No. 812,287. PATENTED FEB. 13, 1906.

T. NAGEL.

TEST CLAMP.

APPLICATION FILED DEC. 19, 1904.

Fig. 1.

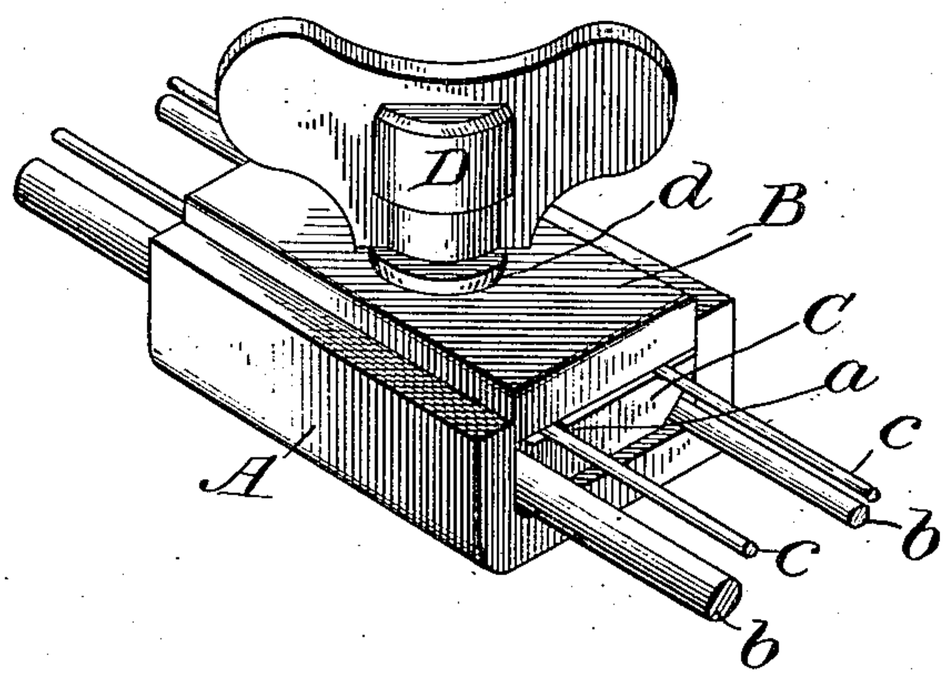


Fig. 3.

Fig. 2.

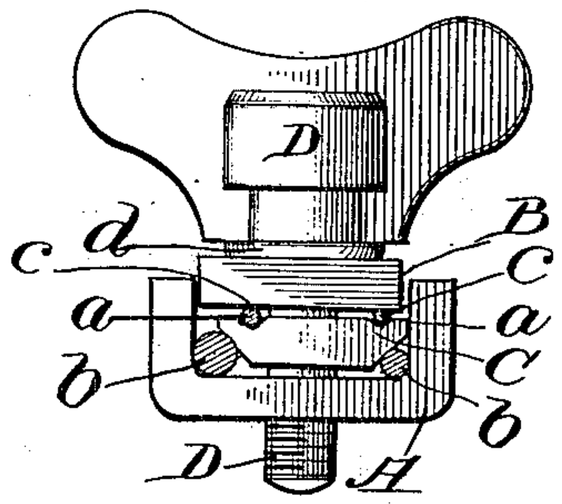


Fig. 4.

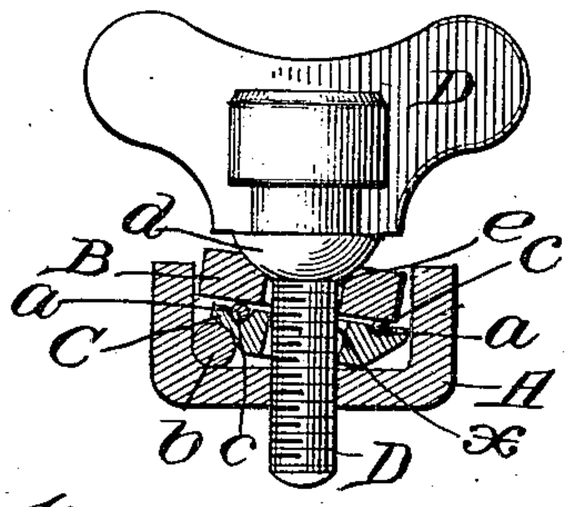
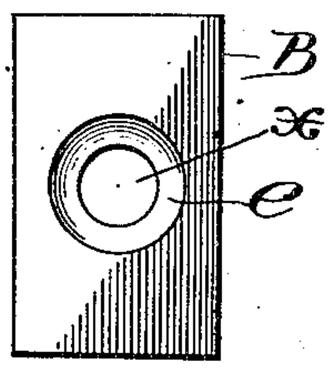


Fig. 5.



