No. 809,388. PATENTED JAN. 9, 1906.

G. B. MILLS.

CONVERTIBLE WAGON BOX AND HAY RACK.

APPLICATION FILED MAY 9, 1905.

2 SHEETS—SHEET 1.

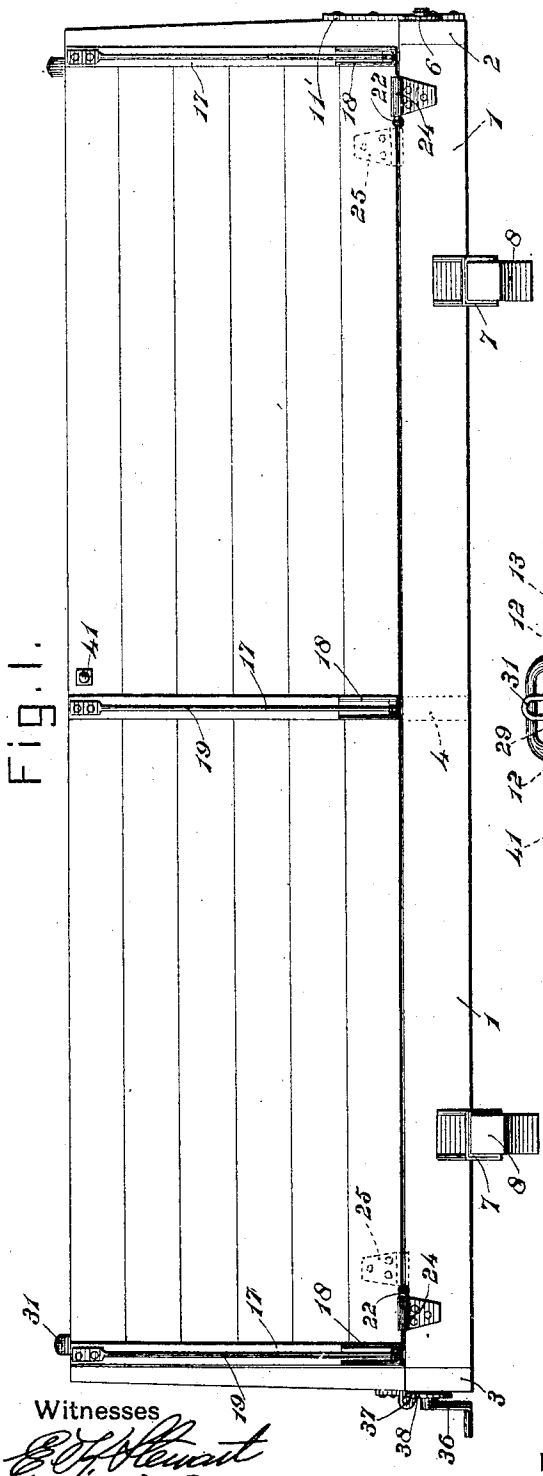

Fig. 1.

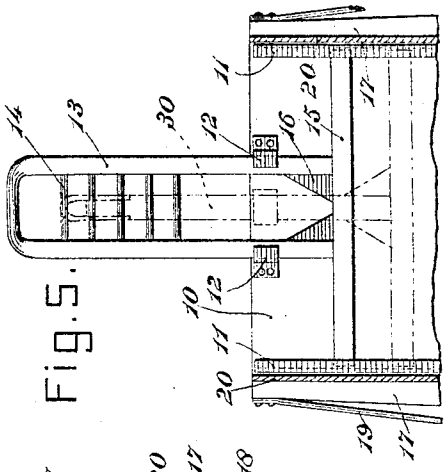

Fig. 5.

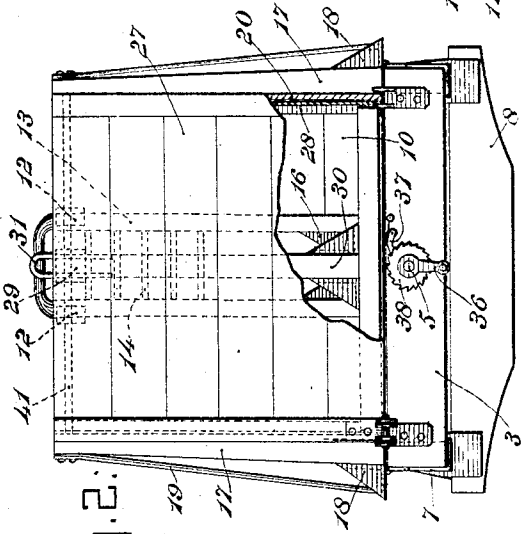

Fig. 2.

