

H. R. RITTER.
WIRE CLAMP.
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966,243.

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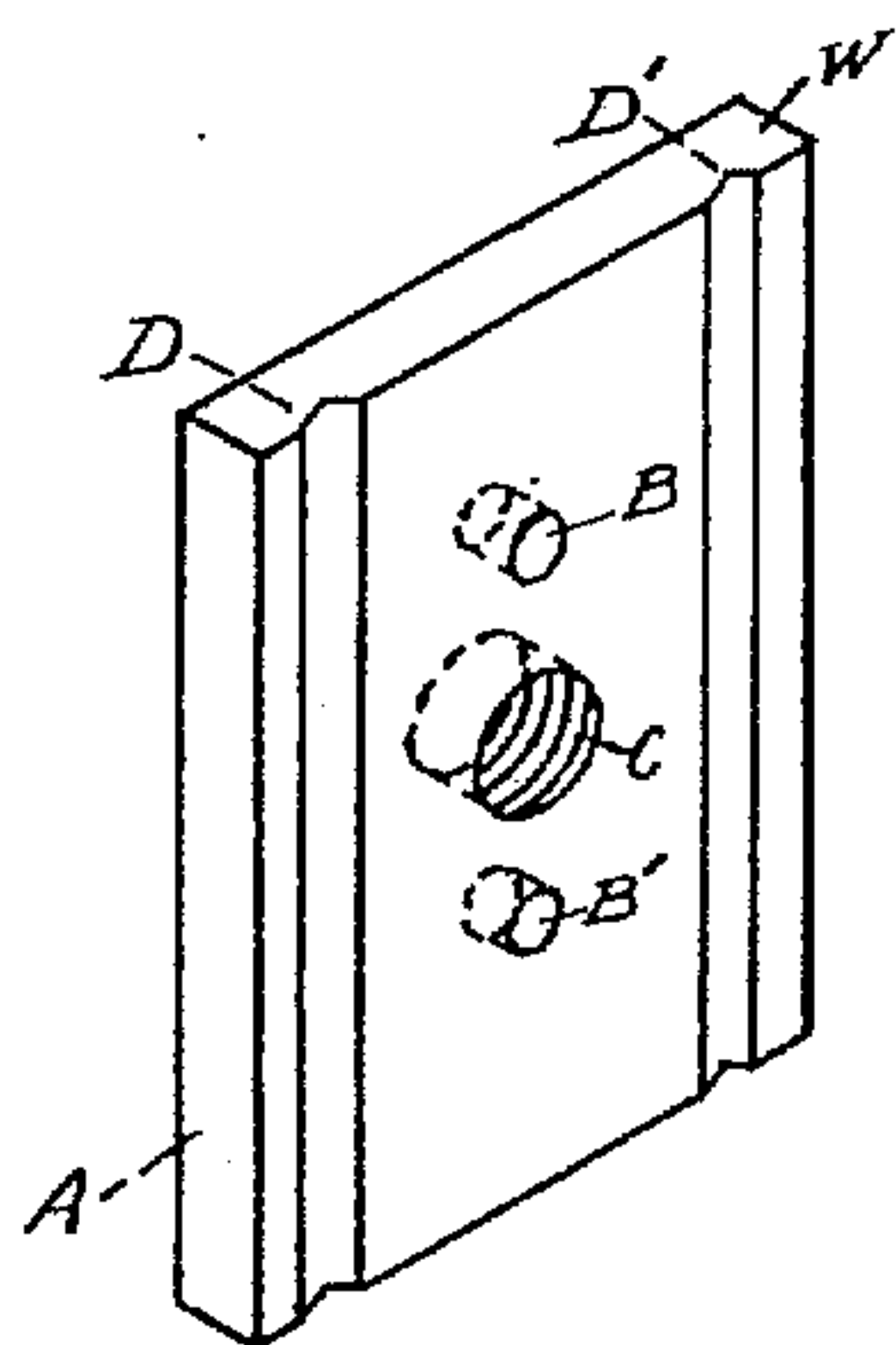


Fig. 1.

