

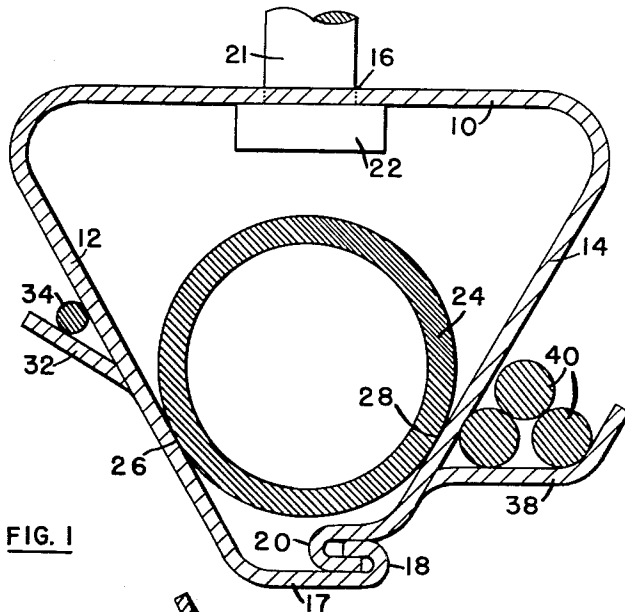
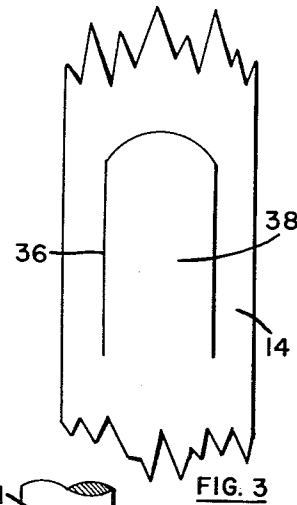
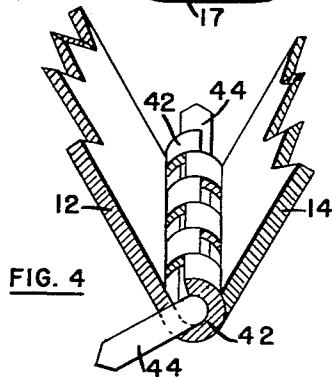
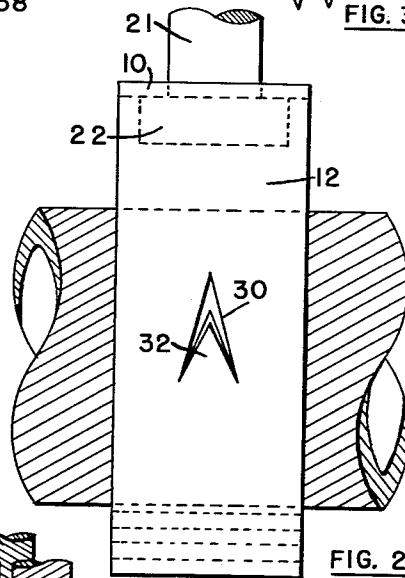
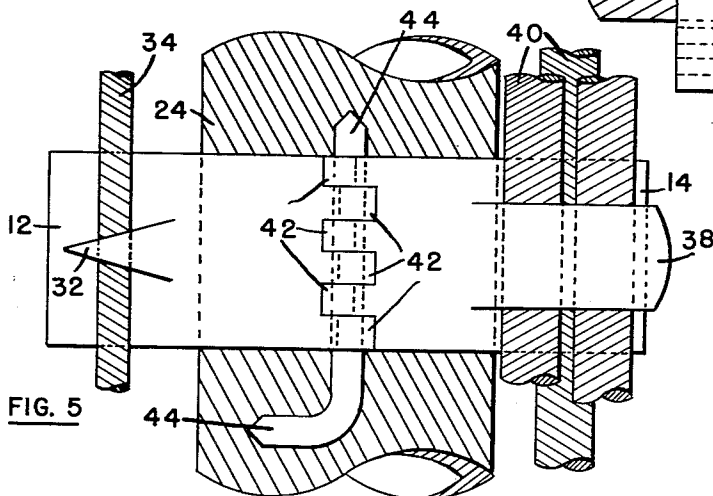
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PIPE HANGER

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2,721,050

PIPE HANGER

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1 Claim. (Cl. 248—62)

This invention relates to hangers or supports for suspending pipes, cables, conduits and the like from ceilings, and, more particularly, from the roof of a mine.

In modern mining practice, it is necessary to provide pipes, cables, conduits and the like throughout a mine without obstructing passageways, preferably by overhead suspension in order that mine vehicles and operators can move about freely. Furthermore, to increase the mobility and flexibility of mining operations it is desirable that such pipes, cables, conduits and the like can be easily and quickly installed or removed.

The present invention is a device which is adapted to suspend pipes, cables, conduits and the like from mine roof bolts, employed to support the roofs of mines. These mine roof bolts are driven upwardly at regular intervals along the mine through the roof of the mine into the layer of stone or slate above the mining seam.

