J. A. PEPLINSKI AND I. A. SPAULDING.

TRAIN RECORDING AND REGISTERING APPARATUS.

APPLICATION FILED MAR. 23, 1920.

1,364,303.

Patented Jan. 4, 1921.

3 SHEETS—SHEET 1.

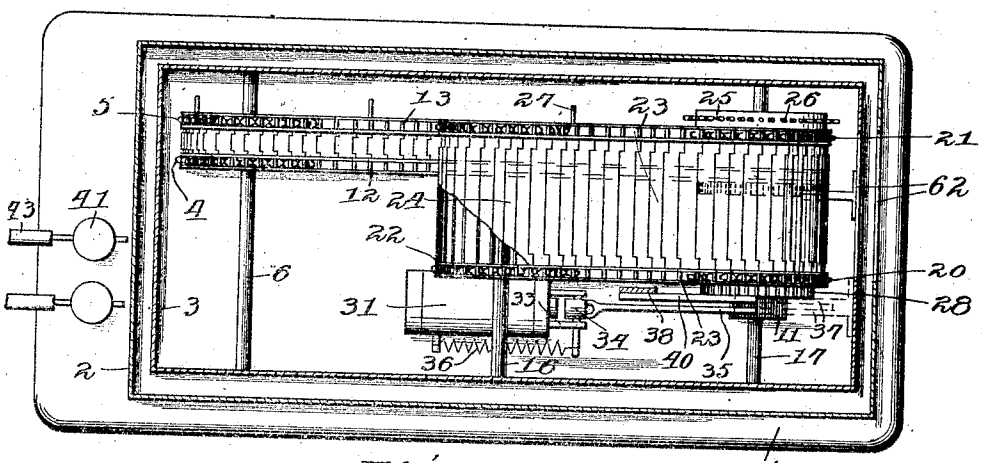


Fig. 1.

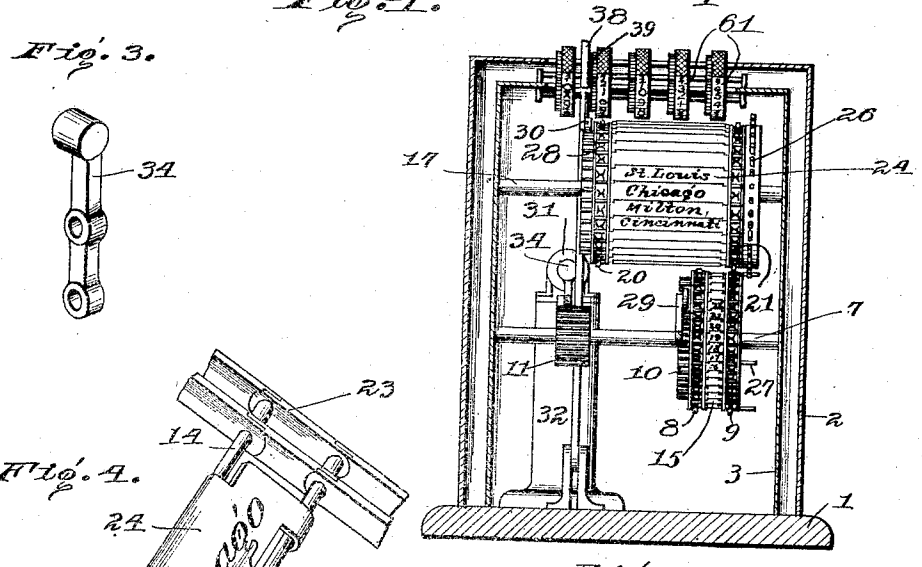


Fig. 2.

Fig. 3.

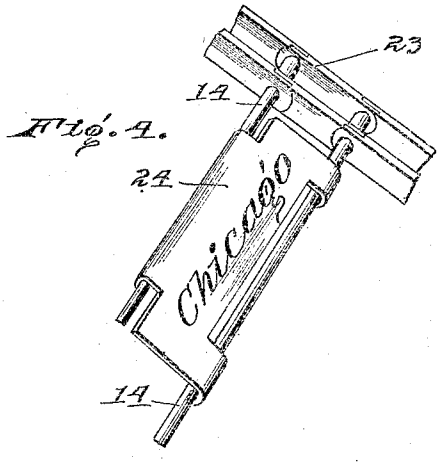


Fig. 4.

