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K. L. EMMINS

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TIE TENSIONING AND FASTENING DEVICE

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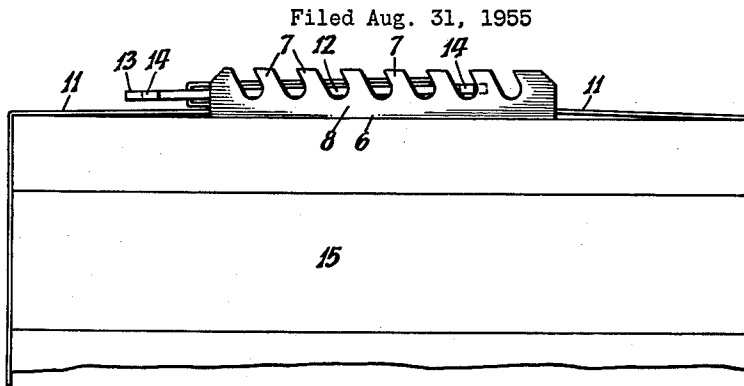


Fig. 1.

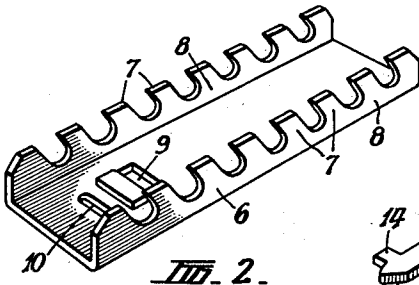


Fig. 2.

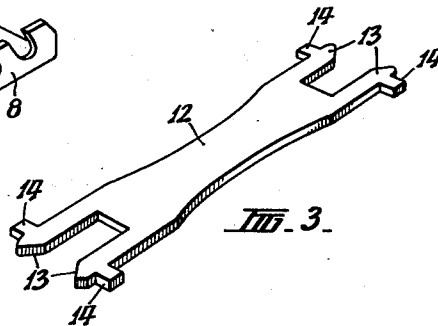


Fig. 3.

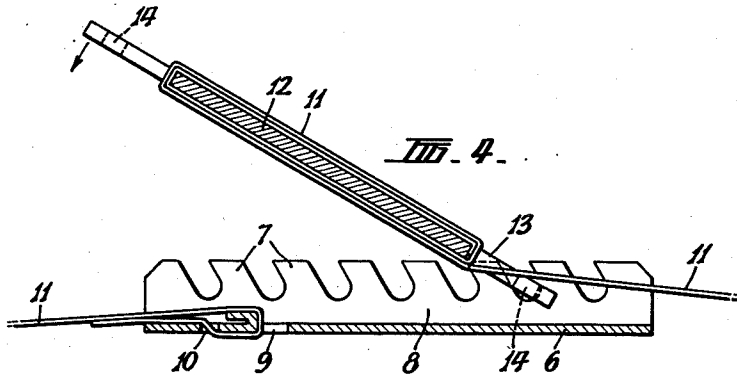


Fig. 4.

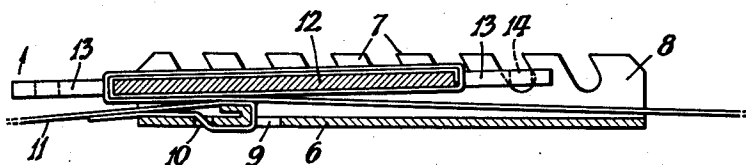


Fig. 5.

INVENTOR
KINGSLEY LEONARDEMMINS
BY *Oberlin Limbach*
ATTORNEYS.

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TIE TENSIONING AND FASTENING DEVICE

Kingsley Leonard Emmins, Maryborough, Victoria, Australia

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1 Claim. (Cl. 24—271)

This invention relates to a box, bale or crate tie tensioning and fastening device.

In tying boxes, bales or crates with metal straps or wires it is often convenient to have a fastening means for the tie capable of releasing the tie and subsequently re-applying the tie to the box, bale or crate. This requirement particularly applies in the migrant bee-keeping industry in which the hives and bees therein are transported from place to place for the purpose of moving the bees to sections of the country where ample flowering vegetation exists or to parts of the country where certain vegetation is flowering.

This requires the migrant bee-keeper to pack and stack a great number of hives onto the transport vehicle at sunset, transfer the hives to a new location overnight and unload the hives at the new location before sunrise.

It is therefore necessary to have some convenient tying means for the hives so that they may be quickly and readily assembled and stacked for transport and with such tying means capable of being able to readily release the hives and be usable at the next transport operation.

It is also necessary in such devices, which are, in the bee-keeping industry, used in the half light or darkness of sunset and sunrise, that no loose pins, studs or the like be used as these may become lost or difficult to locate under such operative conditions.

The principal objective of the present invention is to provide a tie tensioning and fastening device of relatively simple and economical construction which is normally retained in the tensioning and locking position without the use of separate securing or locating devices making the device particularly applicable for use as a fastener for bee-hives during handling or transport.

