

No. 816,646.

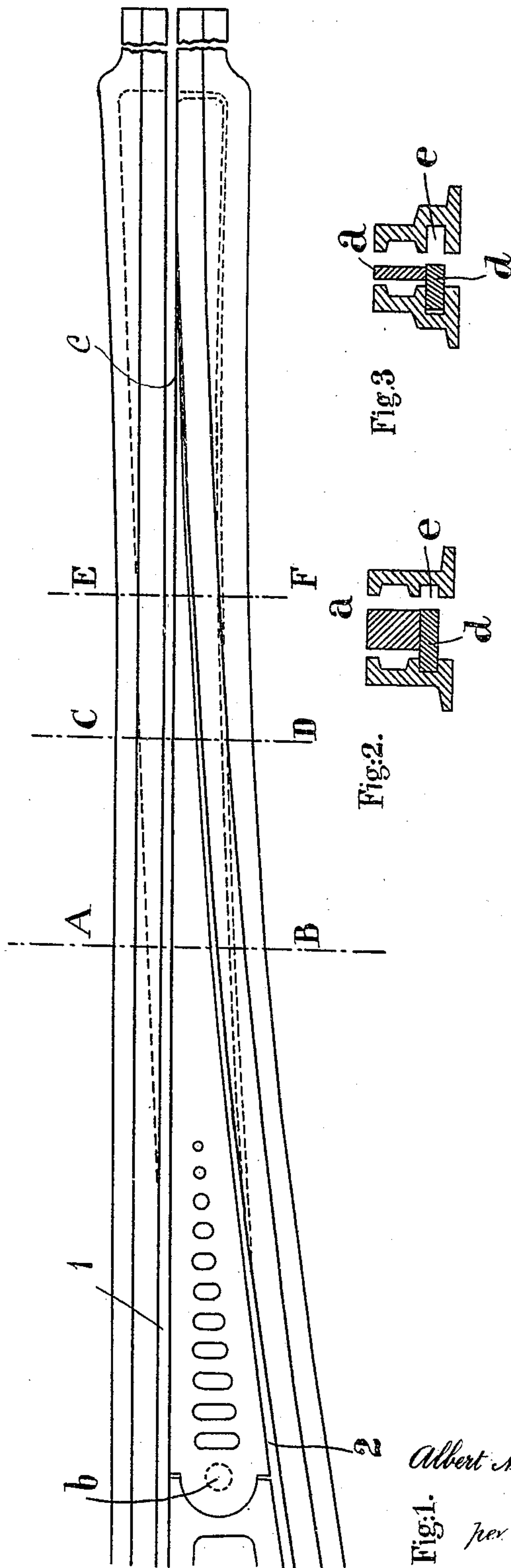
A. N. CONNETT.

PATENTED APR. 3, 1906.

POINT OR SWITCH FOR ELECTRIC TRAMWAYS WORKING UPON THE SLOT
CONDUIT SYSTEM.

APPLICATION FILED AUG. 24, 1905.

2 SHEETS—SHEET 1.



Witnesses
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Albert J. Jones

Inventor.
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Fig. 1.
per H. Sefton Jones
Attorney.

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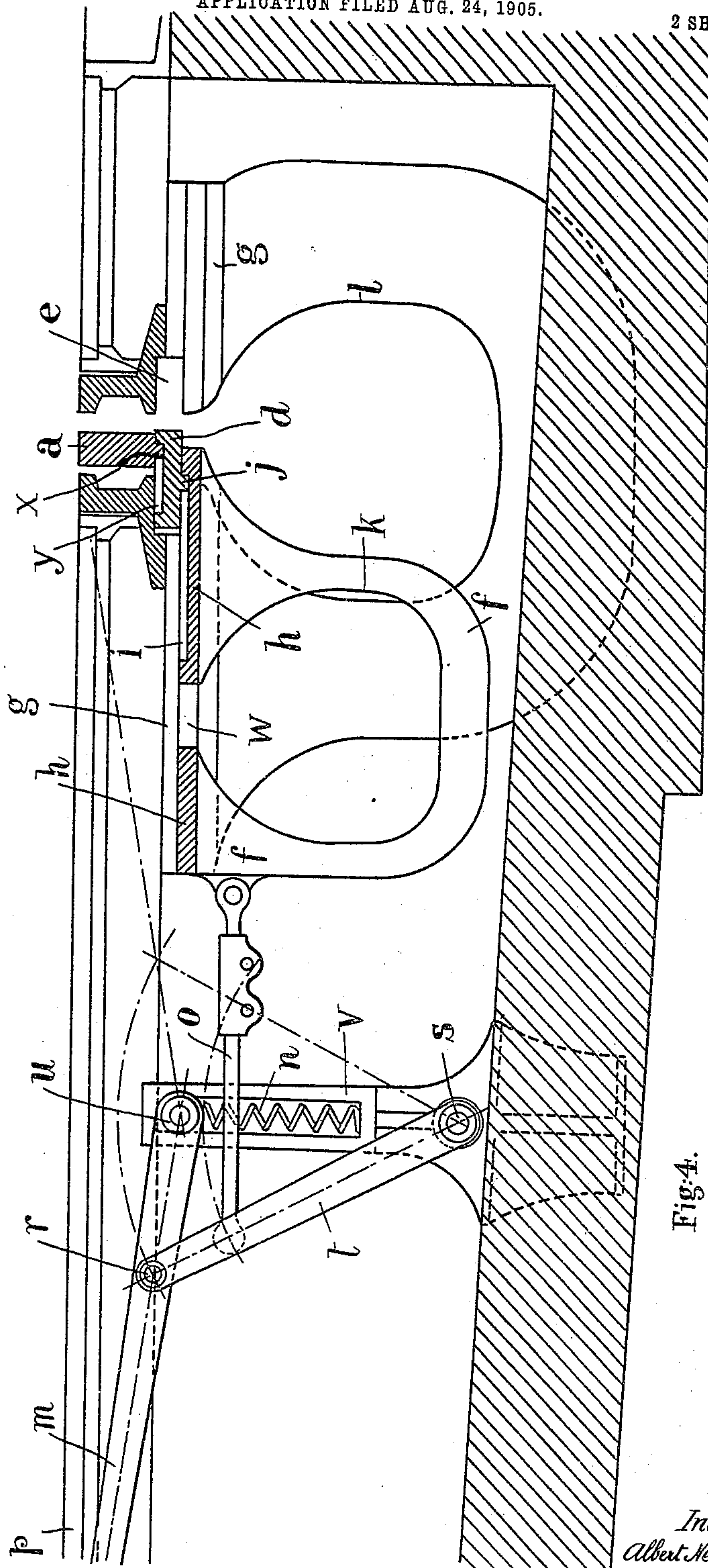


