No. 892,493. PATENTED JULY 7, 1908.

E. W. APPELMAN.

RAILWAY TRAIN ORDER SYSTEM.

APPLICATION FILED APR. 16, 1906.

6 SHEETS—SHEET 1.

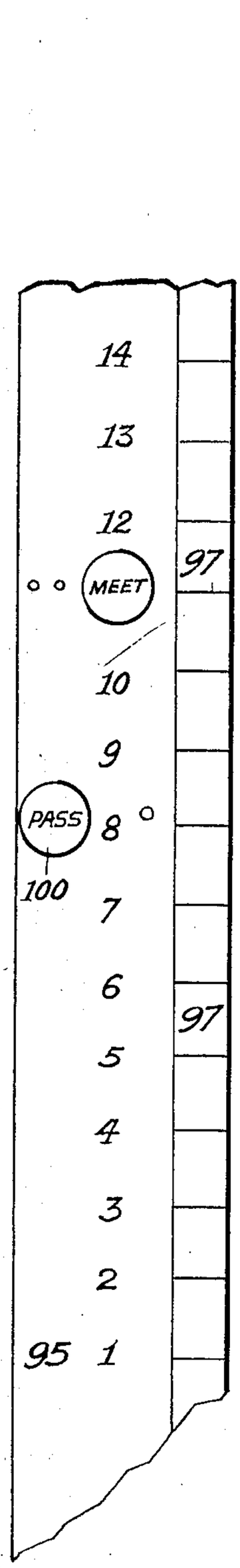


Fig. 12.

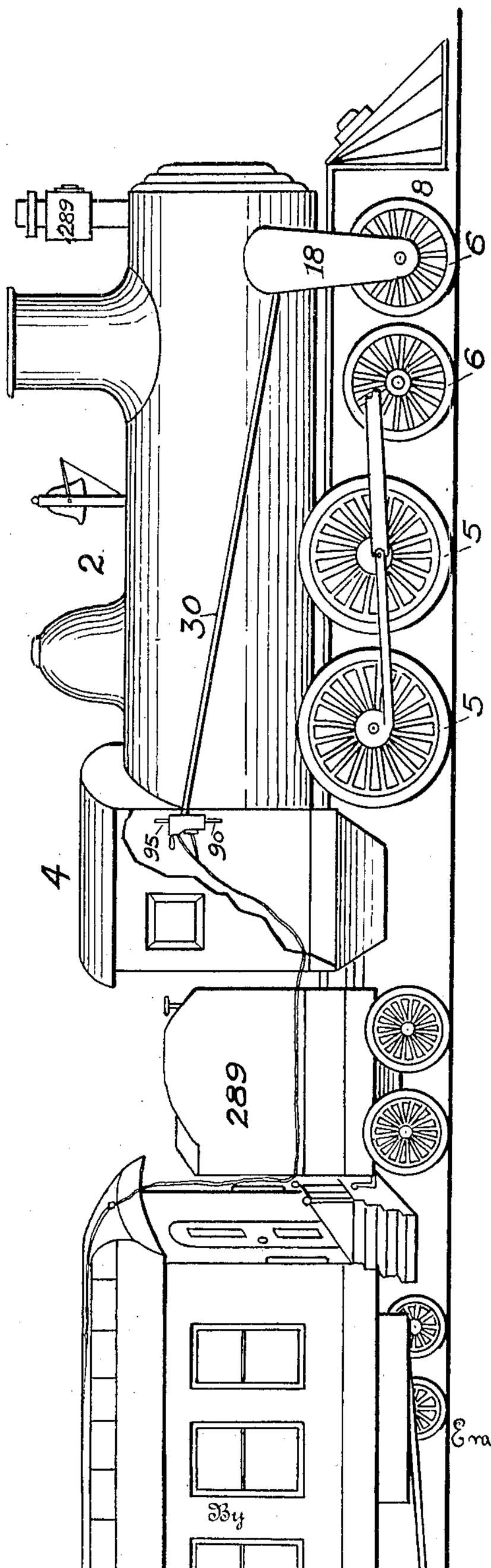


Fig. 1.

Witnesses

A. J. Billasch

W. B. Keogh

Inventor

Erastus W. Appelman

By

M. M. Cady

Attorney

No. 892,493. PATENTED JULY 7, 1908.

E. W. APPELMAN.

RAILWAY TRAIN ORDER SYSTEM.

APPLICATION FILED APR. 16, 1906.

6 SHEETS—SHEET 2.

Fig. 2.

