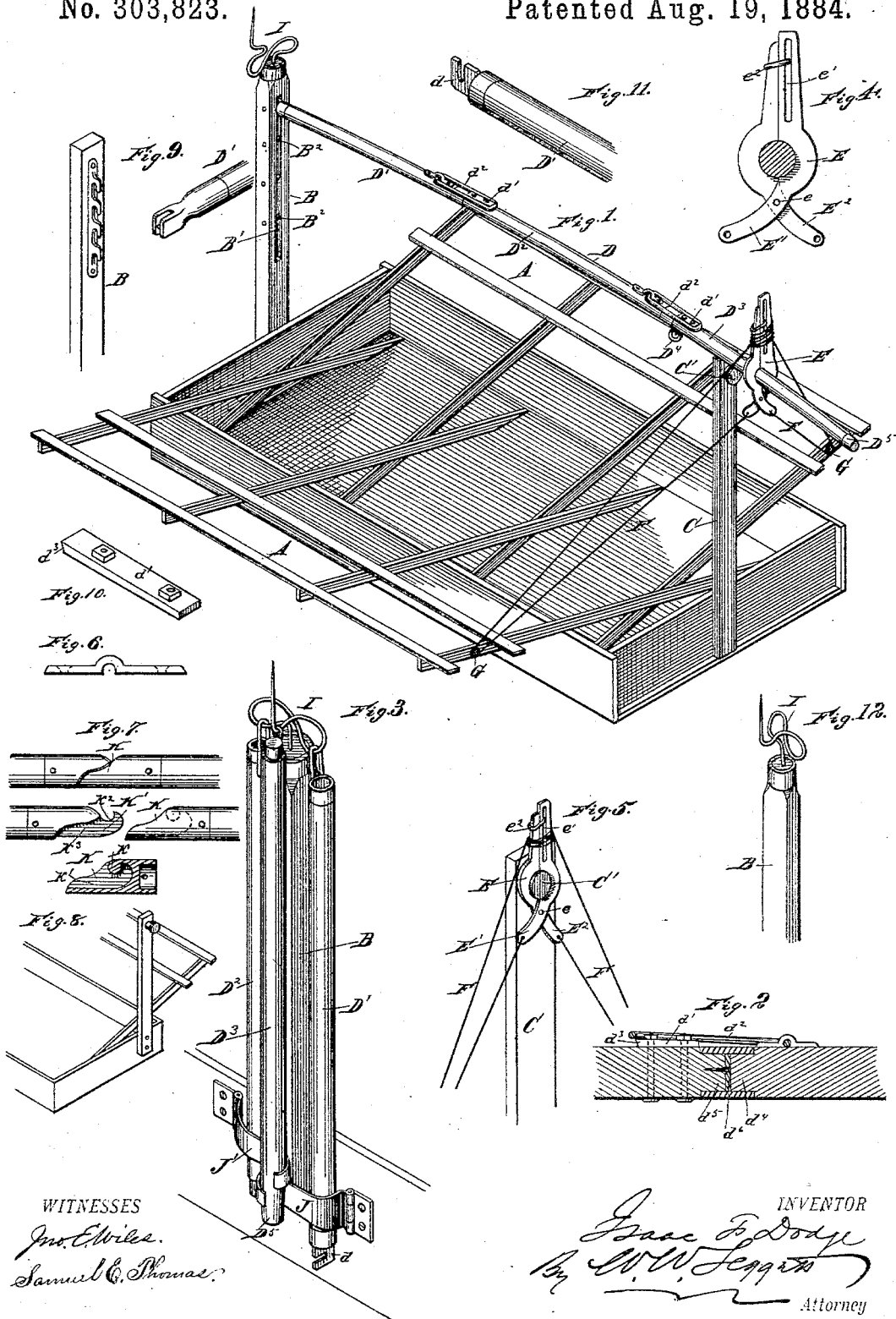


(No Model.)

I. F. DODGE.
HAY RACK.

No. 303,823.

Patented Aug. 19, 1884.



UNITED STATES PATENT OFFICE.

ISAAC F. DODGE, OF GOWEN, MICHIGAN.

HAY-RACK.

SPECIFICATION forming part of Letters Patent No. 303,823, dated August 19, 1884.

