L. E. KELLER.

SWITCH THROW.

APPLICATION FILED MAR. 17, 1910.

981,282.

Patented Jan. 10, 1911.

2 SHEETS—SHEET 1.

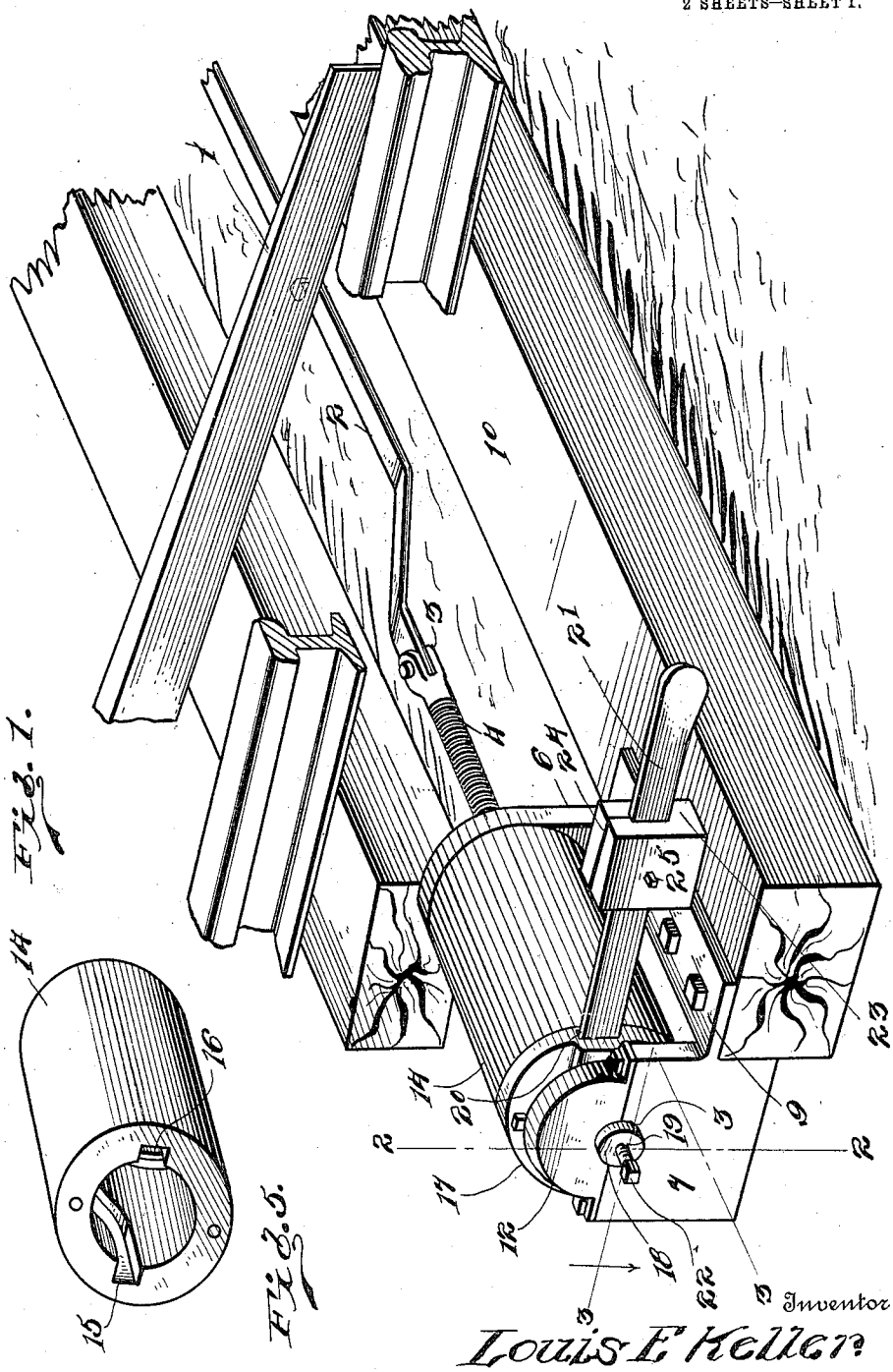

Fig. 1.

Fig. 5.

Witnesses

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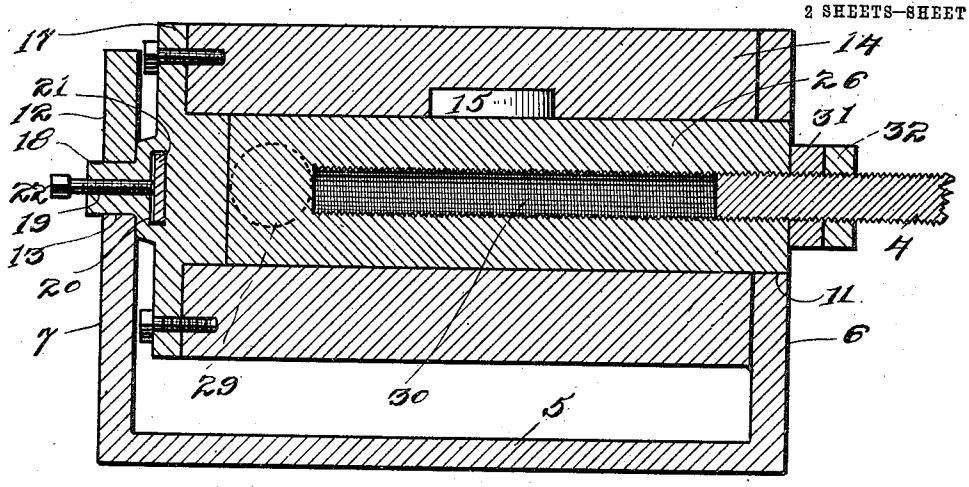

Fig. 2.