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3 SHEETS—SHEET 2.

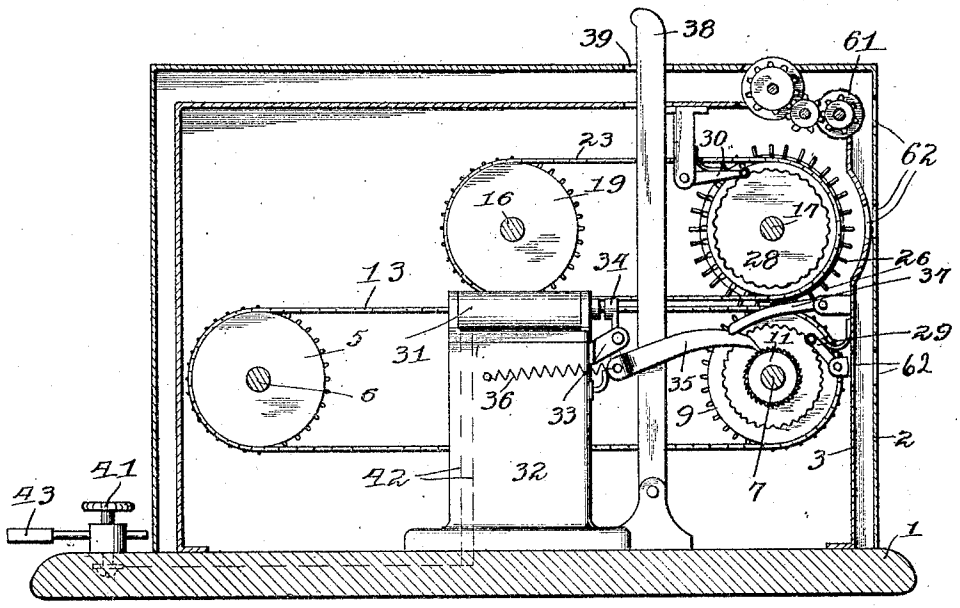


Fig. 5.

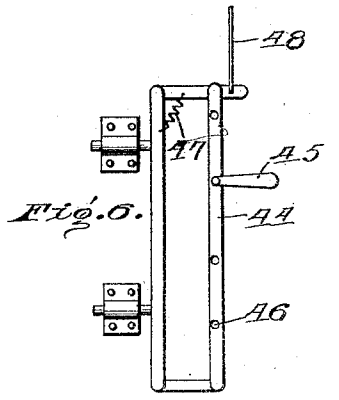


Fig. 6.

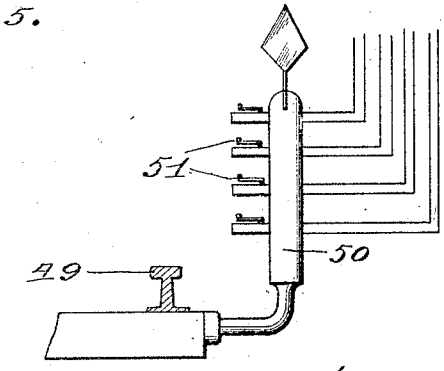


Fig. 7.

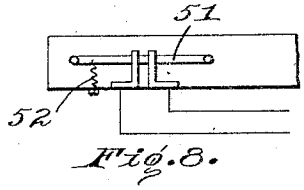


Fig. 8.

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3 SHEETS—SHEET 3.

