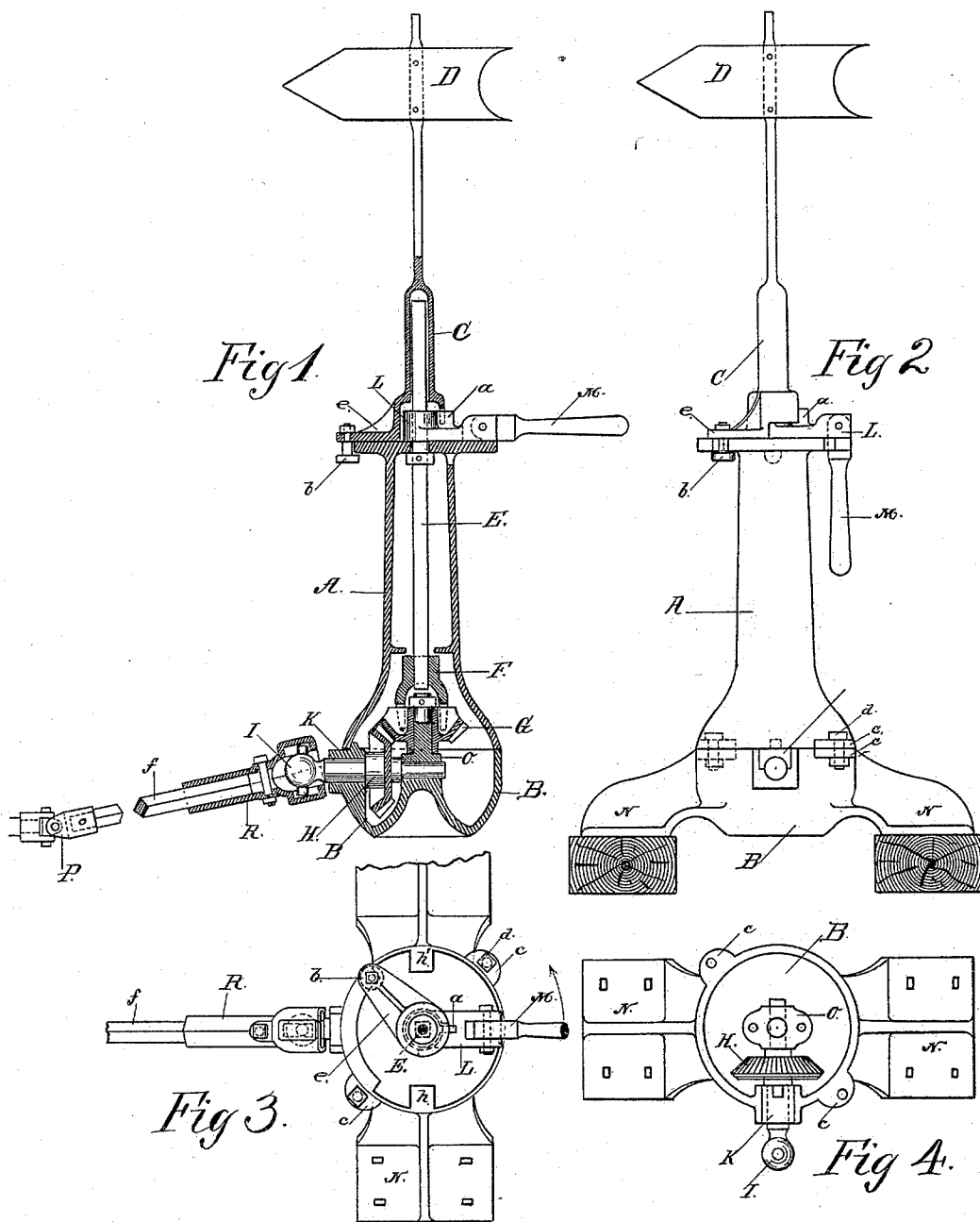


J. CHRISTIANSEN. SWITCH STAND.

No. 488,182.

Patented Dec. 20, 1892.



WITNESSES:
Geo. L. Hill
Hattie L. Durrell.

INVENTOR
John Christensen

(No Model.)

