W. GALLOWAY.

HAULAGE CLIP FOR ENDLESS ROPES.

APPLICATION FILED APR. 4, 1914.

1,100,552.

Patented June 16, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

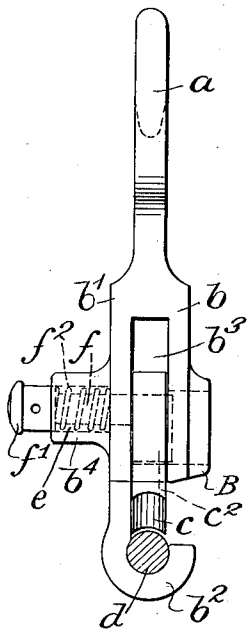


Fig. 2.

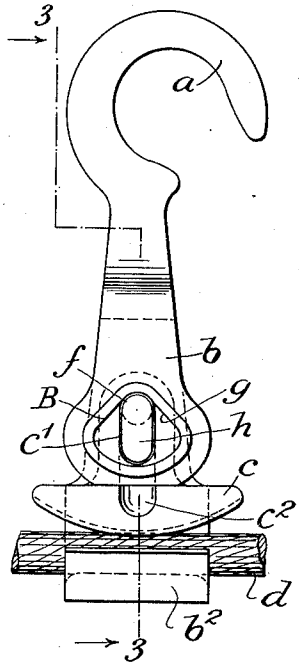


Fig. 3.

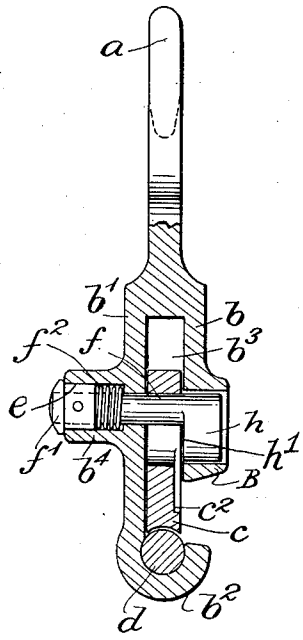
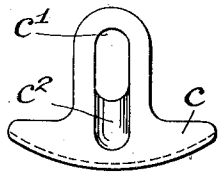


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 6.

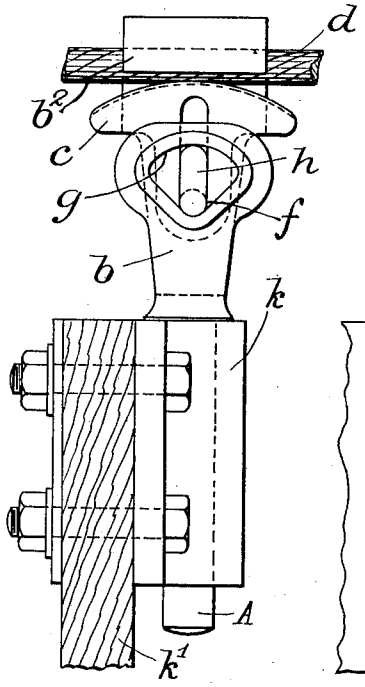


Fig. 5.

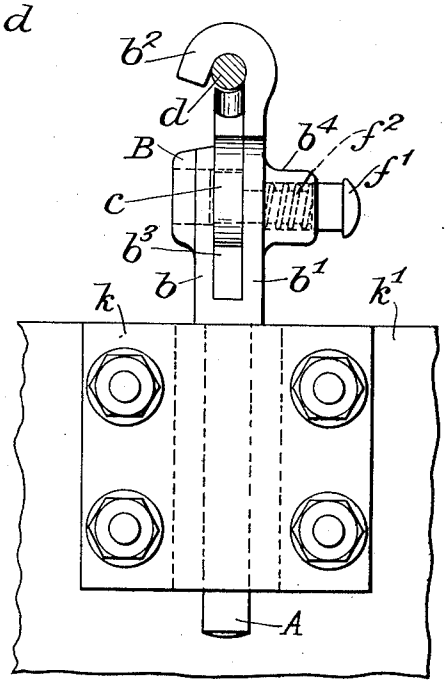
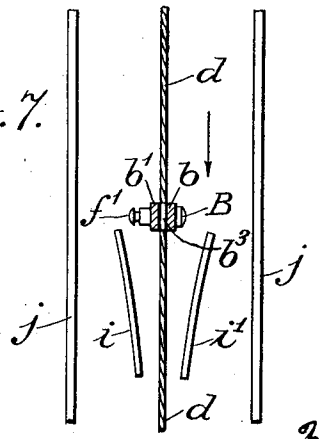


