

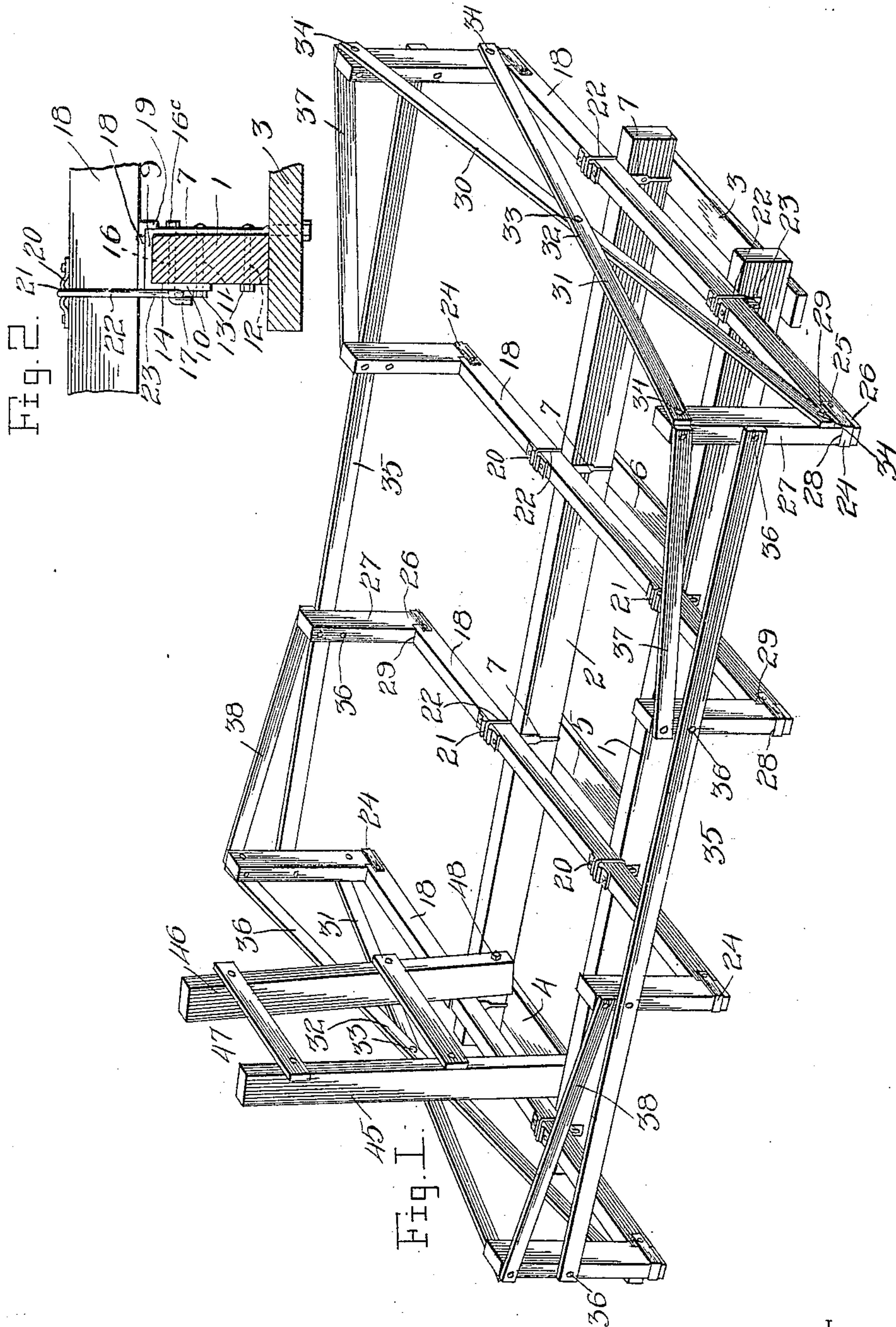
No. 817,626.

PATENTED APR. 10, 1906.

A. E. CRANSTON.  
HAY RACK.

APPLICATION FILED MAY 10, 1905.

