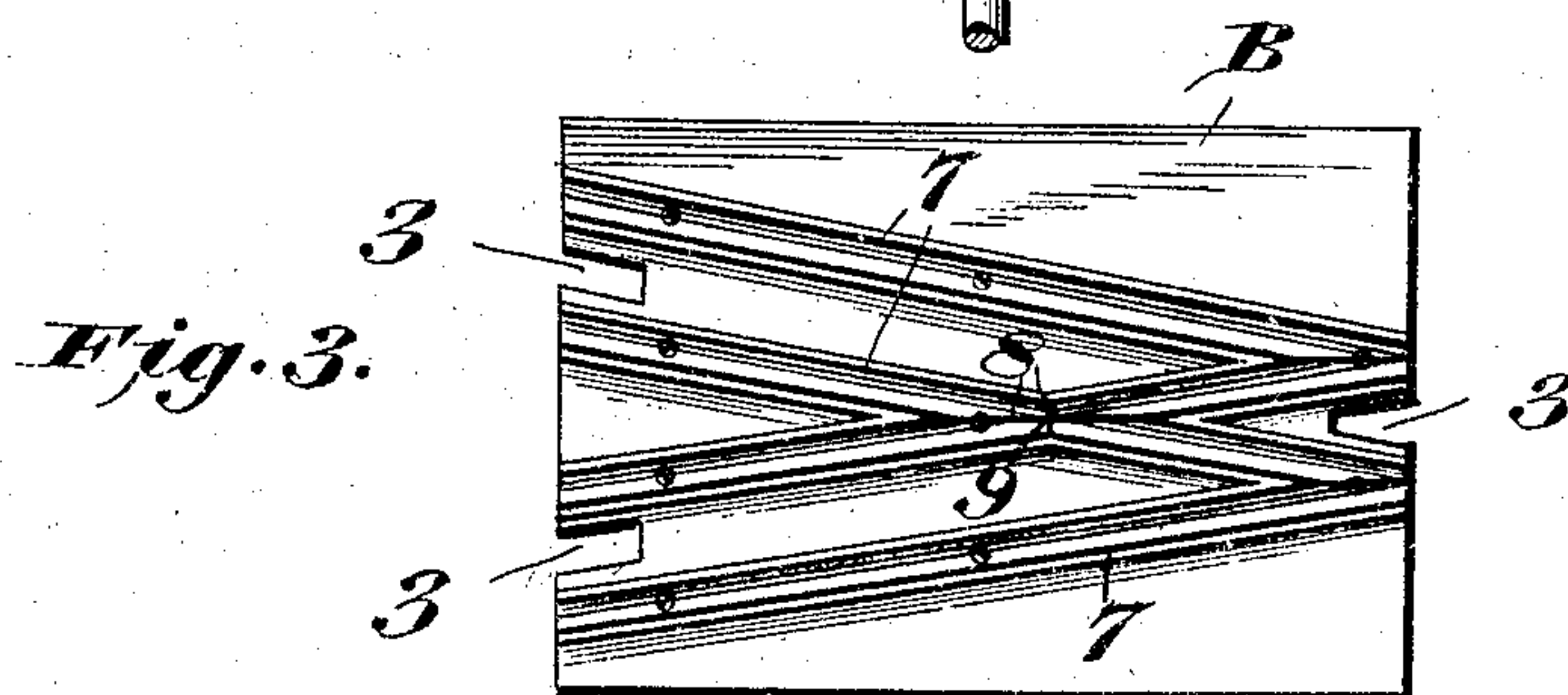
