

No. 875,121.

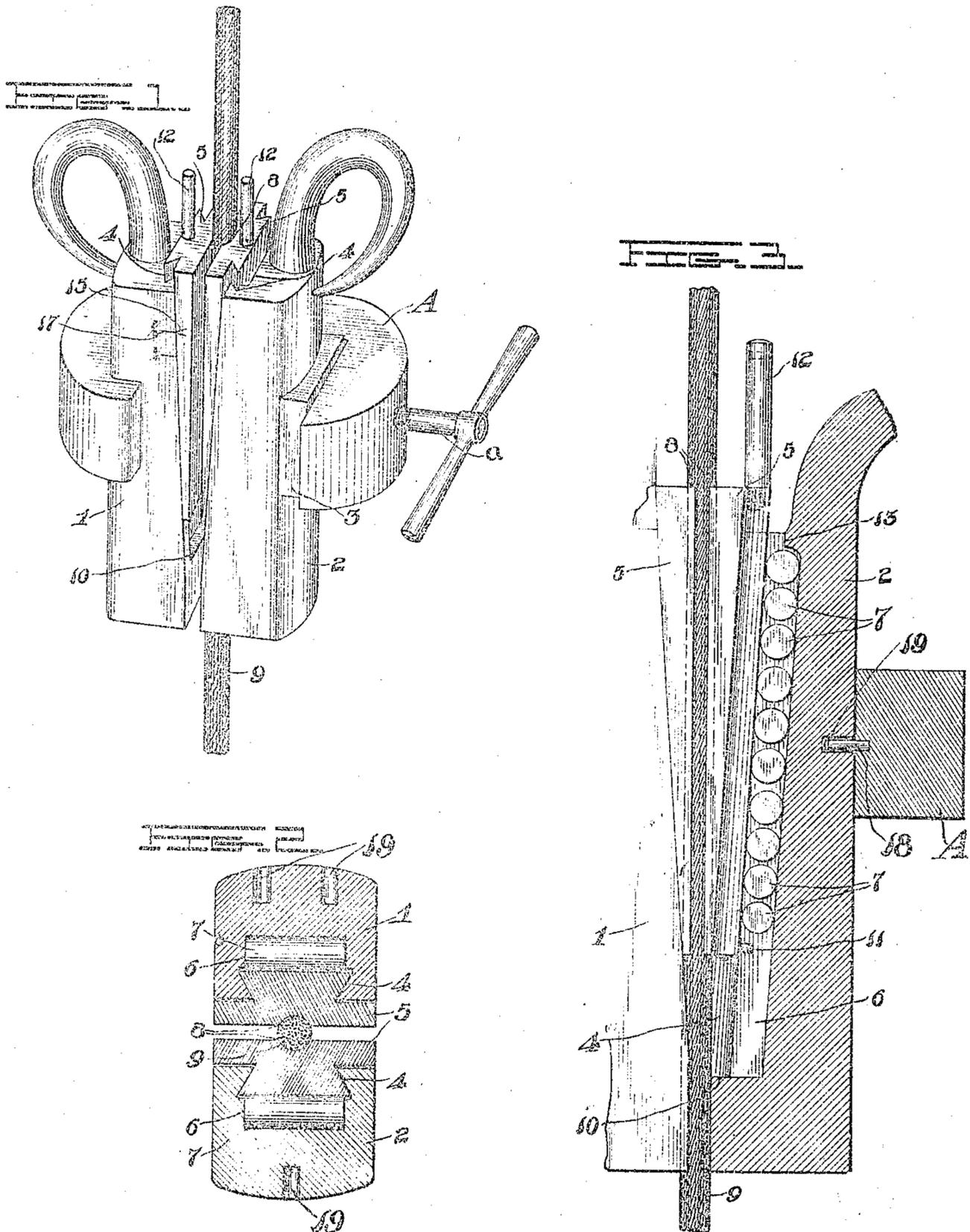
PATENTED DEC. 31, 1907.

L. D. SHRYOCK.

ROPE CLAMP.

APPLICATION FILED FEB. 13, 1907.

3 SHEETS—SHEET 1.



Witnesses

Lloyd W. Patch
A. A. Hammond

Inventor

Louise D. Shryock
Simon C. Hayes
Attorney

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FIG. 4.