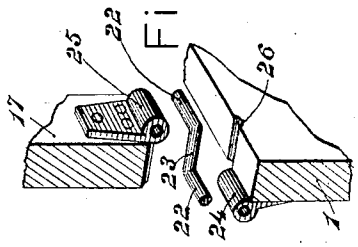

Fig. 6.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

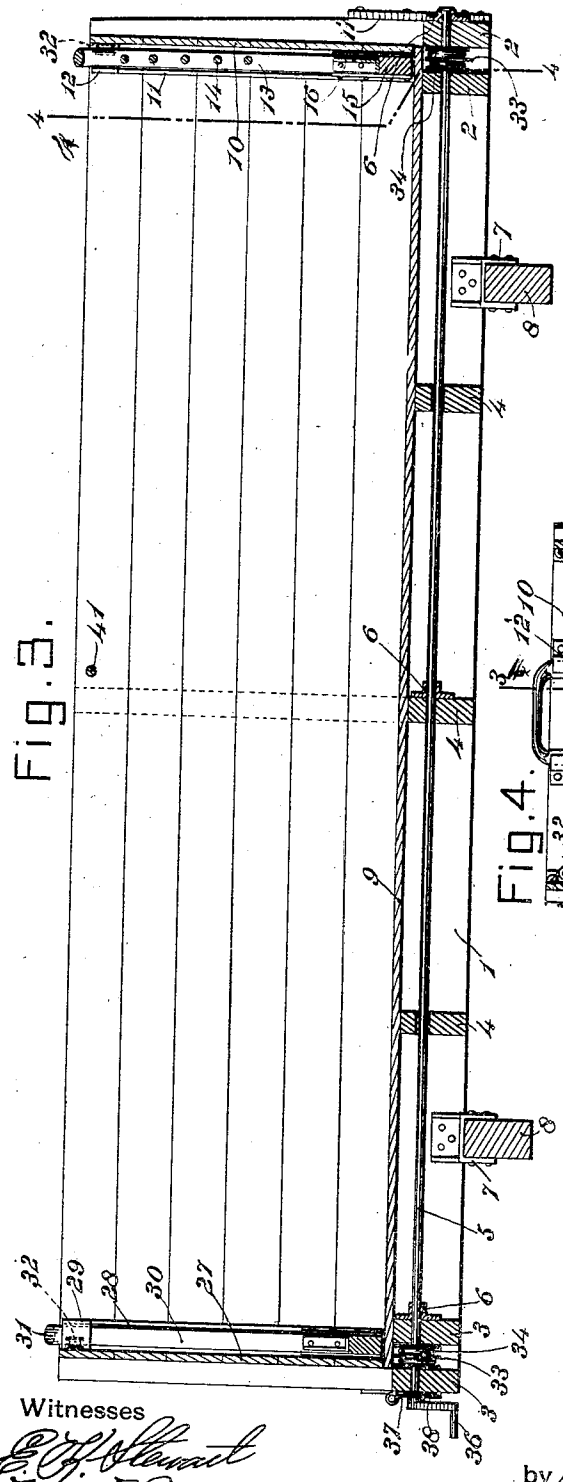


Fig. 4.

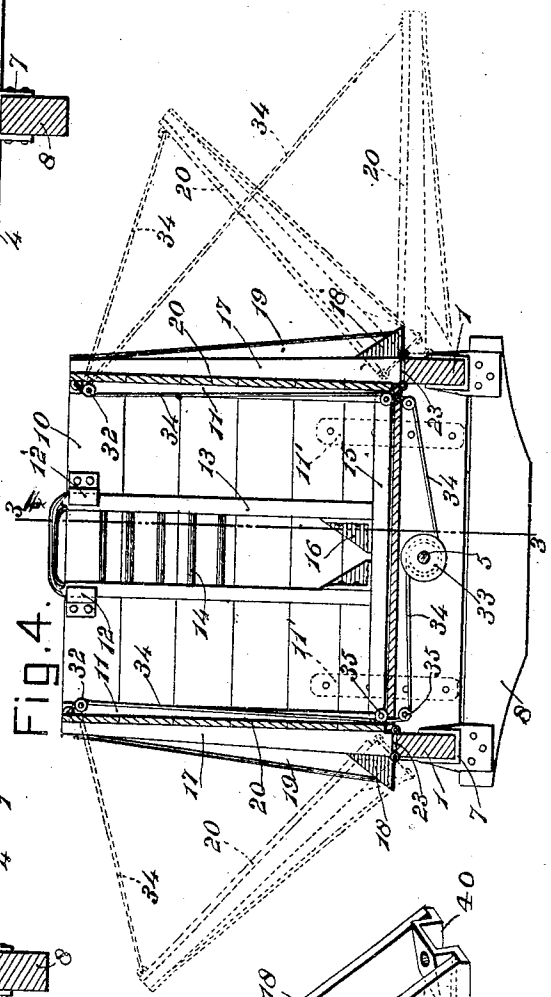
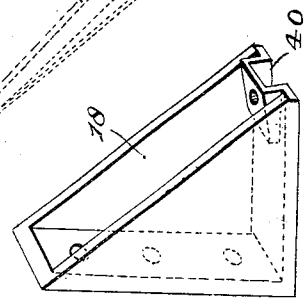