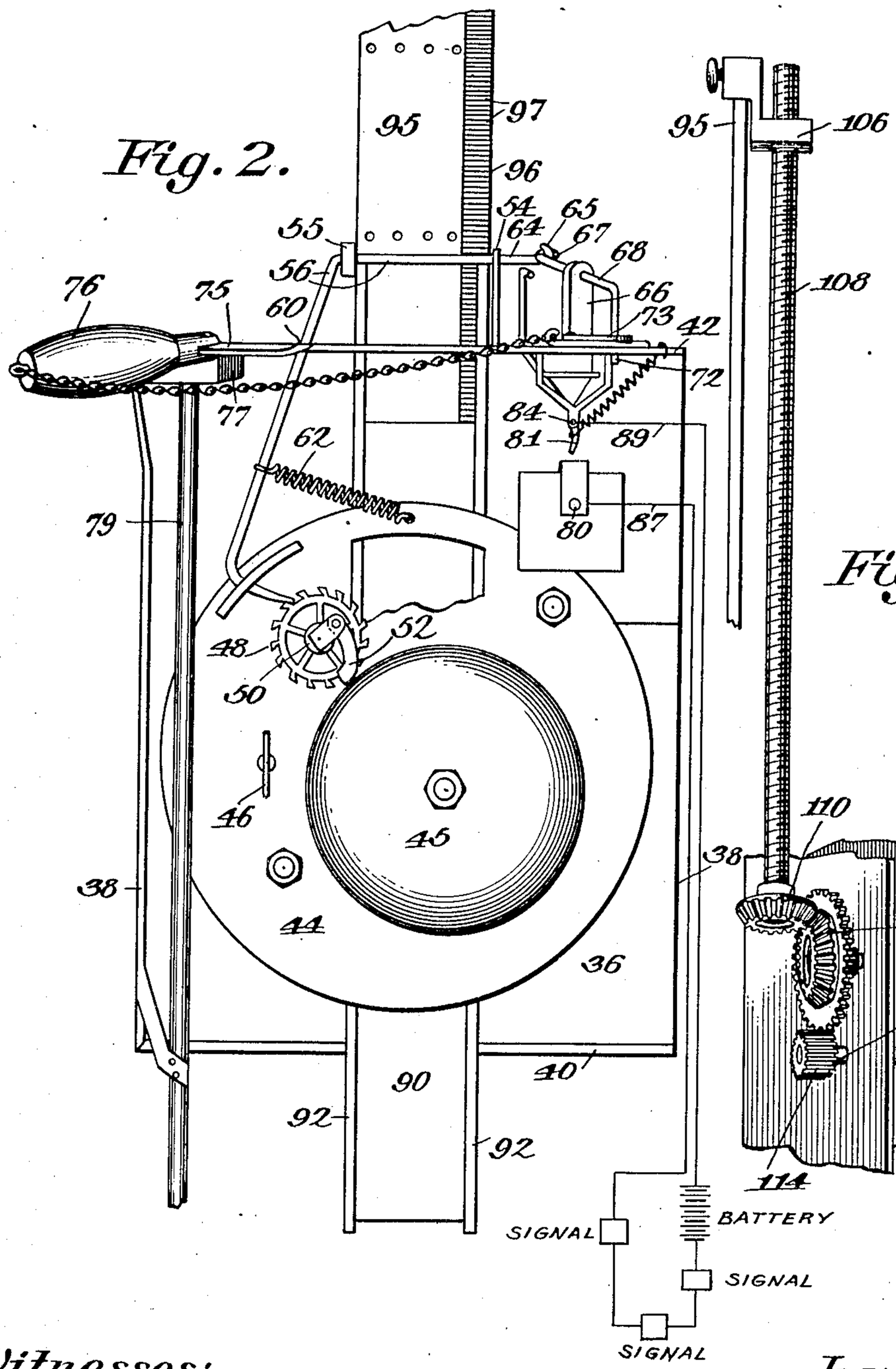


Fig. 11.

Witnesses:
Vida L. Hatter.
F. J. Hyde

Inventor:
Erastus W. Appelman
by
M. M. Cady atty.

No. 892,493. PATENTED JULY 7, 1908.

E. W. APPELMAN.

RAILWAY TRAIN ORDER SYSTEM.

APPLICATION FILED APR. 16, 1906.

6 SHEETS—SHEET 3.

Fig. 5.

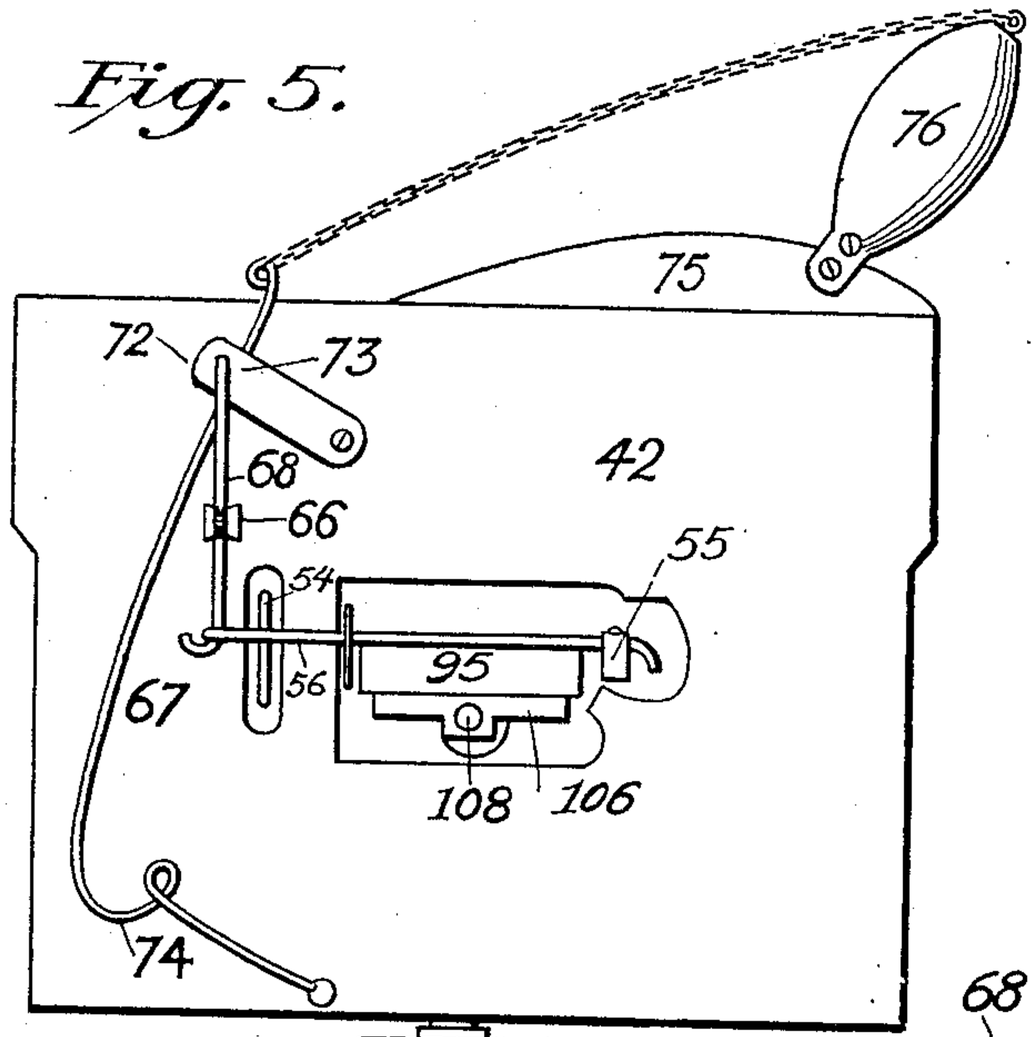
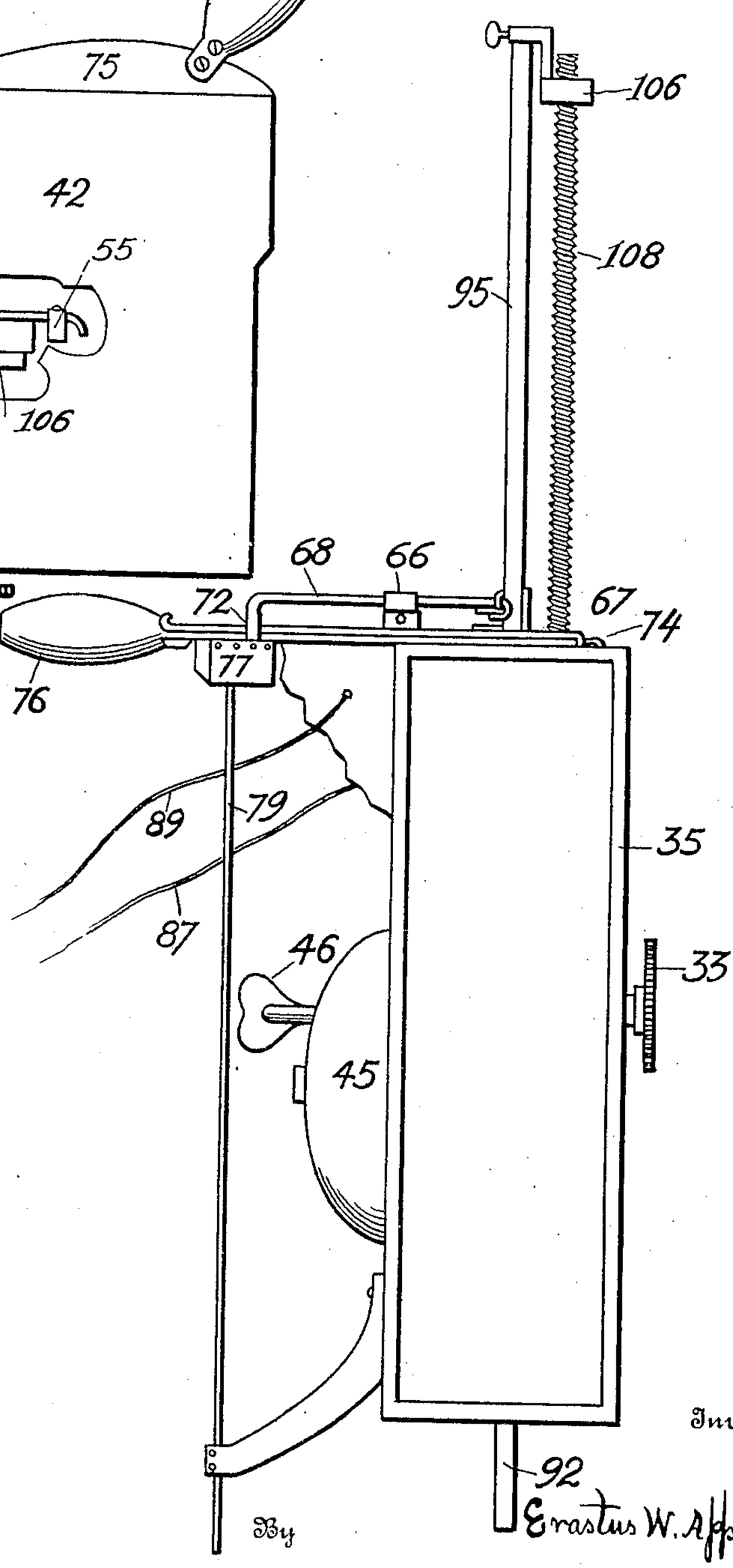


