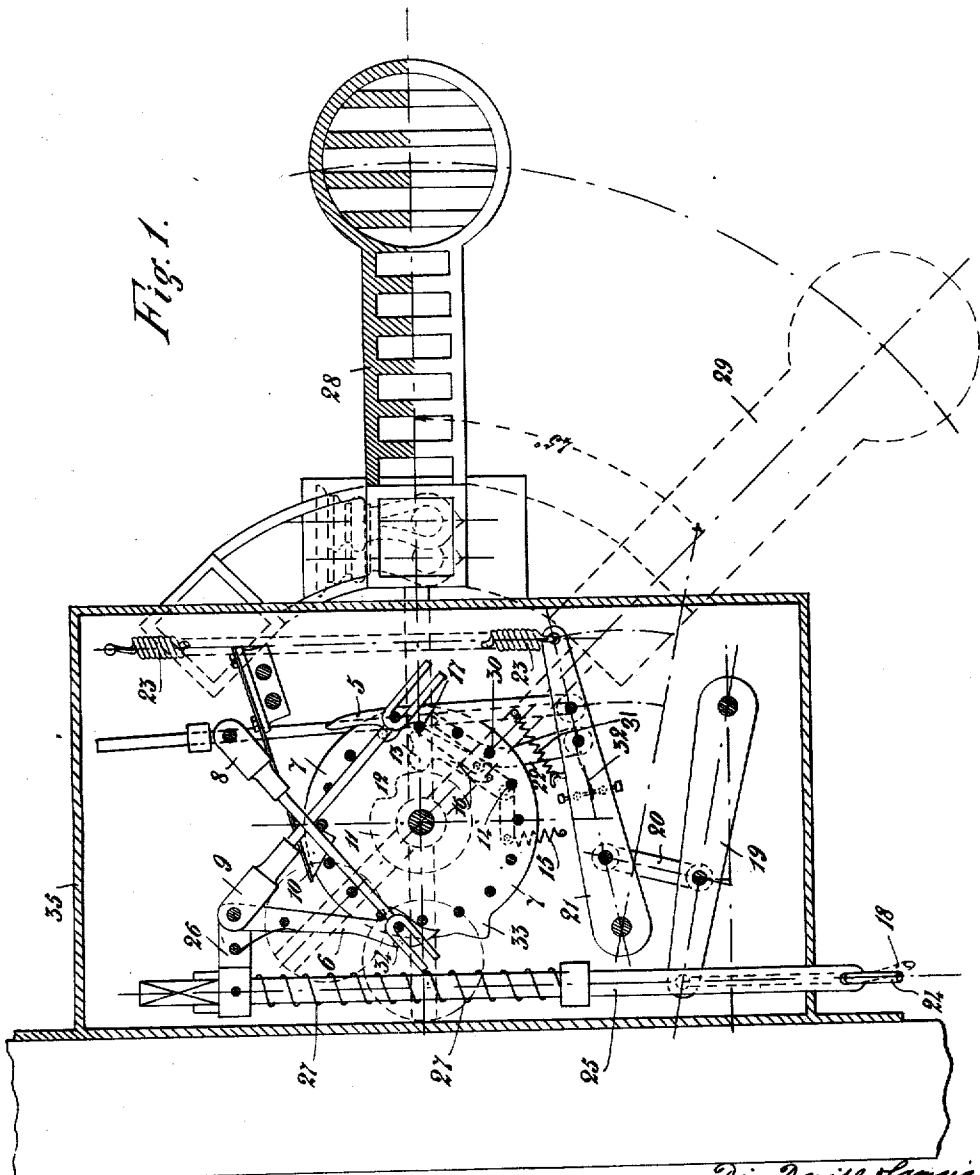


D. D. SAMAIA.
 MECHANICAL BLOCK SYSTEM FOR TRAMWAY LINES.
 APPLICATION FILED MAY 12, 1910.

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Patented Dec. 12, 1911.

