

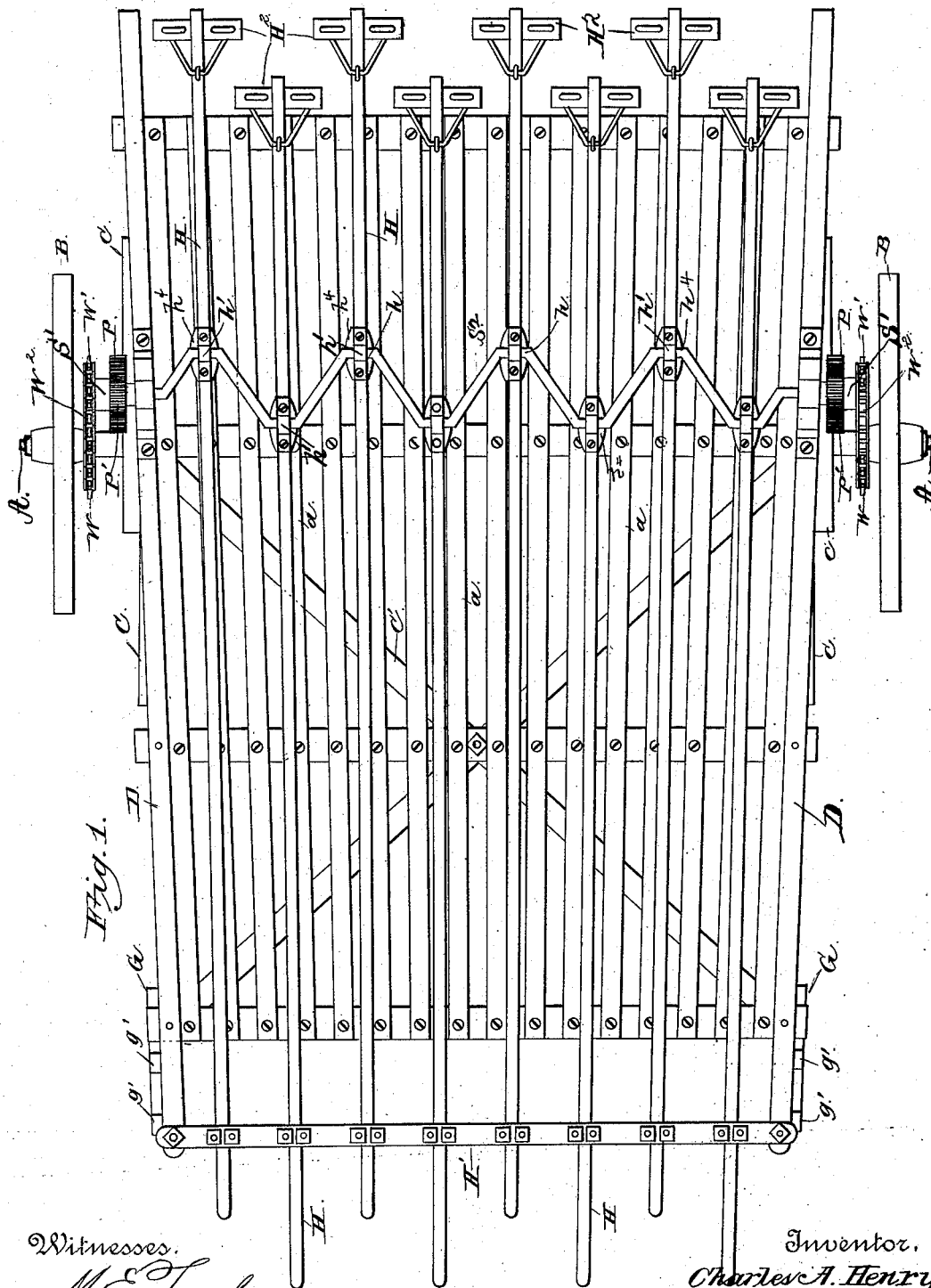
(No Model.)

3 Sheets—Sheet 1.

C. A. HENRY.
HAY LOADER.

No. 384,205.

Patented June 5, 1888.



