

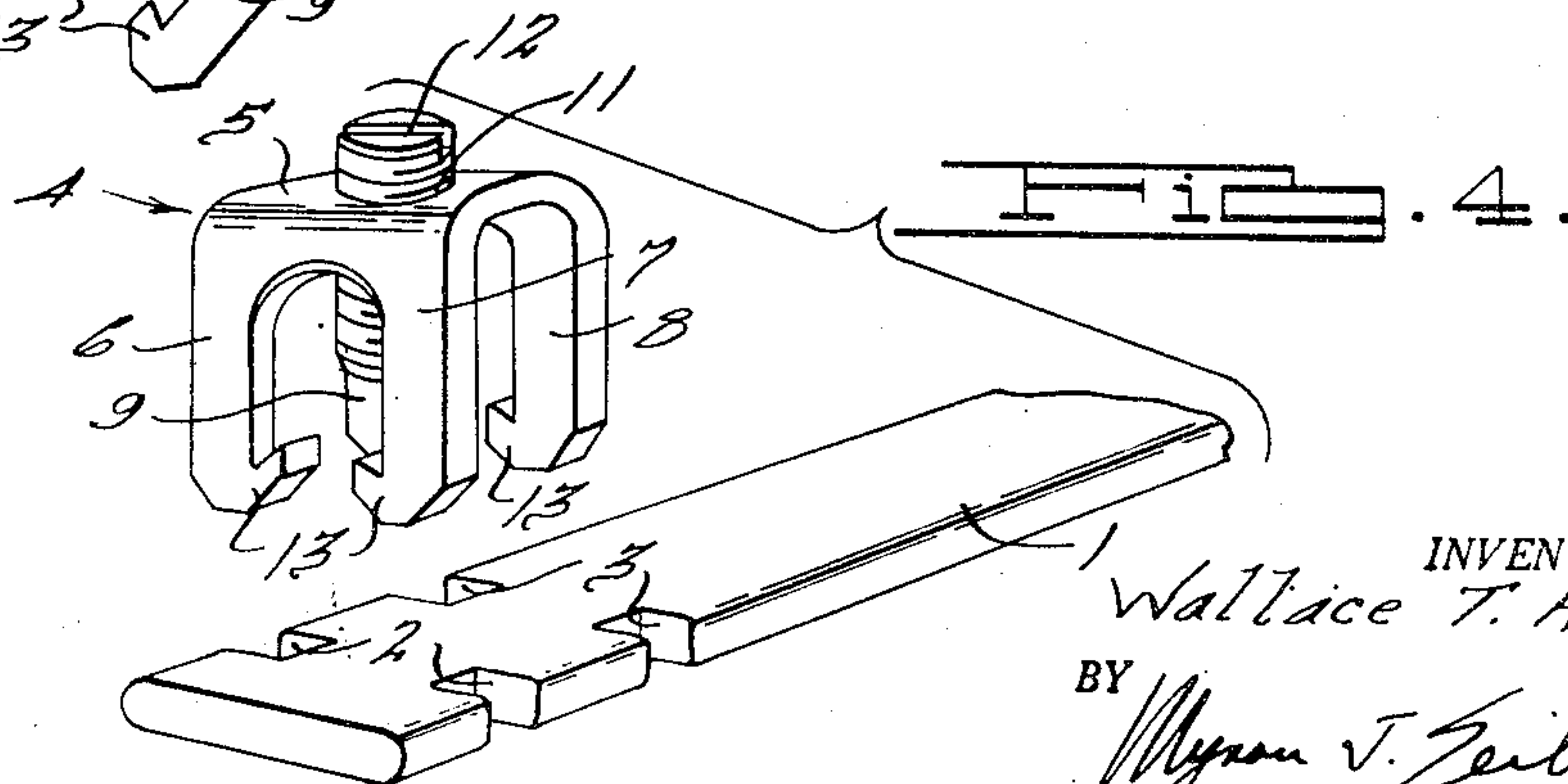
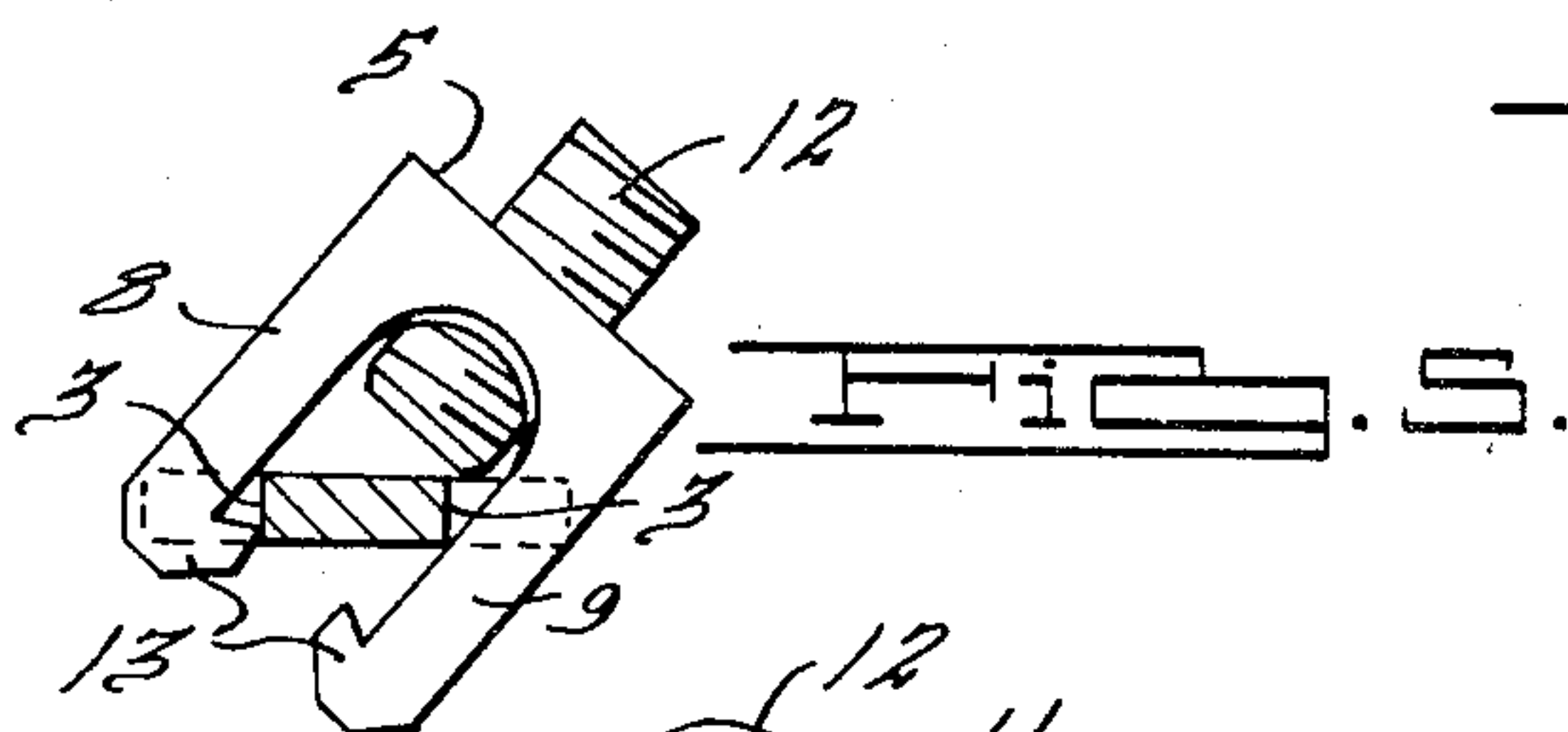
