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L. C. BAYLES

COLUMN OR SUPPORT FOR ROCK DRILLS

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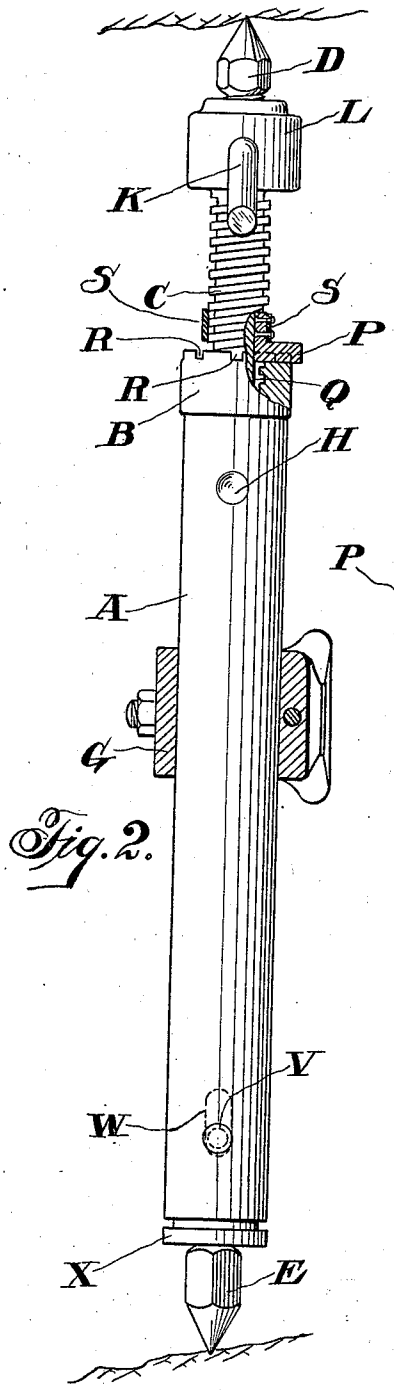


Fig. 2.

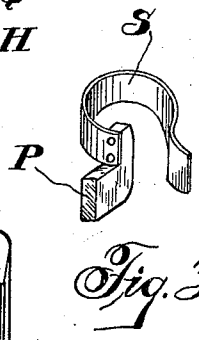


Fig. 3.

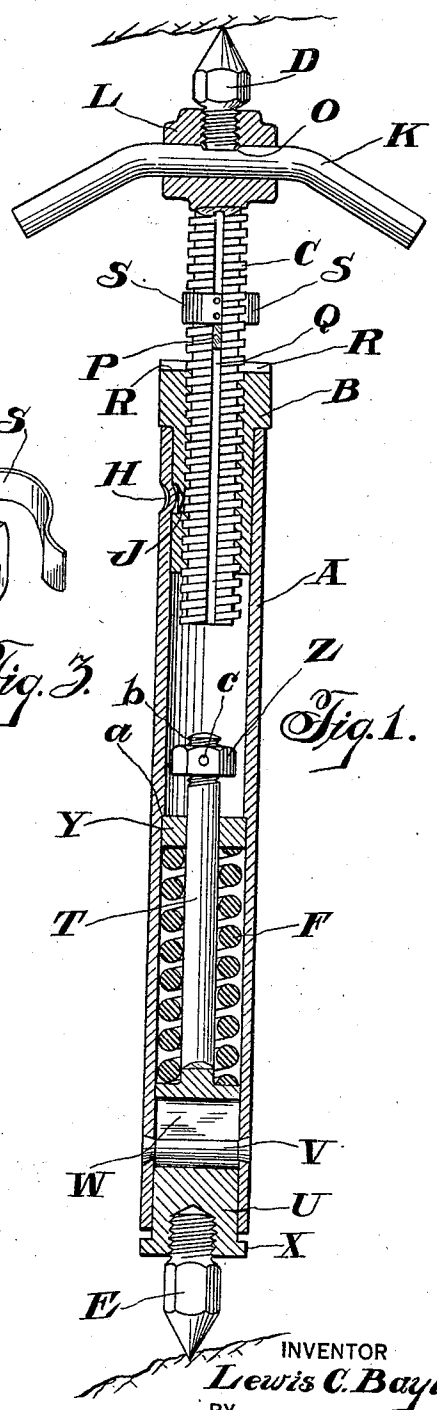


Fig. 1.

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UNITED STATES PATENT OFFICE.

LEWIS C. BAYLES, OF EASTON, PENNSYLVANIA, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

COLUMN OR SUPPORT FOR ROCK DRILLS.

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To all whom it may concern:

Be it known that I, LEWIS C. BAYLES, a citizen of the United States, and a resident of Easton, Northampton County, State of Pennsylvania, have invented a certain Column or Support for Rock Drills, of which the following is a specification accompanied by drawings.

This invention relates to columns or supports adapted to support a rock drill in operative position, but more particularly to a screw column having a tubular body portion but preferably without pneumatic pressure within the body portion.

The objects of the invention are to produce a simple, efficient and safe column or support suitable for supporting light or heavy rock drills as well as other kinds of machines, but particularly adaptable for production in relatively small and light sizes for supporting a light rock drill of the "jackhammer" type for instance. Such a light column has the advantage that it may be quickly and conveniently handled, set up or dismounted and with my improvement the column will be safe from falling when left without attention, whether it is so left intentionally or unintentionally.