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

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CONVERTIBLE WAGON-BOX AND HAY-RACK.

No. 809,388. Specification of Letters Patent. Patented Jan. 9, 1906.

Application filed May 9, 1905. Serial No. 259,579.

To all whom it may concern:

Be it known that I, GEORGE B. MILLS, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented a new and useful Convertible Wagon Box and Rack, of which the following is a specification.

This invention relates to convertible wagon boxes and racks for hauling stock, grain, hay, and other materials; and it has for its object to present a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency and one which may be readily converted to any of the various uses for which it is designed.

With these and other ends in view the invention consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications to which recourse may be had within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a side elevation of a combined wagon box and rack constructed in accordance with the principles of the invention. Fig. 2 is a rear end view of the same, with parts broken away for the purpose of exposing the underlying construction. Fig. 3 is a longitudinal sectional view taken on the plane indicated by the line 3 3 in Fig. 4. Fig. 4 is a transverse sectional view taken on the plane indicated by the line 4 4 in Fig. 3. Fig. 5 is a transverse sectional detail view looking in the direction of the front end-gate and showing the boom-ladder elevated. Fig. 6 is a perspective detail view seen from the inside of the wagon-box of a portion of one of the sides and side sills, illustrating the hinge connection. Fig. 7 is a perspective detail view of one of the brace-castings.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The side sills of the improved device, which are shown at 1 1, are composed of timbers of suitable dimensions—say two by six inches—set on edge and connected and spaced at their front and rear ends by cross-pieces 2 2 and 3 3 and at suitable intervals by similar cross-pieces 4 4. The several cross-pieces are centrally perforated for the passage of a shaft 5, boxes or bearings for which are supplied wherever needed, as shown at 6. The sills 1 are provided with clamps 7, engaging the bolsters 8 of an ordinary running-gear, and the cross-pieces connecting the sills serve to support the bottom or flooring 9 of the wagon box or bed.

The front end-gate 10 is secured permanently in position by means including straps 11′, whereby it is firmly connected with the front cross-piece 2 of the bed-frame. The said front end-gate is provided upon its rear or inner side with guides, such as cleats 11 and keepers 12, for a vertically-slidable boom-ladder 13, having rungs 14 and provided at its lower end with a cross-piece 15, engaging the guide-cleats 11. The side members of the ladder are connected with the cross-piece 15 by means of angular braces 16.

The sides of the wagon-box are each composed of planking secured upon and connected by upright stakes 17, provided at their lower ends with angular box-like braces 18, the outer extremities of which are connected with the tops of the stakes by means of brace-rods 19. When the sides which as a whole are designated 20 are folded outward, they will be strongly supported by the brace members 18, engaging the outer sides of the sills. The sides 20 are connected hingedly with the sills by means of Z-shaped hinge members, each including a pair of pintles 22, connected by a cross-bar 23, said pintles being accommodated in hinge-leaves 24 and 25 upon the outer sides of the sills and the inner sides of the side members 20, respectively. Transverse grooves 26 are formed in the upper edges of the sills for the accommodation of the cross-bars 23 of the hinge members. By this construction it will be seen that the sides may be readily connected with or detached from the sills of the wagon-bed, and it will also be seen that when the wagon-box is closed—that is to say, when the sides are elevated—the said sides will be supported upon the upper edges of the sills, while when the side members 20 are swung outwardly the cross-bars 23 of the hinges will constitute links, which will permit the lower

edges of the sides to be swung outward, so as to rest against the sides of the sills, as indicated in dotted lines in Fig. 4 of the drawings.

The rear end-gate 27 is hingedly connected with the rear cross-bar 3 of the bed-frame, and said end-gate is provided with guide members, including cleats 28 and a keeper 29 for a vertically-slidable pole 30, provided at its upper end with a loop 31, which may be utilized for securing the rear end of the boom-pole when hay or similar material is being hauled.