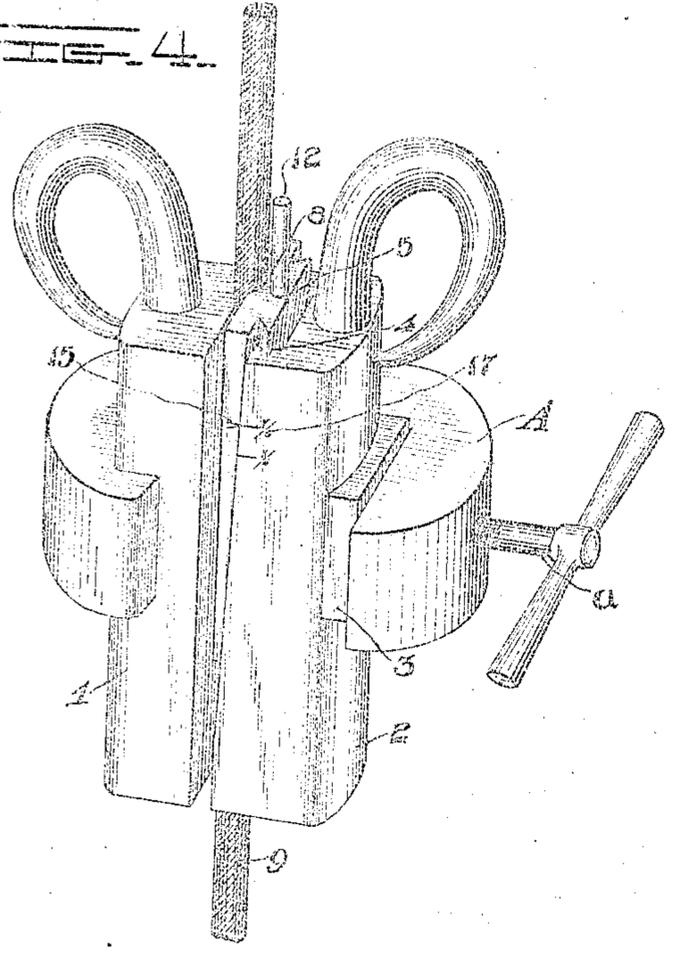
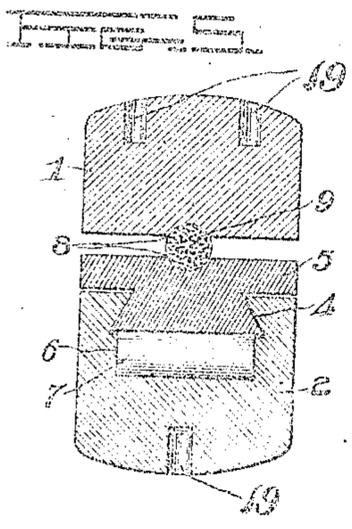
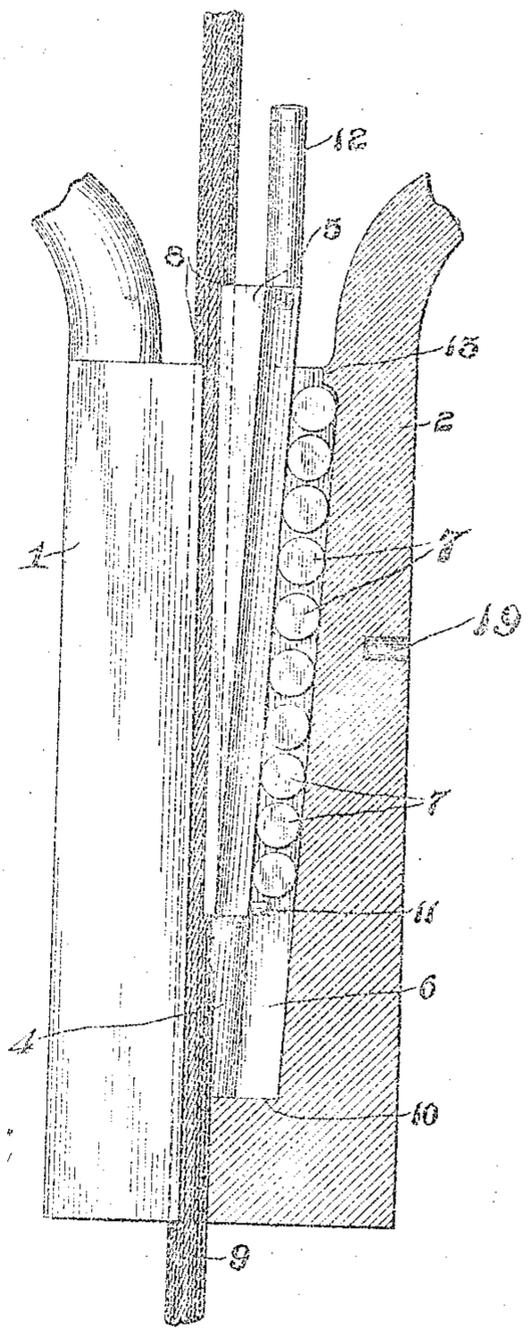


