

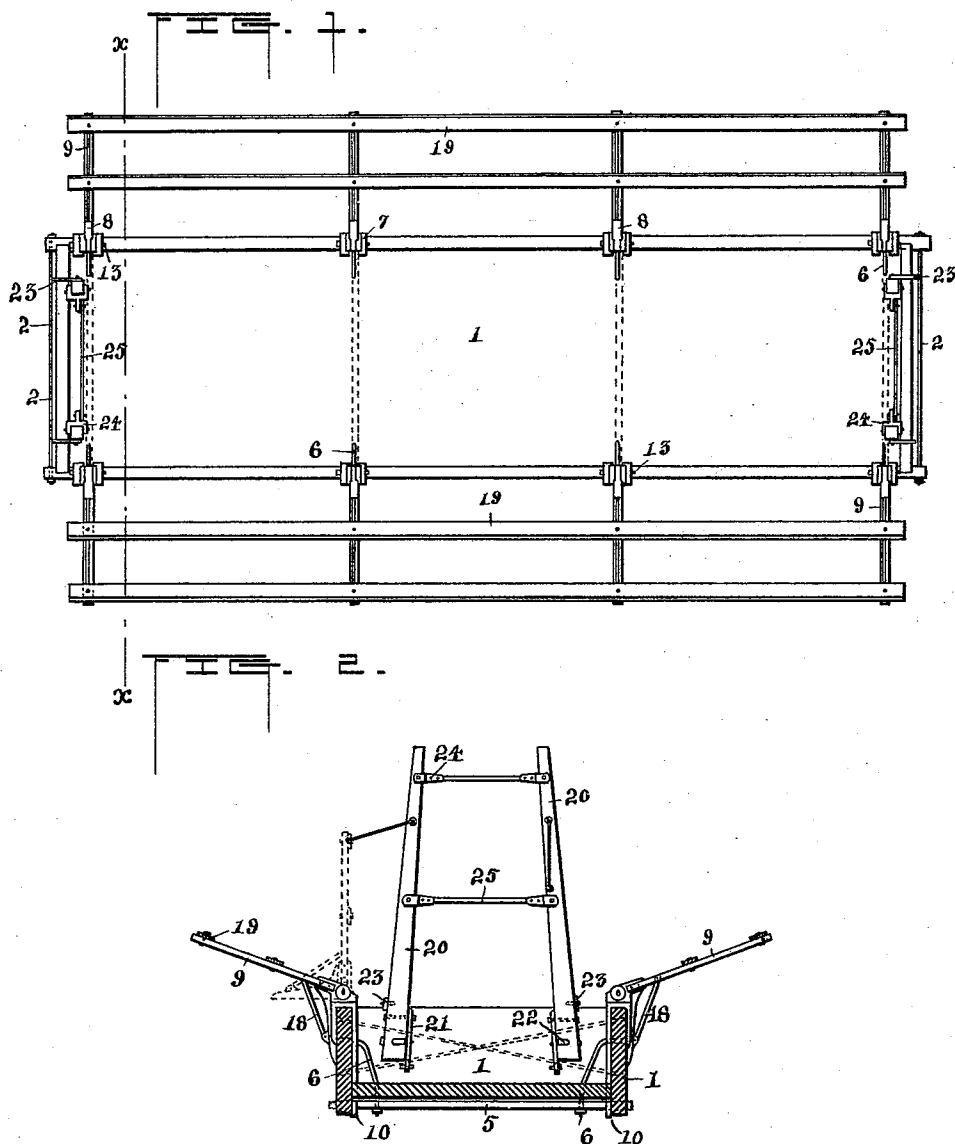
(No Model.)

2 Sheets—Sheet 1.

E. WHITE.
FOLDING HAY RACK.

No. 461,227.

Patented Oct. 13, 1891.



