B. C. MOISE.

WIRE ROPE CLAMP.

APPLICATION FILED JULY 31, 1917.

1,300,994.

Patented Apr. 15, 1919.

2 SHEETS—SHEET 1.

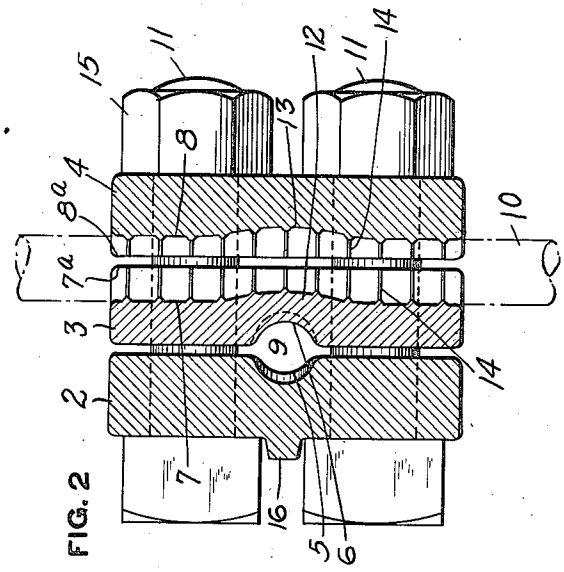


FIG. 2

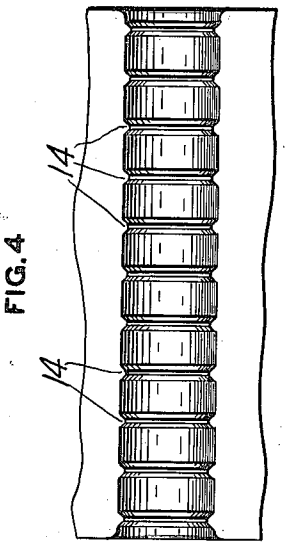


FIG. 4

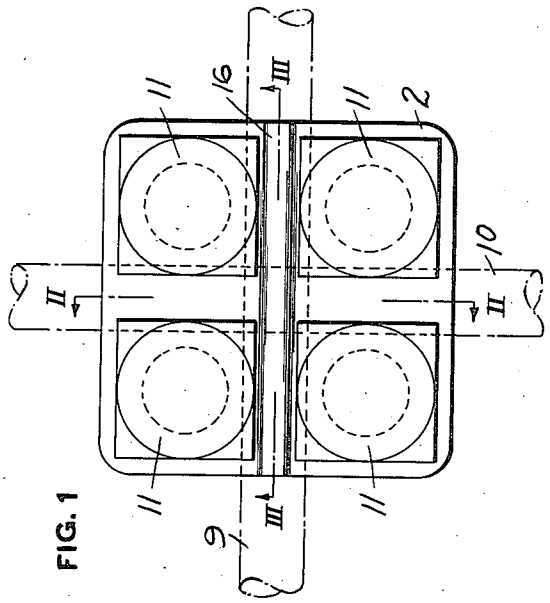


FIG. 1

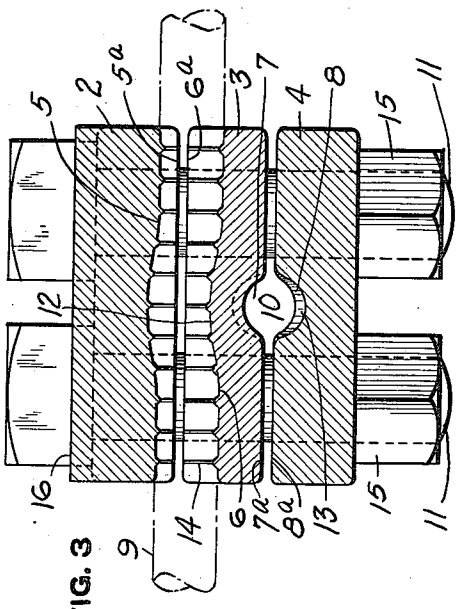


FIG. 3

WITNESSES

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2 SHEETS—SHEET 2.