2 SHEETS—SHEET 1.



WITNESSES:  
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INVENTOR.  
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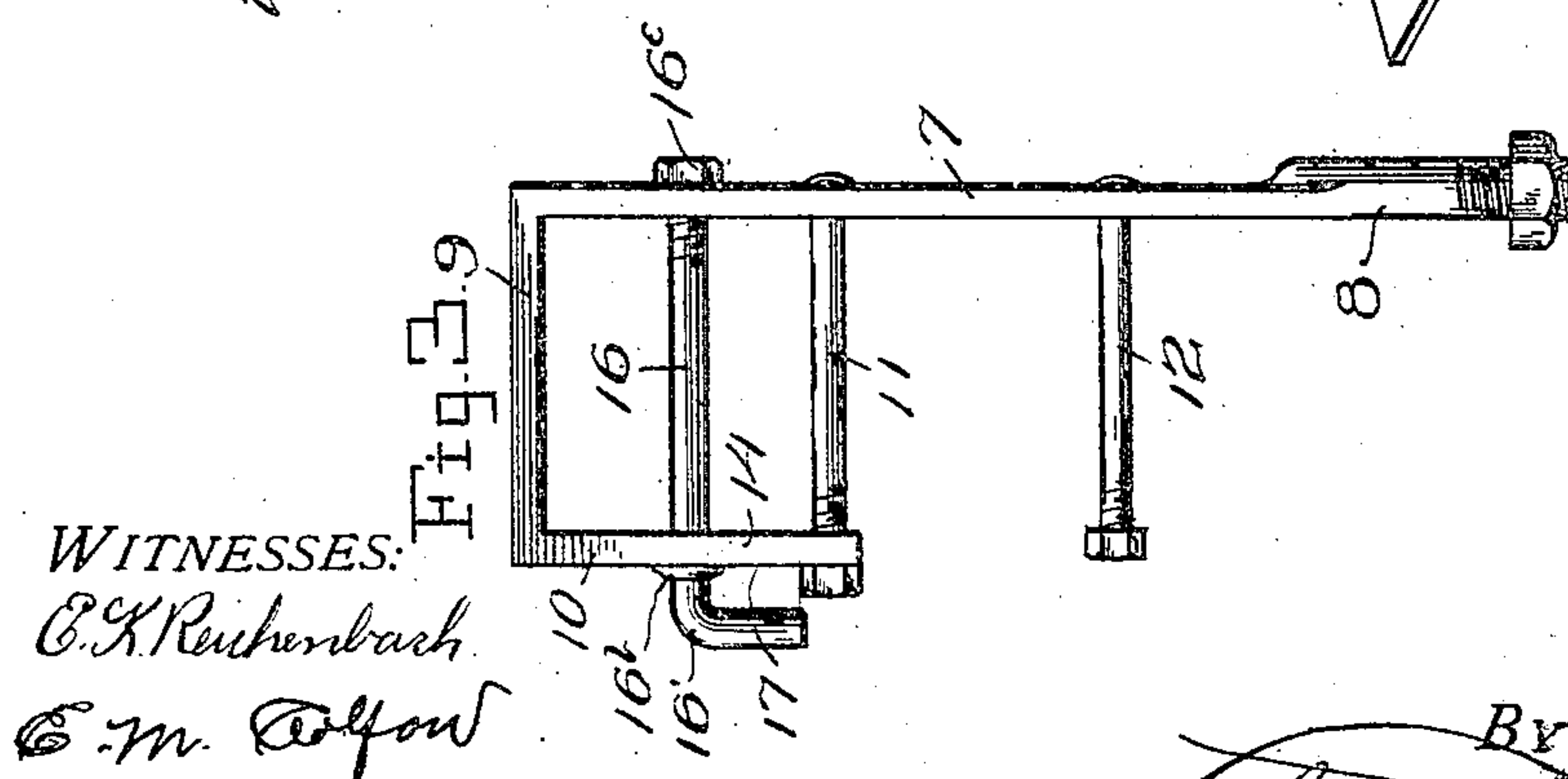
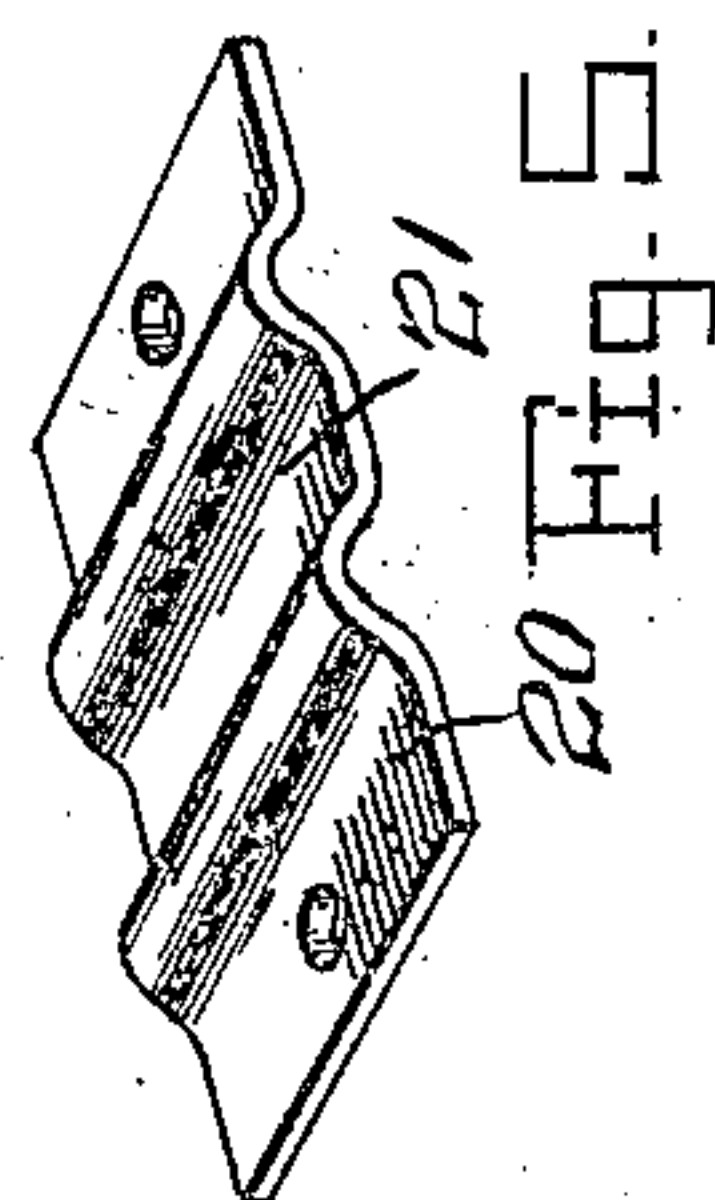