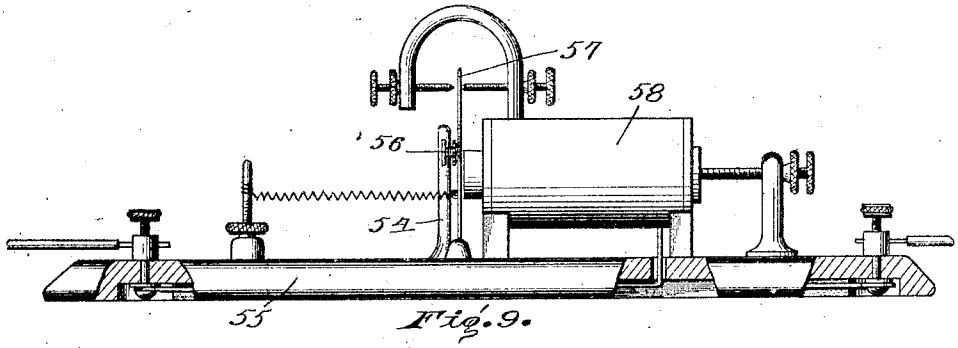


Fig. 9.

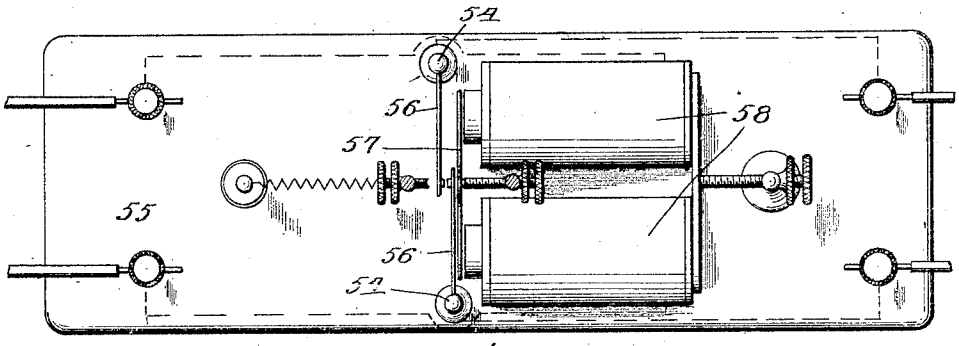


Fig. 10.

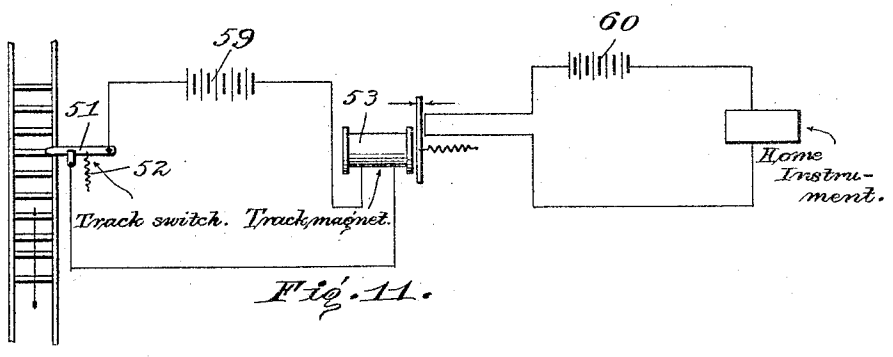


Fig. 11.

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UNITED STATES PATENT OFFICE.

JOHN A. PEPLINSKI AND IRWIN A. SPAULDING, OF PULASKI, WISCONSIN.

TRAIN RECORDING AND REGISTERING APPARATUS.

1,364,303. Specification of Letters Patent. Patented Jan. 4, 1921.

Application filed March 23, 1920. Serial No. 368,032.

To all whom it may concern:

Be it known that we, JOHN A. PEPLINSKI and IRWIN A. SPAULDING, citizens of the United States, residing at Pulaski, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Train Recording and Registering Apparatus, of which the following is a specification.

This invention relates to registering and recording machines, and more particularly to that type of machine which is used to register and record at a home station, the distance away from said home station, a train is, as it proceeds.

An object of the invention is to provide suitable means, whereby a train will open or close an electric circuit, thereby operating a machine located at the home station to indicate its location.

Another object is to provide changeable means, operated by an electric magnet or other suitable device for registering and recording the position of any one of many trains, relative to the home station.

Other objects will appear as the description proceeds.