Application filed May 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, ISAAC F. DODGE, of Gowen, in the county of Montcalm, State of Michigan, have invented a new and useful Improvement in Hay-Racks; and I 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 pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of the combinations of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

My invention relates to hay-racks, and is more particularly designed as an improvement upon the device patented to Charles A. Peasley and myself April 29, 1884, No. 297,842.

The improvement consists, essentially, first, in means for preventing the rotation of the pole and consequent unhooking of its forward end; second, in providing a coupling for the sections of the binder-pole which shall prevent the tendency to lateral deflection or displacement; third, in providing means for clamping and holding the separate sections of the binder-pole to the forward upright when not in use; fourth, in providing a clip and ring close to the forward extremity of the rear section of the pole for suspending that section when not in use; fifth, in tapering the rear end of said section, so as to serve, in connection with hinge-clamps, for locking all three of the sections to the forward upright; sixth, in providing a support on the rear upright for receiving and holding the pole-clamp when not in use; seventh, in an improved pole-clamp in which the strain of the ropes is such as to relieve the clamp-pivot from undue strain; eighth, in other novel features and combinations.

In the drawings, Figure 1 is a general perspective view of a hay-rack embodying my improvements. Fig. 2 is a separate view of a sectional pole. Fig. 3 illustrates how the separate sections are suspended upon the forward upright and the hinge mechanism for holding them in place. Fig. 4 is a separate view of the clamp; Fig. 5, a separate view of the rear upright, showing how the clamp is supported

when not in use. Fig. 6 is a separate view of the clips for holding the links in place. Fig. 7 presents a variation in the mechanism for joining the sections of the pole; Fig. 8, a view showing the rear upright at one side of the rack, so as to leave a sectional portion at the rear of the rack free for the employment of a hay-loader; Fig. 9, a variation, in which the forward upright is provided with a hooked bar, and the end of the pole provided with a loop to engage it; Fig. 10, a separate view of the hook-block; Fig. 11, a separate view of my non-rotating hook; Fig. 12, a separate view of the hook on the forward upright.

In carrying out my invention, A represents any ordinary hay-rack. B is the front upright. C is the rear upright. D is a sectional binding-pole. E is a clamp for the rear end of the binding-pole; F, ropes, and G pulleys by which the end of the pole is drawn down tight upon the hay; C', a support for the clamp E when not in use. The forward upright is provided with a slot, B', and cross-bars B², to engage the hook *d* at the forward end of the binding-pole. This hook I make deep and narrow, so as to present a broad, flat surface at the sides within the slot B'. This prevents any tendency of the pole to revolve about its own axis, which motion, with a hook otherwise constructed, is apt to disengage the hook from its cross-bar B². The pole may be made in a single length, having this peculiar hook at its forward end; but I prefer to make it in two or more sections, D' D² D³, united by suitable joints.

It will be observed that the jointing mechanism shown in my former patent, above referred to, are not such as to guard against a swaying or lateral motion of one section upon the other, thereby deflecting the pole at the joint. I therefore propose to provide a joint which shall afford a brace against such lateral displacement, and to that end *d'* represents an elongated block, which projects up into the link *d*², and is undercut, to form a hook at its end *d'* to engage the said link. This block prevents any lateral motion of the link and so holds the two sections firmly against lateral displacement. It is apparent, however, that by continued use the dowel *d'* and the opposite end, *d*³, of the adjacent section may become upset, shrunken, or battered so that the link

will not fit closely into the hook at the end of the block and so be liable to displacement. To remedy such a difficulty, I propose to employ washers of leather or other material, d^6 , which may be fastened in place by a tack or in any other suitable way.

D^4 is a ring beneath the forward end of the section D^3 . This section is preferably tapered at D^3 .

I is a hook at the top of the front upright for suspending the several sections of the pole when not in use. This particular one is designed for a pole of three sections, so as to suspend one of the sections at each side of the upright, while the section D^3 is suspended in front of the upright, as shown in Fig. 3. The hook in this particular case is made of a single piece, bent first to one side, then to the other side, and then forward to the front with an upright end. It might of course be a single upright with three hooks projecting from it, one at each side and one to the front.

J and J' represent two hinges, bent substantially as shown, so as to hold the two sections $D^1 D^2$ in place, while the third section, D^3 , projects between the curved ends of the hinges and locks them firmly in place, as shown in Fig. 3.