Other objects of the invention will be apparent from the following description and accompanying drawings read in conjunction with the appended claim.

In order that the invention may be more readily understood reference will now be made to the accompanying drawings, illustrating one practical embodiment of the invention.

In these drawings:

Fig. 1 is a view in side elevation of part of a case or bee-hive with the tensioning and fastening device in operative position,

Fig. 2 is a perspective view of the channel member, and

Fig. 3 is a perspective view of the tensioning member.

Fig. 4 is a side elevation in section of the device with the tensioning member in the levering or tensioning position, and

Fig. 5 is a similar view with the tensioning member in the operative or locked position.

Conveniently a tie tensioning and fastening device comprises a channel member adapted at one end to have a tie secured thereto, teeth formed in the sides of said member, a tie tensioning member on which the free end of the tie is adapted to be wound, said tensioning member adapted to engage said teeth to form a lever with the

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point of engagement forming a fulcrum point, and with said tensioning member arranged to seat between the sides of the channel member so that the line of tension of the tie is below the fulcrum point whereby the tensioning member is held in a locked operative position by the tension imparted to the tie.

In the arrangement stated the tensioning member may be arranged to have part of the tie, a wire or metal strap, wound thereon to adjust the length of the tie so that the tensioning member may engage teeth in the channel member at a convenient point and so that the tensioning member in the locked operative position is substantially shielded by the sides of the channel member.

As illustrated the tie tensioning and fastening device comprises a channel member 6 formed as a metal pressing having a number of inclined teeth 7 formed in each side 8 of the channel member 6 and said teeth 7 are aligned in pairs on each side of the member.

The base of the channel member 6 is slotted as at 9 and 10 through which the one end of a tie in the form of a metal strap 11 is passed to be secured to the channel member. The other end of the strapping 11 is wound onto the tensioning member 12 which comprises a substantially H-shaped member formed as a sheet metal pressing, the body and extending arms 13 of said member 12 forming a spool on which the strapping 11 is wound.

At the ends of the arms 13 and extending sideways thereof are projecting lugs 14 which are adapted to engage the side walls 8 of the channel member 6, in the spaces between the teeth 7 formed therein as shown in Figs. 1, 4 and 5. The teeth 7 are inclined to prevent the lugs 14 from dis-engagement with the channel member when the tensioning member is operating.

The strapping 11 is wound on the tensioning member 12 so that the last convolution thereof lies on the underside of the member 12 as shown in Figs. 4 and 5. In Fig. 4 the member 12 is shown with the lugs 14 engaging the sides 8 of the channel member 6 in the spaces between the teeth 7 and moving the member 12 in an arcuate manner about the pivot formed by lugs 14 the member 12 functions as a lever fulcrumed on said pivot.

When the tensioning member 12 is pressed down to the position shown in Fig. 5, the free end thereof is below the said fulcrum so that when the strapping 11 is under tension the line of pull of the strapping 11 is below the fulcrum whereby the tensioned strapping holds the member 12 in the locked operative position shown in Fig. 5.

In use the device is employed for tensioning and locking strapping or wire about boxes, bales, crates or bee-hives and is particularly applicable to the latter in providing a quickly applied and released binding or tie for the hives for transport to different blossoming areas for the purpose of obtaining the maximum honey collection as is well known in that art.

As shown in Fig. 1 the tensioning and fastening device is shown in operative position on the upper surface of a bee-hive 15 and it will be appreciated that a number of hives may be tiered and quickly and securely tied together for handling and/or transport. Upon the hives reaching the required destination the band 11 is quickly and readily loosened by raising the member 12 from the position shown in Fig. 5 to that in Fig. 4 when the member 12 can be detached from the channel member 6.

In applying the device to a hive, hives or other container the strapping 11 is passed around the article to be bound after one end of the strapping is secured to the channel member and the other or free end of the strapping wound on the tensioning member 12 until the strapping is short enough to permit the lugs 14 to engage conveniently positioned spaces between the teeth 7 formed in the sides of the channel member 6. The

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member 12 is then operated as a lever to tension the strapping and finally pressed down to the locked position shown in Fig. 5.

What I claim is:

A tie tensioning and fastening device comprising a channel member, means at one end to have a tie fixed thereto, teeth formed in the sides of said channel member, an elongated flat tie tensioning member having notches formed in the ends thereof for winding of the free end section of the tie lengthwise on the member about the section thereof between such end notches, a pair of lateral projections at each end of the tensioning member to selectively engage said teeth so that the member forms a lever with the points of engagement constituting fulcrum points, and with said tensioning member arranged to seat between the sides of the channel mem-

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ber so that when the tensioning member is operated as a lever to tension the tie about an article the tensional force of the tie is applied at the outer end of the tensioning member and below the fulcrum points whereby the tensioning member is held in an operative locked position by said tensional force.

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