In the accompanying drawings which form a part of this specification,

Figure 1 is a plan view of the recording instrument;

Fig. 2 is an end view of said machine;

Fig. 3 is a perspective view of the armature for the magnet in said machine;

Fig. 4 is a perspective view of the station plate, showing means of attachment;

Fig. 5 is a side elevation of the recording machine;

Fig. 6 is a side elevation of the tripping means carried by the engine or tender;

Fig. 7 is an end view, partly in section of the operating switches, showing method of positioning near the track;

Fig. 8 is a plan view of the operating switch;

Fig. 9 is a side elevation of the relay used in connection with the recording machine;

Fig. 10 is a plan view of said relay, and

Fig. 11 is a diagrammatic view of the connections employed in operating the recording machine.

Like characters of reference are used to represent like parts throughout the following specification.

The recording instrument is mounted on a suitable base 1 and is provided with a protecting casing 2, and an interior casing 3, in which the operative mechanism is located. Sprocket wheels 4 and 5 are mounted in spaced relation on shaft 6, which has its bearing between the sides of the casing 3. Shaft 7 is mounted in the casing 3, in a similar manner as shaft 6 and is in the approximate plane therewith, and carries sprocket wheels 8 and 9, spaced apart as the wheels 4 and 5. A pinion 10 is mounted on the shaft 7, and is made integral with or separate from the sprocket wheel 8, but is positioned adjacent thereto. Spaced from the said sprocket wheel 8, and mounted on the shaft 7, is a pinion 11, the purpose of which will later be pointed out.

The sprocket wheels 4 and 8, and 5 and 9, are connected together by means of suitable chains 12 and 13. Between these chains 12 and 13, are rods 14, over which are clipped the numeral or mileage plates 15, which are interchangeable one for another.

Somewhat above shafts 6 and 7 are positioned shafts 16 and 17, upon which are mounted sprocket wheels 18 and 19, and 20 and 21, respectively. Chains 22 and 23 are employed for connecting these sprocket wheels, and are similar in construction to the chains 12 and 13, and have name or station plates interchangeably attached in the same manner as are plates 15.

Mounted on shaft 17, adjacent the sprocket wheel 21, is a wheel 25, having radial spokes 26 extending from its periphery. Positioned at desired intervals on the chain 23 and extending laterally thereon, are pins or spokes 27 for operating the name plates 24.

A sprocket wheel 28, preferably of smaller diameter than wheel 20, is mounted on shaft 17 adjacent the said wheel. It will be understood that sprocket wheels 20, 21, 28 and wheel 25 move in unison, due to an operation later described.

A pivoted spring pressed roller 29 is attached to the side of the casing 3, and engages the teeth in the sprocket wheel or pinion 10, for holding the mechanism inactive when not being operated. A similar spring pressed roller 30 is attached to the under surface of the casing 3, and engages the teeth in the wheel 28, also for tensioning purposes.

Located in the casing 3 adjacent the hereinbefore described mechanism, is a magnet 31, positioned on top of the supporting member 32. A fork 33 is made integral with said member 32, and supports a pivoted armature

34, which has a pivoted arm 35 attached at its lower end for engagement with the teeth of the gear wheel or pinion 11. Spring 36 is connected between the lower end of the armature 34 and the support 32, for retracting the armature from the magnet. A pivoted arm or member 37 is attached to the side of the casing 3, for engagement with the upper face of the arm 35, to keep the same in contact with the pinion 11.

A pivoted manually operated lever 38 is mounted at the bottom of the casing 3, and extends up through the top thereof as at 39, and is provided with an arm or pawl 40 for engagement with the pinion 28, to manually change the reading of the recording instrument as desired. Binding posts 41 are provided on the base 1, to which are connected the wires 42 to the magnet 31, and wires 43 from a relay, to be later described.

It will be understood that every train will carry pivoted means for opening the desired circuit, such as the frame 44 with arm 45, which is adapted to be placed in any of the positions or holes 46. Spring 47 normally holds the frame in position, but a rope or cable 48 is provided, which is attached to the frame, and extends to the engineer's cab (not shown), so that he may elevate the operating means out of operative position while switching in the yard.

At the side of the track 49 is a combined supporting switch post and signal 50, which carries a plurality of switches 51, the same being normally held in closed position by springs 52. It will be understood that there is a switch on every post 50 for each train. For example if there were four trains on the track, there would be four switches on each post, arranged so that a train would open the corresponding switch on each post that it passed.

