

C. A. ALDEN.  
TONGUE SWITCH.

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969,506.

Patented Sept. 6, 1910.

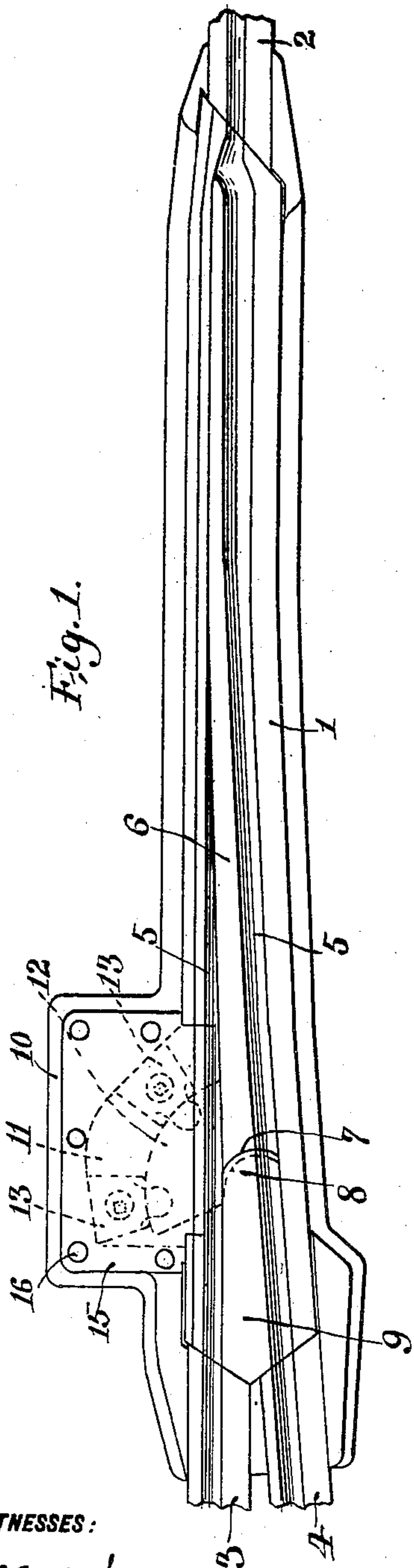


Fig. 1.