Witnesses.
M. E. Fowler
E. G. Siggers

Inventor.
Charles A. Henry

By *his* Attorneys.
C. A. Snow

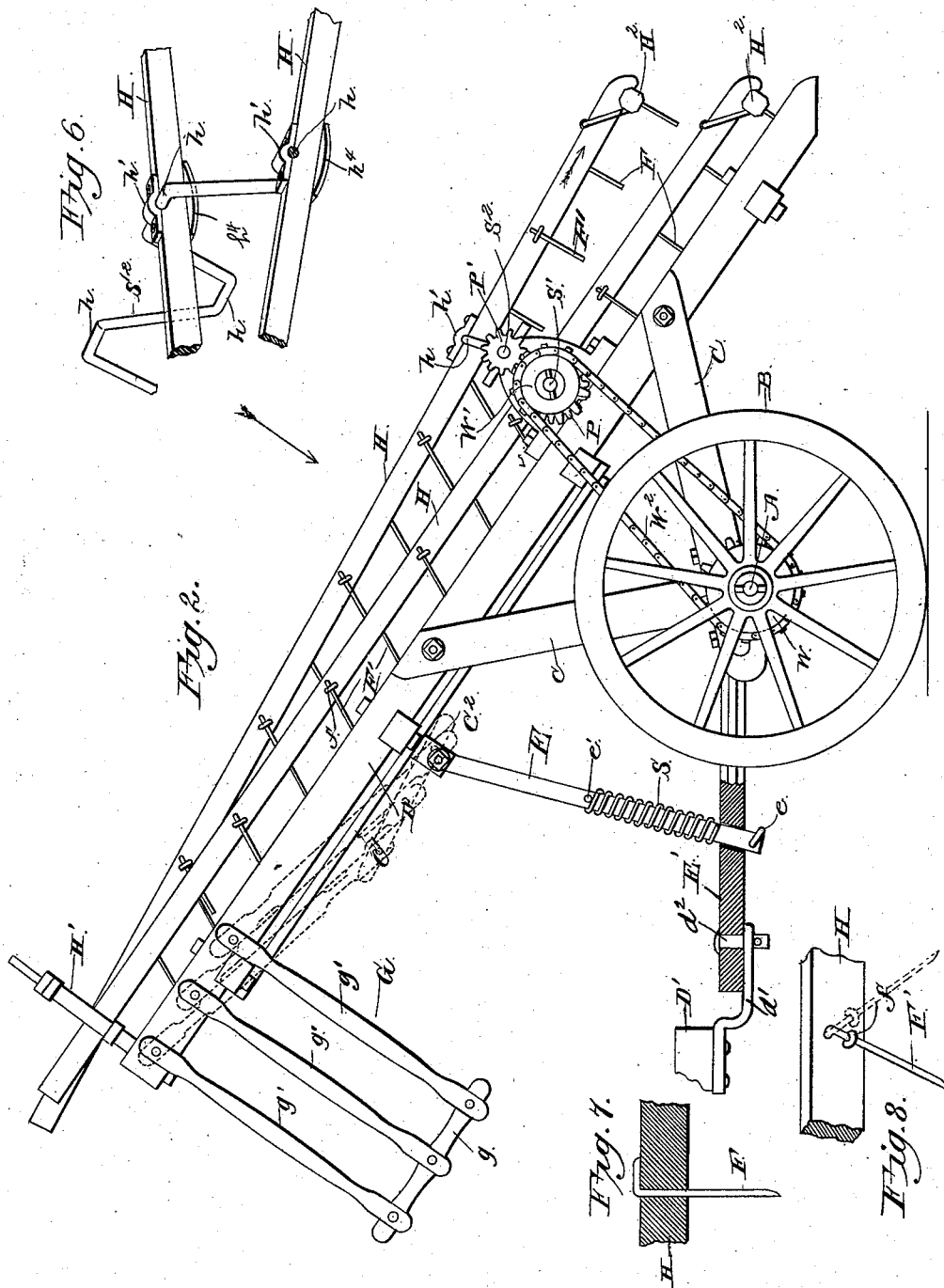
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