

No. 661,290.

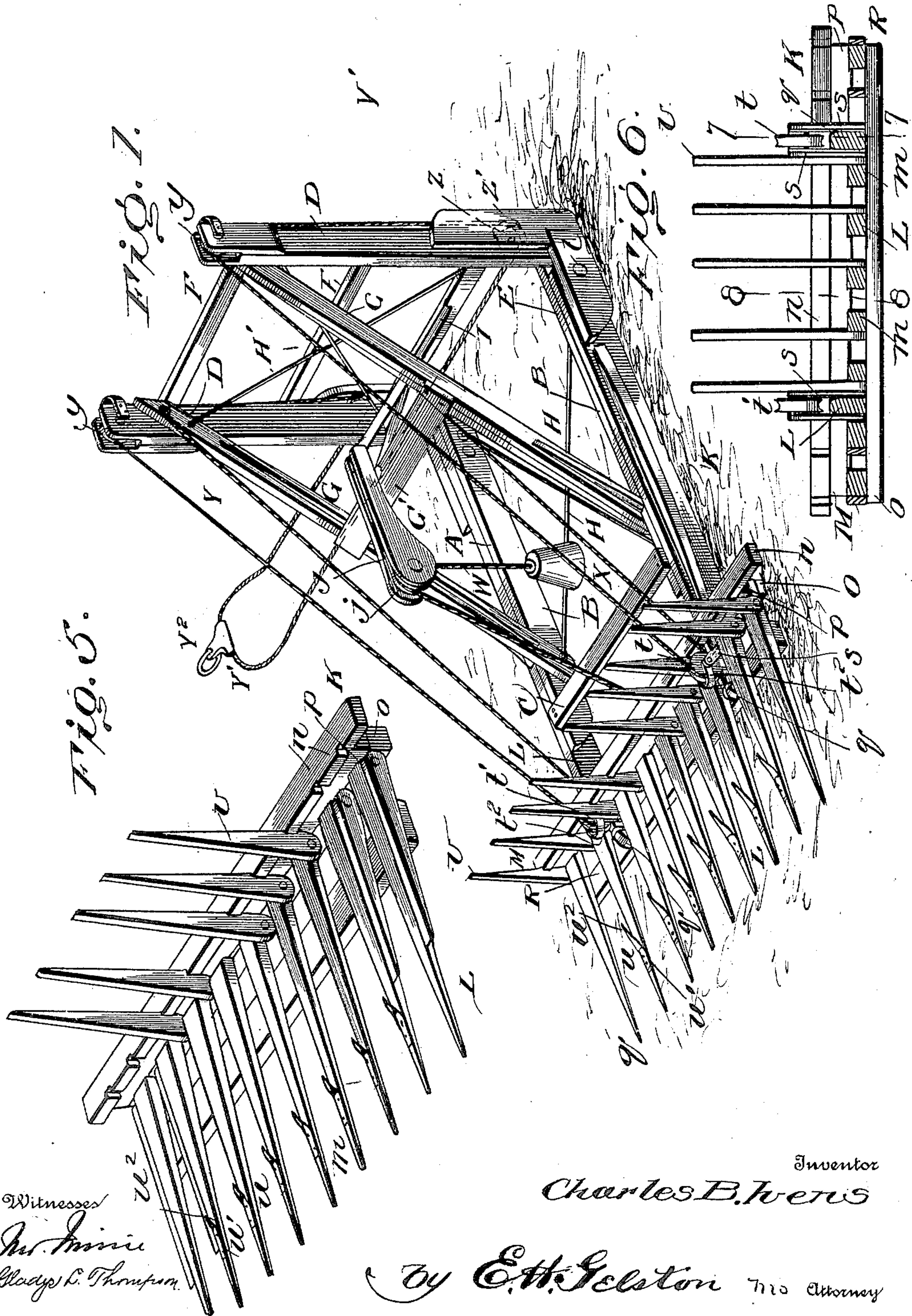
Patented Nov. 6, 1900.

C. B. IVENS.
HAY STACKER.

(Application filed Mar. 3, 1900.)