The clamp E is provided with two wings or jaws, E^1 and E^2 , pivoted at e . At the top is a slot and link, $e^1 e^2$, whereby the jaws are locked together upon the pole, and the jaws cross each other at the base, so that the ropes F tend to draw the jaws against the pole and so relieve the pivot e of much of the strain that would otherwise be thrown upon it when in use. Of course it is not absolutely essential that the forward upright should be slotted and provided with cross-bars, for, as shown in Fig. 9, the upright may be provided with a hooked bar, and loop be provided to engage it upon the end of the pole. In this latter case the hook on the bar should be made flat and deep so as to prevent rotation of the binding-pole, as above described. So, also, it is not absolutely essential that the sections should be united by links, as illustrated in Figs. 1 and 2; but I would have it understood that my invention contemplates any kind of a joint which will afford protection against lateral displacement. Thus, as shown in Fig. 7, K may represent one part and K' the engaging part of such a joint, the part K being provided with a cross-bar, k , and wings k^1 , while the part K' is provided with a hook, k^2 , and the shank k^3 , adapted to enter between the wings k^1 and so prevent lateral motion. These parts might be made of malleable iron, as also the hooked bar and loop shown in Fig. 9. The rear upright, C, has upon it a support, C', for holding the clamp E when the same is not in use. The object of this upright is as follows: When a wagon has been loaded with hay, &c., the person on top of the load can reach forward and remove from the top of the forward upright the locking section B^3 of the pole. This releases the hinges at the base, and the pressure of the hay

against the sections $D^1 D^2$ will throw the hinges open, so that he can take the sections off from the hook at the top, engage the section D^1 with the forward upright, unite the adjacent sections, and then reach to the top of the rear upright, C, take the clamp from its support and engage the same with the end of the binding-pole. He can then unwrap the free ends of the rope and draw the binding-pole down firmly to its place without the assistance of anybody upon the ground and without himself leaving the load. It is apparent, therefore, that this rear standard, C, may be located centrally, as shown in Fig. 1, or at one side, as shown in Fig. 8, the only object being to hold the clamp up within reach of the person on the top of the load.

The object in locating the upright at the side of the rack is to have it out of the way when a hay-loader is employed at the end of the wagon. It is also apparent that the rear upright may be dispensed with entirely, in which case the clamp E would have to be lifted up by some person standing upon the ground, or hoist it with a rope, which might be passed up to the party on the load.

I propose to make the forward upright and the pole with the clamp as an attachment to any hay-rack, and either with or without the rear supporting-upright, C. When the rear upright is dispensed with, the support C' may be fastened at the end of the hay-rack for supporting the clamp when not in use.

What I claim is—

1. As an attachment to a hay-rack, a forward upright and a binding-pole, and a hook-and-bar engagement whereby they may be connected one with the other, the engaging parts presenting broad and flat opposing surfaces whereby a rotation of the binding-pole is prevented, substantially as described.

2. The combination, with the forward upright provided with a slot and one or more cross-bars, of a binding-pole provided with a hook at its extremity, adapted to enter the slot and engage a cross-bar, said hook being deep and flat to prevent its rotation within the slot, substantially as described.

3. The binding-pole made in two or more sections, mechanism for uniting the same, and means for staying or bracing the two adjacent sections against lateral flexure at the joints, substantially as described.

4. A binding-pole for a hay-rack, made in two or more sections, any two of said sections united by a link upon one section and an elongated hook-plate upon the other section, said hook-plate adapted to enter the link and afford a stay or brace against lateral flexure at the joint, substantially as described.

5. The pole-clamp E, consisting of the jaws E^1 and E^2 , crossing each other beneath the pole, and provided with means for engaging the ropes at their lower extremities, substantially as described.

6. The clamp-support consisting of rear upright, C, with projection or support C', adapt-

ed to engage the clamp when not in use, substantially as described.

5 7. The combination, with the forward upright, of a hook or hooks for supporting the upper ends of the pole-sections, and means for binding the lower ends of the sections to the upright, substantially as described.

10 8. The combination, with the forward upright, of the hinge-clamps, substantially as described.

9. A jointing device for two adjacent sections of a binding-pole, consisting of a part for one section, provided with a stationary loop

with longitudinal embracing-faces, and a part for the other section, provided with a stationary hook adapted to engage the cross-bar of said loop and occupy the spaces between said longitudinal faces of the loop, substantially as described. 15

In testimony whereof I sign this specification in the presence of two witnesses. 20

ISAAC F. DODGE.

Witnesses:

WILLIAM N. RELYEA,
E. H. JONES.