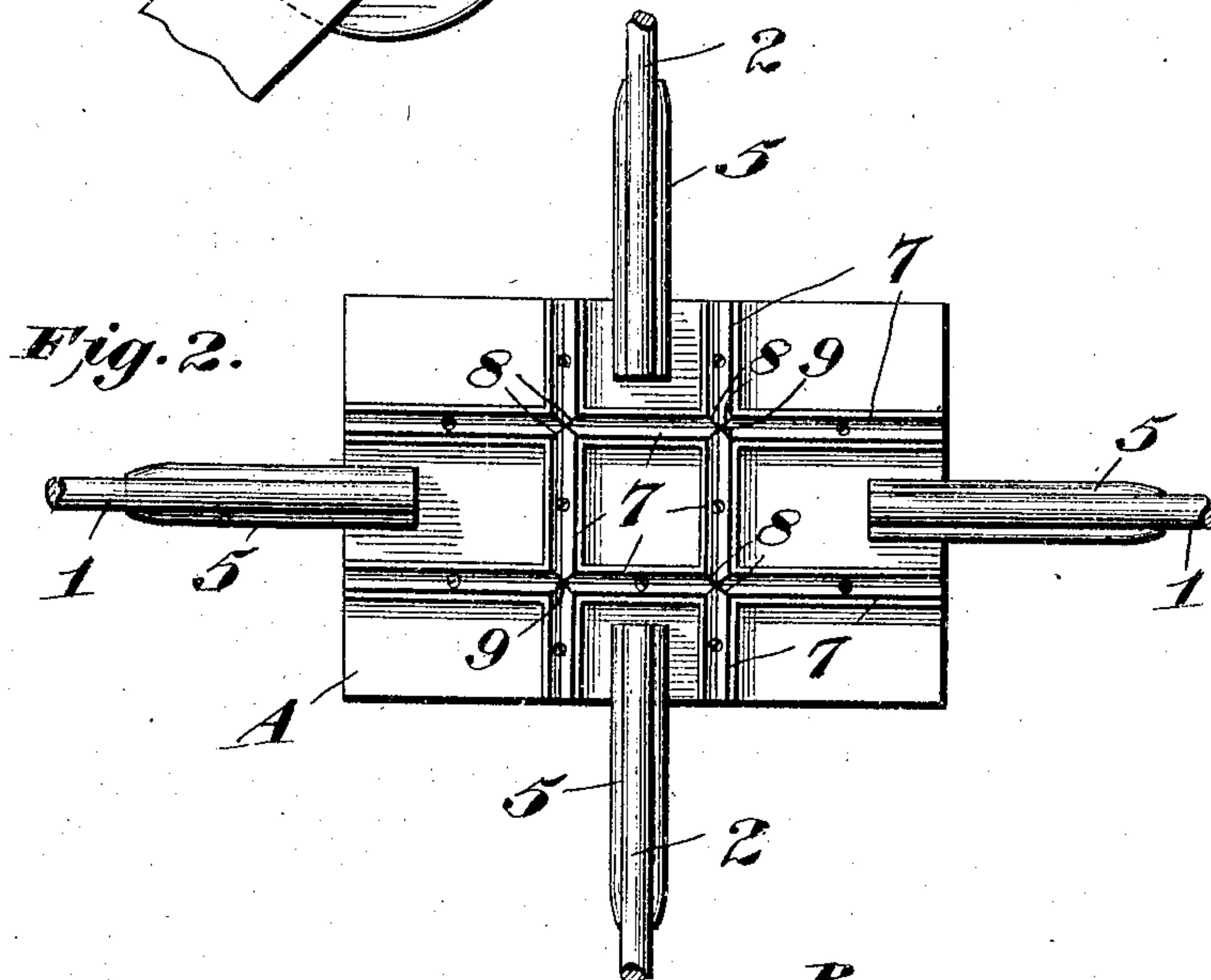
