Dec. 25, 1923. 1,478,950

E. C. GILLIAM

WIRE LINE CLAMP

Filed March 24, 1923 2 Sheets-Sheet 1

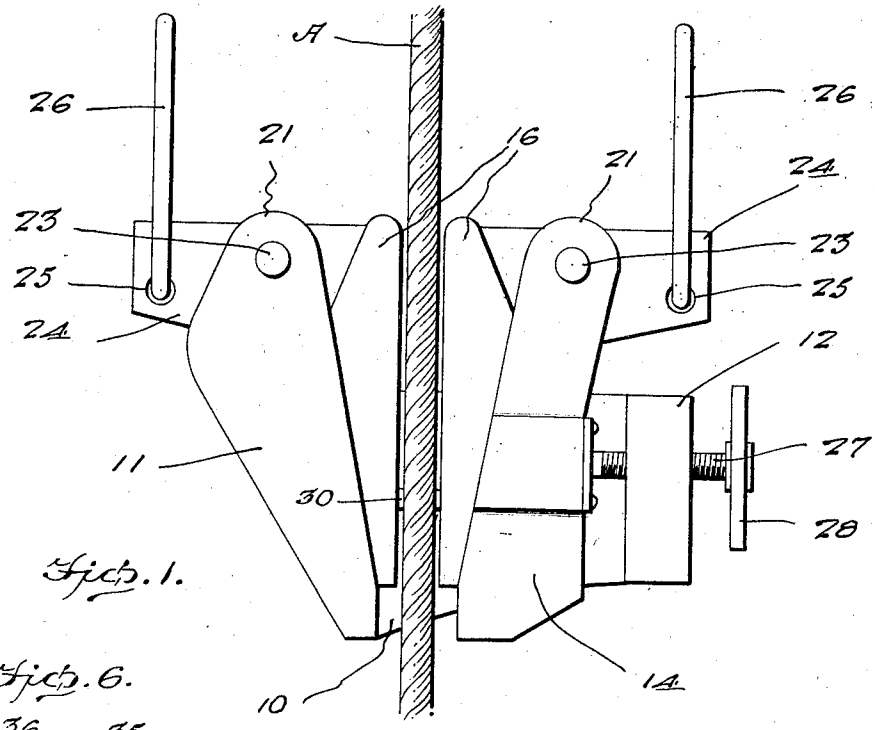
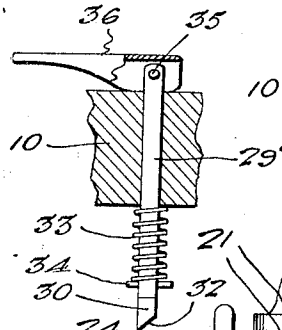


Fig. 1.

Fig. 6.



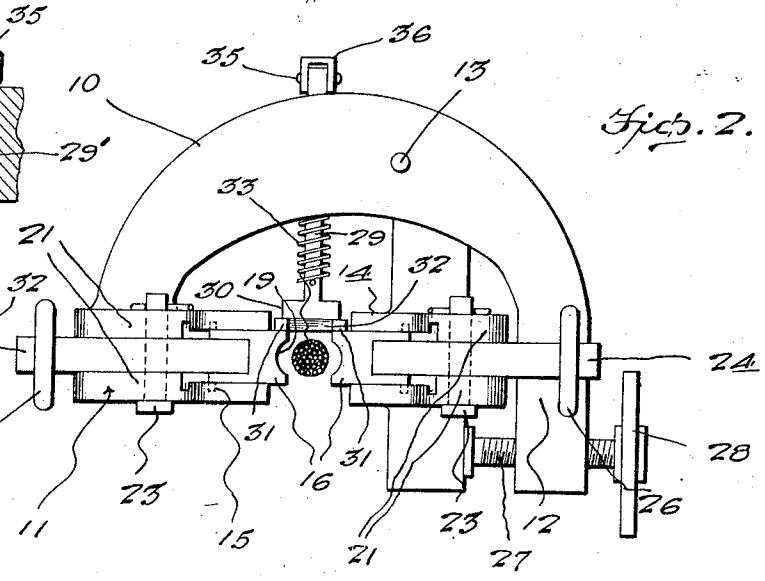


Fig. 2.

Paul M. Hunt

WITNESS:

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Fig. 3.

