March 17, 1942. Q. E. BASHORE 2,276,559

CLAMP FOR ATTACHMENT TO CABLES

Filed Jan. 22, 1940

Fig. 1

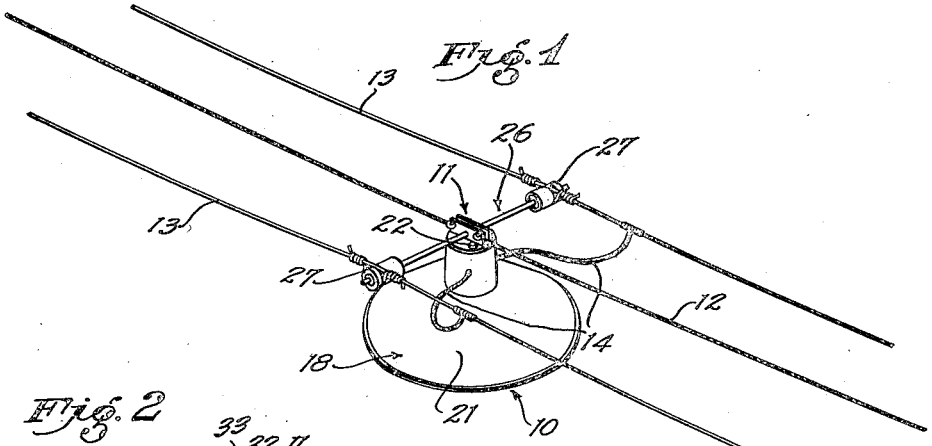


Fig. 2

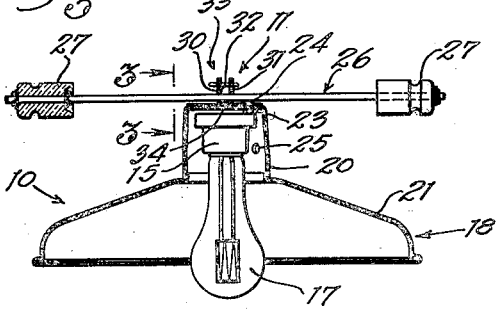


Fig. 5

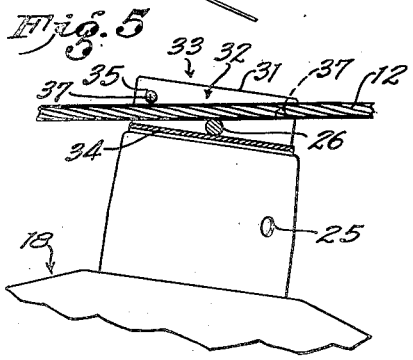


Fig. 3

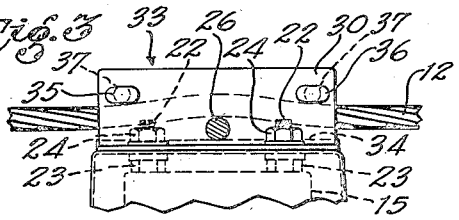


Fig. 6

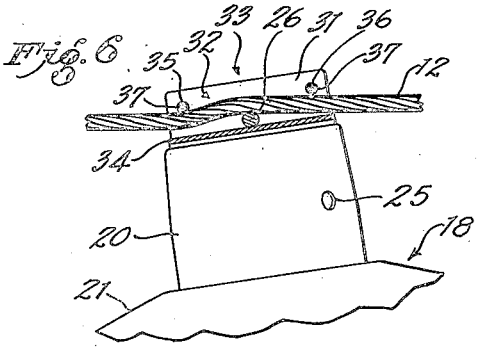
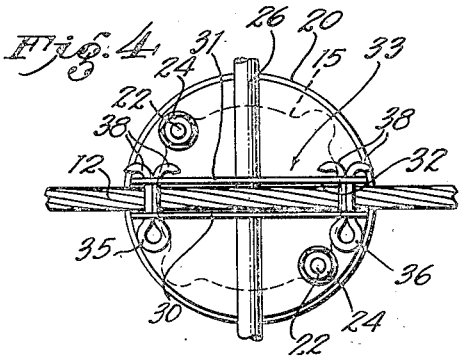


Fig. 4



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UNITED STATES PATENT OFFICE

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CLAMP FOR ATTACHMENT TO CABLES

Quinter E. Bashore, Covina, Calif.