Witnesses
Arch M. Catlin
Alfred Weaver

Inventor
Eli White
by
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Attorney

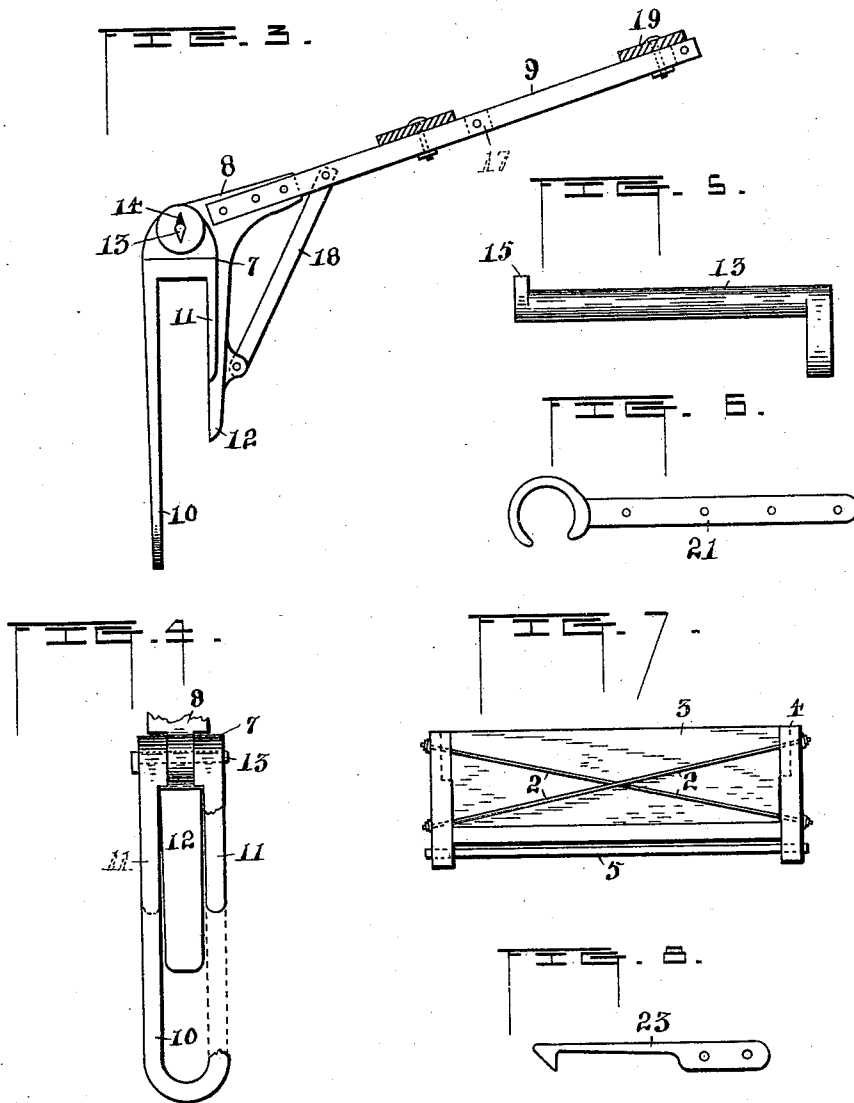
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UNITED STATES PATENT OFFICE.

ELI WHITE, OF SODUS, NEW YORK.

FOLDING HAY-RACK.

SPECIFICATION forming part of Letters Patent No. 461,227, dated October 13, 1891.

Application filed January 28, 1891. Serial No. 379,367. (No model.)

To all whom it may concern:

Be it known that I, ELI WHITE, a resident of Sodus, in the county of Wayne and State of New York, have invented certain new and
5 useful Improvements in Folding Hay-Racks; 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 pertains to make and use the
10 same.

The invention relates to a wagon-rack composed of separable and detachable parts or sections which can easily be applied to an ordinary farm-wagon or removed therefrom by
15 a single person, and which can either be folded together in and upon the wagon-box or, being detached in separate parts, can be stored in small compass; and the invention consists in the construction hereinafter described, and
20 pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan of the rack applied to a wagon-box. Fig. 2 is a section of the same on line *x x* of Fig. 1. Fig. 3 is a similar but partial section,
25 on an enlarged scale, of one side of the rack. Fig. 4 is an elevation of the same, parts being broken away. Figs. 5, 6, 7, and 8 are elevations, respectively, of a bolt, a hook, an end of a wagon-box, and a spring-hook.