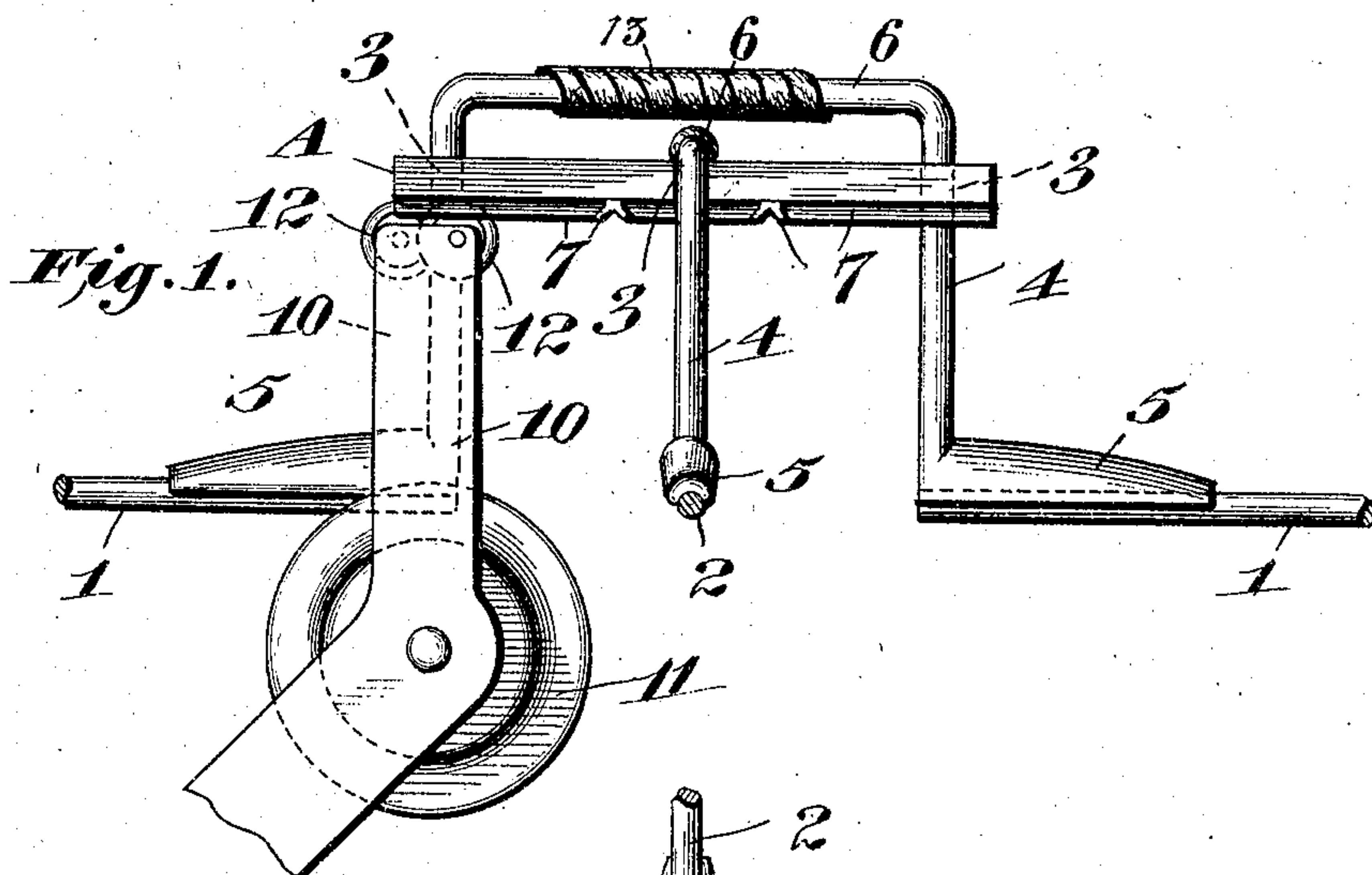


