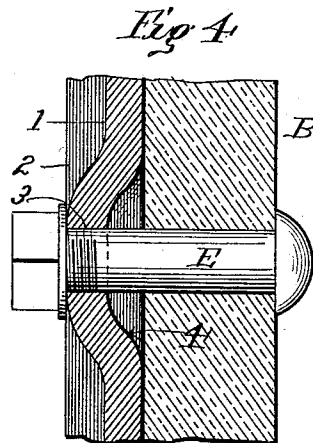
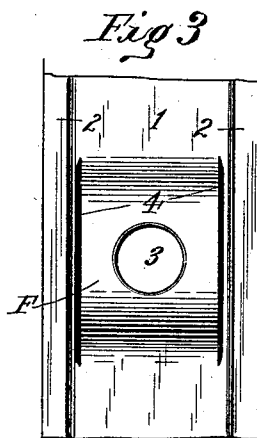
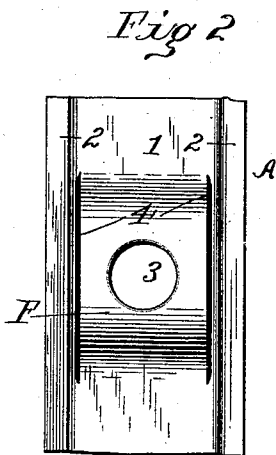
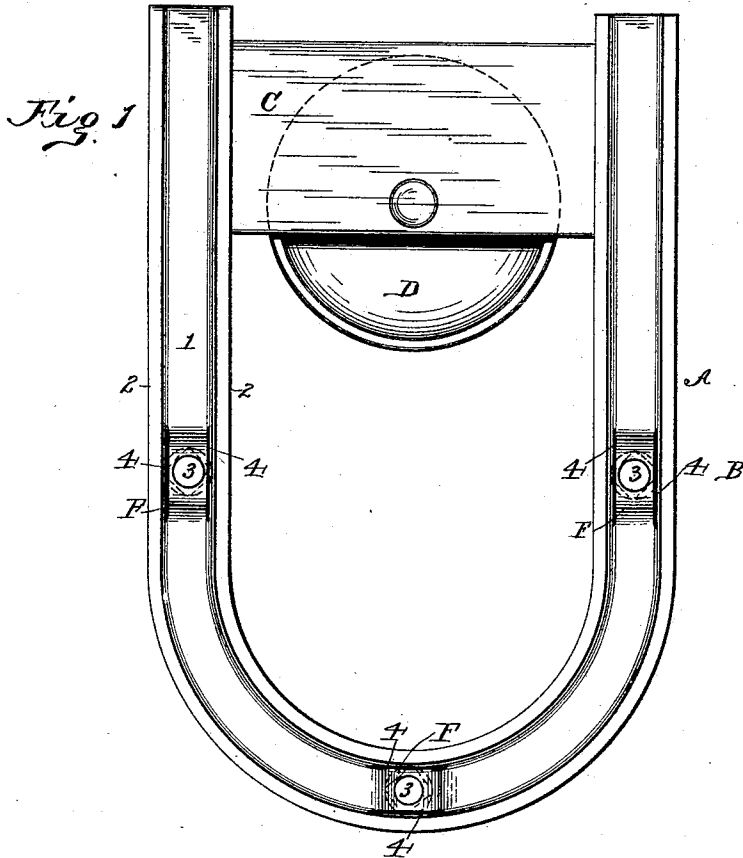


(No Model.)

J. H. LAWRENCE.  
DOOR HANGER.

No. 496,127.

Patented Apr. 25, 1893.



Witnesses  
C. B. Bundeine  
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# UNITED STATES PATENT OFFICE.

JOHN H. LAWRENCE, OF STERLING, ILLINOIS, ASSIGNOR OF ONE-HALF TO  
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## DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 496,127, dated April 25, 1893.

Application filed January 13, 1893. Serial No. 458,214. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. LAWRENCE, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Barn-Door Hangers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings; and to letters or figures of reference marked thereon, which form a part of this specification.

My invention pertains to changes in the conformation of that portion of the hanger which is attached to the door, whereby the use of channel iron is rendered feasible and satisfactory. Channel iron has been preferred for the above use from the fact that it is in such form as to furnish the greatest resisting power, in two directions, in proportion to the amount of material involved.

