

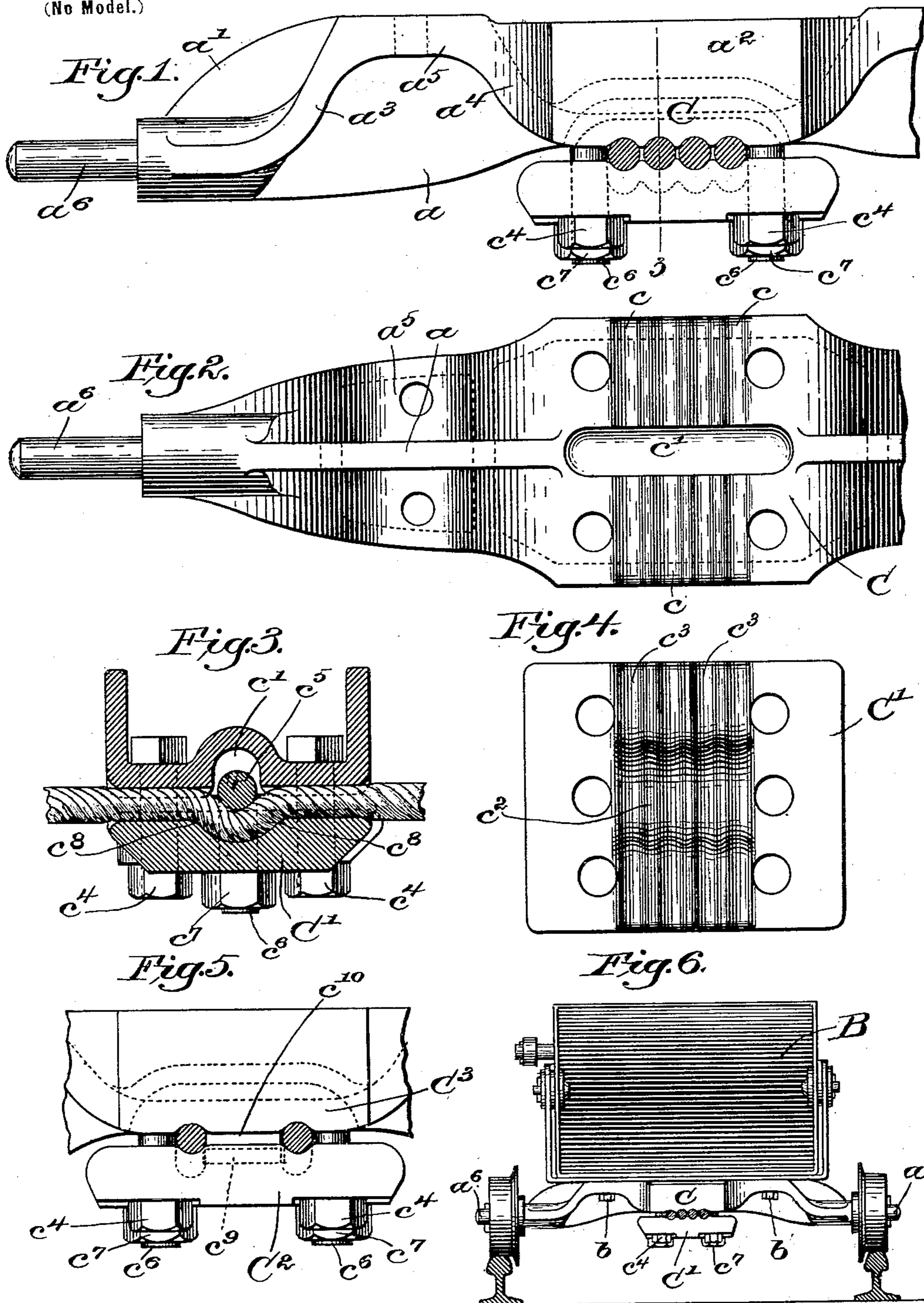
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E. S. DECKER.  
CABLE COUPLING.

(Application filed Mar. 23, 1899.)

(No Model.)



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## CABLE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 630,806, dated August 8, 1899.

Application filed March 23, 1899. Serial No. 710,170. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN S. DECKER, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Cable-Clamps, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an improved clamp for fastening cables, being particularly adapted for securing ropes or cables used in endless conveyers for conveying heavy loads, such as coal, on which great longitudinal strains come, tending to pull or slide the cables in their fastenings. The requirements of this class of devices in the use last mentioned are peculiar and very exacting, inasmuch as the loads carried are heavy and the pull on the cables is constant and enormous, so that the usual clamps frequently prove insufficient, and, moreover, as usually constructed they require frequent tightening and constant attention, besides being cumbersome and somewhat expensive.

