

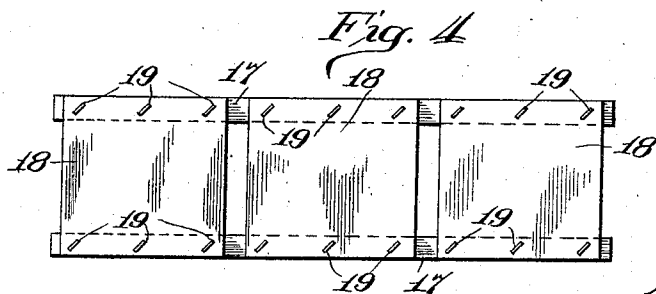
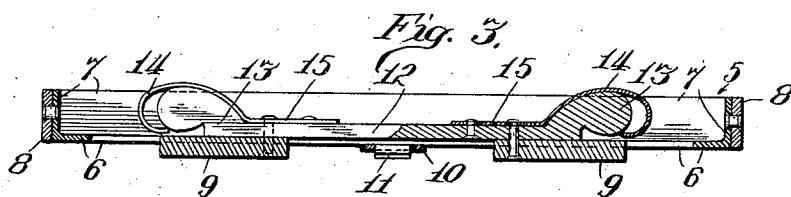
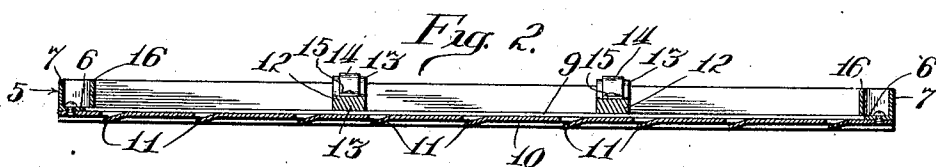
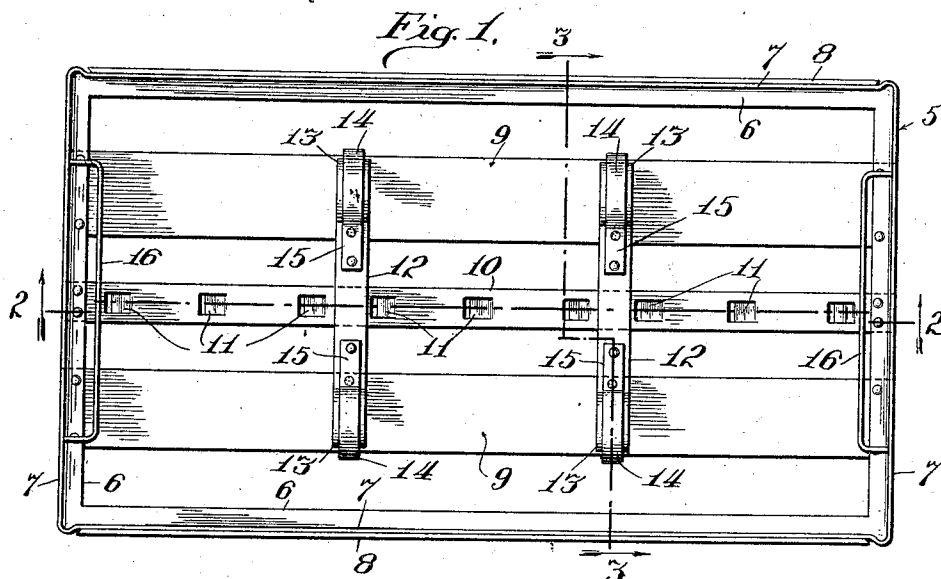
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FORM FOR USE IN MAKING BOX BLANKS

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FORM FOR USE IN MAKING BOX BLANKS.

Application filed March 12, 1921. Serial No. 451,909.

To all whom it may concern:

Be it known that I, GORDON HOPKINS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Forms for Use in Making Box Blanks, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to the art of making boxes or crates of the type made of blanks composed of side strips or cleats connected by cross-pieces or panels of thin material, such as veneer. The cleats and panels constituting these blanks are usually secured together by stapling or stitching them, and they are usually made by the use of machines which feed the stock in such manner that the panels are properly placed with reference to the cleats and are then conducted to the stapling and stitching devices which secure them together. A machine of this character is shown and described in an application filed by Bert E. Hill on September 17, 1920, Serial No. 411,010. In the use of such machines it is necessary that the cleats and panels be placed accurately and held in their proper relation to each other while they are moved along to the stapling devices, and for this purpose forms are employed which receive the stock with the cleats and panels in proper relation to each other and conduct them through the machine, and the object of my present invention is to provide a new and improved form for this purpose. I accomplish this object as illustrated in the drawings and hereinafter described. What I regard as new is set forth in the claims.