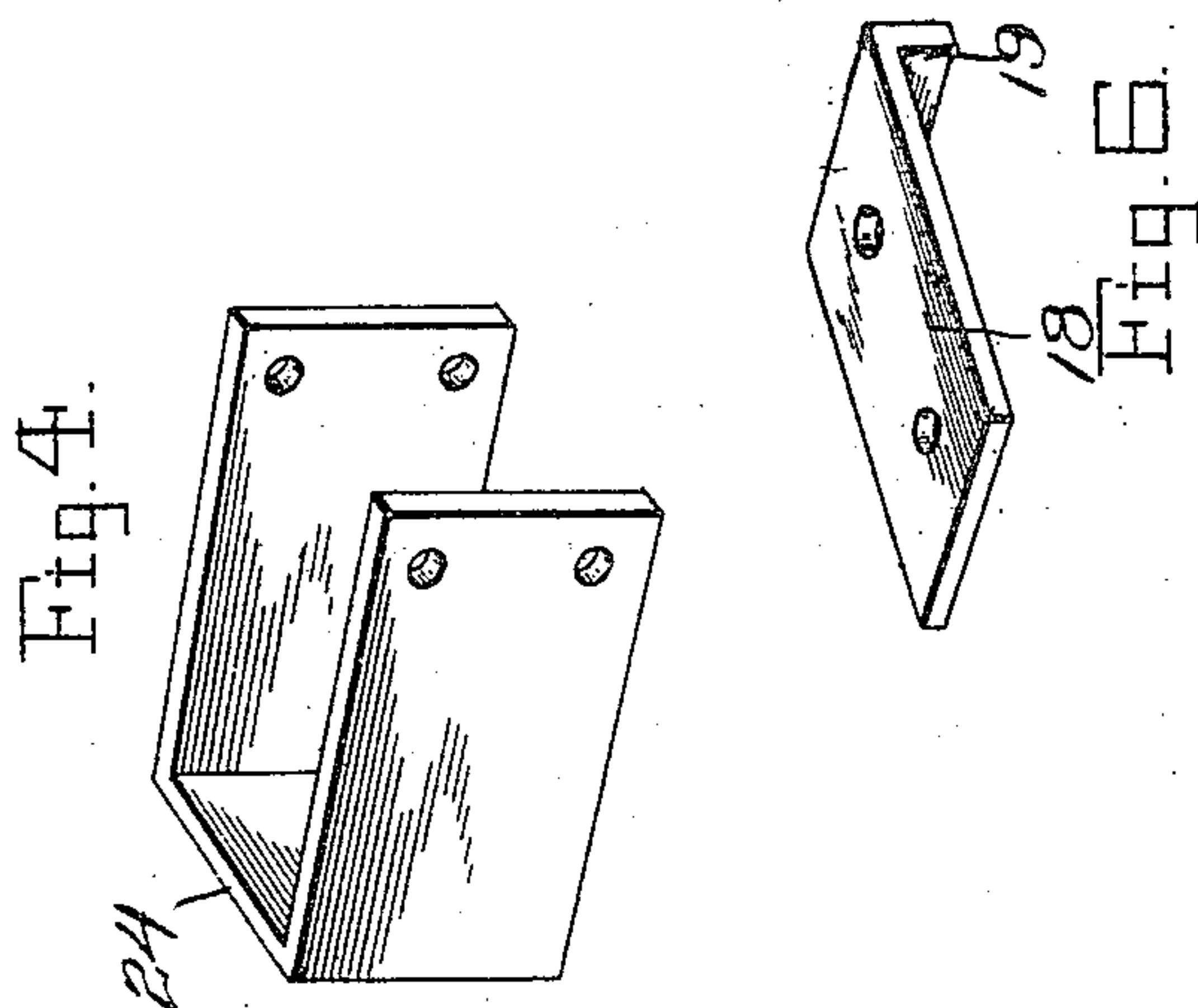
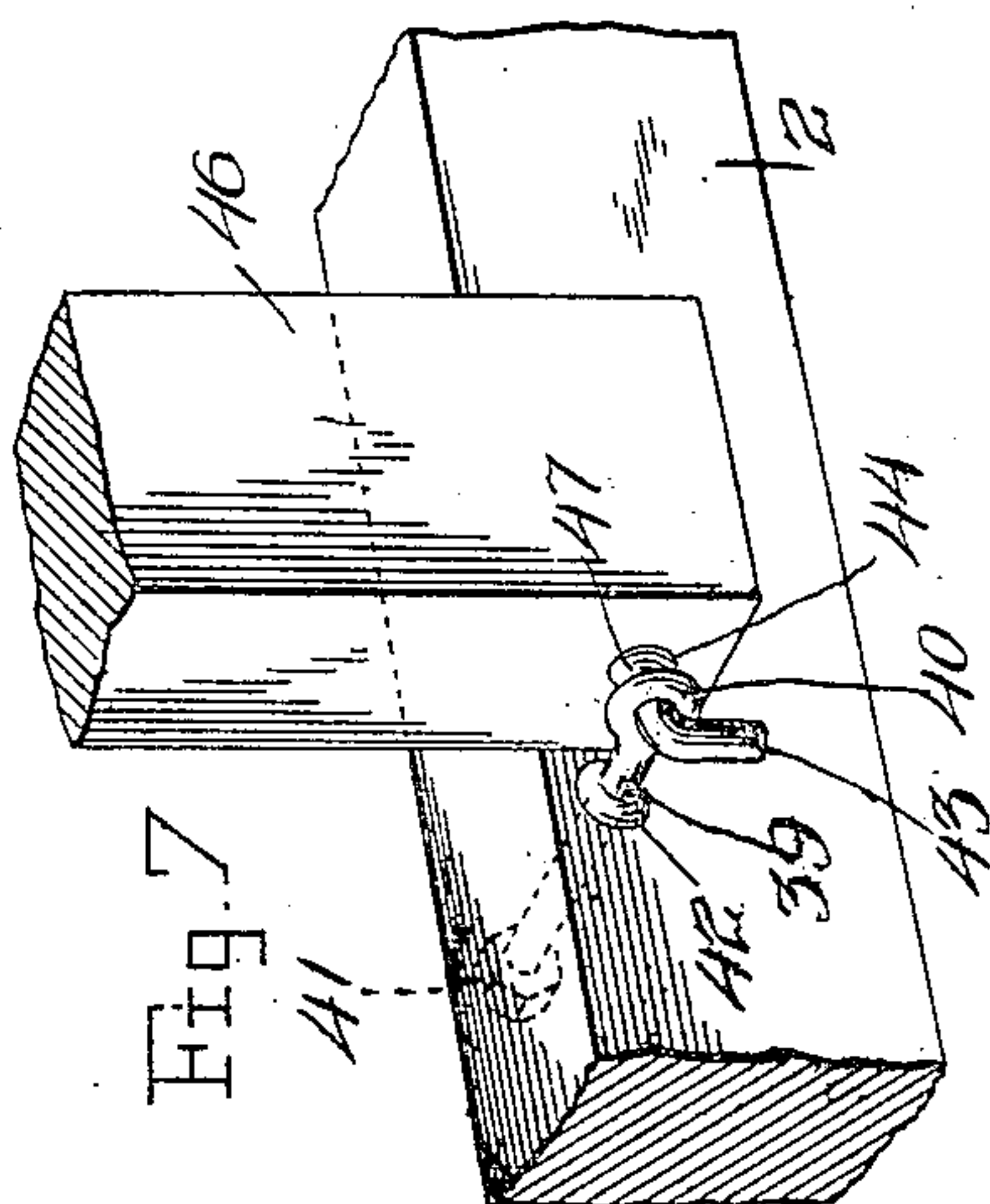
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

