Jan. 21, 1969 F. G. MERSER 3,422,499

TAG-ATTACHING OR BUNDLE-FASTENING DEVICE

Filed Nov. 21, 1967 Sheet 1 of 2

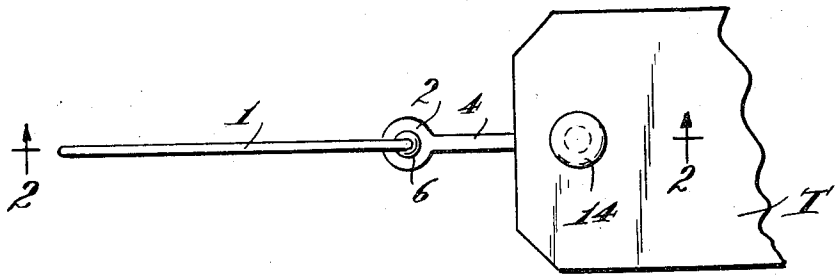

Fig. 1

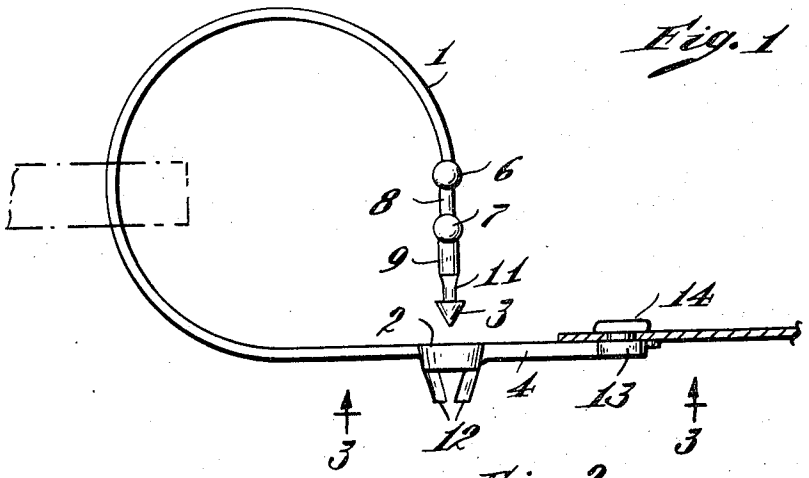

Fig. 2

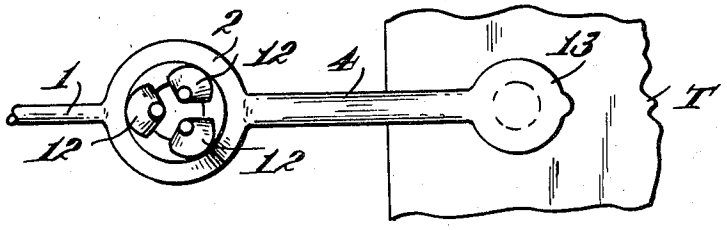

Fig. 3

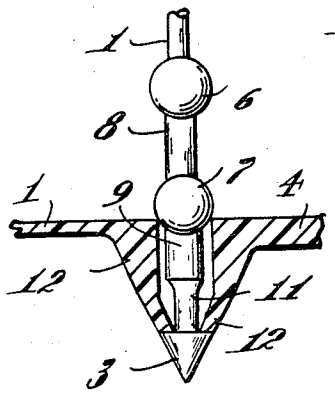

Fig. 4

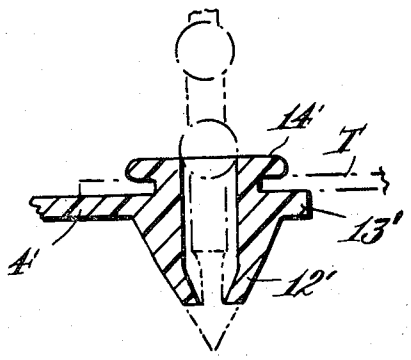

Fig. 5

TAG-ATTACHING OR BUNDLE-FASTENING DEVICE

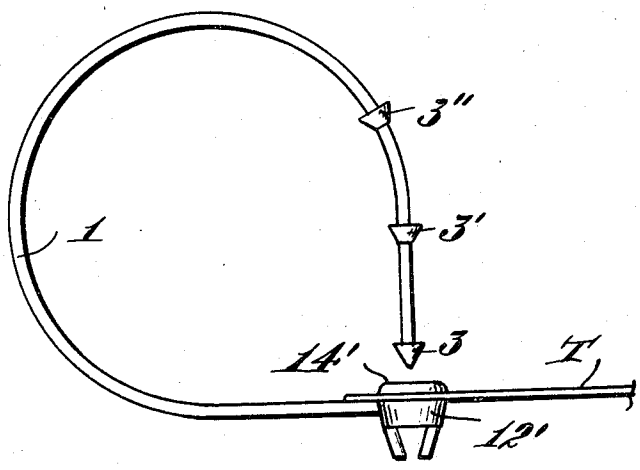

Fig. 6

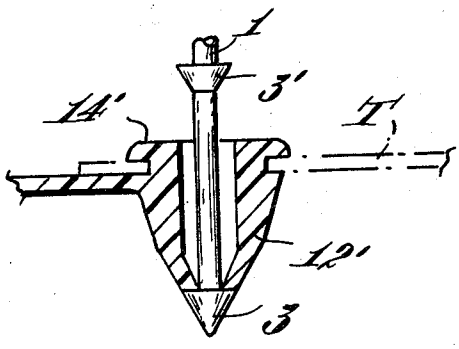

Fig. 7

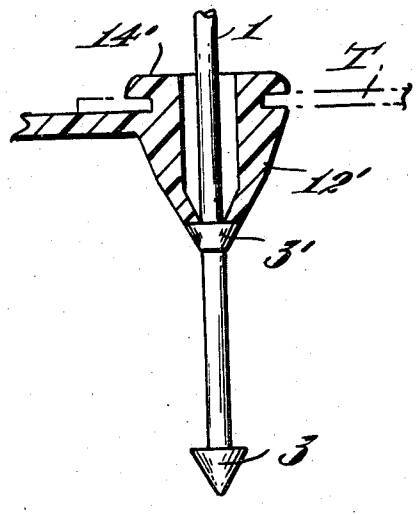

Fig. 8

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TAG-ATTACHING OR BUNDLE-FASTENING DEVICE

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Continuation-in-part of application Ser. No. 633,782, Apr. 26, 1967. This application Nov. 21, 1967, Ser. No. 684,685

U.S. Cl. 24—16 2 Claims

Int. Cl. A44b *21/00*

ABSTRACT OF THE DISCLOSURE

A fastening device for attaching, bundling, affixing or other holding of one or more articles, the device comprising a filament, a socket on the filament and one or more heads on one end of the filament adapted to snap into the socket.

This application is a continuation-in-part of application Ser. No. 633,782, filed April 26, 1967.

Objects of the invention are to provide a device which is simple and inexpensive to produce, which can be applied quickly and easily, which holds securely, and which can be attached to articles of different sizes.

According to this invention the device comprises a filament, a socket on one end of the filament and a head on the other end of the filament, the socket having an opening extending therethrough so that the head may be inserted in one end of the opening and project from the other end of the opening, the head being slightly larger than the socket and the socket being resilient so that insertion of the head produces expansion of the socket and after the head had been inserted the socket snaps in behind the head to restrain withdrawal of the head from the socket. Preferably said other end of the socket is slotted to facilitate said expansion, the socket is circular and the head is conical, and the portion of the filament adjacent the head has reduced diameter and is brittle so that the projecting head may be broken off to withdraw the filament from the socket.

In a more specific aspect of the invention the aforesaid socket has a head of deformable material which is expansible to anchor the filament to a tag, and the material is thermoplastic so that said head may be expanded by heat and pressure.

