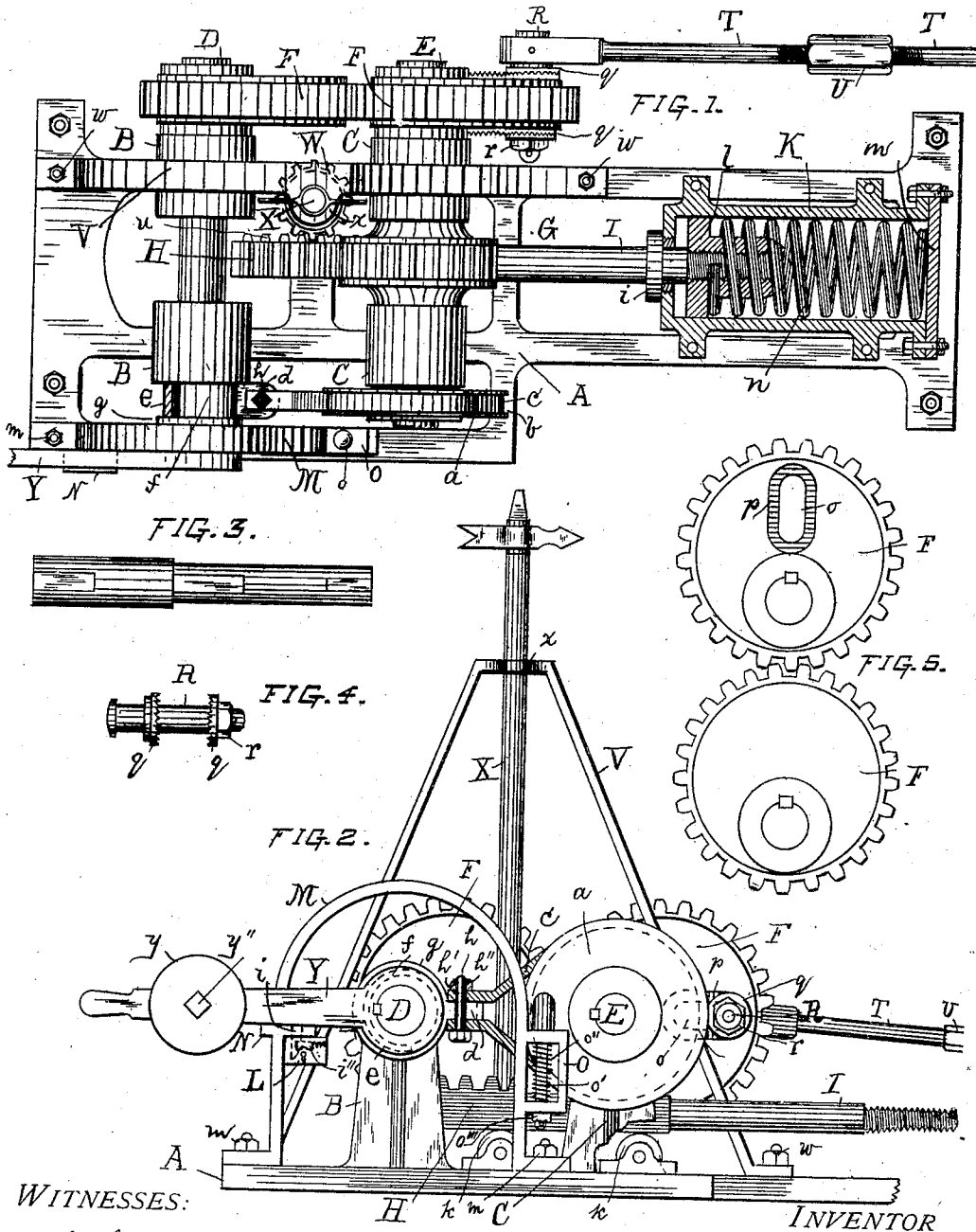


No. 835,989.

PATENTED NOV. 13, 1906.

L. E. L. THEMKE.
SWITCH OPERATING AND LOCKING MECHANISM.
APPLICATION FILED JUNE 21, 1906.



WITNESSES:

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SWITCH OPERATING AND LOCKING MECHANISM.