2 SHEETS—SHEET 1.



Stanley Wood
 Robert Owen Hughes

Witnesses—

Inventor

Dino David Samaia
 by
 W. H. Evans
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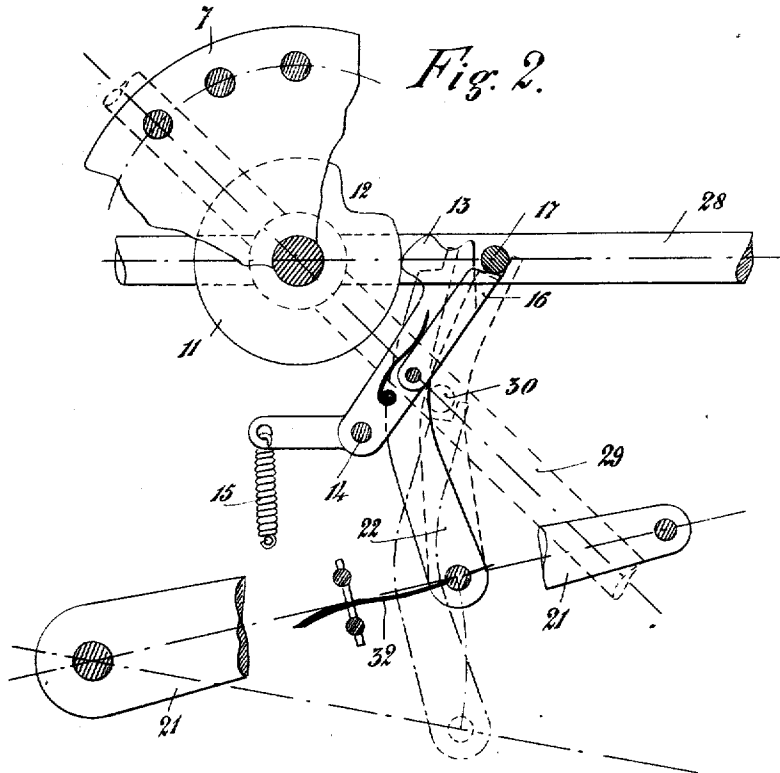
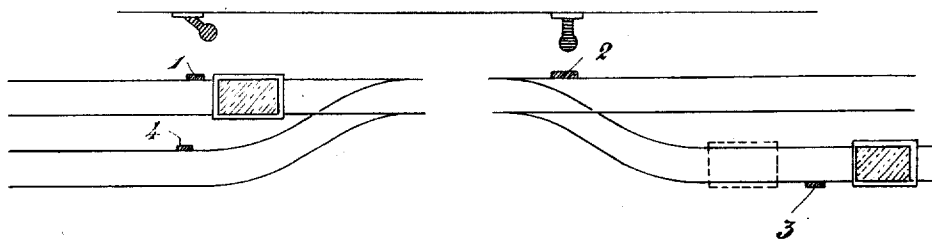


Fig. 3.



Witnesses—
Stanley Wood
Robert Cunningham.

Inventor
Dino Davide Samaia
by
W. C. Evans
Attorney.

UNITED STATES PATENT OFFICE.

DINO DAVIDE SAMAIA, OF VICENZA, ITALY.

MECHANICAL BLOCK SYSTEM FOR TRAMWAY-LINES.

1,011,250.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed May 12, 1910. Serial No. 560,902.

To all whom it may concern:

Be it known that I, DINO DAVIDE SAMAIA, a citizen of the Kingdom of Italy, residing at Vicenza, Italy, have invented certain new and useful Improvements in and Relating to Mechanical Block Systems for Tramway-Lines, of which the following is a specification.

This invention has reference to improvements in block systems of the type described in my prior application Serial No. 538461 filed January 17th, 1910.

Referring to the accompanying drawing: Figure 1 shows an elevation of the control mechanism of the arm of the semaphore. Fig. 2 shows an elevation of details thereof. Fig. 3 is a view of the pedals arrangement.

Four pedals, two for the blocking and two for unblocking, are fixed upon the line in the manner already described in my previous patent application.

The control mechanism for the arm of the semaphore comprises a lever 5 for blocking the line and a lever 6 for unblocking the line. These levers have forked ends adapted to engage with the studs of the wheel 7 in such a manner that the said wheel is caused to turn in one direction by means of the lever 5 and in the other direction by means of the lever 6. For this purpose the balancing arms 8 and 9, corresponding each to one of the levers 5 and 6, are so arranged that when one of the aforesaid levers is lowered to engage with the stud of the wheel, the other lever is removed from the wheel, leaving it free to turn. A spring tooth-projection 10 serves to maintain the wheel 7 in the position determined by the action of the levers 5 and 6. Another wheel 11 is arranged upon the rear face of the wheel 7 (Fig. 2) provided upon its periphery with a recess 12. A lever arm pivoted at 14 and controlled by a spring 15 is arranged in such a position that its head 13 engages with the periphery of the wheel 11. The lever 13 is provided with an elastic toothed arm 16 which is adapted to support the stud 17 of the semaphore arm. Whenever the recess 12 in the wheel 11 registers with the head of the lever 13, said lever under the influence of the spring 15 is pushed into said recess 12 and its toothed arm 16 is moved to a position in which it no longer supports the stud 17 of the arm of the semaphore, and consequently said semaphore arm falls by its own weight in the position

shown in dotted lines (at 29) that is to say the position in which the line is clear. In order to again block the line the semaphore arm is raised by means of the cord 18 through the levers 19, 20, 21, the spring 23 and the lever 5, whereas the unblocking or clearing of the line is effected by means of the cord 24 of the rod 25, arm 26, lever 6 and spring 27.

