O. Nichols.

Cable Stopper.

No. 10,725. Patented Apr. 4, 1854.

Fig: 3.

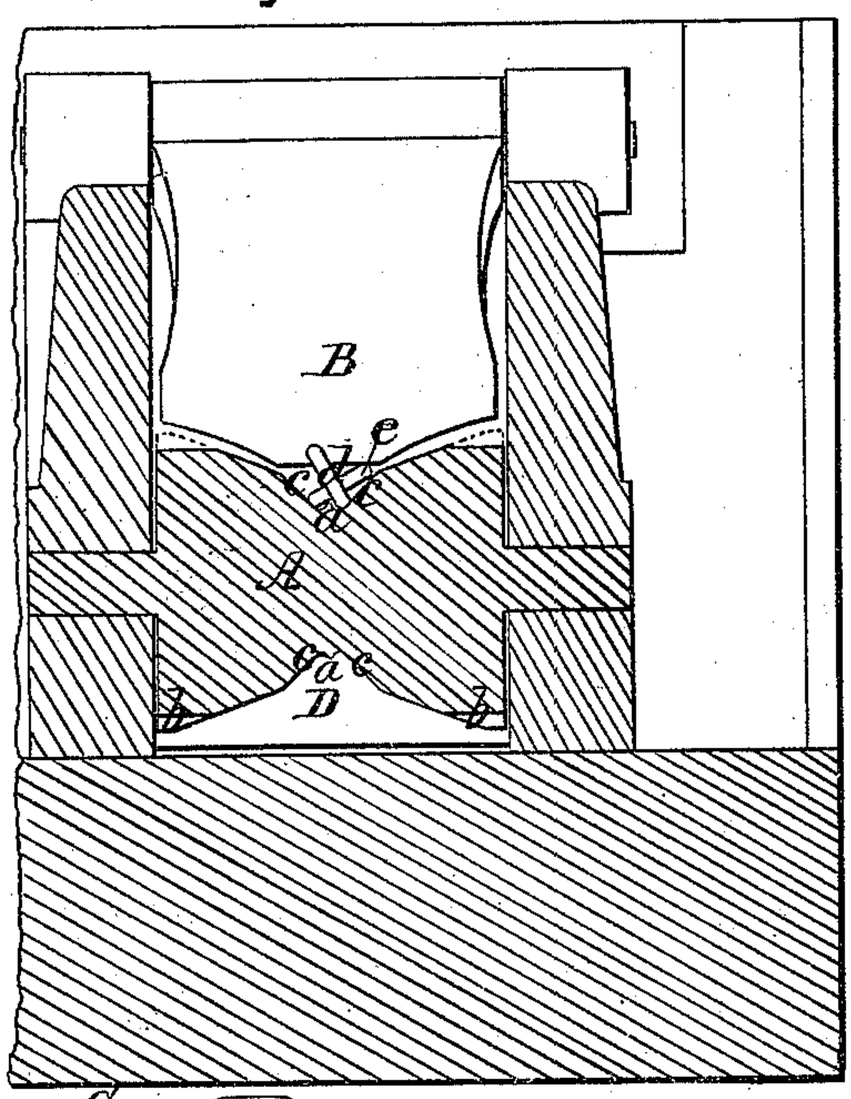


Fig: 2.