In another aspect a series of heads are distributed along the filament to form loops of different sizes, the portion of the filament behind each head is brittle so that each projecting head may be broken off to withdraw the filament from the socket, and each of said portions comprises a neck of reduced diameter.

For the purpose of illustration a typical embodiment of the invention is shown in the accompanying drawings in which

FIG. 1 is a top view of the device attached to a tag;

FIG. 2 is a section on line 2—2 of FIG. 1;

FIG. 3 is a bottom view from line 3—3 of FIG. 2;

FIG. 4 is a section of the head and socket after the head has been inserted;

FIG. 5 is a view like FIG. 4 showing a modification;

FIG. 6 is a view like FIG. 2 showing a modification in

which the filament is attached to the tag by means of the socket as in FIG. 5 and also showing a series of heads on the filament;

FIG. 7 is a view like FIG. 5 of the modification; and

FIG. 8 is a view of the modification of FIG. 6 showing the second head inserted through the socket to form a short loop of filament.

In the particular embodiment of the invention shown in FIGS. 1 to 4 the device comprises a filament **1**, a socket **2** and a head **3** for insertion into the socket, the filament having an extension **4** for attachment to a tag T. Behind the head **3** the filament is provided with two enlargements **6** and **7** and two portions **8** and **9** of increased diameter to facilitate insertion of the head into the socket and to limit the extent of insertion. Immediately behind the head is a neck **11** of reduced diameter. As shown in FIG. 3 the socket is circular and has an axial opening through which the head may pass. The exit end of the socket is slotted to form fingers **12** which converge to surround the neck **11** closely. The device is made of resilient material such as nylon so that as the head is inserted the fingers expand and then snap in behind the head as shown in FIG. 4. To detach the head end of the filament from the socket the head may be broken off at the neck **11** and to facilitate this breakage the neck may be annealed to increase its brittleness. When using nylon the device, or at least the head end of the device, is preferably annealed for about three minutes at a temperature of approximately 240° F. The device is preferably molded and stretched as disclosed in the copending application of Arnold R. Bone, Ser. No. 601,002, filed December 12, 1966.

The device may be attached to the tag T as described and claimed in my copending application Ser. No. 633,783, filed on April 26, 1967. As there disclosed the device is formed of thermoplastic material and the end **4** is provided with an enlargement **13** having a lateral protuberance which is inserted through an opening in the tag, and after insertion the projecting end of the protuberance is expanded by heat and pressure to form a head **14**.

In the modification shown in FIG. 5 the socket **12'**, corresponding to **12** in FIG. 4, also serves to attach the filament **4'** to the tag T, thereby serving the purposes of both parts **12** and **13–14** of FIGS. 1 to 4. In the modification the socket is provided with parts **13'** and **14'** corresponding to parts **13** and **14** of FIGS. 1 to 4 and it is attached to the tag in the manner as the first embodiment.

The modification shown in FIGS. 6 to 8 is like that shown in FIG. 5 except in that the filament **1** is provided with additional heads **3'** and **3''** so that the filament may be formed into loops of different sizes to encompass different articles.

I claim:

1. An attaching device comprising a filament, a socket on the filament and a head on one end of the filament, the socket having an opening extending therethrough so that the head may be inserted in one end of the opening and project from the other end of the opening, the head being slightly larger than the socket opening and the socket being resilient so that insertion of the head produces expansion of the socket and after the head has been inserted the socket snaps in behind the head to restrain withdrawal of the head from the socket, said socket having a head of deformable material which is expansible

to anchor the filament to a tag and which surrounds the socket opening to reinforce same and sandwich the tag between the head and the body of the socket.

2. A device according to claim 1 wherein said material is thermoplastic so that said head may be expanded by heat and pressure.

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DONALD A. GRIFFIN, *Primary Examiner.*

U.S. Cl. X.R.

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