PLUG AND FEATHER ROCK BREAKING DEVICE HAVING SPRING RETURN MEANS

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1 Claim. (Cl. 262—12)

This invention relates to a plug and feather rock breaking device made in a unitary structure wherein all the parts are interconnected at all times so that none of the parts will become lost during the rock breaking operation because of their interengaging relation.

This invention relates to devices for breaking rock, stone, concrete or similar materials which are encountered in general contracting work, and specifically to devices of this type which rely on expansion action to perform their intended functions, the principal object of the present invention being to provide a simple and efficient tool adapted to be introduced into a hole drilled in the structure to be broken with the aid thereof, and which includes laterally movable numbers arranged to force against the wall of said hole by an element with wedge faces internally outwardly directed force which effects breaking action of the structure acted upon.

This device may be operated by means of a pneumatic hammer, by a sledge hammer, or any other suitable hand operated tool.

Fig. 1 is a central sectional view of the improved device shown in position in a hole formed in the structure to be broken, with parts in elevation, and with the device in the position it assumes at the commencement of the breaking operation.

Fig. 2 is an elevation of the device looking from about a right angle to that shown in Fig. 1.

Fig. 3 is a plan view of the device as shown in Fig. 1.

Fig. 4 is a sectional view taken on line IV—IV of Fig. 1.

Fig. 5 is a sectional view taken on line V—V of Fig. 1.

Fig. 6 is a sectional view taken on line VI—VI of Fig. 1.

Throughout several views like reference characters have been applied to like parts and the numeral 10 has been applied to designate the plug which is formed of steel or other durable material. This plug has a solid head portion 12 at its upper end portion which terminates at its lower portion in an enlarged circular portion 14. The lower portion of plug 10 has a pair of depending, converging opposed walls 16 which serve to spread the feathers 18 apart to force outwardly against the inside wall of hole 20 formed in the member 22 to be broken. Each feather 18 is provided with a smooth lining member 24 against which the walls 16 of plug 10 ride as the feathers are spread apart to exert an internal force against the wall of the hole 20. These feathers are secured directly to strap springs 26 by bolts 28. Strap springs 26 mounted on the sleeve member 30 always exert a spring tension to maintain the lower end portions of feathers 18 in contacted relation. Bolts 32 serve to secure springs 26 and sleeve 30 together. Bolts 32 also connect springs 26 with plug 10 through clips 34, helical spring 36 and eye-bolt 38 which is carried by plug 10.

As the operator forces the plug 10 downwardly the plug 10 engages and forces the inclined surfaces 16 against the feathers to force them outwardly to exert a pressure against the wall of hole 20 whereby the member 22 will be broken. If necessary, this operation may be repeated with sufficient energy to break said member. After the member is broken, the compressed spring 36 will force the wedge upwardly whereby to release the parts to their normal positions so that the device may again be positioned to set up to perform another breaking operation, so that so long as spring 36 is sufficiently compressed to move plug 10 to the raised position, the breaking operation may be constantly continued without interruption and all parts of the device will be secured together as clearly shown.

It will be noted that spring 36 is formed at 40 about the body cotter pin 38 to secure these parts together.

What I claim as new and desire to protect by Letters Patent is:

A breaking device comprising a rod-like plug provided at its lower end with downwardly converging wedge faces, a sleeve carried slidable on said plug, a pair of leaf springs secured to said sleeve and extending downwardly in generally parallel relation to said plug, a pair of feathers secured respectively to the lower ends of said leaf springs and bearing respectively against said wedge faces, said leaf springs being tensioned to urge said feathers at all times into engagement with said wedge faces, said feathers being operable to be transversely expanded by downward movement of said plug therebetween, and a helical spring surrounding said plug above said sleeve and being secured at its ends respectively to said sleeve and said plug, said helical spring being compressible by downward movement of said plug between said feathers, all of said springs being operable after each expansion of said feathers to return the parts automatically to their starting positions.

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