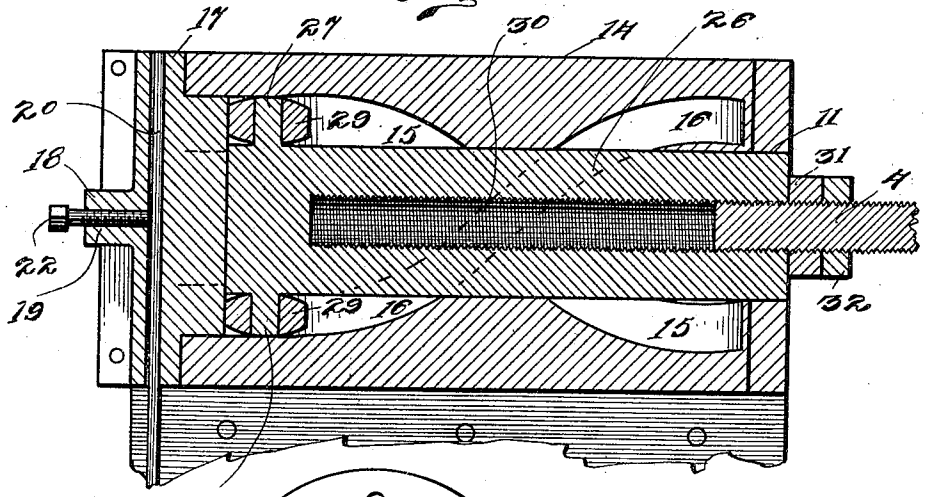

Fig. 3

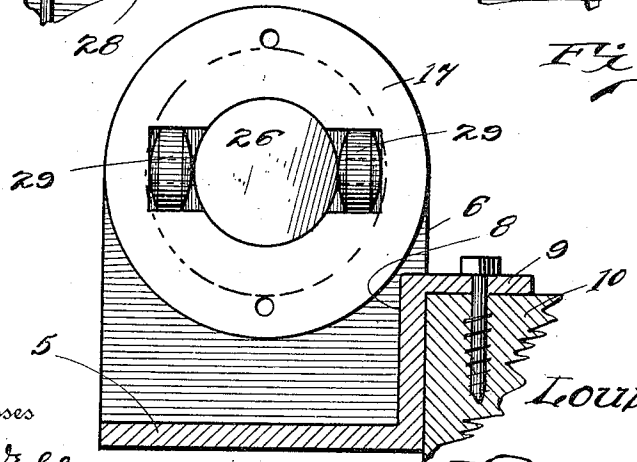

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

LOUIS E. KELLER, OF OIL CITY, PENNSYLVANIA.

SWITCH-THROW.

981,282. Specification of Letters Patent. Patented Jan. 10, 1911.

Application filed March 17, 1910. Serial No. 550,002.

To all whom it may concern:

Be it known that I, LOUIS E. KELLER, a citizen of the United States of America, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Switch-Throws, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to switch operating devices, and the principal object of the same is to provide means whereby the switch point may be thrown with the expenditure of the minimum manual labor and in which the mechanism that operates the switch rod is inclosed so that it will be thoroughly protected.

In carrying out the objects of the invention generally stated above it will be understood, of course, that the essential features thereof are necessarily susceptible of a wide range so far as details and structural arrangements are concerned, but a preferred and practical embodiment thereof is shown in the accompanying drawings, wherein:—

Figure 1 is a fragmentary detail perspective view of a switch of a railway system, showing the improved point thrower operatively connected thereto. Fig. 2 is a vertical longitudinal sectional view taken on the line 2—2, Fig. 1. Fig. 3 is a horizontal sectional view taken on the line 3—3, Fig. 1. Fig. 4 is an end view of the cylinder of the thrower, the head and the support for one end of the cylinder being removed. Fig. 5 is a detail perspective view of the cylinder.

Referring to said drawings by numerals, 1 designates a switch point from which the bar 2 projects, said bar having one end pivotally mounted in the bifurcated end 3 of a switch operating rod 4 that is externally threaded.

The improved switch point thrower comprises a support preferably of metal having a flat bottom 5 and upright ends 6—7. One longitudinal side of said support is partly closed by a plate 8 which has a lateral flange 9 projecting outward from its upper portion that is adapted to be placed over the upper surface of a tie 10 and bolted or otherwise rigidly fastened to said tie so that said support will be firmly held longitudinally of and between two ties. End 6 of the support is higher than end 7 and is provided with a bearing opening 11. End 7 has a recess formed centrally in its top, said top having bolted or otherwise rigidly but detachably fastened thereto a cap bearing 12 whose lower edge is recessed complemental to the recess at the top of end 7 to provide a bearing 13.

