Nov. 16, 1943. C. T. BOCKHOUSE 2,334,240

CLAMP TOOL

Filed Sept. 26, 1942

Fig. 1.

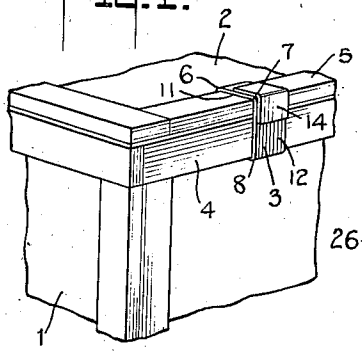


Fig. 2.

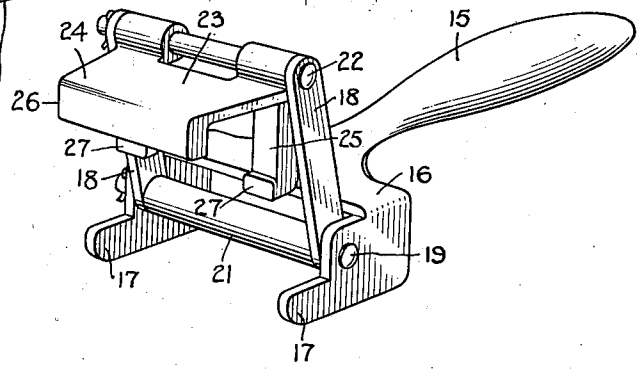


Fig. 3.

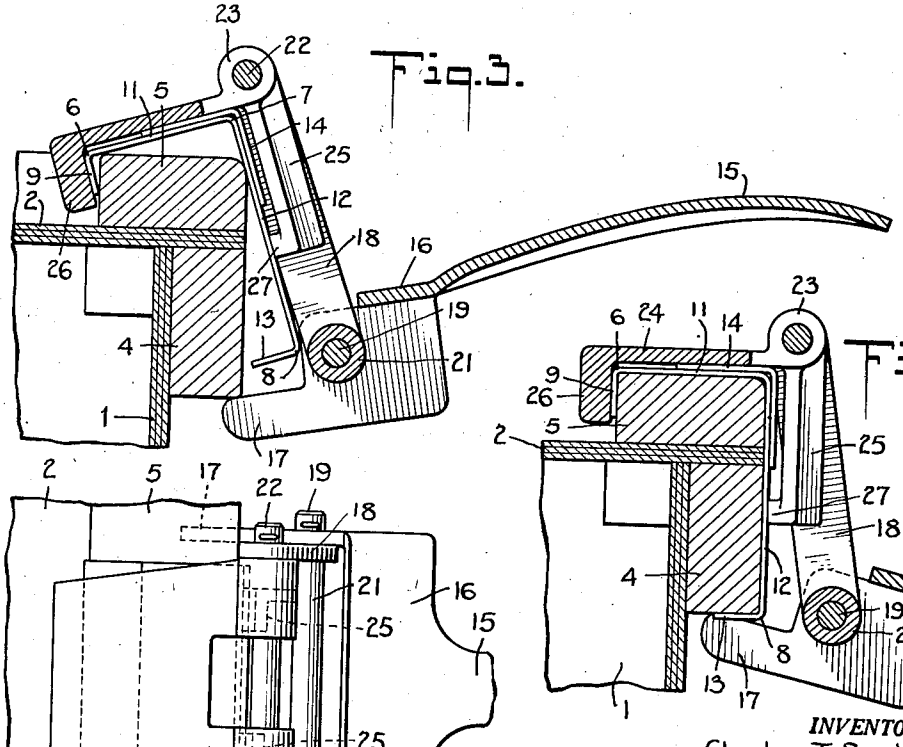


Fig. 4.

Fig. 5.

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CLAMP TOOL

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2 Claims. (Cl. 81—3)

This invention relates to a novel tool for applying clamps to packing cases, and relates more particularly to a tool especially designed for applying spring clamps to packing cases and the like.

Shipping cases or packing cases are formed of plywood, cardboard, and similar materials to reduce their weight and improve their appearance and usefulness, as compared to the older type cases made of relatively thick wood boards. To form cases of the lighter materials it was found necessary to frame the sides and lid with cleats or battens as nailing strips. It was found that the nailing of the strips often split the same. In any event, the strips would not hold nails after a few packing case opening and closing operations. This destroyed the use of the case even though the plywood panels forming the sides and lid were still in a fair condition. To prolong the life of the packing case, there was devised a novel type of clamp that extended over the batten of the lid and sides to lock the lid in position. Some difficulty was experienced, however, in applying these clamps, especially on the larger size cases where the clamp used is normally made of relatively heavy gauge material. It is accordingly an important object of this invention to provide a tool for applying clamps to packing cases and the like which will be simple and durable in construction and efficient in operation.