No. 791,178.

PATENTED MAY 30, 1905.

J. T. BUNN.
TROLLEY WIRE SWITCH.
APPLICATION FILED AUG. 3, 1904.



WITNESSES:

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JOSEPH TURNER BUNN, OF WASHINGTON, DISTRICT OF COLUMBIA.

TROLLEY-WIRE SWITCH.

SPECIFICATION forming part of Letters Patent No. 791,178, dated May 30, 1905.

Application filed August 3, 1904. Serial No. 219,275.

To all whom it may concern:

Be it known that I, JOSEPH TURNER BUNN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Trolley-Wire Switches, of which the following is a specification.

My invention relates to improvements in trolley-switches and wire-supports, the object being to provide means of this nature which will overcome the defects hitherto incident to like mechanisms. To those skilled in the art it is well known that although a number of devices have been produced for effecting results similar to those accomplished by my device each one is defective in some particular, or if not defective is so cumbersome and expensive as to be virtually impracticable. For some years I have given these problems careful study, and after due thought I believe that I have devised means whereby a trolley can be caused to automatically take and keep the proper wire at a switching or crossing point and one which is simple in construction, inexpensive to manufacture, durable, and highly efficient in operation.

To these ends my invention consists in certain novel features of construction and combinations of parts, such as will be more fully described hereinafter, and particularly set forth in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of the plate used for crossings, showing the engagement of a trolley-wheel and its guides therewith. Fig. 2 is a bottom plan view thereof, and Fig. 3 is a bottom plan view of a plate employed at the juncture of main and side tracks.

In the drawings, referring more particularly to Figs. 1, 2, and 3, A indicates the crossing-plate, composed, preferably, of vulcanized fiber or other insulating material and disposed at the intersection of two cross-wires 1 and 2, respectively. The crossing-plate is preferably notched at points in alinement with the crossing-wires, as shown at 3 3, the notches or recesses adapted to receive standards 4 4, of steel, preferably, which standards are suitably secured to the plate, as by means of screws. (Not shown.) The lower ends of the

standards are provided with outwardly-projecting feet 5 5, to which are securely fastened the ends of the trolley-wires 1 and 2, and the upper ends of the standards project a short distance above the plate, the opposite standards being connected by means of the bridges 6 6, the current passing from one end of the wire into the foot to which it is attached, from whence it passes through the standard and over the bridge to the opposite standard and thence to the wire connected therewith. The bridges and their respective standards may be formed integral with each other, and the bridges are preferably covered with some insulating material 13 where they cross each other. It will also be noted that the presence of the bridges strengthens the whole construction and braces it against danger of displacement by reason of strain on the wire, for instance.

The under face of the insulating-plate has secured thereto a plurality of intersecting rails 7 7, one rail located on each side of each of the standards and equidistant therefrom, the rails forming tracks extending diametrically across the plate. These rails are preferably formed of one piece, as is a street-railway crossing, and are suitably secured, as by screws, to the under faces of the plate, the tracks being V-shaped in cross-section and preferably formed of steel to resist wear, the rails at their points of intersection with one another being beveled, chamfered, or graded oppositely or away from each other to permit the meeting edges of the rails to radiate from the actual point of intersection 9, at preferably right angles to each other, as shown, and at an acute angle to the apex of the rail. The purpose of this construction is to prevent the occurrence of a wide unoccupied space at the points of intersection, which space would be liable to admit of the twisting of the trolley-wheel at such points, with a consequent breakage of parts. As manufactured under my invention there is no opportunity for such a twisting movement, since the edges 8 8 run down to a small point 9, which is in alinement with each rail and of an area equal only to the inside apex of such rail and too small to permit the guiding-arms to twist or pivot thereon.

In Fig. 3 I have shown a switch-plate B for a single branch or side and main track, the mechanism being exactly the same as that described in connection with Figs. 1, 2, and 4, with the exception that the tracks merge into one another at one end thereof, diverging as they approach the opposite end of the plate in conformity with the diverging track-rails. It is of course evident that these crossing and switch plates are suspended above the street crossings and switches, the throwing of the street-switch in one direction or the other determining the track to be taken on the switch-plate overhead by the trolley, by reason of the switching of the car from the main to the side track, for instance, will turn the trolley-wheel in a similar direction, causing it to engage the track-rails on the overhead plate. Operating in conjunction with these plates I provide an improved trolley-wheel attachment comprising a pair of upwardly-projecting guards or parallel ears 10 10, located one on each side of and in close proximity to the trolley-wheel 11. These ears at their upper ends have journaled thereto the rotatable guide-rollers 12 12, the rollers each provided with a knife-edged periphery adapted to take into the apices of the tracks on the overhead plates, and these rollers are offset or disposed out of alinement with each other for the purpose of further preventing even the possibility of the derailment of the trolley-wheel, since one roller, being in advance of the other or preceding the same, will have passed the point of intersection 9 of the rail by the time the rear roller reaches such points.

