

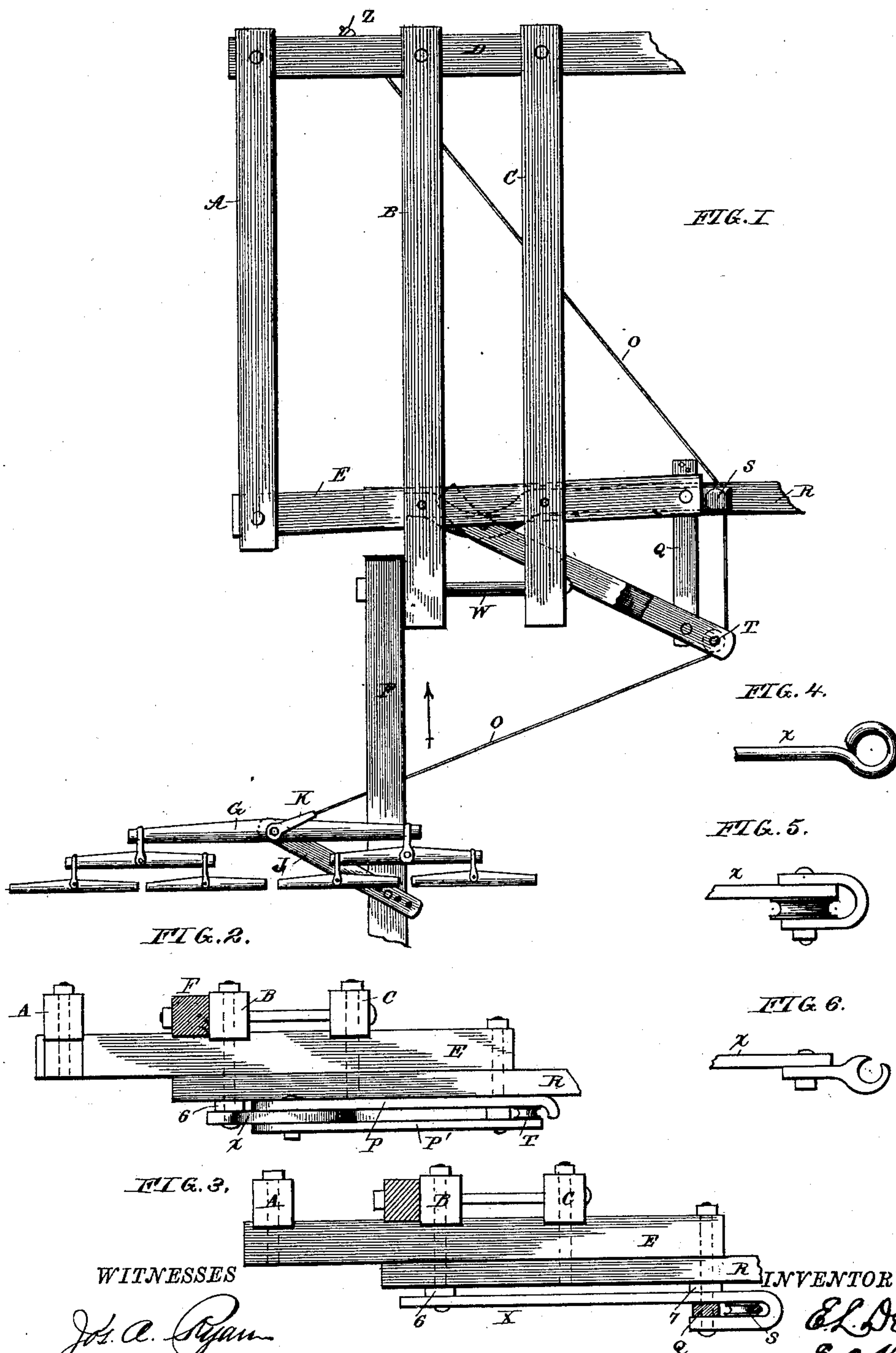
(No Model.)

