E. WITZENMANN.

SPIRAL METALLIC HOSE.

APPLICATION FILED MAR. 9, 1914.

1,270,579. Patented June 25, 1918.

Fig. 1.

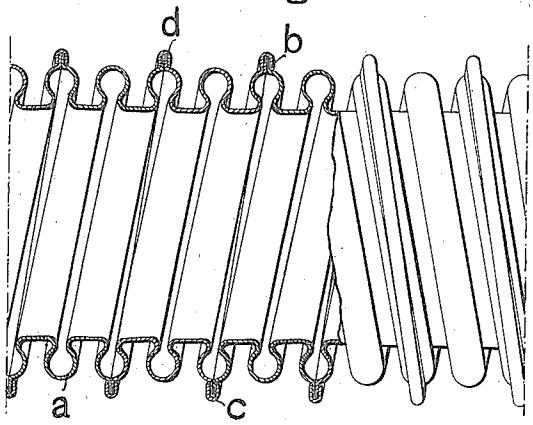


Fig. 2.

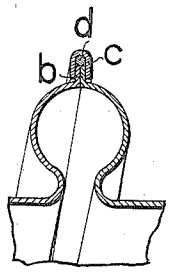


Fig. 4.

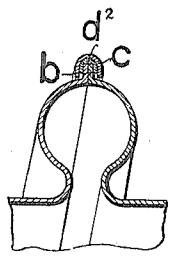
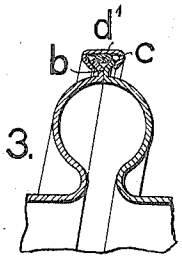


Fig. 3.



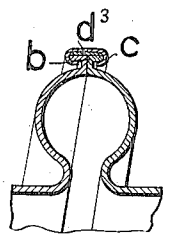


Fig. 5.

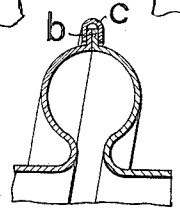


Fig. 6.

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By

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UNITED STATES PATENT OFFICE.

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SPIRAL METALLIC HOSE.

1,270,579. Specification of Letters Patent. Patented June 25, 1918.

Application filed March 9, 1914. Serial No. 823,322.

To all whom it may concern:

Be it known that I, EMIL WITZENMANN, a German subject, residing at No. 48 Holzgartenstrasse, Pforzheim, Germany, have invented new and useful Improvements in Spiral Metallic Hose, of which the following is a specification.

This invention relates to spiral metallic hose of the kind in which the metal tape forming such hose is undulated in its cross direction, so that the wall of the hose is undulated in the longitudinal direction. Such special formation of the hose wall allows the joints of the hose to be tightened by autogenous welding, without affecting the flexibility of the hose as compared with the usual hose consisting of a spirally-wound tape the edges of which engage one another.

It has been found desirable, for certain purposes, to dispense with the said welding. The present invention has for its object to obtain this result. According to the invention the longitudinal edges of the metal tape forming the hose are bent outward to present flanges forming the spiral joint of the hose, and this joint is covered and tightened by a groove-like spiral metal tape, while a packing may be arranged to cover or fill up the said joint.

The invention will be fully understood from the following description and be particularly pointed out in the appended claim, reference being had to the accompanying drawing which shows different forms of construction embodying the invention.

In this drawing—

Figure 1 is an elevation, partly in section, of a hose constructed according to the invention, while Figs. 2, 3, 4, 5 and 6, drawn to a larger scale, are sectional views showing different forms of construction of the invention.

The metal tape *a* forming the hose is undulated in its cross direction, as is best seen from Fig. 1. The longitudinal edges of this metal tape are bent outward to form flanges *b*, *b* of which Figs. 2 to 5 show various forms.

In Fig. 2, the flanges *b*, *b* are of a simple, straight shape and pressed against one another by a groove-like spiral metal tape *c* covering the flanges and the joint between them. Between the tape *c* and the circumferential face of the flanges a packing *d* is interposed which has the form of a cord.

As shown in Fig. 3, the flanges *b*, *b* may be bent laterally in opposite directions at their ends and in the spiral groove thus formed receive the packing *d* which is held in place by the tape *c*.

According to Fig. 4 the packing is constituted by a band d^2 which under the action of the tape *c* embraces the flanges *b*, *b*.

As shown in Fig. 5, the flanges *b*, *b* may be bent at right angles in opposite directions so as to present a cylindrical spiral face for the packing band d^3 to rest upon.

It will be noted that the tightening takes place not only along the outer walls of the undulations, but also between two undulations.

The packing may be of any kind and may consist of any suitable material. Thus it may be made of a soft metal such as soft copper, lead &c., or of aluminium; of fibrine, such as asbestos, packing thread, ramie fiber; further it may consist of caoutchouc, wire gauze, &c. Also a soft-solder wire could be employed and soldered to the flanges *b*, *b* by heating. In such case the tape *c* serves to protect the soldered joint from traction, pressure or other detrimental strains.

It is to be understood that changes in the form, proportion, size and the minor details may be made within the scope indicated by the appended claim, without departing from the spirit or sacrificing any of the advantages of this invention. For instance, a packing may be dispensed with, as shown in Fig. 6.

It will be readily noted from the foregoing description and the drawings forming part thereof, that a certain important feature is common to all of the embodiments illustrated. The feature referred to is the exterior radially-disposed protective rib which extends beyond the circular outline of all other portions of the hose and is calculated to serve as a fender in preventing injury to the hose when the hose is moved over a surface or when the hose is struck against or struck by another object; the said protective rib or fender being formed by the combination of a spirally-wound metal tape undulated in cross-section and bent outwardly at its longitudinal edges to present flanges extending radially outward of the body from the outermost portions of the undulations and forming an exterior, radially projecting spiral joint for the hose, and a channel-shaped tape spirally wound

around the first-named tape and engaging the said contiguous flanges, to tightly clasp and hold said flanges firmly abutting and form a tight joint therebetween, and to serve as a shoe in preventing injury to the remainder of the hose.

What I claim is:

In a spiral metallic hose, in combination, a spirally wound single corrugated metal tape undulated in cross section and bent outwardly at its longitudinal edges to present flanges extending radially outward of the body from outermost portions of the undulations, the contiguous flanges forming an exterior spiral joint for the hose, a second tape having in cross section the contour of an inverted U and spirally wound around the first-named tape and engaging the said flanges to tightly clasp and hold the same together and form a tight joint therebetween, and a tightening wire inclosed by said second tape, the said flanges and second tape forming an exterior radially disposed protective rib which extends beyond the circular outline of all other portions of the undulated hose, and the second tape alone being adapted to serve as a shoe.

In witness whereof I have hereunto signed my name this nineteenth day of February, A. D. 1914, in the presence of two subscribing witnesses.

EMIL WITZENMANN.

Witnesses:
FRIDA BLAIBER,
ERNEST ENTENMANN.