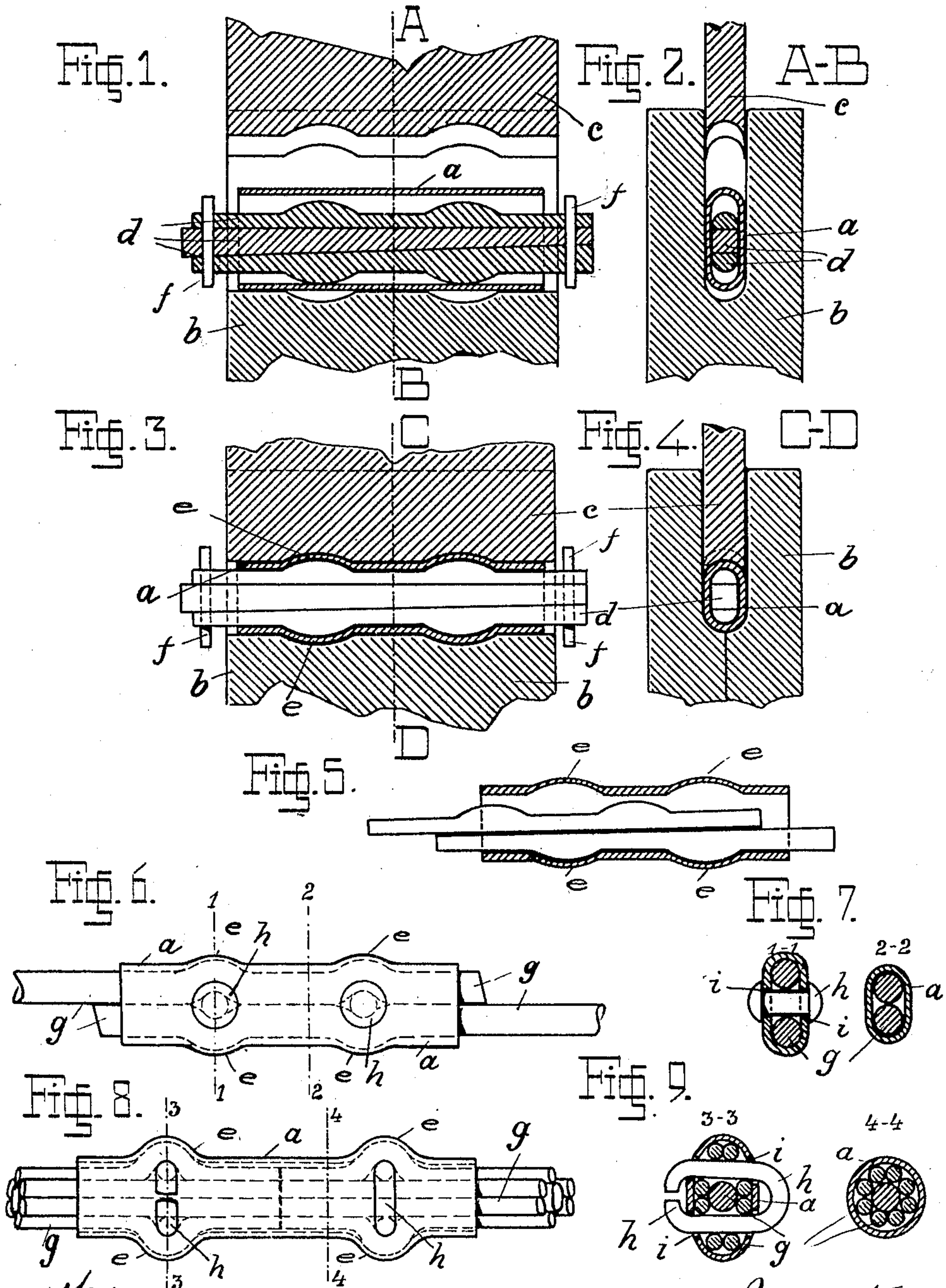


No. 849,612.

PATENTED APR. 9, 1907.

W. HOFMANN.  
WIRE COUPLING.

APPLICATION FILED JUNE 1, 1903.



Witnesses:

W. K. Boneter  
*[Signature]*

Inventor  
Wilhelm Hofmann,  
By *[Signature]* W. K. Boneter,  
Attorney



# UNITED STATES PATENT OFFICE.

WILHELM HOFMANN, OF KÖTZSCHENBRODA, GERMANY.

## WIRE-COUPLING.

No. 849,612.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed June 1, 1903. Serial No. 159,623.

*To all whom it may concern:*

Be it known that I, WILHELM HOFMANN, a subject of the Grand Duke of Hesse, residing at Kötzschenbroda, Saxony, in the Empire of Germany, have invented certain new and useful Improvements in Wire-Couplings, of which the following is a specification.