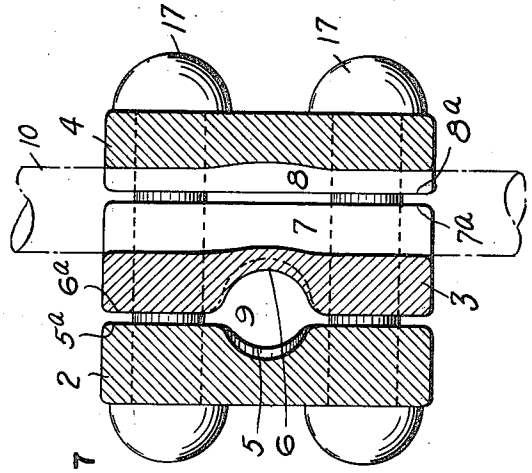


FIG. 7

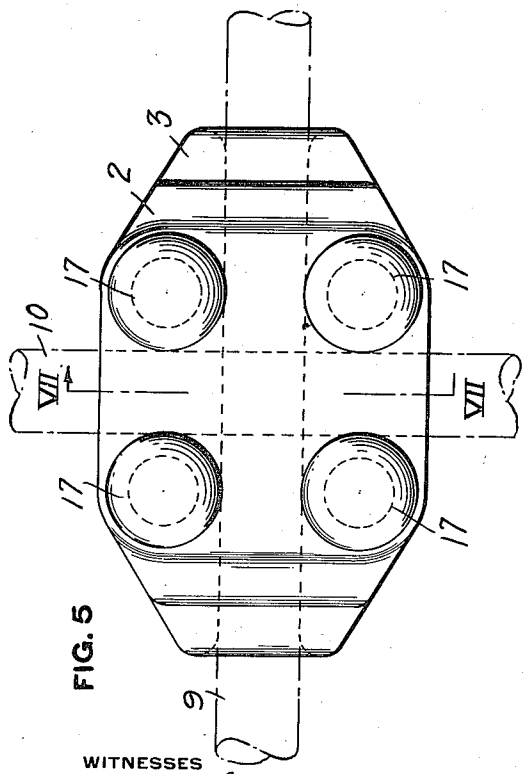


FIG. 5

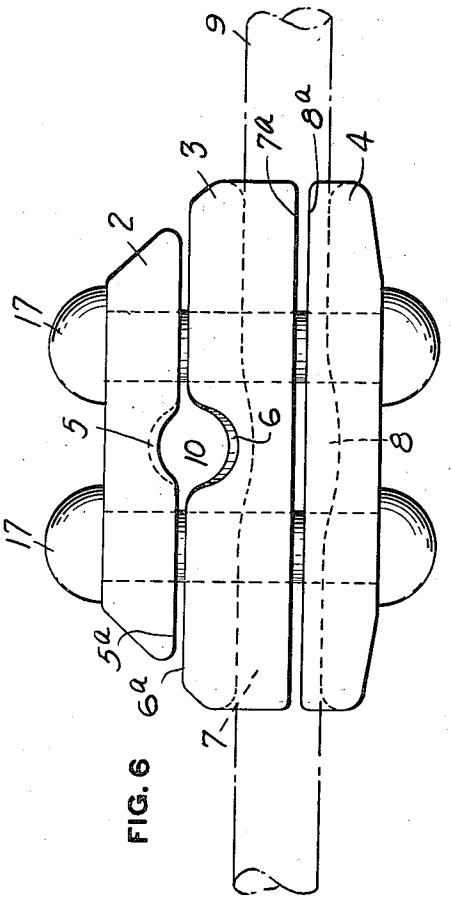


FIG. 6

WITNESSES

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WIRE-ROPE CLAMP.

1,300,994. Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed July 31, 1917. Serial No. 183,716.

To all whom it may concern:

Be it known that I, BOLTON C. MOISE, a citizen of the United States, and resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Wire-Rope Clamps, of which the following is a specification.

My invention relates to the construction of clamps, and more particularly of clamps for connecting crossed or overlapped members, such as strands of wire, wire ropes or cables at their points of intersection.