A cylinder 14 is longitudinally arranged between the uprights 6—7, said cylinder being provided with oppositely located spiral cam grooves 15—16 that extend the entire longitudinal length of the inner surface thereof. At one end, cylinder 14 has a head 17 bolted thereto, said head being provided with a central outwardly projecting hub 18 that is mounted in and projects beyond bearing 13. Said hub is provided with a threaded centrally located longitudinally arranged opening 19 whose inner end communicates with the longitudinal center of a handle-receiving opening 20 that extends diametrically through head 17. A hand lever or handle 21 has one end portion fitted within opening 20 and is locked therein by the bolt 22 that extends through hub opening 19. The outer end portion of lever 21 is provided with a weight 23, said weight being preferably formed of a single piece of metal that is longitudinally slitted as indicated at 24 so that the same may be adjustably clamped to said lever by the bolt 25. As is shown more clearly in Fig. 2 head opening 20 extends entirely across the head so that the hand lever may be fitted within either end of said opening, thereby adapting the same for use from right or left.

A barrel 26 is fitted within cylinder 14 with one end projecting through the bearing opening 11 of upright 6, the other end of said barrel abutting the inner surface of cylinder head 17. Spindles 27—28 project laterally from opposite portions of the outer surface of barrel 26 and enter the cam grooves 15—16. Each spindle has an antifriction roller 29 mounted thereon. Internally, barrel 26 is longitudinally threaded as indicated at 30 for the reception of one end portion of switch operating rod 4. Lock nuts 31—32 are carried by rod 4, one of which binds upon the end of barrel 26 and the other locks the binding nut, so that said rod 4 and barrel 26 are clamped together to prevent relative rotation.

In operation, cylinder 14 is rotated by the hand lever and through the described roller and groove connection between cylinder 14 and barrel 26, said barrel is moved longitu-

dinally of said cylinder, which causes rod 4 to throw the switch point.

As will be understood from the foregoing, the support may be firmly fastened between two ties, and that the parts of the invention are normally shielded so that no foreign matter can gain access thereto, yet said parts may be readily disassembled when necessary or desirable. It will also be seen that the threaded connection between rod 4 and barrel 26, permits said rod 4 to be adjusted to regulate the tension of the switch point.

What I claim as my invention is:—

1. A switch point thrower comprising a support, a cylinder, a head for one end of said cylinder, said head being rotatably connected to one end of said support, means engaging said head for rotating said cylinder, a barrel in said cylinder, a connection between said cylinder and barrel whereby a rotation of the former imparts a longitudinal movement to the latter, and switch operating means connected to said barrel.

2. A switch point thrower comprising a support, a cylinder carried thereby, a head for said cylinder provided with an opening that extends diametrically therethrough, a hand lever adapted to be fitted within either end of said opening for rotating said cylinder, and switch operating means actuated by the rotation of said cylinder.

3. A switch operating mechanism comprising a cylinder, means for rotating the same, an internally threaded barrel within said cylinder and adapted to be moved longitudinally by the rotation of said cylinder, a threaded switch rod adjustably engaging said barrel, and means for locking said rod to said barrel to prevent relative rotation thereof.

4. A switch point thrower comprising a cylinder, a head for said cylinder having a hub, said cylinder provided with a diametrical opening, a hand lever adapted to be fitted within said opening, means adapted to be passed through said hub to fasten said hand lever in said opening, and switch operating means actuated by said cylinder.

5. A switch point thrower comprising a support, a cylinder having one end rotatably mounted in one end of said support, means for rotating said cylinder, a barrel in said cylinder and adapted to be moved longitudinally by the rotation of said cylinder, said barrel having one end mounted in the other end of said support, and switch operating means actuated by the movements of said barrel.

6. A device of the character described comprising a support formed of a base provided with upright ends, a cylinder journaled in one of said upright ends, a switch operating barrel carried by said cylinder and journaled in the other upright end, and means for rotating said cylinder.

7. A device of the character described comprising a support provided with upright ends, a cylinder provided with a head, said head journaled in one of said ends, means for rotating said cylinder, and a switch operating barrel carried by said cylinder and journaled in the other end of said support.

8. A device of the character described comprising a support provided with upright ends, one of said ends provided with a bearing recess, a bearing cap detachably fitted over said recess, a cylinder having a head retained in engagement with said recess by said cap, means for rotating said cylinder, and a switch operating barrel carried by said cylinder and having one end slidably supported by one of said ends of the support.

9. A device of the character described comprising a cylinder, a head therefor, switch operating means carried by said cylinder, and cylinder rotating means detachably carried by said head.

10. A device of the character described comprising a cylinder, switch operating means carried thereby, a head for said cylinder, said head provided with a diametrical opening, and a lever adapted for engagement with either end of said opening.

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

LOUIS E. KELLER.

Witnesses:
FRED A. STECK,
FLORENCE LEE.