Fig. 3.



Witnesses

A. J. Billasch,

W. B. Keogh

Inventor

Erastus W. Appelman

By M. M. Cook

Attorney

No. 892,493. PATENTED JULY 7, 1908.

E. W. APPELMAN.

RAILWAY TRAIN ORDER SYSTEM.

APPLICATION FILED APR. 16, 1906.

6 SHEETS—SHEET 4.

Fig. 4.

Fig. 9.

Fig. 13.

Witnesses

A. J. Billasch

W. B. Keogh

Inventor

Erastus W. Appelman

By

M. M. Cady

Attorney

No. 892,493. PATENTED JULY 7, 1908.

E. W. APPELMAN.

RAILWAY TRAIN ORDER SYSTEM.

APPLICATION FILED APR. 16, 1906.

6 SHEETS—SHEET 5.

Fig. 10.

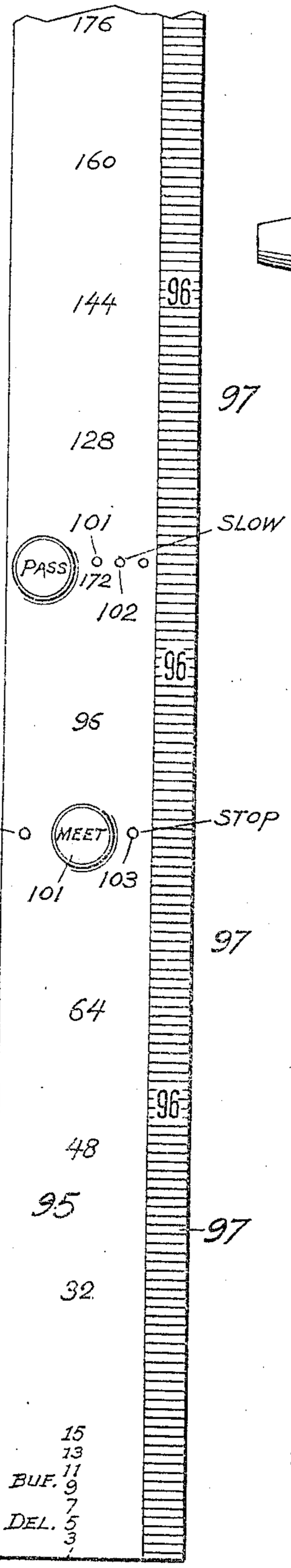


Fig. 14.