Fig. 4.

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UNITED STATES PATENT OFFICE.

ALBERT NEUMANN CONNETT, OF LONDON, ENGLAND, ASSIGNOR TO J. G. WHITE AND COMPANY, INCORPORATED, OF NEW YORK, N. Y.

POINT OR SWITCH FOR ELECTRIC TRAMWAYS WORKING UPON THE SLOT-CONDUIT SYSTEM.

No. 816,646.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed August 24, 1905. Serial No. 275,635.

To all whom it may concern:

Be it known that I, ALBERT NEUMANN CONNETT, electrical engineer, a citizen of the United States of America, residing at 22^a College Hill, Cannon street, London, England, have invented new and useful Improvements Relating to Points or Switches for Electric Tramways Working upon the Slot-Conduit System, of which the following is a specification.

This invention relates to switches or points for use in electric railways or tramways, and primarily for use in tramways having an underground conduit arranged beneath the slot of one of the rails upon which the car-wheels travel.

It is the object of this invention to provide an improved point of this character which will be positively operated and will be stronger than the points at present used.

The principal conditions to be complied with and which causes difficulties in constructing a point for a side slot-conduit system are, first, that the point-tongue must be flush with the top of the rail along its entire upper surface, because it has to carry the car-wheels of vehicles moving in one direction and to serve as a guard to prevent the wheels of vehicles passing the point in the other direction from leaving the lines; secondly, that the width of the slot throughout the length of the point-tongue should not exceed the normal width. These two conditions make it necessary that the tongue shall come to a knife-edge at its extremity and that it must be overhung for its entire length from the pivot to the end of the tongue without any support other than that which may be specially provided for it. It is evident, therefore, that means must be provided for supporting the tongue, especially at its extremity, and the support must be movable or it would block the passage for the plow carrying the current-collecting skate when the tongue was shifted to one side. Means must therefore be provided for moving the tongue and also the support for the tongue, the two to be moved automatically at or about the same time, so that the conduit-slot shall always be left clear for the passage of the plow. The mechanism must also include means for locking the tongue in its two positions in order to avoid the possibility of

the point becoming disturbed and causing accidents in consequence.

In the accompanying drawings, Figure 1 is a plan view of a point-casting constructed in accordance with this invention. Fig. 2 is a section of the tongue and rail on the line A B of Fig. 1. Fig. 3 is a section of the tongue and rail on the line E F of Fig. 1. Fig. 4 is a section on the line C D of Fig. 1, showing a mechanism for operating the point.

The tongue *a* is pivoted at *b* and is narrowed down to a knife-edge at the end *c*. The tongue is given as great a depth as is possible under the circumstances in order that it may have the requisite stiffness. Immediately beneath the tongue *a* a flat tongue *d* is pivoted, its pivot-point being also at *b*. A shelf is provided at *e* beneath the slot-rail, and this shelf forms a support and guide for the lower tongue, which in turn supports the upper tongue. A lug *x*, projecting downward from the upper tongue *a*, as seen in Fig. 4, engages in a slot *y*, formed at a suitable point across the surface of the lower tongue *d*. The slot *y* is of such a length that when the tongue *d* is moved across from one side of its slot *e* to the other it will at the same time move over the upper tongue to one or other of its switching positions, leaving the rail-track and slot clear for the passage of a car with its plow over and through the point in one direction.