No. 835,989.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed June 21, 1906. Serial No. 322,741.

To all whom it may concern:

Be it known that I, LOUIS ERNEST LEOPOLD THEMKE, a subject of the German Emperor, residing at Strathcona, in the Province of Alberta, Canada, have invented new and useful Improvements in Switch Operating and Locking Mechanism, of which the following is a specification.

The object of my invention is to provide against railroad accidents and wrecks so frequently caused by carelessness of employees in failing to return switches to their normal positions after the side switching of cars or trains or from the criminal action of others in changing switches after they have been placed in position for through traffic.

My invention consists in providing railroad-switches with operating mechanism which when in normal position shall be securely locked, and thus insure a straight rail for through traffic, and which when it is necessary to side switch cars or trains must be first unlocked and then moved until the switch-tongue is brought into alignment with the adjacent rail of the branch road, where it is held by the operator until the side switching is effected. The attendant then releases the operating-lever, which automatically returns to its normally locked position, with the switch-tongue in line with the main track, and thus it provides for the safety of life and property on all through trains by preventing wrecks from open switches.

My invention will be readily understood by referring to the accompanying drawings, whereon—

Figure 1 is a plan or top view of the switching mechanism, and Fig. 2 a side elevation thereof, certain parts being omitted in each figure to prevent confusion and make more clear the parts, as hereinafter described. Fig. 3 represents one of a pair of shafts, and Fig. 4 a wrist-pin, of the apparatus. Fig. 5 shows a pair of gear-wheels adapted to be secured on the aforesaid shafts.

On the drawings the letter A designates the foundation or bed-plate, the widest part of which is provided with two pairs of upwardly-projecting bearing-blocks B B C C, in which are journaled the shafts D E. To the rear ends of these shafts are keyed or otherwise secured the eccentric gear-wheels F F, the teeth of one meshing into those of

the other, as shown, so that the motion of one shaft may be transmitted to the other through same.

Secured to the shaft E between its bearings C C is a cog-wheel G, which is adapted to engage a rack H, forming the upper surface of the rear end of a spring-actuated rod I, which is adapted to operate in the bushing of a cylinder K, that is bolted to the upper surface of the narrow end of the bed-plate A. The rack end of the rod I operates on rollers k k. That end of the rod I which projects within the aforesaid cylinder K is screw-threaded to receive a follower l, between which and the head m of the cylinder is fitted a coil-spring n, which serves to normally hold the rod I in its outermost position.

As stated, the shafts D E are geared together by eccentric cog-wheels F F, one of which is provided with an elongated slot o, around the surface of which and preferably at right angles thereto are a series of parallel teeth or grooves p, into which like surfaces of the washers q q of a crank-pin R are adapted to fit, the said crank-pin being secured by a screw-nut r at such point in the slot o as the throw of the switch may require, connection being made between the switch-rail and the crank-pin by a rod which is made in two parts T T, the adjacent ends of which are screw-threaded, one being cut to the right and the other to the left to be respectively engaged by a sleeve U, whereby the rod is lengthened or shortened, as required. The outer end of the rod I is also provided with a side rack u, the teeth of which engage those of a pinion W, which is keyed or otherwise secured on the lower portion of the signal-post X, which has a step or bearing in the bed-plate A, the said signal-post being held in vertical position by a bearing x in the top of a stand V, the feet of which are firmly bolted to the bed-plate, as shown at w w in Figs. 1 and 2.

On the near end of the shaft E is secured a brake-wheel a, around the periphery of which is a groove b for the reception of a brake-band c, the ends of which are bent parallel to lap the top and bottom surfaces of a tongue or projection d of a strap or ring e, that encircles an eccentric portion f of the boss g of an operating-lever Y, which is keyed or otherwise secured on the near end of the shaft D, as shown in Figs. 1 and 2. The aforesaid

bent ends of the brake-band *c* are each provided with a bolt-hole and the tongue or projection of the eccentric strap or ring *e* with a vertical elongated slot for the reception of a bolt *h*, whereby the said parts are connected. The threaded end of the bolt *h* is provided with a shoulder *h'*, against which the nut *h''* rests when tightened, so as to prevent binding of the parts, and thus it provides for a sliding movement of the same, whereby the brake-band is thrown into or out of service, as occasion may require.

