DOOR STRAIGHTENING CLAMP

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2 Claims. (Cl. 144—297)

This invention relates to clamps and more particularly to a door straightening clamp adapted to be used for straightening warped doors.

An object of the invention is to provide a very simple and practical device for performing a very difficult task, and that is straightening warped doors. Numerous attempts have been made to straighten warped doors with some degree of success. Carpenters and cabinet makers have resorted to numerous tricks and practices in endeavors to straighten doors. There are commercially available devices to exert tension on the door, these being practically permanent fixtures, unslightly and highly unsuccessful in most cases.

In contrast to this my invention makes practical the straightening of doors by a very easily used special bracket coordinated with blocks that are placed in different positions depending on the way that the door is warped. The clamp is actually the key to the invention because it is made thin and configured in such a way that one part of the clamp will fit on one side of the door and the other part is capable of passing through the door opening so that a screw may be engaged with the door jamb or with the door stop or some other part of the door casing depending on the needs of a particular straightening job. Even though the clamp is actually the structural device making possible the herein disclosed technique of straightening doors, the invention also entails the concept of using blocks which are properly placed to carry out the principles of the invention in a practical way wherein there is absolutely nothing directly fastened by fastening devices i.e. screws, bolts, etc. to the door or the door casing, jamb, stop, etc.

Although the word "warp" as applied to doors is used herein, it is to be understood that this word is to be interpreted broadly to include bowing, twisting or any other disfiguration of the door such as is ordinarily encountered with wooden doors.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary cross-section showing a part of a door casing, the clamp and one door with the clamp applied thereto.

Figure 2 is a perspective view of the clamp in accordance with the invention.

Figure 3 shows a sectional view taken on the line 3—3 of Figure 2 and on enlarged scale.

Figure 4 illustrates a door which is warped to provide a bow condition.

Figure 5 shows a door warped outwardly at the top and being straightened by the clamp.

Figure 6 is an elevational view showing a door warped in another way and being straightened by using two clamps.

As shown in Figure 1, the bracket is placed between the door 16, in the door opening, and has section 26 contacting one face of the door, while the pad 36 contacts a part of the door casing on the opposite side of the door opening from that occupied by door 16. In using the clamp, it is tightened slightly i.e. finger tight, and is left for a brief period of time, for example a few hours or overnight. For severely warped doors or in cases where successive applications of the clamp are recommended.

In using clamp 18 there are a number of possibilities. Reference is first made to Figure 4. Door casing 10 has typical door 50 mounted on hinges. This door is warped in a direction 90 so that the upper corner thereof bows outwardly. A pair of blocks (or a single block) 52 and 54 are placed on the door stop 14, and the non-warped part of the door is brought against them. Clamp 18 is engaged between the door casing and the warped part of the door and is tightened in place.

Figure 5 shows door 60 in casing 10, and the door 60 is warped rather severely with the upper end thereof twisted outwardly with reference to the lower non-hinged corner thereof. Consequently, block 54, which may be a two-by-four block of wood, is placed at the lower non-hinged corner, and clamp 18 applied at the upper twisted corner.

Figure 6 shows a door warped in two directions. Both the upper and lower corners are bowed outwardly and therefore two clamps 18 are applied at the upper and lower non-hinged corners, and a single block 52 is placed somewhere along the length of the door, resting on the door stop. In the event that the door stop does not appear to be secured strongly enough to withstand the pressure, the block may be used flatways between the door and the door trim. A number of other possibilities will occur to carpenters after examination of my disclosure.

Figure 7 shows door 80 which is quite severely bowed outwardly at the center with the upper and lower non-hinged corners in with reference to the center of the door. Therefore, the blocks 52 and 54 are located at the top and the bottom of the door 80 and bear against the door stop or some other part of the door casing adjacent thereto. Clamp 18 is located at the greatest part of the bow and tightened in place.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous
modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention
to the exact construction and operation shown and de-
scribed, and accordingly, all suitable modifications and
equivalents may be resorted to, falling within the scope
of the invention as claimed.

What is claimed as new is as follows:

1. The method of straightening a warped door while
hinged to a door casing, said door having inner and
outer surfaces and a leading edge portion with the inner
surface being closer to said door casing and the leading
edge being spaced horizontally from said casing, said
method comprising the steps of exerting a reaction force
against said inner surface of the door, exerting a propul-
sive force against a portion of said door casing in a
direction toward the inner surface of said door, and
exerting a second propulsive force against said outer sur-
face of said door in a direction toward said door casing
and at a place longitudinally spaced from the exertion
of the reaction force.

2. In a door assembly including a door casing and a
warped door having inner and outer surfaces and a
leading edge, said door being hingedly connected to said
casing, means for straightening the warped door com-
prising a manually attachable and detachable clamping
device securely engaging said door casing and said door,
said device including an intermediate section and a pair
of end sections, said intermediate section being in the
form of a linearly straight shank of a one piece construc-
tion, each end section being in the form of a bearing
arm, one of said arms extending laterally from one side
of said shank at substantially a right angle and having a
threaded aperture therein, a screw shaft threadedly
mounted in said aperture, a ball joint on one end of
said screw shaft, a padded bearing head swivelly secured
to said ball joint, said bearing head clamping and ad-
justably engaging a portion of one side of said door
casing, the other of said bearing arms extending laterally
from the opposite side of said shank and forming with
said shank an acute angle, a pad on said last-named arm,
said last-named arm bearing against a selected portion
of the outer surface of said door adjacent the leading edge
thereof and exerting pressure against said portion in a
direction toward said casing, and a block engaging a
portion of said door casing and a portion of said door
adjacent the leading edge of the latter, said shank ex-
tending from said one side of said casing through the
door opening to a point beyond the other side of the
door casing, said block being disposed at a point longi-
tudinally spaced from said clamping device and forming
a reaction against which the pressure exerted by the last-
named arm of the clamping device operates in returning
the door to its original position.

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