Fig. 7.



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UNITED STATES PATENT OFFICE.

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HAULAGE-CLIP FOR ENDLESS ROPES.

1,100,552. Specification of Letters Patent. **Patented June 16, 1914.**

Application filed April 4, 1914. Serial No. 829,542.

To all whom it may concern:

Be it known that I, WILLIAM GALLOWAY, a subject of the King of Great Britain, residing at Cardiff, in the county of Glamorgan, Wales, have invented certain new and useful Improvements in Haulage-Clips for Endless Ropes, of which the following is a specification.

The invention relates to haulage clips having two parallel arms between which is pivoted a cam, one of said arms being longer than the other and formed with a curved end to partly surround the rope, and when in use the cam presses the rope against the said curved end.

The object of the present invention is to construct an improved clip of this type in which the cam may be readily released from the rope, and which clip may be readily placed in position on the rope, and be readily removed therefrom.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 is an end elevation of the improved clip in position on a rope. Fig. 2 is a side elevation of the same, and Fig. 3 is a section on the line 3—3 of Fig. 2, showing the cam released. Fig. 4 is a side elevation of the cam shown separately. Fig. 5 is a front elevation and Fig. 6 is a side elevation of the apparatus adapted for endless rope haulage with the rope above the wagons. Fig. 7 is a plan showing diagrammatically an apparatus for automatically releasing the cam from the rope.

Referring to Figs. 1 to 4, a is the usual haulage hook, b, b', are the ordinary parallel arms, b^2 is the curved end of the arm b', and c is the cam which grips the rope d. According to the present invention, one of the arms, b', is formed with a circular opening or bearing e, to receive a pin f, and the other arm, b, is formed with an opening or bearing g, which is preferably approximately segmental. The upper part of the opening or bearing g corresponds with the upper part of the circular opening e in the arm b'. The pin f is provided at its outer end with a head f', between which and the adjacent arm is placed a helical spring f^2, which is in compression. Part of the head f' slides within the box b^4, in which is located the spring f^2. The pin f, at its inner end, is formed with a downwardly projecting key h, which is greater in length than the thickness of the cam c and extends into the segmental shaped aperture g in the arm b. The cam c has an opening c' to receive the key h, and part of this latter is normally retained within the cam c by the action of the helical spring f^2 surrounding the pin f. The other part of the key h is located within the segmental shaped opening g. The cam c is so shaped that it grips the rope d before the key h can touch the radial sides of the segmental-shaped opening g. The upper part of the cam, when held in position by the key h, does not extend to the top of the slot b^3, between the two parallel arms b, b', and the cam c is so shaped that the rope d cannot escape so long as the key h is located within the aperture c' in the cam c. When the head f' of the pin f is pushed or knocked toward the adjacent arm b', as shown in Fig. 3, thereby compressing the spring f^2, the key h is moved out of the opening c' in the cam c; consequently the cam c is free to rise between the parallel arms b, b', the sides of the opening c' in the cam c being wide enough apart to slide over the circular pin f. The cam c is preferably provided with a groove c^2 equal in width to the aperture c'. As soon as the face h' of the key h has been moved into the path of, or above the groove c^2, the cam is free to rise. The spring f^2, immediately after the blow which released the cam, will act to retain the face h' of the key h within the groove c^2. When the cam c is pulled down into contact with the rope d, the groove c^2 will slide over the key h and the aperture c' will be in position to receive the key h, which is moved back into the cam c by the action of the spring f^2.