FIG. 5.



Witnesses
 Lloyd W. Hatch
 A. A. Hammond

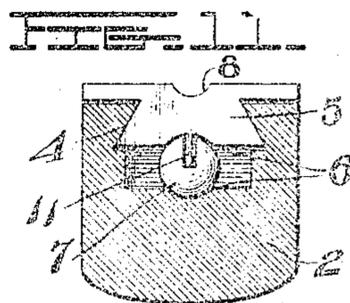
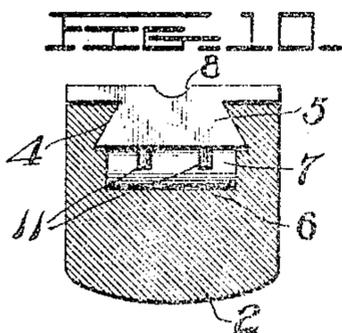
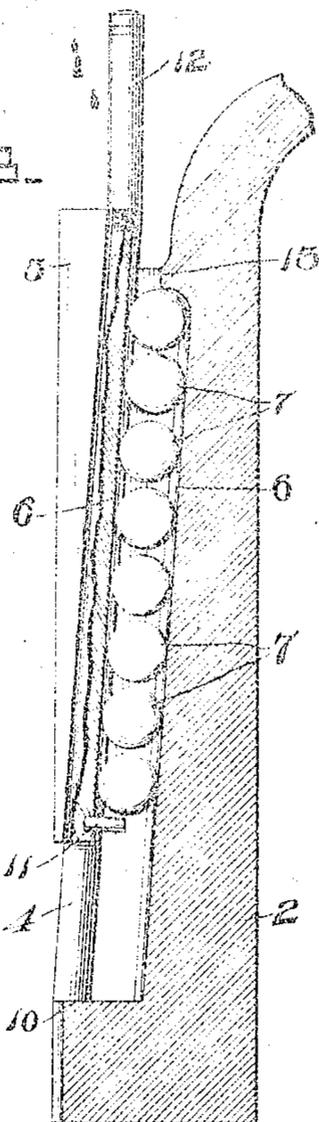
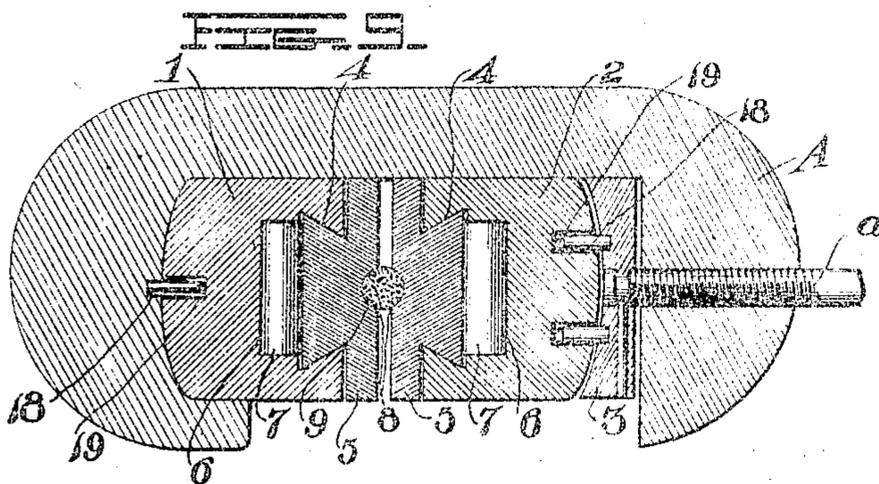
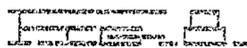
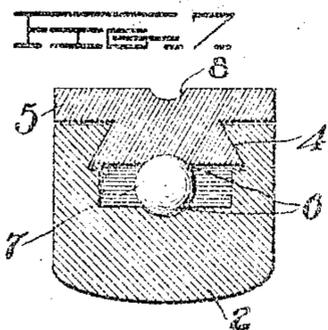
Inventor
 Leonard D. Shryock
 Attorney

L. D. SHRYOCK.

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3 SHEETS—SHEET 3.