My present invention comprises, in general terms, two opposite members between which the cable is clamped, said members being provided with complementary portions of suitable grooves for gripping the cable in usual manner, excepting that I make the grooves preferably slightly smaller than the cables, so that they will pinch or bite into the cables, and in connection with these two members I provide an independent crimping device or auxiliary clamp, preferably in the form of a U-shaped bolt, which forces the cables into a depression formed in one of the members and binds the cable therein independently of the grip on the cable secured by the two main members of the clamp.

Further details of construction and advantages of operation of my invention will appear in the course of the following description, reference being had to the accompanying drawings, illustrative of a preferred embodiment of the invention, and the latter will be more particularly defined in the appended claims.

In the drawings, Figure 1 represents in side elevation, parts being broken away, one embodiment of my rope-clamp, shown as pro-

vided in connection with an axle for use with a coal-bucket. Fig. 2 is a bottom plan view of the axle herein constituting the upper member of the clamp. Fig. 3 is a vertical transverse section thereof, taken on the line 3, Fig. 1. Fig. 4 is a top plan view of the lower member of the clamp. Fig. 5 is a broken detail showing in side elevation a modified form of the clamp. Fig. 6 is an end elevation of a coal-bucket provided with my invention, illustrating the manner of use thereof.

While I have herein shown the clamp as provided in connection with an axle, it will be understood that its use is not limited to this connection, but that the clamp will be employed in all usual situations where cable-clamps are needed. The axle is shown in operative position in Fig. 6 and in enlarged details in the other figures, from which it will be seen that it comprises web portions  $a$   $a'$   $a^2$ , having lateral flanges  $a^3$   $a^4$  and securing-ears  $a^5$ , through which bolts  $b$  are passed to secure the bucket or other conveyer B thereto, and the ends of the axle have journals  $a^6$ , on which the running wheels are mounted, as shown in Fig. 6.

The upper member C of the clamp—i. e., as herein shown, the lower face of the middle part of the axle—is provided with transverse grooves  $c$  to receive the ropes or cables which are to be secured thereto, there being two of these grooves when the clamp is used merely for fastening the bucket or other device to the hauling-cables and four of these grooves when the clamp is used for joining together the meeting ends of the two hauling-cables, as will readily be understood without further explanation.

Intermediately of the upper clamping member C is a recess  $c'$ , (shown in bottom plan view in Fig. 2 and in section in Fig. 3,) and opposite this recess the lower clamping member C' is provided with a depression  $c^2$ , this depression conforming in surface contour to the holding-grooves  $c^3$ , opposite and complementary of the grooves  $c$ , as clearly shown in Fig. 4.

From the above description it will be understood that the cables will be rested or laid in the grooves  $c^3$  of the lower member, and the latter will then be clamped by means of bolts

$c^4$  against the opposite upper member C, thereby firmly biting the cables between the two members of the clamp. If this were all, however, the cables would inevitable work loose and slip along the clamp in operation, as this has been my experience even with the most approved clamps of this general kind, and, moreover, the clamping-bolts  $c^4$  would need frequent tightening because of the great strain brought upon them. However, I relieve the clamp of all possibility of working loose, as stated, and I relieve the bolt  $c^4$  of performing the chief gripping function of the clamp by providing in connection with the arch and recess mentioned a crimping or clamping bolt or device  $c^5$ . (Shown in side elevation in Figs. 1 and 5 and in section in Fig. 3.) This crimping or clamping device  $c^5$  is preferably U-shaped in form, so that it will simultaneously engage all the cables, and its ends  $c^6$  are threaded and engaged by tightening-nuts  $c^7$ , thereby making it convenient to depress or crimp the cables quickly, as shown in Fig. 3, and tighten or flatten them down against the lower member C' to any degree required, and in this position it will be evident that the cables cooperate with the grooved surface at the bottom of the depression  $c^2$ , so as to get a firm grip thereon. Each cable gets a special grip or bite on the shoulders  $c^8$  at the opposite sides of the recess  $c^2$ .

The practical operation of my improved clamp, as above described, is entirely different from those referred to and obviates the objections noted.

The main clamping or holding of the cable is accomplished by the crimping or clamping device  $c^5$ , and this cooperates, it will be observed, with one member of the clamp only and does not depend for its operation on the other member, said other member being necessary merely for properly retaining the ropes in place and performing the other usual offices.

It is not new and I lay no claim to the mere crimping or deflecting of the cables by the clamp; but in the clamp which has heretofore employed this feature the crimping of the cable has been done by providing a tortuous passage in the clamp—i. e., one member of the clamp has had a projection and the other member a depression, which have cooperated to bend the cable, the result being that although a better frictional grip was gained the cable tended constantly to pull the two members of the clamp apart and brought a series of strains on the clamp, which not only required the clamp to be awkward and cumbersome, but created undue wear and possessed many objectionable features.