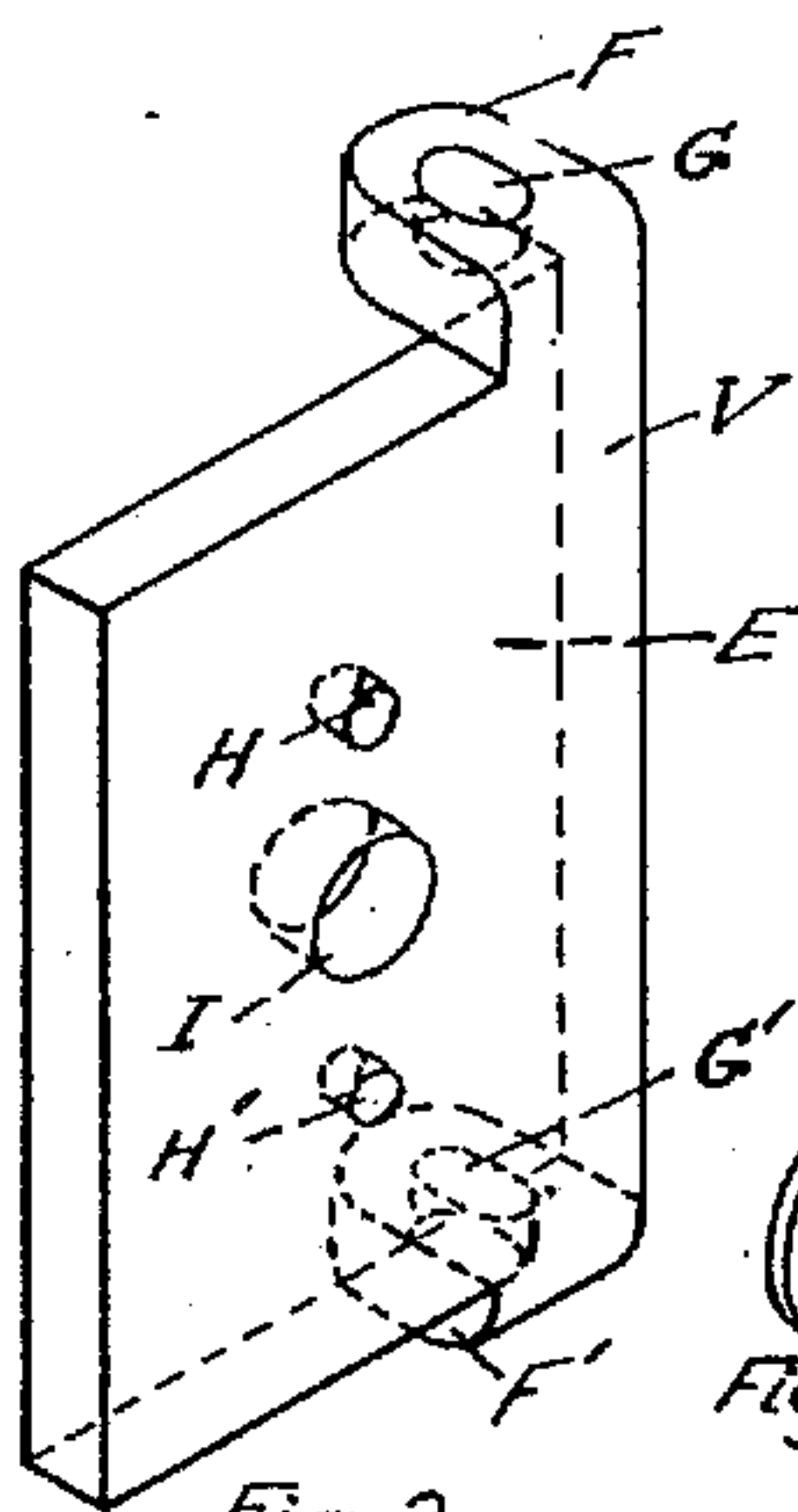


Fig. 2.

