Sept. 2, 1930. J. SMRDEL 1,774,905

PERCUSSIVE TOOL

Filed Nov. 30, 1927

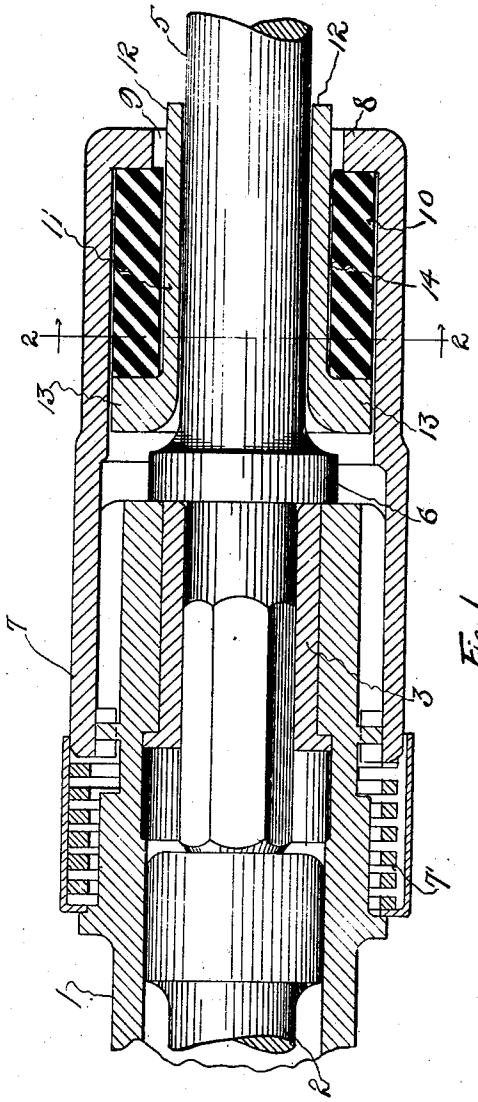


Fig. 1.

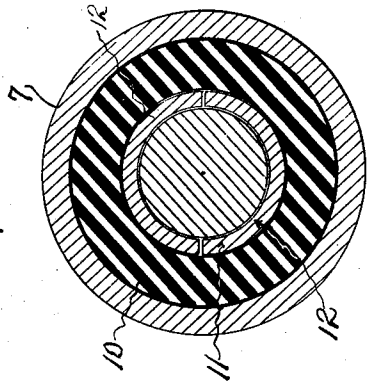


Fig. 2.

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PERCUSSIVE TOOL

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The present invention is directed to improvements in percussive tools.

The primary object of the invention is to provide a device of this character so constructed that the shock incident to rapid forward bound of the drill steel will be absorbed by an elastic buffer, thus relieving vibration upon the drill and prolonging the life thereof.

Another object of the invention is to provide a device of this kind which will eliminate the use of metallic springs, which soon lose their elasticity and are expensive to replace, the present construction being extremely simple, lasting and cheap to manufacture.

With these and other objects in view, this invention resides in the novel features of construction, formation, combination and arrangement of parts to be hereinafter fully described, claimed and illustrated in the accompanying drawing, in which:—

Figure 1 is a longitudinal sectional view through the device.

Figure 2 is a sectional view on line 2—2 of Figure 1.

Referring to the drawing, 1 designates a portion of the drill cylinder in which is mounted for reciprocation by motive fluid the piston hammer 2, there being a collar 3 mounted in the forward end of the cylinder and in which the shank of the drill steel 5 is received, said steel having the customary collar 6 thereon.

A barrel 7 is yieldably maintained upon the front end of the cylinder 1 by a spring structure 7', and since this construction forms no part of the present invention a detailed description thereof is not thought necessary.

The forward end of the barrel is provided with an inturned flange 8 defining an aperture 9 through which the drill steel extends.

An elastic cylindrical buffer 10 is engaged in the barrel 7 and has its lower end resting upon the flange 8. This buffer is formed from suitable rubber and is of such length that the upper end thereof is spaced from the adjacent end of the cylinder 1, outward movement of the buffer being prevented by the presence of the flange 8.

Associated with the buffer 10 is a split bushing 11, the sections 12 of which are provided with relatively thick flanges 13. This bushing is somewhat longer than the buffer and when engaged in the bore 14 thereof has its lower end extended a short distance from the aperture 9. The flanges 13 rest upon the upper end of the buffer and are spaced from the end of the cylinder 1 to permit limited movement of the collar 6 when the drill steel received the impacts of blows from the piston hammer.

It will be observed that since the bushing 11 occupies the bore of the buffer that it forms, in effect, a protective lining therefor and in which the drill steel is movable. Further, it will be observed that the flanges 13 not only receive the shock of the collar 6, but also protect the upper end of the buffer.

After the parts have been assembled it will be obvious that whenever the drill steel moves forwardly to such an extent that the collar 6 thereof engages the flanges 13, the shock incident thereto will be absorbed by the buffer thereby prolonging the life of the drill.

It will be further observed that the construction described not only performs its function as a buffer, but also maintains the drill steel in its operative position.

What is claimed is:—

1. In a drill, a casing having an aperture in one end, a collared drill steel passing through said aperture, a bushing surrounding said drill steel and extending into said aperture, said bushing having an outwardly projecting flange located between the collar of said drill steel and said end of the casing, and a buffer surrounding said bushing and positioned between said flange and said end of the casing.

2. A tool of the class described, comprising a cylinder, a fluid controlled piston hammer movable in the cylinder, a collared drill steel engaged in the cylinder for receiving the impact of blows from the piston hammer, a barrel engaged upon the cylinder and having an inturned flange defining an aperture, a cylindrical buffer mounted in the barrel and having its lower end engaged upon the flange and its bore alined with the aperture, a flanged split bushing engaged in the bore

and extended through said aperture, the flange of the bushing engaging the upper end of the buffer and spaced from the cylinder end, said drill steel being movable in the bushing, the outward movement thereof being yieldably limited when the drill steel collar strikes the flange.

3. In a drill, a casing having an aperture in one end, a collared drill steel passing through said aperture, a bushing surrounding said drill steel and passing through said aperture and having a flange located between said collar and said end of the casing, and a buffer surrounding said bushing and positioned between said flange and said end of the casing.

In testimony whereof I affix my signature.

JOSEPH SMRDEL.