One object of my invention is to provide a rope clamp having novel means whereby crossed wire ropes are connected at their points of intersection, wherein the crossed ropes are held out of contact with one another, and are securely fastened at the intersections thereof, and whereby relative movement thereof at the points of intersection is effectually prevented.

Another object of this invention is the provision of a clamp having improved means whereby the surfaces of the clamped members and clamping members are brought into close contact.

A further object of the invention is the provision of a three-part clamp having the novel constructions, combinations, and arrangement of parts, shown in the drawings, to be fully described hereinafter, and particularly pointed out in the appended claims.

Referring now to the drawings, forming part of this specification, Figure 1 is a plan showing a wire rope clamp, assembled in rope connecting position, and constructed and arranged in accordance with my invention.

Fig. 2 is a transverse section of the rope clamps shown in Fig. 1, the section being taken on the line II—II of Fig. 1.

Fig. 3 is a transverse section, on the line III—III of Fig. 1, of the clamp of Figs. 1 and 2.

Fig. 4 is a fragmentary plan showing details in the construction of the rope seating grooves of my improved clamp.

Fig. 5 is a plan showing a modified form of clamp constructed and arranged in accordance with my invention.

Fig. 6 is a longitudinal side elevation of the clamp of Fig. 5.

Fig. 7 is a transverse section of the same, the section being taken on the line VII—VII of Fig. 5.

In the accompanying drawings, referring now to Figs. 1 to 4, the numerals 2 and 4 designate outer clamping members, and 3 the intermediate member of my improved rope clamp. It is to be understood that the word "rope" as used herein is intended to cover a wire rope, a strand of wires or small ropes, and a cable or large wire rope.

The adjoining faces 5^a and 6^a of the members 2 and 3 have registering semi-circular grooves 5 and 6 therein, and the adjoining faces 7^a and 8^a of the members 3 and 4 have similar registering semi-circular grooves 7 and 8 therein. The grooves 5 and 6, and also the grooves 7 and 8 co-act to form substantially circular rope receiving openings, in which the ropes 9 and 10 are seated and tightly gripped when connected by the clamp members. The adjoining faces of the clamp members are separated slightly so that when the bolts 11, or equivalent rivets, are tightened in fastening the clamp members together, the surfaces of the ropes 9 and 10 will be tightly gripped and the ropes will be rigidly held within the openings formed by the grooves 5 and 6, and grooves 7 and 8. The pairs of grooves are reversely curved lengthwise so as to form a sinuous or undulatory seat for the rope, the reverse curves being formed by providing a hump 12 in the grooves 6 and 7 and a depression 13 in the grooves 5 and 8 opposite each hump. In this way the portions of the ropes 9 and 10 within the grooves are bent or kinked so as to assist in preventing lengthwise movement of the rope within the openings formed by the pairs of registering grooves.

As shown in Figs. 2, 3, and 4, the surfaces of the registering grooves 5—6, and 7—8, are provided with a series of V-shaped ridges or projections 14, (see Figs. 2, 3, and 4), which, by engagement with the ropes 9 and 10, are displaced and caused to flow into the hollows in the outer surfaces of the wire ropes during the tightening of the clamp members on the rope. In this way a serrated or roughened surface is provided which approximates the contour of the outer surface of the ropes and aids in preventing endwise movement thereof within the grooves of the clamp. These transverse ridges 14 will be used with clamping members made of relatively soft steel, when hard steel wire ropes are used. The ridges, while desirable, may be dispensed with, particularly with the smaller sizes of wire ropes.

The clamp members 2, 3, and 4 of Figs. 1, 2 and 3, are provided with a series of transversely extending, registering holes, and positioned in these holes are the bolts 11 having nuts 15 on the screw threaded ends thereof. Preferably the heads of the bolts are square, and a rib or projection 16 is provided on one or the other of the outer members, which engages the bolt heads to prevent the bolts turning when the nuts 16 are being screwed on and off the bolts.

While the clamp members are shown fastened together by means of screw threaded bolts and nuts, it will be apparent that rivets or other fastening means may be used instead.