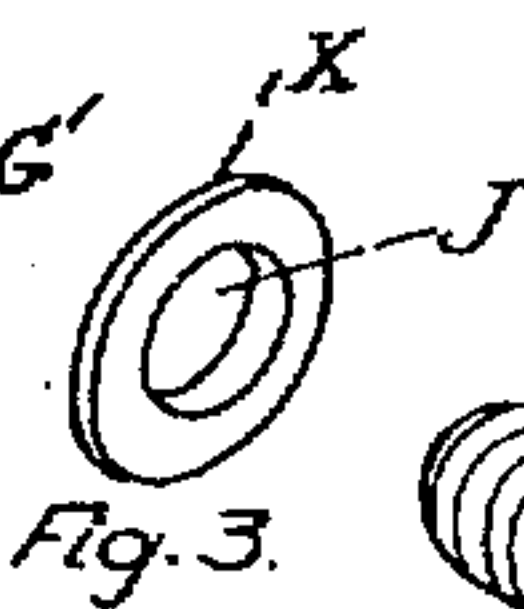


Fig. 3.

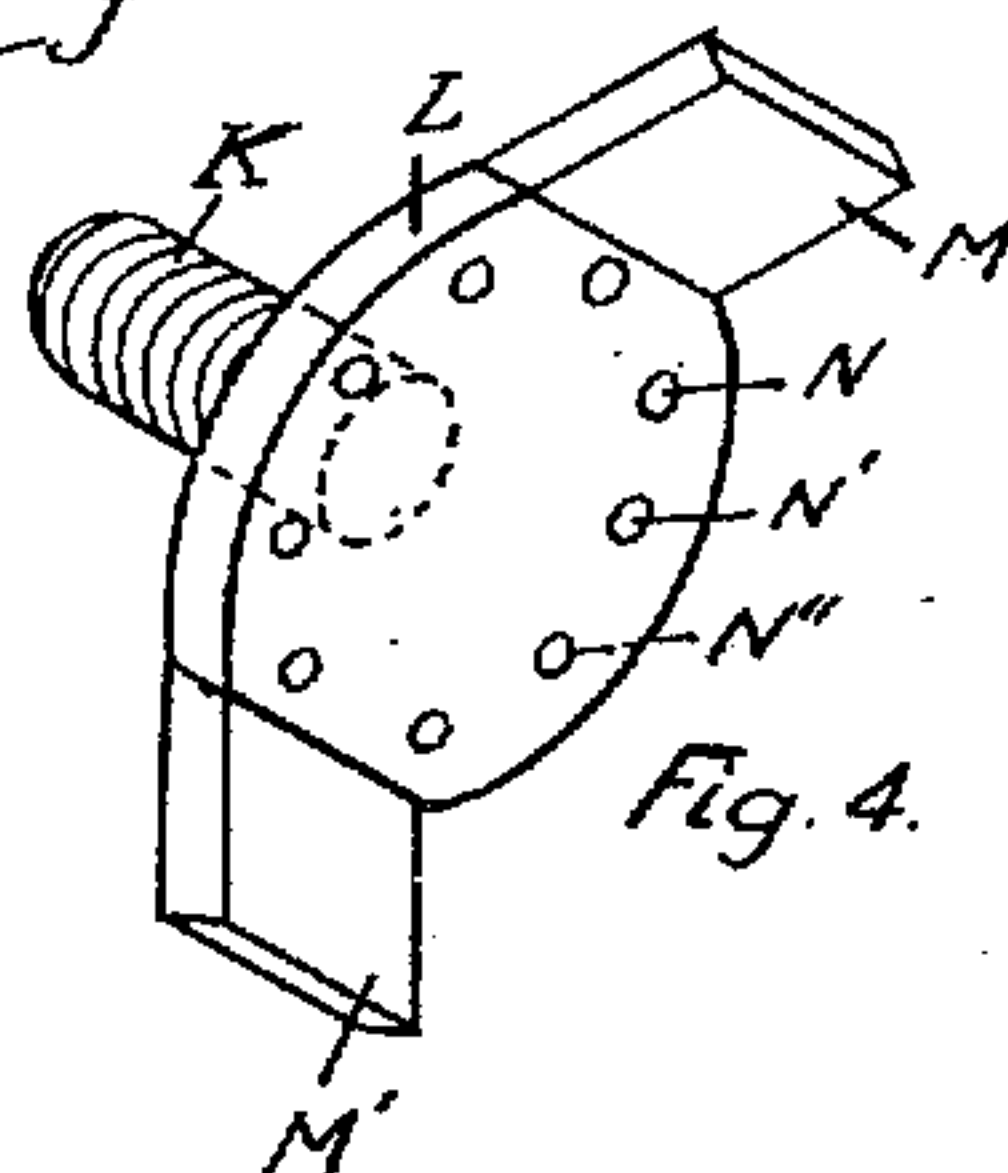