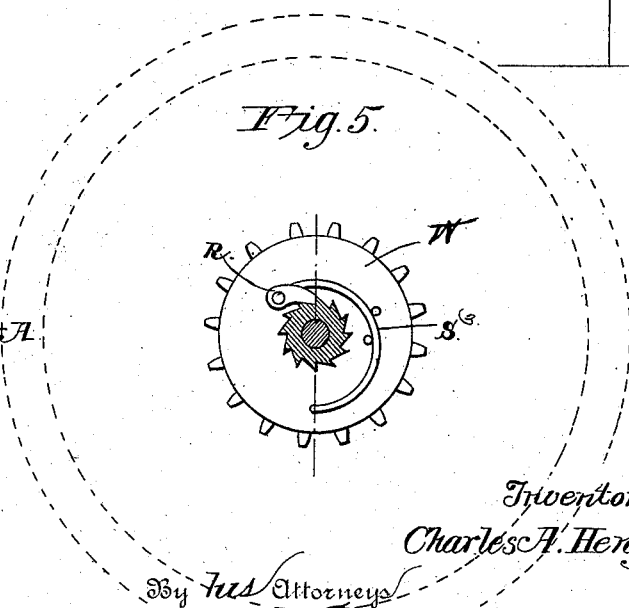
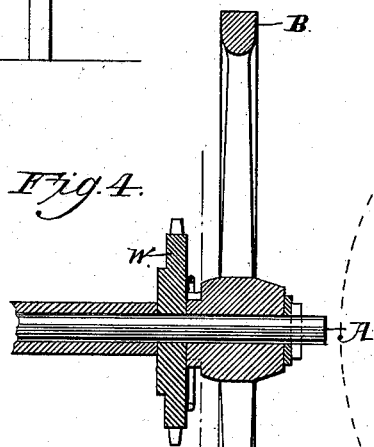
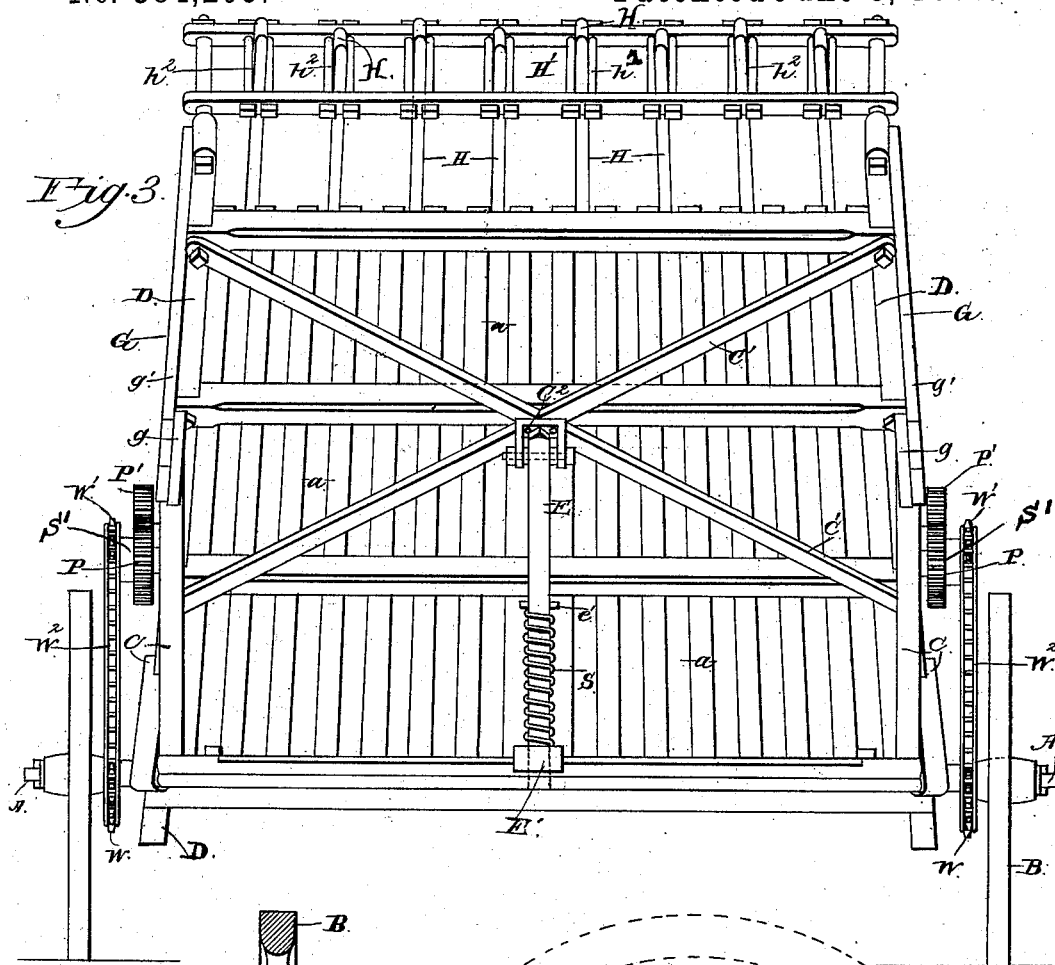
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UNITED STATES PATENT OFFICE.