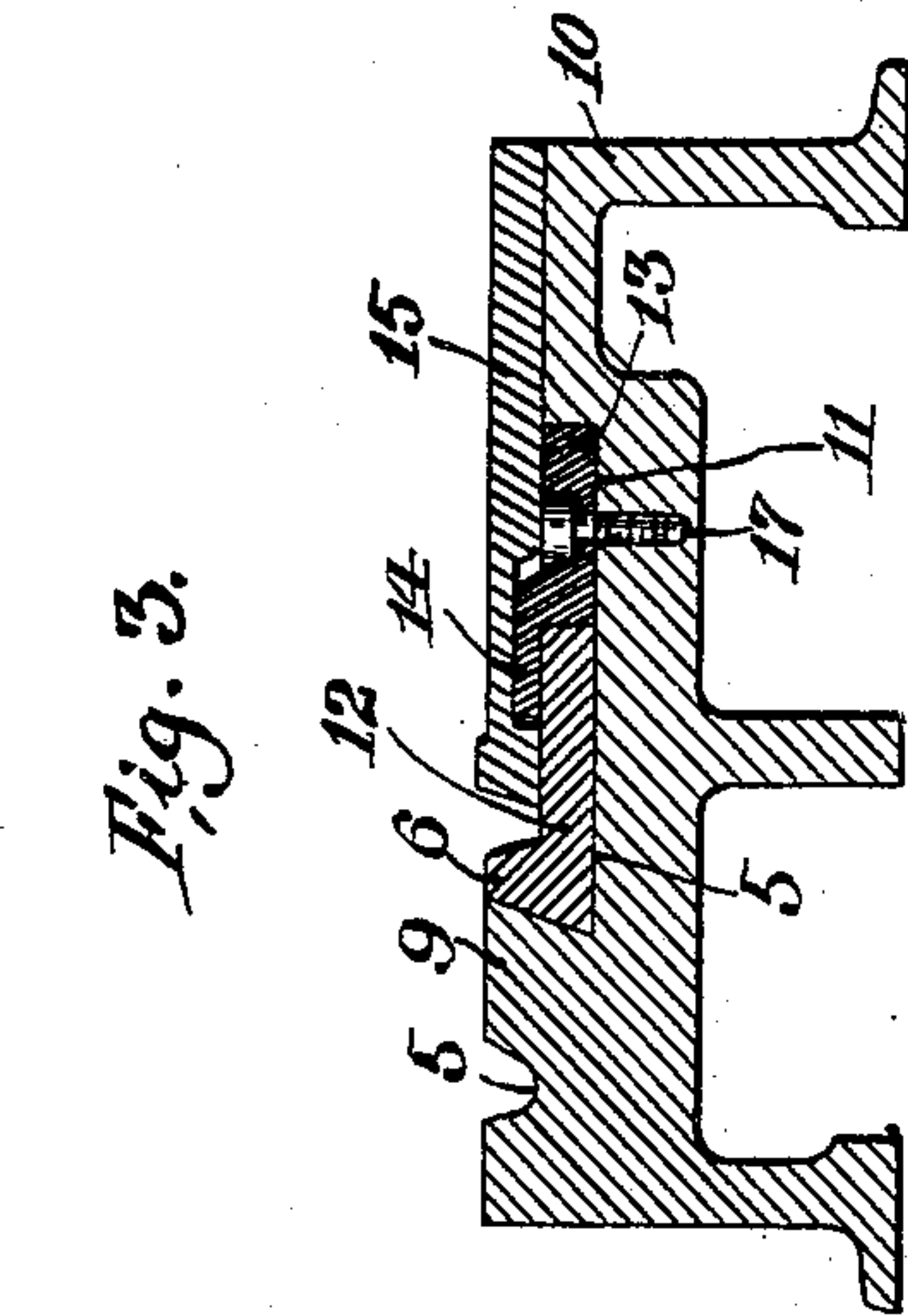


Fig. 3.

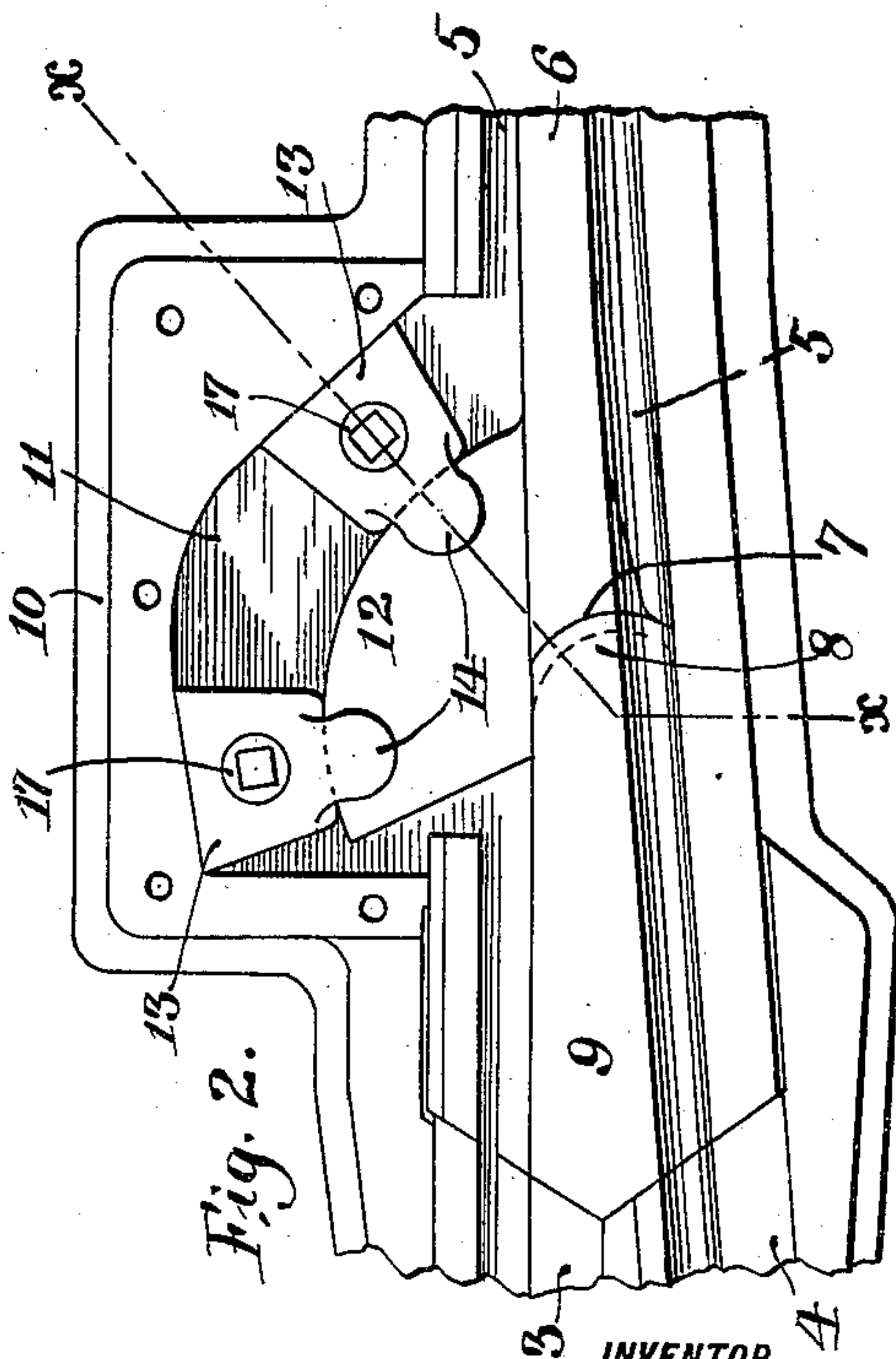


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## TONGUE-SWITCH.