In my clamp the kink or crimp of the cables does not bring any separating strain on the members of the clamp, for the reason that the crimping or bending device  $c^5$  cooperates solely with one member of the clamp—viz., in the form of clamp shown with the lower member, although the parts may be reversed if desired.

The operation of my device will be readily understood: A bucket B is to be secured at any point along the carrying-cables, the cables are placed in the outside channels or grooves of the respective upper and lower members, and they are fastened loosely together, and then the bolt or staple  $c^5$  is tightened firmly against the cables, so as to pinch and, if desired, crush them down into their seats, and then the bolts  $c^4$  are tightened, so as to hold the two members of the clamp as shown in Figs. 1 and 3, and if the ends of the cables are to be secured together it will be understood that the two ends of one cable will occupy the two right-hand grooves, Fig. 1, and the two ends of the left hand will occupy the two left-hand grooves, and then the various parts of the clamp will be tightened and fastened together as before; or if the clamp is to be used solely for the purpose mentioned and not for splicing then the two middle grooves will be unnecessary, in which case they may be omitted, and the clamp will then be made as shown in Fig. 5, where the general construction is the same as already explained, excepting that the two middle grooves are omitted and instead thereof a preferably rectangular depression  $c^9$  (indicated in dotted lines) will be provided in one, preferably the lower, member C' and a depending lip or interlocking projection  $c^{10}$  will be provided in the upper member C'. This lip, it will be observed, projects laterally slightly into the path of the adjacent cable at each end thereof, the object of this particular construction being to tightly pinch or wedge the cable between the interlocking projection  $c^{10}$  and the clamping-bolt  $c^4$ , which materially aids the gripping power of the clamp. It will be understood that one purpose also of the interlocking portions (the depression and projection) is to relieve the bolts  $c^4$  of the shearing strain due to the pull of the cable, and therefore I do not limit this feature of the invention to that form of the clamp which employs two cables only.

As already intimated, various details in construction may be resorted to within the spirit and scope of my invention, and the latter is not limited in any wise to use in the connection shown.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A cable-clamp comprising separate upper and lower members formed to contact with the cable on opposite sides thereof, means to clamp them together on the cable, and an auxiliary clamping device independent of one of said members and adjustable in the other member to cooperate therewith for clamping the cable against said latter member, substantially as described.

2. A cable-clamp consisting of opposite clamping members provided with complementary portions or passages to receive and retain a cable resting therein, one of said

members having a depression in the line of said cable, and an auxiliary clamping device for crimping the cable in the said depression, of the said member, and being independent  
5 of the other of said members, substantially as described.

3. A cable-clamp consisting of opposite clamping members provided with complementary portions or passages to receive and  
10 retain a cable resting therein, one of said members having a depression in the line of said cable, and an auxiliary clamping device for crimping the cable in the said depression of the said member, and being independent  
15 of the other of said members, the latter member having a recess opposite said depression to accommodate said auxiliary clamping device.

4. A cable-clamp comprising an upper member and a lower member, and having on their  
20 inner faces each a plurality of grooves, the opposed grooves of the respective members being in alinement to receive and retain cables, means to clamp said members together, the  
25 grooves of one of said members having a depression intermediate their lengths, a U-shaped bolt or clamping device spanning said depression, and tightening means for fastening said bolt to the member having said depression, for clamping the cables independently of the opposite member, substantially  
30 as described.

5. A cable-clamp comprising an upper member and a lower member and having on their  
35 inner faces each a plurality of grooves, the opposed grooves of the respective members being in alinement to receive and retain cables, means to clamp said members together, the grooves of one of said members having a depression intermediate their lengths, a U-shaped bolt or clamping device spanning said depression, and tightening means for fastening said bolt to the member having said depression, for clamping the cables independently of the opposite member, substantially as described.

posed grooves of the respective members being in alinement to receive and retain cables, means to clamp said members together, the grooves of one of said members having a depression intermediate their lengths, a U-shaped bolt or crimping device spanning said depression, and tightening means for fastening said bolt to the member having said depression for crimping the cables independently of the opposite member, one of said  
40 members being provided intermediate its edges with a projection and the other of said members having a depression fitting said projection and interlocking therewith to prevent lateral displacement of said two members, substantially as described.

6. In a cable-clamp, two members having opposite alined grooves to receive a cable, one member having a projection and the other member a depression fitting each other and  
55 interlocking, to prevent lateral shifting of said members, said projection extending at its end slightly into the path of the cable, one of said members having a depression intermediate the ends of its groove, and an auxiliary clamping device for clamping the cable into said depression independently of the opposite member, substantially as described.

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

EDWIN S. DECKER.

Witnesses:

GEO. H. MAXWELL,  
FREDERICK L. EMERY.