2 Sheets—Sheet 2.

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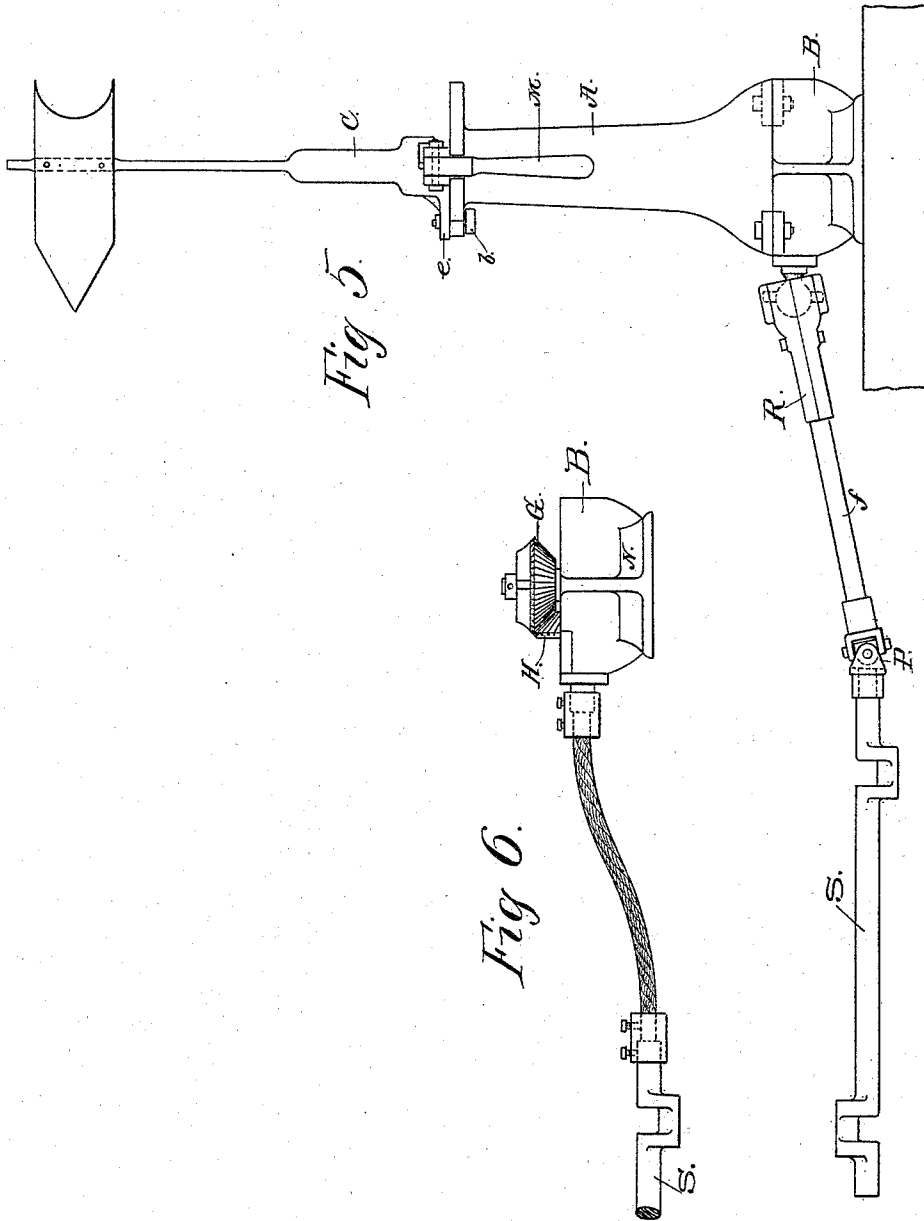


Fig. 5.

Fig. 6.

WITNESSES:

Geo. L. Hill
Kattie L. Powell

INVENTOR

John Christensen

UNITED STATES PATENT OFFICE.

JOHN CHRISTIANSEN, OF QUINCY, MASSACHUSETTS.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 488,182, dated December 20, 1892.

Application filed March 9, 1892. Serial No. 424,325. (No model.)

To all whom it may concern:

Be it known that I, JOHN CHRISTIANSEN, a citizen of the United States, residing at Quincy, in the county of Norfolk and State of Massachusetts, have invented a new and useful Switch-Stand, of which the following is a specification.

My invention relates to improvements in switch-stands for that class of switches in which the switch rails are operated by a vertical movement, and I refer here to Patent No. 465,791 issued to me December 22d. 1891; and the objects of my improvement are first, to provide a switch-stand which shall effect the rotating movement of a switch-rod or crank-shaft, in an effective manner, and with a similar movement of the operating handle as now in use on switch-stands operating a horizontally sliding rod; second to provide in such a stand for a flexible connection between the stand and the rotating crank-shaft, for it is undesirable and impracticable to make and maintain in true alignment an inflexible connection. Third, to protect the mechanism of such a stand by inclosing it in a tight casing preventing thus injury from external causes, and clogging of it by snow and ice, and yet making it easily accessible for inspection and repairs. Fourth; to provide in a single and effective way for a target-rod, with target or signal attached thereto, in a linear extension of the upright shaft of the switch-stand, yet not rigidly connected with said shaft and which shall allow of a rotation of the target rod, at a lesser number of degrees than the upright shaft, to which the switch operating handle is attached, may make. I attain these objects by the mechanism illustrated in the accompanying drawings in which

Figure 1. is a vertical section of the entire switch-stand. Fig. 2 is a front view of the same. Fig. 3 a top or plan view. Fig. 4 a plan view of the base. Fig. 5 a side view of the switch-stand, showing flexible connection with the crankshaft operating the switch-rails, and Fig. 6 shows the base of the switch stand with another form of flexible connection to the crankshaft.