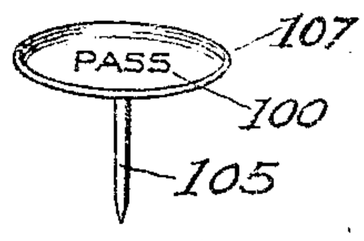
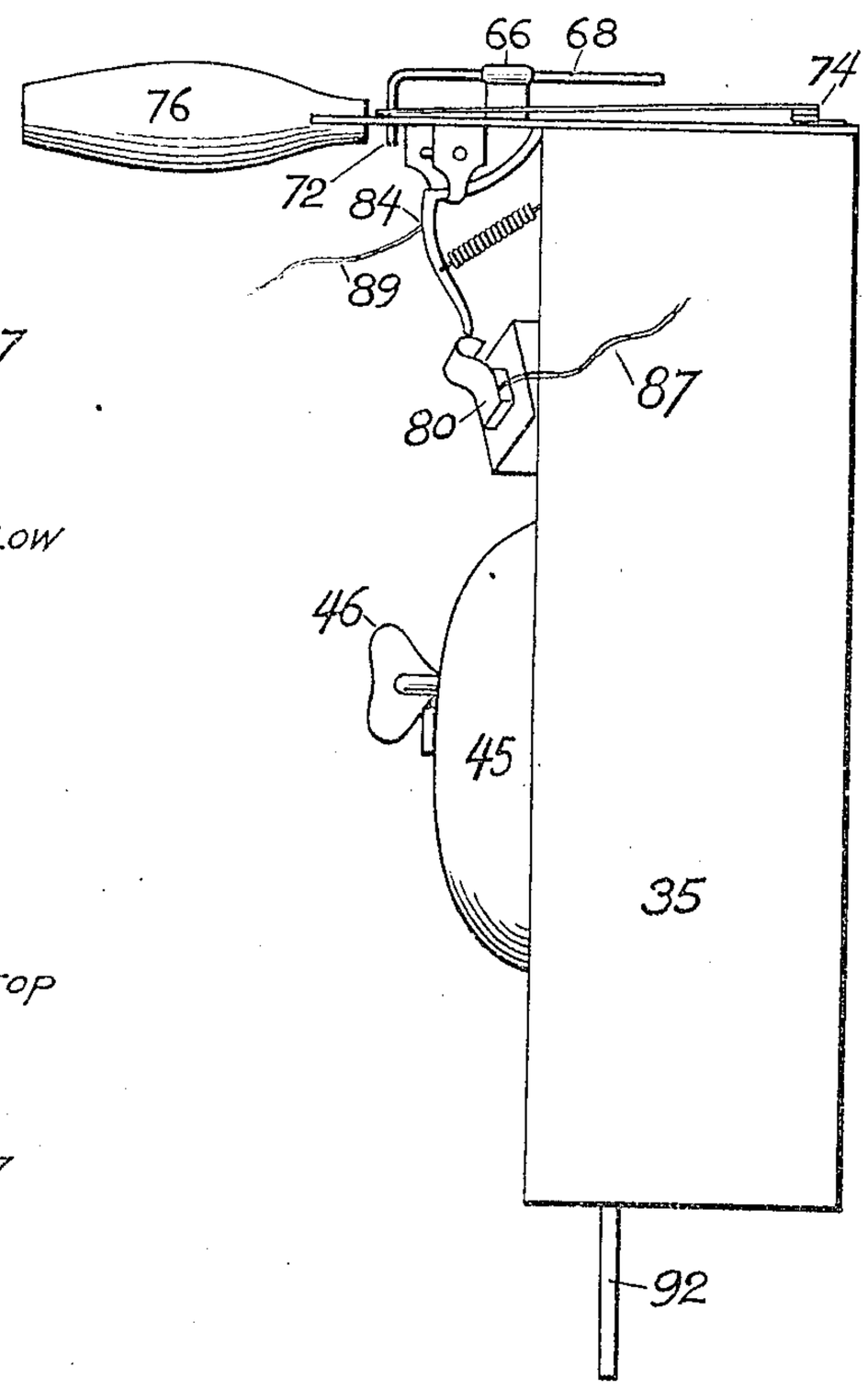


Fig. 6.



Witnesses

A. I. Billmeyer

W. D. Keogh

Inventor

Erastus W. Appelman

By

M. M. Cady

Attorney

No. 892,493.

PATENTED JULY 7, 1908.

E. W. APPELMAN.

RAILWAY TRAIN ORDER SYSTEM.

APPLICATION FILED APR. 16, 1906.

6 SHEETS—SHEET 6.

Fig. 7.

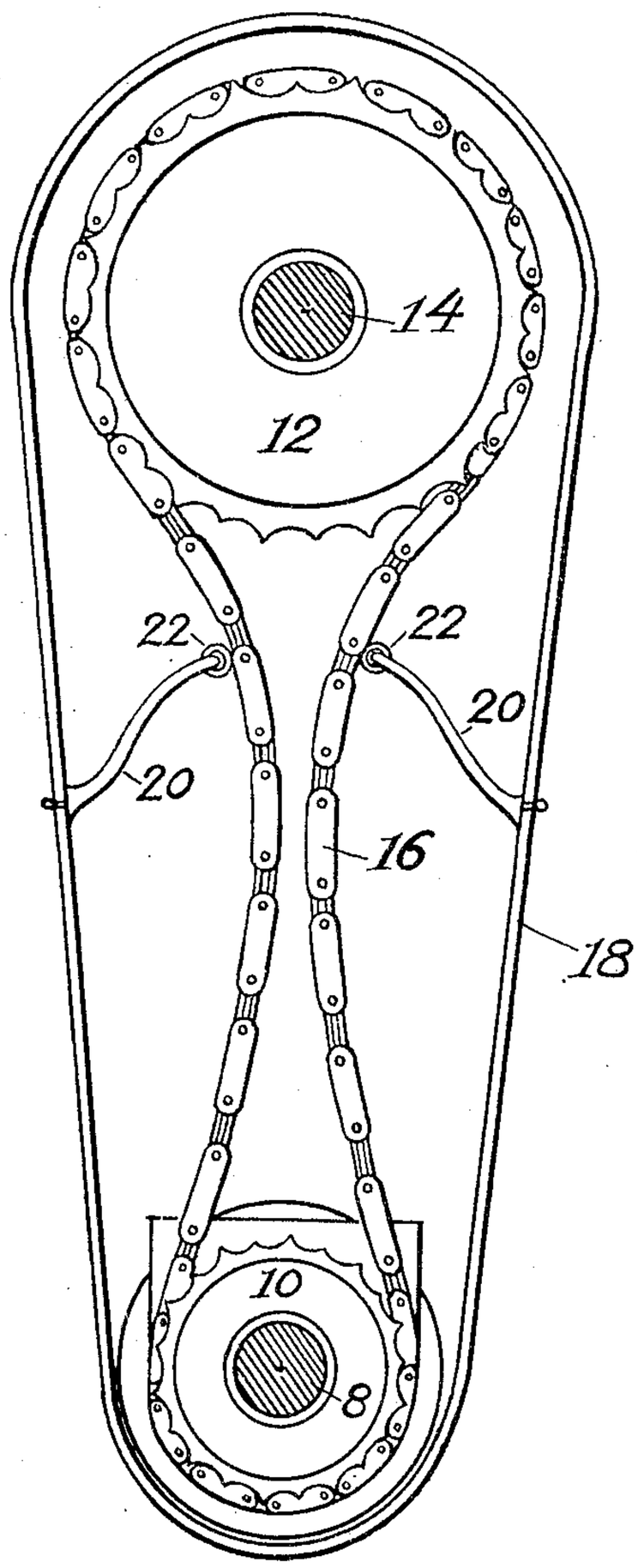
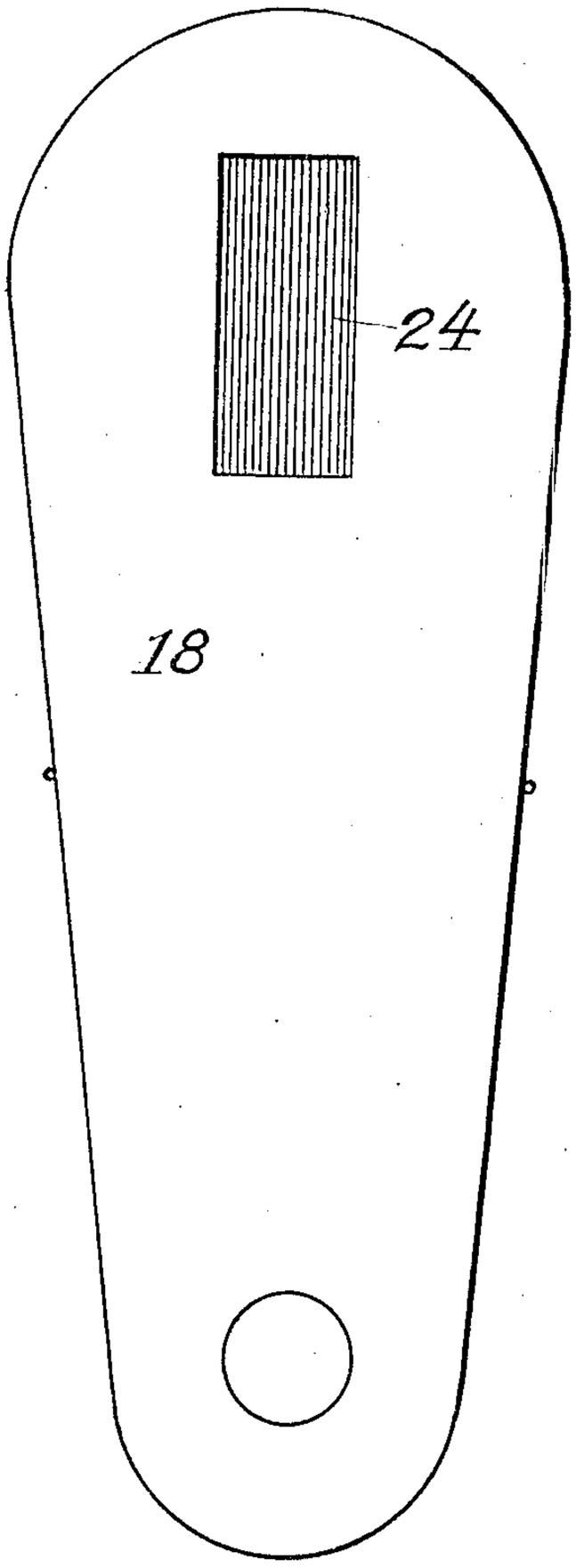


