

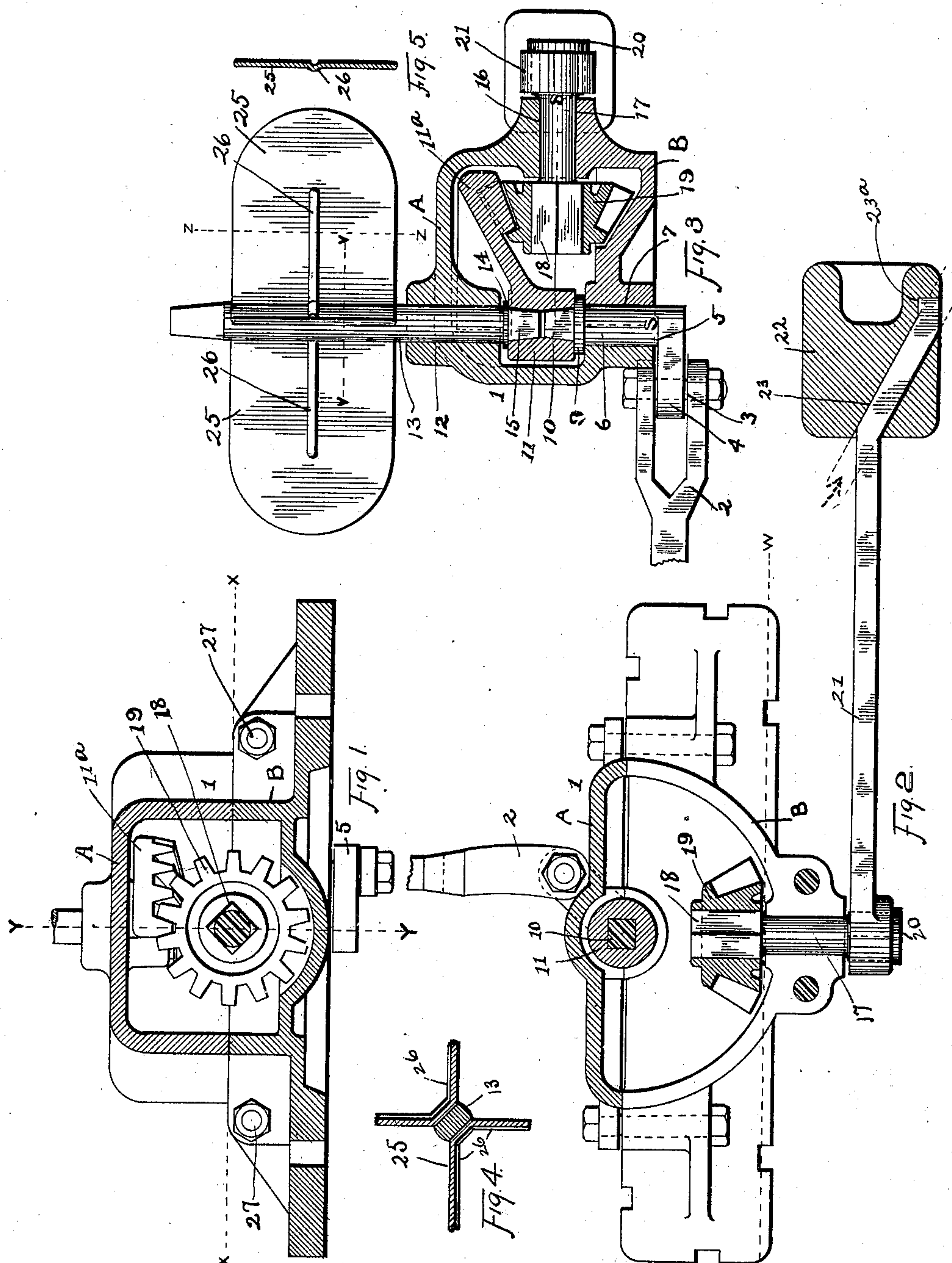
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Patented Aug. 16, 1898.