In the modified construction, shown in Figs. 5, 6, and 7, the numerals 2 and 4 designate the outer members, and 3 the intermediate member of this rope clamp. The adjoining faces 5^a and 6^a of the members 2 and 3 have registering semi-circular grooves 5 and 6 therein, and the adjoining faces 7^a and 8^a of the members 3 and 4 also have registering semi-circular grooves 7 and 8 therein. The registering grooves 5, 6, on one side of the intermediate member 3 extend lengthwise at right angles to the grooves 7 and 8 on the other side of the intermediate members, in the same manner as in the construction of Figs. 1 to 4.

The surfaces of the grooves in the construction of Figs. 5, 6, and 7, while shown smooth, may be provided with a series of transverse ridges or projections 14, constructed in the same manner as shown in Fig. 4. The surfaces of the grooves in the clamp, however, also will be roughened by the pressure exerted in applying the clamp members to the ropes, particularly with the smaller sizes of ropes, for which the clamp of Figs. 5, 6, and 7, is particularly adapted for use, the rope becoming embedded in the clamp members.

The members 2, 3, and 4 are provided with transversely extending registering holes, and positioned in these holes are rivets 17 which are upset and headed after the parts have been secured in assembled position by means of an auxiliary high powered clamp temporarily applied thereto. When desired, bolts may be substituted for the rivets 17 in fastening the clamps together.

In the construction of Figs. 5, 6, and 7, the ends of the clamp members are tapered or chamfered in order to lessen the weight of the clamp, this being possible without lessening the gripping strength of the clamp. In both constructions the holes formed by the pairs of registering grooves 5, 6,—7, 8, are straight at the ends of the clamping members, and the straight portions extend inwardly for an appreciable distance in axial alinement with one another.

All sharp edges will be carefully rounded so as to prevent cutting of the wires forming the ropes when applying the clamp to the rope.

The manner of applying the clamps to the ropes will be readily understood from the foregoing description of the apparatus.

The advantages of my invention will be apparent to those skilled in the art. The apparatus is simple, is very strong and durable, and is easily and quickly applied for use either in the shop or in the field.

Modifications in the details of the parts forming my improved clamp may be made within the scope of the invention as defined in the appended claims.

I claim:—

1. A rope clamp comprising outer members and an intermediate member, said members having registering, rope receiving grooves in adjoining faces thereof, with the registering grooves on opposite sides of said intermediate member extending lengthwise at an angle with each other, said grooves being reversely curved lengthwise to form a sinuous seat for the ropes and having straight co-axial end portions connected by the reversely curved portions and means for connecting said members in rope clamping engagement.

2. A rope clamp comprising outer members and an intermediate member, said members having registering, rope receiving grooves in the adjoining faces thereof, with the registering grooves in opposite sides of said intermediate member extending lengthwise at an angle with each other, said grooves being reversely curved lengthwise and having projections on the surfaces thereof to form a sinuous, serrated seat for the ropes and means for connecting said members in rope clamping engagement.

3. A rope clamp comprising outer members and an intermediate member, said members having registering, rope receiving grooves in the adjoining faces thereof, with the registering grooves in opposite sides of said intermediate member extending lengthwise at an angle with each other, said grooves being reversely curved lengthwise and having projections on the surfaces thereof to form a sinuous, serrated seat for the ropes, transversely extending, registering holes in said members and means in said holes for connecting the members in rope clamping position.

4. A rope clamp comprising outer members and an intermediate member, said members having registering, rope receiving grooves in the adjoining faces thereof, with the registering grooves in opposite sides of said intermediate member extending lengthwise at an angle with each other, said grooves being reversely curved lengthwise and having projections on the surfaces thereof to form a sinuous, serrated seat for the

ropes, transversely extending, registering holes in said members and rivets in said holes for fastening said members in rope clamping engagement.

5. A rope clamp comprising an intermediate clamping member and coacting outer members, the adjacent faces of said members having registering semi-circular rope receiving grooves therein and said grooves undulating lengthwise to kink ropes clamped therein, and means for fastening said clamp members in rope clamping position.

In testimony whereof I have hereunto set my hand.

BOLTON C. MOISE.