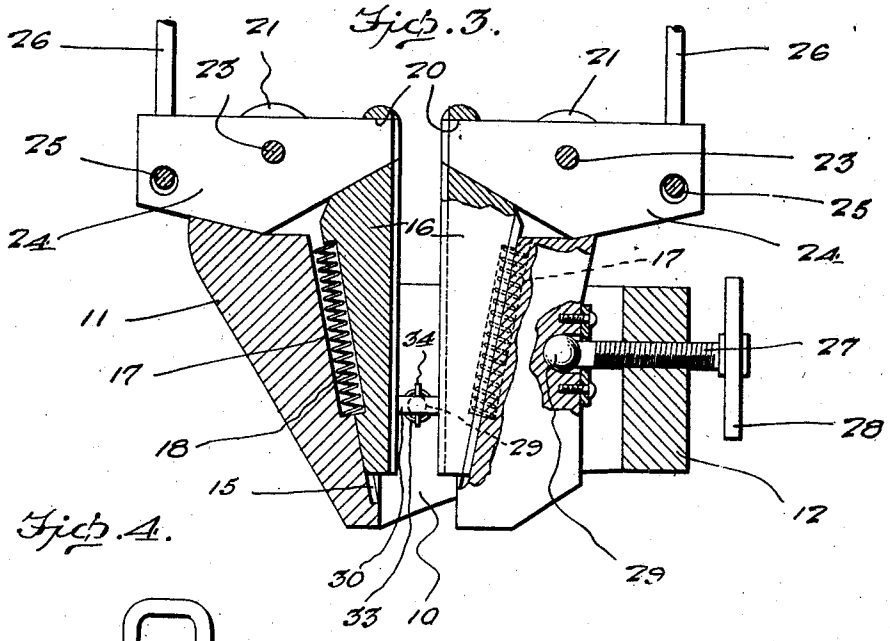


Fig. 4.

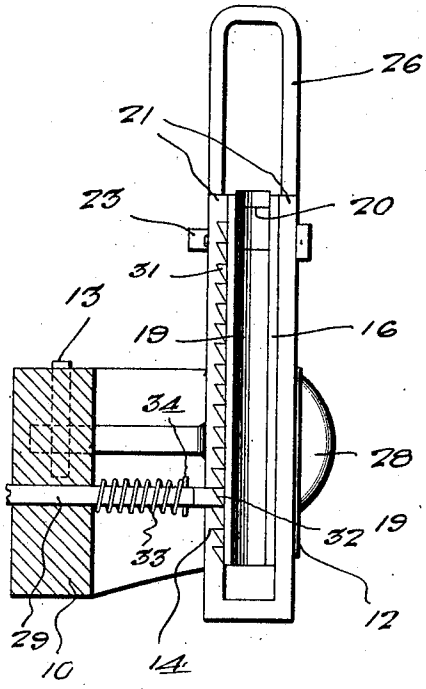
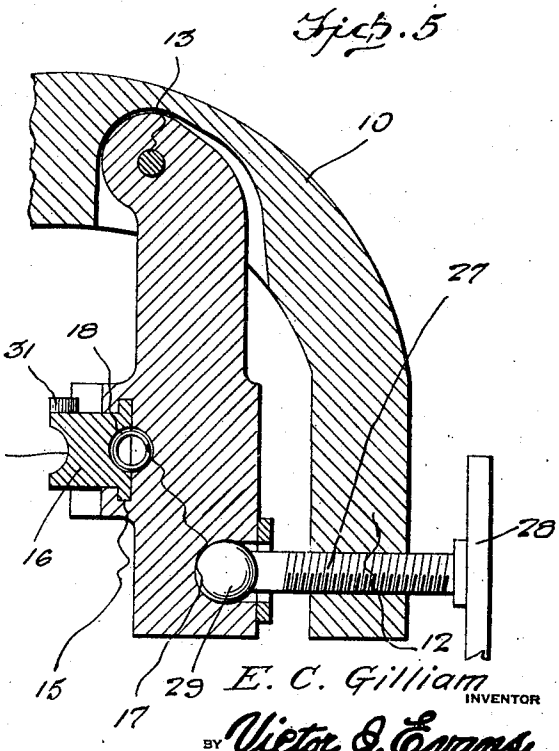


Fig. 5



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WITNESS:

Patented Dec. 25, 1923. 1,478,950

UNITED STATES PATENT OFFICE.

EUGENE CARL GILLIAM, OF WARNER, OKLAHOMA.

WIRE-LINE CLAMP.