Fig. 8.



Witnesses
A. S. Ballard.
W. B. Hough

Inventor
Erastus W. Appelman

By
M. McCady
Attorney

UNITED STATES PATENT OFFICE.

ERASTUS W. APPELMAN, OF CLERMONT, IOWA, ASSIGNOR TO WILLIAM LARRABEE, JR., OF CLERMONT, IOWA.

RAILWAY TRAIN-ORDER SYSTEM.

No. 892,493. Specification of Letters Patent. Patented July 7, 1908.

Application filed April 16, 1906. Serial No. 312,049.

To all whom it may concern:

Be it known that I, ERASTUS W. APPELMAN, a citizen of the United States, and resident of Clermont, in the county of Fayette and State of Iowa, have invented new and useful Improvements in Railway Train-Order Systems, of which the following is a specification.

It has been found that a large per cent. of the accidents, delays and loss in the operation of rail-road trains is caused by the neglect and failure on part of the operators of the train to execute the orders delivered to them; and the object of my invention is to provide a reliable train order system, whereby the train operators can locate the train in the darkness and at all times and under all adverse circumstances and they will be notified at the proper place or places for the execution of each order and if for any reason they fail in or neglect their duty, the train will come to a stand still.

The system consists broadly in locating the train and notifying the train operators at the predetermined place or places, where an order or orders are to be executed, and if the train operators fail or neglect to heed the notification or execute the orders, then the train will be brought to a stand still.

It further consists in placing the order on the train and so controlling the order by the speed of the train, that when the train has reached the place for the execution of the order, the order will give an alarm, whereby the operators will be notified that the order is to be executed at that place.

It further consists in securing the order upon an index on the train, and with it on the same train, some sort of an alarm or notification and so connecting the index or the alarm with the train, that the order or the alarm or both will travel at a speed proportionate to the speed of the train, and when the train has reached the place where the order is to be executed, the alarm will be given and the train operators notified.

It further consists in placing the order on an index upon which is some designation of the place where the order is to be executed; also setting an alarm or notification on the same train at a predetermined distance from the train order or the place on the index where the train order is to be executed, then connecting either the index or the alarm with the running gear of the train, so that the order or index will travel at a speed proportionate to the speed of the train, whereby, when the train has reached the place designated on the index where the order is to be executed, the order and alarm will contact with each other and notify the train operators that an order is to be executed at that place and if the train operators shall fail to heed the notification, the order and alarm will remain in contact and cut off the motor power and set the brakes on the train.

It further consists in placing upon the train an index of a length proportionate to the number of miles the train is to travel, on which index are the same names or some designation of the various stations and stopping places along the route, which stopping places are set on said index at a distance apart proportionate to the number of miles that these stopping places are distanced on the road from each other, and marking thereon divisions, preferably each division representing a mile, and numbering these divisions, then connecting this index with the running gear of the train, to cause the index to travel at a speed proportionate to the speed of the train, whereby the train operators are able to locate the train in the darkness and under all circumstances and readily calculate the distance from the train to any desired station or other point along the route, or the distance to any place where an order is to be executed and be notified when the train reaches such place.

For a better understanding of my invention and the mode by which it is carried out and made effective, attention is called to the following specification and drawings accompanying the same and forming a part hereof, which drawings illustrate a convenient means for carrying out my system and accomplishing the results desired.

