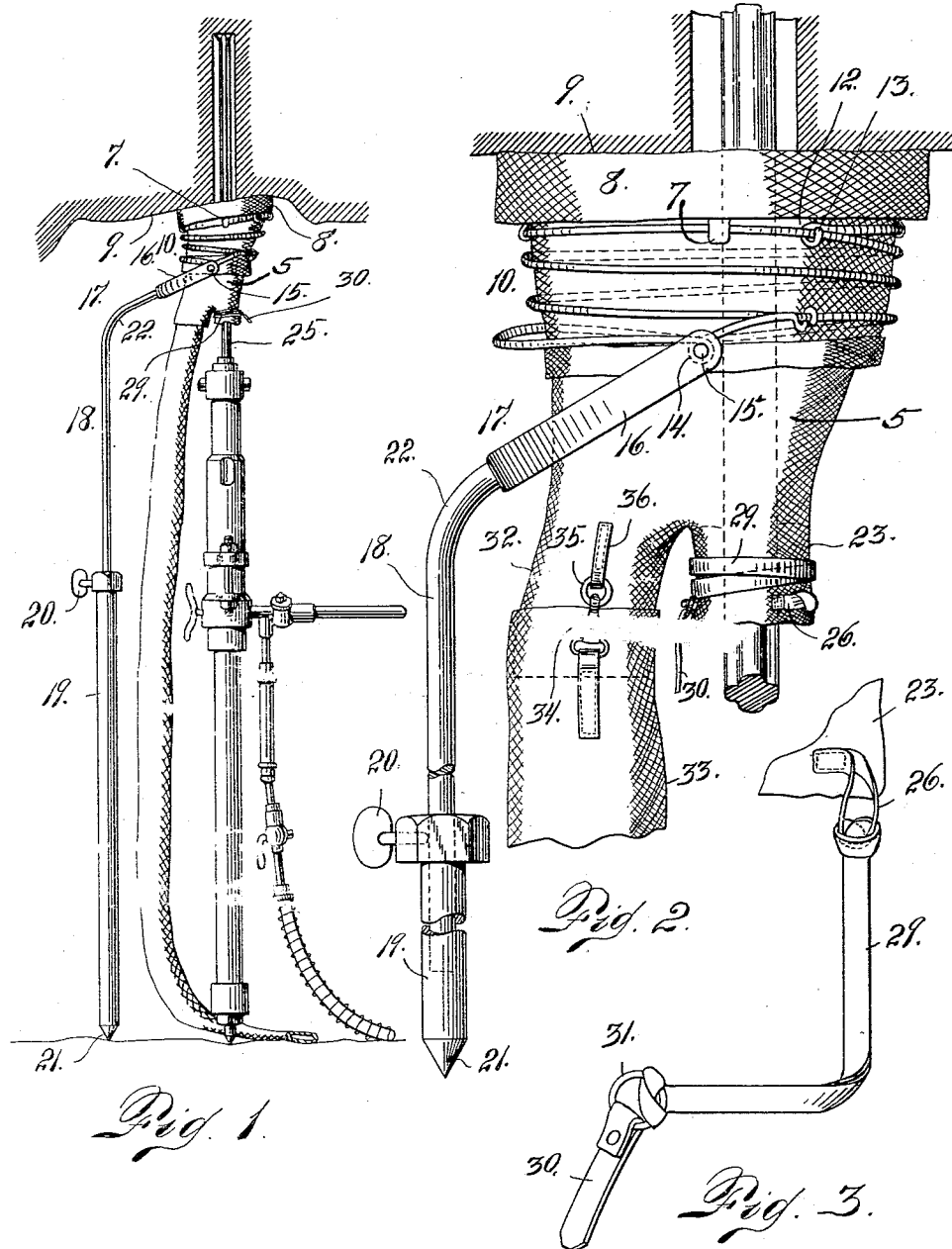


E. F. GALLIGAN.
DUST COLLECTOR FOR ROCK DRILLS.
APPLICATION FILED DEC. 8, 1913.

1,128,675.

Patented Feb. 16, 1915.

2 SHEETS—SHEET 1.



Witnesses
Otto E. Hoddick.
L. E. Petersen.