Similar letters refer to similar parts throughout the several views.

A is the column of the stand, B the base with brackets or feet N to fasten to the rail-

road-ties, *c. c.* lugs by which the column is secured to the base.

H and G are bevelgears, both fixed and journaled in the base B. (See Figs. 4 and 6.)

F is a carrier or dog engaging by means of slots with the ribs of bevelgear G. and fastened to the end of the square shaft E to which shaft is also secured the casting L, having pivoted to it lever M, which in Figs. 1 and 3 is shown in a horizontal position, but in Figs. 2 and 5 in a pending position, engaging into slots *h. h'* of the top flange of column A thus locking the switch respectively, either for main track or for siding.

I. R and P. are universal joints at each end of the intermediate switch rod *f.* by means of which it becomes possible to operate the crank shaft S. Fig. 5 at an angle downward and sidewise if desired, hence no particular care in setting the switch-stand with relation to the crankshaft need be exercised.

In place of the universal joints as shown in Figs. 1. 3 and 5 I use also the less expensive device shown in Fig. 6, which consists of a wire rope of sufficient size to transmit the torsion to the crankshaft, and I obtain thus the indispensable flexible connection.

C is the target rod with target D attached, the hollow rod C slips loosely over the shaft E. the latter forming merely a guide to keep it in a vertical position. At the base of said rod C. a bellshaped enlargement fits loosely over the hub of the casting L, and attached to this bellshaped enlargement is the arm. *e.* with bolt. *b.* at its extremity, which bolt has a large head extending under the bottom of the flange at the top of column E., thus preventing the rod C with its target from being lifted off the stand. The segment cut out of the flange at the top of column E, and in which the bolt *b.* travels, permits the arm *e.* to rotate through an arc of ninety degrees. The casting L contains a rib *a.* which engages in a slot in the bellshaped part of rod C. This slot is large enough to permit of a movement of the casting L and lever M connected therewith of ninety degrees without causing a movement of target-rod C. and it is only during the movement of the last ninety degrees of lever M. in direction of arrow shown in Fig. 3, that rib *a.* brings up against one side of the slot in bell, and moves the target rod with its lever

e. until the bolt *b.* brings up against the end of segment, and lever *M.* drops into slot *h'* and thus locks both switch and target. The movement of lever *M.* need not necessarily be
 5 one hundred and eighty degrees as here shown, it may be more or less, the slot in bell varying accordingly.

What I claim as my invention and desire to secure by Letters Patent is.

10 1. In a switch stand for operating vertically moving switch rails, in combination with the crank shaft of the switch, the flexible rotating connecting bar between the switch-stand and the crank shaft, enabling the rotating of
 15 the crank shaft properly by the switch-stand, even if placed out of alignment with said crank-shaft, substantially as described.

20 2. A switch stand for operating vertically moving switch rails, in combination with an intermediate operating bar (*f*), consisting of a piece of ordinary merchant bar iron, provided at each end with a universal joint, substantially as described.

25 3. In a switch stand for operating vertically moving switch-rails, the combination of a vertical shaft geared to a horizontal shaft at

the bottom of the stand, with a universal joint at the outer end of said horizontal shaft substantially for the purpose specified.

4. In a switch stand for operating vertically
 30 moving switch rails, the combination of a hollow base *B.* having a vertical and a horizontal bevel gear, journaled in same in such a manner, that the cap of the inside journal of the shaft for the vertical gear, forms the pivot
 35 for the horizontal gear, with a detachable column *A.*, the dividing line being even with the top of outside journal box (*K*), thus holding same in place when connected, all substantially as described. 40

5. In a switch stand for operating vertically moving switch rails, the combination of the target rod *C* terminating at its lower end in a bell shaped enlargement and having arm *e* and bolt *b.*, with the operating shaft *E.* containing dog *L* having rib *a* engaging into a slot in the bell shaped enlargement substantially as and for the purpose specified. 45

JOHN CHRISTIANSEN.

Witnesses:

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