A. GERSTNER & F. PEHAM.

EMERGENCY COUPLING.

APPLICATION FILED NOV. 10, 1914.

1,193,135. Patented Aug. 1, 1916.

Fig. 1

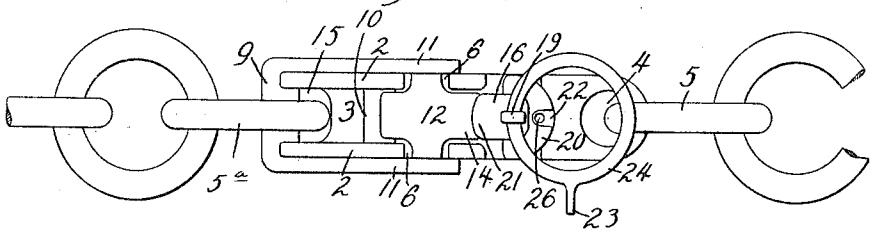


Fig. 2.

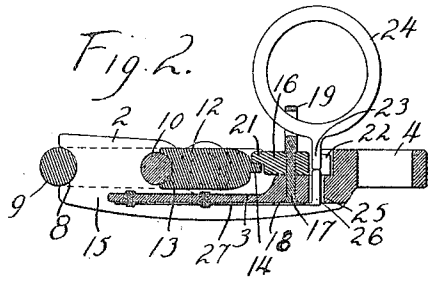


Fig 4

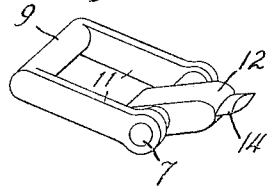
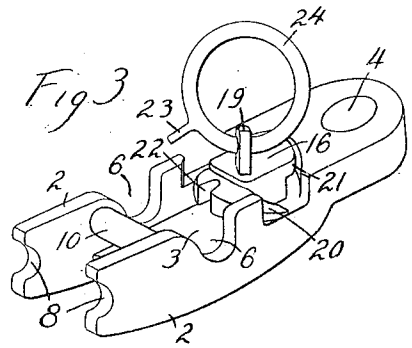


Fig 3



Witnesses

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EMERGENCY-COUPLING.

1,193,135. Specification of Letters Patent. Patented Aug. 1, 1916.

Application filed November 10, 1914. Serial No. 871,315.

To all whom it may concern:

Be it known that we, ANTON GERSTNER and FRANK PEHAM, subjects of the Emperor of Austria-Hungary, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Emergency-Couplings, of which the following is a specification.

Our invention relates to improvements in emergency couplings for chains, cables, and the like, its object being to provide an improved coupling composed of two interlocking links which cannot become separated in ordinary use but which can be readily separated by manipulation without the necessity of first gathering slack in the cable even when the same is under the greatest tension. To that end we have constructed the coupling so that in ordinary use the constituent links will lie interlocked in the same plane without being cramped or jammed no matter how great the tension, and have provided hand operated pivotally working means for releasing the locking end of one of the links and lifting it out of the plane of the other, so that the lifted link will yield to the pull upon the cable and separate from its coacting link. We have also provided a way to prevent said pivotal means from being accidentally turned in ordinary use.

More particularly the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

In the accompanying drawings showing an embodiment of the invention, Figure 1 is a plan view of the improved coupling inserted between two links of a chain; Fig. 2 is a vertical longitudinal section through the middle of the coupling; Fig. 3 is a perspective view of the main or supporting link of the coupling; and Fig. 4 is a perspective view of the coöperating removable link thereof.

The supporting link, which is shown by itself in Fig. 3 of the drawings, comprises a channeled frame having parallel side members 2 and a bottom member 3. At its rear end this link may be formed with a hole 4 or other suitable means for attachment to a cable or to one of the links 5 of a chain. Between the ends of the link its channeled sides are formed with rounded notches 6 recessed in from the top for the reception of the cross pin 7 at the forward or locking end of the removable link, while at their forward or free ends these side members are formed with rounded notches 8 recessed in from the end for the reception of the rounded yoke or cross bar 9 at the rear end of the removable link. Just forwardly of the notches 6 the side members 2 are connected by means of a rounded cross pin or bar 10.