A plurality of relays 53 are preferably carried within the post 50, the number depending upon the number of switches carried by said post. These relays are somewhat similar to the ordinary type of relay, except that they have a pair of posts 54, positioned at opposite sides of the base 55, said posts carrying flexible contacts 56, positioned so that when the armature 57 is drawn away from the magnets 58, due to the opening of the switch 51 by the operating arm 45 on the engine or tender, thereby opening the relay circuit and closing the home instrument circuit, the said instrument will record another mile.

Suitable batteries 59 are connected in the track circuit, and batteries 60 are connected in the circuit with the home instrument.

The manner of operation is as follows: The train leaving the home station has its switch operating arm adjusted to open say only the lowest switches on the posts 50. These posts are positioned at every mile of the whole length of the track. The registering or recording instrument at the home station is set at zero miles, and blank station. At the first mile the train goes, the arm 45 contacts with the switch 51, and breaks the relay circuit. It will be understood that there are as many relays, as there are switches on the post 50. This closes the flexible contacts 56, and completes the circuit to and through the magnet in the home station instrument. The drawing of the armature 34 to the magnet 31, causes the arm 35 to rotate the pinion 11 one notch, after which the spring 36 retracts the arm 35. This operation is repeated at every mile the train travels. The spokes or pins 27 on the chain 13 are the necessary distance apart to represent the distance between the several stations.

It will be seen that whenever the spokes 27 contact with the radial spokes 26 on the wheel 25, that another name plate will be shown. At every operation of the magnet 31, another mile is recorded, but whenever the number of miles between the certain stations are recorded, the new station reading will also be recorded, as hereinbefore described.

The hand lever 38 is provided for manually changing the reading as desired, by means of the lever and pawl 40 engaging the pinion 11. A series of gear operated dials 61 are provided for manually recording the number of the desired train which is operating the instrument. Openings 62 are provided in the casings 2 and 3, through which the readings may be seen.

Many minor changes in detail of construction may be resorted to without departure from the spirit of the invention.

Having thus described our invention what we claim as new and desire to secure by Letters Patent of the United States is:—

1. An apparatus of the character described comprising a plurality of groups of mounted sprocket wheels and connecting means, means carried by one of said groups of sprocket wheels to communicate motion to the other, a pinion mounted to rotate with one of the groups of sprocket wheels, an electromagnet, a circuit for said magnet, a pivoted armature for said magnet, a pivoted operating pawl attached to said armature for engagement with said pinion, a train controlled circuit, means operated by a train adapted to open said circuit, and at the same time to close said first mentioned circuit, substantially as described.

2. An apparatus of the character described comprising a plurality of groups of mounted sprocket wheels and connecting means therefor, means carried by one of said groups to communicate motion to the other, a magnet and magnet circuit for operating said sprocket wheels, a train con-

trolled circuit for closing said magnet circuit, a circuit opening and closing means positioned adjacent said track in said train controlled circuit, and adjustable means carried by the train for operating said circuit opening and closing means.

3. An apparatus of the character described comprising a plurality of groups of mounted sprocket wheels and connecting means therefor, means carried by one of said groups to communicate motion to the other, a magnet and magnet circuit for operating said sprocket wheels, train controlled and relay circuits, a normally closed switch adjacent the track and included in said train controlled circuit, and means for opening the switch momentarily, thereby closing the magnet circuit substantially as described.

4. A device of the character described comprising mile and station recording means, an electromagnet including a circuit for operating said means, manually operated means for independently operating said recording means, a train controlled circuit, and means adapted to momentarily open said last named circuit and at the same time close the first mentioned circuit, substantially as described.

5. An apparatus of the character described comprising mile and station recording means, an electromagnet and circuit for operating said means, a train controlled circuit, and means adapted to momentarily open said last named circuit and at the same time close the first mentioned circuit.

6. An apparatus of the character described comprising mile recording means, an electromagnet and circuit for operating said means, station recording means operable by said mile recording means, a train controlled circuit, and means adapted to open said last named circuit, and at the same time close the first mentioned circuit.

In testimony whereof we affix our signatures.

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IRWIN A. SPAULDING.