the registering paper strip 230<sup>2</sup> is insured. Next the operating lever 257<sup>2</sup> is moved upwards, so that the rack 7<sup>2</sup> will return the plate 103<sup>2</sup> with the type plate 2<sup>2</sup> to the drum 50<sup>2</sup> and the rack 20<sup>2</sup> will return the ejector 108<sup>2</sup> to its initial position, and at the same time the lug 279<sup>2</sup> on the rack 7<sup>2</sup> will act upon the lever 280<sup>2</sup> for feeding the registering paper strip 230<sup>2</sup>. The printed ticket is taken off or discharged by a suitable device similar to that described above.

Where so preferred, the ticket printing and registering apparatus may be so arranged, that the plates carrying the type plates are mounted in the periphery of the drum to rock in radial planes, so that they can be turned outwards and placed in the printing device for the impression, after which they are returned to the drum. Such an apparatus is illustrated in Figs. 18 to 20 and is constructed as follows: A shaft 51<sup>3</sup> is mounted in a suitable standard to turn and has fastened on it a drum 50<sup>3</sup> and a hand-crank 13<sup>3</sup> with an indicator 16<sup>3</sup>. An annular plate 277<sup>3</sup> is fastened as before on the frame and is provided with a dial and a series of holes 278<sup>3</sup> along its internal circumference. The handle of the hand-crank 13<sup>3</sup> is provided with a spring-pressed locking bolt 276<sup>3</sup>, the bent internal end of which can engage in either of the holes 278<sup>3</sup>. The drum 50<sup>3</sup> is open on the left side in Fig. 18 and its rim is provided with a plurality of radial recesses for forks 53<sup>3</sup>, 53<sup>3</sup> (see Fig. 20), in which latter the plates 103<sup>3</sup>, 103<sup>3</sup> carrying the type plates 2<sup>3</sup>, 2<sup>3</sup> are mounted to turn with their eyes 281<sup>3</sup>, 281<sup>3</sup> around pins 282<sup>3</sup>,

282<sup>3</sup> in radial planes. An annular plate 268<sup>3</sup> fastened on the standard serves for preventing the plates 103<sup>3</sup>, 103<sup>3</sup> and type plates 2<sup>3</sup>, 2<sup>3</sup> from turning outwards. Only on the place opposite to the space between the platen 9<sup>3</sup> and the movable frame of the printing device is a slit 269<sup>3</sup> provided in the annular plate 268<sup>3</sup> for permitting the respective plate 103<sup>3</sup> and type plate 2<sup>3</sup> to turn outwards in the direction of the arrow in Fig. 19. The eye 281<sup>3</sup> of every plate 103<sup>3</sup> is provided with gear teeth 283<sup>3</sup> and forms a part of a pinion, which meshes with a rack 7<sup>3</sup>. It will be seen, that the drum 50<sup>3</sup> is permitted to turn without disturbing the rack 7<sup>3</sup>, since the gear teeth 283<sup>3</sup>, 283<sup>3</sup> on the eyes 281<sup>3</sup>, 281<sup>3</sup> of the several plates 103<sup>3</sup>, 103<sup>3</sup> can pass through the tooth spaces of the rack 7<sup>3</sup> during the rotation of the drum 50<sup>3</sup>. The rack 7<sup>3</sup> is made in one piece with the ejector 108<sup>3</sup> by means of a connecting piece 284<sup>3</sup>. The rack 7<sup>3</sup> is guided by a pin 286<sup>3</sup>, which engages in its slot 285<sup>3</sup>. The printing device, the reservoir 17<sup>3</sup> and the registering mechanism are constructed substantially the same as in the preceding apparatus. The frame formed of the parts 7<sup>3</sup>, 284<sup>3</sup> and 108<sup>3</sup> is provided with a pin 271<sup>3</sup>, which engages in an arched slot 287<sup>3</sup> at the end of a link 272<sup>3</sup>. The operating lever 257<sup>3</sup> may be balanced by a counterweight and is pivotally connected with the said link 272<sup>3</sup>. It is provided with a pin 289<sup>3</sup>, which near the end of the stroke of the operating lever 257<sup>3</sup> is adapted to strike and to raise the link 272<sup>3</sup>, so that the pin 271<sup>3</sup> may slide in the slot 287<sup>3</sup>. Thereby the frame 7<sup>3</sup>, 284<sup>3</sup>, 108<sup>3</sup> and the plate 103<sup>3</sup> with the type plate 2<sup>3</sup> are prevented from shifting during the impression, so that the nicety of the prints on the ticket and on the registering paper strip 230<sup>3</sup> is insured. A slotted sector 292<sup>3</sup> is fastened by means of a suitable arm on the standard and the operating lever 257<sup>3</sup> is provided with a pawl 290<sup>3</sup> and a helical spring 291<sup>3</sup>. The helical spring 291<sup>3</sup> tends to bring the pawl 290<sup>3</sup> into a position parallel to the operating lever 257<sup>3</sup>. The slot of the sector 292<sup>3</sup> is provided with several notches and is at its two ends so cut out, as to permit the pawl 290<sup>3</sup> to assume its normal position parallel to the operating lever 257<sup>3</sup> in the two extreme positions of the latter. During the motion of the operating lever 257<sup>3</sup> in either direction its pawl 290<sup>3</sup> will slide over the notches while inclining itself and straining the spring 291<sup>3</sup>. Thereby the operating lever 257<sup>3</sup> is prevented from moving in the opposite direction, as long as it does not attain its other extreme position, since the pawl 290<sup>3</sup> will engage in either notch and check the lever. Only after the operating lever 257<sup>3</sup> has been brought into the extreme position will it be permitted to move in the opposite direction. On the standard is secured a suitable bracket (see Fig. 20),