ALBERT E. CRANSTON, OF POLLOCK, SOUTH DAKOTA.

## HAY-RACK.

No. 817,626.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed May 10, 1905. Serial No. 259,764.

*To all whom it may concern:*

Be it known that I, ALBERT E. CRANSTON, a citizen of the United States, residing at Pollock, in the county of Campbell, State of South Dakota, have invented certain new and useful Improvements in 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 appertains to make and use the same.

This invention relates to hay-racks.

One object of the invention is to provide a hay-rack for vehicles of such character that the parts embodied therein may be readily assembled for disposition upon a wagon-body and as easily separated for removal from the latter.

Another object of the invention resides in the provision of a construction and arrangement wherein the rack parts of the device may be removed therefrom with associating elements to permit of the ready insertion and employment of an ordinary wagon-body instead of the rack.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the drawings, Figure 1 is a perspective view of an improved hay-rack embodying my invention, one of the ladders being not shown. Fig. 2 is a detail elevation of a part of a beam and a sill illustrating the loop-and-lock engagement therebetween. Fig. 3 is an elevation of an angle-plate and its hook member. Fig. 4 is a detail view of the straps engaging the beams for the support of uprights. Fig. 5 is a detail view of the plate secured upon the upper faces of the beams and grooved for the reception of the upper ends of the loops, which latter engage the aforesaid hooks. Fig. 6 is a detail view of the bent plate fitted between the lower surfaces of the beams and resting upon the tops of the iron straps associated with the sills. Fig. 7 is a detail view of a portion of a sill and the lower portion of the uprights of the ladder, illus-

trating the connection of the ladder with the sills.

