

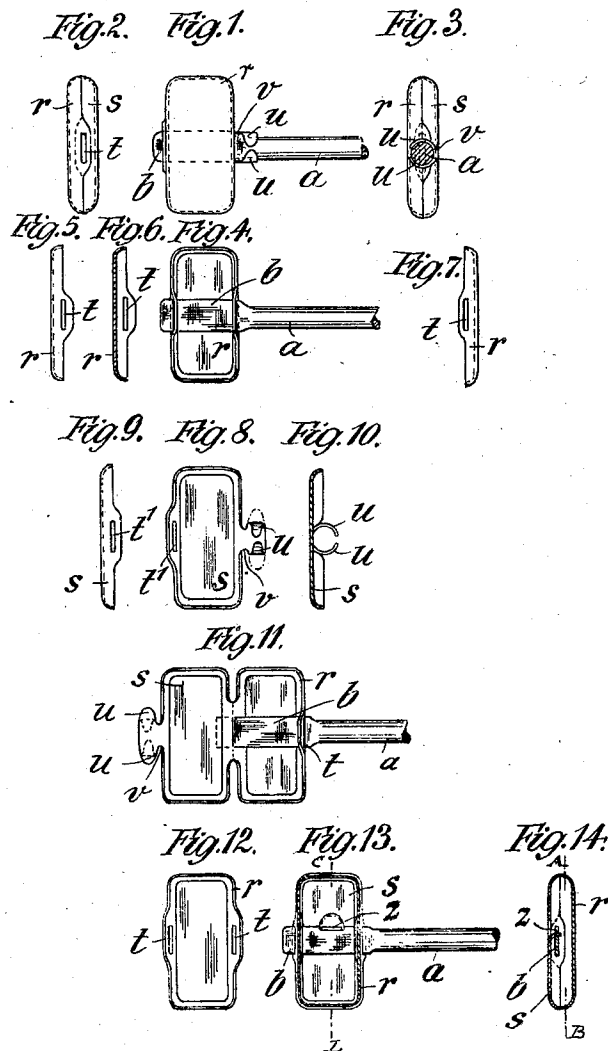
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E. P. LEHMANN.

MEANS FOR SECURING WIRE TO OTHER OBJECTS.

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Witnesses:
Waldemar Haupt
Henry Harper

Inventor:
Ernst Paul Lehmann

UNITED STATES PATENT OFFICE

ERNST PAUL LEHMANN, OF BRANDENBURG-ON-THE-HAVEL, GERMANY.

MEANS FOR SECURING WIRE TO OTHER OBJECTS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNST PAUL LEHMANN, a subject of the King of Prussia, residing at No. 6 Plauerstrasse, Brandenburg-on-the-Havel, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Means for Securing Wire to other Objects, of which the following is a specification.

My invention relates to improvements in the manner of joining the parts of wire articles, and more particularly to a wire to which a handle is rigidly secured, without soldering or riveting, the said handle being formed of two halves of sheet metal embracing the wire at or near one end of the same.

Wire articles of this kind provided with a handle may be employed to advantage in the manufacture of toys, for winding up driving-springs mounted on the wire, and for other purposes.

The novel feature of my invention consists in the particular means employed to secure the sheet-metal parts of the handle to the wire without the use of soldering or riveting.

In the accompanying drawings, designed to illustrate my invention, Figure 1 is a side elevation of a piece of wire with a flat sheet-metal handle rigidly secured to it according to this invention. Fig. 2 is an end elevation seen from the left to the right of Fig. 1. Fig. 3 is an end elevation seen from the right to the left of Fig. 1. Fig. 4 is a side elevation of the wire with one-half of the handle in place upon the flattened or deformed portion of the wire. Fig. 5 is an end elevation of the said half-handle. Fig. 6 is a cross-section of the said half-handle. Fig. 7 is an end elevation of the said half-handle seen from the opposite side with relation to Fig. 5. Fig. 8 is an inside view of the other half of the handle to be secured to the wire. Fig. 9 is an end elevation of said other half-handle. Fig. 10 is a cross-section of said other half-handle. Fig. 11 illustrates another embodiment of this invention, showing the two halves of the handle formed as one integral piece. Fig. 12 is an inside view of one-half of the handle shown in Fig. 14. Fig. 13 is a section drawn on line A B of Fig. 14, illustrating a further modification of this invention; and Fig. 14 is a cross-section drawn on line C D of Fig. 13.

Referring to Figs. 1 to 10, *a* is a piece of wire, usually of a round, but it might be of any other suitable cross-section. To one end

of said wire *a* a handle, consisting of two halves *r* and *s*, is to be rigidly secured without soldering or riveting. The said two halves *r* and *s* of the handle are preferably shaped with their edges slightly turned up to form a flange; but they may be flat. The one half *r* has a flap and a slit *t* in said flap at two opposite sides, as clearly shown in Figs. 4 and 12, and through the said corresponding slits *t* a flattened or deformed portion *b* of the wire *a* may be readily introduced, as shown in Fig. 4.