Fig. 4.

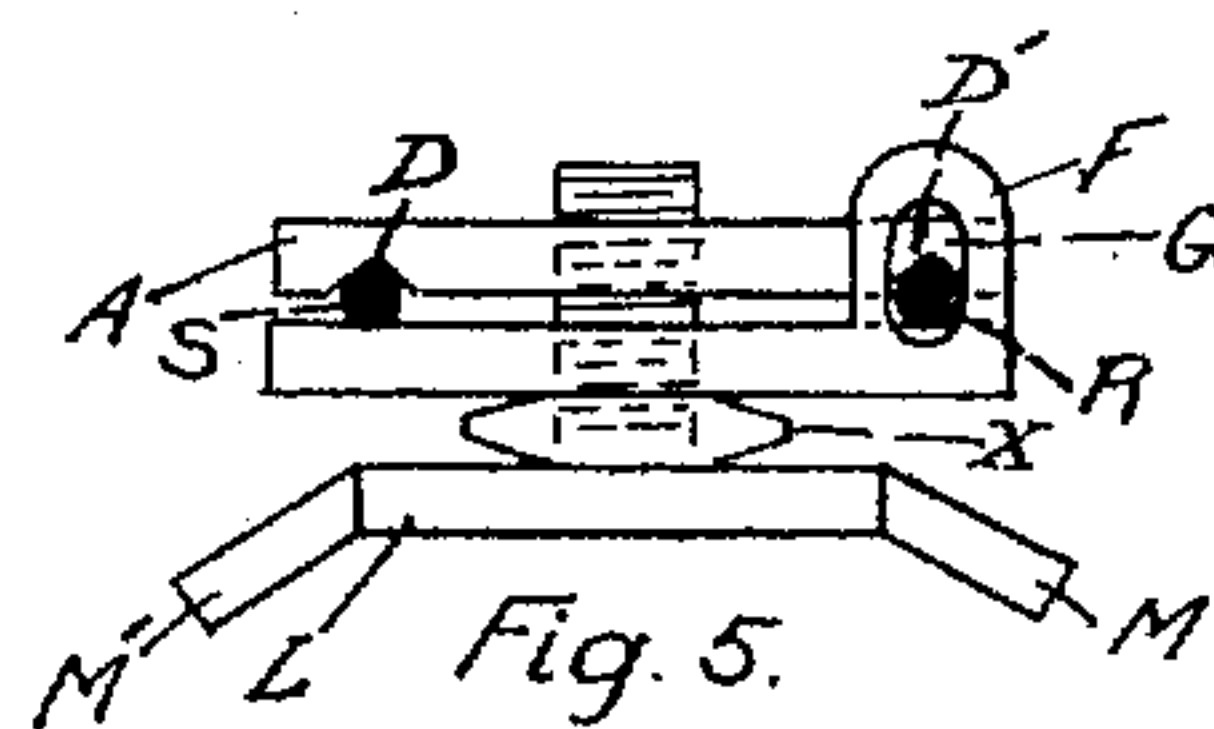


Fig. 5.

