S. S. RIDER.

COTTER PIN.

APPLICATION FILED DEC. 30, 1913.

1,114,525. Patented Oct. 20, 1914.

Fig 1

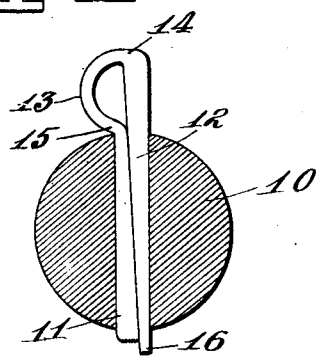


Fig 3

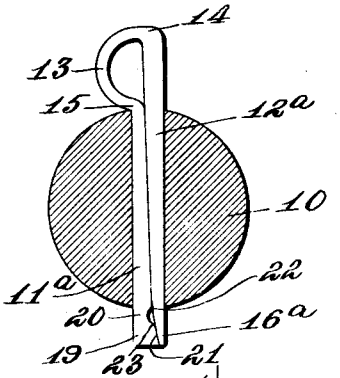


Fig 2

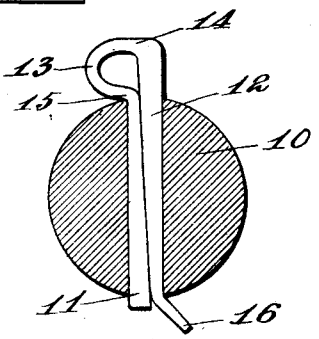


Fig 4

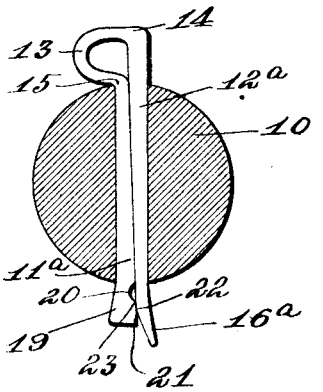
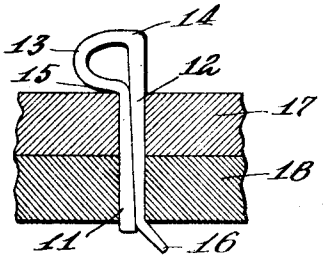


Fig 5



Witnesses

H. C. Robinett

T. J. Mawhinney

Inventor

Samuel S. Rider

By Lemp, Ludeman & Rea

Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL S. RIDER, OF BROOKLAND, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF TO RICHARD E. MILLER, OF WASHINGTON, DISTRICT OF COLUMBIA.

COTTER-PIN.

1,114,525. Specification of Letters Patent. Patented Oct. 20, 1914.

Application filed December 30, 1913. Serial No. 809,492.

To all whom it may concern:

Be it known that I, SAMUEL S. RIDER, a citizen of the United States, residing at Brookland, in the District of Columbia, have invented new and useful Improvements in Cotter-Pins, of which the following is a specification.

This invention relates to an improvement in cotter pins, and has for an object to provide not only an improved means for retaining the cotter pin in position but also means whereby the cotter pin is wedged in the opening through which it is passed to prevent rattling and vibration and also to hold tightly together several parts when the pin is passed through the same.

Briefly stated, the invention comprises a cotter pin, the legs of which are oppositely wedge-shaped, the legs being connected at one end by an offset loop serving as a retaining means for the short leg and providing a flat end for the longer leg which is adapted to be struck so as to wedge the cotter pin in the opening, the legs being provided at their free ends with means for retaining them in the opening.

Other objects and advantages of this invention will appear from the following detail disclosure of the invention, the same being shown in the accompanying sheet of drawings in which—

Figure 1 is a side elevation of the improved cotter pin loosely inserted in the opening in a piece of metal or the like. Fig. 2 is a similar view but showing the cotter pin after being driven and secured in position in the piece of work. Fig. 3 is a view similar to Fig. 1 disclosing a slightly modified form of cotter pin. Fig. 4 is a view similar to Fig. 2 disclosing the modified form of cotter pin secured in position and Fig. 5 is a side elevation of the cotter pin of Fig. 1 as secured through a pair of metal plates or the like, the plates being disclosed in section.

Referring to these drawings, the numeral 10 designates a shaft or other support having a diametrically extending opening therethrough for the reception of a cotter pin in the usual manner.

It will be seen from Figs. 1 and 2 of the drawing that the cotter pin of this invention is made up of a single length of metal overturned upon itself to provide a pair of oppositely wedge-shaped legs 11 and 12 joined at their upper or inner ends by a laterally offset loop 13, providing a flat head or end 14 to the leg 12. The loop 13 is connected to the smaller end of the leg 11 and, as the loop is offset laterally from the legs the loop provides a stop shoulder 15 at the inner end of the leg 11 adapted for engagement with the support 10 to hold the leg 11 from moving through and out of the opening in the support. The leg 12 is considerably longer than the leg 11 and extends inwardly a considerable distance beyond the smaller end of the leg 11 so as to admit of the driving of the leg 12 down in the opening and against the leg 11 and effect a relatively great expansion of the cotter pin. The leg 12, as shown in Fig. 1 normally has its outer or smaller end projecting beyond the outer or enlarged end of the leg 11, this extension being provided for the purpose of admitting the use of the cotter pin in a tight fitting opening where the leg 12 can be driven but slightly into the opening. This extension, designated 16 in the drawing, is adapted to be struck with a hammer or the like and bent over as shown in Fig. 2 after the cotter pin has been wedged in the support.