In barn door hangers, the strain is not only in the line of the movement of the door, but from the fact that the door is suspended from its upper end, all pressure on the lower portion of the door, in a direction from the barn, has a leverage across the vertical portion of the hangers. The sides and back of channel iron mutually strengthen and brace each other, against lateral strain in every direction, in a greater degree than will the same amount of material in any other practical form. Therefore, channel iron would be universally used for the above named purpose were it not for the following objection: The door is required to slide along the side of the barn when opening. For which reason, no obstruction can be suffered to exist on the inner face of the door. This necessitates placing the hanger plate on the outside of the door, and also the threaded ends of the bolt which attach said plate to the door. The heads of the bolts are sunken into the inner face of the door, and the threaded ends of the bolts passed through the door and hanger plate. When channel iron is used for such hanger plate, the bolt hole is necessarily in the bottom of the channel, and the nuts cannot be tightened upon the bolts because the nuts cannot be rotated

between the walls or sides of said channel, on account of the narrowness and depth of the latter. The necessary tightening of the bolts has been sought to be accomplished by placing washers across the walls or ridges of the iron. These washers were liable to be lost in handling, and extending, as they did, over the edge of the bar, made an unfinished and bad appearance and were always unsatisfactory. The presence of so many washers gave the device a bungling appearance, and the use of washers did not meet with favor. I propose to avoid all of the above objections, and secure the satisfactory use of channel iron in a door hanger, by simply forging up the bottom of the channel around the bolt hole to bring the margin of said hole as high as, or slightly higher, than the walls of such channel. This I accomplish by the construction shown in the accompanying drawings, in which

Figure 1 is a view of a portion of the hanger embodying my invention. Fig. 2 is a section of the hanger, showing the under side of the same, after the nut seat has been forged up, as aforesaid. Fig. 3 is the same from the opposite side of the hanger iron. Fig. 4 is a longitudinal section through one of the bolt seats of the hanger.

As my invention is applicable to different types of door hangers, and to all cases in which channel iron is used, I do not deem it essential to show or describe the entire hanger, or those parts in which my invention is not involved.

Referring to Fig. 1, A represents the portion of the hanger which is attached to the outside of the door B, and the part A consists of a piece of angle iron, or steel, bent laterally into a downwardly extending loop, while the upper open ends thereof are arranged in the usual mode to carry the cross-bar C, supported in different modes, upon the carrying rollers D. The angle iron, of which the part A is formed, consists in the depressed flat center 1, and the outwardly extending flanges 2—2, formed integral with the part 1 and perpendicular thereto.

The bolt holes 3 for the attaching bolts E are necessarily formed in the part 1, and as the threaded end of the bolt E projects

through the holes 3 from the opposite side of the door, the narrowness of the channel 1 between the flanges 2—2, in the absence of my improvement, renders it impracticable to turn the nuts of said bolts against the outer face of the part 1. Therefore, by means of a die, and at one operation, I sever the sides of the part 1, opposite the bolt holes 3, and for a sufficient distance each way, from said hole, to permit the throwing up of said severed portion of the part 1 to an altitude equal to that of the sides 2—2, and by pressure against the flat or back side of the part 1, I force up through the aforesaid channel the boss F, which consists of a short portion of the part 1 containing the bolt hole 3 disconnected laterally from the flanges 2—2 by gashes 4—4, and forming an apex around the bolt hole 3 through which the bolt E projects, and which forms a seat for the nut G, and as the apex of the boss F is as high as the sides 2—2, no difficulty is experienced in turning the bolt nuts G on to the boss F to any degree of tightness, which seats the hanger against the door with the desired rigidity. The throwing up of the boss F gives the parts thereof, at either side of the bolt hole, a brace-like formation, which enables the boss to stand the pressure of the bolt nut.

30 In the process just described, the boss F is

thrown up while the metal is cold. Should such bosses be formed when the metal is heated, the fiber could be stretched sufficiently without the gashes 4. Neither is the precise conformation of the boss F, shown in the drawings, essential. Any formation which will afford a seat for the bolt nut on the part 1, and is sufficiently raised to clear the flanges 2—2 in the rotation of said nut, will be advantageous. The advantages of my invention consist in the fact that it permits the use of the most satisfactory form of iron or steel for door hangers; that, by raising the bolt seats, as aforesaid, the bolt nuts are applied directly to the outer face of the part 1, and by dispensing with the washers, the completed job has a neat and finished appearance.

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

A barn door hanger bar A constructed of angle iron, or steel, and provided with raised bolt-seats F forged from and integral with said iron; substantially as shown, and for the purpose described.

JOHN H. LAWRENCE.

Witnesses:

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