Figure 1 is a perspective view of an engine with part cut away and device attached, also a tender and part of a car. Fig. 2 shows a front view of the device. Fig. 3 is a side view of Fig. 2. Fig. 4 is a rear view. Fig. 5 is a top view. Fig. 6 is a side elevation of a detail. Fig. 7 is a front view of the casing with cover removed showing the driving gears. Fig. 8 is a back view of the casing. Fig. 9 is a side view of the casing. Fig. 10 is a plan view of the index. Fig. 11 is a side view of the index with part cut away and a side view of the means for raising and lowering the same. Fig. 12 is an enlarged

front view of the index shown in Fig. 10, with part cut away. Fig. 13 is a modified form of an index. Fig. 14 is a perspective view of one of the pins used in connection with the index.

Referring to the drawings 2 represents the engine, 4 the cab of the engine, 5 the drive wheels and 6 the front wheels. Into the center or axis of one of the front wheels 6 is secured a shaft 8, which projects out at right angles to the plane of the wheel, and on this shaft is secured a sprocket wheel 10. Above the sprocket wheel 10 and in the same vertical plane is a larger sprocket wheel 12, which is adapted to rotate upon a shaft 14 secured in the side of the engine. Around the sprocket wheels 10 and 12 an endless sprocket chain 16 travels. These sprocket wheels and chain are secured in a casing 18. As the engine rests upon springs over the wheels 6, the distance between the shafts 8 and 14 is constantly changing and to compensate for this change, there is secured against the opposite inner sides of the casing 18 springs 20 carrying rollers 22 which press against the chain 16 and keep the chain taut regardless of the changes in the distance between the shafts 8 and 14. There is also cut through the back of the casing a slot 24, through which the shaft 14 projects into the inside of the casing and when there is any change in the distance between the shafts 8 and 14, the slot will accommodate the casing to the different positions of the shaft 14. On the shaft is a beveled gear which meshes into a similar beveled gear on a rod 30. (As these gears are the ordinary beveled gears, they are not shown in the drawings). This rod extends along the boiler and enters the cab 4 and is provided with a worm or other gear 32, which engages and rotates a gear 33 in the rear of a device 35, located in the cab 4, subsequently to be described.

The device 35 for driving and executing the train orders is secured to the inside of the cab at a convenient place near the engineer and consists of a back plate 36 having the side plates 38 and bottom plate 40, also a top plate 42 which is wider than the side plates and which projects out over the front. Against the back plate 36 is secured an alarm clock works (not shown) over which is set a front plate 44. Upon this plate is secured an alarm bell 45 and through the plate 44 projects a key 46 for winding the works. Upon this plate is also secured a ratchet wheel 48 mounted upon a shaft 50 and upon the same shaft a hammer 52 adapted to strike the alarm bell 45. In the top of the plate 42 is secured a standard 54 which projects up alongside of the index hereinafter to be described. This standard 54 is provided with an opening therethrough. Along the opposite side of the index is secured a loop 55 and through the opening in the standard 54 and the loop 55 is pivotally fastened a pawl 56 which projects down through an opening 60 in the plate 42 and engages the ratchet wheel 48. The pawl is held in engagement with the wheels 48 by a coil spring 62 secured to the pawl and the plate 44. The upper end of the pawl is bent forming an arm 64 and this is bent at its outer end into a hook 65. Also upon the top of the plate 42 is secured a standard 66, to the top of which is pivotally secured an arm 68 provided on one end with a hook 67 which engages the hook 65. The outer end of the arm is bent into a hook 72 which passes through a stay 73 and engages a hole in the top of the plate 42.

Upon the top of the plate 42 near the rear is attached a spring 74, bent to engage and be held by the hook 72, beneath the stay 73. Beneath the plate 42 is the head 77 of the ordinary train-line pipe 79 which connects with the air-brake cylinder (not shown) in the usual manner. In the drawings 75 represents the usual air-brake lever provided with the handle 76 and when it is in position, as shown in Fig. 2, the brakes are released, but when the hook or end 72 is raised, releasing the spring 74, the spring will force the lever around toward the front of the machine and set the brakes in the ordinary manner. The lever 75 is shown for convenience in the drawing, as fastened to the plate 42, whereas in actual practice, the regular lever of the air-brake is fastened in the front of the cab just over the top of the train-line pipe 79 of the air-brake system.

Secured to plate 36 but electrically insulated from it is a terminal 80 which is electrically connected by a wire 87 to a battery B or other source of electricity. Secured to plate 42 and preferably but not necessarily insulated from it, is a terminal 81 which is electrically connected by a wire 89 to an ordinary system of electric alarms distributed throughout the train but not shown.

For the purpose of designating the place where the order is to be carried out and providing means for placing the order on the train, there is fastened to the rear of the frame of the device, a plate 90, which is bent on each edge forming guides 92. In this is slidably secured the train order index shown in Fig. 4 and adapted to slide up and down on the plate 90 within the guides 92. This index 95 consists of a plate upon one edge of which is a measure 96, divided, in this case, into spaces 97 of one sixteenth of an inch in width. Each one of these spaces represents one mile of the route to be traveled by the train and there are as many spaces on the index as there are number of miles of the route. For convenience, this measure is divided into sixteenths of an inch but this is not arbitrary, as any other length of space on the index might designate a mile on the route. The spaces are numbered consecutively, com-

mencing at one at the bottom of the plate. For instance, if there were 50 miles to be traveled, then there would be 50 spaces and 50 numbers. Upon this same index is printed or marked the name of each station or stopping place along the given route. (It is manifest that instead of printing the full name of the stopping places, that numbers may be used or any convenient mode of designating the stations). These stations are placed as many spaces apart as there are miles between them on the route. It will be seen that this index is a complete map of the road over which the train travels, showing the stations, their distances from each other, their distances from the starting point, and their relative location along the entire line.

At or near each station on the index, are preferably four holes or perforations, the hole 100 may be marked "Pass", the hole 101 may be marked "Meet", the hole 102 may be marked "Slow" and the hole 103 may be marked "Station" or "Stop". It is manifest that numbers or other signs may be used to designate the contents or character of the order and that there may be as many holes as there are classes of orders. Each of these holes is adapted to receive the pin 105 which pin represents one of the various train orders and is provided with a large head 107, and on the head of one is marked "Pass", on the head of another "Meet", on another "Stop" or "Station" or whatever designation the name or character of the order.

To the rear of index 95 is secured a bracket 106, which is provided with a screw threaded opening. In this opening is screwed a threaded rod 108, substantially of the same length as index 95, which is provided with a gear 110 at the bottom, that meshes into a gear wheel 112, and this into a gear wheel 114, set upon the shaft 115 which operates wheel 33, and when the wheel 32 is rotated in one direction the rod screws into the bracket 106 and lowers the bracket, and with it the index 95, and when it is rotated in the opposite direction it raises the index 95 and this being geared with the running gear of the train travels at a speed proportionate to the speed of the train, and by consulting the index it can readily be determined just where the train is, how fast it is running, how far it is to the next station, or how far it is to any other point on the road.