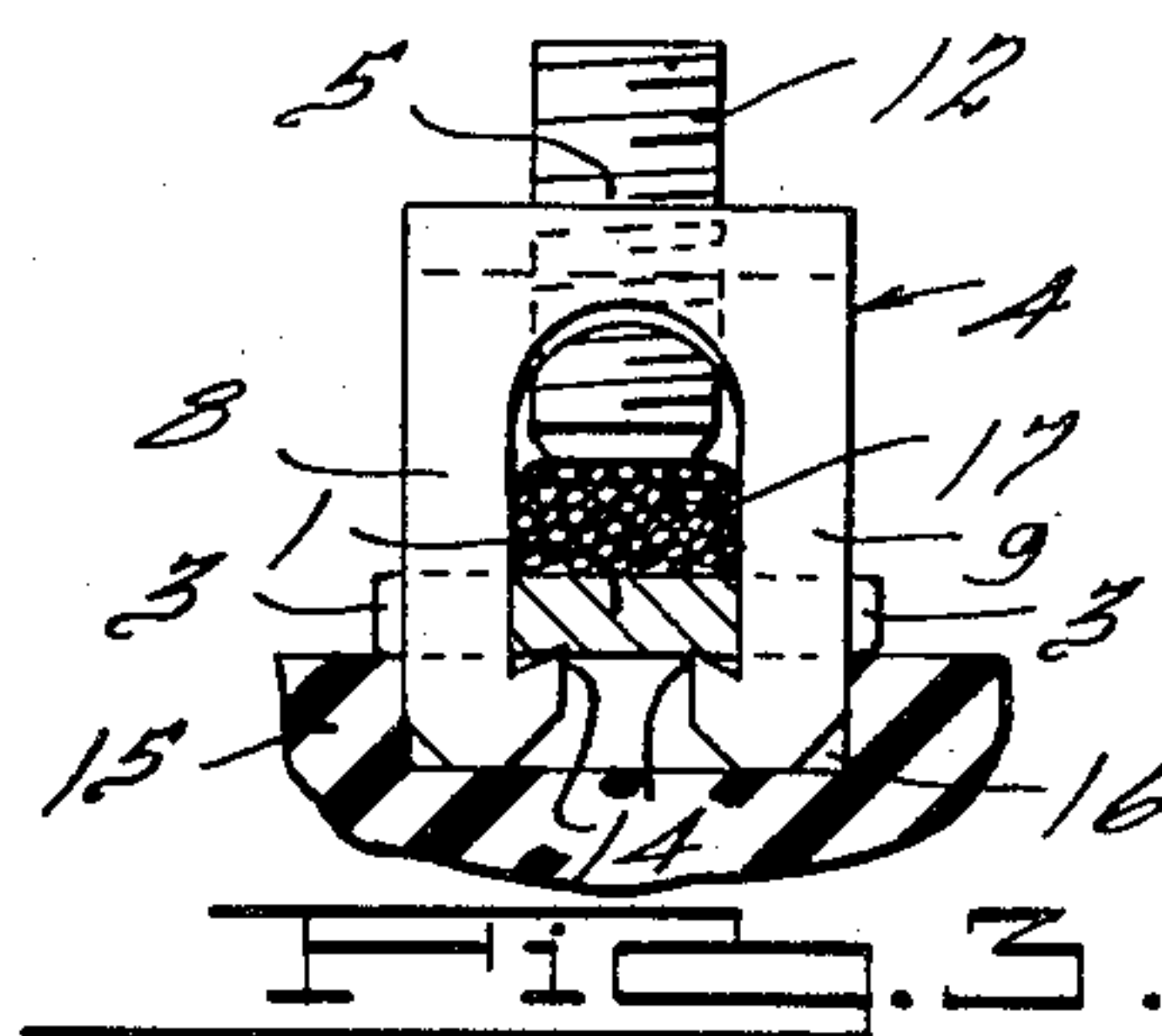
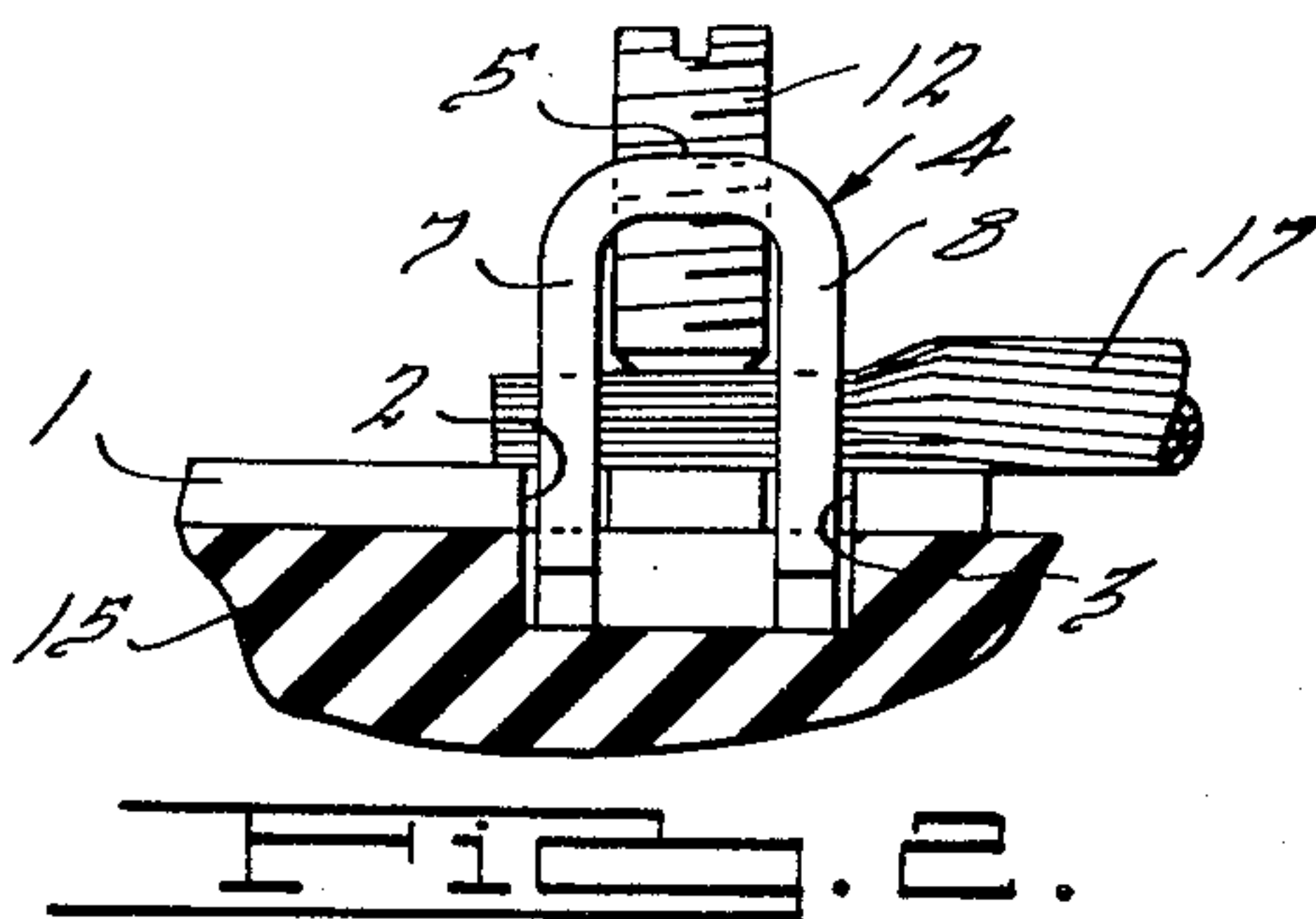