To these ends the invention is shown in one of its preferred forms in the accompanied drawings in which,

Figure 1 is a longitudinal sectional elevation of a column constructed in accordance with my invention;

Figure 2 is a side elevation of the column partly in longitudinal section;

Figure 3 is a detail perspective view of the locking device.

Referring to the drawings the column comprises a tubular body portion A having a nut B secured in one end, a jack screw C rotatable within the nut B in axial alignment with the body portion A and extending beyond the end of the body portion, rock engaging members D and E preferably in the form of pointers at the end of the jack screw C and at the opposite end of the body portion A respectively, and a spring F resisting the inward movement of one of the rock engaging members, in this instance the spring being shown in connection with the lower rock engaging member E.

Means are also provided for manually rotating the jack screw C within the nut B, and a suitable locking device for manually locking the screw C against rotation relatively to the nut B after adjustment. A suitable clamp G for holding a rock drill or other machine may be secured to the body portion A of the column.

Referring to the drawings more in detail, the nut B is secured against rotation within the upper end of the body portion A in the form of column illustrated in this instance; a portion H of the column wall is pressed into a depression J in the body of the nut B.

A rotation handle K is inserted through the head L of the jack screw C and is conveniently clamped and held in position by means of the rock engaging member D which is threaded into the screw head L and engages a depression O in the handle K.

A suitable and convenient form of locking device for the column consists of a key or detent P slidable longitudinally in the groove Q in the screw C and adapted to engage the jaws R on the nut B. The key P may be conveniently secured to a spring clip S encircling the screw C so that the locking device may be raised up and down and maintain any desired position.

In the illustrated drawings the spring F, preferably a coiled spring of great strength, is placed over the reduced shank T of a supporting member U having relatively slidable but non-rotatable engagement within the lower end of the body portion A of the column. The lower rock engaging member E preferably in the form of a pointer is also suitably secured to the supporting member U, the pin V passing through the slot W in the supporting member U and engaging the walls of the body portion A of the column preventing relative rotation between the column body and the member U but permitting limited longitudinal movement of the body portion A of the column upon and relatively to the supporting member U. A flange X on the member U limits the downward movement of the column body so that the weight is not borne by the pin V.

A washer or collar Y is slidable longitudinally on the shank T and is adapted to bear against a suitable stop within the body portion A of the column, in this instance the bore of the column being formed with a shoulder *a* against which the washer Y is seated. An adjustable nut Z on the screw threaded end *b* of the shank T permits adjustment of the spring tension and a suitable

cotter pin *c* or other device may be provided for locking the adjusting nut Z.

In the operation of the column the jack screw C is manually rotated in the nut B by means of the handle K until the upper pointer D engages the rock, and then continued rotation of the jack screw C forces the body portion A of the column downwardly, carrying the slidable washer Y downwardly and compressing the spring F between the washer and the supporting member U until the column is placed under the desired tension. The locking device P is then adjusted in one of the jaws R to prevent the jack screw from unscrewing. Many tons pressure may be exerted by even a small column of relatively small diameter by means of my improved device and the column is safe and will not fall under all ordinary circumstances because the spring F resists the inward movement of one of the rock engaging members, in this instance, the lower pointer E.

In setting the column in operative position the jack screw is turned up until the spring F is under compression as shown in Figure 1 and the locking key is brought into engagement with the jaws R as shown in Figure 2. When a rock drill mounted on the column is set in operation, the vibration causes the rock engaging members to eat into the rock and unless provision is made for compensating for such movement, the column soon becomes loose and unsafe. The function of the spring is to maintain substantially constant pressure between the rock engaging members and the rock and thus make the column firm and safe in spite of the abrasion of the rock which may occur at the points at which the rock engaging members engage the rock.

It has been customary to insert wood blocking between the extremities of the column and the rock, which furnishes a slightly elastic cushion between said extremities and the rock, but the elasticity of the wood is so slight that the column becomes loose after the said extremities have sunk their way a short distance into the wood. My column avoids the necessity of using such blocks and makes a much simpler and safer arrangement.

I claim:

1. A column adapted to support a rock drill in operative position, comprising a single tubular body portion, a nut secured against rotation within the upper end of said body portion, a jack screw rotatable within said nut in axial alignment with the body portion and extending beyond the end of said body portion, a rock engaging member at the outer end of the jack screw, a supporting member having relatively slidable but non-rotatable engagement within the lower end of the body portion of the column, a rock engaging member at the outer end of the supporting member, a spring adapted to be compressed within the tubular body portion of the column by relative longitudinal movement between the body portion and the supporting member, means for manually rotating the jack screw within the said nut, and means adjustable upon the jack screw for manually locking the screw against rotation relatively to the nut when the parts are in desired position.

2. A column adapted to support a rock drill in operative position, comprising a single tubular body portion, a nut secured against rotation within the upper end of said tubular body portion, a jack screw rotatable within said nut in axial alignment with the body portion and extending beyond the end of said body portion, a rock engaging member at the outer end of the jack screw, a supporting member having relatively slidable but non-rotatable engagement within the lower end of the body portion of the column, a rock engaging member at the outer end of the supporting member, said supporting member having an oppositely extending reduced shank within the body portion of the column, a collar slidable upon said reduced shank and adapted to engage a stop within the body portion, a spring adapted to be compressed between the collar and the said supporting member for resisting inward movement of the lower rock engaging member and means for manually rotating the jack screw within the said nut.

In testimony whereof I have signed this specification.

LEWIS C. BAYLES.