30 Numeral 1 denotes a wagon-box, the sides of which extend below the floor, and which are held in proper relation to each other in any usual way. Bolts 2, however, can conveniently be used at each end to prevent any possible
35 spreading apart of said sides.

3 indicates one of the two end-boards. These have tenons 4 on their ends at their upper side, which fit in mortises in the sides of the box, as indicated by dotted lines in
40 Fig. 7. The lower part of the end-board abuts against the side-boards immediately below the mortises which receive the said tenons. Such end-boards, together with the bolts arranged to cross each other and secured by
45 nuts to the sides of the box, furnish suitable stays and bands for the box upon which the rack is placed. The sides of the box are further tied together by bolts 5, which preferably are tubular and have screw-threaded ends,
50 for which threaded openings are provided in the box sides and preferably on a plane below its floor, as shown in Figs. 2 and 7. These

rods are each applied by first screwing one end through one of said openings and then forcing the unthreaded part of the rod through
55 until the said end reaches the opening in the opposite side, whereupon the bolt is screwed into the same, a similar threaded portion at the rear end of the rod simultaneously screwing into the opening first named. The threaded
60 parts of the rods are preferably made larger in diameter than the unthreaded portion. The box may be further strengthened by braces 6, which are secured to bolts 5, and pass upward and out through the sides of the
65 box where they are secured.

The rack is composed of two series of clamps 7, each carrying a pivoted elbow 8, said elbows being connected to bars 9, riveted thereto, and the clamps being adapted to embrace
70 the sides of the box.

10 indicates a U-shaped member of a clamp, and 11 11 two members or legs, each rigidly connected to the part 10 and separated from it by a space equal to the thickness of the
75 side of the box, as indicated in Figs. 2 and 3. They are also separated from each other by a space wider than the arm 12 of the elbow 8, so as to permit the arm to bear directly upon the side of the box. These so-called
80 "clamps" are preferably castings, as also are the L-shaped pieces or elbows 8, which are pivoted to the clamps and between the lateral members thereof by means of a key or bolt 13. The openings through the clamp
85 and elbows are in the main circular, but are each provided on one side with a slot 14 for the passage of the projection 15 of the bolt when it is inserted or removed lengthwise. The slots 14 in the openings of the clamp and
90 in the L-shaped casting or elbow are so arranged that they will register when the short or horizontal member of the elbow is in line with the legs of the clamp. To the upper member of the elbow are secured by bolts or
95 otherwise parallel arms 9, between which are bolted spacing-blocks 17. A brace 18 is at one end fastened between these bars and at the other to the lower part of elbow 8. Bars running lengthwise of the rack are indicated
100 by 19. These are bolted upon the double arms 9, the bolts passing between the arms being secured by nuts.

The construction and operation of the side

sections of the rack can be understood in connection with the foregoing description. The clamps 7, of which there are eight in the present instance, are first placed upon the sides 5 of the box and secured thereon by passing the bolts 5 through the said sides, as before described, (see Fig. 1 at 10,) and into the bottom of the L-shaped part of the clamp, whereby the latter are held against either upward or 10 sidewise movement. The clamps having been suitably placed and secured, a section or frame is connected therewith on each side of the box. Each of these frames consists of elbows 8, equal in number to the clamps upon 15 one side of the box, and of corresponding arms connected by cross-bars, as described. In applying this frame it is held in such relation to the clamps that the elbows enter between the side members of said clamps, so that the 20 openings and slots 14 in said clamps and elbows register, whereupon bolts 13 are inserted, the projections 15 at such times being able to pass through said slots. The side sections can thereupon be turned to the position 25 indicated in Figs. 1 and 2 (full lines) and in Fig. 3. In this position the lower member 12 of each elbow bears against the outside of the wagon-box. The bolts are weighted so as to hold their projections in position on the upper 30 side and normally aside from the plane of the slots.