Witnesses

Lloyd W. Patch

Watts T. Estabrook

Inventor

L. D. Shryock

Arthur E. Hayes
Attorney

UNITED STATES PATENT OFFICE.

LEONARD D. SHRYOCK, OF MARIETTA, OHIO.

ROPE-CLAMP.

No. 375,121.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed February 13, 1907. Serial No. 357,194.

To all whom it may concern:

Be it known that I, LEONARD D. SHRYOCK, a citizen of the United States, residing at Marietta, in the county of Washington and State of Ohio, have invented certain new and useful Improvements in Rope-Clamps, of which the following is a specification.

My invention relates to an improvement in rope clamps, and the object is to provide a clamp which will securely hold a wire cable when the same is used for drilling oil, gas and Artesian wells, as well as cleaning out the same, and it is capable of being used for any purpose for which a tight and rigid hold on the piece of wire rope is necessary.

In the ordinary clamp used in the art of well drilling with a manila cable, two plain clamp members are pressed against a wrapped portion of the cable at the desired point by means of a C-screw. This device answers well for a manila cable, but for a wire cable sufficient pressure cannot be brought upon the clamp members with a screw to provide sufficient friction of the clamp members upon the cable. To overcome this defect taper wedges have been inserted between the cable and the clamp members, one face of each wedge being grooved to fit the cable and the other face dove-tailed to fit a corresponding dovetail in the clamp member. The clamp members are set up as tight as possible with the screw, and as the load on the cable increases the wedges are supposed to slip down and automatically grip the cable tighter, but it is easily seen that, as the pressure on the back of the slip is the same as on the side next to the cable, and consequently the friction the same on both, the cable is just as liable to slip through the grooved face of the wedge as the wedges are to slip down on the clamp members and tighten on the cable. This objection is in a small degree overcome by lubricating the portions of the wedges resting against the clamp members. This is only a makeshift method, however, and very unsatisfactory.

In my invention the friction of the wedges against the clamp members is almost entirely overcome by means of anti-friction devices interposed between the wedges and clamp members, and consequently the wedges cling to the clamp members and the greater the load on the rope the tighter the grip to take care of it.

With the foregoing objects in view, my

improved clamp may be applied with one roller bearing grooved wedge and a plain grooved clamp member, or with a roller bearing grooved wedge on each clamp member as desired.

My invention further consists in certain novel features of construction, and combinations of parts which will be hereinafter described and pointed out in the claims.

In the accompanying drawings:—Figure 1 is a view in perspective of one form of my clamp. Fig. 2 is a transverse section of the same. Fig. 3 is a side view partly in section. Fig. 4 is a view of a slightly different construction. Fig. 5 is a transverse section therethrough. Fig. 6 is a vertical section. Fig. 7 is a transverse section, Fig. 8 is a longitudinal section, Fig. 9 is a sectional view of the jaw, and Figs. 10 and 11 are details.

A, represents a jaw which is approximately C-shaped, in general outline. Two clamp members 1 and 2 are held in the jaw A by means of a swiveled block 3 adapted to be held against the clamp members by means of a screw *a*. These clamp members may be variously constructed and I have shown two different forms of clamp members.

In Figs. 1, 2 and 3, the inner faces of both clamp members are provided with dove-tailed grooves 4, 4, which grooves taper, they being deep at the top and shallow at the lower ends of the clamp members. The sliding wedges 5, 5, are fitted to these grooves. In the bottoms of the grooves the races 6, 6, are formed to receive either rollers or balls 7, 7, interposed between the clamp members and wedges whereby to afford anti-friction means between the wedges and clamp members. When balls are used to eliminate the friction, the races are round, whereas when rollers are employed, they are flat. The clamping faces of these wedges are grooved as at 8, 8, to receive and clamp the cable 9. Stops 10 are formed at the lower ends of the clamp members to prevent the wedges from descending beyond that point. The pegs or pins 11, 11, sustain the weight of the balls or rollers and prevent their displacement at the lower ends, and elevate the balls or rollers when the wedges are raised. Bolts 12, 12, are screwed into the upper ends of the wedges to hold the latter in position while tightening up the clamp members. These bolts also prevent the balls or rollers from dropping out of their places when the clamp is not in use, and the wedges are at their lowest position

on the stops 10, the top of the wedges being below the lug 13 on the clamp member.