The removable link, which is shown by itself in Fig. 4 of the drawings, consists of an open frame having parallel side members 11 connected at their rear ends by means of the rounded cross bar 9. Rotatably supported in the side members at their forward or locking ends by means of the rounded pin 7 is a lifting lever 12. The pin 7 is preferably mounted rotatably in the arms 11 while the lever 12 is fast to the pin so as to turn with it. The lever is formed in one end with a rounded notch 13 to form a fulcrum seat upon the pin 10 of the supporting link, while at its other end it is formed with a small projecting lug 14 which is rounded over to form a double cam face at top and bottom. Thus when the removable link is inserted in the supporting link, its rear cross bar 9 will seat within the notches 8 and its cross pin 7 within the notches 6, while the notch 13 of the lever 12 will seat against the pin 10, as shown in Fig. 2. The sides 11 of the removable link will also stand outside the side members 2 of the supporting link and the lever 12 within said side members, as best shown in Fig. 1. When so assembled, the two links will lie in the same general plane and the pins 9, 10, and 7 will stand directly in line with each other and with the hole 4 in the line of pull. The bottom member 3 of the supporting link terminates short of the end of the side members 2 so as to leave between it and the cross bar 9 an opening 15 for the reception of a cable or one of the links 5^a of a chain. The removable link may

be held locked in this position, or be released and lifted therefrom, by means of a drum 16 arranged within the supporting link at the rear of the notches 6 and rotatable in the same general plane as the link. The drum is loosely journaled upon a pin 17 which is itself rotatably supported in the bottom member of the link and disposed perpendicularly thereto. The pin is here shown formed with an annular boss or flange 18 at the bottom and with a ring 19 at the top, so that it cannot be pulled or pushed out of the supporting link in the direction of its length. The ring 19 also serves to hold the drum 16 against longitudinal movement upon the pin.

The drum is formed on opposite sides with downwardly inclined cam faces 20, one of which, when the drum is turned, will engage and wipe the under face of the lug 14 so as to lift the forward end of the lever 12 thereby turning the lever upon the fulcrum pin 10, and lifting the pin 7 and the forward end of the removable link out of the plane of the pins 9 and 10. On its side near the lower ends of the cam inclines the drum is formed with a top flange 21 which, when the cams are turned away from the lug, will engage the upper face of the lug and hold the lever from being turned, as shown in Fig. 2, while on its opposite side the drum is formed with a notch 22 to receive the stem 23 of an operating key 24 which is preferably in the form of a ring and passes through the ring 19 of the rotatable pin 17. Extending through the bottom of the supporting link in registration with the notch 22 is a hole 25, in which works a spring pressed locking pin 26. As here shown this pin is carried by the free end of a spring strip 27 secured upon the bottom of the link, and is held normally pressed up into the notch of the drum so as to hold the drum against turning. To turn the drum the stem 23 of the operating key 24 is inserted into the notch 22 and pressed down against the end of the pin 26 until the pin is forced back out of the notch so as to be clear of the drum. By then turning the key 24 the drum will be rotated.

When the links are put together in interlocking position ready for use the parts will stand in the position shown in Figs. 1 and 2 with the rear and forward pins 9 and 7 of the removable link seated within the aligning notches 8 and 6, respectively, of the supporting link and in line with the attaching hole 4, while the lever 12 will lie in the same plane as the pins and attaching hole with its rear end seated against the fulcrum pin 10 and its forward end held down by means of the flange 21 of the drum, which will overlie and engage the lug 14 of the lever. At the same time the drum will be held from turning by means of the spring pressed pin 26 which projects up into the notch 22 in the rear end of the drum. The link may then be connected with the links 5 and 5^a of the draft chain, or with the adjacent ends of a cable or any other instrumentality upon which tension is to be exerted.

It will be seen that the pull upon the opposite ends of the coupling will come directly upon the alining pins 9 and 7, and will be transmitted through the lever 12 to its fulcrum pin 10 which also stands in alinement with the pins 7 and 9. So long as these pins are held in alinement in the line of pull there can be no separation of the two parts of the link, but as soon as the lever 12 is turned to lift the pin 7 at the forward end of the removable link out of the line of pull, that is, in a plane transverse to the plane of the links, the strain will cause the lever to turn upon its fulcrum 10 and so lift the forward end of the removable link out of the notches 6 and release the same from the supporting link.

When it is desired thus to open the coupling and release the removable link the key ring 24, which is hung upon the rotatable pin 17, is manipulated so that its stem 23 will enter the notch 22 and be thrust down against the spring pressed pin 26 until this pin is forced back out of the notch where it will offer no obstacle to the turning of the drum. The key ring, while its stem is still pressed down in the notch, is then turned until the top flange 21 is moved away from the lug 14 and one of the cam faces 20 is carried against the under face of the lug so as to lift it, thereby turning the lever 12 upon its fulcrum 10 and lifting the pin 7 out of the notches 6, when the removable link will yield to the pull and separate from the supporting link, thus breaking the cable or chain at that point. To close the coupling again the removable link is first replaced in the supporting link, and then the drum is turned to carry the cam 20 away from the lug and move the flange 21 into engagement with the upper face of the lug, as shown in Fig. 2.