E. L. DEVORE & E. O. KECK.

DRAFT EQUALIZER FOR HARVESTERS.

No. 360,514.

Patented Apr. 5, 1887.



WITNESSES

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DRAFT-EQUALIZER FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 360,514, dated April 5, 1887.

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To all whom it may concern:

Be it known that we, ESPY L. DEVORE and EDWARD O. KECK, residents of Aurelia, in the county of Cherokee and State of Iowa, have
5 invented certain new and useful Improvements in Harvesters; and we 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
10 and use the same.

Our invention is intended to obviate the side draft in harvesters by applying a portion of the force of traction at such a point as to counteract the deflecting force which is given
15 to the tongue by the unequal resistance of the work with reference to the line of draft.

The invention is described and explained in this specification, and shown in the accompanying drawings, in which—

20 Figure 1 is a plan of the main frame and tongue of a harvester provided with our draft-equalizing device. Fig. 2 is an elevation of the same, looking in the direction indicated by the arrow in Fig. 1. Fig. 3 is a view similar to Fig. 2, certain of the parts shown in
25 Fig. 2 being removed; and Figs. 4, 5, and 6 are enlarged detail views of parts hereinafter described.

In these views, A B C are the main timbers
30 of the frame, supported in practice by the driving-wheel of the harvester in the ordinary manner, and in turn supporting various other parts of the harvester, which constitute no part of our invention, and are therefore not illustrated in the drawings. D E are cross-bars
35 bolted to the main timbers, and serving to support the finger-bar R and also the grain-table, which is not shown. F is the tongue of the harvester, and is pivotally attached to the
40 timber B by transverse bolt W; and R is the finger-bar of the machine, which is rigidly fastened to the cross-bar E. These parts are constructed and combined in the ordinary manner and present no novelty whatever.

45 Upon the tongue F, at a suitable distance in front of the main frame, a link, J, of wood or iron, is pivoted by means of a bolt passing vertically through both link and tongue, the link being pierced by a series of bolt-holes to
50 permit its adjustment upon the tongue. A double-tree, G, (shown in the drawings,) with single-trees for attaching four horses, one on the

grain side of the tongue and the other three on the opposite side thereof, is attached to the free end of the link J, and through this double-
55 tree operative power is applied to the machine.

Beneath the cross-bar E and the finger-bar R, to the lower side of which it is bolted, is a bar, X, Figs. 1, 2, 3, substantially parallel to the finger-bar, and held at a short distance
60 therefrom by the washer 6 7. At the end of the bar X nearest the sickle-bar is pivoted to it a bar, Q, extending forward from the frame and approximately at right angles to the bar X. The bar X projects slightly beyond the
65 bar Q, and supports a pulley, S, Figs. 1, 2, 3.

From the forward end of the bar Q a double bar, P P', extends obliquely backward toward the line of the tongue, its two members, P P', passing, respectively, above and below the bar
70 X, to which they are secured by a bolt, the bar X being curved forward at this point, in order that the bolt may fall in front of the cross-bar E and be readily changed from one to another of a series of holes in the bar P P', for the pur-
75 pose of adjusting its position in order to swing the bar Q toward or away from the tongue. The double bar P P' is joined to the bar Q by means of a bolt, and at its outer end, which projects beyond the bar Q, it supports a sec-
80 ond pulley, T, which is directly in front of the pulley S, or nearly so.

