C. F. DOERSCHUK.

COTTER PIN.

APPLICATION FILED MAY 2, 1913.

Patented June 26, 1917.

1,230,876.

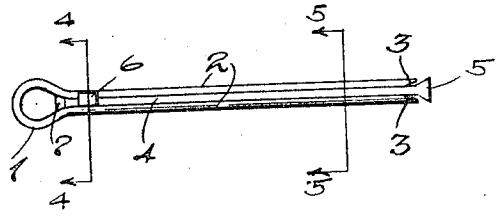


Fig-1

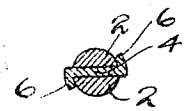


Fig-4

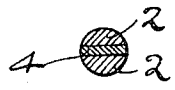


Fig-5

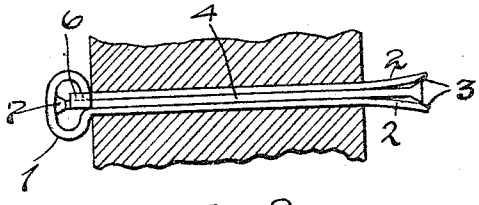


Fig-2

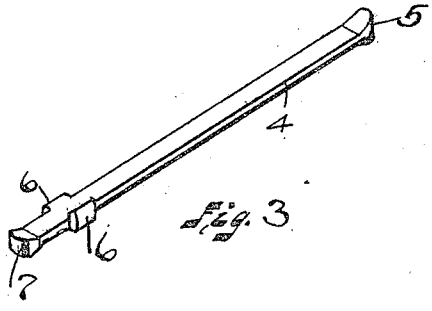


Fig. 3

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UNITED STATES PATENT OFFICE.

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COTTER-PIN.

1,230,876. Specification of Letters Patent. Patented June 26, 1917.

Application filed May 2, 1913. Serial No. 764,983.

To all whom it may concern:

Be it known that I, CARL F. DOERSCHUK, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Cotter-Pins, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The subject of the present invention is a self-spreading cotter pin which is designed to provide an easy method of engaging the cotter pins against the bolts in which they are inserted. The construction is simple and is automatically operated upon engagement of the cotter pin in the aperture in the bolt, it being only necessary to drive the cotter pin in after the usual method. To the accomplishment of this and related ends, said invention then consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:

Figure 1 is a side elevation showing my improved cotter pin as assembled; Fig. 2 is a similar view showing the cotter pin after engagement; Fig. 3 is a perspective of the expanding or spreading pin; Fig. 4 is a section on the line 4—4 in Fig. 1; and Fig. 5 is a section on 5—5, Fig. 1.

The cotter pin proper will be formed substantially the same as usual, there being a loop 1 having two substantially parallel and spaced arms 2. The only difference between the present cotter pin and the usual type is to be found in the ends of the arms, such two ends being beveled inwardly as at 3, in order to facilitate the movement of the expanding pin. Between the two spaced parallel arms 2 I dispose an expanding or spreading pin 4, formed with an enlarged head 5 at one end and with two lateral projections 6 adjacent to the other end, such other end having also a slightly enlarged head 7. The pin will be placed between the arms of the cotter pin proper, as shown in Figs. 1 and 2, the enlarged heads being placed at the ends of the two arms and extending beyond the same so that in the normal position of the expanding pin the enlarged head is not in engagement with the arms. The lateral projections 6 on the pin are formed of a size permitting them to extend between the two arms, and they will extend laterally beyond the limits of the arms, thus adapting them to engage against the sides of the bolt when the cotter pin is placed in the aperture in the same, as will be readily understood.

In order to operate the cotter pin, it is placed in an aperture in a bolt in the usual manner and is then forced through the same until the projections on the expanding pin engage against the sides of the bolt. It is then necessary to force the pin farther through the aperture in the bolt, which is preferably accomplished by striking the head of the cotter pin, namely the loop 1, a sharp blow which drives the cotter pin farther through the aperture. The expanding pin is prevented from further movement by reason of the projections, and the driving home of the cotter pin thus secures a relative movement longitudinally between the cotter pin and the expanding pin. The result of this movement is to force the ends of the two arms outwardly around the enlarged head of the expanding pin, which is exactly the action that is performed by hand in engaging the former type of cotter pin after the cotter pin has been engaged in its proper position. It will be seen that the two arms when once spread, cannot return to their normal positions until the expanding pin has been removed from between them, and therefore to disengage the cotter pin, it is necessary to cut off the outer end of the expanding pin or else to cut off the arms at the point where they begin to diverge. The advantages of this improved cotter pin are the simplicity and cheapness of manufacture, as it requires but little more work to make, and practically no more material than the ordinary pin, and the automatic engagement which is secured between the expanding pin and the cotter pin proper.

It will be understood that the complete pin is assembled before operation, the spreading pin 4 being forced between the two spaced arms 2 of the cotter pin proper until it is in the position shown in Fig. 1. Upon operation the lugs or arms 6 on the spreading pin engage against the sides of the material through which the cotter pin

is forced and thus draw in the head 5 of the spreading pin between the beveled ends 3 of the cotter pin.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the means and the steps herein disclosed, provided those stated by any one of the following claims or their equivalents be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. A cotter pin, comprising, when assembled for operation, a rebent member having substantially parallel spaced arms, a pin held between such arms and provided with an enlarged head at one end lying beyond the ends of such arms of said rebent member, and means, adapted upon actuation of said member into operative position, to automatically draw such enlarged head between such spaced arms of said member.

2. A cotter pin, comprising, when assembled for operation, a rebent member having substantially parallel spaced arms, a pin held between such arms and provided with an enlarged head at one end lying beyond the ends of such arms of said rebent member, and a laterally projecting lug attached to said pin and extending between such spaced arms, said lug being adapted, upon actuation of said member into operative position, to catch and draw said head between such arms.

3. A cotter pin, comprising a rebent member having two substantially parallel, spaced arms connected by a loop, a pin held between such arms and being provided with an enlarged head at either end lying outside of such arms, and lugs on said pin extending laterally from between such arms, said lugs being disposed adjacent to the looped end of said cotter pin, the end of such two arms being beveled adapting them to be spread by such head on said pin upon relative movement between such arms and said pin.

4. A self-locking fastening device, comprising a suitable member having two sides divergent from each other, and a pin normally positioned in contact with such sides and having an extension positioned to engage the end of the material through which said member is forced before the latter reaches its limiting position, thereby causing relative movement between said member proper and said pin and spreading such divergent sides of said member.

5. A fastening device including in combination two members positioned side by side for operation as a single unit, one of said members having a projection normally out of operative engagement with the other member, but adapted upon relative longitudinal movement of said member to engage such other member and spread the same laterally, said first named member also having an abutment to limit its longitudinal movement by engagement with the body into which the device is driven, thereby causing relative longitudinal movement between the two members to spread the second member.

6. A fastening device including in combination two laterally yieldable members, a third member interposed between the yieldable members, said third member having a projection normally out of operative engagement with the yieldable members but adapted operatively to engage the yieldable members and spread the same when the latter are moved longitudinally with respect to said third member, said third member also having an abutment to limit its longitudinal movement by engagement with the body into which the device is driven, thereby causing relative longitudinal movement between the yieldable members and the third member to spread the yieldable members.

Signed by me, this 29th day of April, 1913.

CARL F. DOERSCHUK.

Attested by—
H. B. FAY,
MARY GLADWELL.