Referring now more particularly to the accompanying drawings, the reference characters 1 and 2 designate the side sills of the rack, which are arranged longitudinally in parallel relation and connected at their ends by cross-pieces 3 and 4, which are secured to the lower faces thereof, there being two intermediate cross-pieces 5 and 6, arranged between the end pieces and secured to the bottoms of the sills in the same manner as are the said end pieces, all of the cross-pieces being connected to the sills through the instrumentality of iron straps 7, whose lower ends are reduced, as at 8, and screw-threaded, the lower reduced ends of the straps passing through the corresponding cross-pieces adjacent to the inner faces of the corresponding sills and their upper portions bent over the tops of the corresponding sills, as at 9, and then downwardly and parallel with the body portion 7, as at 10, to lie upon the outer face of the corresponding sill. The body portion of each iron strap is provided with perforations, one of the said perforations in the body of the strap registering with a perforation in the portion 10 of the strap for the reception of a rivet, bolt, or the like 11, there being another bolt, rivet, or the like 12 piercing the body portion 7 of the strap and the corresponding sill, the bolts 11 and 12 receiving nuts 13.

It will be observed that the portions 10 of the iron straps 7 lie upon the outer faces of the sills, and piercing the portions 10 and body portion 7 of each iron strap is the shank portion of a hook 16, journaled for pivotal movement in these portions, and the corresponding sill and these hooks are designed to have their bill portions 17 extended normally downward toward the lower end of the said plate, the shank portions of the hooks having shoulders 16<sup>b</sup>, designed for flush engagement with the outer faces of the portions 10 with their free ends screw-threaded for the reception of nuts 16<sup>c</sup>, designed to be screwed up in flush engagement with the outer faces of the straps 7.

Disposed across the sills 1 and 2 and extending upon both sides thereof is a series of cross-beams 18, the beams lying normally over the cross-pieces 3, 4, 5, and 6 with their under faces upon the portions 9 of the corresponding straps 7, and in order to prevent



wear upon the under faces of the cross-beams plates 18' are secured to said under faces and arranged for engagement with the portions 9 of the straps, one end of each of said plates 18  
 5 being bent downwardly, as at 19, for a purpose of engaging the outer faces of the straps, the upper face of each beam 18 having a plate 20 secured thereto and provided with a groove 21, in which is fitted the upper end of  
 10 a loop 22, whose lower end is contracted, as at 23, and designed for engagement with the corresponding hook 16. By reason of the loops 22 being disposed at their upper ends in the grooves 21 of the plates 20 sidewise or  
 15 lateral movement of the loops upon the beams is prevented, and as the lower ends of the loops are engaged with the said hooks 16 on the outer faces and the plates 18 are bent downwardly upon the inner sides of the sills  
 20 the beams 18 are held rigidly in place upon the upper surfaces of the sills.

Yoke-shaped straps 24 are disposed upon the free ends of the cross-beams 18, the ends of the said straps being pierced by suitable  
 25 rivets or the like 25, which enter the corresponding end of the beams, the bights of the yokes lying spaced from the ends of the beams, and thus providing openings for the reception of the lower reduced ends 26 of the up-  
 30 rights 27, the reduced ends 26 of the uprights forming two shoulders 28 and 29, the latter being within the former and resting upon the upper face of the corresponding beam 18 with its other shoulder resting upon the bight  
 35 portion of the element 24, as clearly shown in the drawings. Connecting the end uprights 27 is a pair of diagonally-arranged cross-pieces 30 and 31, which cross each other intermediate of their ends, as at 32, where  
 40 they are secured together by means of a rivet, bolt, or the like 33, the corresponding ends of each of the cross-pieces 30 and 31 being secured by means of rivets, bolts, or the like 34 to the end uprights.

45 Extending longitudinally of the sills above the latter are side members 35, which are secured at their ends by means of bolts, rivets, or the like 36 to the end uprights and between their ends in the same manner to the  
 50 two intermediate uprights, as clearly shown. Extending from each forward upright 27 and from the top thereof is a short strip or member 37, which is connected at its opposite end in any suitable manner to the upper end of  
 55 the upright arranged immediately in the rear thereof, there being two of these strips 37 arranged and connected in the same manner upon opposite sides of the rack. Two strips or members 38 of the same character are con-  
 60 nected to the rear uprights and to the next adjacent uprights in the same manner as are the connections 37.