which supports two conical inking rollers 29<sup>3</sup> and 29<sup>13</sup> for inking the type plate 2<sup>3</sup> and the small registering type plate respectively.

The manner of operating this apparatus is obvious after the above explanations.

I do not claim any ticket-printing and issuing machine, in which means are provided for printing tickets from opposite sides of the type plate or bar; so that the printed tickets contain duplicate impressions of the points of destination and the fare, or in which machine each type plate or bar has duplicate type or printing characters on opposite sides, and means are provided for impressing the type plate or bar from opposite sides to print tickets of the said kind, or in which means are provided for printing duplicate tickets.

I claim:

1. In a ticket printing apparatus, the combination with a rotatable drum comprising a plurality of compartments, of a plurality of type plates movable in the compartments of said rotatable drum, one type plate in each compartment, a printing device, a reservoir for ticket blanks, means for adjusting said rotatable drum, means for shifting a type plate from said rotatable drum to said printing device and back, means for ejecting a ticket blank from said reservoir to said printing device, and means for actuating said printing device.

2. In a ticket printing apparatus, the combination with a rotatable drum comprising a plurality of compartments, of a plurality of type plates movable in the compartments of said rotatable drum, one type plate in each compartment, a printing device, a reservoir for ticket blanks, means for adjusting said rotatable drum, means for simultaneously shifting a type plate from said rotatable drum and a ticket blank from said reservoir to said printing device and for returning the type plate to the drum after the impression, and means for actuating said printing device.

3. In a ticket printing and registering apparatus, the combination with a rotatable drum comprising a plurality of compartments, of a plurality of type plates movable in the compartments of said rotatable drum, one type plate in each compartment, a printing device, a reservoir for ticket blanks, a registering mechanism, means for adjusting said rotatable drum, means for simultaneously shifting a type plate from said rotatable drum and a ticket blank from said reservoir to said printing device and for returning the type plate to the drum after the impression, and means for simultaneously actuating said printing device and said registering mechanism.

4. In a ticket printing apparatus, the combination with a rotatable drum divided in the longitudinal direction into several sections and each section comprising along its periphery a plurality of compartments, of a

plurality of type plates movable in the compartments of said rotatable drum, one type plate in each compartment, a printing device, a reservoir comprising several channels for ticket blanks in the central planes of the sections of said rotatable drum, means for adjusting said rotatable drum, means for adjusting said printing device along said rotatable drum and said reservoir, means for simultaneously shifting a type plate from said rotatable drum and a ticket blank from said reservoir to said printing device and for returning the type plate to the drum after the impression, and means for actuating said printing device.

5. In a ticket printing and registering apparatus, the combination with a rotatable drum divided in the longitudinal direction into several sections and each section comprising along its periphery a plurality of compartments, of a plurality of type plates movable in the compartments of said rotatable drum, one type plate in each compartment, a printing device, a reservoir comprising several channels for ticket blanks in the central planes of the sections of said rotatable drum, a registering mechanism, means for adjusting said rotatable drum, means for adjusting said printing device along said rotatable drum and said reservoir, means for simultaneously shifting a type plate from said rotatable drum and a ticket blank from said reservoir to said printing device and for returning the type plate to the drum after the impression, and means for simultaneously actuating said printing device and said registering mechanism.