This invention relates to improvements in couplings or connecting sleeves or bonds for electric and other wires.

The invention has for its object the arrangement of a tubular sleeve consisting of a tube of oval section and provided with oppositely-disposed protuberances or chambers in which the wires to be coupled or connected are bent or pressed by means of rivets, pins, or wedges, the narrow parts of the tube being hardened by compressing the metal and reducing the size of the tube. In this way the wires are secured to the sleeve and may be held securely in it without soldering.

The object of the invention is to provide an efficient means for connecting the ends of electric wires, where it is, as well known, very difficult to solder together the ends of the wires or to secure them to a wire-connector by soldering.

The sleeve is preferably made of metal of any kind in the form of an oval tube provided with protuberances stamped out. The width of the oval tube is sufficiently great to afford room for the insertion of the two wires to be connected. The sleeve has lateral holes, through which, after the wires have been introduced into the sleeve, rivets, wedges, studs, or pointed pins are introduced laterally or at right angles to the longitudinal axis of the wires and the sleeve, said rivets, &c., passing between both wires and bending them outward into the longitudinal protuberances. The wires thus bent cannot return to their straight position as long as there is a wedge or rivet between them. The wires are thus securely fixed in place by one, two, or more rivets, &c., within the protuberances, and even a considerable pull or push on the wires could not withdraw them from the sleeve. The strength of the sleeve is secured by the fact that the thickness of the wall on the protuberances is precisely the same as the original thickness of the wall of the oval tube and that the metal of this part of the wall remains soft, whereas the parts of the wall of the tube situated between the pro-

55 tuberances are stronger by compressing and jumping. Therefore they are also more solid, so that the coupling-sleeves are most resistant at the points of the change of the straight into the curved parts or protuberances of the sleeve, which points are subject to the greatest pull or strain.

Apparatus for the manufacture of connecting-sleeves according to the invention is illustrated in Figures 1 to 4 of the accompanying drawings, Figs. 1 and 2 showing, respectively, a longitudinal and a cross-section through the press after the tube has been introduced. Figs. 3 and 4 show, respectively, a longitudinal and a cross-section of the press after it has acted on the tube.

As will be seen from the last two figures, the walls of the sleeves are strengthened at the portions between the protuberances or projections, as the material at these points is compressed to a smaller circumference.

The sleeves are manufactured from tubes of any desired metal, preferably copper, placed in a suitably-shaped die *b* and pressed, by means of a plunger or counterpart die *c*, round a core *d* (built up in three sections to enable it to be subsequently removed from the tube) in such a manner as to produce on the narrow sides of the sleeve opposite longitudinal projections *e*. As will be seen, these reduced and strengthened portions of the sleeve are exposed (when the latter is used for connecting wires) to the greatest pulling strain, so that sleeves prepared in accordance with this invention have considerable strength with a comparatively small weight.

The removal of the core *d*, provided with corresponding projections, from the finished sleeve is effected as follows: After removing the two screws or keys *f f* the central wedge-shaped portion can be withdrawn, whereupon the two outer parts, provided with protuberances, can also be withdrawn, Fig. 5.

Figs. 6 to 9 show two forms of sleeves for connecting electric wires manufactured according to this invention. The straight wires *g* to be connected are introduced into the formed sleeve *a*, and a conical pointed mandrel is passed through lateral holes *i* in the sleeve between the wires, whereby the wires *g* are bent out and forced into the recesses *e e*. The intervals thus produced between the wires are filled in by means of



rivets *h* or the like, which keep the wires in bent position and prevent them from slipping or returning to their original form.

In connecting two single wires oval-shaped sleeves are used, such as shown in Figs. 6 and 7, the wires being introduced one above the other. For connecting cables consisting of several wires it is preferable to use sleeves of circular cross-section, as shown in Figs. 8 and 9, in which the end of the cables may be butted together at the center, and staples *h* are driven through the holes *i* to force the upper and lower wires into the recess *e* and secure the whole firmly together.

Figs. 6 and 8 clearly show that the reduced hardened and strengthened portions of the sleeve have to resist a considerable pulling strain, due partly to the wires being spread out and partly to the pull of the

tightly-stretched wires, which tends to straighten the wires at the places at which they are bent.

What I claim as my invention, and desire to secure by Letters Patent, is—

A wire coupling or bond consisting of a tubular structure with oppositely-disposed longitudinal stamped-out projections forming pockets of soft metal and intermediate parts of hardened compressed metal and perforations between each two pockets forming a pair, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses:

WILHELM HOFMANN.

Witnesses:

RUD. SCHMIDT,  
PAUL ARRAS.