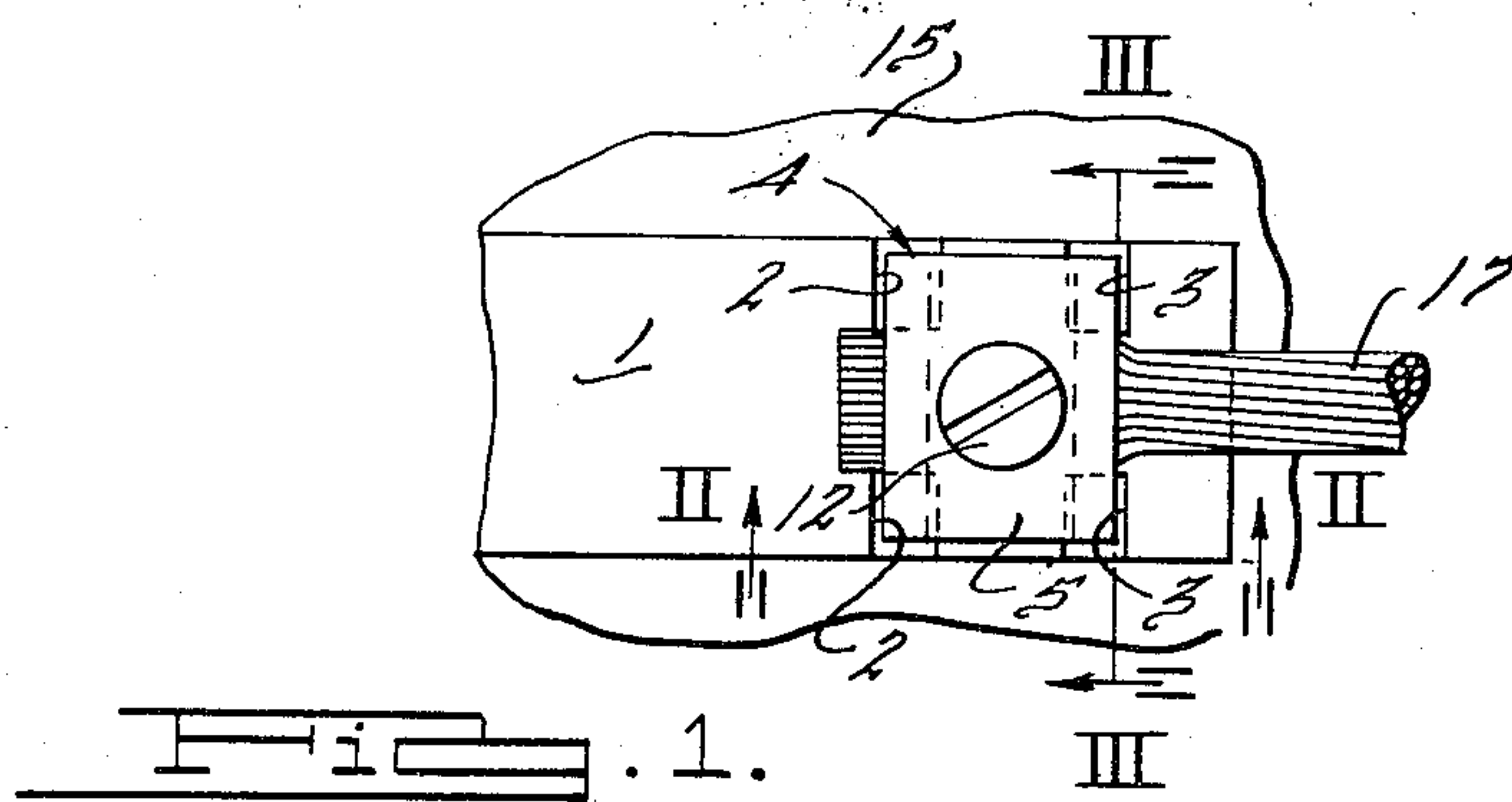
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SOLDERLESS CONNECTOR WITH SET SCREW