In the accompanying drawings,—

Fig. 1 is a plan view of my improved form;

Fig. 2 is a longitudinal section thereof on line 2—2 of Fig. 1;

Fig. 3 is a cross-section on line 3—3 of Fig. 1; and

Fig. 4 is a plan view of one of the box blanks after the parts thereof have been secured together, and it has been removed from the form.

My improved form comprises a rectangular frame 5 made by bending a strip of angle iron and welding the ends thereof together, the horizontal flange 6 thereof being on the inside. By this arrangement said flange

forms ledges at the ends and sides of the frame for supporting the cleats hereinafter referred to, and the vertical flanges 7 serve as guides to properly position the cleats. The side members of the frame 5 are reenforced by strips 8 which are secured to the vertical side flanges of the frame by rivets or in any other suitable way, and said vertical flanges are preferably bent inwardly so that the reinforcing strips 8 may be inset so as to lie practically flush with the corners of the frame, as shown in Fig. 1.

9 indicates parallel wooden strips or plates which are secured to the under side of the end portions of the frame 5 at opposite sides of the center thereof. These strips project somewhat below the under surface of the frame and they are adapted to frictionally engage an endless belt which forms a part of the machine above referred to and operates to move the form along to the stapling devices, but permits slippage in case the form should encounter any obstacle which prevents it from moving at the same speed as the belt. 10 indicates a centrally-disposed rack-bar which is also secured to the end portions of the frame 5 at the under side thereof and is adapted to cooperate with suitable ratchet mechanism by which the form is moved intermittently past the stapling mechanism. As best shown in Fig. 2, said rack-bar is provided with a number of teeth 11 which are properly spaced so that the form will come to rest when the stock carried by it is in proper position for the driving of each pair of staples.

12 indicates cross-bars which are disposed transversely of the frame 5 and are secured to the strips 9 by bolts, screws or other suitable means. The frame shown in the drawings is designed for use where the blank comprises two longitudinally-disposed cleats and three panels, and, therefore, two cross-bars 12 are provided which are spaced apart a distance equal to the width of one of the panels and are removed from the end portions of the frame 5 a distance approximately equal to the width of the end panels. Thus the three panels may be fitted into the frame at opposite sides of said cross-bars.

As best shown in Fig. 3, the cross-bars 12 are provided at their ends with rounded heads 13 over which are disposed springs 14 shaped somewhat like a fishhook. Each of these

springs is provided with a shank 15 which fits upon and is secured to the cross-bar 12 so that the rounded portion of the spring extends over the adjacent head 13 and projects beyond it toward the adjacent side of the frame 5. The purpose of these springs is to press the cleats firmly against the vertical flanges at the sides of the frame 5 so that they will be held firmly in position. and, therefore, the springs are so arranged that they project laterally far enough to give them sufficient tension to do that work. It will be apparent that when a cleat is moved down into the frame the projecting portions of the two springs at that side of the frame will be pressed back and put under tension, and, therefore, will press the outer edge of the cleat tightly against the vertical flange at that side of the frame. The cleat may, however, be readily withdrawn by pulling it upward. When the springs 14 become weakened to such an extent that they do not operate efficiently new ones may readily be substituted for them by removing the cross-bar 12 and either changing the springs carried by it, or by applying a new cross-bar equipped with springs to the frame 5.

In order that the form may be handled conveniently and also to serve as guides for positioning the end panels, U-shaped strips 16 are provided at the ends of the frame 5, said strips being secured to the inside faces of the vertical flanges at the ends of the frame, as shown in Fig. 1. These strips are spaced with reference to the cross-bars 12 so that the panels fit nicely between them. The spaces between the said strips and the vertical flanges of the ends of the frame enable the operator to grasp the frame easily in handling it.

In Fig. 4 I have illustrated a box blank made up of two longitudinally-disposed cleats 17 and three panels 18 the ends of which overlap the cleats and are secured thereto by staples 19. It will be noted that the panels are spaced apart from each other and that the ends of the cleats project slightly beyond the outer end margins of the end panels.

