(No Model.)

D. E. LADD.

TIE FOR BAGS, BALES AND BUNDLES.

No. 281,704. Patented July 24, 1883.

Fig. 1.

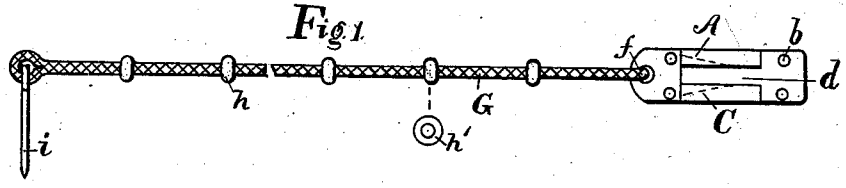


Fig. 2.

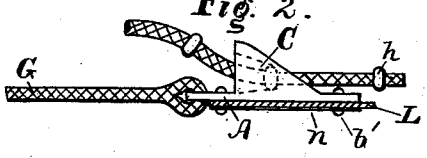


Fig. 3.

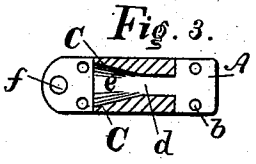


Fig. 4.

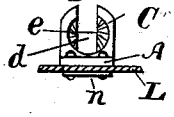


Fig. 5.

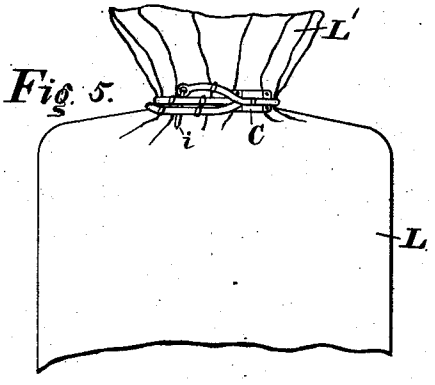


Fig. 6.

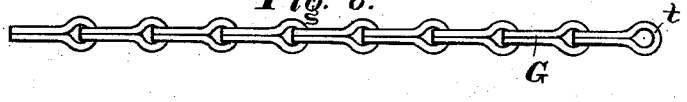
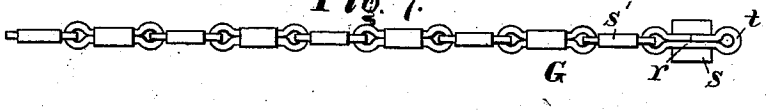


Fig. 7.



Witnesses:
A. C. Eader
John E. Morris

Inventor:
Danl. E. Ladd,
By Chas B. Mann,
Attorney.

UNITED STATES PATENT OFFICE.

DANIEL E. LADD, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO FRANK B. HOOPER, OF SAME PLACE.

TIE FOR BAGS, BALES, AND BUNDLES.

SPECIFICATION forming part of Letters Patent No. 281,704, dated July 24, 1883.

Application filed January 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, DANIEL E. LADD, a citizen of the United States of America, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Ties for Bags, Bales, and Bundles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved fastener for fastening grain-bags, binding bales, bundles, &c., and will first be described, and then designated in the claim.

In the drawings hereto annexed, Figure 1 is a view of the fastener complete. Fig. 2 is a side view of same. Fig. 3 is a section of the tapering socket. Fig. 4 is an end view of the holder, showing the large end of the socket. Fig. 5 shows the top or mouth of a bag secured by the fastener. Fig. 6 shows a form of chain that may be employed for the tie. Fig. 7 shows another form of chain that may be used for the tie.

The fastener consists of two parts—a flexible tie and holder.

The letter A designates a plate having holes *b*, through which rivets may pass for securing the plate to a bag. Two parallel lugs or fixed jaws, C, are integral with the plate, and are separated by a slot, *d*. A tapering socket, *e*, is formed between the lugs. The larger end of the socket begins at one end of the lugs, as shown in Fig. 3, and from thence gradually tapers or narrows down until the small end disappears in the slot *d*. The slot bisects or intersects the tapered socket. This slotted tapered socket constitutes the holder for the tie. A hole, *f*, is formed in the plate directly before the large end of the socket, and a flexible tie, G, is attached to the plate by connection through the hole. The flexible tie consists, preferably, of metal wires plaited, which makes a cheap, strong, and very flexible tie. Swells or enlargements *h* are provided at regular intervals along the tie. These swells may be small metal rings or eyes *h'*, slipped on the end of the plaited wires, and, when adjusted along the tie so as to leave the proper space between them, secured firmly to their position by compression, effected by pinchers or by a blow from a hammer. If deemed best, these rings may be further secured from slipping by the application of solder. The end of the flexible tie is provided with a pin, *i*, which serves an important purpose, as hereinafter explained.

In case of employing the device as a bag-fastener, the holder should be attached to the bag L, preferably as shown in Fig. 2, by placing a thin plate, *n*, of metal or other material against the surface of the bag fabric and on the inner side thereof, and the rivets *b'* are then employed to firmly hold the plate A and the plate *n*. When thus fixed, the device is permanently secured to the bag, and the mouth end L' of the bag must be gathered or bunched together in the usual manner, as shown in Fig. 5, the flexible tie drawn tightly around the gathered end, and that portion of the tie between any two swells which will retain the tie tightly drawn may then be placed in the slot of the holder and the slight relaxing of the gathered end will draw the swell *h* of the tie into the tapered socket, where it will be held. Thus adjusted, the tie will perform its function.

The spare or surplus end of the tie would now hang loosely, and in handling the filled bags might, by catching onto something, be the means of prematurely unloosening the tie. To prevent any difficulty from this source the pin *i* at the end of the flexible tie is employed as follows: After the tie has been secured in the holder, the free or surplus end of the tie should be loosely drawn around the gathered mouth end of the bag, alongside of the tightly-drawn part of the tie, and the pin and its eye, by which it is connected to the tie, should be passed between the tightly-drawn part of the tie and gathered mouth end of the bag. The eye will prevent the pin from being withdrawn, and thus the free or surplus end of the tie will be kept out of the way. This tie may be used for other purposes, and has many advantages, which will be obvious.

Instead of the flexible tie made of plaited wires, one made of links may be employed. Two forms of chain are shown adapted for this purpose. I do not claim either of these. That shown in Fig. 6 is sufficiently plain without description, and that in Fig. 7 is made as fol-

lows: The links are made of wire, the ends of which abut midway of the long shank part *r*. A sheet-metal wrapper (shown open at *s*) is then folded about the shank part and completely covers the abutting ends, as shown at *s'*, and prevents them from opening or spreading apart when strain is brought on the chain. The eye *t* of the links serves as the swell to prevent the link from drawing through the tapered socket.

For some purposes the flexible tie may consist of a cord made of cotton or hemp knotted at intervals along its length, to form the swells or enlargements.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

A bag-fastener composed of a flexible tie provided with swells, a pin at its end, and a holder having a tapering socket slotted lengthwise, as and for the purpose set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 8th day of December, 1882.

DANIEL E. LADD.

Witnesses:
JOHN E. MORRIS,
JNO. T. MADDOX.