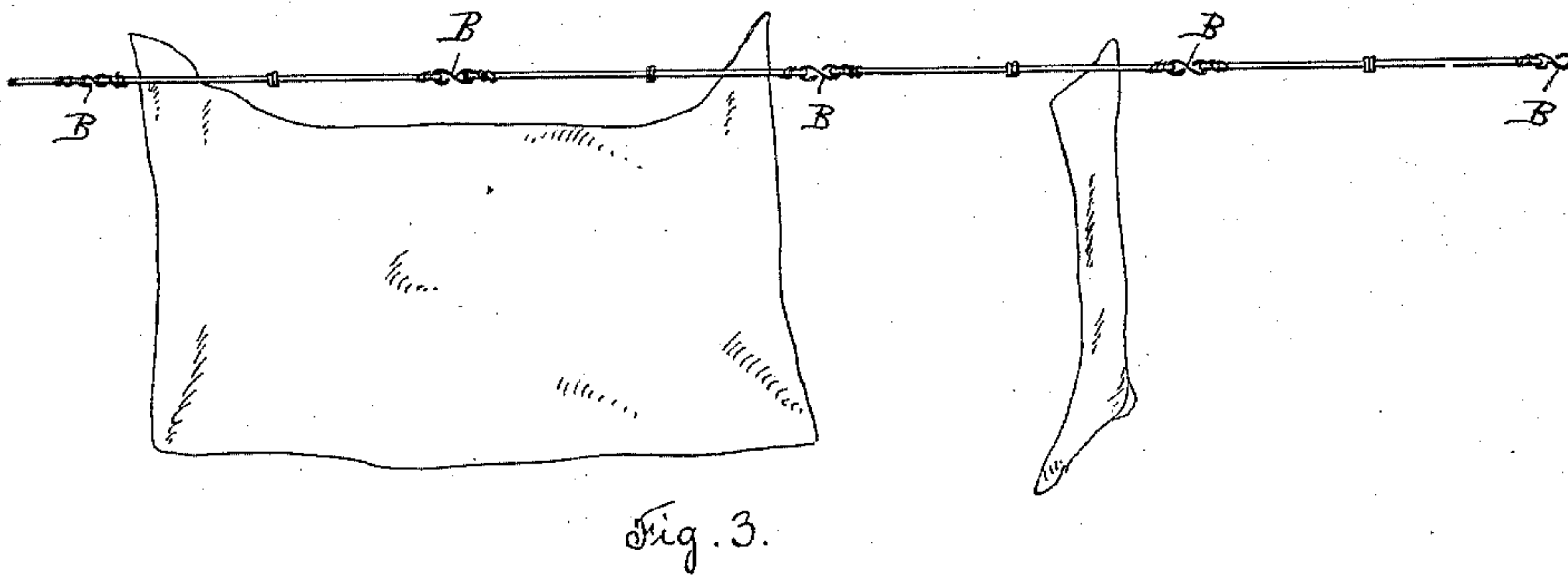
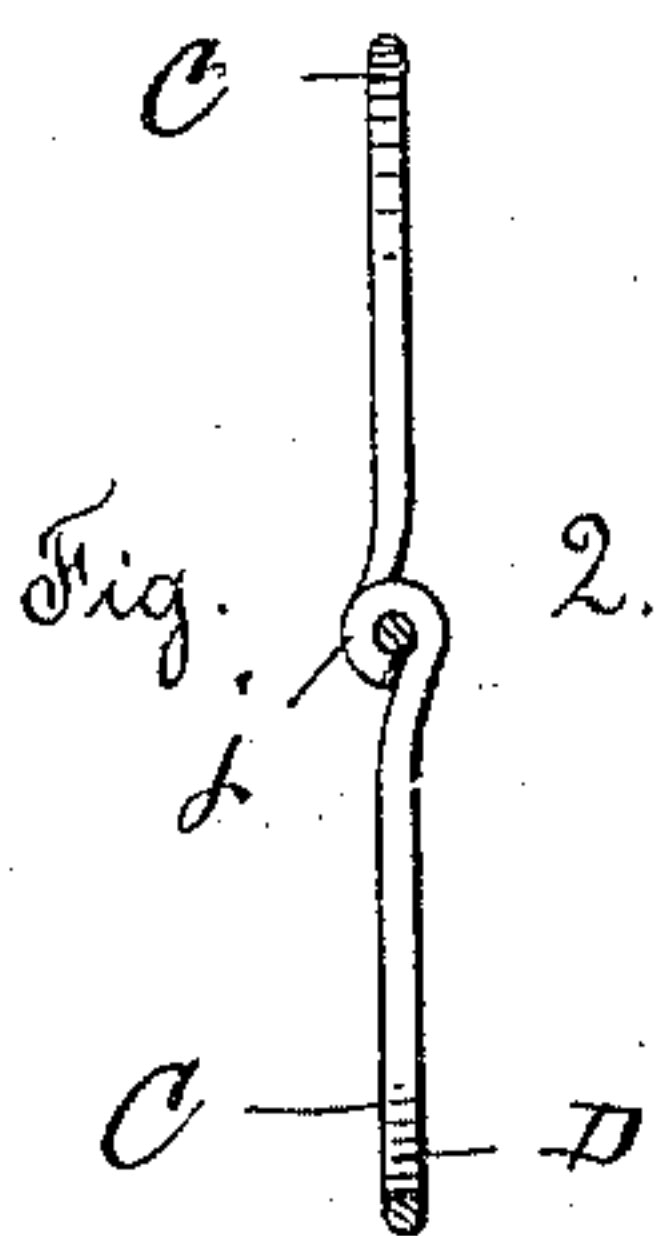
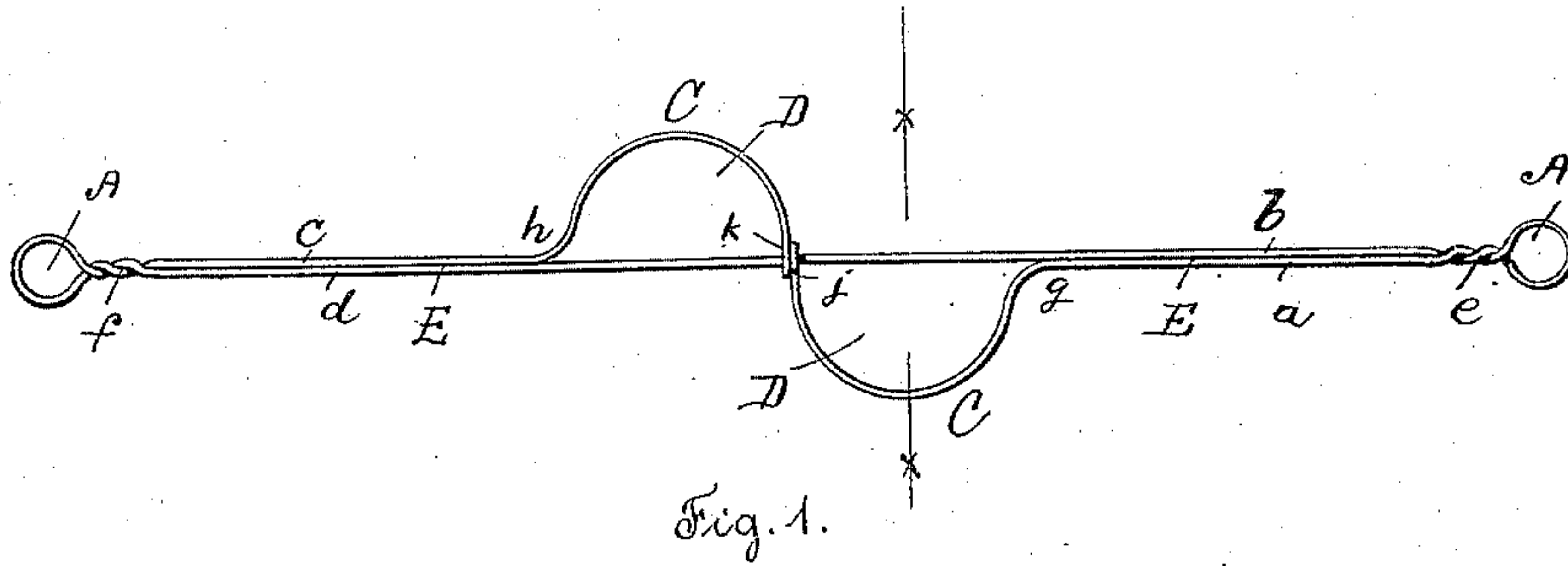


