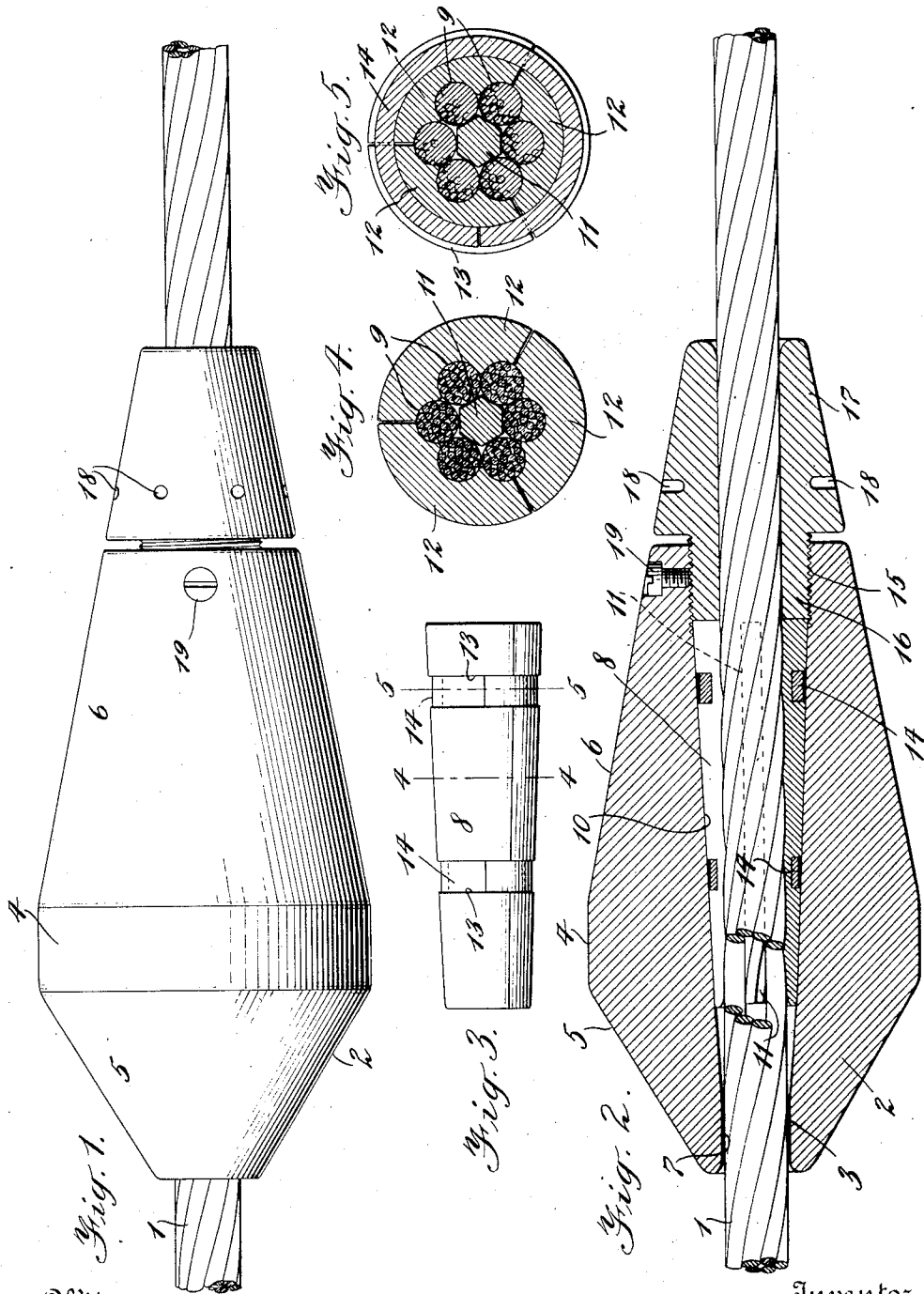


C. L. WACHTER.
 BUTTON STOP FOR CABLES.
 APPLICATION FILED NOV. 11, 1911.

1,218,138.

Patented Mar. 6, 1917.



Witnesses:
G. L. Cheney
W. A. Pauling

Inventor
Charles L. Wachter
 By his Attorney *Lifford & Bull*

UNITED STATES PATENT OFFICE.

CHARLES L. WACHTER, OF NEW YORK, N. Y., ASSIGNOR TO LIDGERWOOD MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

BUTTON-STOP FOR CABLES.

1,218,138.

Specification of Letters Patent.

Patented Mar. 6, 1917.

Application filed November 11, 1911. Serial No. 659,722.

To all whom it may concern:

Be it known that I, CHARLES L. WACHTER, a citizen of the United States, residing at New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Button-Stops for Cables, of which the following is a specification.

My invention relates to new and useful improvements in button stops for cables, to limit the movement of a part or parts relative to a cable or cableway, or to limit the movement of a cable relative to some part or parts.

The invention consists in the improved button stop to be fully described hereinafter and the novelty of which will be particularly pointed out and distinctly claimed.

I have fully and clearly illustrated my invention in the accompanying drawings to be taken as a part of this specification and wherein:

Figure 1 is a view in side elevation of a button constructed in accordance with my invention mounted on a section of cable;

Fig. 2 is a central longitudinal section through the embodiment shown in Fig. 1;

Fig. 3 is a detail view in elevation of a wedging element;

Fig. 4 is a section on the line 4—4 of Fig. 3; and

Fig. 5 is a section on the line 5—5 of Fig. 3.

