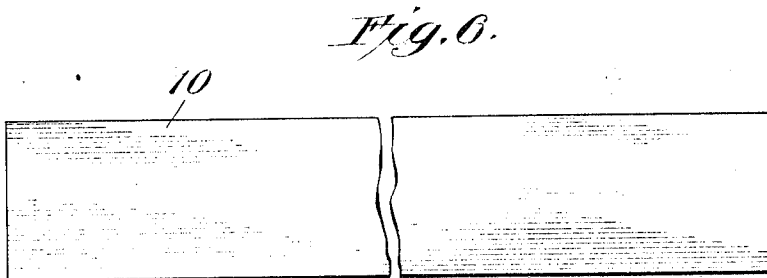
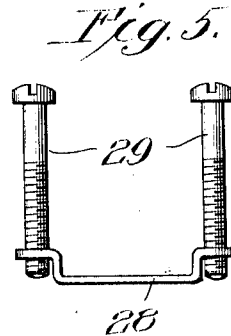
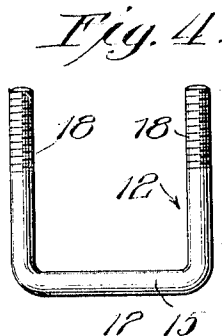
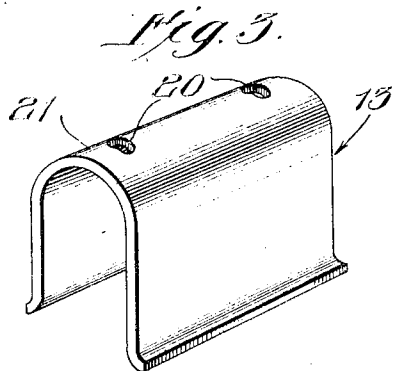
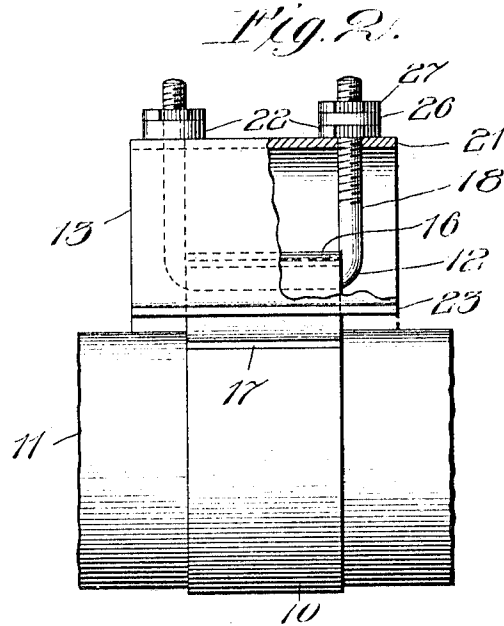
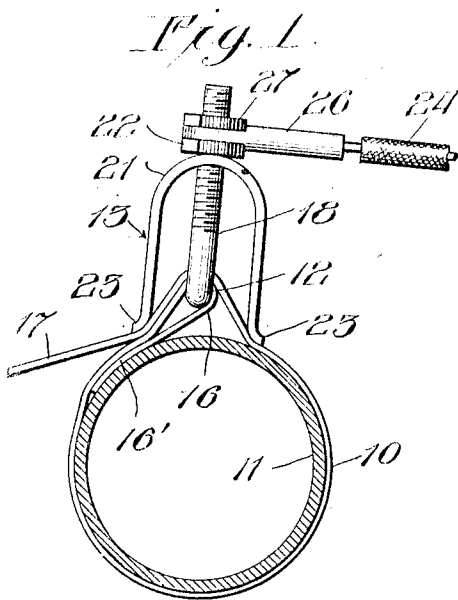


F. E. McKENNA.
GROUND WIRE CONNECTOR.
APPLICATION FILED JUNE 30, 1911.

1,054,227.

Patented Feb. 25, 1913.



Witnesses:

Harry S. Gauthier
F. F. Woodward.

by

Inventor:

Francis E. McKenna
William H. Hare
Att'y

UNITED STATES PATENT OFFICE.

FRANCIS E. McKENNA, OF WAUWATOSA, WISCONSIN.

GROUND-WIRE CONNECTOR.

1,054,227.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed June 30, 1911. Serial No. 636,174.

To all whom it may concern:

Be it known that I, FRANCIS E. McKENNA, a citizen of the United States, and a resident of Wauwatosa, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Ground-Wire Connectors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a ground wire connector for use in electric wiring systems for connecting lightning arrester wires, return wires, conduits, grounding wires and the like to the ground, as through a gas or water pipe or like metallic conductor or body.

The object of my invention is to provide a simple, economical and efficient ground wire connector so constructed as to maintain at all times a good electrical contact to the pipe or other conductor body to which it is attached.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings,—Figure 1 is a cross section of a pipe showing my ground wire connector applied thereto. Fig. 2 is a partial side elevation and partial section of the parts shown in Fig. 1. Fig. 3 is a perspective view of the compression yoke constituting a part of the connector. Fig. 4 is a detached view of the tension element or member of the connector. Fig. 5 is a modified form of the tension element or member. Fig. 6 is a plan view of a metallic strap constituting a part of the connector.