Application January 22, 1940, Serial No. 314,984

4 Claims. (Cl. 240—52)

My invention relates to attachment means generally and is specifically directed to a clamp for fastening devices to cables.

The general object of my invention is to provide a cable clamp that is simple, inexpensive, easily and rapidly applied or removed, and one that in use grips the cable in an efficient and permanent manner.

One object of my invention is to employ the tension in a cable for achieving effectiveness in a clamp mounted on the cable. In this regard, a feature of my invention is that since the effectiveness of engagement varies with the tension of the cable, the weight imposed on the cable through the medium of the cable clamp itself contributes to the effectiveness with which the clamp grips the cable.

My invention is characterized by the concept of providing, in such a clamp, means to contact the cable at three points, two points on one side of the cable spaced apart longitudinally of the cable, and a third intermediate point on the opposite side of the cable, the contacting means being arranged to offset the cable in opposition to the cable tension. It is apparent that the procedure of attaching such a clamp to a cable involves the application of force to overcome the tension in the cable, and a further object of my invention is to provide a construction in which favorable leverage is available for employment against the cable tension. One advantage of such clamp construction is that when a plurality of such clamps is to be mounted on a cable, the cable may be relatively slack initially since the clamps constitute a plurality of levers by means of which the desired ultimate tension in the cable is achieved in the course of applying the clamps.

Since the type of clamp to which my invention is directed is intended to be applicable to cables under circumstances where it is not possible to thread the cable through the clamp, at least one of the means for contacting and offsetting the cable must be retractable from its operative disposition to permit the clamp to move into normal engagement relation with the cable. In the preferred form of my invention, two independently retractable means for contacting the cable are provided and in such construction a further object of my invention is to provide for the aforesaid favorable leverage not only to overcome the tension of the cable, but also simultaneously to swing one of said retractable contact means out of range of the cable whereby the contact means thus isolated may be either retracted or returned to operative disposition without hindrance from the cable.

My invention is finding immediate application with outstanding advantages to the problem of hanging electric lights on overhead cables. By way of example, I shall direct my disclosure to a lamp hanger of the construction now in use, but it will be readily appreciated that the invention may be employed in various arts wherever the problem arises of mounting some device on a cable or the like.

An electric device, such as an overhead light, requires two spaced conductors, which conductors, if at substantial elevation, may be bare wires. It is necessary to maintain such wires in spaced relation and usually some type of spreader is employed for such purpose. One object of the preferred form of my invention as applied to electrical devices is to provide in one assembly a combined cable clamp and spreader and preferably, to provide such an assembly in which the spreader member is one of the coacting elements of the clamping combination.

The above and other objects and advantages of my invention will be apparent in my detailed description to follow, taken with the accompanying drawing.

In the drawing:

Fig. 1 is a perspective view of my invention as employed for an overhead light;

Fig. 2 is an end elevation on a slightly larger scale taken in the direction in which the cable lies when the invention is in use;

Fig. 3 is a section through the spreader member showing the clamp proper in side elevation on an enlarged scale.

Fig. 4 is a plan view on the same scale of the portion of the device that is shown in Fig. 3;

Fig. 5 is a view similar to Fig. 3 on a somewhat smaller scale with one wall of the clamp removed to show how the clamp is tilted in the initial step of applying the clamp to a cable; and

Fig. 6 is a view similar to Fig. 5 showing the clamp tilted in the opposite direction at a later stage in the procedure of applying the clamp to a cable.