The mechanism acts in the following manner: Blocking. Let us suppose that the semaphore is in the position 29 indicating the line is clear. When the first wheel of the vehicle reaches the blocking pedal, a pull is caused upon the cord 18 which, by means of the levers 19, 20, 21 lowers the lever 5 thereby allowing said lever to engage under the action of the spring 31 with a stud of the wheel 7, while at the same time the lever 22 is moved to a position in which its head bears beneath the stud on the arm of the semaphore as shown in dotted lines (at 30). As soon as the wheel has passed over the pedal, the pull through the cord ceases and the spring 23 brings the system of levers 19, 20, 21 back into its original position, thereby raising the semaphore arm through the lever 22. Meanwhile the lever 5 will have caused the wheel 7 to turn by one stud and with it the wheel 11, so that the head 13 of the lever arm pivoted at 14 is in a position out of register with the recess 12 and its projection 16 again forms a support for the stud 17 of the semaphore arm. When the second wheel of the vehicle has passed upon the pedal, the system of levers is again lowered, while the semaphore arm does not move, being supported by the projection 16. When after the passage of the wheel, the system of levers 19, 20, 21 rises, the lever 22 will be moved inward by means of the spring 32 and the lever 5 will have caused the wheel 7 to turn by another stud, so that the number of studs by which the wheel 7 has turned will correspond exactly to the number of vehicle axles which have passed over the blocking pedal.

Unblocking or clearing the line: When the unblocking pedal is compressed, a pull is caused upon the cord 24 and by means of the rod 25 and the arm 26, the lever 6 is lowered so as to engage with a stud of the wheel 7. When the pressure upon the pedal ceases, the spring 27 moves the system of levers up again, while the lever 6 has caused the wheel 7 to turn by one stud in the re-

verse direction. The passage of the second wheel of the vehicle turns again the wheel 7 by one stud and with it the wheel 11 so that the recess 12 is again in register with the head of the lever 13 which moves into it and consequently the projection 16 no longer supports the stud of the semaphore arm, which falls (into the position 29) indicating the line is clear.

10 In order to avoid the action of the unblocking mechanism in the case of a vehicle running backward, there is provided upon the periphery of the wheel 7 a projection 33. Against this projection when the semaphore 15 is in the clear line position, the projection 34 of the lever 6 will engage so that when, in consequence of the actuation of the mechanism, the lever 6 is moved outward it can no longer come into contact with the stud of the wheel 7.

20 The balancing arms 8 and 9, besides permitting the rotation of the wheel 7 in either direction, also have the advantage of preventing the actuation of the mechanism in the event of two vehicles arriving at the same moment, one on the blocking pedal and the other on the unblocking pedal, because in such case the balancing arms will move outwardly both the levers 5 and 6 preventing 25 them from engaging with the studs of the wheel 7.

It is evident that instead of the pull exercised by the cords there may be substituted electric energy.

35 The principal advantages which are offered by the present system are as follows: The track cannot remain blocked on both sides owing to the special arrangement of the pedals. As many vehicles as have entered 40 upon the single track must pass out of it before the semaphore can give the signal of the line being clear. In the event of two

vehicles arriving at the same moment one upon the blocking pedal and the other upon the unblocking pedal, the action is neutralized by the operation of the balancing arms 45 above described, the semaphore remaining in the blocking position to which it has been raised by the passage of the first vehicle. In the event of a vehicle having passed over 50 the unblocking pedal and moving backward, the fresh pressure exercised upon the unblocking pedal will not alter the position of the stud wheel and consequently the arm of the semaphore is not actuated.

I claim:

A mechanical block system comprising a semaphore, a shaft on which the semaphore is mounted, two wheels on said shaft, pins on one of said wheels, the second wheel having a recess, pawls engaging alternately with the said pins, links connected to said pawls said links adapted to remove one of the pawls out of engagement with the pins while the other pawl is in engagement therewith, a 60 blocking and an unblocking pedal, said pedals being connected to the pawls, a spring operated pawl, a projection on said spring operated pawl, said projection being adapted to engage with the periphery of the wheel 70 having the recess, and the spring operated pawl being adapted to support the semaphore when the projection engages with the periphery of the said wheel and adapted to be disengaged from the semaphore when the 75 projection engages with the recess.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

DINO DAVIDE SAMAIA.

Witnesses:

RUDOLF LAMOJA,
FERDINANDO GINESI.