In Fig. 10 there is shown an enlarged index 95 on which there is placed nothing but figures, ranging from one upward. Each space between these figures represent a mile on the route to be traveled and the stopping places may be designated by larger or colored figures. Of course, there would be the holes 100—101—102—103 in this index in which would be inserted the pin 105 at the place where the order is to be executed, but the operation of this index is the same as the index with the stations and spaces 97 thereon.

The manner of operating or carrying out my system is substantially as follows: Starting with all the connections coupled between the wheel 6 of the engine and the index 95 and the connections geared so that when the train travels one mile, the index or alarm will travel one sixteenth of an inch or the length of one of the spaces 97; also, having the spring 74 bent into engagement with the hook or catch 72 and a chain connecting the spring 74 with the handle 76 of the air-brake lever; and further with the pawl 58 in engagement with the ratchet wheel 48 and the clock works beneath the plate 44 wound up by the stem 46, and an electrical connection with the alarms in the various cars completely made; the train orders are delivered, as usual, to the conductor and the first order to be executed is, say at Delaware 5 miles from Dubuque, the starting point of the train, and the order reading "Meet No. 10 at Delaware"; the engineer then takes the index 95 and inserts the pin 105 in the hole 101 marked "Meet", beneath the station of Delaware and 5 spaces 97 from the end of the index, or 5 spaces from Dubuque where the train starts. Another order is, "Pass No. 7 at Buffalo" 10 miles from Dubuque, and the engineer inserts another pin 105 in the hole 100 marked "Pass" beneath the station of Buffalo and 10 spaces 97 from Dubuque. The conductor then prepares his duplicate index of the one just prepared which he carries with him. The train is then started from Dubuque and as the wheel 6 rotates, it drives the sprocket wheels 10 and 12 by the connection of the sprocket chain 16, which rotates the rod 30 and this rotates the wheel or gear 33 by the worm 32 upon the rod 30 and this rotates the gears that rotate the rod 108, which lowers the rod, and with it, the index 95 at a speed exactly proportionate to the speed of the wheel 6 or the speed of the train. When the train has nearly reached the station marked "Delaware 5 miles from Dubuque," the index 95 has been lowered 5 spaces 97 and the pin 105 in the hole 101 marked "Meet" will have been lowered with the index and will come into contact with the arm 64 which is part of the alarm and as this arm is on a pivot, a pressure upon the arm by the pin 105 disengages the pawl 58 from the ratchet wheel 48 and the clock works will come into action and rotate the ratchet wheel 48, which will bring the clapper 52 against the bell 45 and at the same time move the terminal 81 into electrical contact with the terminal 80 thereby completing the electrical circuit throughout the train and the alarm given in each one of the cars. Upon the conductor signaling

"O. K." the engineer withdraws the pin 105 and also the conductor from his duplicate index and the order is executed at Delaware. If the engineer fails to remove the pin 105, a further pressure of the pin will bear down the arm 68 and raise the hook 72, and release the spring 74, which will draw around the brake lever 75 and admit the air to the brake cylinder and set the brakes and the train will come to a stand still. If it be desired to shut off the steam or power, then a connection with the spring 74 may be made with the throttle valve lever, whereby when the brakes are set, at the same time the steam would be shut off. The pin 105 having been removed from the station at Delaware when the order has been executed, the pin 105 in the hole 100 at Buffalo will, when the train has reached Buffalo, come in contact with the alarm, the same as before and notify the train men that an order is to be executed at Buffalo. If the night be dark or foggy or if for any other reason, the engineer and train men are unable to locate the position of the train on the road, then they can refer to the index 95 and it will state just where the train is located and also the rate of speed that it is running and at all times will know what order is to be executed and the distance to the place where it is to be executed.

It will be seen by this system, that the train operators will be notified, under all circumstances of the place where an order is to be executed, and if they fail to execute an order, then the train will come to a stand still; further that they can readily locate the exact position of the train on the road and calculate from the index, the distance they have traveled and the rate of speed and the distance to any station along the line, from the fact that the index or alarm travels at a speed proportionate to the speed of the train.

If the alarm is made to travel, and the index remain stationary, or both to travel then the alarm would travel at the rate of speed proportionate to the speed of the train and in either case the contact of the order with the alarm would be made at the place where an order is to be executed.

Having now described my invention, what I claim is:—

1. A system of the character described, which consists in placing a train order on a movable surface on the train, an alarm on the same train, and by movement of the train at a speed proportionate to the speed of the order bring the order into contact with the alarm at or near the place where the train order is to be executed.

2. A system of the character described, which consists in placing an order on a movable surface on the train on which is an alarm, then bringing the order into contact with the alarm by connecting the running gear of the train with the movable order to give the alarm at or near the place where the order is to be executed.

3. A system of the character described, which consists in placing a train order on a movable surface on the train, establishing an alarm at a fixed point on the train, then by movements of the order at a speed proportionate to the speed of the train advance the order into contact with the alarm to give notification at or near the place where the train order is to be executed.

4. A system of the character described, which consists in securing an order to a movable index on the train, establishing an alarm in a fixed position on the train, then by connecting the index with the movement of the train cause the index with the order thereon to advance into contact with the alarm at or near the place where the order is to be executed.

5. A system of the character described, which consists in securing the order to an index on the train, establishing an alarm on the same train, then by the movement of the train move the index with the order thereon at a speed proportionate with the speed of the train till it contacts with the alarm at or near the place where the order is to be executed.

6. A system of the character described, which consists in placing an order on the train, securing the order to a surface which moves at a rate of speed proportionate to the speed of the train, placing an alarm on the train and bringing the order into contact with the alarm at the place where the order is to be executed.

7. A system of the character described which consists in placing an order on a movable index on the train which index has thereon some indication of the place where the order is to be executed and connecting the order with the movements of the train to cause the order to travel at a speed proportionate to the speed of the train whereby when the train arrives at the place indicated on the index where the order is to be executed notification will be given to the train operators that the order is to be executed at that place.

8. A system of the character described which consists in securing an order on the train to a movable index on which index is indicated the place at which the order is to be executed and by securing an alarm in a fixed position on the train, then by the movement of the train cause the order to advance into contact with the alarm to give the alarm when the train has approached the place where the order is to be executed.

9. A system of the character described, which consists in securing the order on the train to an index on which is indicated the place at which the order is to be executed,

connecting said index with the running gear of the train, establishing an alarm on the train, then causing the index with the order thereon to move at a speed proportionate to the speed of the train and come into contact with the alarm when the train has reached the place where the order is to be executed.