A movable yoke *f* is provided, having slides *h*, working in guides *g* in the example shown. The method of supporting and guiding the yoke *f* is, however, not important, as any suitable method might be employed. The right-hand part of the yoke *f* has a slot *i* in its upper surface, in which engages a lug *j*, projecting downward from the tongue *d*. This slot is of such length that when the yoke *f* is moved across from the position shown in Fig. 4 until its face *k* coincides with the conduit-face *l* it will just move over the tongue *d* from one side of its slot *e* to the other. Hence by the sliding of the yoke *f* in one direction or other both the tongues *d* and *a* are moved in the required manner. In the position shown in Fig. 4 the slot is open past tongues *a* and *d* and the end of the yoke *f* into the conduit, permitting the car-wheels and contact-making plow to travel by the slot 1 in Fig. 1. Tongue *d* may project slightly beyond the tongue *a*, as shown, because the shank carry-

ing the plow is narrower than the width required for the working of the wheel-flanges. When the yoke *f* is moved across to its other extreme position, its opening *w* lies beneath the slot, while the tongues *d* and *a* are moved over to the other side of the casting, leaving the necessary free passage for the car-wheels and the contact-making plow to travel by the slot 2, Fig. 1.

In the device shown for operating the point *v* is a standard mounted in a box below the ground-level and forming a guide for the end *u* of lever *m*. A spring *n* tends to press up the end *u* of lever *m*. An arm *t*, pivoted at *s*, is connected to the lever *m* at *r* and also by a link *o* to the yoke *f*. The lever *m* works in a slot *p* in the roadway beside the point. The dot and dash lines in Fig. 4 illustrate the path of movement of the arm *t* and the position which said arm occupies when fully reversed by turning over the lever *m* toward the rail-track. It will be seen that in both positions the link *o* is nearly parallel to the lever *m*, and any causes tending to move the point-tongue and its supporting and operating devices cannot, therefore, possibly move over the point. It is to be understood that any equivalent means may be used for operating the point, the mechanism shown being given only by way of example. Further, it is to be understood that this point might be used on slot-conduit tramways in which the slot is between the rails; but in such case the car-wheels would not run upon the upper point-tongue.

What I claim is—

1. In a point for slot-conduit tramways the combination with the point-casting, of an upper tongue pivoted in said casting, a lower tongue broader than the first tongue at its free end, and also pivoted in the casting beneath the first tongue, means for supporting the lower tongue at both sides of the point, means connecting the lower tongue to the upper tongue such that when the lower tongue is moved across the slot in either direction the upper tongue is moved across the slot through a lesser distance, and means for moving the lower tongue positively in both directions.

2. In a point for slot-conduit tramways the combination with the point-casting of an upper tongue pivoted in said casting, a lower tongue broader at its free end than the upper tongue and also pivoted in the casting beneath said tongue, means for supporting the lower tongue at both sides of the point, a slot in the lower tongue, a pin on the upper tongue engaging in said slot and means for moving the lower tongue across the point from one side to the other, whereby the upper tongue is also moved through a less distance than the lower tongue, while the slot is left open for the passage of the plow.

3. In a point for slot-conduit tramways the combination with the point-casting, the

upper and lower tongues, and the pin-and-slot connecting means between said tongues, of a yoke-piece, means for moving said yoke-piece across the conduit and back again and means for connecting the yoke-piece to the lower tongue such that at each complete movement of the yoke-piece across the conduit the lower tongue shall be moved from one side to the other of the slot and the upper tongue moved across the slot whereby said slot will in both positions be left open for the passage of the plow in the required direction.

4. In a point for slot-conduit tramways the combination with the point-casting, the upper and lower tongues and the pin-and-slot connecting means between said tongues, of a yoke-piece, means for moving said yoke-piece across the conduit and back again, and a pin-and-slot connection between the lower tongue and yoke-piece such that at each complete movement of the yoke-piece the lower tongue is moved across the point by the pin-and-slot connection above mentioned, whereby the slot is left open for the passage of the plow in either position of the point.

5. In a point for slot-conduit tramways the combination with the point-casting, of upper and lower tongues, a pin-and-slot connection between said tongues adapted to allow the lower tongue to move farther than the upper tongue, means for supporting said lower tongue at each side of the point, a yoke-piece and pin-and-slot connecting means between said yoke-piece and the lower tongue and an operating mechanism comprising levers, links and a spring arranged in such manner that when the yoke-piece is in either of its extreme positions no force exerted on the upper tongue except by means of the operating-bar can displace the tongues, yoke and operating mechanism.

6. In a point for slot-conduit tramways the combination with the point-casting, of the upper tongue *a*, the lower tongue *b*, the pin-and-slot connection *x y* between said tongues, and the means for supporting and for operating the lower tongue, substantially as described.

7. In a point for slot-conduit tramways the combination with the point-casting of the upper tongue *a*, the lower tongue *b*, the pin-and-slot connecting means between said tongue, the yoke *f*, the pin-and-slot connecting means between said yoke and the lower tongue and the operating mechanism for said yoke adapted to hold the yoke and the point-tongue locked in their extreme positions, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT NEUMANN CONNETT.

Witnesses:

WILLIAM CORWIN BURTON,
JOHN BEAVER WHITE.