In Figs. 4, 5, and 6, one of the clamp members is grooved to receive the cable directly there against. The grooved face of one wedge cooperates with the groove of the clamp member. In other words, the two constructions merely differ in the duplication of the wedges.

When the parts are assembled and in operative position, the clamp members are held in position in the jaw by means of one or more studs 18 in the jaw projecting into the holes 19 which are larger than the pins so that they are in reality pivotally sustained and by reason of the dove-tailed grooves being of greater depth at the top than at the bottom, and the tapering form of the wedges, the clamping faces of the latter maintain a parallelism at all times, thus gripping the cable uniformly throughout their entire length, and by reason of the wedge-shaped formation the greater the lifting strain upon the cable, the tighter is the clamping action thereupon and the friction instead of being between the wedge or wedges and the clamp member or clamp members is all against the cable, by reason of the anti-friction packing which the wedge or wedges have. This clamp member is only intended for a wire cable, as it is impracticable for the ordinary manila rope or cable.

One or both wedges are provided with an index mark as at 15 on their exposed side, to correspond with graduations 17 on the clamp member for a given sized cable so that the wedges may be instantly set at the proper point for the different sizes of cable within the capacity of the clamp member. It may be mentioned that the wedges when thus set to graduations for a given size of rope or cable, will permit them to travel down to the end of the stops which will give the required pressure of the rope or cable without injuring it. A positive stop is not only formed at the bottom but also at the top as at 13 against which the balls or rollers are forced when the wedge or wedges are elevated to their highest position.

From the foregoing it will be seen that I have provided a simple and powerful mechanism for clamping a drill or other rope or cable, it being so constructed that it automatically grips the rope or cable as strain is applied thereto, holding it tighter as the weight or strain thereupon increases. At the same time, it is a device which is capable of being easily released, adjusted, assembled, or dismembered, as occasion may require.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described within the scope of the appended claims, without departing from the spirit and scope of my invention,

and hence I do not wish to limit myself to the exact construction herein set forth, but:

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with clamp members and a wedge, of a cable against which the wedge bears with frictional contact and anti-frictional devices between the back of the wedge and clamp member whereby the compressibility of the cable with the frictional contact of the wedge thereagainst and the anti-frictional engagement on the opposite side of the wedge causes a firm engagement of the cable.

2. A clamp for ropes or cables comprising a jaw, a pair of clamp members, one at least of which is provided with a dove-tailed groove of varying depth from one end of the clamp member to the other, a sliding wedge fitted to the groove, anti-friction devices interposed between the bottom of the groove and the adjacent surfaces of the wedge, stops for limiting the upward and downward movement of the wedge, and means for preventing the displacement of the anti-friction devices at either end of the clamp member.

3. A clamp for ropes or cables, comprising a jaw, clamp members held therein, one at least of which clamp members is provided with a sliding wedge, anti-friction devices interposed between the wedge and the clamp member, and a bolt attached to the wedge whose primary function is to hold the same in position when the clamp members are being tightened, said bolt having the secondary function of protecting the anti-friction devices from displacement when the clamp is not in use, and the wedges are at their lowest position.

4. A clamp for ropes or cables comprising a jaw, clamp members pivotally held therein, and a sliding wedge in one at least of said clamp members.

5. A clamp for ropes or cables comprising a jaw, clamp members having grooves on their inner faces, and wedges fitted to said grooves, anti-friction devices between the wedges and clamp members, and means on the clamp members and wedges to prevent the anti-friction devices from becoming displaced.

6. A clamp for ropes or cables comprising a jaw, clamp members pivotally held therein, a sliding wedge in one at least of said clamp members, and anti-friction devices between the clamp and wedge.

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

LEONARD D. SHRYOCK.

Witnesses:

W. E. SYKES,
J. J. LEIDECKER.