10. A system of the character described, which consists in placing the train order on a movable surface on the train, an alarm on the train in proximity to the train men, then advancing the order at a speed proportionate to the speed of the train by its engagement with the running gear of the train to cause the order to come in contact with the alarm to notify the train men at the place where the order is to be executed.

11. A system of the character described, which consists in securing the order on the train to an index on which are indications of the stations at which the orders are to be executed, which stations are set at a distance apart on the index proportionate to the distance these stations are apart on the route to be traveled, placing an alarm on the train at a distance from the order proportionate to the distance on the route from the place of delivery of the order to the place of the execution of the order, then moving the order at a speed proportionate to the speed of the train, to cause the order to contact with the alarm when the train shall have reached the place for the execution of the order.

12. A system of the character described, which consists in securing the order on a train to a movable index on which is marked an indication of stations or localities at a proportionate distance apart corresponding to the distance between said localities on the route over which the train travels, placing an alarm on the same train at a distance from the order proportionate to the distance the train must travel to reach the place where the order is to be executed, then causing the order to move into contact with the alarm at a speed proportionate to the speed of the train to give the alarm when the train has approached the place where the order is to be executed.

13. A system of the character described, which consists in placing the train order at a point designated on the train as the place where the order is to be executed, placing a stationary alarm on the same train at a predetermined distance from the order, such distance being proportionate to the distance the train would travel to reach the place where the order is to be executed, then by the movement of the train to cause the order to move into contact with the alarm to notify the train operators when the train has reached the place where the order is to be executed.

14. A system of the character described, which consists in securing the order on the train to a movable index on which there is an indication of the place where the order is to be executed and also said index divided into spaces of a given distance in width and each space representing a mile of the route to be traveled, placing an alarm on the same train, then by the movement of the train advance the order into contact with the stationary alarm to give an alarm when the train has approached the place where the order is to be executed.

15. A system of the character described, which consists in securing the order on the train to an index on which there is an indication of the place where the order is to be executed and also said index divided into spaces of a given distance in width and each space representing a mile of the route to be traveled, placing an alarm on the same train, connecting the order with the movements of the train, and then advancing the order by the movements of the train at a speed proportionate to the speed of the train to bring the order into contact with the alarm when the train has approached the place where the order is to be executed.

16. A system of the character described, which consists in securing the order on the train to an index on which there is an indication of the place where the order is to be executed and which index is divided into spaces which represent a mile of the road to be traveled, placing an alarm on the train, then by the movement of the train move the index one space while the train is traveling a mile and continue such movement until the train has approached the place where the order is to be executed, and then bring the order into contact with the alarm to give notice of the place where the order is to be executed.

17. A system of the character described, which consists in securing an order on the train to a movable surface, connecting said surface with the movement of the train to cause the surface to move at a speed proportionate to the speed of the train, establishing an alarm on the train at a distance from the order proportionate to the distance the train would travel to reach the place where the order is to be executed, and then moving the order by the movement of the train until it comes in contact with the alarm when the train has reached the place of execution of the order.

18. A system of the character described, which consists in securing the order on the train to an index on which there is an indication of the place where the order is to be executed and also said index divided into spaces of a given distance in width and each space representing a mile of the route to be traveled, placing an alarm at as many spaces from the order as the number of miles the train is to travel before the train shall reach the place where the order is to be executed,

connecting the order with the movements of the train and then advancing the order by the movement of the train at a speed proportionate to the speed of the train to bring the order and alarm into contact with each other when the train has approached the place where the order is to be executed.

19. A system of the character described, which consists in securing the orders on the train to a movable index at the various localities indicated on the index where the orders are to be executed, establishing an alarm on the same train, then causing the orders one after another to move into contact with the alarm at the different localities where the orders are to be executed as the train approaches such localities.

20. A system of the character described, which consists in securing the order on the train to a movable index on which are marked indications of stations or localities at a proportionate distance apart corresponding to the distance between said localities on the route over which the train travels, placing an alarm on the same train, then causing the order to advance till it comes into contact with the alarm at a speed proportionate to the speed of the train to give the alarm when the train has approached the place where the order is to be executed.

21. A system of the character described, which consists in securing a train order on the train to an index on which are indications of localities at a proportionate distance apart corresponding to the distances apart of such localities on the route to be traveled said index divided into spaces each space representing a mile of the route to be traveled and each space numbered, establishing an alarm on the train, and then by the movement of the train cause the order to travel one space while the train is traveling one mile to cause the order to come into contact with the alarm when the train has traveled the required number of miles to the place of the execution of the order.

22. A system of the character described, which consists in placing the order on a movable surface on the train, on which train is an alarm and causing the order to travel at a speed proportionate to the speed of the train until it comes into contact with the alarm at or near the place where the order is to be executed.

23. A system of the character described, which consists in securing the order on the train to an index on which are indications of localities along the route and distances between such localities, connecting the index with the movement of the train, and then moving the index at a speed proportionate to the speed of the train to determine the locality of the train, the distance to any point along the route and how far to the place where the order is to be executed.

24. A system of the character described, which consists in securing the order to a movable surface on the train which train is supplied with a brake-system and mechanism for operating the brake, then by the movement of the train cause the order to come into contact with the operating mechanism of the brake and operate the same to apply the brakes to the train at or near the place where the order is to be executed.

25. A system of the character described, which consists in securing the order to a movable surface on the train, establishing an alarm on the train, on which is a brake-system, connecting the alarm with the operating mechanism of the brake, and by movement of the train advance the order into contact with the alarm and cause the alarm to notify the train operators at the place where the order is to be executed, and also to operate the mechanism to apply the brakes to the train.

26. A system of the character described, which consists in securing the order to an index on the train which train is equipped with a brake system, connecting the order with the running gear of the train, and cause the order to travel at a speed proportionate with the speed of the train and come into contact with the mechanism for operating the brakes and set the brakes at or near any predetermined place along the route that the train travels.

27. A system of the character described, which consists in securing the train order to an index on which are indications of stations along the route to be traveled and said stations set at a distance proportionate apart to the distance such stations are distanced from each other and which index is divided into spaces representing a mile on the route, placing the index on a train supplied with a brake-system and on which an alarm is established, then by the movement of the train cause the index to travel one space while the train is traveling a mile to determine the locality of the train, give the alarm and set the brakes at the place where the order is to be executed.

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

ERASTUS W. APPELMAN

Witnesses:

M. M. CADY,

JOHN H. SCHOOP.