Referring to the drawings by characters of reference, 1 designates a cable upon which my improved button stop is mounted; and 2 designates the main body portion of the button, the same consisting of a sleeve-like element having a longitudinal bore 3 to receive the cable 1. This sleeve-like element is preferably formed with an intermediate cylindrical part 4 from which the outer surface of the button tapers in opposite directions, as shown at 5—6, the forward end 5, or that end designed to receive the blow being more abruptly tapered than the rear part 6. The internal bore of the button at the portion adjacent the forward end thereof is substantially cylindrical, as shown at 7, from which point said bore is smooth and is flared toward the rear of the button so that said bore is substantially conical in form with the smaller end of the cone adjacent the said cylindrical part of the bore.

Means is provided for securely locking or securing the button to the cable, said means consisting of a member arranged between the outer surface of the cable and the surface of the bore of the button. This member is preferably in the form of a cone-shaped sleeve 8, the inner surface of which is substantially parallel to the outer surface of the cable and preferably is formed with longitudinally extending spiral grooves 9 to receive the strands, or the "lay" of the rope. The outer surface of this locking element is tapered from its rear end toward the end located farther within the button and at the same angle of inclination as the cone of the bore, as at 10, so that, when the locking sleeve is in position, the outer smooth surface of the sleeve and the inner smooth surface of the conical bore are parallel and in close contact throughout the length of the locking element. I preferably make the incline of the cone and button bore at an angle less than the angle of repose. That is at an angle less than that at which the surfaces would begin to have the wedging effect. By such arrangement every blow on the button serves to increase the wedging effect and increase the frictional engagement between the element 8 and bore of the body, whereas if the angle of inclination was greater than the angle of repose the button could be readily pushed off the wedge.

I preferably form the inside of the locking element with the spiral grooves 9 to conform to the strands of the rope, because, by this arrangement, the said locking element cannot slip longitudinally of the rope under the impact of the blow on the button, as said element cannot move longitudinally of the rope without turning thereon and the interengagement of the strands of the rope with the grooves on the inner face of the locking element prevents the latter from turning. In addition to the function just stated, the provision of the grooves in the locking element affords an increased area of frictional engagement between the cone and the rope to resist the impact.

In order to provide for a strong and positive engagement between the inner surface of the locking element and the rope when the parts are assembled, I may employ a rigid pin 11 within the rope, as shown in dotted lines in Fig. 2 and in section in Figs. 4 and 5, said pin being preferably,

in the present illustrations, hexagonal and twisted so that the surfaces thereof conform in direction to the strands of the rope. It will be understood, however, that it is not altogether essential to form this pin as specifically described, as it may be of other form.

In order to facilitate the application of the annular locking element or sleeve to the rope or cable, and to cause the same to strongly clamp the rope when the parts are assembled, I preferably form the said element in a plurality of separable parts substantially as illustrated in Figs. 3, 4 and 5, in which it is shown as consisting of three parts, although it will be understood that the number of parts may be varied without departing from my invention. These parts are formed adjacent their ends with grooves which, when the parts are assembled, register to form annular grooves around the cone, to receive spring locking rings which serve to hold the parts together when assembled on the rope and permit of their being easily separated when it is desired to remove them from the rope.

I may provide means for positively forcing the locking element into position to clamp said button to the rope, which means I now describe: The bore of the button at the rear end thereof may be threaded as at 15 to receive a threaded stem or nipple 16 on a nut member 17, the outer surface of which is preferably coned so as to form a continuation of the cone 6, and the arrangement being such that when the nipple is screwed into the rear end of the bore of the button said nipple will engage the rear, or large end of the locking element and positively force the same longitudinally of the rope into strong frictional engagement with the button and the rope, the force of the engagement being dependent upon the distance the locking element is forced into the button. It will be apparent that, as the parts of the locking element are moved into gripping position within the button body, the cooperation of the inclined faces 10 of the parts 12 and the bore 7 of the button will serve to compress the said parts on the cable so as to strongly grip the same. The element 17 may be provided with spanner holes 18 to receive a spanner-wrench when said element is to be turned, and a set-screw 19 may be let through the button body to engage the nipple 16 to prevent accidental turning of the element after the button has been secured on the rope.

In applying the button to a rope the button body 2 is first threaded onto the rope and located at the position desired, after which the locking element is placed on the

rope and moved along the same into the bore of the button so as to take the position between the rope and the body of the button, after which the clamping nut is placed on the cable and threaded into the rear end of the button until the end of the nipple engages the rear end of the locking element, and the continued movement of the clamping nut serves to positively force the locking element lengthwise of the button and rope into strong frictional engagement therewith.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A button stop comprising a button body having a longitudinal conical bore to receive a cable, and an annular cone clamping element adapted to be located wholly within the button body and to surround the cable between the same and the cone surface of said bore, said cone consisting of a plurality of separate parts, and spring means for holding said parts together.

2. A button stop comprising a button body having a longitudinal conical bore to receive a cable, and an annular cone clamping element adapted to surround the cable between the same and the button within said bore, said cone clamping element consisting of a plurality of separate parts, and means for holding said parts together, said means comprising split spring rings surrounding said parts.

3. A button stop comprising a body having a longitudinal conical bore to receive a cable, a pin substantially equal in cross-section throughout its length and adapted to extend longitudinally of the interior of the cable, and an annular cone wedging element arranged within the body and adapted to surround the section of the cable in which the pin is embedded.

4. A button stop comprising a body having a longitudinal conical bore to receive a cable, a pin substantially equal in cross-section throughout its length and adapted to extend longitudinally of the interior of the cable, said pin having its outer surface shaped to conform to the relative positions of the strands of the cable contacting therewith, and an annular cone wedging element arranged within the body and adapted to surround the section of the cable in which the pin is embedded.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES L. WACHTER.

Witnesses:

M. E. McNinch,
E. M. Lockwood.