(No Model.)

2 Sheets—Sheet 1.



No. 661,290.

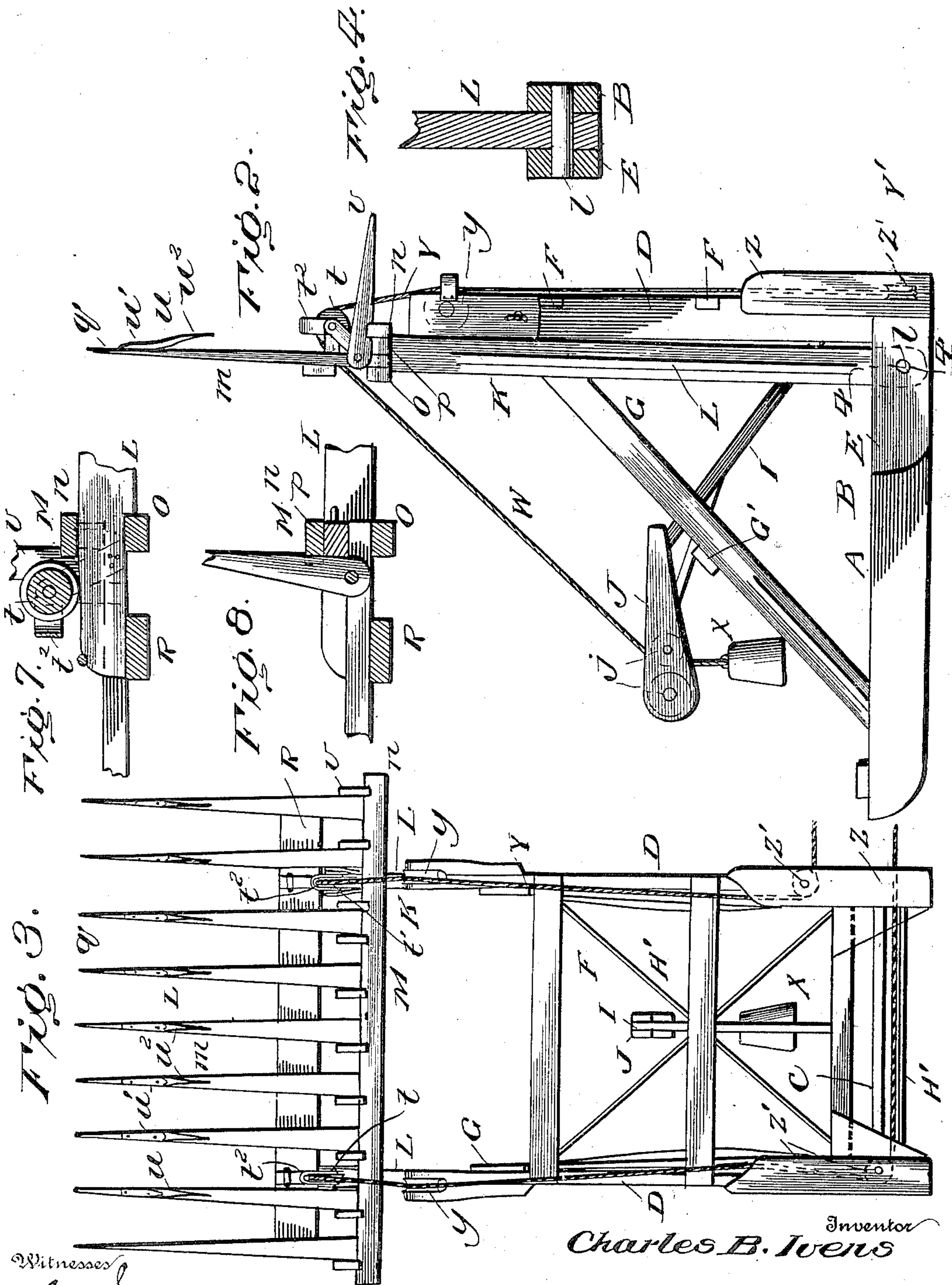
Patented Nov. 6, 1900.