The same bolt that unites the double-tree G and the link J passes through a clevis, K, which embraces both, and the cable O, which
85 may be either wire or chain, is attached to the clevis, and passes thence about the pulleys T and S and obliquely to the rear cross-bar, D, to which it is secured by any suitable means. When properly adjusted, the link J is inclined
90 backward from its point of attachment to the tongue and away from the grain or cutting side of the machine, its length being adjusted by means of the bolt-holes heretofore referred to, and its angular position with reference to
95 the tongue being regulated by the position of the pulley T and by the length of the cable, which in its turn may be varied by means of a nut, Z, at the rear face of the rear cross-bar, D.
100

It is evident that if the force of traction be applied to the double-tree, and through it to the free end of the link J, this force will be transmitted to the body of the machine, and

to the resistance offered by the work to the progress of the machine with wholly different results from those obtained by applying the force directly to the tongue in the ordinary manner. If the position of the link be such that its free end is in the line of the tongue, the directive impulse given to the machine will be the same as if the double-tree were attached to the tongue itself, instead of to the swinging link; but the strain on the parts of the machine will be wholly equalized by the connection of the various parts of the frame through the cable O, instead of being brought wholly upon the tongue and its immediate connections with the timbers B C of the frame; and, on the other hand, if the link be in a position substantially the same as that shown in the drawings, the side draft of the machine may be wholly overcome through the transfer of the resistance to the tractional force from one side of the tongue to the other through the interposition of the transverse cable.

As has already been explained, the position of the link J may be varied at pleasure, and the force tending to counteract the side draft may be thus increased or decreased at will.

We have found in practice that the limit of adjustment of the link J necessary to adapt it to the varying circumstances under which a harvester is used may be very slight, and that in fact a position substantially the same as that shown in the drawings renders the device operative in nearly any grain which the machine is required to cut.

In addition to the value of the mechanism shown as a neutralizer of the side draft, it is exceedingly valuable as an equalizer of the strain of the draft on the parts of the machine. The interposition of the pulleys S T, about which the cable passes, transfers the strain of draft directly to the rear of the main frame, and thus overcomes all tendency to the racking of the frame through the strain of traction.

The forms illustrated in Figs. 1, 2, 3, and above described, are those which we have found most practical and satisfactory; but they are not all of them essential, and we do not, therefore, limit our invention to the use of these particular forms.

We have found that in certain respects the cable O operates equally well if extended back only to the finger-bar R and rigidly attached thereto, though we prefer, for the purpose of strengthening the machine, to carry it back to the rear cross-bar, D, as shown.

The means by which the bars Q P P' are adjusted may be varied or wholly dispensed with, and the pulleys S T may be replaced by eyes or hooks, such as those shown in Figs. 4 and 6.

Having now illustrated and described our invention, what we claim is—

1. In a harvester, a link pivoted at one end to the harvester-tongue, and provided at the other extremity with means for attaching the motive power for the machine, combined with a cable attached to the last-mentioned extremity of said link, passing thence to the finger-bar or an attachment thereof, and fastened to the harvester-bed, substantially as set forth.

2. In a harvester, a cable joining the double-tree and the rear portion of the harvester-bed, said cable in its course between the points so joined being deflected and passed about one or more pulleys pivoted on a support rigidly fastened to the finger-bar of the harvester and projecting in front thereof, substantially as and for the purpose set forth.

3. In combination with the tongue and frame of a harvester, a link having its inner end pivoted to the tongue and its outer end adapted for the attachment of power to draw the machine, a pulley at one side of the direct line of draft and in front of the finger-bar, to which its support is rigidly attached, and a cable attached to said outer end of the link, passing over said pulley and fixed to a rigid part of said frame behind the line of said pulley.

4. For obviating side draft in harvesters, a double-tree connected with the tongue of the machine by a link and with the harvester-frame by a cable, which passes from the double-tree to the frame over a pulley adjustably fixed in front of the finger-bar and having its support rigidly connected therewith, substantially as set forth.

5. For obviating side draft in harvesters, a double-tree attached to a pivoted support upon the harvester-tongue, combined with a cable-support rigidly fixed in front of the finger-bar of the machine and a cable attached to said double-tree or its support and to the harvester-bed, its middle portion passing over and being retained by said cable-support, whereby a portion of the force applied through said double-tree may act upon the harvester-bar in a direction parallel to the tongue.

6. The combination, with the tongue and frame of a harvester, of the adjustable link J, clevis K, cable O, and bars P P' Q X, substantially as and for the purpose set forth.

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

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Witnesses:

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