E. GRAFSTROM.
RAILWAY SWITCH STAND.

(Application filed June 9, 1898.)

(No Model.)



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RAILWAY-SWITCH STAND.

SPECIFICATION forming part of Letters Patent No. 609,099, dated August 16, 1898.

Application filed June 9, 1898. Serial No. 682,981. (No model.)

To all whom it may concern:

Be it known that I, EDWARD GRAFSTROM, a citizen of Sweden, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Railway-Switch Stands, of which the following is a specification.

My invention relates to the improvement of railway-switch stands; and the objects of my invention are to produce an improved switch-stand of such construction and arrangement of parts as to provide a positive operating device of comparatively simple and inexpensive construction, to so construct and join the parts of my improved switch-stand as to admit of the same being readily produced in an operative form with comparatively slight labor, and to produce other improvements in details of construction, which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of my improved switch-stand, taken on line W W of Fig. 2. Fig. 2 is a sectional view on line X X of Fig. 1. Fig. 3 is a sectional view on line Y Y of Fig. 1. Fig. 4 is a transverse section of a portion of the target, taken on line V V of Fig. 3; and Fig. 5 is a transverse section of one of the blades of the target, taken on line Z Z of Fig. 3.

Similar numerals and letters refer to similar parts throughout the several views.

In carrying out my invention I employ a metallic casing or body 1, within which are adapted to be mounted in the manner hereinafter described the switch and target operating parts of my device.

2 represents the usual switch-rail-throwing lever, which is jointedly connected, as indicated at 3, with the outer arm 4 of a crank 5. The remaining arm or shaft 6 of said crank 5 extends and has a journal-bearing within a bearing-socket or boxing 7, which is formed vertically in the lower portion of the casing or body 1 and the inner end of which communicates with the internal chamber 8 of said casing. On its inner end portion the crank arm or shaft 6 has formed a shoulder 9, which abuts against that portion of the casing-body which is immediately about the

inner end of the opening or boxing 7. Above the shoulder portion 9 said crank arm or shaft is provided with a short and preferably tapering upward extension 10, which is square in cross-section.

11 represents a socket-piece or sleeve which is provided with a central vertical opening therethrough, said opening preferably being formed, as shown, tapering from both ends toward its center and the double tapered opening thus formed being square or angular in cross-section. As indicated more clearly in Fig. 3 of the drawings, the lower portion of the opening in the socket-piece or sleeve 11 is adapted to receive the correspondingly-shaped extension or head 10 of the crank 5. Formed with the socket-piece 11 is the outwardly-extending and upwardly-inclined bevel-gear segment 11^a. Formed through the upper portion of the casing or body 1, in vertical alinement with the socket or boxing 7, is a similar socket or boxing 12, the latter forming a journal-bearing for the lower portion of a target-spindle 13. Within the internal chamber 8 of the casing said target-spindle is provided with a peripheral shoulder 14, below which is formed a head or extension 15, corresponding in form with the head or extension 10 of the crank. The extension 15 of the spindle 13 fits, as shown, within the correspondingly-shaped upper portion of the central opening of the socket-piece 11.

16 represents a horizontal boxing or opening which is formed through one side of the casing 1 in the manner hereinafter described and within which is journaled a horizontal shaft 17, the inner end of said shaft within the chamber 8 having formed therewith an angular or squared portion 18, upon which is mounted a bevel pinion-wheel 19, the teeth of which are adapted to gear with the teeth of the segment 11^a. The outwardly-extending portion of the shaft 17 is squared and provided with an enlarged termination or head 20, said squared portion having mounted thereon one end of a weight-lever 21, this weight-lever having secured upon its outer end portion a weight-block 22.