When the cam c has been raised by lifting the rope d, or by pressing the clip downward, the clip can be readily removed from the rope, as ample space is provided to allow the rope to pass between the lower end of the shorter arm b and the upper part of the curved end b^2 of the other arm b'. The pin f, projecting laterally from the arm b', is in a convenient position to receive a blow or push to release the cam c. It will be noticed in Fig. 3 that the projection B extends slightly beyond the outer face of the key h when the key h is moved out of the cam c. This enables the head f' of the pin to be pushed toward the arm b' by a cam or slope i fixed in the path of the head f', as shown in Fig. 7, for automatically releasing the key from the cam. When such a fixed re-

leasing cam *i* is employed, I may employ a second fixed cam or slope *i'* on the opposite side of the clip against which slides the projection B, and this latter prevents the second cam or slope *i'* coming in contact with the key *h*, thus allowing free motion of the key *h*.

j, *j*, indicate the rails upon which the wagons run.

The haulage clip may be attached to the wagon by the hook *a*, or in any other usual or convenient manner.

The construction shown in Figs. 1, 2 and 3 is adapted to be fixed to the lower part of a wagon and to grip a rope located beneath the wagon.

The construction shown in Figs. 5 and 6 is adapted to grip an endless haulage rope *d* above the mine wagon. In this form the hook *a* is replaced by a bar A which fits into a socket *k* permanently fastened to one end *k'* of the mine wagon. Otherwise the construction shown in Figs. 5 and 6 is exactly like that shown in Figs. 1, 2, 3 and 4, the whole being turned upside down.

What I claim is:—

1. In a haulage clip for endless ropes, the combination of two parallel arms, a curved end on one arm to receive the rope, a cam located between the said parallel arms, a spring-controlled pin capable of sliding and rotating in one of the arms, a key on the inner end of said pin which fits an aperture in said cam, the said aperture being sufficiently wide to allow the cam, when released from the key, to slide over the pin away from the said curved end, substantially as shown and described.

2. In a haulage clip for endless ropes, the combination of two parallel arms, a curved part to receive the rope, a cam located between the said parallel arms, a bearing carried by one arm, a spring-controlled pin located in said bearing and capable of sliding and rotating therein, a key on the inner end of said pin which fits an aperture in the cam, the said aperture being sufficiently wide to allow the cam, when released from the key, to slide over the pin away from the said curved part, and a segmental shaped bearing in the other arm to receive the key and allow the same to oscillate and slide endwise therein, substantially as set forth.

3. In a haulage clip for endless ropes, the combination of two parallel arms, a curved part to receive the rope, a cam located between the said parallel arms, a bearing carried by one arm, a spring-controlled pin located in said bearing and capable of sliding and rotating therein, a key on the inner end of said pin which fits an aperture in the cam, the said aperture being sufficiently wide to allow the cam, when released from the key, to slide over the pin away from the said curved part, a segmental shaped bearing in the other arm to receive the key and allow the same to oscillate and slide endwise therein, and a projection carried by this last mentioned arm which projects beyond the end of the key when this latter has been moved to release the cam, substantially as set forth.

4. In a haulage clip for endless ropes, the combination of two parallel arms, a curved part on the end of one arm to receive the rope, a cam located between the said parallel arms and having an aperture therein and a groove on one of its faces, a spring-controlled pin capable of sliding and rotating in a bearing in one of the arms, a key on the inner end of said pin which fits the aperture in the cam and is of less width than the groove in the face of the cam, the aperture in the cam being sufficiently wide to allow the cam, when released from the key, to slide over the pin away from the said curved part, substantially as set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM GALLOWAY.

Witnesses:

EDWIN WILLIE,

PERCIVAL LENDERYON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."