(No Model.)

H. E. PERCIVAL.  
PINLESS CLOTHES LINE.

No. 446,006.

Patented Feb. 10, 1891.



Witnesses  
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& Co. nore

Inventor  
Herbert E. Percival,  
By his Attorney  
Rufus B. Fowler

# UNITED STATES PATENT OFFICE.

HERBERT E. PERCIVAL, OF OKLAHOMA, OKLAHOMA TERRITORY, ASSIGNOR  
TO EDMUND CONVERSE, OF WORCESTER, MASSACHUSETTS.

## PINLESS CLOTHES-LINE.

SPECIFICATION forming part of Letters Patent No. 446,006, dated February 10, 1891.

Application filed February 20, 1890. Serial No. 341,246. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT E. PERCIVAL, a citizen of the United States, and a resident of Oklahoma city, in the Indian Territory, have invented a new and useful Improvement in Pinless Clothes-Lines, of which the following is a specification containing a full, clear, and exact description of the nature of my invention, accompanied by drawings forming a part of the same and illustrating a clothes-line embodying my invention.

My present invention relates to an improvement in the clothes-line forming the subject of Letters Patent No. 370,348, granted to me on the 20th day of September, 1887; and it consists in certain details of construction whereby the manufacture of the clothes-line is simplified and its cost lessened, and in which each of the links forming the line is composed of a straight bar or wire upon which the entire strain upon the line when in use is brought, thereby relieving the holding-jaws from longitudinal strain.