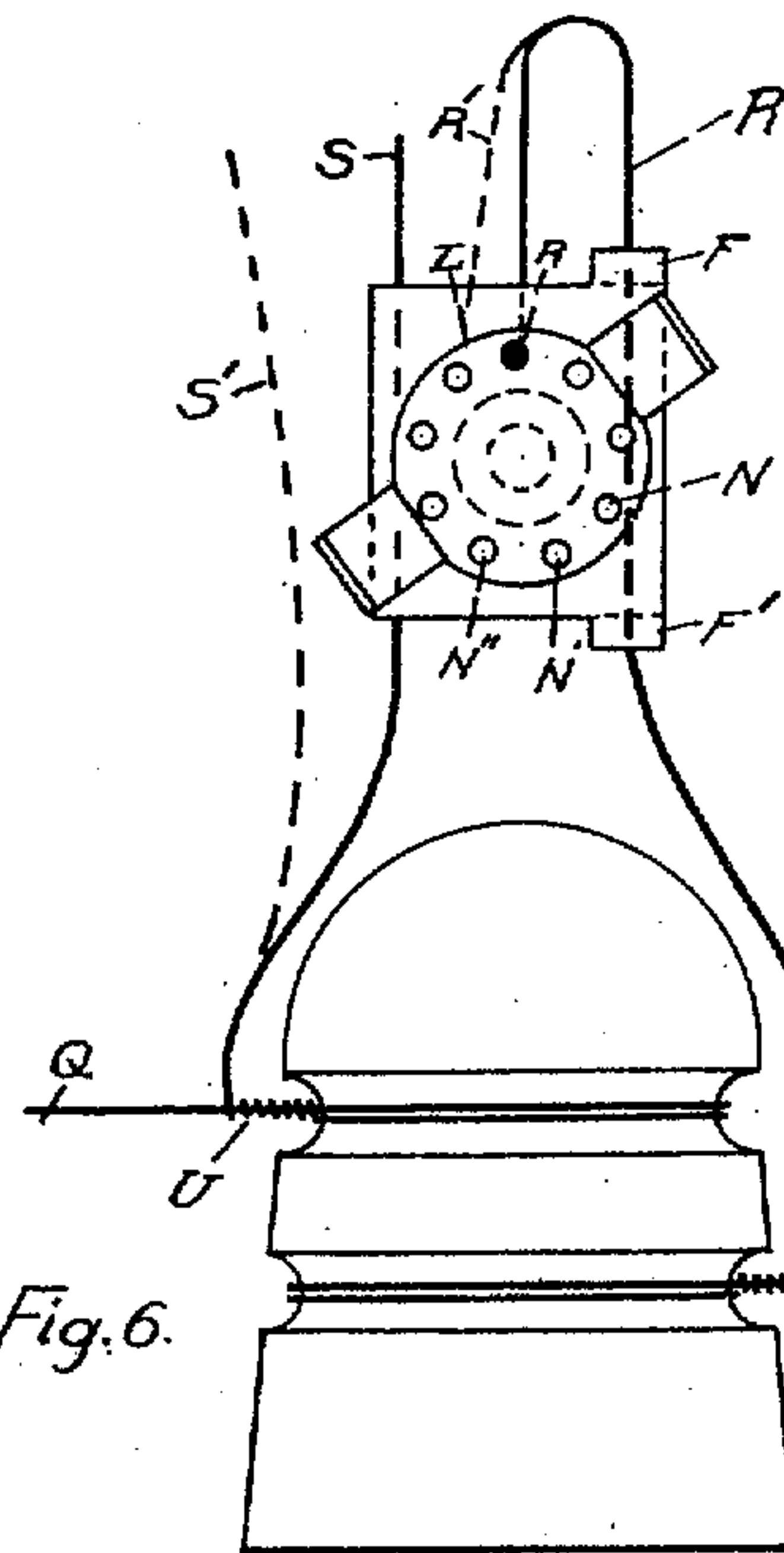


Fig. 6.