969,506.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed March 18, 1908. Serial No. 421,957.

*To all whom it may concern:*

Be it known that I, CHARLES A. ALDEN, a citizen of the United States, and resident of Steelton, Dauphin county, State of Pennsylvania, have invented certain new and useful Improvements in Tongue-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of my invention is to provide, in a tongue switch for railways, a simple and efficient construction and organization of parts having provision whereby the switch tongue may be effectually held in working position and whereby the kicking or accidental throwing of the switch tongue may be obviated.

To this end the invention consists in the novel construction and combinations of parts which will be hereinafter fully described and claimed.

In the drawings:—Figure 1 is a plan view of a tongue switch embodying my invention, and adjuncts. Fig. 2 is a plan view enlarged of the heel end of the switch tongue, and certain adjuncts. Fig. 3 is a vertical section, as on the line  $x-x$  of Fig. 2, including the cover plate.

1 designates the base of the switch section of a railway, said section being joined, at one of its ends, to a rail 2, and at the other of its ends to the two diverging rails, 3 and 4, in the usual well known manner. Formed in the base 1 is the groove 5 connecting the rails 3 and 4 with the rail 2, and in which is arranged the switch tongue 6, which is adapted to be moved from side to side on a pivotal connection of its heel end with the base in the usual manner, to direct the car wheels to the rails 2 and 3 or to the rails 2 and 4.

The heel end of the switch tongue 6 is provided with a concave socket 7, which is fitted to a convex portion 8 on a member or tread portion 9 rising from the base of the groove 5, and forming, in effect, a continuation of the heel end of the switch tongue leading to the rails 3 and 4.

The base 1 is provided with a lateral extension 10, in which is formed a cavity 11, extending from the groove 5, the bottom of the cavity 11 forming a continuation of the bottom of the cavity 5. The lower portion of the heel end of the switch tongue 6 is provided with a sector 12, which extends lat-

erally into the cavity 11, the bottom of the sector 12 being flush with the bottom of the switch tongue, and said tongue and sector resting upon the bottom of the groove 5. The sector 12 being a part of the tongue 6 and resting upon the bottom of the groove 5 of the base 1 rearwardly of the heel end of the tongue 6 affords an ample support for the heel end of the tongue.

The concave socket 7 in the heel end of the switch tongue 6 is held in engagement with the convex portion 8 by bearing blocks 13, arranged within the cavity 11 and removably secured therein by suitable screws 17. The blocks engage the outer curved face of the sector 12, and the sector 12 and therewith the tongue 6 is held down upon the base of the groove 5 and also the base of the cavity 11 by portions 14 of the blocks 13 which extend over and into engagement with the top of the sector 12. The sector 12 and switch tongue 6 are further held down upon the bottom of the groove 5 by the engaging faces of the socket 7 and part 8 being inclined or beveled, as shown.

The cavity 11 and the parts therein contained are covered by a suitable plate 15, which is secured to the top of the lateral extension 10 of the base by screws or bolts 16.

The convex portion 8 of the part 9, the concave socket 7 and the sector 12, are all struck from a common center, as shown. Thus it will be seen that with their co-acting parts they form a pivotal connection of the heel end of the switch tongue 6 with the base 1, upon which the switch tongue 6 may be moved in the usual manner.

By removing the screws 16 and 17, the cover plate 15 and bearing blocks 13 may be readily removed from the structure, thus permitting the ready removal of the switch tongue 6 for repairs and other purposes.

By the construction herein described, it will be seen that the switch tongue 6 is effectually held in working position and that all liability of the kicking or accidental throwing of the switch tongue 6 as a car wheel passes to or from the heel end of the tongue, is obviated, for the reason that there is no part of the switch tongue that the car wheels act upon which projects from the heel end of the switch tongue 6 to or beyond the pivot point of the pivotal connection of said tongue with said base.

Having thus described my invention, I



claim as new and desire to secure by Letters Patent:—

1. In a tongue switch, the combination of the base, a switch tongue, a tread portion adjacent the heel end of the switch tongue and having a pivotal engagement therewith including a concave socket on one part and a convex portion on the other part arranged within the concave socket, a sector projecting from the heel end of the switch tongue, and means acting upon said sector and holding said concave socket and convex portion in engagement with each other, substantially as described.