Application filed March 24, 1923. Serial No. 627,418.

To all whom it may concern:

Be it known that I, EUGENE CARL GILLIAM, a citizen of the United States, residing at Warner, in the county of Muskogee and State of Oklahoma, have invented new and useful Improvements in Wire-Line Clamps, of which the following is a specification.

This invention relates to well drilling devices, particularly to clamps, and has for its object the provision of a novel wire line clamp which will automatically acquire its gripping action when a strain is applied to the device, the construction being such that the greater the strain the greater will be the gripping action of a pair of clamping jaws.

An important object is the provision of a device of this character in which means is provided for adjusting the jaws toward or away from each other so that they will effectively grip or clamp the cables or wire lines of different diameters or so that the device will be more sensitive, that is so that it will grip more or less quickly dependent upon the varying conditions under which it may be used.

An additional object is the provision of a device of this character which will be simple and inexpensive in manufacture, easy to install, simple in operation, highly efficient and durable in service and a general improvement in the art.

With the above and other objects and advantages in view the invention consists in the details of construction to be hereinafter more fully described and claimed and illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation of my device showing it associated with a wire line of a drilling machine,

Figure 2 is a plan view,

Figure 3 is a vertical cross sectional view,

Figure 4 is a cross sectional view at right angles to Figure 3,

Figure 5 is a detail sectional view showing the movable arm and associated parts,

Figure 6 is a detail section through the body.

Referring to the drawings I have shown my device as comprising a body 10 of substantially semi-circular or U-shape including arms 11 and 12. The arm 11 constitutes one rigid element of the device. Pivoted upon substantially the bight portion of the body 10 as shown at 13 is a movable element 14 arranged opposite to and cooperating with the rigid element constituted by the arm 11. The inner face of the member or arm 11 and the confronting face of the pivoted element 14 are inclined and converge downwardly as clearly indicated in Fig. 1. These confronting faces of the members 11 and 14 are formed with dove tailed grooves 15 which terminate short of the lower ends of these members and within which are slidably engaged clamping jaws 16 designed to co-operate to exert clamping engagement upon the drilling wire or cable A. The members 11 and 14 are further recessed as indicated at 17 for the reception of coiled springs 18 which engage projections upon the clamping members 16 whereby to normally urge the clamping members 16 upwardly so that they will be in non-gripping relation to the cable or wire A. The confronting faces of the clamping members 16 are recessed or cut away along curved lines as indicated at 19 so that they may more effectively clamp or grip the member A. The upper ends of the members 16 are formed with rectangular recesses 20 for a purpose to be described.

The upper ends of the arm 11 and the movable member 14 are formed with upstanding ears 21 in which are pivoted, as shown at 23, levers 24 which have their inner ends engaged within the openings 20 in the members 16. Pivotally connected with the outer ends of the levers 24, as indicated at 25 are upwardly extending slotted links 26 which serve as suspension means for the entire clamping device as will be apparent.

Threaded through the arm 12 of the body 10 is an adjusting screw 27 having an enlarged head 28 and having its free end 29 swivelly connected with the pivoted member 14. By adjusting the screw 27 it will be apparent that the member 14 may be swung upon its pivot 13 so as to bring the members 16 more or less close together to grip the cable or wire member A more or less quickly and with less necessary movement of the movable parts of the device.

In order to hold the slips 16 down, I provide a latch device which includes a stem 29′ slidable through the member 10 and carrying a head 30 having inclined sides which will conform to the direction of upward movement of the slips so that regardless of the position of the slips this head will slightly overlap the adjacent edges thereof at the rear. These edges of the slips are formed with notches 31 of a ratchet nature with

which the head 30 co-operates and this head has a beveled end 32 for interfitting engagement within the notches. A spring 33 surrounds the stem and abuts at one end against the member 10 and at its other end against a stop pin 34 for the purpose of urging this latch normally into engagement with the ratchet notches. The other end of the stem 29 projects beyond the member 10 and is pivoted at 35 within a recess in a cam lever 36. When the slips are pressed down and the cam lever 36 is in the position shown in Figure 6 the head 30 engaging the ratchet teeth 31 will hold the slips against upward movement. When their gripping action is desired the lever 36 is grasped and swung into a position at right angles to that shown in Figure 6 whereupon the stem will be retracted and the head 30 moved out of engagement with the ratchet notches to permit the slips to operate.