The guards 10 10 project some little distance above the upper edge of the trolley-wheel 11 and perpendicularly to the trolley-wire which the guards embrace to prevent the jarring or rocking of the car from throwing the trolley-wheel from the wire, and in view of the height of the guards the depending standards 4 4 extend some distance beneath the crossing and switch-plates A and B. It is therefore obvious that when the trolley-wheel is passing the crossing the wheel itself will leave the foot 5 and the guards by reason of their length will have brought the rollers 12 12 into engagement with the tracks to convey the trolley over the crossing.

It can be seen that my invention is not restricted in its use wholly to overhead conductors, but can be utilized for underground or third-rail systems as well. It is further evident that many other slight changes than those heretofore set forth might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth; but,

Having thus fully disclosed my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a divided trolley-wire, of an insulating-plate located between the adjacent ends of the wire, means carried by the plate for continuing the circuit thereacross, crossing-rails secured to the under face of the plate, and means carried by the car for engaging the rails.

2. The combination with a trolley-wheel provided with guards projecting above the wheel and antifriction means carried by the guards, of a divided trolley-wire, hangers for supporting the wire, a non-conducting plate located between the adjacent ends of the wire, intersecting tracks mounted on the plate, the tracks being beveled at their points of intersection and means for completing the trolley-wire circuit.

3. The combination with a trolley-wheel and guards located on either side thereof and projecting above the wheel, of a divided trolley-wire, a recessed non-conducting plate located between the adjacent ends of the wire, depending standards secured in the recesses, the ends of the trolley-wire connected with the standards, tracks mounted on the plate, the tracks passing on either side of each standard, and bridges connecting the standards.

4. The combination with a trolley-wheel and an upwardly-extending guard located on either side thereof, of a divided trolley-wire, a non-conducting plate located between the adjacent ends of the wire, standards secured and extending perpendicularly with relation to the plate, bridges secured to and connecting the opposite standards respectively, outwardly-projecting feet secured to the free ends of the standards, the ends of the trolley-wire secured to the feet and tracks carried by the plate, the tracks being engaged by the projecting guard.

5. The combination with a trolley-wheel and upwardly-projecting guards, of a non-conducting plate, a trolley-wire suitably secured therewith, hangers for supporting the wire and V-shaped intersecting tracks formed independently of and secured to the plate, the tracks being beveled at their points of intersection and engaged by the guards.

6. The combination with a trolley-wire, of a non-conducting plate interposed between adjacent ends of the wire and suitably secured thereto, the plate located on a plane parallel with the plane of the wire, means for completing the trolley-wire circuit across the plate, intersecting tracks mounted on the plate, a trolley-wheel, guards located on either side of and projecting beyond the trolley-wheel, and antifriction means carried by the guards and adapted to engage the tracks before the wheel leaves the wire, the antifriction means located out of alinement with each other.

7. A crossing-switch comprising a plate, rigid bracing-bridges passing over and embracing the plate, conductors connected with

the bridges and means carried by the plate and engaged by a trolley for guiding the latter across the plate.

5 8. A crossing-switch comprising a plate of non-conducting material, rigid conducting means by means of which the plate is supported, the conducting means bracing the plate and means carried by the plate and engaged by a trolley for guiding the latter across
10 the plate.

9. A crossing-switch comprising a plate, conducting means to which the plate is se-

cured and intersecting guide-rails secured to the plate and adapted to be engaged by a trolley, the rails extending across the plate and
15 guiding the trolley from one side to the other of the plate.

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

JOSEPH TURNER BUNN.

Witnesses:

Z. J. KEMP,

J. S. KEMP.