J. J. FARRELL.

DRILL.

APPLICATION FILED JUNE 10, 1919.

1,331,189. Patented Feb. 17, 1920.

Fig. 1.

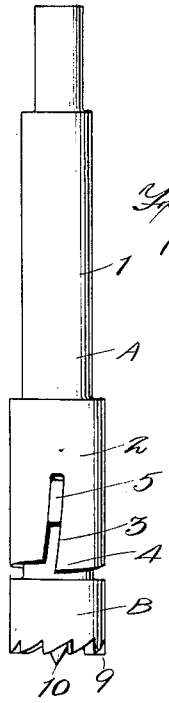


Fig. 2.

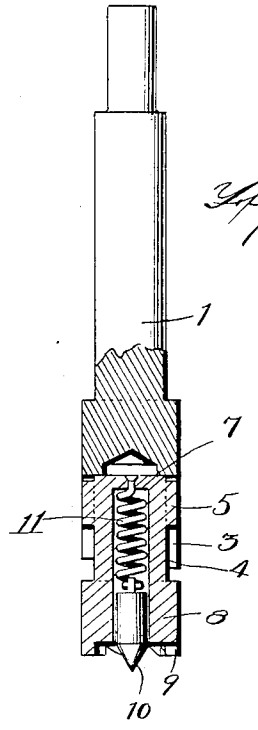


Fig. 4.

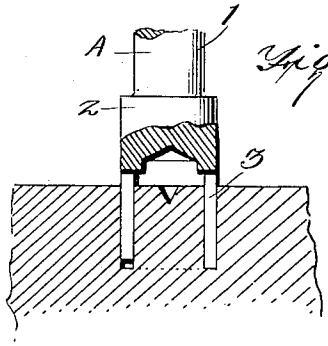
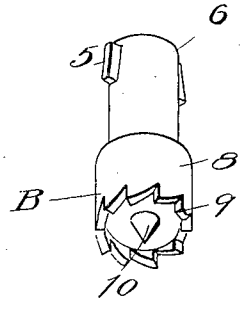


Fig. 3.



WITNESSES

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DRILL.

1,331,189. Specification of Letters Patent. Patented Feb. 17, 1920.

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To all whom it may concern:

Be it known that I, JAMES J. FARRELL, a citizen of the United States, and a resident of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Drills, of which the following is a specification.

This invention relates to an improvement in drills, and more particularly to an improved drill for removing lead connectors from storage battery posts.

The particular object of the invention is to provide a drill or tool whereby the connector may be cut from around the post, thereby leaving the post undisturbed. In common practice the post is drilled or bored away in order to get the connector off. By the use of my invention the connector can be taken off without boring or drilling the post away.

A further object of the invention is to provide an improved drill of the class described which will be extremely simple, durable, efficient in operation and inexpensive to manufacture.

With these and other objects in view which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawing in which like characters of reference indicate like parts throughout the several figures of which:

Figure 1 represents a view in elevation of a drill constructed according to my invention.

Fig. 2 represents a similar view partially in section, the section being taken at right angles to Fig. 1.

Fig. 3 represents a view in perspective of the portion of the drill forming the counter sink.

Fig. 4 represents the member forming the drill proper, arranged partially in section, representing the manner of operation.

The invention contemplates the use of a tool comprising in general a counter sink which initiates a circular groove in the connector around the post of the battery, and a drill which finishes the circular cut and thereby disconnects the connector from the post in order to allow the connector to be removed.

The arrangement is such that the slots provided in the drill proper serve the double purpose of allowing egress of the material as it is cut, and of serving as a drive means for the lugs carried by the shank of the counter sink.

Referring more particularly to the drawing, the drill proper is indicated generally at A, and the counter sink at B. The drill includes a shank 1 reduced at its upper end, adapted to fit any suitable brace or other driving device, and a bit or tool which is carried by the shank. This bit is in the form of a hollow cylinder provided at diametrically opposed points with slots 3 extending upward from the lower edge of the bit. At its lower edge the bit is provided with two diametrically opposed cutting teeth 4, formed by oppositely inclining the lower semicircular edges of the bit. It will be noted that each of the teeth 4 occurs at the lower end of one of the slots 3. When the bit is in operation the metal or material cut by the teeth 4, may find egress from the cut or groove being made by passing out through the slot 3.

These slots are slightly curved, and are adapted to receive the opposite lugs 5 formed on the shank 6 of the counter shank. The shank is adapted to fit into the hollow cylindrical bit, and when in place the upper end of the shank abuts against the internal shoulder 7 at the base of the bit, thus limiting the movement of the shank into the bit at such a point that the teeth of the bit will be spaced from the head 8 of the counter sink. There will therefore be no danger of damaging the teeth of the bit.

The head 8 is provided with a circular series of cutting teeth 9, and carries a cylindrical spring-pressed punch 10 which projects below the teeth 9. The punch is connected to the lower end of a spring 11, arranged in a central bore in the counter-sink. The spring normally holds the punch slightly beyond the cutting edges of the teeth 9, as indicated in Fig. 2.

The curvature of the slot 3 is disposed with respect to the direction of rotation of the bit when in operation that the tendency will be for the bit to shift downwardly with respect to the shank of the counter sink. It is therefore apparent that there will be no tendency for the bit to move up off of the shank during the cutting process.

In operation when it is desired to remove the connector of the battery, the assembled

drill is placed upon the post of the battery with the central punch 10 resting on the central point of the post. By then rotating the drill the teeth 9 of the counter sink will cut a circular groove or channel in the connector around the post. This groove or counter sink having been formed, the drill may be lifted, the counter sink B allowed to drop out of the cylindrical bit, and the bit may then be fitted into the counter sink and the drilling process completed. During the operation of the counter sink in cutting a circular groove or channel in the connectors the spring 11 keeps the central punch pressed on to the work.

In this way I am enabled to remove the connector from the post without damaging the latter. The operation is a simple and speedy one, and it takes a comparatively short time to complete when compared with the old process of boring and drilling the post away. Furthermore, it saves the damage incident to the drilling away of the post itself in order to get the connector off.

Although I have described the preferred embodiment of my invention, I may desire to make such changes in the construction, combination and arrangement of parts thereof, as do not depart from the spirit of the invention and the scope of the appended claims.

I claim:—

1. In a drill of the class described, the combination of a hollow cylindrical bit having longitudinal slots cut in the walls thereof, a counter sink having a shank slidable into the cylindrical bit provided with lugs movable into the said slots whereby drive may be transmitted from the bit to the counter sink, said slot being so disposed with relation to the direction of rotation of the bit as to tend to retain the lugs in the slots.

2. In a drill of the class described, the combination of a hollow cylindrical bit provided with longitudinally extending slots, a counter sink having a shank slidable into the cylindrical bit and provided with lugs engageable into said slots.

3. In a drill of the class described, the combination of a hollow bit having an internal shoulder at its inner end and having teeth at its outer end, a counter sink having a shank slidable into the hollow bit and adapted to rest against said shoulder and thereby limit the movement of the shank into the bit at such a point as to space the teeth of the bit from the head of the counter sink, substantially as described.

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Witnesses:

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