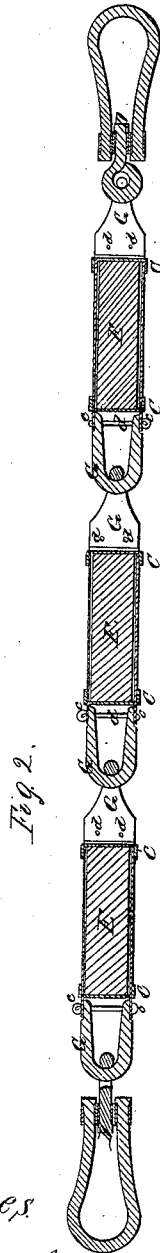


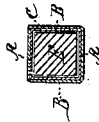
*C. E. Richards,*  
*Elastic Chain,*

*Nº 54,411,*

*Patented May 1, 1866.*



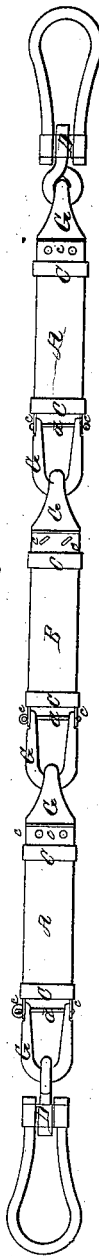
*Fig. 3.*



*Fig. 4.*



*Fig. 1.*



*Witnesses,*  
*Amos Jones*  
*Wm. Brown*

*Inventor.*  
*C. E. Richards*

# UNITED STATES PATENT OFFICE.

CELIUS E. RICHARDS, OF NORTH ATTLEBOROUGH, MASSACHUSETTS.

## IMPROVED ELASTIC CHAIN.

Specification forming part of Letters Patent No. 54,411, dated May 1, 1866.

*To all whom it may concern:*

Be it known that I, CELIUS E. RICHARDS, of North Attleborough, in the county of Bristol and State of Massachusetts, have invented an Improved Elastic Link or Chain to be applied to a vessel's cable; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings.

Of the said drawings, Figure 1 is a representation of three of my improved links as united together, each of the two outer or end links being furnished with a swiveling eye. Fig. 2 is a longitudinal section of the same. Fig. 3 is a transverse section of one of the links, taken through one of its end bands. Fig. 4 is a representation of half of one of the chambered links divested of its shackle.

The nature of my invention consists in the peculiar construction of the elastic link, whereby the same, or a series of them, when applied to the cable of a vessel, will most effectively counteract the sudden shocks and violent strains to which a cable is often subjected.

In carrying out my said invention, I construct the body of the link of metal and as a hollow rectangular box composed of two parts.

In the said drawings, A and B denote the two halves or parts of the link, each of which is formed of a plate of metal bent into the form as shown in Fig. 4, in which *a a* represent the two parallel sides, and *b* the end or connection piece. The said parts A and B, if desirable, may be formed of cast-iron or any other suitable metal or composition of metals. The two parts so formed are to be put together as shown in Fig. 1, so as to constitute a rectangular box closed on all sides and at its ends. In order to confine the two halves of the link together, as well as to strengthen it, I dispose two metallic bands, C C, transversely around and near the extremities of the body portion of the link and attach the said bands to the links securely by means of solder applied to two sides or two inner surfaces of each band, the other two sides or surfaces of each band

being left free in order to enable the ear portions or projecting ends *c c* of the link to slide freely within or through the same. Within the chamber of the link so made I arrange a block of india-rubber, E, whose dimensions correspond with, or nearly with, those of the said chamber.

To each of the ear portions *c c* of the link I attach one side of a shackle, G, by means of bolts or pins *d d*, &c., extending through them in manner as shown in the drawings. These shackles are for the purpose of coupling the links together. To each of the end shackles I attach a swivel, D, in order to prevent the said links from kinking when in use or applied to a cable.

My invention is intended to be inserted in or form part of the cable of a vessel and may be applied at any desirable point between the anchor and the windlass or part from which the cable is projected.

My invention has several important advantages. In the first place, by forming the link as a closed chamber and disposing a solid block of rubber within the same the rubber is not only protected on all sides from injurious abrasion, but is so arranged as to effectually prevent any sudden strain from producing any shock on the cable. In the second place, it is not only simple in construction, but is very strong and compact and little liable of getting out of order or deranged.

I do not claim, broadly, the application of india-rubber to a metallic link in order to render it capable of yielding under great strain, as I am aware that such is not new.

What I claim as my invention is—

My improved elastic link, (or chain composed of a series of such links,) the same having its parts A B C constructed, arranged, and applied together, and so connected as to operate when applied to a cable substantially in manner as set forth.

CELIUS E. RICHARDS.

Witnesses:

GEO. L. BRAUCH,  
P. G. COOPER.