

(No Model.)

W. FARANOWSKI & F. GUNIEWICZ.
SWITCH OPERATING DEVICE.

No. 506,218.

Patented Oct. 10, 1893.

Fig. 2.

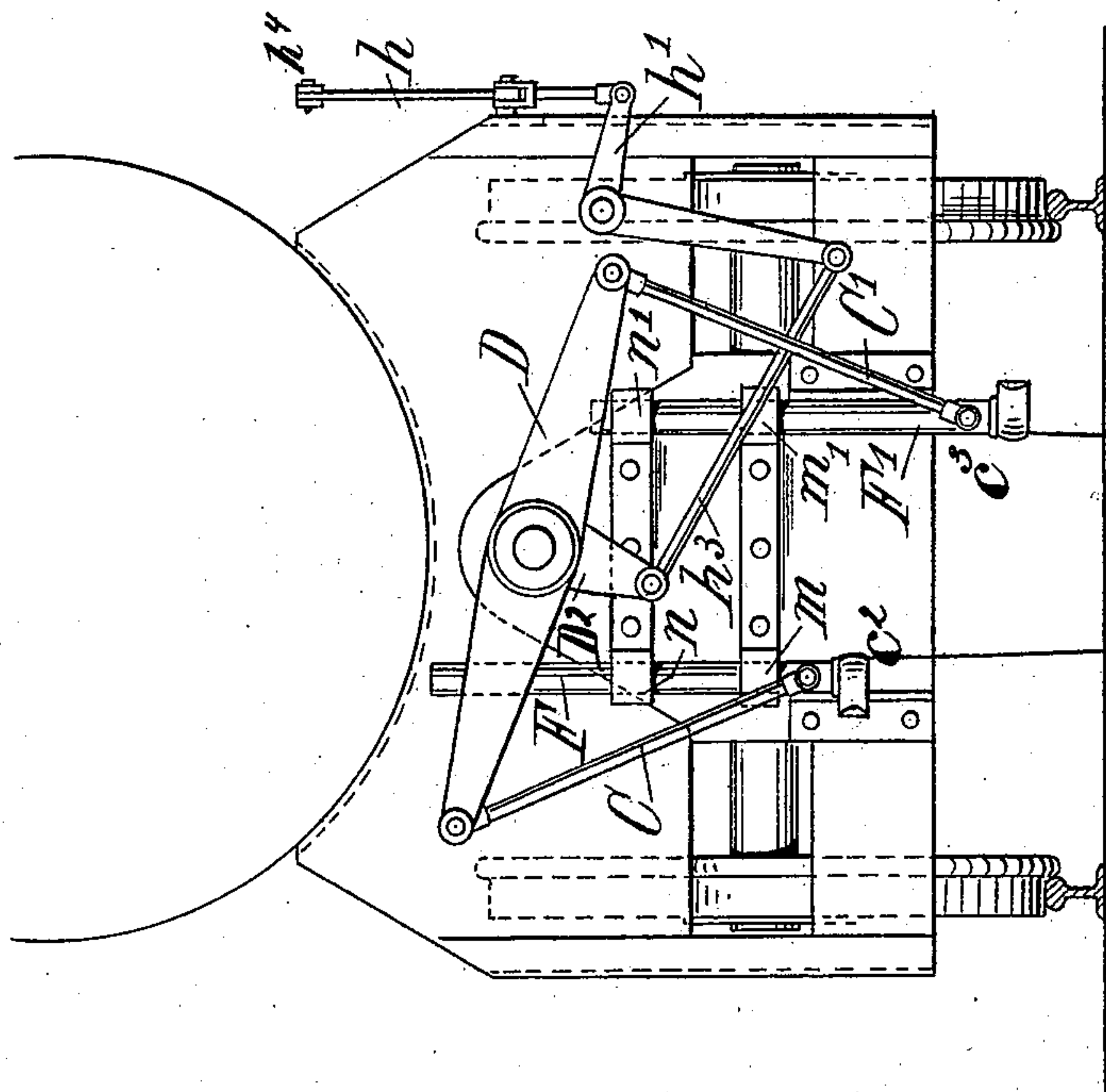
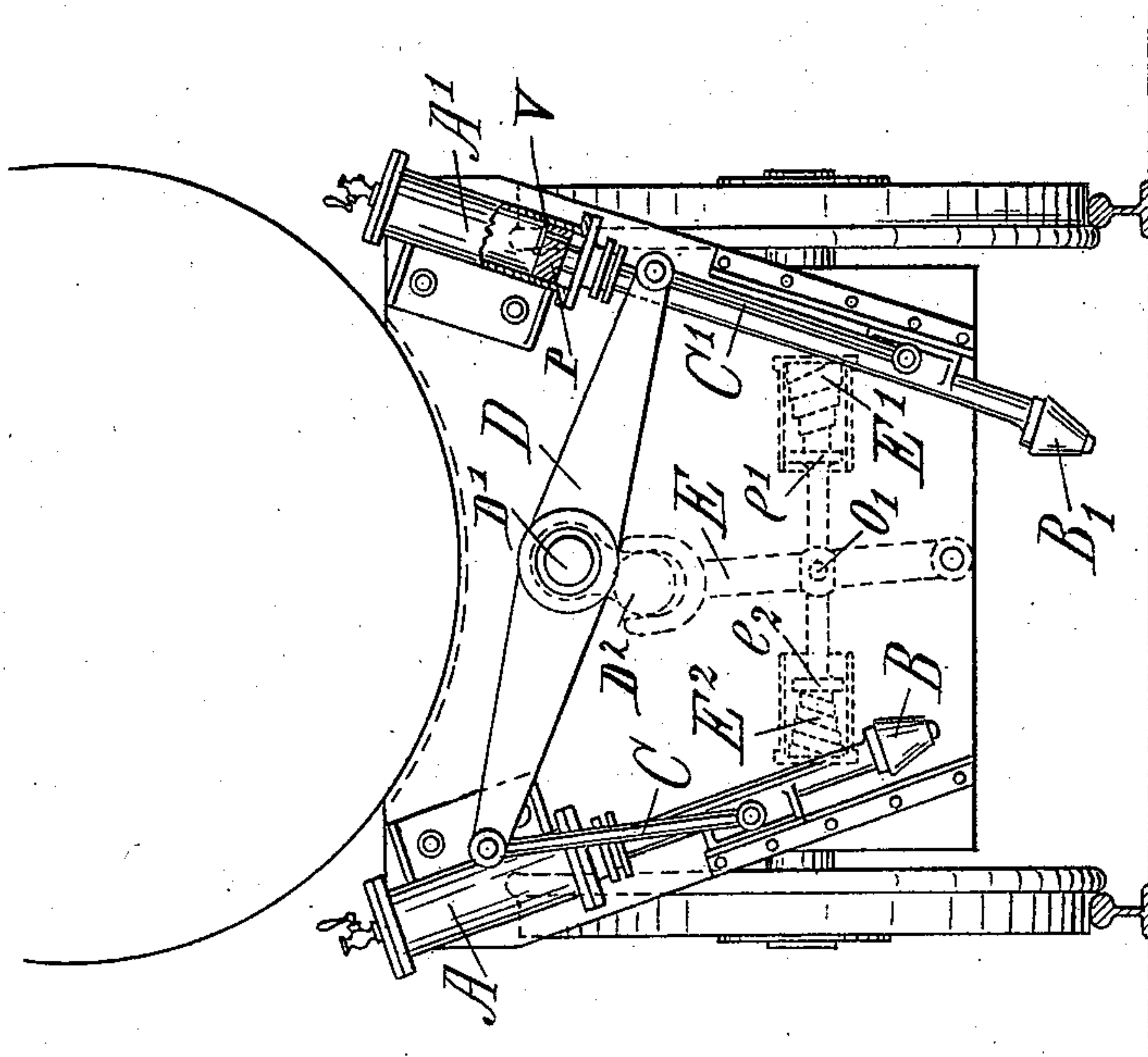