CHARLES A. HENRY, OF MONTICELLO, ASSIGNOR TO WILLIAM A. OVERING
AND ADAM REICHART, OF SANDY SPRING, IOWA.

HAY-LOADER.

SPECIFICATION forming part of Letters Patent No. 384,205, dated June 5, 1888.

Application filed July 8, 1887. Serial No. 243,784. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HENRY, a citizen of the United States, residing at Monticello, in the county of Jones and State of Iowa, have invented a new and useful Improvement in Hay-Loaders, of which the following is a specification.

My invention relates to hay-loaders, consisting in the construction and arrangement of the parts of the same, which will be more fully hereinafter described, and pointed out in the claims.

The object of my invention is to provide a hay-loader having a series of vibrating rakes, which operate alternately to take the hay up from the ground and carry it up over an inclined platform to discharge it into the wagon, to the rear of which the loader is attached.

My invention is an improvement on Patent No. 344,789, granted to W. A. Overing and A. B. Livingston June 29, 1886, and of which I am an assignee.

In order that my invention may be clearly understood, I have illustrated it in the accompanying drawings, wherein like letters of reference indicate similar parts of the several views, and in which—

Figure 1 is a top plan view of my hay-loader. Fig. 2 is a side elevation thereof. Fig. 3 is a front elevation of my hay-loader. Fig. 4 is a sectional elevation of a portion of the gearing. Fig. 5 is an elevation thereof. Fig. 6 is a detail perspective view of a portion of the vibratory brakes shown in connection with the crank-shaft. Fig. 7 is a detail sectional view showing the manner of mounting feeding-fingers. Fig. 8 is a perspective view of a portion of one of the vibratory rake-bars, showing a different manner of mounting the feeding-fingers.

A indicates an axle, upon which the traveling wheels B are mounted. Extending upwardly and outwardly from the axle A in an oblique position and having seats or bearings on the said axle are brace beams or standards C, to the upper ends of which the frame D of the elevating portion of the loader is secured.

The frame D consists, essentially, of side pieces and cross-bars connecting said pieces, and a series of stationary bars, *a*, fastened to said cross-bars and having openings be-

tween the same, as shown in the drawings. Secured to the under portion of the frame D are a series of diagonally-inclined braces, *C'*, which cross at a common center, and are united to a link-casting, *C²*, by means of suitable bolts, and to which one end of an upright, *E*, is pivotally connected, the other end of which upright passes through and has movement in a slot or aperture cut through the tongue-hound *E'*, which is secured to the axle A. The lower end of the upright *E* has a link, *e*, inserted therethrough, which prevents the said end of the upright withdrawing through the slot or aperture formed in the tongue-hound, as will be readily understood. Surrounding the upright *E* is the coil-spring *S*, which bears at its lower end against the upper side of the tongue-hound and at its upper end against a stop or pin, *e'*, secured in the upright *E*. By this means it will be seen that the front of the loader is cushioned in its movement over uneven surfaces, the coil-spring *S* acting to return the frame to its normal condition.