Inventor
Emmet F. Galligan.
By A. J. O'Brien Attorney

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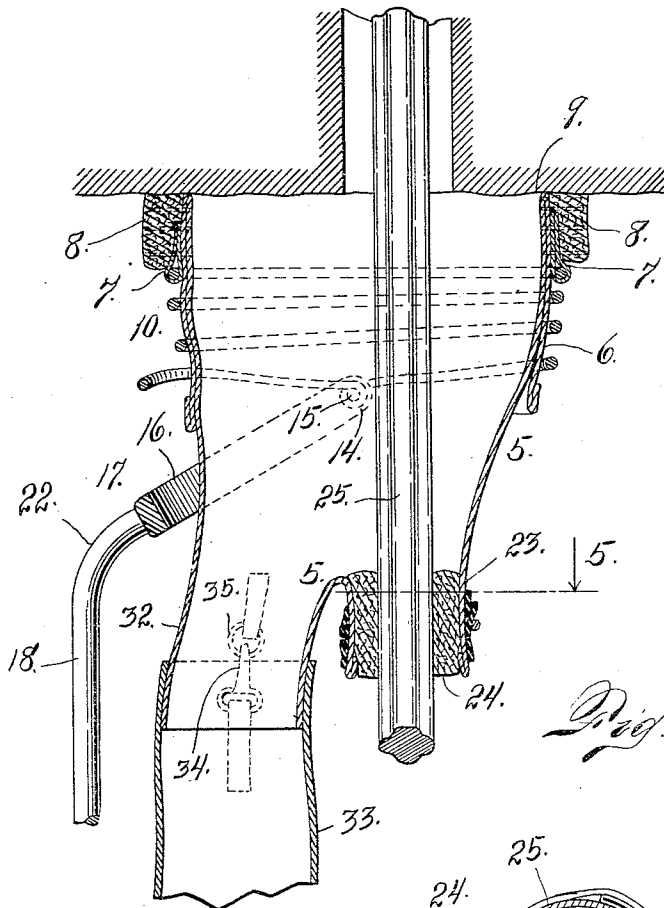


Fig. 4.

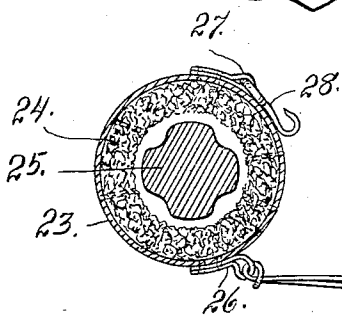


Fig. 6.

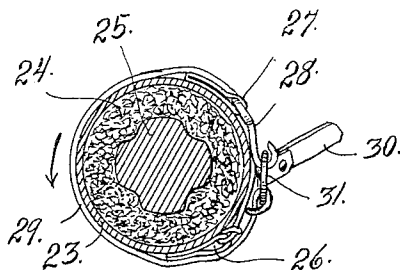


Fig. 5.

Witnesses
Otto E. Hoddick.
L. E. Petersen.

Inventor
Emmet F. Galligan.
By *N. J. Quinn* Attorney

UNITED STATES PATENT OFFICE.

EMMET F. GALLIGAN, OF IDAHO SPRINGS, COLORADO, ASSIGNOR OF ONE-HALF TO HENRY E. WOODWARD, OF DENVER, COLORADO, AND ONE-FOURTH TO WILLIAM GALLIGAN, OF IDAHO SPRINGS, COLORADO.

DUST-COLLECTOR FOR ROCK-DRILLS.

1,128,675.

Specification of Letters Patent.

Patented Feb. 16, 1915.

Application filed December 8, 1913. Serial No. 805,286.

To all whom it may concern:

Be it known that I, EMMET F. GALLIGAN, a citizen of the United States, residing at Idaho Springs, county of Clear Creek, and State of Colorado, have invented certain new and useful Improvements in Dust-Collectors for Rock-Drills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in dust collectors for rock drills, my object being to provide an efficient device of this character for collecting the dust ordinarily resulting from the escape of the rock cuttings from the drill hole. This dust, when allowed to permeate the atmosphere, is exceedingly injurious to workmen in the vicinity.

Hence, the object of my present invention is to overcome this difficulty.

In many of its features, this invention is similar to my previous application, Serial No. 772,298, filed June 7, 1913, for improvements in dust-collectors for rock drills. However, in my present construction, the manner of connecting the housing with the drill steel is greatly simplified as compared with the construction described in my aforesaid application. In my present invention, the lower portion of the housing or the short leg thereof through which the drill steel passes is equipped with a heavy piece of felt or other similar or suitable material, the same being sewed or otherwise secured therein. This felt packing is open to receive the drill steel and is secured in close contact with the steel by means of a flexible, preferably elastic band, applied to the outside of the short leg of the housing as hereinafter more fully explained.

Other novel features will be fully understood as this specification proceeds.