Fig. 1



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UNITED STATES PATENT OFFICE.

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SWITCH-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 506,218, dated October 10, 1893.

Application filed October 26, 1891. Serial No. 409,883. (No model.)

To all whom it may concern:

Be it known that we, WLADIMIR FARANOWSKI and FRANZ GUNIEWICZ, subjects of the Emperor of Austria-Hungary, residing at Podhajce, in the Province of Galicia, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Switch-Operating Devices; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention has relation to mechanism for automatically operating railway switches, and more particularly to such mechanism when located on a car or the locomotive, and under the control of a train hand or the engineer, the lever or levers controlling the switch operating devices being located between the rails.

The devices that act upon and move the switch operating lever or levers may be operated either by a motive fluid, as for instance, live steam taken from the locomotive boiler, or by compressed air supplied by the pump that compresses the air for the brakes, or by hand, as will now be fully described, reference being had to the accompanying drawings, in which—

Figures 1 and 2 are end elevations of so much of a locomotive as will be necessary to illustrate our invention in its application to a locomotive, said figures illustrating switch operating devices controlled by a fluid and by hand, respectively.

Referring to Fig. 1 in which we have shown two steam operated pistons whose rods are adapted to be projected into the path of the switch-operating lever or levers so as to throw the same in one or the other direction to position the switch relatively to the direction of motion of the locomotive; A, and A' indicate two piston cylinders suitably connected with the steam space of the locomotive boiler, each of said cylinders containing a piston, P, the rods B, and B' of which are of such a length as that when fully projected they will be in a position to engage the switch lever, said

piston cylinders being arranged at a suitable inclination to a vertical, so that the rods B and B' will converge toward the center of the track to properly engage the switch lever so that a switch lever with comparatively short arms or a wedge-shaped lever, can be employed. Each rod is preferably provided at its lower end with a conical anti-friction roller, as shown, and for purposes well understood, and the pistons P are each provided with an inwardly opening valve V. The piston rods B, and B' are respectively connected by means of connecting rods C, and C', to the outer end of the arms of a lever D, pivoted at D', between the piston cylinders, said pivot carrying also a crank D², shown in dotted lines and located in rear of the supporting plate for the piston cylinders. The crank D² engages the upper forked end of a lever E, with which are pivotally connected two pistons, e² and e', that abut against springs E², E'. If, for instance, steam is admitted to piston cylinder, A' the piston and piston rod B' will be moved downward to bring the roller end of the rod in position for engagement with one arm or side of the switch lever, whereby said lever is moved to change the position of the switch. At the same time the piston rod B is moved upwardly, thereby compressing the air in cylinder A, which acts as a cushion for the piston in cylinder A', the spring E² being simultaneously compressed by the action of the lever D, and crank D² upon lever E, and said spring also acts as a cushion for the said piston in cylinder A'. As the piston cylinder A' cools, the steam supplied thereto condenses, thereby producing a partial vacuum, which causes the valve V in piston P of said cylinder to open, allowing the water of condensation to escape, and admitting air above the piston, both piston cylinders being open at their lower ends. The piston in cylinder A', being now relieved of pressure, the compressed spring E² will exert its power upon lever E, and the latter upon lever D, to move the same into a horizontal position, thereby moving the pistons in both cylinders A and A' to their normal position about midway of the length of their cylinders, in which position the lower end of the piston rods B and

B' will be at such an elevation as to clear the switch operating lever. The last named lever may also be operated by devices controlled by a hand operated mechanism, as shown in Fig. 2, in which rods F, F' having at their lower end a roller or a shoe c^2 , c^3 , respectively, and sliding in guides m , n and m' , n' respectively, are also connected by means of connecting rods C and C', with the arms of the lever D, whose crank D² is connected with a bell-crank lever h' , by means of a connecting rod h^3 , and to said bell crank lever is connected a lever h that is operated by a rod h^4 , extending to the engineer's cab. The operation of these devices will be readily understood, the actuating mechanism causing the rods F and F' to move simultaneously in opposite directions, and when the operating lever h is brought to a given normal position the lever D will be moved to a like normal horizontal position to hold both rods F and F' clear of the switch operating lever.

Having thus described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of coupled rods adapted to engage with and displace a switch lever, said rods movable reciprocally in converging planes, and means for imparting motion to said rods.

2. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of coupled reciprocally movable rods adapted to engage with and displace a switch lever, and means for imparting reciprocal motion to the rods and for automatically returning the same into their normal position when moved out of it.

3. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of two cylinders, their pistons and piston rods, said rods coupled to move reciprocally and adapted to engage with and displace a switch lever, and means for admitting fluid under pressure to the cylinders on one side of their pistons, for the purpose set forth.

4. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of two cylinders their pistons and piston rods having their longitudinal axes in converging planes, said rods coupled to move reciprocally, and means for admitting a fluid under pressure on one side of the pistons, for the purpose set forth.

5. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of two cylinders open at their lower end, their pistons provided with an exhaust passage and a valve therefor opening inwardly, the pis-

ton rods adapted to engage with and displace a switch lever, said piston rods coupled to move reciprocally, and means for admitting fluid under pressure to the cylinders on the valved side of their pistons, for the purpose set forth.

6. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of two cylinders, their pistons and piston rods, said rods coupled to move reciprocally and adapted to engage with and displace a switch lever, means for admitting a fluid under pressure to said cylinders, on one side of their pistons and exhausting said fluid, and means for automatically returning the pistons into their normal position whenever moved out of it by the pressure of such fluid, for the purpose set forth.

7. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of two cylinders, their pistons and piston rods, said piston rods coupled to move reciprocally, means for admitting fluid under pressure to one side of the pistons, and exhausting said fluid, and a spring for each piston antagonizing the movement thereof in one direction, for the purposes set forth.

8. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of two cylinders, their pistons and piston rods, a rock lever, and connecting rods coupling said piston rods to move reciprocally, means for admitting fluid under pressure to one side of the pistons and exhausting said fluid, and reciprocally movable spring actuated pistons connected with and moved by the rock lever, for the purposes set forth.

9. In mechanism for operating railway switches from a moving train, the combination with a vehicle of such train, of two cylinders open at their lower end, their pistons provided with an exhaust passage, a valve therefor, opening inwardly, the piston rods adapted to engage with and displace a switch lever, a rock lever, and connecting rods coupling the pistons to move reciprocally, means for admitting fluid under pressure to the cylinders on the valve side of the pistons, spring-actuated pistons, a rod common to both said pistons and a lever connected with said rod and with the rock lever to move the pistons against the stress of their springs, for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WLADIMIR FARANOWSKI.
FRANZ GUNIEWICZ.

Witnesses;
W. B. MURPHY,
JOSEF ZEHETWY.