6. In a ticket printing apparatus, the combination with a rotatable drum divided in the longitudinal direction into several sections corresponding to the sorts of ticket and each section comprising along its periphery a plurality of compartments corresponding to the station names, of a plurality of type plates loose in the compartments of said rotatable drum, one type plate in each compartment and the type plates in every longitudinal row of compartments being for the same station name, means for normally locking the type plates in the compartments of said rotatable drum, an operating shaft parallel to said rotatable drum, a printing device, a reservoir comprising several channels for ticket blanks in the central planes of the sections of said rotatable drum, means for adjusting said rotatable drum for the desired station name, means for adjusting said printing device along said rotatable drum and said reservoir according to the desired sort of ticket, means controlled from said operating shaft for unlocking the type plates in that longitudinal row of compartments in said rotatable drum which is before said printing device, means controlled from said operating shaft for simultaneously shifting



one of the unlocked type plates from said rotatable drum and a ticket blank from the corresponding channel in said reservoir to said printing device and for returning the type plate to the drum after the impression, and means controlled from said operating shaft for actuating said printing device.

7. In a ticket printing apparatus, the combination with a rotatable drum divided in the longitudinal direction into several sections corresponding to the sorts of ticket and each section comprising along its periphery a plurality of compartments corresponding to the station names, of a plurality of type plates loose in the compartments of said rotatable drum, one type plate in each compartment and the type plates in every longitudinal row of compartments being for the same station name, means for normally locking the type plates in the compartments of said rotatable drum, an operating shaft parallel to said rotatable drum, a printing device comprising a table and a ticket blank support beneath the platen, a reservoir comprising several channels for ticket blanks in the central planes of the sections of said rotatable drum, means for adjusting said rotatable drum for the desired station name, means for adjusting said printing device along said rotatable drum and said reservoir according to the desired sort of ticket, means controlled from said operating shaft for unlocking the type plates in that longitudinal row of compartments in said rotatable drum which is before said printing device, a pinion mounted in said printing device to turn, two racks guided in said printing device and meshing with said pinion for simultaneously moving in opposite directions, the one of them being adapted to shift the respective type plate from said rotatable drum to the table of said printing device and back while the other rack is adapted to eject the lowermost ticket from the corresponding channel in said reservoir to the ticket blank support of said printing device, means controlled from said operating shaft for actuating said pinion, and means controlled from said operating shaft for actuating said printing device.

8. In a ticket printing and registering apparatus, the combination with a rotatable drum divided in the longitudinal direction into several sections corresponding to the sorts of ticket and each section comprising along its periphery a plurality of compart-

ments corresponding to the station names, of a plurality of type plates loose in the compartments of said rotatable drum, one type plate in each compartment and the type plates in every longitudinal row of compartments being for the same station name, means for normally locking the type plates in the compartments of said rotatable drum, an operating shaft parallel to said rotatable drum, a printing device, a reservoir comprising several channels for ticket blanks in the central planes of the sections of said rotatable drum, a registering type drum adapted to rotate at the same speed as said rotatable drum and provided with a plurality of type sections corresponding to said plurality of type plates, a registering mechanism adapted to print its paper strip off the respective type section of said registering type drum, means for adjusting said rotatable drum for the desired station name, means for simultaneously adjusting said printing device and said registering mechanism along said rotatable drum and said registering type drum respectively according to the desired sort of ticket, means controlled from said operating shaft for unlocking the type plates in that longitudinal row of compartments in said rotatable drum which is before said printing device, means controlled from said operating shaft for simultaneously shifting one of the unlocked type plates from said rotatable drum and a ticket blank from the corresponding channel in said reservoir to said printing device and for returning the type plate to the drum after the impression, and means controlled from said operating shaft for simultaneously actuating said printing device and said registering mechanism.

9. In a ticket printing apparatus, the combination with a rotatable drum comprising a plurality of compartments, of a plurality of type plates movable in the compartments of said rotatable drum, one type plate in each compartment, a printing device, a reservoir for ticket blanks, means for selecting any of said type plates while adjusting said rotatable drum, means for shifting the selected type plate from said rotatable drum to said printing device and back, and means for ejecting a ticket blank from said reservoir to said printing device.

MARTIN LEBEIS.

Witnesses:

BESSIE F. DUNLAP,  
LOUIS VANDORN.