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SOLDERLESS CONNECTOR WITH SET SCREW

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This invention relates to solderless connectors for electrical conductors.

One object of the present invention is the provision of an improved solderless connector which is inexpensive to fabricate and assemble, but which is sturdy and dependable.

Another object of the present invention is the provision of an improved solderless connector comprising a bus bar, neutral plate, or the like, having a plurality of slots therein and a cooperating wire housing having a plurality of legs engageable with said slots.

Another object of the invention is the provision of a solderless connector in accordance with the preceding object in which the legs of the wire housing bite into the underside of the associated bus bar when force is applied to the cable portion inserted into the wire housing.

Other objects and features of the invention will be readily apparent to those skilled in the art from the specification and appended drawing illustrating certain preferred embodiments in which:

Figure 1 is a plan view of the device of the present invention.

Figure 2 is a view along the plane of line II—II of Figure 1.

Figure 3 is a view along the plane of line III—III of Figure 1.

Figure 4 is an exploded view of the elements comprising the device of the present invention prior to their assembly.

Figure 5 is a view similar to Figure 3 showing the parts in an intermediate position during their assembly.

The device of the present invention comprises a bus bar, terminal plate or the like, 1 having a first pair of notches 2 and a second pair of notches 3 formed therein. Cooperating with the element 1 is a wire housing 4 which comprises a base portion 5 from which depend a plurality of legs 6 through 9. Through the base portion 5 extends a threaded hole 11 in which a suitable screw 12 is operable.

Each of the legs 6 through 9 has integrally formed thereon, at the end spaced from the base portion 5, a return bent lug 13. The lugs 13, as may be seen from an inspection of Figure 4, are inwardly directed and are provided at their innermost extremities with sharp corners 14.

In assembling the solderless connector of the present invention, the screw 12 is rotated until it extends outwardly a substantial distance, and the wire housing 4 is rotated to the position indicated in Figure 5, with the legs 6 through 9 registering with the notches 2 and 3. The housing 4 is then rotated to the position indicated in Figure 3 with the sharp corners 14 in engagement with the underside of the bus bar 1. The screw 12 is then rotated inwardly until it engages the upper surface of the bus bar 1 whereby a substantial force is applied between the sharp corners 14 and the underside of the bus bar 1. It will readily appear that in such position no relative movement between the wire housing 4 and bus

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bar 1 may occur as the engagement between the sharp corners 14 and the bus bar 1 prevent relative rotational movement between the wire housing 4 and the bus bar 1 and, as shown in Figure 2, the close cooperation between the slots 2 and 3 and the legs 6 through 9 prevents any relative translational movement between the wire housing 4 and the bus bar 1.

