

E. C. STRONG.
DIAMOND HOLDER.
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1,033,749.

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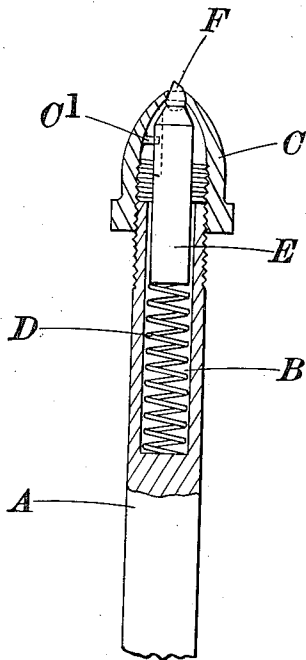


FIG. 1

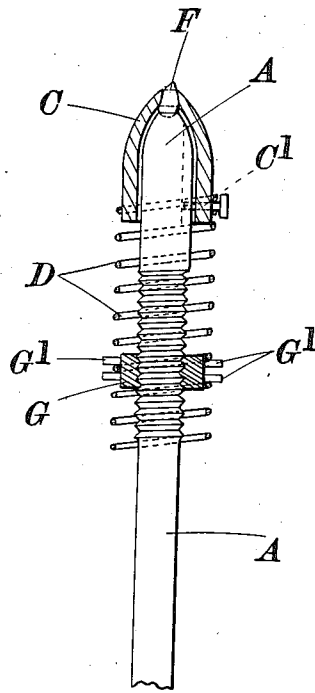


FIG. 2

Witnesses.
L. Johnson
C. V. Brown.

Inventor.
Eli C. Strong
by Foster Sherman Watson & Co.
Attys

UNITED STATES PATENT OFFICE.

ELI CHARLES STRONG, OF SHEFFIELD, ENGLAND.

DIAMOND-HOLDER.

1,033,749.

Specification of Letters Patent.

Patented July 23, 1912.

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To all whom it may concern:

Be it known that I, ELI CHARLES STRONG, a subject of the King of England, residing in Sheffield, in the county of York, Eng-
land, have invented certain new and useful Improvements in Diamond-Holders, of which the following is a specification.

This invention relates to diamond holders used to true emery wheels and for like purposes, its object being to provide means for mounting the diamond flexibly, so that if it should be moved in its setting it will still be held firmly and will not be lost, broken or require to be remounted. When the diamonds are mounted rigidly in the holder by brazing, by a perforated screwed cap or otherwise, as has heretofore been the practice, great care has to be exercised in using the tool as any sudden stress is liable to fracture the diamond or tear it from its setting. Even with careful use the diamond is very apt to become loose and in that condition the liability to loss or fracture is greatly increased. According to the present invention however the diamond is not rigidly mounted in the holder but one of its angles or points projects through an aperture in a cap which incloses both the diamond and the seating for its base, the cap and seating being pressed toward one another by a suitable spring. Thus the diamond is self-adjusting in its seating. The effect of abnormal stresses and sudden blows is minimized and the diamond is not liable to become loose and as a consequence the tool has a greatly prolonged life and can be used for much rougher work than has hitherto been the case.

Further advantages of this invention are the ease with which a diamond may be fixed in the holder and the practicability of using a comparatively soft metal seating for the diamond without the disadvantages inherent therein when a rigid setting is employed.

In the accompanying drawings:—Figure 1 is a sectional elevation of a diamond holder according to this invention and Fig. 2 is a similar view of a modification.

Like letters indicate like parts throughout the drawings.

With reference first to Fig. 1 the stem A of the diamond holder is provided with a central longitudinal cavity or hole B at its free end. This end of the stem is also provided with screw threads to enable a tapped perforated cap C to be screwed thereon.

This cap C itself is of known construction, having previously been employed for the rigid setting of diamonds, the aperture in its apex being tapered to enable the diamond partially to project therethrough. A helical spring D is situated within the cavity B and supports a movable member E which projects from the end of the cavity. A seating for the diamond F is provided at the projecting end of the movable member E being preferably formed by a hollow therein.

When the parts are assembled the diamond F will project partially through the tapered hole at the apex of the cap C, having a seating upon the end of the movable member E which is supported by the spring D. It will be seen that the effective force exerted by the spring D may be increased by screwing the cap farther on the stem A, and vice versa. It is preferred to provide means for preventing relative rotation of the cap C and movable member E in order that such screwing or unscrewing of the cap may not cause the diamond to turn in relation to either and thus to cause damage. Such means may comprise a pin C' on the interior of the cap engaging a suitable longitudinal slot in the movable member E.

The effective strength of the spring D being sufficient to hold the diamond to its work without movement under normal conditions it will be appreciated that if the diamond experience any abnormal stress or sudden blow the spring will materially lessen its effect on the diamond and thus prevent fracture. Moreover even though the diamond be temporarily loosened in its setting thereby it will afterwards immediately be firmly held again and thus the abnormal stress or sudden blow will not conduce to future fracture or loss of the diamond as would be the case if the setting were a rigid one.

If desired the cap C instead of being screwed to the stem may be integral or otherwise connected therewith, a suitable opening being provided for the insertion of the spring, diamond and seating of the latter.

In the modification illustrated in Fig. 2 the cap C is not tapped but is arranged to fit loosely the free end of the stem A. The seating for the diamond is formed at the free end of the stem and the spring D is connected at one end to the cap C and at

the other to the stem A. The effective force exerted by the spring may be varied by connecting it to the stem by means of a nut G engaging a screwed part thereof. It is preferred to provide means for preventing relative rotation of the cap and stem such as by the pin C¹ projecting from the interior of the cap and engaging a longitudinal slot in the stem. The same pin C¹ extending to the exterior of the cap may be employed for the attachment of the spring D thereto. In this case it will be necessary for the connection between the nut G and spring D to be such as to allow these parts to turn in relation to each other. By using a spring coiled in the opposite sense to the screw threads on the stem A and in the nut G and providing a projection or projections G¹ on the latter engaging the coils of the spring it will be appreciated that as the nut is turned to increase the tension of the spring it will also shorten the effective length thereof and thus still more increase the tension. The projections G¹ on the nut will also serve as means to enable the latter to be turned, although other means to connect the spring to the nut G so as to allow of relative rotation between them may be employed if desired, or the spring may be so connected to the cap C.

It is preferred to make that part of the stem A and movable member E which forms the seating for the diamond of some comparatively soft material such as copper in order to enable the diamond easily to obtain a firm seating thereon, and, especially

in the case of the modification illustrated in Fig. 2, in order to lessen the force of any blows on the diamond.

Other modifications may be made in the construction of the holder without departing from this invention as for example in the employment of different means for adjusting the effective strength of the spring, or in the employment of different forms and arrangements of spring.

What I claim and desire to secure by Letters Patent is:—

1. In a diamond holder the combination of a stem, a perforated cap partially to inclose the diamond, a seating for the diamond, a spring pressing the cap and seating toward one another and means for varying the force exerted by the spring.

2. In a diamond holder the combination of a stem having a cavity at one end, a spring within the cavity, a movable member partially within the cavity supported by said spring and having a seating for the diamond, a perforated cap inclosing the movable member, mutually engaging screw threads on the cap and stem and means for preventing relative rotation of the cap and movable member.

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

ELI CHARLES STRONG.

Witnesses:

ARTHUR M. GREENWOOD,
CHAS. N. DANIELS.