When the half *r* of the handle has been slipped onto the flat portion *b* of the wire *a*, as shown in Fig. 4, the wire can be easily withdrawn longitudinal from the slits *t*; but the wire is prevented from turning with the slits *t*, owing to the flat shape of the deformed portion *b* and of the slits *t*. The other half *s* of the handle has a flap and a slit *t'* at one side, as shown in Figs. 8 and 9, the said slit *t'* registering with the slit *t* of the corresponding half *r* when the two halves *r* and *s* are placed in position upon the flat portion *b* of the wire *a*. Opposite to the flap and slit *t'* of the half *s* another flap *v* projects from the side of said half *s*, and upon the said flap *v* are formed two ears or strips *u*, which normally are flattened in the plane of the flap *v*, as indicated by dotted lines in Fig. 8, but which may readily be bent to embrace the round portion of the wire *a*, as shown in Fig. 1.

For securing the handle to the wire the flattened portion *b* of the wire is first introduced into the two opposite slits *t* of the half *r* of the handle, as shown by Fig. 4. Then the other half *s* of the handle is slipped onto the flattened portion *b* of the wire *a* by introducing the projecting end of the said portion *b* into the slit *t'* of the half *s*, the two halves *r* and *s* being placed opposite each other, as clearly shown in Figs. 2 and 3. When the half *s* of the handle has been placed in position, the two ears or strips *u* of the flap *v* are bent to form a clamp embracing the wire beyond the shoulder formed by the flattened portion *b*, thus preventing the wire from being withdrawn from the slits *t* and *t'* of the handle.

The handle is now found to be rigidly secured to the wire *a*, as it is prevented from turning, as before described, and also prevented from being shifted in the direction of its length by reason of the fact that the round or normal cross-section of the wire cannot pass through the narrow slits *t* *t'*, and the flattened portion *b* of the wire cannot

pass through the embracing-clamps *u* in the opposite direction.

The modification illustrated by Fig. 11 consists in forming the handle of two halves *r* and *s* integral with each other and connect-
 5 *r* and *s* integral with each other and connect-
 ed by a common flap forming a neck which allows of bending the half *s* to fit the half *r*. In this case a single slit *t* is required in the flap connecting the two halves *r* and *s*.

- 10 Instead of providing a flap *v* with ears or strips *u* at the side of the half *s* of the handle for engaging the wire *a* when the said half *s* has been put in position, the clamp to prevent the drawing back of the wire may be formed
 15 by cutting or stamping a flap from the body of the half *s* and by bending the said flap or strip to the inside of the handle to engage a notch or recess of the wire, as shown in Figs. 13 and 14, and it will be seen that the said
 20 flap or strip *z* engaging the recess of the wire *a* will prevent the same from being withdrawn from the slits *t* and *t'* of the two halves *r* and *s* of the handle. The number of such flaps or strips and of the corresponding
 25 notches in the wire may be increased and the said flaps and notches may be placed at either side of the wire.

I claim as my invention—

1. The combination, with a wire having its
 30 normal cross-section deformed for a portion of its length, of a handle comprising two halves placed in opposition to each other, said halves provided at their extremities with openings of a cross-section suited for receiv-
 35 ing the deformed portion of the wire, and means carried by one of the halves arranged to engage the wire to secure the same against withdrawal from said openings.

2. The combination, with a wire having its
 40 normal cross-section flattened or deformed for a portion of its length, of a handle comprising two halves placed in opposition to each other, said halves provided at each extre-
 45 mity with openings of a contour suited for receiving the deformed portion of the wire,

one of the halves having a clamp forming part of said handle arranged to engage the undeformed wire to secure the same against withdrawal from said openings.

3. The combination, with a wire having its
 50 normal cross-section flattened or deformed for a portion of its length, of a handle comprising two oppositely-disposed halves integral with each other and provided with a bearing-aperture for receiving the deformed
 55 portion of the wire, one of the halves being provided with a flap forming a clamp to embrace the wire and secure the same against being withdrawn from the said aperture.

4. The combination, with a wire having its
 60 normal cross-section flattened or deformed for a portion of its length, of a handle comprising two oppositely-disposed halves integral with each other and provided at opposite
 65 sides with bearing-apertures of registering contour for receiving the deformed portion of the wire, one of the halves having a flap or strip projecting therefrom to engage the normal portion of the wire for securing
 70 the same against being withdrawn from the apertures.

5. The combination, with a wire having its
 normal cross-section flattened for a portion of its length, of a handle comprising oppositely-disposed halves integral with each
 75 other and connected by a neck provided with an elongated aperture arranged as a bearing for the flattened portion of the wire, the opposite inturned edge of one half provided with a similar aperture, and the opposite edge of
 80 the other half provided with ears arranged to embrace the normal portion of the wire.

In testimony whereof I affix my signature to this specification in the presence of two witnesses.

ERNST PAUL LEHMANN.

Witnesses:

WOLDEMAR HAUPT,
 HENRY HASPER.