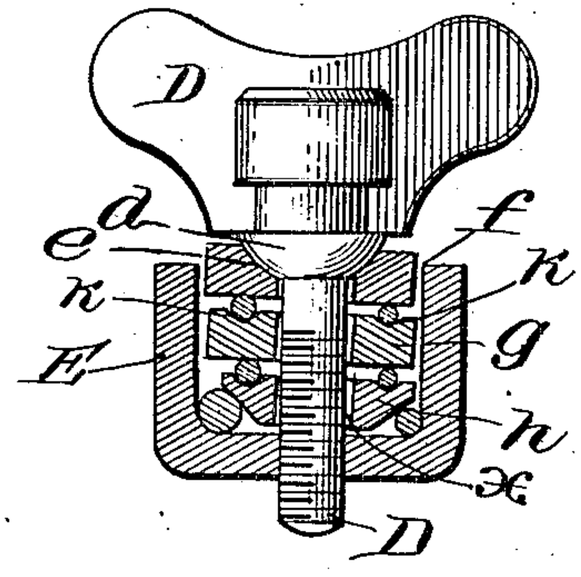
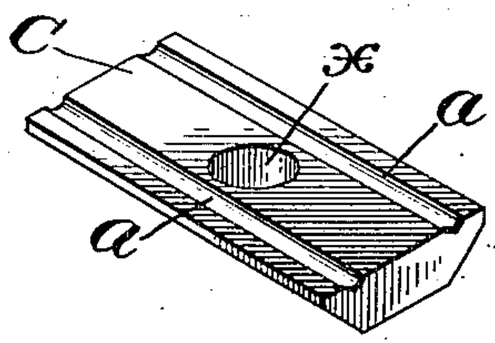


Fig. 6.



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UNITED STATES PATENT OFFICE.

THEODORE NAGEL, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO LATHROP H. COLLINS, OF CHICAGO, ILLINOIS.

TEST-CLAMP.

No. 812,287. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed December 19, 1904. Serial No. 237,487.

To all whom it may concern:

Be it known that I, THEODORE NAGEL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Test-Clamps, of which the following is a full, clear, and exact description.

My invention relates to what is known as "test-clamps," which are used extensively by electricians, especially in telephone-circuits, for clamping wires or ends of wires together.

Wires of different sizes or diameters are used particularly in telephone work, and it is oftentimes difficult with the means at present available for that purpose to clamp them together, and even where this can be satisfactorily accomplished when the clamp is loosened it will fall off of the wire.

The object of my invention is to provide a simple and effective clamping device for securing the ends of two or more wires of the same or different diameters together which will not accidentally fall off of the wires when it is loosened to permit the withdrawal of the same. This I accomplish by the means hereinafter fully described, and as particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of my invention, drawn to an enlarged scale and showing portions of several wires secured therein. Fig. 2 is an end view thereof. Fig. 3 is a transverse section taken through the center of length of the clamp. Fig. 4 is a similar view of a modified construction of my invention. Fig. 5 is a plan view of the outer clamping-plate thereof. Fig. 6 is a perspective view of the innermost clamping-plate.

My invention comprises a holder A, which consists of a short channel-shaped piece of metal, clamping-plates B and C, respectively, and a peculiarly-constructed clamping-screw D. These clamping-plates are of the same length, but of slightly less width than the channel of the holder A, and are of such thickness that when wires of the largest gage are clamped by the same the uppermost plate B will not have its outer or exposed surface raised above the edges of the side walls of the holder. The lower plate has the lower angles of its side edges undercut or beveled; so that when wires are laid lengthwise in the angles of the channel of the holder it will crowd and clamp said wires into said angles or corners as it is pushed downward toward the bottom of the holder. The upper surface of the plate C is preferably provided with longitudinal grooves arranged one on one side and the other on the other side of the plane of the clamping-screw and are adapted to seat therein the wires *c c*, either of the same or different diameters than the wires *b b*, hereinbefore referred to. The screw D extends down through enlarged openings *x x* in the center of the plates B and C and is tapped into the bottom of the holder A, and in order that either one or both of the plates B and C may have a slight tilting movement in any direction I have provided the shoulders of the head of the screw D with a convexed bearing-boss *d*, the curvature of which substantially corresponds to the circumference of a sphere whose center is intersected by the axis of the screw, substantially as shown. This bearing-boss is seated in the countersunk edges *e* of the adjacent end of the enlarged opening *x* of the plate B, which forms the bearing-cup therefor, and when the screw is turned so as to cause the plates to clamp one or both of said plates will tilt, so as to automatically accommodate their position to and equalize the pressure upon wires of different gage clamped between them, substantially as shown in the drawings.

If desired, the depth of the holder may be increased substantially as shown by the holder E in Fig. 4, and instead of two plates three (*f g h*) or more may be used. In this event the intermediate plate *g* corresponds in dimensions to the outermost plate *f*, except that it has longitudinal grooves *k k* in its upper surface the same as in the lower plate *h* and excepting that it does not have a bearing-cup therein.

What I claim as new is—

1. A clamp comprising a suitable holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends whereby they are adapted to be tilted independently of each other and said screw.