In the drawing: Figure 1 is an elevation of my improved dust collector supported in place and shown in connection with a rock drill. Fig. 2 is an enlarged view of the same, the drill however being broken away with the exception of a portion of the drill

steel with which my improvement is directly connected. Fig. 3 is a detail view of the elastic band constituting an element of the construction, its connection with the housing being illustrated. Fig. 4 is a sectional view of the housing and the forked bar employed in connection therewith, the drill steel being shown in place, and partly broken away. Fig. 5 is a section taken on the line 5—5, Fig. 4, shown on a larger scale. In this view, the felt packing is shown tightly secured to the drill steel by the use of the securing band. Fig. 6 is a similar view of the same construction, showing the band extended, the felt packing in this case being slightly separated from the drill steel.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a housing, preferably composed of canvas, its outer extremity being doubled upon itself as shown at 6, for reinforcing purposes. To the outer portion of the housing, a number of loops 7 are secured, the said loops extending below a felt band 8 which extends entirely around the outer extremity of the housing, and is adapted to fit the breast of the rock 9 when the device is in use. Surrounding the reinforced portion of the housing is a spiral spring 10 whose uppermost convolution is threaded through the loops 7 and afterward connected with the spring as shown at 12 or at a point where its second convolution may be said to commence, this connection being made by means of a hook 13 formed in the free extremity of the spring. In the lowermost convolution of the spring, eyes 14 are formed which engage inwardly projecting pins 15 mounted on the arms 16 of the forked upper extremity 17 of a rod 18 which telescopes in a lower supporting bar 19, the rod 18 being connected with the bar by means of a set bolt 20, whereby the parts are lengthwise adjustable as it will be readily understood. The lower extremity of the bar 14 is pointed as shown at 21 and engages the bottom of the tunnel or other surface where the construction is employed. The rod 17 is bent as shown at 22, whereby while the body of the supporting structure is located beyond the housing its forked extremity extends on opposite sides thereof, and is connected with the spring 10 as heretofore explained. The rod 18 is so adjust-

ed when the device is in use that the spring is compressed outwardly and placed under sufficient tension to hold the outer extremity of the housing and the felt ring attached thereto tightly against the breast of the rock, to prevent the escape of any rock cuttings.

The housing as illustrated in the drawing is provided with a short leg 23, in which is secured by means of sewing or in any other suitable manner, a bushing 24 of felt or other suitable similar material, the said bushing being relatively heavy. Normally, this bushing is open to receive the drill steel 25 which passes freely therethrough as illustrated in Fig. 6. To the outside of the leg 23 of the canvas housing, two loops 26 and 27 are secured. With the loop 27 is connected a hook 28, and with the loop 26 a rubber band 29, the said band being double and connected with the loop 26, by passing a double end of the band through the loop and a double end of the latter through the two parts thereof, a holding piece 30 being first connected with the rubber band by looping the latter through a ring 31 in a manner that will be readily understood from an inspection of the drawing. Assuming that the construction is as illustrated in Fig. 6, it will only be necessary to wrap the rubber band around the short leg of the housing on the outside in such a manner as to press the felt bushing tightly inwardly against the drill steel, after which the ring 31 is connected with the hook 28 as illustrated in Fig. 5. By virtue of this simple connection, the short leg of the housing through which the drill steel passes, is made sufficiently tight around the steel, which at the same time is free to work therethrough and perform the rock cutting function with the same efficiently as if the dust collector were not applied.

To the longer leg 32 of the housing 5, a conduit 33 is connected, which is of sufficient length to extend to the bottom of the drift or tunnel, or to any other suitable point, the arrangement being such that the rock cuttings are carried downwardly through the said conduit and quietly deposited where ever desired, thus preventing the fouling of the atmosphere by the dust as heretofore explained.

As illustrated in the drawing, the con-

duit 33 is equipped with hooks 34, which are connected with rings 35 made fast to the housing by means of loops 36.

From the foregoing description, the use and operation of my improvement will be readily understood. The housing is first placed around the breast of the rock where the hole is to be formed, and suitably supported through the instrumentality of the supporting members 18 and 19, the spring 10 being placed under sufficient tension to force the felt ring 8 tightly against the breast of the rock. The drill steel is then inserted through the felt bushing 24, after which the short leg of the housing is wrapped on the outside to press the felt tightly against the drill steel in the manner heretofore explained. The drilling operation may then proceed and the rock cuttings will be caught and carried downwardly through the conduit 33, in the manner heretofore explained.

Having thus described my invention, what I claim is:

A dust collector for rock drills, including a housing adapted to surround the breast of the rock and doubled back upon itself exteriorly for reinforcing purposes, an exterior shoulder formed upon the housing and adapted to engage the breast of the rock, the said shoulder comprising a band of relatively soft material, loops applied to the outer portion of the housing and exposed adjacent the said shoulder, a spiral spring surrounding the reinforced portion of the housing and having its outermost convolution threaded through the said loops, the free extremity of the spring being detachably connected after passing through the loops, a standard having a forked portion adapted to pass on opposite sides of the housing, the parts of the standard adjacent the housing carrying pins which are operatively connected with the lowermost convolution of the spring, the standard being extensibly adjustable for regulating the tension of the spring, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EMMET F. GALLIGAN.

Witnesses:

CHARLES D. AMES,
W. H. GALLIGAN.