C. B. IVENS.
HAY STACKER.

(Application filed Mar. 3, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses

John Miller
Charles L. Thompson

by *E. H. Johnston*

Attorney

Charles B. Ivens Inventor

UNITED STATES PATENT OFFICE.

CHARLES B. IVENS, OF LEXINGTON, NEBRASKA.

HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 661,290, dated November 6, 1900.

Application filed March 3, 1900. Serial No. 7,236. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. IVENS, a citizen of the United States, residing at Lexington, in the county of Dawson and State of Nebraska, have invented certain new and useful Improvements in Hay-Stackers; 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-stackers; and it consists of the features of construction and combination of parts hereinafter fully described and claimed.

One object of the invention is to provide a stacker which is simple of construction and effective in operation and in which the swinging arms of the lifting fork or rake are mounted so as to be securely braced to prevent lateral or sidewise movement and straining of the same and cooperating parts under the weight of the load.

Another object of the invention is to provide an improved construction of fork or rake to facilitate the operation of loading and unloading and adapt the parts for ready removal and repair.

For a full understanding of the invention reference is to be had to the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a hay-stacker constructed in accordance with my invention. Fig. 2 is a side elevation thereof, showing the rake elevated. Fig. 3 is a rear end elevation. Fig. 4 is a cross-section on line 4 4 of Fig. 2. Fig. 5 is an enlarged detail perspective view of the lifting fork or rake, showing the end vertical fingers turned down. Fig. 6 is a transverse section of the same looking toward the head thereof. Fig. 7 is a vertical longitudinal section of the rake, taken on line 7 7 of Fig. 6. Fig. 8 is a similar view taken on line 8 8 of Fig. 6.

Referring now more particularly to the drawings, A represents the rectangular main frame of the stacker, the base of which is composed of the longitudinal main sills or runners B and the cross-bar C, connecting said sills at their front ends. From the rear of this base rises two standards or uprights D, arranged at their lower ends between the

outer sides of the main runners B and the inner sides of short outer auxiliary runners E and rigidly connected and braced thereabove by a series of cross-bars F. The lower ends of the standards are thus clamped between the main and auxiliary runners and secured thereto by bolts or other suitable fastenings, so as to be braced against lateral strain and movement. The standards or uprights are connected to the front portion of the base by inclined braces G, which are connected at their upper ends to the upper ends of the standards and incline downward therefrom and are connected at their lower ends to the front ends of the sills or main runners B. The base is strengthened by diagonal brace-rods H, crossing each other and secured to opposite ends of the sills, and the vertical portion of the frame, composed of the standards and connecting parts, is similarly braced by diagonal rods H'. A bar I extends from the lower cross-bar F to a cross-bar G', uniting the inclined braces G, and carries a yoke J, in which is mounted a pair of spaced pulleys *j* for a purpose presently described. The lifting fork or rake K is mounted to swing vertically and rearwardly upon the swinging arms L, which extend parallel with and are arranged upon the outer sides of the sills or runners B and have their rear ends fitted between said sills and the short outer auxiliary runners E and pivotally mounted upon a pin or bolt *l*, passing through said runners. By this construction and arrangement of parts it will be seen that the base is widened at the rear, so as to obviate tilting of the frame when the rake is thrown back, the pivot pin or bolt *l* braced and prevented from bending or breaking, and the arms L strengthened and braced to resist lateral or sidewise strain thrown thereon during the operation of the rake and under the weight of the load. By also arranging the standards between the main and auxiliary runners they are brought into the path of movement of the swinging arms of the rake and serve as stops to steady said arms at the limit of their upward and rearward movement and insure an even and stable action of the rake when discharging the load.