After the wire housing 4 is assembled to the bus bar 1, these elements are fixedly mounted upon a suitable base 15 of insulating material having therein a cutout portion 16 in the manner shown in Figure 3. It is apparent that in this position the screw 12 may be withdrawn from its engagement with the bus bar 1 without permitting any relative movement between the wire housing 4 and bus bar 1. A cable portion 17 may then be inserted into the solderless connector of the present invention and the screw 12 tightened against it. As may be seen from Figure 3, the screw 12 is tightened against the cable 17 which is forced tightly against the bus bar 1. Simultaneously legs 6 through 9 tend to be drawn upwardly whereby the sharp corners 14 engage the underside of the bus bar 1. These sharp corners tend to cut into the underside of the bus bar whereby the tendency of the legs to diverge under this type of forced application is substantially eliminated. In the preferred form of the present invention while the bus bar 1 is made of a material having good electrical conductivity, such as copper, the wire housing 4 is made up of material of substantial strength, such as steel. The sharp corners 14, therefore, tend to penetrate into the relatively softer material of which the bus bar is composed upon the application of pressure by the screw 12, these sharp corners thereby preventing outward, divergent movement of the legs 6 through 9.

It will readily appear that the device of the present invention is a solderless connector which may be employed to effect an excellent mechanical and electrical connection between the cable portion and the bus bar, and yet one in which the parts are economical to manufacture and assemble.

While a preferred embodiment of the invention has been specifically disclosed, it is understood that the invention is not limited thereto, as many variations will be readily apparent to those skilled in the art and the invention is to be given its broadest possible interpretation within the terms of the following claims.

What is claimed is:

1. A solderless connector comprising a wire housing formed of a base portion and four independent legs depending therefrom, an inwardly directed lug at the end of each leg spaced from said base portion, a bus bar having a plurality of notches therein, each notch embracing one of said legs of said wire housing, a threaded hole in said base portion, and a screw operable in said threaded hole to apply a force to a cable inserted into said connector between the screw and the bus bar and effect its electrical and mechanical engagement with said bus bar.

2. A solderless connector comprising a wire housing formed of a base portion and four legs depending therefrom, an inwardly directed lug at the end of each leg spaced from said base portion, a return bent portion on each of said lugs, a bus bar having a plurality of notches therein, each of said notches embracing one of said housing legs and the ends of said return bent portions engaging the underside of said bus, a threaded hole in said base portion, and a screw operable in said threaded hole to apply a force to a cable inserted into said connector and effect its electrical and mechanical engagement with said bus bar.

3. A solderless connector comprising a wire housing formed of a base portion and four legs depending there-

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from, an inwardly directed lug at the end of each leg spaced from said base portion, each of said lugs comprising a return bent portion, a bus bar having a plurality of notches therein, said bus bar assembled with said wire housing with said notches embracing said legs and the undersurface of said bus bar engaging the ends of the return bent portions of said lugs, the longitudinal dimension of said notches being substantially the same as the width of said legs and the overall transverse dimension of said bus bar being substantially the same as the overall transverse dimension of said wire housing whereby relative translational movement between said housing and bus bar are prevented, a threaded hole in said base portion, and a screw operable in said threaded hole to apply a force to a cable inserted into said connector and effect its electrical and mechanical engagement with said bus bar.

4. A solderless connector comprising a wire housing formed of a base portion and four legs depending therefrom, an inwardly directed lug at the end of each leg spaced from said base portion, a return bent sharp corner on each of said lugs, a solid conductor having a plurality of notches therein, a threaded hole in said base portion, a screw operating in said hole, said solid conductor disposed extending between legs with said notches embracing said legs and said lugs extending toward the longitudinal axis of said conductor, said screw being rotatable to effect the application of substantial force by said sharp corners to said solid conductor whereby the

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engagement between said corners and said conductor substantially overcomes the inherent tendency of said legs to diverge under the application of pressure.

5. A solderless connector comprising a wire housing of a material of substantial strength, said housing having a base portion and four legs depending therefrom, an integral inwardly directed lug at the end of each leg spaced from said base portion, a return bent sharp corner on each of said lugs, a solid conductor of a material softer than the material of said wire housing having a plurality of notches therein, a threaded hole in said base portion, a screw operating in said hole, said solid conductor disposed extending between said legs with said notches embracing said legs and said lugs extending toward the longitudinal axis of said conductor, said screw being rotatable to effect the application of substantial force by said sharp corners to said solid conductor whereby the engagement between said corners and said conductor substantially overcomes the inherent tendency of said legs to diverge under the application of pressure.

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