Fig. 1 shows an overhead light generally designated 10 mounted by clamp means generally designated 11 on an overhead cable 12, and two overhead conductors 13 for energizing the light through a pair of branch wires 14.

As best shown in Fig. 2, the light 10 includes a socket 15 for a lamp 17, and a surrounding reflector 18 that comprises an inverted cup 20 and

unitary therewith a flared light-reflecting member 21. The socket 15 is mounted in the cup 20 in any suitable manner, preferably by means of a pair of screws 22, each of which has a nut 23 inside the cup and a second nut 24 on the back of the cup. The cup 20 is provided with apertures 25 to receive the branch wires 14, and carries in a suitable manner a spreader 26 for the two overhead conductors 13, which spreader may comprise a metal rod carrying porcelain knobs or insulators 27 on its ends for engagement with the conductors 13.

The preferred form of the clamp means 11 includes some suitable guide to maintain given alignment with the cable 12. This required function may be provided by any arrangement that forms a channel for the cable 12, for example, by a pair of spaced parallel walls 30 and 31 defining a cable channel 32. In the particular form of my invention shown in the drawing, the two walls 30 and 31 are the two legs of a simple sheet metal channel member 33, the channel member having a back 34 which is welded or otherwise attached to the back of the cup 20. In practice, the channel member 33, the inverted cup 20, and the light-reflecting member 21 are fabricated from black sheet metal, assembled into one unitary structure, and then hot-dipped in cadmium.

It is contemplated that the cable 12 will fit snugly into the channel 32 and therein be offset or distorted in alignment by means contacting the upper and lower sides of the cable, there being, for example, two points of contact on one side of the cable spaced longitudinally of the cable and a third point of contact at an intermediate location on the other side of the cable. I prefer to provide two spaced contact means on the outer side of the cable, i. e., on the open side of the channel 32, and to provide a single contact means on the inner side of the cable to press outward against the cable at the third and intermediate point, but it will be apparent that the invention may be practiced with the two contact means on the inner side of the cable and the third intermediate contact means on the outer side of the cable.

A feature of the described construction that is pertinent to its simplicity and low cost is that the two outer means for contacting the cable 12 may consist simply of pin members mounted in the walls 30 and 31 to span the channel 32. In the preferred form of my invention I use a pair of cotter pins 35 and 36 that are mounted in suitably dimensioned and suitably located apertures 37 in the two walls. When the clamp means 11 is in use, the split ends 38 of the cotter pins 35 and 36 are spread apart as indicated in Fig. 4. While the cotter pins 35 and 36 are thus anchored in a positive manner by the spreading of the split ends 38, the cotter pins are nevertheless retractable in the sense that the spread ends may be straightened and the cotter pins withdrawn to permit relative movement of the cable 12 into or out of the channel 32. It will be readily apparent to those skilled in this art that other types of retractable contact means may be substituted for the two cotter pins 35 and 36.

It is contemplated that the third and intermediate contact means will extend upwardly a sufficient distance to cause the cable 12 to be offset between the two cotter pins 35 and 36. In other words, the third contact means is to be spaced from the plane of the two cutter pins 35 and 36 by a distance less than the diameter of the cable 12; in the preferred form of my invention I limit that distance to approximately half the diameter of the cable. For example, if the clamp is to be attached to a cable or guy wire that is one-quarter inch in diameter, the channel 32 will be approximately one-quarter inch wide and the third contact means will extend upward to approximately one-eighth inch from the level of the two cotter pins.

The third contact means may be provided in any suitable manner, but a further feature of my invention in the direction of simplicity and low cost is that the third contact means may be the spreader 26, the spreader being a round rod that is permanently fixed transversely of the two walls 30 and 31, intermediate and below the two cotter pins 35 and 36. In the present structure the spreader rod 26 extends through complementary apertures in the two walls.