2. In a tongue switch, the combination of the base, a switch tongue the heel end of which is provided with a concave socket, a tread portion having a convex portion arranged within said socket, a sector projecting from the heel end of the switch tongue, and means acting upon said sector and holding said concave socket in engagement with said convex portion, substantially as described.

3. In a tongue switch, the combination of the base, a switch tongue, a tread portion adjacent the heel end of the switch tongue and having a pivotal engagement therewith including a concave socket on one part and a convex portion on the other part arranged within the concave socket, a sector projecting from the heel end of the switch tongue, and a bearing block secured to said base and engaging two faces of said sector to hold it in position and hold said concave socket and convex portion in engagement with each other, substantially as described.

4. In a tongue switch, the combination of the base having the switch tongue groove therein and a lateral cavity extending from said groove, a switch tongue within said groove, a tread portion adjacent the heel end of the switch tongue and having pivotal engagement therewith including a concave socket on one part and a convex portion on the other part arranged within the concave socket, a sector projecting laterally from the heel end of the switch tongue and into said cavity, and means within said cavity acting upon said sector and holding said concave socket and convex portion in engagement with each other, substantially as described.

5. In a tongue switch, the combination of the base having the switch tongue groove therein and a lateral cavity extending from said groove, a switch tongue within said groove, a tread portion adjacent the heel end of the switch tongue and having pivotal engagement therewith including a concave socket on one part and a convex portion on the other part arranged within the concave socket, a sector projecting laterally from the

heel end of the switch tongue and into said cavity, means within said cavity acting upon said sector and holding said concave socket and convex portion in engagement with each other, and a removable plate covering said cavity, substantially as described.

6. In a tongue switch, the combination of the base having the switch tongue groove therein and a cavity extending laterally from said groove, the floor of said groove and the floor of said cavity being on the same horizontal plane, a switch tongue within said groove, a tread portion adjacent the heel end of the switch tongue and having a pivotal engagement therewith including a concave socket on one part and a convex portion on the other part arranged within the concave socket, the heel end of the switch tongue being provided with a lateral extension extending into said cavity and resting on the floor thereof and having a convex face, and a bearing member within said cavity and engaging said convex face and holding said concave socket and convex portion in engagement with each other, substantially as described.

7. In a tongue switch, the combination of the base, the switch tongue the heel end of which is provided with a concave socket struck from a center on a line the extension of one edge of the switch tongue, and a bearing member arranged within said socket and means for retaining said socket in engagement with said bearing member, substantially as described.

8. In a tongue switch, the combination of the base, a switch tongue the heel end of which is provided with a concave socket struck from a center on one side of and away from a line the extension of the longitudinal axis of the heel end of said tongue, the heel end of said tongue being provided with a convex part extending laterally therefrom on the other side of said line, a bearing member arranged within said socket, and means acting against said convex part and retaining said socket in engagement with said bearing member, substantially as described.

9. In a switch tongue, the combination of the base, a switch tongue, a tread portion adjacent the heel end of the switch tongue and having a pivotal engagement therewith, and a part formed on and projecting from the switch tongue and having a bearing upon said base laterally of said tread portion and rearwardly of the heel end of the switch tongue, substantially as described.

10. In a switch tongue, the combination of the base, a switch tongue, a tread portion adjacent the heel end of the switch tongue and having a pivotal engagement therewith, a part formed on and projecting from the switch tongue and having a bearing upon



said base laterally of said tread portion and rearwardly of the heel end of the switch tongue, and means for holding said part down upon said base, substantially as described.

11. In a switch tongue, the combination of the base, a switch tongue, a tread portion adjacent the heel end of the switch tongue and having a pivotal engagement therewith including a concave socket on one part and a convex portion on the other part arranged within said socket, a sector formed on and projecting from the switch tongue and having a bearing upon said base laterally of said tread portion and rearwardly of the heel end of the switch tongue, and means acting upon said sector and holding said concave socket and convex portion in engagement with each other, substantially as described.

12. In a switch tongue, the combination of

the base, a switch tongue, a tread portion adjacent the heel end of the switch tongue and having a pivotal engagement therewith including a concave socket on one part and a convex portion on the other part arranged within said socket, a sector formed on and projecting from the switch tongue and having a bearing upon said base laterally of said tread portion and rearwardly of the heel end of the switch tongue, and means acting upon said sector and holding it down upon said base and holding said concave socket and convex portion in engagement with each other, substantially as described.

In testimony whereof, I have hereunto affixed my signature.

CHARLES A. ALDEN.

Witnesses:

B. L. WEAVER,  
WM. R. MILLER.