In the accompanying drawings, Figure 1 represents one of the links of which the line is composed. Each of the links being identically the same in construction, I have deemed it necessary to show but a single one of the links. Fig. 2 represents a sectional view of the link shown on line X X, Fig. 1; and Fig. 3 represents a section of the line composed of a series of links united by the short intervening links.

Similar letters refer to similar parts in the several figures.

The link forming one of the sections of the line is formed, preferably, of a single piece of wire bent to form the eyes A A, which form the ends of the link, bringing the sections *a b* of the wire parallel, and similarly the sections *c d*. These parallel sections are twisted or otherwise joined together at *e f*. The wires are continued parallel with each other to the point *g h*. The ends are then bent into substantially a semicircular form, and the ends *j k* are joined to the main wire at its central section, the union of the ends with the central section of the wire being effected in the present instance by carrying the end around the wire forming the central section,

the bent ends and the central section being united by solder.

In forming a clothes-line of the individual links they are linked together by means of the eyes A A, the wire forming the next adjacent link being passed through the eye of the link already formed. The clothes-line thus becomes a chain consisting of a series of links each identical with the link shown in the drawings and linked together by their eyes A A.

A preferable method of uniting the links represented in Fig. 1 is by means of the short intervening links B B, (represented in Fig. 3 of the drawings,) which allows the main links to be folded one upon the other in folding up the line for transportation.

The semicircular bent portions C C form openings D D, through which a section of the clothing to be held by the line is passed and drawn between the parallel sections of the wire at E E, which form elastic jaws between which the clothing is securely held in the manner as shown and described in the Letters Patent No. 370,348, to which reference is herein made.

In the above-mentioned Letters Patent a section of chain clothes-line is represented having apertures or openings through which a corner or section of the clothing was passed, and leading from such apertures or openings were nipping or holding jaws between which the clothing was drawn and by whose elasticity the article of clothing was securely held. In the line therein shown the parallel sections of the wires forming the holding-jaws were each bent outwardly to form the apertures or openings. The strain upon the link caused by the load sustained by the line when in use was equally borne by each of the wires forming the holding-jaws. The effect of a great strain upon the line, as when the line was loaded with wet clothing, would be to tend to straighten the bent sections of the wire forming the apertures or openings, and also to tend to resist the effort to open or separate the parallel sections which formed the holding-jaws. While this effect might tend to hold the clothing more firmly between the holding-jaws when it was once in place, it also



had the undesirable result of rendering the holding-jaws harder to separate and open in the act of placing clothing upon the line or of removing it therefrom. To obviate this disadvantage is the object of my present invention, and this I accomplish by the construction of the link as represented in Fig. 1 of the drawings, by which the main section of the wire is carried in a straight line through the entire link from the twisted section at *e* to the twisted section at *f*. This straight section of the wire coincides with a straight line uniting the center of the eyes A A, and is therefore in the line of strain exerted upon the line by the load carried upon it. The sections *a* and *c* are thereby relieved from strain and can be separated by simply overcoming the elasticity of the wires themselves.

In the clothes-line represented in Figs. 2 and 5 of the Letters Patent above referred to the several links are represented as being linked together by means of the apertures or openings through which the clothing was drawn.

In the improved form represented in the accompanying drawings separate eyes A A are formed at the ends of each link for the purpose of uniting the links, and the apertures D D are utilized for the sole purpose of receiving the clothing. The portions C C of the wires surrounding the apertures are relieved from all strain exerted upon the line.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a clothes-line composed of a series of links, the within-described link, consisting of a straight wire placed between eyes A A, by which said links are interlinked, said straight wire being coincident with the line of strain

when the line is loaded, as described, and a pair of holding-jaws formed by bending the wire forming the link upon and parallel with the said straight section and bending the free ends outwardly in a semicircular form and uniting each of said free ends to the central straight section of the wire, substantially as described.

2. In a clothes-line composed of a series of links, the within-described link, consisting of a straight wire coincident with the line of strain upon the link and provided at its ends with eyes, and a pair of holding-jaws parallel with said straight wire and united thereto next its eyes, the opposite ends of said holding-jaws being bent outwardly in semicircular form to provide openings to receive the clothing and united to the central section of said straight wire, substantially as described.

3. In a clothes-line composed of a series of links, the within-described link provided with the eyes A A at its ends, said eyes being united by two wires, one of said wires placed in a straight line between said eyes and coincident with the line of strain upon the link, and the other of said wires being parallel with said straight wire at *a* and *c*, said parallel sections being united to said straight wire at *e* and *f*, said wire being bent in its central section into an S-shaped form and crossing said straight wire at its center, forming the openings D D upon opposite sides of said straight wire, substantially as described.

Dated at Oklahoma City, Indian Territory, this 5th day of February, 1890.

HERBERT E. PERCIVAL.

Witnesses:

H. H. HOWARD,  
D. HOLLINGSWORTH.