Piercing the rear ends of the sills 1 and 2 are eyebolts 39, whose eyes 40 extend in-  
 65 wardly from the sills, the opposite ends of

the bolts 39 being screw-threaded for the reception of nuts 41, designed to lie against the outer faces of the corresponding sills. These bolts are provided with shoulders 42, which  
 70 are designed to lie against the inner surfaces of the corresponding sills. The eyes of the bolts are designed for the reception of hooks 44, which are passed through the lower ends of the side members 45 and 46 of a ladder 47, whereby the latter may be detachably en-  
 75 gaged with the sills.

It will be seen that the shank portions of the hooks 44 are provided with shoulders 47', designed to lie against one surface of the up-  
 80 rights 45 and 46, and that the free ends of the shanks of the hooks are screw-threaded for the reception of nuts 48. The rear and forward end beams will prevent the ladders falling outwardly, while the hooks just described are designed to prevent inward movement or  
 85 displacement of the ladders. If desired, the said hooks may be disengaged from the eyes 40 and the ladder turned downwardly upon the body of the rack. It is to be understood that while the one ladder is shown, in actual  
 90 practice two ladders will be employed, one at each end of the rack, only one being shown and described for the reason that both ladders will be substantially the same and connected in the same manner to the sills.  
 95

From the foregoing it will be readily understood how my improved hay-rack is set up for use, and it is believed that it will be readily perceived that the ladders may be  
 100 readily removed from the sills, and that by turning the hooks 16 upwardly the loops 22 may be readily disengaged therefrom and the cross-beams, together with their adjunctive parts, may be readily removed from the  
 105 sills. Of course the side strips 35 and 37 and 38 and the end strips 30 and 31 could be readily detached from engagement with the uprights 27, and the latter easily lifted out of engagement with the straps 24 prior to dis-  
 110 engaging the cross-beams 18 from the sills, thereby permitting a ready disengagement of the said parts from said beams and detaching the different elements separately.

When all of the above-mentioned elements have been removed from the sills in either  
 115 manner set forth, the sills may be employed for the reception of an ordinary wagon-body. However, in practice it is obvious that the beams 18 and their uprights could and would be in all probability used for the rigid recep-  
 120 tion of the wagon-body.

What is claimed is—

1. In a hay-rack, the combination with longitudinal sills, of pieces disposed transversely of the sills therebeneath, hooks disposed with  
 125 their shanks engaged in the pieces and extending inwardly of the sills, said hooks lying with their bights engaged over the sills and with their bills outwardly of the sills, fastening devices engaged in the hooks and in the  
 130



sills, one of said fastening devices having an angular outer end, beams disposed transversely upon the sills above the hooks, transversely-curved plates disposed upon the beams longitudinally thereof, loops engaged with the beams and in the curves of the plates, said loops being engaged with the angular ends of the fastening devices, and a framework connected with the beams.

2. In a hay-rack, sills connected together, beams arranged transversely of the sills and disposed upon the upper surfaces of the latter, each sill being provided with a hook immediately beneath each beam, each beam having loops embracing the same, and adapted for engagement with the corresponding hooks of the sills, uprights detachably associated with the beams, connections arranged parallel with the sills for engagement with the uprights, connections between pairs of

uprights above the aforesaid connection therebetween, connections between the end uprights of each side of the rack, the last-named connections crossing each other and secured together intermediate their ends, and a ladder detachably connected at its lower ends to the inner surfaces of said sills.

3. In a hay-rack, the combination with sills, of eyes carried by the sills, a cross-beam disposed upon the sills adjacent to the eyes, a ladder including uprights disposed at their lower ends between the sills and resting against the beam, and hooks carried by the uprights and removably engaged in the eyes.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT E. CRANSTON.

Witnesses:

M. MERGENS,  
JOS. MATHIAS.