To one side of the axle A a sprocket-wheel, *W*, is mounted and situated adjacent to one of the traveling wheels B. To the frame D, near the rear portion thereof, a short shaft, *S'*, is mounted in suitable journal-boxes secured to the said frame. Upon the shaft a sprocket-wheel, *W'*, is mounted, which is of smaller diameter than the wheel *W*, and consequently rotates at a greater rate of speed. Surrounding the said sprocket-wheels *W W'* is a chain belt, *W²*, which imparts motion from the wheel *W* to the wheel *W'*, as will be readily understood. Immediately in the inside of the sprocket-wheel *W'* a pinion, *P*, is mounted on the shaft *S'*, which meshes with another pinion, *P'*, which is mounted in suitable boxing on the frame D and is in connection with the compound crank-shaft, to which the vibratory rake-bars *H H* are secured.

The vibratory rake-bars *H* are connected to the crank *h* of the crank-shaft *S²*, and are given an upward and downward and rearward and forward motion thereby. The said rake-bars *H* are provided with journal-boxes *h'*, through which the cranks of the shaft *S'* pass, as fully illustrated in Fig. 6. The forward ends of the vibratory rake-bars *H* pass through the guide-frame *H'*, having a series of retaining-guides,

h^2 , through which each of the forward ends of the vibratory rake-bars pass, and are held separate and steady in their movement. The said guide-frame consists, essentially, of two parallel bars connected together by bolts and nuts, the bolts being arranged in pairs separated from each other, thereby forming the guides b^2 . The said guide-frame H' extends outward at right angles to and some distance in front of the stationary slatted bed of the frame, a space being left between the same and the said guide-frame. For this purpose the side bars of the loader-frame are extended beyond the bed of the platform to support the guide-frame. The rear ends of each of the vibratory rake-bars H are provided with a toothed rake-head, H^2 , which are adapted to draw the hay upon the stationary slatted bed of the frame, as will be readily understood.

A series of feeding-fingers, F' , is secured to each of the vibratory rake-bars H , and those nearest the rake-head H^2 are preferably arranged and secured to the said bars at right angles thereto. The said fingers are arranged on an incline over the greater part of the length of each of the vibratory bars H , their angle of inclination being toward the delivery end of the loader. Each of the rake-bars H is situated directly over the intersecting space between each of the stationary bed-slats a , and the said fingers, mounted in connection with the vibratory bars, have movement there-through when lowered by the motion of the crank-shaft. By constructing the said vibratory bars H with the feeding-fingers F arranged at right angles thereto at the feeding end of the loader the hay is gradually pulled upward upon the bed of the frame, the angle of motion at this point being greater than at the delivery end of the loader, as will be readily seen; consequently a large quantity of hay may be drawn upon the bed of the frame of the loader and advanced thereupon at each forward stroke of each of the vibratory bars. The inclined fingers F' are mounted on said vibratory bars at a point where the angle of motion begins to decrease, and the feed becomes more gradual and steady, the hay being gradually drawn upward toward the delivery end of the loader by means of the said forward-inclined feeding-fingers. These feeding-fingers F are alternately arranged on the said vibratory bars, being attached to both sides thereof at suitable distances apart for the purpose of taking up any hay by one vibratory bar which may have been passed over by another bar. As shown in Figs. 7 and 8, I have illustrated two different ways of attaching the said feeding-fingers to the vibratory bars H . As shown in Fig. 7, the said teeth are passed through and over the vibratory rake-bars, while in Fig. 8 they are secured in the sides of the vibratory bars and held in an adjusted position by means of staples f , driven thereover and into the said vibratory bars. By this latter construction the said feeding-teeth are

adapted to be adjusted by withdrawing the staple and associate finger-bar, and when adjusted are retained by the staples f .

The finger in Fig. 8 has one end bent at an angle and passed into the side of the rake-bar, thereby journaling the finger to the rake-bar, so that it can be swung in the radius of a circle and held in any position by the staple.