Another object of this invention is the provision of a tool for facilitating the application of clamps to packing cases and the like which acts to snap the clamp in operative position on the packing case without causing damage to the latter.

Other objects of this invention will appear from the following detailed description and drawing.

In the drawing, wherein a preferred embodiment of my invention is shown,

Figure 1 is a perspective view of a section of a packing case showing a clamp in operative position to secure the lid thereon,

Figure 2 is a perspective view of a tool for facilitating the application of a clamp to a packing case, constructed in accordance with my invention,

Figure 3 is a cross-sectional view of the tool and of a packing case section showing the position of the tool with respect to the clamp and packing case at the beginning of the operation to affix the clamp to the packing case,

Figure 4 is a view similar to Figure 3, showing the position of the elements at the completion of clamp affixing operation, and

Figure 5 is a top plan view of the elements shown in Figure 4.

Like reference numerals indicate like parts throughout the several views of the drawing.

The packing case to which a clamp may be affixed by the tool of my invention may be of any suitable size and strength, depending upon its intended use. A satisfactory packing case for 500 pounds of fabric may be formed of plywood and may be of the structure shown in Figure 1 of the drawing. In this figure, there is shown one corner of such a packing case which may comprise side walls 1 with a lid 2 fastened thereon by means of a metal clamp 3 that extends from under a batten or cleat 4 forming the upper marginal edge of the packing case 1 up the side of said batten, across a batten or cleat 5, thus securing the lid to the side wall of the packing case. Any suitable number of clamps may be employed to fasten the lid on a packing case. Although the clamp 3 is preferably made of spring steel, it may be of plastic material, non-ferrous alloy, etc., depending upon the size and use for which the packing case is intended. The clamp 3 is formed from a rectangular piece of material bent to a 90° angle at three points indicated by reference numerals 6, 7 and 8, thus forming four sides 9, 11, 12 and 13. The clamp is preferably reinforced with an angle piece 14 of the same material as the clamp or other suitable material.

The clamp 3 must have some flexibility, i. e. have the property of springing back to its original shape after flexing. It is attached to the case by being sprung over the battens or cleats 4 and 5. The tool constructed in accordance with my invention quickly and easily springs the clamp into desired operative position. This tool comprises a lever having a handle 15 at one end and at its other end a U-shaped head 16, the ends of which are bent and cut away to form two projections 17, the purpose of which will hereinafter be described.

Two arms 18 are pivotally mounted on the head 16 by means of a pin 19 and spacing collar 21. The free ends of the arms 18 are connected by a shaft 22 on which is mounted a clamp retainer 23 formed of two integral clamp engaging members 24 and 25 extending substantially at right angles to each other from their juncture on the shaft 22. This clamp retainer is adapted to grip three sides of the clamp and to guide the same as it is being sprung into locked position. The member 24 terminates in a bent portion or

claw 26 while the member 25 terminates in contact element 27 formed at right angles to member 25. The member 25 may be a single element extending the width of the clamp retainer 23, or it may be formed of two or more fingers as shown in the drawing.

To fasten the lid on a packing case, the clamp 3 is first placed on the batten 5 in the position shown in Figure 3. The tool of my invention is then placed over the clamp with gripper or claw 26 in contact with side 9 of the clamp, the member 24 with side 11 of the clamp, and contact elements 27 in contact with side 12 of the clamp. The handle 15 of the tool is then pushed toward the packing case until the projections 17 engage the lower edge of batten 4. The handle 15 is then pushed downward and forward springing the clamp into operative position as shown in Figure 4, the tips of projections 17 acting as fulcrums. After the clamp is locked in position the handle 15 is pulled upward in an arc to remove it from the clamp 3.

It is to be understood that the foregoing detailed description and drawing are given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. A tool for applying clamps to an article, comprising a lever having a handle at one end and projections at the other end thereof, said projections being adapted in operation to be in contact with the article, arms pivotally carried by said handle, a shaft journaled in the free ends of said arms, and means pivotally mounted on said shaft for engaging the clamp and for snapping the clamp into position on the article, said means comprising two integral clamp engaging members substantially at right angles to each other.

2. A tool for applying clamps to an article, comprising a lever having a handle at one end and projections at the other end thereof, said projections being adapted in operation to be in contact with the article, arms pivotally carried by said handle, a shaft journaled in the free ends of said arms, and means pivotally mounted on said shaft for engaging the clamp and for snapping the clamp into position on the article, said means comprising two integral clamp engaging members substantially at right angles to each other, each of said members having an additional clamp engaging portion thereon.

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