It will be seen that by reason of the pivotal support of the lever 12 upon the pin 10 the locking end of the removable link will have rocking support upon the supporting link, so that it can be easily lifted from the supporting link without being jammed or cramped by reason of friction between the opposing surfaces even when the cable is under tension. It will also be seen that the drum cannot be turned accidentally when the parts are in locked position, because the locking pin 26 does not protrude above the links and also because the pin 17 which carries the locking key 24 turns or swivels freely both in the drum and in the supporting link, so that when the stem 23 is out of the notch 22 a blow or pressure against the

key will simply cause the pin 17 to turn in its swivel support without carrying with it the drum.

The coupling is intended to be used wherever two parts are subjected to a strain and it may be necessary to release them quickly in case of accident or emergency. It is particularly useful in connection with the draft chains or traces of a draft animal. If for any reason the animal should fall or become tangled up in the harness or chains and it would be impossible or impracticable to gather sufficient slack to unhook or unfasten the chains or traces, the use of the present separable coupling would enable the animal to be freed at once without cutting the harness or breaking the chain.

We claim as our invention:

1. An emergency coupling comprising two separable links normally lying interlocked in the same plane and hand operable means carried by one of the links for lifting the interlocking end of the other link out of said plane.

2. An emergency coupling comprising two separable links normally held interlocked in the same plane, and pivotally working means carried by one of the links for lifting the locking end of the other link out of said plane.

3. An emergency coupling comprising two separable links normally held interlocked in the same plane, a hand operable movable element carried by one of the links and engageable with the other link whereby to lift the locking end thereof out of said plane, and means for preventing said movable element from being accidentally moved in use.

4. An emergency coupling comprising a supporting link having a transverse cross pin, a removable link seating interlockingly in the supporting link and lying in the plane thereof, and a lever pivotally supported in the locking end of the removable link and fulcrumed upon said cross pin, whereby the turning of said lever will lift the locking end of the removable link out of the plane of the supporting link.

5. An emergency coupling comprising a supporting link, a removable link seating interlockingly in the supporting link and lying in the plane thereof, and a lever pivotally supported in the locking end of the removable link and fulcrumed upon the supporting link, whereby the turning of said lever will lift the locking end of the removable link out of the plane of the supporting link.

6. An emergency coupling comprising a supporting link having a transverse cross pin, a removable link seating interlockingly in the supporting link and lying in the plane thereof, a lever pivotally supported in the locking end of the removable link and fulcrumed upon the cross pin of the supporting link, and means rotatable in the supporting link and engageable with said lever for lifting the locking end of the removable link out of the plane of the supporting link.

7. An emergency coupling comprising a supporting link having at one end an attaching element and being notched in the other end and at the top, said notches and attaching element lying in the same plane, a removable link having at one end a cross bar seating within said end notch and at the other end a cross piece seating within said top notch, whereby said cross bar and cross piece will be held in the same plane as the attaching element, and means carried by the supporting link for lifting said cross piece out of said top notch, whereby to release said removable link.

8. An emergency coupling comprising a supporting link having at one end an attaching element and being notched in the other end and at the top, said notches and attaching element lying in the same plane, a transverse cross pin carried by said supporting link at a point between said top and end notches and lying in the same plane as the notches, a removable link having at one end a cross bar seating within said end notches and at the other end a cross piece seating within said top notches, a lever carried by said cross piece and fulcrumed upon the cross pin of the supporting link, and means rotatable in the supporting link and engageable with the free end of said lever for holding the lever in the plane of said notches or for turning the same upon its fulcrum support, whereby to lift said cross piece out of said top notches, for the purpose set forth.

9. An emergency coupling comprising a supporting link having a transverse cross pin, a removable link seating interlockingly in the supporting link and lying in the plane thereof, a lever pivotally supported in the locking end of the removable link and fulcrumed upon the cross pin of the supporting link, a drum rotatable in the supporting link and having at different points on its periphery a flange in position to engage the upper side of the lever and hold it in the plane of the supporting link, and a cam in position to engage the under side of the lever and turn it upon its fulcrum whereby to lift the locking end of the removable link out of the plane of the supporting link, and means for preventing said drum being turned accidentally in use.

10. An emergency coupling comprising two separable links normally lying interlocked in the same plane, the locking end of one of the links having rocking support upon the other link, and pivotally working means for lifting the rocker supported end of the former link out of said plane.

11. An emergency coupling comprising two separable links, means for holding them

normally interlocked in the same plane, said interlocking means comprising a rotatable element carried by the locking end of one of said links, and a fixed element opposing said rotatable element carried by the locking end of the other link, and means carried by one of said links for lifting the locking end of the other link out of said plane.

In testimony whereof we affix our signatures in presence of two witnesses.

ANTON GERSTNER.
FRANK PEHAM.

Witnesses:
ARTHUR P. LOTHROP,
H. SWANSON.

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