In the operation of the device it will be seen that when the parts are constructed and arranged as above described and as shown in the drawings, with the clamping members 16 disposed upon opposite sides of the cable or wire A, when an upward pull is exerted upon the links 26, or when the weight of the device is allowed to pull upon the links 26, it will be apparent that the levers 24 will rock upon their pivots 23 and this will of course result in forcing the clamping members 16 downwardly. Owing to the inclination of the confronting faces of the members 11 and 14, it will be quite obvious that as the clamping members 16 are forced downwardly they will be moved together and then they will naturally grip against opposite sides of the cable or wire A.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided a very simply constructed and consequently inexpensive clamping device of the character and for the purpose specified, which will very efficiently perform the functions for which it is intended and which is, moreover adjustable to meet varying conditions in use.

While I have shown and described the preferred embodiment of the invention, it is of course to be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having described the invention what is claimed is:

1. A device of the character described comprising a substantially U-shaped body, a member pivotally connected with said body at a point spaced from the center of the bight portion thereof, the confronting faces of said member and the opposite arm of the body being formed with grooves having inclined walls converging downwardly, screw means passing through the other arm of the body and engaging said pivoted member whereby to vary the position of the latter with respect to the first mentioned arm, clamping members slidably engaged within the grooves, springs normally urging the clamping members upwardly, the confronting faces of said clamping members being curved for substantially conforming engagement upon the cable or the like, the upper end of said clamping members being formed with openings, levers pivoted upon the upper end of said first named arm and said movable member and having their inner ends engaged within the openings in said clamping members, and slotted suspension links pivotally connected with the outer ends of said levers.

2. A device of the character described comprising a substantially U-shaped body, a member pivotally connected with said body at a point spaced from the center of the bight portion thereof, the confronting faces of said member and the opposite arm of the body being formed with grooves having inclined walls converging downwardly, screw means passing through the other arm of the body and engaging said pivoted member whereby to vary the position of the latter with respect to the first mentioned arm, clamping members slidably engaged within the grooves, springs normally urging the clamping members upwardly, the confronting faces of said clamping members being curved for substantially conforming engagement upon the cable or the like, the upper ends of said clamping members being formed with openings, levers pivoted upon the upper end of said first named arm and said movable member and having their inner ends engaged within the openings in said clamping members, slotted suspension links pivotally connected with the outer ends of said levers, the upper end of the first named arm of the body and the upper end of the said movable member being formed with spaced upstanding ears between which said levers are pivoted.

3. A device of the character described comprising a substantially U-shaped body, a member pivotally connected with said body adjacent the juncture of one arm with the bight portion thereof, the confronting face of said member and the confronting face of the other arm being inclined and converging downwardly, means for swinging said movable member upon its pivot whereby to move it more or less close to the second named arm, vertically slidable clamping members guidably movable along the confronting faces of said movable member and said second named arm, levers pivotally connected with said body and with said movable member and connected with the upper ends of the clamping members,

and suspension means connected with the outer ends of said levers, and means for holding said clamping member against slidable movement.

4. A device of the character described comprising a substantially U-shaped body, a member pivotally connected with said body adjacent the juncture of one arm with the bight portion thereof, the confronting face of said member and the confronting face of the other arm being inclined and converging downwardly, means for swinging said movable member upon its pivot whereby to move it more or less close to the second named arm, vertically slidable clamping members guidably movable along the confronting faces of said movable member and said second named arm, levers pivotally connected with said body and with said movable member and connected with the upper ends of the clamping members, and suspension means connected with the outer ends of said levers, and means for holding said clamping member against slidable movement, consisting of a spring pressed latch normally co-operating with ratchet notches formed in the rear sides of said clamping members.

5. A device of the character described comprising a substantially U-shaped body, a member pivotally connected with said body adjacent the juncture of one arm with the bight portion thereof, the confronting face of said member and the confronting face of the other arm being inclined and converging downwardly, means for swinging said movable member upon its pivot whereby to move it more or less close to the second named arm, vertically slidable clamping members guidably movable along the confronting faces of said movable member and said second named arm, levers pivotally connected with said body and with said movable member and connected with the upper ends of the clamping members, and suspension means connected with the outer ends of said levers, and means for holding said clamping member against slidable movement, consisting of a spring pressed latch normally co-operating with ratchet notches formed in the rear sides of said clamping members, said latch carrying a cam lever movable to control the position of the latch.

In testimony whereof I affix my signature.

EUGENE CARL GILLIAM.