2. A clamp comprising a suitable holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, whereby they are adapted to be tilted independently of each other and said screw and one of said plates

having longitudinal grooves in the surface opposed to the other plate.

3. A clamp comprising a suitable rectangular channel-shaped holder, a screw tapped into said holder, and a flat clamping-plate having an enlarged opening therein the edges of which are concentric with said screw through which said screw extends and said plate adapted to be tilted independently of said screw.

4. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, whereby they are adapted to be tilted independently of each other and said screw.

5. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, whereby they are adapted to be tilted independently of each other and said screw, and one of said plates having longitudinal grooves in the surface opposed to the other plate.

6. A clamp comprising a suitable rectangular channel-shaped holder, a screw tapped into said holder, and a flat clamping-plate having an enlarged opening therein the edges of which are concentric with said screw through which said screw extends which has its side edges nearest said holder beveled, and said plate adapted to be tilted independently of said screw.

7. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, whereby they are adapted to be tilted independently of each other, and said screw, the plate engaging the bottom of said holder having its side edges adjacent thereto beveled or undercut.

8. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, whereby they are adapted to be tilted independently of each other and said screw, one of said plates having longitudinal grooves in the surface opposed to the other plate, and the one engaging the bottom of said holder having its side edges undercut.

9. A clamp comprising a suitable rectangular holder, a screw tapped into said holder, and a flat clamping-plate having an enlarged opening therein the edges of which are concentric with said screw through which said screw extends and with which it has a swiveled engagement and said plate adapted to be tilted independently of said screw.

10. A clamp comprising a suitable holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, one of said plates having a swiveled engagement with said screw whereby both are adapted to be tilted independently of each other and said screw.

11. A clamp comprising a suitable holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, one of said plates having a swiveled engagement with said screw whereby both are adapted to be tilted independently of each other and said screw, one of said plates having longitudinal grooves in the surface opposed to the other plate.

12. A clamp comprising a suitable rectangular channel-shaped holder, a screw tapped into said holder, and a flat clamping-plate having an enlarged opening therein the edges of which are concentric with said screw through which said screw extends and with which it has a swiveled engagement, and said plate adapted to be tilted independently of said screw.

13. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, one of said plates having a swiveled engagement with said screw whereby both are adapted to be tilted independently of each other and said screw.

14. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, said plates having a swiveled engagement with said screw whereby both are adapted to be tilted independently of each other and said screw.

15. A clamp comprising a suitable rectangular channel-shaped holder, a screw tapped into said holder, and a flat clamping-plate having an enlarged opening therein the edges of which are concentric with said screw through which said screw extends, which has a swiveled engagement with said screw and has its side edges nearest said holder beveled, and said plate adapted to be tilted independently of said screw.

16. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, one of said plates having a swiveled engagement with said screw whereby both are adapted to be tilted independently of each other and said screw, the plate engaging the bottom of said holder having its side edges adjacent thereto beveled or undercut.

17. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder, two clamping-plates each having enlarged openings through which said screw extends, one of said plates having a swiveled engagement with said screw whereby both are adapted to be tilted independently of each other and said screw, one of said plates having longitudinal grooves in the surface op-

posed to the other plate, and the one engaging the bottom of said holder having its side edges undercut.

18. A clamp comprising a suitable rectangular holder, a screw having a convexed bearing-boss adjacent to the head thereof, and a flat clamping-plate having an enlarged opening through which said screw extends the edges of which engaged by said boss are countersunk.

19. A clamp comprising a suitable holder, a screw tapped into said holder and having a bearing-boss adjacent to the head thereof, two clamping-plates each having enlarged openings through which said screw extends whereby they are adapted to be tilted independently of each other and said screw, and the plate which is engaged by said boss having a countersunk seat therefor concentric with its opening.

20. A clamp comprising a suitable channel-shaped holder, a screw tapped into said holder and having a bearing-boss adjacent to the head thereof, two clamping-plates each having enlarged openings through which said screw extends, one of said plates having a swiveled engagement with said screw whereby both are adapted to be tilted independently of each other and said screw, one of said plates having longitudinal grooves in the surface opposed to the other plate, and the one engaging the bottom of said holder having its side edges undercut, and the plate which is engaged by said boss having a countersunk seat therefor concentric with its opening.

21. A clamp comprising a suitable channel-shaped holder, a screw having a convexed bearing-boss adjacent to the head thereof, and a clamping-plate having an enlarged opening through which said screw extends the edges of which engaged by said boss are countersunk.

22. A clamp comprising a suitable rectangular channel-shaped holder, a screw tapped into said holder and having a bearing-boss adjacent to the head thereof, two flat clamping-plates each having enlarged openings through which said screw extends whereby they are adapted to be tilted independently of each other and said screw, and the plate which is engaged by said boss having a countersunk seat therefor concentric with its opening.

In testimony whereof I have hereunto set my hand this 16th day of December, A. D. 1904.

THEODORE NAGEL.

Witnesses:
FRANK D. THOMASON,
E. K. LUNDY.