In using my improved form on a machine such as that shown and described in said Hill application, the form is moved under two chutes or holders each containing a stack of cleats and a single cleat is dropped to the space provided at each side of the form, resting upon the horizontal flanges thereof. In order to enable the cleats to move down freely into position on the form it is preferable to provide some automatic device, such as the rotary discs described in said application, for temporarily compressing the springs 14; although the cleats may be moved positively into position if desired. When the cleats have been

supplied to the form it is carried along to another holder or chute which contains a pile of panels and in its passage under this chute three panels are dropped into position so that their side margins overlap the cleats. After the stock has been supplied to the form it is delivered to the ratchet mechanism above referred to which engages the rack-bar 10 and moves the form intermittently forward under the stapling mechanism which operates to secure the panels to the cleats, producing a blank such as that shown in Fig. 4.

My improved form is much superior to the wooden forms heretofore used, as it holds the stock much more firmly and accurately in position, and does not weigh any more than the old type of form. It is also much more substantial and lasts a good deal longer.

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

1. A form of the character described comprising a rectangular frame having at its lower edge inwardly-projecting flanges adapted to support longitudinally-disposed cleats and panels which overlap said cleats, and means carried at the under side of said frame between the side portions thereof, adapted to co-operate with propelling devices, whereby said frame, with said cleats and panels, may be moved through a stapling or stitching machine.

2. A form of the character described comprising a rectangular frame having at its lower edge an inwardly-projecting flange around the margins thereof adapted to support longitudinally-disposed cleats and panels which overlap said cleats, and means carried at the under side of said frame between the side portions thereof, adapted to cooperate with propelling devices, whereby said frame, with said cleats and panels, may be moved through a stapling or stitching machine.

3. A form of the character described comprising a rectangular angle-iron frame having its flanges in horizontal and vertical planes, respectively, said horizontal flanges being adapted to support longitudinally-disposed cleats and panels which overlap said cleats and said vertical flanges acting as guides to position the cleats, and a longitudinally-disposed rack-bar secured to the under side of said frame and adapted to co-operate with propelling devices, whereby said frame, with said cleats and panels, may be moved through a stapling or stitching machine.

4. A form of the character described comprising a rectangular angle-iron frame adapted to support longitudinally-disposed cleats and panels which overlap said cleats, the horizontal flanges of the frame being adapted to support said cleats and the verti-

cal flanges acting as guides to position the cleats, reenforcing side strips fitting closely against and secured to the side members of said frame, and means carried by said frame adapted to press said cleats against said side members.

5. A form of the character described comprising a rectangular frame having inwardly projecting flanges adapted to support longitudinally-disposed cleats and panels which overlap said cleats, longitudinally-disposed plates secured to the under side of said frame and adapted to cooperate with an endless belt, and means carried by said frame whereby it may be advanced intermittently.

6. A form of the character described comprising a rectangular angle-iron frame having inwardly projecting flanges adapted to support longitudinally-disposed cleats and panels which overlap said cleats, and inwardly-projecting U-shaped positioning strips secured to the end portions of said frame and adapted to serve also as handles.

7. A form of the character described comprising a rectangular frame having means for supporting longitudinally-disposed cleats adjacent to the side portions thereof, a cross-bar carried by said frame and having heads at the end portions thereof, and springs secured to said cross-bar in alinement with said heads and extending over and beyond said heads for pressing the cleats against the side portions of the frame.

8. A form of the character described comprising a rectangular angle iron frame having inwardly projecting flanges around the margins thereof adapted to support longi-

tudinally-disposed cleats, a cross-bar mounted on said frame, and springs alined with and projecting beyond the end portions of said cross-bar and adapted to engage the cleats and press them against the side portions of said frame.

9. A form of the character described comprising a rectangular angle-iron frame having inwardly-projecting flanges adapted to support longitudinally-disposed cleats, transversely-disposed bars spaced apart to receive panels therebetween arranged to overlap said cleats, and springs carried by and alined with said bars for pressing said cleats against the side portions of said frame.

10. A form of the character described comprising a rectangular frame having inwardly projecting flanges adapted to support longitudinally-disposed cleats and panels which overlap said cleats, longitudinally-extending plates at the under side of said frame adapted to cooperate with a traveling belt to advance the form, and means at the under side of said frame between said plates whereby it may be advanced intermittently.

11. A form of the character described comprising a rectangular frame having means for supporting longitudinally-disposed cleats and panels which overlap said cleats, means at the under side of said frame adapted to cooperate with an endless belt to advance the frame, and a longitudinally-disposed rack bar at the under side of said frame between said means whereby the frame may be advanced intermittently.

GORDON HOPKINS.