To the extended side bars of the delivery end of the loader adjustable folding guard frames or shields G are secured, and consist, essentially, of three depending strips, g' , which are pivotally secured at one end to the cross-strip g and at their opposite ends are pivotally secured to the extended sides of the elevator-frame D . By means of these guard frames or shields the hay being delivered over the end of the loader is prevented from being scattered by side winds. These guard frames or shields are adjustable either from or toward the rear position of the loader, said adjustment being permitted by the pivoted connection of the depending strips g' . It will be seen that the extended sides of the loader-frame serve to hold the guide-frame above and the guard frames or shields below the head of the bed.

To prevent the sprocket-wheel W from having a backward movement, and to thereby always cause the vibratory brake-bars to operate in but one direction, I provide a ratchet and pawl, R , in connection with the axle A . This ratchet and pawl R are arranged adjacent to the sprocket-wheel W , and a semicircular spring, S^3 , secured at one end to the said wheel and to the pawl at the other end, continually presses the said pawl into engagement with the teeth of the ratchet-wheel, and thereby the said sprocket-wheel W will be allowed to turn in one direction only.

The hound D' is keyed to the tongue E' by means of a link, d' , bolted to said hound D' and removably secured to the tongue E' by a bolt, d' .

By means of the pivotal attachment of the guard frames or shields they may be pushed back out of the way as the load is built up.

Shields h' (see Fig. 6) are bolted to the rake-bars directly under the journals of the crank-shaft. These shields are constructed of suitable metallic plates, and extend outward a sufficient distance on each side of the under portion of the rake-bars to prevent the cranks from laterally sliding in the boxes h' , should they have a tendency to do so. These shields also prevent the clogging of the hay between that portion of each crank nearest each rake-bar.

Having thus described my invention, what I claim as new is—

1. In combination with the loader-frame D , having its side bars only extended beyond the same at the upper end, the guide-frame H' , supported by the extended portions of the side bars, said guide-frame consisting of two parallel horizontal bars and the bolts connecting the said bars, and arranged in pairs so as to

form retaining-guides h^3 , and the rake-bars H, having their upper ends working through the guides, as set forth.

2. In combination with the loader-frame, the guide-frame H', supported at the upper end thereof, and comprising two parallel bars connected by bolts, which are arranged in pairs, so as to form retaining-guides, and the rake-bars H, working between the bolts, as set forth.

3. In combination with the loader-frame, the folding guard-frame G, consisting of a series of bars which are pivotally attached at their upper ends to the sides of the loader-frame, so as to fold up against the sides of the latter or to open outward and downward therefrom into an operative position, as set forth.

4. In combination with the loader-frame, the folding guard-frame G, pivotally attached at its upper ends to the upper ends of the loader-frame, and consisting of the strips g' and cross-strips g , the said strips being pivoted together at their meeting points, so that the entire frame can be folded into a small compass against the side of the loader-frame, as set forth.

5. In combination with the vibratory rake-bars H, the feeding-fingers F', having their ends turned at an angle and passed into the bars, whereby the angle ends of the fingers form trunnions therefor, by means of which the fingers can be swung around and thus adjusted into any inclined position, and a staple encircling the fingers and passed into the rake-bars to lock the fingers into the desired position, as set forth.

6. In combination with the rake-bars of a hay-loader, the crank-shaft connected to the same, and the shield-plates h^4 , fitted to the under side of the rake-bars at the points where the crank-shaft is attached to prevent the hay from winding on said shaft, as set forth.

7. In combination with the stationary bed of the frame, having the diagonally-crossed beams C', the casting C², secured to said beams at their point of crossing the upright E, the lower portion of which is encircled by a coiled spring, S, one end of the spring bearing against the upright and the other end against the tongue-hound, said tongue-hound E' having a slot therein through which the lower end of the upright passes and has movement, substantially as described.

8. In combination with the loader-frame, the guide-frame H', secured to the ends of the frame above, beyond, and forward of the bed, said guide-frame being composed of parallel bars connected together by bolts which are arranged in pairs, so as to form retaining-guides, the rake-bars H, working between the bolts, and the folding frame G, composed of a series of bars which are pivotally attached to the side bars, as set forth.

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

CHARLES A. HENRY.

Witnesses:

J. W. DOXSEE,
M. Z. FARWELL.