The end sections of the rack are each composed of two standards 20, provided at their bottom with hooks 21, adapted to engage staples 35 secured on the inside of the end-boards. Preferably one of the bolts used to secure a hook 21 to a standard passes through a U-shaped iron 22, which embraces the standard on three sides to prevent it from splitting. 40 23 is a spring-hook for holding the standard against the end-board. 24 are U-shaped irons similar to irons 22, except that they are provided with an extension whereby two oppositely-placed irons may be connected together 45 by means of a bar 25. The hooks 21 are held in secure engagement with the staples by the spring-hook 23, but not so as to prevent their easy disengagement when desired.

50 The adjustment indicated in Fig. 1 and in full lines in Fig. 2 is suitable for transporting hay, straw, and the like; but if desired the side sections may be turned up, as indicated by dotted lines in said Fig. 2. This 55 latter arrangement will be found suitable for the transportation of small live stock and many other articles.

The clamps, elbows, and some of the other minor parts are preferably made of cast 60 malleable iron, the arms 16 and various connecting parts of steel, and the longitudinal bars and the standards of wood; but the invention is not confined to particular materials, nor does the gist of my invention consist 65 in particulars which may be easily varied by mechanical skill without departing from the substantial principles of construction and

operation. It is deemed of special importance that the rack be made in separate sections, which can be easily applied to a wagon-box or removed therefrom by one person, and 70 that it does not obstruct materially the interior of the box, and also that it has the capacity to be folded down in the box. Thus each pair of standards, when unhooked from 75 the side sections and from the box end, can be turned down upon the bottom of the box and the side sections can be turned down into the box, one then lying upon the other, the whole, together with the box, being thereby 80 placed in comparatively compact form. The side bars are made of such length as to permit being folded down into the box. Racks have heretofore been adapted to be 85 folded down upon the top of the box; but such arrangement is not so well adapted to provide for the use of the wagon-box for various purposes when the rack is folded.

It is not regarded as essential that the U-shaped part of the clamps extend below the 90 floor of the box, nor that rods 5 are thus located, nor is the precise form of the clamp or elbow, nor the duplex form of bars, nor the particular braces essential to the general advantages of my improvement, though the 95 best forms and constructions known to me are those shown and described.

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

1. In a wagon-rack, the side sections hinged 100 to clamps, said clamps resting on the side-boards of the box and embracing their exterior and having members extending down in contact with and inside the box sides through its bottom, and means for fastening 105 said members below the box, whereby the tendency of the load to spread the box laterally is resisted, substantially as set forth.

2. In a wagon-rack, the side sections hinged 110 to clamps, said clamps resting on the side-boards of the box and embracing their exterior and having members extending down in contact with and inside the box sides through its bottom, and means for fastening 115 said members below the box, whereby the tendency of the load to spread the box laterally is resisted, said side sections being made shorter than the box, substantially as set forth.

3. In a wagon-rack, oppositely-placed 120 clamps fitting the sides of the wagon-box and having a U-shaped member extending below the bottom of the box, and a bolt passing through the sides of the box and within the U-shaped members of the clamp, whereby 125 the box is bound together and the clamps are secured against vertical and sidewise movement on the same, substantially as set forth.

4. In a wagon-rack, oppositely-placed 130 clamps fitting the sides of the wagon-box and having a U-shaped member extending below the bottom of the box, and a bolt passing through the sides of the box and within the U-shaped members of the clamp, and braces

6, secured to said bolt and to the sides of the box, whereby the box is bound together and the clamps are secured against vertical and sidewise movement on the same, substantially
5 as set forth.

5. For use on a wagon-box rack, the clamp adapted to fit the box side, having its inner member extended down and secured below the box bottom and having its outer member
10 composed of two parts 11, combined with an elbow pivoted between the upper ends of said

parts and having an arm 12 between them, both the clamp and the elbow being adapted to bear on the outside of the box, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ELI WHITE.

Witnesses:

BENJ. R. CATLIN,
ARCH. M. CATLIN.

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