In the use of this cotter pin the same is inserted in the opening in the support 10 and the enlarged end of the leg 12 is struck with a hammer, or the like, to drive the leg 12 into the opening and bind the wedge-shaped legs against the walls thereof. As the leg 12 moves into the opening the loop 13 is flattened as shown in Fig. 2 and the stop shoulder 15 is bent over at a sharp angle against the support 10, thus insuring the retention of the leg 11. As soon as the cotter pin is wedged into the opening, the extension 16 of the longer leg 12 is bent laterally and abruptly against the support 10, as shown in Fig. 2, whereby to prevent the retraction of the leg 12 by vibration or the like.

In Fig. 5 of the drawing there is disclosed a pair of plates 17 and 18 having an opening formed therethrough in which is placed the cotter pin. When the cotter pin is wedged into this opening it is evident that the plates 17 and 18 cannot move or vibrate relatively to one another as the cotter pin is provided with the oppositely wedge-shaped legs which bind equally throughout the entire length of the cotter pin and thus securely hold both the upper and lower plates

17 and 18. It is thus seen that this pin may be used for various other uses than a cotter pin, such as a dowel, or any other kind of a pin.

In the modification disclosed in Fig. 3 the cotter pin is given substantially the same form and shape as shown in Figs. 1 and 2, but additional securing means is provided upon the free ends of the legs 11^a and 12^a for retaining the pin in the support 10. The outer or enlarged end of the leg 11^a is provided with an extension 19 joined to the leg 11^a by a relatively narrow portion or neck 20, the extension 19 having an inner beveled or inclined face 21 formed at a greater angle to the longitudinal axis of the leg 11^a than the inner inclined face thereof. The extension 16^a of the leg 12^a is provided with an inner inclined or beveled face normally bearing flat against the beveled face 21 of the extension 19, as shown in Fig. 3. The upper end of the extension 16^a provides a shoulder 22 at its juncture with the reduced outer end of the leg 12^a, as shown in Figs. 3 and 4, and the upper end of the inclined face 21 of the extension 19 provides a shoulder 23 by reason of the notch or cut out portion in the leg 11^a in the formation of the neck 20.

In the operation of the modified form of cotter pin the head 14 of the leg 12^a is struck with a hammer or the like to drive the leg 12^a into the opening and wedge the legs of the cotter pin therein. As the legs 12^a move down into the opening the extension 16^a is gradually bent laterally until the shoulder 22 strikes the shoulder 23 when the extension 19 is bent laterally away from the extension 16^a, and the lower end of the leg 12^a itself is slightly bent away from the neck 20. In order to effect the equal spreading or bending of the extension 19 and the lower end of the leg 12^a, the neck or reduced portion 20 of the leg 11^a is given a thickness equal only to the thickness of the lower end of the leg 12^a so that the resistance to the bending of the two legs at that point will be equal.

It is to be understood that the above described embodiment of my invention is only one form thereof, and that various changes may be made in the details of structure without departing from the spirit of this invention, the changes being limited only by the scope of the following claims.

What is claimed is—

1. A cotter pin comprising a loop terminating in a pair of legs adapted for insertion through an opening, said legs being oppositely wedge-shaped or tapered longitudinally to bind the legs against one another and against the walls of the opening upon the relative movement of the legs whereby to wedge the pin in the opening throughout the entire length thereof.

2. A cotter pin comprising a pair of legs, and a laterally offset loop joining the inner ends of the legs and providing a head on one leg whereby said leg may be driven relatively to the opposite leg and a shoulder on said opposite leg adapted to hold the same from movement with the first leg, said legs being oppositely wedge-shaped or tapered throughout the entire length of the opening whereby upon the relative movement of the legs to bind the latter in the opening throughout its entire length, the free end of the driven leg being adapted to be turned over to retain the cotter pin in the opening.

3. A cotter pin comprising a loop terminating in a pair of legs adapted for insertion in an opening and being oppositely wedge-shaped or tapered longitudinally whereby to bind the legs against the walls of the opening when the legs are moved relatively to one another, and projections on the outer ends of the legs having their abutting faces inclined to the plane of the abutting faces of the legs whereby to provide a shoulder on one of the projections, the opposite projection having a notch in its abutting face providing a shoulder for engagement against said shoulder of the first projection, whereby to spread said projections and secure the pin in place.

4. A cotter pin having a pair of legs for insertion through an opening and being oppositely wedge-shaped or tapered longitudinally whereby to bind the legs against the opposite walls of the opening, and projections on the outer ends of the legs provided with abutting faces inclined to the plane of the abutting faces of the legs whereby to provide a shoulder upon one of the projections, the opposite projection having a notch in its abutting face providing a shoulder therein below the shoulder of the first projection, said legs being adapted to be moved relatively to one another whereby said shoulders are adapted to engage and spread the projections to lock the pin in place.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL S. RIDER.

Witnesses:
GERTRUDE M. STUCKER,
JOS. J. MAWHINNEY.