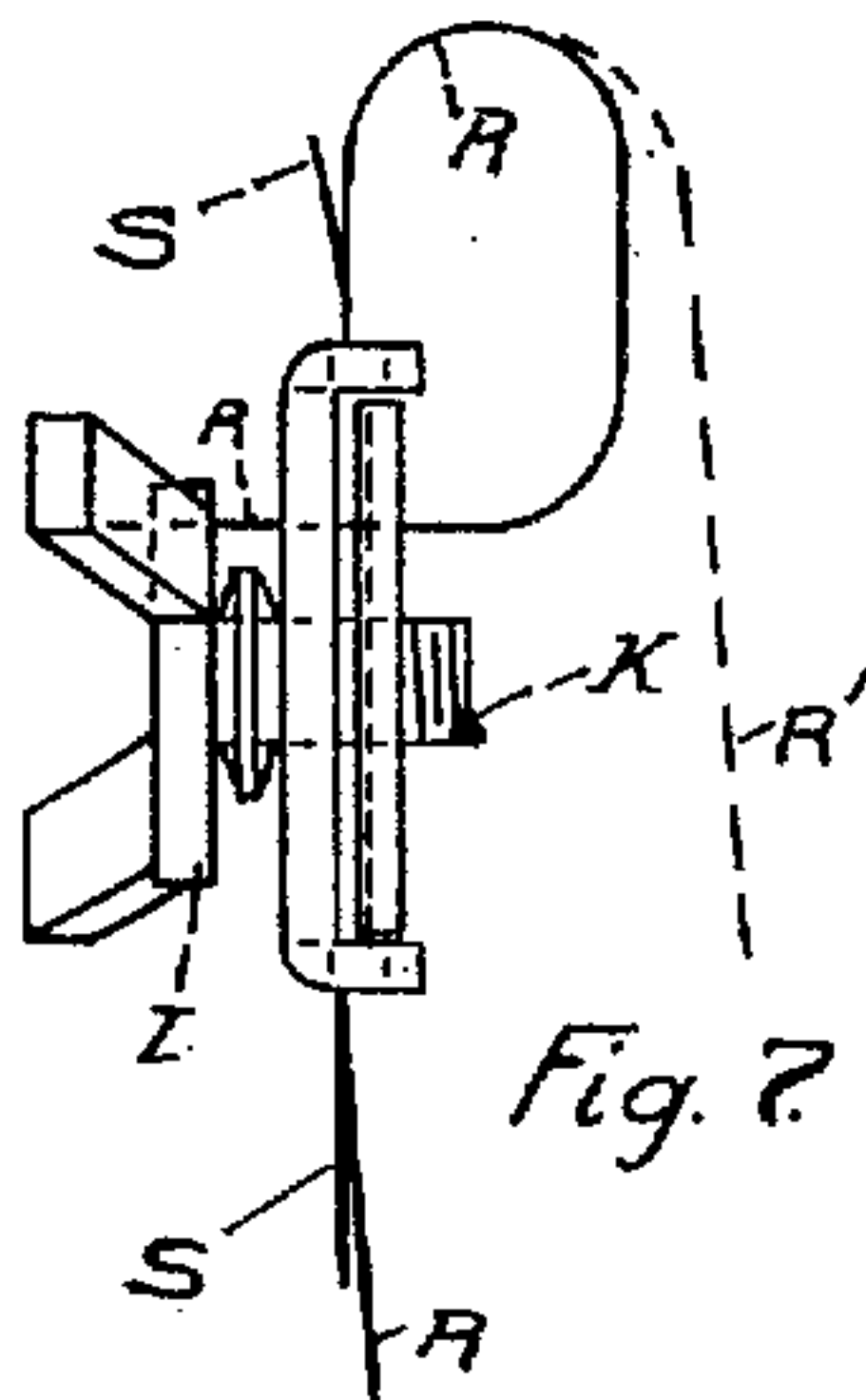


Fig. 7.

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WIRE-CLAMP.

966,243.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY R. RITTER, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented a new and useful Improvement in Wire-Clamps, of which the following is a specification.