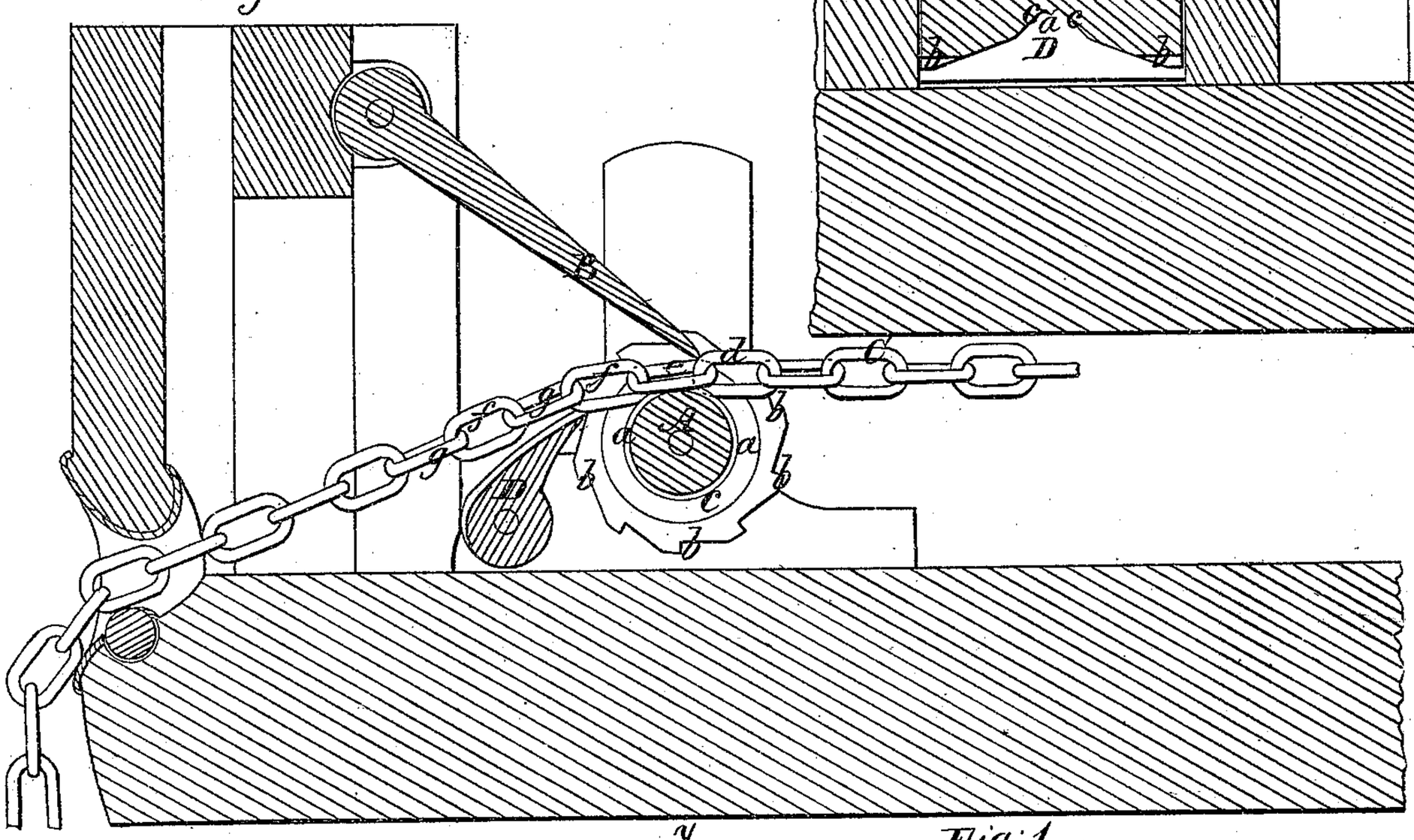
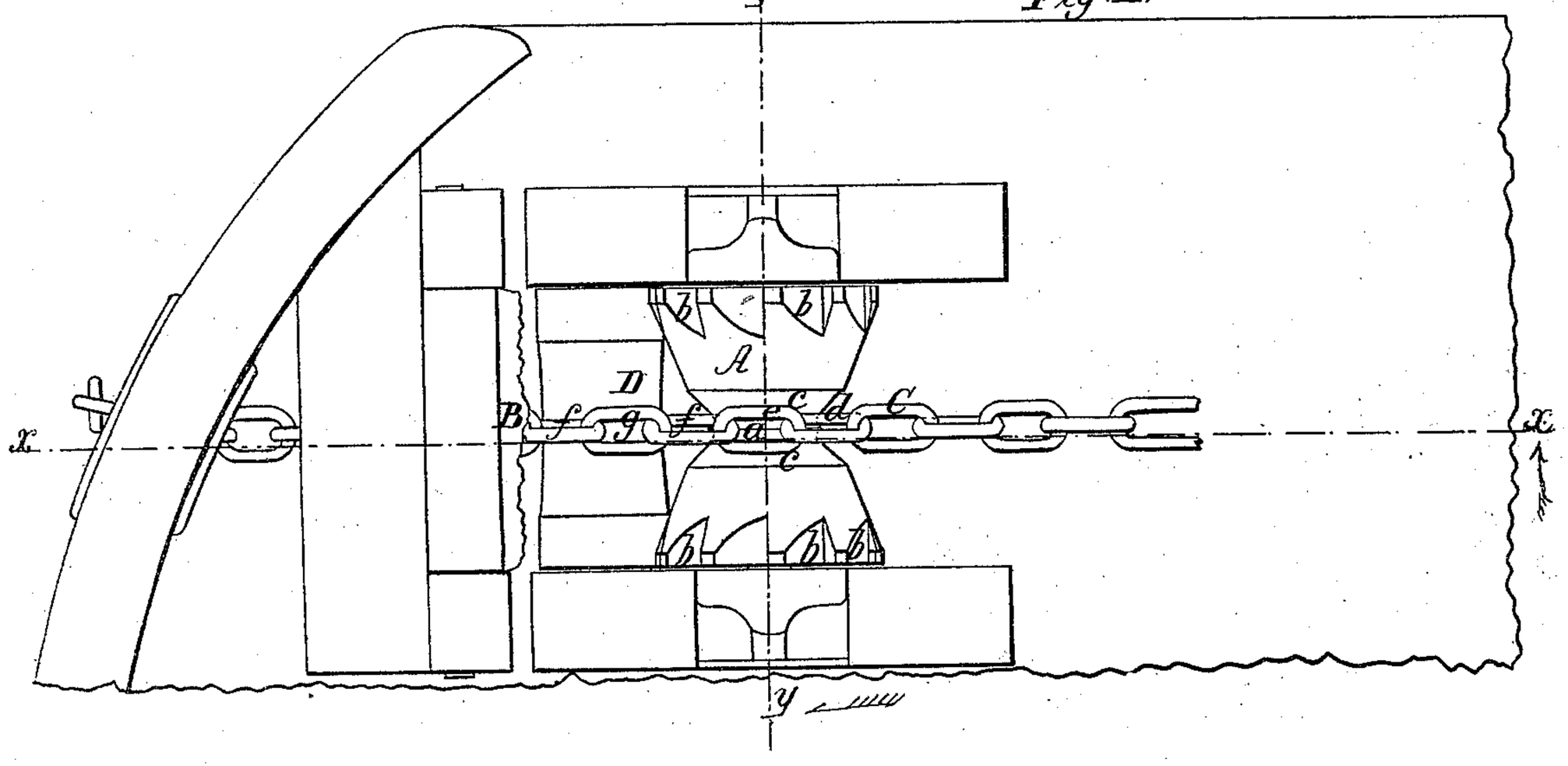