The rake consists, as usual, of a series of spaced parallel horizontal fingers or teeth *m*,

fixed to a suitable rear support carried by the arms L. This support comprises a head M, which in accordance with the invention is constructed of upper and lower transverse bars *n* and *o* and intermediate distance-bars *p*, three in number, holding said upper and lower bars spaced apart. The rear ends of the fingers or teeth *m* fit between the lower bar *o* and the distance-bars, and the latter are notched in their lower faces to receive said fingers and maintain them in proper relation. The fingers and bars may be secured by bolts or other suitable fastening devices passed through them, and it will be seen that by simply detaching the lower bar *o* the fingers or teeth may be readily removed for repairs or the substitution of one or more new teeth. The front ends of the lifting-arms L are reduced, as shown at *q*, and project forward between the upper and lower bars of the head and the adjacent ends of the distance-bars and are secured to a cross-bar R, uniting the fingers or teeth a short distance in advance of the head, thus forming extended supports to insure a firm and staple connection of the rake therewith. Supports *s*, carrying pulleys *t* and *t'*, are mounted upon the projecting portions of said tongues and are provided with bail-shaped guards *t''*, which act as shields to prevent clogging of the pulleys by the hay.

Upon the upper surfaces of the forward ends of the fingers or teeth *m* barbs or spurs *u* are mounted and have flat ends *u'*, which are secured to the fingers, and upwardly-bent and rearwardly-projecting teeth *u''*, which are adapted to engage the load of hay and prevent the same from shifting about or slipping off the rack when the latter is elevated. The teeth of the spurs are so formed and disposed as to offer no resistance to a rearward movement of the load or to a free and easy discharge thereof. The vertical fingers *v*, instead of being fixed as usual, are independently pivoted at their lower ends to the sides of the horizontal fingers *m*, so as to fold down between and parallel with the latter. The object of this construction is to enable the dimensions of the frame to be reduced for storage or transportation, to enable the fingers to be independently moved forward for removal or repairs, and to allow one or more of the end fingers to be folded to permit of the close passage of draft-animals and harness appliances on opposite sides of the frame when sweeps or other horse-power devices are employed for loading purposes. To prevent lateral play of the vertical fingers and strain on their bearings, the front edges of the upper head-bar *n* is notched to form seats which receive the rear edges of said fingers, as shown.

The rake and swinging arms are counter-balanced to insure easy movement by means

of a cable W, secured thereto and moving between and over the pulleys *j* of the yoke J and carrying at its free end a weight X, and are operated by means of a cable Y. This cable has its ends fixed to the upper ends of the inclined braces G, passed forwardly and around the pulleys *t t'* on the rake, thence rearwardly and over pulleys *y*, arranged in notches in the upper ends of the standards D, and thence down the rear of said standards and around pulleys *z*, journaled between the same and guards *z'*, fixed thereto. The central looped portion Y' of the cable carries a clevis Y² for the attachment of draft devices.

Changes in the form, proportion, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

1. In a hay-stacker, the combination of a frame having main sills or runners, short auxiliary runners arranged at the rear and upon the outer sides of said main runners, pivot pins or bolts connecting the main and auxiliary runners, and a rake mounted on arms having their rear ends mounted on said pins and held between the main and auxiliary runners, substantially as described.

2. In a hay-stacker, the combination of a frame having main runners, short auxiliary runners arranged at the rear and upon the outer sides of the main runners, standards having their lower ends fitted between the main and auxiliary runners, and a rake mounted on arms having their rear ends pivotally mounted between the said main and auxiliary runners in advance of the standards, substantially as described.

3. In a hay-stacker, the combination with a frame, of a rake comprising a head formed of upper and lower transverse bars and intermediate distance-bars, the said upper and distance bars being, respectively, formed with seats in their front and bottom edges, horizontal fingers united by a cross-bar and having their rear ends fitted in the seats of the distance-bars and arranged between the same and lower bar of the head, vertical arms pivoted to the horizontal arms and occupying the seats in the upper bar of the head, and swinging arms pivoted to the frame and having their front ends passed through the head between the upper and lower bars and adjacent distance-bars and connected to the cross-bar of the horizontal fingers, substantially as and for the purpose set forth.

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

CHARLES B. IVENS. [L. S.]

Witnesses:

J. C. BARNES,
B. F. KRIER.