The connector which I have herein shown as illustrative of my invention consists of three principal elements, to wit, a flexible band or strap 10, adapted to encircle the pipe 11 or other grounded conductor or body, a tension element 12, which may have the form of a U-shape bolt, and a compression element 13 which may have the form of a yoke, as shown. The said strap 10 may comprise a thin strip of any metal which is a good conductor for electricity and properly protected from deterioration, as tinned or nicked copper. The tension member is made of any suitable electrically conducting metal and the compression member or ele-

ment may be made of a material preferably possessing some resiliency, such as spring brass, and may be plated to avoid corrosion. The said strap 10 encircles between its ends the pipe or other ground conductor 11. One end of the strap is looped about the closed portion 15 of the U-shaped tension bolt, as shown at 16 in Fig. 1, with the free end 16' of the loop confined between the pipe and the portion of the strap encircling the pipe. The other end 17 of the strap is laced or trained about the closed portion 15 of the tension bolt and is led laterally therefrom over the portion of the strap that bears against the free end 16' of the loop 16. The shank portions 18, 18 of the tension bolt are screw-threaded and said screw-threaded portions pass through openings 20 in the closed portion 21 of the yoke shaped compression member and are provided beyond said closed portion of the yoke with nuts 22 which are screw-threaded to the shanks of the tension bolt. The end members of the yoke are preferably slightly flared, the ends of said members being turned outwardly, as shown at 23. Said outturned ends of the yoke bear against the strap 10 in the parts thereof which lie at the sides of the tension bolt in the manner shown in Fig. 1.

The parts are assembled, as shown in Fig. 1, with the strap encircling the pipe or ground connection 11 and attached to and trained at its ends about the closed portion of the tension member, in the manner shown, and the rounded ends of the yoke or compression element are engaged with the strap at the sides of the tension bolt, the nuts 22 being screwed down against the upper or outer closed portion of the yoke shaped tension member. When the nuts 22 are thus screwed down against the yoke, the yoke acts as a resilient or spring compression member to exert pressure on the strap at two points on the opposite sides of the tension member, and the resiliency of the yoke, combined with the tension action of the tension member, acts on the strap to bind the strap closely upon or against the pipe throughout its circumference, and thereby maintain good electrical contact between said strap and pipe.

The wire or conductor 24 which is to be grounded through the connection described may be attached to one of the shanks 18 of the U-shaped tension bolt in any suitable

manner, as for instance by means of the wire tip or connector 26 which is clamped between one of the nuts 22 and binding nut 27 screw-threaded to the shank of the tension member or bolt 12.

I may employ, in lieu of the U-shape tension bolt 12, a tension member comprising a bent bar 28 having at its ends screw-threaded openings to receive the inner screw-threaded ends of bolts 29, 29 that are headed at their outer ends to bear against the outer side of the yoke shaped tension member 13 (Fig. 5). In this construction the strap 10 is looped at one end about said bar 28, with its other end trained over the bar and beneath one end portion of the yoke in the same manner as the strap is connected with the closed portion 15 of the U-shaped bolt before described.

Other structural variations may be made within the spirit and scope of my invention, and the invention is not limited to the details shown except as hereinafter made the subject of specific claims.

I claim as my invention:—

1. A ground wire connector comprising a flexible metal strap adapted to encircle a body, a U-shaped metallic tension member arranged with its closed portion parallel to the longitudinal axis of said body and over which closed portion one end of the strap is looped with its extreme end confined between the strap and body, and about which closed portion and said looped end of the strap the other end of the strap is trained, and a yoke-shaped compression member bearing at its ends against the strap at points on opposite sides of the tension member, the arms of said tension member extending through openings in the closed part of the compression member and screw-threaded at their outer ends, and nuts engaging said screw-threaded ends of the tension member.

2. A ground wire connector comprising a flexible metal strap adapted to encircle a body, a U-shaped metallic tension member arranged with its closed portion parallel to the longitudinal axis of said body and over which closed portion one end of the strap is looped with its extreme end confined between the strap and body, and about which closed portion and said looped end of the strap the other end of the strap is trained, and a yoke-shaped compression member bearing at its ends against the strap at points on opposite sides of the tension member, the arms of said tension member extending through openings in the closed part of the compression member and screw-threaded at their outer ends, and nuts engaging said screw-threaded ends of the tension member, the compression member being resilient and having outwardly turned ends to bear against said strap.

3. In a ground wire connector, a U-shaped tension member having screw-threaded ends, a yoke member between the arms of which said tension member is principally contained, the arms of the tension member extending through openings in the closed portions of the yoke member and provided at their outer ends with nuts, the closed portion of the U-shaped member terminating short of the ends of the yoke member, and a strap adapted to encircle a body and trained about the tension member with the ends of the yoke member engaging the strap at opposite sides of the tension member.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 27 day of June A. D. 1911.

FRANCIS E. McKENNA.

Witnesses:

A. J. SMITH,
E. A. BAKER.