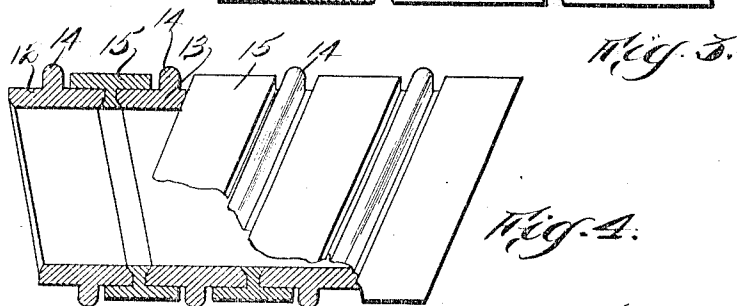
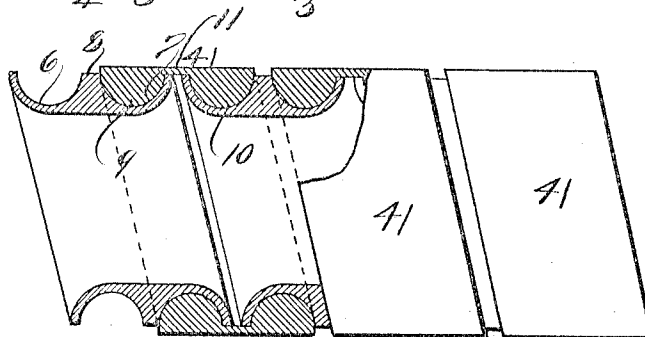
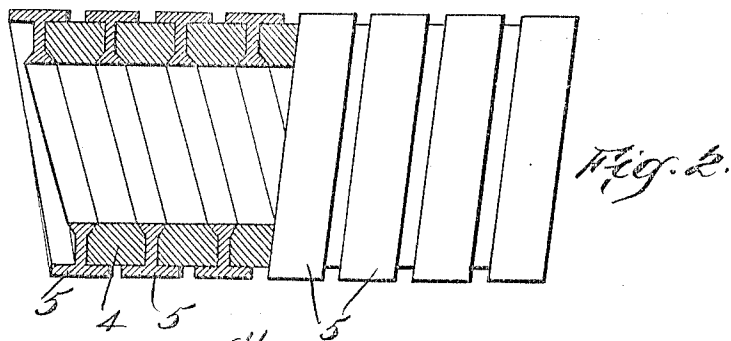
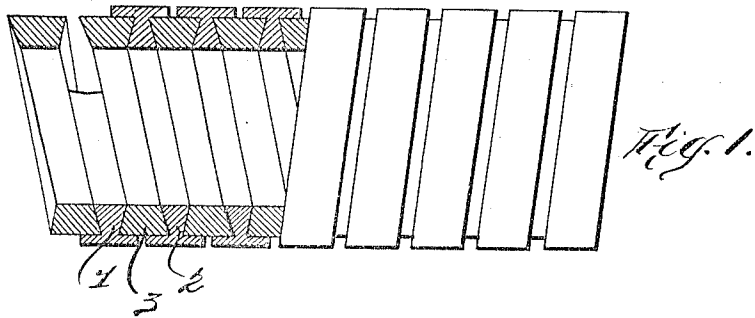


C. FISCHER.
FLEXIBLE TUBING.
APPLICATION FILED JAN. 25, 1912.

1,055,263.

Patented Mar. 4, 1913.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES FISCHER, OF NEW YORK, N. Y.

FLEXIBLE TUBING.

1,055,263.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed January 25, 1912. Serial No. 673,443.

To all whom it may concern:

Be it known that I, CHARLES FISCHER, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Flexible Tubing, of which the following is a clear, full, and exact description.

The object of this invention is to provide flexible tubing of such character that in use, notwithstanding the extra-ordinary wear, neither of the spirals forming the tubing can become broken and uncoil, and a further object is to so form the configurations of the two spirals, which form the tubing, that a complete closed tube will be secured at all times.

The scope of my invention will be pointed out in the claims.

As shown in the accompanying drawings: Figure 1 is a side elevation of my improved tubing partly in section. Fig. 2 is a side elevation partly in section of a modified form of tubing. Fig. 3 is a similar view of a still further modified form of tubing; and Fig. 4 is a similar view of a still different type of tubing.

As shown in the drawings, Fig. 1: 1 and 2 are adjoining convolutions of a single spiral in cross section, having a flat outer and inner surface, and flat side walls, much like the form of a letter T with a greatly widened base. The convolutions 1 and 2 are wound or located between the convolutions 3 of another spiral, or spacing element, the spacing element 3 formed of the cross section shown in Fig. 1, constitutes a trapezium in form. The convolutions 3 are of a less area than the convolutions 1 and 2. I thus secure the main spiral elements, and an auxiliary spiral, both of which must be considerably worn through before either spiral may uncoil, and release its hold of the other. It will be seen that the overhanging ledges of the main convolutions and its slanting side walls form an absolute lock for the trapezium when it is once in position.

As shown in Fig. 2: The device is substantially that of Fig. 1, but of different configuration. In this figure, in place of the trapezium shaped cross sectional spacing elements, I provide an auxiliary coil or spacing element 4 having a rectangular cross section with two lower corners of the rectangle obliquely cut off, and the main coil elements 5 are of a slightly different form

of T than that shown in Fig. 1 in their cross section, so as to fit the shape of the coil 4.

In Fig. 3, I have shown a slightly different form of spiral in which the main coils are formed in cross section with two grooves 6 and 7 divided by a rib 8, and the auxiliary coil or spacing element 41 is in the shape of two semi-circular projections 9, 10, joined together, but slightly spaced apart and connected by a neck 11 so that the spacing element is located with one each of its projections in adjacent grooves of two spacing elements.

The spirals which project deep into the grooves will not wear through and cause an uncoiling of the device until a very great extent of wear and damage has occurred to the tube.

In Fig. 4, I have shown a structure quite similar to Fig. 2, in which the main spirals 12 and 13 are wide and thin, and provided with a bead 14 projecting from the center, and on the outside of the spiral's wall. The auxiliary coil or spacing element 15 is of the general shape, but of slightly different dimensions from the auxiliary coil 4 of Fig. 2. Of course upon bending the device of Fig. 4, the bead, after a certain degree of bend, has been reached, will abut up upon the ends of the spacing element, and prevent a further motion, giving a limited one to the tube.

I claim as my invention:

1. The herein described flexible tubing, consisting of a spirally disposed coil, having a cross section with recesses therein, a spacing element projecting into said recesses, and of the configuration to fit snugly therein, both spacing element and coil being of a different thickness, whereby a wear on one will necessitate a consequent wear on the other before a parting, said recesses and cross sectional shape of spacing element being such as to cause the spacing element to be interlocked circumferentially by the coil, the spacing element and the helical coil in cross section having straight sides, and definite angles, said main spiral having a projecting bead on its outer surface, against which the spacing element abuts when a certain degree of bend has been acquired, by the tube.

2. The herein described flexible tubing, consisting of a spirally disposed coil, having a cross section with recesses therein, a spacing element projecting into said re-

cesses, and of the configuration to fit snugly therein, said spacing element and coil being of a different thickness, whereby a wear on one will necessitate a consequent wear on the other before a parting, said recesses and cross sectional shape of spacing element being such as to cause the spacing element to be interlocked circumferentially by the coil, the spacing element and the helical coil in

cross section having straight sides, and 10 definite angles.

Signed at New York city, New York,
this 24th day of January, 1912.

CHARLES FISCHER.

Witnesses:

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MABEL DITTENHOLFER.