In order to provide a simple and inexpensive and yet reliable connection of the weight-lever 21 and its weight-lock 22, I form the latter with an inclined or diagonal opening

therethrough, as indicated at 23, said inclined opening having its outer end portion provided with a short extension, as indicated at 23^a, in the direction of the length of the lever-bar

5 21. In securing said lever-bar within the weight said bar, being produced in a straight form, has its outer end portion inserted into said opening 23 in the direction indicated by the arrow and dotted lines in Fig. 2. This
10 being accomplished, that portion of the bar 21 which is between the weight and the shaft 16 is by suitable means bent downward to the horizontal position indicated in Fig. 2, while the outer extremity of said bar 21 is ham-
15 mered or otherwise forced upward into the extension 23^a of the opening or passage 23. In this manner it is evident that desirable engagement of the bar and weight is effected by an exceedingly simple process and without
20 the aid of additional means of attachment. Upon the upper portion of the target-spindle 13 are secured the usual target-blades 25. In the construction of these blades it has been customary to employ braces between the same
25 and other similar means for imparting thereto the desired rigidity; but this I effectually accomplish and obviate the necessity of braces and similar devices by producing in said blades suitable corrugations 26.

30 In order to provide a simple, inexpensive, and comparatively easy means of inclosing or embracing the various operating parts hereinbefore described and for the purpose of inserting or placing said parts in their proper
35 positions within the casing, I form said casing-body in two distinct sections, these sections being indicated generally at A and B, these sections being suitably united through the medium of bolts 27 or by other suitable
40 or well-known means. In order to attain the objects of such formation, however, I have so formed said casing-sections as to admit of the same being united on the angular line S S. (Indicated in Fig. 3 of the drawings.) In
45 thus separately forming said casing-sections it will be seen that the horizontal joining-lines thereof are central with the boxing 16 and that the vertical joining-lines are central with the boxing 7, thus resulting in the boxings
50 or bearings for the shafts 17 and 6 being formed by the joining of the casing-sections A and B. Through this means of forming the switch-stand casing I am enabled to clamp the two sections of the casing together
55 with the shafts 17 and 6 and the pinion-wheel in their proper positions, and I am also enabled to produce an integral formation of the crank-shaft and its outer arm.

Owing to the fact that the weight-lever
60 shaft is formed with an outer head 20 it is obvious that the lever is securely held in place on said shaft and cannot be removed there-

from without a separation of the casing-sections. It will thus be seen that a permanent connection of the lever and horizontal shaft is attained without the aid of other devices.

The construction of the operating parts of my improved switch-stand, together with the formation of the casing-sections A and B and the joining of the same on the angular line 70 described, admits, as will readily be seen, of much of the work thereon being ordinary blacksmith-work and admits of parts being formed integral which ordinarily are produced of united sections, thus greatly sim- 75 plifying and expediting the work of manufacturing the switch-stands.

In the operation of my improved stand and its parts it is evident that the throwing over of the weight-carrying lever must through 80 the consequent rotation of the shaft 17 and its pinion 19 impart through the bevel-gear segment and socket-piece 11 a rotary motion of both the target-spindle and crank-shaft. In this manner a simultaneous movement of 85 the switch-operating lever 2 and the target 25 is attained.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is— 90

1. In a railway-switch stand the combination with the casing, a switch-rail-operating crank and target-spindle journaled in said casing and having squared inner end portions, of a socket-piece within said casing en- 95 gaging said squared ends and means for rotating said socket-piece, substantially as and for the purpose specified.

2. In a railway-switch stand, a casing therefor having vertical and horizontal shaft-box- 100 ings for the reception of the weight-lever shaft and switch-lever-operating crank-shaft, said casing consisting of two separately-formed sections detachably connected on an angular line extending through said vertical 105 and horizontal boxings, substantially as and for the purpose specified.

3. In a railway-switch stand, the combination with the casing formed of two sections, and vertical crank-shaft and target-spindles 110 journaled in said casing, of a horizontal shaft 17 journaled in said casing on the joint-line of said sections, a head 20 on the outer end of said horizontal shaft and a weight-carry- 115 ing lever mounted on said shaft between said head and casing and means for imparting rotary motion to said crank-shaft and target-spindle from said horizontal shaft, substantially as and for the purpose specified.

EDWARD GRAFSTROM.

In presence of—

C. C. SHEPHERD,
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