In accordance with this invention, a device is provided which comprises a band of resilient metal formed in the general shape of an inverted triangle and adapted to surround and support a pipe, cable, conduit or the like. The upper base of the triangle is adapted to be secured to the roof of a mine by means of an ordinary mine roof support bolt and means are provided for releasably fastening the lower apex of the triangle so that while the device is in use to support a pipe, a positive locking force is exerted by the weight of the pipe itself to secure the fastening means. However, an installed pipe can be removed from my new device with a minimum of effort and motion.

The construction and operation of my invention will be described with reference to the attached drawings in which:

Figure 1 is a drawing in cross-section of the preferred embodiment of my new device;

Figure 2 is a side view drawing of the device shown in Figure 1;

Figure 3 is another end view drawing of a section of the device shown in Figure 1;

Figure 4 is a perspective drawing of a modified locking means which may be employed in my new device; and

Figure 5 is a bottom view drawing of the modification of my device shown in Figure 4 illustrating its relationship to suspended elements.

Throughout the drawings, corresponding numerals indicate corresponding elements.

According to Figure 1, a rectangular piece of sheet metal, preferably a good grade of spring steel, such as SAE 9255, is formed into a substantially triangular shape comprising a central element 10 and two side elements 12 and 14. A circular opening 16 is provided in the center of central element 10. Side element 12 terminates in a longitudinally extending member 17 and a hook 18 adapted to engage a corresponding hook 20 at the extremity of side element 14. Sufficient space along the longitudinal member 17 is provided so that the hook element 20 is readily separable from hook element 18

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by pressing the two side elements toward each other.

My pipe supporting device is supported by means of a mine roof bolt 21 which is inserted into the roof of the mine and whose lower end extends through the opening 16 in central element 10 and is threaded to receive a nut 22. The latter when tightened holds the central element 10 firmly to the roof of the mine.

To install a pipe or cable in my new device, side element 14 is pressed toward side element 12 disengaging hook 18 from hook 20. Side elements 12 and 14 are released and spring outwardly because of the resiliency of the metal of which my device is composed.

A pipe or cable 24 is placed between side elements 12 and 14. The side elements 12 and 14 are moved toward one another and the hook 18 is caused to engage hook 20. The pipe or cable 24 is lowered and permitted to make contact with side elements 12 and 14 at the points 26 and 28 respectively. The weight of the pipe or cable 24 exerts a downward and outward thrust on side elements 12 and 14 and a corresponding outward thrust on hook members 18 and 20 thereby effecting a positive locking tendency on said hook members. To insure that the pipe or cable 24 makes contact only with side elements 12 and 14, and does not touch or rest upon the interlocking hook members to interfere with their ready release, the angle formed by said side elements may be altered by changing the length of the longitudinally extending member 17, or of the elements 10, 12, and 14.

As shown in Figure 2, if desired, a V-shaped cut 30 may be provided in either or both side elements to provide an outwardly pressed bracket 32 for supporting small wires 34 running parallel to pipe or cable 24.

In addition or alternatively, as shown in Figure 3, a U-shaped cut 36 may be provided in either or both side elements to provide an outwardly pressed, upwardly bent bracket 38 for supporting power cables, wires or wire bundles 40.

A modification of my device, shown in Figure 4 and Figure 5 provides an alternate locking means to secure side elements 12 and 14. Each side element is terminated with alternately spaced loops 42 adapted to interweave to form a channel through which a pin 44 may be inserted to fasten together the two side elements.

A pipe or cable 24 may be installed merely by withdrawing said pin 44 from the channel formed by loops 42. Side elements 12 and 14 spring apart and the pipe or cable 24 is inserted between the side elements, which are then pushed toward one another until the loops 42 are aligned. Pin 44 is inserted through the channel formed by said loops and the pipe or cable 24 is permitted to make contact with side elements 12 and 14 to exert a downward and outward thrust on said side elements to insure a positive locking force on the loop and pin members.

Thus it will be seen that the device of this invention can be quickly, inexpensively and conveniently installed as an adjunct to a conventional mine roof support bolt without obstructing passage in a mine and can be employed to suspend pipes, cables, conduits, wires and the like securely either temporarily or permanently. Pipes can be installed, removed or relocated in a mine easily and without impairing or hampering regular mining operations. Moreover, the positive locking features of my device combined with the quick releasing feature renders the use of the present invention desirable in modern flexible mining practice.

According to the provisions of the patent statutes, I have explained the principle, preferred construction, and mode of operation of my invention and have illustrated and described what I now consider its best embodiment. However, I desire to have it understood that, within the scope of the appended claim, the invention may be prac-

ticed otherwise than as specifically illustrated and described.

I claim:

A hanger composed of a band of resilient sheet metal in the general shape of a triangle having a flat base member and two flat converging leg members, means for supporting said base member in a generally horizontal position with said leg members depending therefrom, and releasably interlocking means comprising a laterally extending leg portion terminating in an inwardly folded element at the end of one leg member and an outwardly folded portion at the end of the other leg member, to provide positive locking engagement of said leg members in response to force exerted on the inner walls of said leg members, said folded portions being generally parallel to said base member and said interlocking means being entirely within the triangular space bounded by the projection of said leg members.

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