My invention relates to a device for connecting the ends of telephone or other wires which are discontinuous at an insulator, so that a continuous circuit may be formed through the line, the device also permitting the ready breaking of this connection for the purpose of testing the separate circuits so formed, without danger of the lineman's dropping the clamp or being obliged to remove it from both wires while making the test. My improved form of wire clamp also prevents the accidental loosening of the clamp, which frequently occurs with this type of connector, due to vibration of the wires. I attain these objects by means of the mechanism illustrated in the accompanying drawings in which:

Figures 1, 2, 3 and 4 are isometric projections of the component elements of my clamping device shown unassembled, but in correct axial and angular positions. Fig. 5 is an end elevation of the component elements of the clamp in assembled form, gripping two wires shown in section. Fig. 6 is a front elevation of an insulator showing the relative positions of the terminal wires and clamp with relation to the insulator. Fig. 7 is a side elevation of the clamp and portions of the wires shown in Fig. 6.

The dotted lines in Figs. 6 and 7 show position of the wires when they are removed from the clamp, for the purpose of opening the circuit.

Similar letters refer to similar parts throughout the several views.

The construction of my improved wire clamp is as follows: In telephone circuits the line wire is frequently discontinuous at an insulator, as shown by Fig. 6, in which the wires P and Q are each brought about a groove in the insulator O, each wire being secured by twisting the terminal ends R and S of the line section about the line sections P and Q respectively, as shown at T and U. A detachable connector is frequently employed for through working of the line circuit. This detachable connector permits the

line to be readily opened at the insulator where it is attached for testing in both directions, in case of circuit troubles.

In the wire clamps heretofore employed, no means is provided for the prevention of the possibility of dropping the wire clamp to the ground, when it is loosened from the terminal wires. The probability of this accident is increased by the fact that the lineman frequently have to wear gloves, rendering the secure handling of so small an object as a wire clamp a matter of difficulty, and increasing the chances for dropping it, with consequent loss of time. Furthermore, wire clamps as now made are provided with no means for the prevention of the unscrewing of the clamp due to the vibration of the wires, with the consequent accidental opening of the circuit.

As my improved wire clamp is intended principally for out of door use, it should be formed of some metal which will resist excessive corrosion.

It consists of four elements as shown by Figs. 1, 2, 3, and 4, and while one of these elements, namely, Fig. 3, is not absolutely essential to the principle involved in the working of the clamp, it improves the clamping action to some extent as described below.

In Fig. 1, A is a plate of rectangular form having two grooves D and D' formed in one of its flat faces, these grooves being parallel to one of the edges of the face in which they are formed. B and B' are two holes in plate A, through either of which a wire end may be passed. C is a tapped hole near the center of plate A. Fig. 2 is the second member of the clamp, and consists of a rectangular plate E, approximately of the size and form of plate A. Plate E has two lugs F and F' formed as part thereof. These lugs are flush with one of the edges V, of plate E and are formed at right angles to the larger flat faces of this plate, projecting in the same direction. The lugs F and F' have openings G and G', these openings being the same distance from edge V of plate E, as is groove D' from the edge W of plate A. The distance between the inner faces of lugs F and F' is such that plate A will pass freely between them, when plates A and E are brought together in the same relative position as shown by Figs. 1 and 2, these lugs thus forming a guide for plate A rela-

tive to plate E. Formed in plate E are three holes H, H' and I which match with holes B, B' and C in plate A, when plates A and E are brought together as above described.

The screw K, Fig. 4 passes freely through hole I and screws into tapped hole C. Screw K has a head L, the latter being provided with two lugs M and M' which latter form a finger grip, thus rendering a screw driver, wrench or other tool unnecessary in drawing clamp plates A and E together by means of screw K. In place of the headed screw K, a stud rigidly attached to plate A and a nut in place of the head L may be used with the same result.