The front and rear end-gates are provided at their upper corners with guide-pulleys 32. The front and rear ends of the shaft 5 are provided with drums 33, disposed between the cross-bars 2 2 and 3 3, and upon said drums are wound in opposite directions flexible supporting members 34, which are guided over guide members 35 and over the pulleys 32 to the upper corners of the side pieces 20 of the wagon-box. The guide members 35 may consist of pulleys suitably supported upon the cross-bars 2 and 3 and upon the lower corners of the end-gates. The shaft 5 is provided with a crank 36, whereby it may be manipulated to wind or unwind the flexible members 34 upon the drums 33, thus raising or lowering the free edges of the side pieces of the wagon-box. Said side pieces may be sustained in any desired intermediate position or they may be fully extended, as shown in dotted lines in Fig. 4. Any suitable means, such as a pawl and ratchet 37 38, may be utilized for the purpose of retaining the side members in a closed or in a partially-extended position. When fully extended, the said side members are retained not only by the flexible members, whereby they are connected with the winding-drums, but also by the angular supporting-brackets, heretofore referred to, whereby they are enabled to sustain very heavy weights.

As illustrated in Fig. 7 of the drawings, the box-like angular bracket members 18 may be provided in their under sides with recesses 40 for the reception of the heads of the bolts or braces whereby they are connected with the upper ends of the brace members or stakes 17, thus preventing the projecting bolt-heads on nuts from injuring the sills when the sides 20 are extended.

The various uses and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. The rear end-gate may be folded outward upon its hinges, thus permitting the wagon equipped with the improved box to be backed up to a hog or cattle chute for the purpose of loading live stock. When the end-gate is closed, the device may be used for hauling grain or a variety of other articles, while when the side members are extended the device is converted into a rack for hauling hay, fodder, or other similar material. When the side members of the box are closed, they will be retained in position by means of the flexible supporting members. Auxiliary fastening means, such as hooks and eyes, may, however, be provided within the scope of the invention.

The sides of the wagon-box when folded may be connected intermediate of their ends by means of a cross bar or rod, (shown at 41 in Figs. 1 and 3.)

Having thus described the invention, what is claimed is—

1. A bed-frame including sills and cross-bars, an end-gate permanently supported upon the front cross-bar, an end-gate hingedly connected with the rear cross-bar, side members hingedly connected with the sills, a shaft journaled longitudinally in the bed-frame, drums upon said shafts, and flexible supporting means connected with said drums and guided to the upper corners of the hinged side members over guide means including pulleys upon the lower corners of the end-gates and pulleys upon the inner sides of the end sills.

2. A bed-frame including sills and cross-pieces, hinge-leaves upon the outer sides of the sills, side members, hinge-leaves upon the inner sides of said side members, and hinge members each including a pair of parallel pintles and a cross-bar connecting the same and constituting a link.

3. A bed-frame including sills and cross-bars, side members supported in an upright position upon the upper edges of the sills and connected with the latter by hinges including links, and angular brace members upon the side members adapted to abut upon the outer sides of the sills when the side members are extended.

4. A bed-frame including sills and cross-bars, side members supported in an upright position upon the upper edges of the sills and connected with the latter by hinges including links, angular brace members upon the side members adapted to abut upon the outer sides of the sills when the side members are extended, flexible supporting means connected with the upper corners of the side members, and winding-drums for said flexible supporting means.

5. In a device of the class described, the combination with a bed-frame including sills, of side members including stakes, angular brace members at the lower ends of said stakes, and brace-rods connecting the outer ends of said angular braces with the upper ends of the stakes; and means for hingedly connecting said sills and side members.

6. In a device of the class described, the combination with a bed-frame including sills, of side members including stakes, angular box-like brace members at the lower ends of said stakes having recesses in their under sides near their outer ends, and brace-rods having

heads seated in said recesses the upper ends of said brace-rods being connected with the upper ends of the stakes; and means for hingedly connecting said sills and side members.

7. In a device of the class described, a bed-frame, front and rear end-gates, side members connected hingedly with the sills of the bed-frame, a boom-ladder supported slidingly upon the front end-gate, and a post supported slidingly upon the rear end-gate and having a loop at its upper end; in combination with flexible supporting means for the hinged side members, winding-drums for said flexible supporting means, and means for retaining said winding-drums at various adjustments.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE B. MILLS.

Witnesses:
A. A. GARNER,
ETHEL GALBREATH.