(No Model.)

# W. R. DUTEMPLE.

## BEAD CHAIN CONNECTION.

No. 392,318. Patented Nov. 6, 1888.

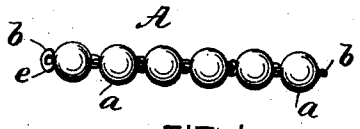



FIG. 1.

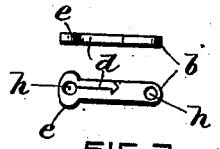



FIG. 3.

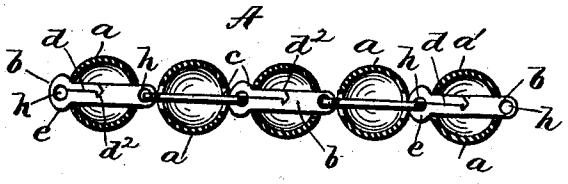



FIG. 2.

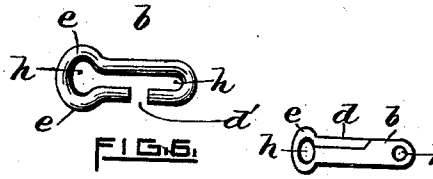



FIG. 6.

FIG. 5.

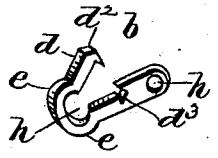



FIG. 4.

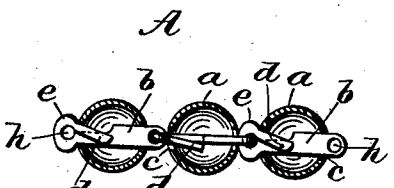



FIG. 7.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

WILLIAM R. DUTEMPLE, OF PROVIDENCE, RHODE ISLAND.

## BEAD-CHAIN CONNECTION.

SPECIFICATION forming part of Letters Patent No. 392,318, dated November 6, 1888.

Application filed June 11, 1888. Serial No. 276,725. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. DUTEMPLE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Bead-Chain Connections; and I do hereby 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 letters or figures of reference marked thereon, which form a part of this specification.

In the manufacture of necklaces or bead-chains composed of hollow units it has usually heretofore been the practice to mount them on flexible connections—as, for example, silk or other fibrous material—or in some cases a fine chain has been substituted for the purpose. An objection to such former connections is that they lack sufficient strength to withstand the usage to which such articles are subjected, another objection being that in the event of breaking the connection the beads or units readily fall off and may become lost.

I am aware of the fact that hollow balls or units have been mounted on double-headed bars or connections to produce a flexible bead-chain. Such former arrangements, however, increase the cost of the chain to such an extent that stock of low grade cannot be profitably used.

The object of my invention is to produce a comparatively inexpensive bead-chain or necklace having each unit thereof independently mounted on the flexible connection, so that in case it is severed none, or at most only one, of the units are detached.

To this end my improvement consists of a single metal blank or link having an enlargement at one end somewhat larger than the hole of the unit, the link for the remainder of its length being adapted to pass through the unit. The link is further provided with a transverse hole or opening at each end of sufficient size to receive the next link, and also having a locking-arm, all as will be more fully hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of a piece of bead-chain constructed according to my invention. Fig. 2 is an enlarged sectional view taken through the longitudinal center of the units. Fig. 3 is a detached view of one of the links. Fig. 4 is a perspective view thereof, showing the link opened to be passed through the closed end of a fellow link, shown at the right of Fig. 2. Fig. 5 is a side view of a link unprovided with the locking-arm. Fig. 6 represents one of my improved links made of wire; and Fig. 7 is a sectional view similar to that represented by Fig. 2, showing a manner of closing the open ends of the links.

The following is a more detailed description of my invention.

A, referring to Figs. 2, &c., of the drawings, designates a bead-chain provided with my improved links. Each bead or unit *a* has a central hole, *c*, extending through its axis, as clearly shown. I have represented the units as being globular in form; but it is obvious that other forms may be substituted. Beads of this class are usually made of metal, although they may be made of glass, vulcanite, wood, &c.

*b* indicates my improved link or connection, preferably cut out of sheet metal, having a hole, *h*, at each end thereof. One end of the link is enlarged laterally, as at *e*, the enlargement being somewhat greater than the diameter of the hole *c* formed in the units. The other portion of the link is substantially uniform in width and adapted to be passed through the unit freely. The blank is cut through a portion of its length, the cut communicating with one of the holes *h*, thereby forming an arm, *d*, having a locking end, $d^2$, Fig. 4. The arm is adapted to be bent or sprung open to be inserted through the free end of the next link and then closed into the recess $d^3$, thereby locking it in position.

In Fig. 6 the link is represented as made from a piece of wire, the same being bent to form and having the same general features as the sheet-metal link before described. In the wire link, however, one side thereof is cut away, as at $d'$, an end of the wire adjacent to the opening $d'$ being adapted to be passed through the loop or hole *h*, substantially as stated with reference to the link shown by the other figures. In Fig. 5 the arm *d* is unprovided with the locking end. I prefer, however, to use the link shown by Fig. 4.

The manner of making a bead-chain, A, is

as follows: The workman takes a unit, *a*, and passes the reduced portion of one of the links *b* through its central opening, *c*, (commencing at the left of Fig. 2.) He next takes an opened link (shown in Fig. 4) and passes its arm *d* through the hole *h*, formed in the small end of the bead-carrying link and bends the arm down upon itself and into the recess $d^2$. (See Fig. 2, &c.) The link is now ready to receive the next unit, as before. By means of this connecting device the workman is enabled to produce the chain very rapidly. If deemed necessary in the making of fine chain, the arm *d* may be soldered after it has been closed down. I sometimes bend the arm down and partly across the link, as indicated in Fig. 7.

It is manifest that in a chain thus constructed it is impossible for the units to become lost or disarranged in case one of the links is accidentally broken. The chain is very flexible, the rounded ends of the links readily permitting a free movement of the parts.

I claim as my invention—

1. The bead-chain hereinbefore described, consisting of hollow beads or units and a continuous connection formed of integral links carrying the beads, the links having an eye at each end, one of which is enlarged and provided with an opening arranged to receive a fellow link, substantially as set forth.

2. The integrally-formed link hereinbefore described, having one end adapted to pass freely through a bead or unit and having the other end enlarged, as *e*, and arranged at each end to receive a fellow link, and also having an arm or side of the link arranged to be opened and closed, substantially as shown and set forth.

3. The combination, with units, as *a*, having openings therein, of a series of interlocking links, as *b*, upon which the units are mounted and having an enlargement at one end of the links arranged to receive the small end of a fellow link, substantially as shown and described, and for the purpose set forth.

4. As an improved article of manufacture, a bead chain or necklace having the units thereof mounted upon integrally-formed interlocking links provided each with an enlargement at one end thereof, which serve to separate the units from each other, substantially as described.

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

WM. R. DUTEMPLE.

Witnesses:
CHARLES HANNIGAN,
GEO. H. REMINGTON.