The procedure for mounting the cable clamp on the cable may be readily understood by referring to Figs. 5 and 6. With the two cotter pins 35 and 36 removed, the assembly is moved upward against the cable 12 to cause the cable to enter the channel 32. The assembly is then tilted longitudinally of the channel 32 in one direction to carry the apertures 37 at one end of the channel member 33 out of the range of the cable 12 so that the cotter pin 35 may be inserted in the apertures without interference from the cable, as indicatd in Fig. 5. In the next step of the engagement procedure, the assembly is tilted longitudinally in the opposite direction to carry the other two apertures 37 out of the range of the cable 12 so that the second cotter pin 36 may be installed without interference from the cable.

It is apparent from Fig. 6 that the second tilting of the assembly offsets the cable 12 in opposition to the tension of the cable and that sufficient force must be applied to overcome that tension. The operator, however, may have favorable leverage for overcoming that tension by simply grasping the reflector 18 at a substantial distance from the spreader 26. The favorable leverage is apparent since the spreader 26 may be considered as the fulcrum, the distance between the spreader and the cotter pin 35 being the short arm of the leverage, and since there is what may be termed a favorable toggle action on the cable when the assembly is tilted.

After the second cotter pin is in place, the assembly is released to the normal disposition shown in Fig. 3 and the cotter pins are spread as before mentioned. The clamp in this final disposition grips the cable in a manner to resist forces of large magnitude.

The preferred form of my invention described in specific detail herein for the purpose of disclosure and to illustrate the principles involved will suggest to those skilled in the art various changes, modifications, and substitutions that do not depart from my inventive concept, and I reserve the right to all such changes, modifications and substitutions that properly come within the scope of my appended claims.

I claim as my invention:

1. An electrical device adapted to be mounted on a tensioned cable between two spaced conductors for energization by the conductors, said device including: two spaced outwardly extending walls adapted to lie along opposite sides of the cable; a pair of means normally extending across the space between said walls relatively near the outer edges of the walls to press inward

against the cable at two points spaced longitudinally of the cable, each of said pair of means being retractable independently of the other for admission of the cable to the space between the walls; and a spreader adapted to support said two conductors extending transversely of said spaced walls in a position to press outwardly against the cable at a third and intermediate point to offset the cable against the cable tension.

2. An electrical device adapted to be mounted on a tensioned cable between two spaced conductors for energization by the conductors, said device including: outwardly extending walls forming a channel to receive said cable; a pair of spaced means mounted on said walls and retractably extending across said channel to press inwardly against said cable at two points spaced apart longitudinally of the cable; and a spreader member adapted to support said two conductors extending transversely of said spaced walls in a position to press outwardly against said cable at a third point intermediate said spaced points to cooperate with said pair of means in offsetting said cable in opposition to the cable tension.

3. An electric lamp for mounting on a tensioned cable between two spaced conductors for energization by the conductors, said lamp having: an upwardly presented channel member; a first engagement means in said channel member to contact the under side of said cable; a second engagement means retractably extending across the channel member to press downward on the cable at a point toward one end of the channel member from said first engagement means; a third engagement means retractably extending across the channel member to press downward on the cable at a point toward the other end of the channel member from said first engagement means, whereby said lamp may be tilted for engagement of the cable by said first two engagement means without increasing the tension of the cable and may then be tilted in the opposite direction with said lamp serving as a lever to increase the tension of the cable and to permit engagement of the cable by the third engagement means; and a pair of spreader arms extending laterally from the lamp to engage said conductors and hold the conductors spaced apart.

4. An electric lamp structure for mounting on a tensioned cable between two spaced conductors for energization by the conductors, said lamp structure having a support comprising: a pair of spaced retractable engagement means to press downward on said cable at spaced points; and a transverse spreader member intermediate said spaced engagement means disposed to offset the cable upward relative to said pair of engagement means, thereby to cooperate with the pair of engagement means to grip the cable, increase the tension of the cable, and take up slack in the cable, said spreader member being adapted to engage said conductors both to hold the conductors spaced apart and to support the conductors by transmitting the weight of the conductors to said cable.

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