A beveled washer Fig. 3, shown in side elevation at X Fig. 5, which is interposed between head L of screw K and plate E, as shown in Fig. 5, permits a certain adjustment between plates A and E, particularly when clamping wires of different size. Formed through head L of screw K, and parallel to the axis of the latter, are a series of holes N, N', N'', etc., these holes being at a radial distance from the center line of screw K, which is equal to the distance between centers of holes I and H, and I and H'. The number of holes N, N', N'' etc., is preferably odd, so that when the elements of the clamp are assembled and screw K is revolved, these holes come in line alternately with holes H and H'. If hole N is in line with hole H, the latter having already been described as being in line with hole B, a wire end may be passed through these three holes, this wire preventing the accidental unscrewing of screw K.

The operation of my improved wire clamp is as follows: The elements are assembled by passing screw K through hole J in washer X, and through hole I in plate E, and screwing it into tapped hole C in plate A. Plates A and E are drawn together so that the space between their inner faces will permit the free admission of a line wire. One of the line terminals R is passed through openings G and G' and between plates A and E, several inches of this wire being allowed to project beyond the clamp. If this projecting wire projects above a horizontal position there will be no possibility of the clamp dropping off the wire even though screw K be not screwed down, as the clamp is held by lugs G and G' which guard the clamp from dropping. If the projecting wire projects below a horizontal position, a bend in it as at R' Fig. 7 will prevent the clamp from dropping off the end.

In order to complete the line circuit, the second terminal wire, S' Fig. 6, is passed between the clamp plates A and E, and adjusted so that it will lie in groove D Fig. 5, in which position the clamp plates A and E are drawn together by screw K, the first

terminal wire R Fig. 5 being guided to lie in groove D' by the position of guide holes G and G' in lugs F and F' as described. Lugs F and F', thus serve the double purpose of guard and guide lugs for the terminal wires. Grooves D and D' are formed to such depth in plate A that when the wires lie in these grooves, the wires will project above the inner face of plate A, and can therefore be clamped against plate A by the inner face of plate E.

In order to positively lock the screw K, the terminal wire R' Fig. 7 is passed through holes B and H or holes B' and H' and through one of the holes N, N', N'' etc., in screw head L as shown by R Fig. 7. The terminal wire is given a permanent set in this position and will therefore lock screw K against accidental unscrewing.

In order to open the line circuit, terminal wire R is with-drawn from holes B, H and N, or the corresponding series B', H', N', and screw L loosened sufficiently to allow terminal wire S to be passed from between clamp plates A and E to a position shown by S' Fig. 6. The clamp will be prevented from dropping by lugs G and G', as above described.

I am aware that other forms of wire clamps have been used, and while I have described above the preferred form of my invention, it is evident that many modifications of it may be made without departing from the spirit thereof.

I do not therefore wish to limit myself to the precise construction shown, but

Having described this form of my invention, I claim as new, and desire to secure by Letters Patent.

1. The combination of a clamp with two lugs formed as part thereof, a hole in each lug, a second clamp plate grooved on its inner face, and a clamp screw.

2. The combination of two clamp plates, with wire and plate guide lugs formed as part of one of the clamp plates, wire guide openings in said lugs, and a clamp screw.

3. The combination of a clamp screw, a beveled washer under head of said screw, and a pair of clamp plates, with wire and clamp plate guide lugs having wire guide openings therein, said lugs being formed as part of one of the said clamp plates.

4. The combination of a clamp plate, with two wire and plate guide lugs formed as part thereof, a second clamp plate grooved on inner face, a headed clamp screw having a circle of holes formed in its head, and holes in the clamp plate so arranged that the holes in the screw head will fall in alignment with the holes in the clamp plates during the rotation of the screw.

5. The combination of a clamp plate with plate and wire guide lugs formed as part thereof, a second clamp plate grooved on its

inner face, a clamp screw having a series of holes formed in its head, holes in clamp plates so disposed that holes in screw head may be brought in successive alinement with
5 holes in the clamp plates.

6. The combination of a two wire clamp plate having lug projections formed on one

plate so as to incase one wire of the two to be clamped.

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Witnesses:

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