The letter *Y* designates the operating-lever, which is keyed or otherwise secured on the near end of the shaft *D*. This lever is provided with a weight *y*, having a set-screw *y''* for securing same at such distance from the shaft as may be required to counterbalance the action of the spring *n*, and thus it serves to lighten the labor of the switch attendant in shifting the operating-lever from one extreme position to the other and insures the automatic return of the lever to its original position as soon as the attendant releases his hold thereon. The operating-lever is further provided with a catch *i'*, which is engaged by the spring-actuated bolt *i''* of a lock *L* connected with the switch stand or brace *M*, which straddles the nearest bearing *B* and is bolted to the bed-plate *A*, as shown at *m m* in Figs. 1 and 2. The aforesaid switch stand or brace is provided at its locked side with a projection or rest *N* to limit the downward movement of the operating-lever and at its opposite side with a bolt-receiver *O*, in which is vertically fitted a bolt *o'*, the said bolt being normally held in its uppermost position by an encircling spring *o''*, arranged between the lower part of the receiver and the head of the bolt *o'*, a nut *o'''* being fitted to the lower end of the bolt to prevent displacement of same by the action of the spring.

When necessary to side switch cars, the lever *Y* is moved in the direction of the arrow 1 until it rests on the head of the bolt *o'*. The attendant then depresses the end of the lever *Y* as far as the bolt-spring *o''* will permit, and thus through the intermediate parts the switch-rail is brought into alinement with the side track. The side switching of the cars having been effected, the attendant releases his hold on the lever, when the spring-supported bolt *o'* automatically starts the lever on its return to its normally locked position, the return movement of the lever being facilitated and completed through the action of the spring-actuated rod *I* and the parts connected therewith, as heretofore mentioned.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In railroad switching apparatus, the

combination of a pair of shafts with eccentric gear-wheels connecting the rear ends thereof, the front end of one shaft having an operating-lever provided with an eccentric boss portion, and a strap adapted to fit said portion, the front end of the second shaft provided with a brake-wheel, and a brake-band with means for connecting same with the eccentric band, as and for the purpose set forth.

2. The combination in a railroad switching apparatus, of a pair of shafts and eccentric gear-wheels connecting the rear ends thereof, the opposite ends of the shafts provided, respectively, with a grooved brake-wheel and an operating-lever, the boss of the lever having an eccentric periphery and a strap adapted to operate thereon, the strap provided with a tongue having an elongated slot therein, with a brake-band whereby the eccentric-strap and brake-wheel are slidingly connected as set forth.

3. In a railroad switching apparatus the combination of a pair of shafts provided at one end with eccentric cog-wheels meshing one another, a cog-wheel on one of the shafts and a spring-actuated rod having a rack adapted to engage the aforesaid cog-wheel, one of the eccentric cog-wheels provided with an elongated slot; a crank-pin connected therewith and an adjustable rod connection between the crank-pin and the switch-rail, as set forth.

4. A railroad switching apparatus, provided with a spring-actuated rod having a top and side rack connected with the inner end thereof, a pair of shafts having eccentric cog-wheels at one end of same, one of the shafts provided with a cog-wheel engaged by the aforesaid top rack, a vertical signal-rod having a pinion engaged by the side rack, an operating-lever provided with an eccentric hub and a strap fitted thereon, a brake wheel and band with means for throwing on, or off the brake, as desired.

5. In a railroad switching apparatus, the combination of a pair of shafts connected at one end by eccentric gear and provided at the opposite ends, respectively, with a brake-wheel and an operating-lever, the latter having an eccentric boss-bearing and strap, with a brake-band connection; a switch-stand provided at one side with a lever rest and lock and at the opposite side with a bolt-frame and a vertically-supported spring-actuated bolt, as and for the purpose described.

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

LOUIS ERNEST LEOPOLD THEMKE.

Witnesses:

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