Fig: 1.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OLDIN NICHOLS, OF LOWELL, MASSACHUSETTS.

CHAIN-CABLE STOPPER.

Specification of Letters Patent No. 10,725, dated April 4, 1854.

To all whom it may concern:

Be it known that I, OLDIN NICHOLS, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Chain-Cable Stopper; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, Figure 1, being a plan of the stopper with a portion of a chain cable and of the deck of a vessel; Fig. 2, a vertical section of the same in the line *x x* of Fig. 1; and Fig. 3, a vertical section thereof, in the line *y y*, Fig. 1.

Like letters designate corresponding parts in all the figures.

The nature of my invention consists in the employment of a small guiding ridge in the bottom of, and combined with, an encircling groove (or its equivalent) in the roller, over which the cable passes, so as to cause the links of the chain to assume positions sufficiently inclined to be guided alternately on opposite sides of said ridge, for preventing the twisting of the cable; but, at the same time, to bring each link, against which the pawl acts, so near a vertical position as to be securely held by said pawl; substantially as hereinafter specified.

I make use of a horizontal roller A, arranged in a proper position between the windlass and hawse-hole of the vessel, over which the chain cable C, is made to pass. Said roller is furnished with a groove encircling its periphery, (as shown in Figs. 1, and 3,) for the reception of the cable. At the bottom of this groove rises a small ridge *a*, extending therein around the roller and leaving a depression on each side, of sufficient width to receive the edges of the links which rest therein; and the sides *c*, *c*, of the groove rise flaringly from the bottom, at a proper distance apart to produce the effect desired, in the following manner:—The link *e*, which successively rests on the top of the roller, and by which most of the tension and weight of the cable is borne thereon, will necessarily tend to assume a horizontal position; but, for the reason presently to be set forth, it is required to retain an oblique position of some 30 degrees (more or less) inclination to the horizontal, and the width of the groove, or the distance between its sides, *c*, *c*, should be such as to hold the link *e*, at that inclination, the lower edge of the link of course resting at the bottom of the groove on one side of the ridge *a*, as shown most clearly in Fig. 3. The contiguous link *d*, against which the pawl B, successively holds, will consequently necessarily take a position correspondently inclining to the vertical, its lower edge resting in the bottom of the groove on the other side of the ridge *a;* (also shown clearly in Fig. 3;) since, when tension is applied to a round-link chain, its alternate links are forced into positions at right angles to one another, or can deviate only a few degrees therefrom. Hence the pawl will hold the chain with nearly the same security as if the link *d*, were brought into a perfectly vertical position; and at the same time the cable is constantly kept in an oblique position, in respect to its links, sufficiently to bring one edge of every other link *f*, to the bottom of the groove on one side of the ridge, and of each intervening link *g*, to a similar situation on the other side thereof, so that the chain in fact strides the ridge with its alternate links, thereby preventing the possibility of becoming twisted. No definite rule can be given for the height of the ridge *a;* but it will require to be but slight, since its function is simply to prevent the links from sliding sidewise over the bottom of the groove, and the smaller it is the better, provided that object is attained. Each bearing link *e*, should be allowed to approach as nearly the horizontal position as will still enable it to direct the succeeding link to the other side of the ridge, in order that the link *d*, against which the pawl holds, may take as nearly as practicable the vertical position. By this improved stopper every link of the cable is unfailingly held by the pawl.

An auxiliary pawl D, if found desirable, may be employed, to play into ratchet teeth *b*, *b*, &c., on the periphery of the roller.

It is evident that the groove and ridge, as described above, may be applied when an immovable support is used in place of the roller A.

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

The small guiding ridge in the bottom of, and combined with, the encircling groove (or its equivalent) in the sustaining roller so as to cause the links of the chain to as-

sume positions sufficiently inclined to be guided alternately on opposite sides of said ridge, for preventing the twisting of the cable; but, at the same time, to bring each link, against which the pawl acts, so near a vertical position as to be securely held by said pawl; substantially as herein described.

The above specification of my improved chain cable stopper signed and witnessed this 28th day of February 1854.

OLDIN NICHOLS.

Witnesses:

Z. C. Robbins,

J. S. Brown.