

UNITED STATES PATENT OFFICE.

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DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 770,806, dated September 27, 1904.

Application filed January 16, 1904. Serial No. 189,344. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. HOLZWORTH, a citizen of the United States, residing at Juniata, in the county of Adams and State of Nebraska, have invented a new and useful Draft-Equalizer, of which the following is a specification.

This invention relates to devices employed for equalizing the draft on plows, side-draft mowing-machines, harvesters, and the like where three or more horses are employed, and has for its object to simplify and improve devices of this character and produce a device which may be adjusted for three, four, five, or more horses without change of structure or material alteration of the relative location of the parts.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, there is illustrated a preferred form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the invention is not necessarily limited thereto, as various changes in the shape, proportions, and general assemblage of the parts may be resorted to without departing from the principle of the invention or sacrificing any of its advantages, and the right is therefore reserved of making all the changes and modifications which fairly fall within the scope of the invention and the claims made therefor.

In the drawings thus employed, Figure 1 is a plan view of the device arranged for five horses. Fig. 2 is a similar view with the parts arranged for four horses. Fig. 3 is a view similar to Fig. 1, illustrating a modified construction. Fig. 4 is a detail view of a portion of the device. Fig. 5 is a detail view of another portion of the device.

The improved device consists of a draw-bar 10 coupled, as by an adjustable clevis 11, to a plow-beam when the device is employed upon

plows, but which will be modified to a sufficient extent to adapt it to other forms or other kinds of machinery when applied thereto. The draw-bar 10 is coupled to swing freely at its rear end upon the clevis member, and its forward end is pivotally connected at 12 to an evener-beam 13, which for the purpose of this description is designated as the "primary" evener-beam. Between the clevis 11 and the beam 13 a fulcrum-bar 14 is pivotally connected, as at 15, to the draw-bar 10, the shorter end of the fulcrum-bar being connected to the beam 13 by a link 16, pivoted at 17 and 18. Pivoted at 19 to the longer end of the fulcrum-bar 14 is a link member, preferably formed of the bars 20 21 22, arranged in triangular shape and coupled at their terminals by the pivot-pins 19 23 24. Connecting the pivotal point 23 of the link member and the pivotal point 12 between the members 10 and 13 is a link-bar 25, the latter extending over the inner projecting end of the beam 13 and by which it is prevented from sagging, as will be obvious. Connected by a link 26 to the free end of the primary beam 13 is a doubletree 27, having the swingletrees 28 29 attached and spaced in the usual manner, as shown. Connected, as by the pivot 24, to the triangular link member is a secondary evener-beam 31, having a swingletree 32 coupled thereto, as by link 33, while a doubletree 34, having the usual swingletrees 35 36, is coupled, as by link 37, to the shorter end of the beam 31, as shown.

By properly proportioning the relative lengths and pivotal points of the various beams, levers, and links the leverage exerted by the five horses provided for by the swingletrees herein shown will be equalized and all side draft eliminated. The beam 13 is provided with an aperture 38, spaced from the aperture for the pivot for the link 26, while the members 14, 25, and 22 will likewise be respectively provided with apertures 39, 40, and 41 to provide for the relative adjustments of the various parts. When the device is to be adapted for four horses, the link 26 will be adjusted to the aperture 38, the pivot 15 adjusted to the aperture 39 in the fulcrum-bar

14, and the doubletree 34 connected directly to the bars 21 and 22, as shown in Fig. 2, thus dispensing with a secondary evener-beam 31 and its swingletree 32. Under some circumstances it may be found desirable to adjust the link-bar 22 relative to the bar 21 to cause the device to equalize differences in the weight and strength of the draft-animals, and the aperture 41 is provided for such adjustments.

10 The function of the triangular draft-link portion is to prevent the "crowding" of the furrow-horse when the device is attached to certain constructions of plows or other machinery; but when employed upon other forms of devices the member 21 could be dispensed with and the secondary evener member connected directly to the member 22 by the pivot 24, as in Fig. 3; but this modification would not be a departure from the principle of the invention, as substantially the same results would be produced.

The device is very simple, easily applied and adjusted, and may be readily adapted to all the various forms of side-draft apparatus or implements now manufactured. The device may also be employed where two or more horses are disposed upon one side of the tongue and one horse only on the other side, as illustrated in Fig. 5, by simply attaching a swingletree 29 to the longer end of the beam 13 and adjusting the leverages of the balance-beam 14 and other parts to equalize the draft; but this would not be a departure from the principle of the invention, as substantially the same results would be produced in substantially the same manner.

Having thus described the invention, what I claim is—

1. In a draft-equalizer, a draw-bar pivotally connected to the draft-beam, a primary evener-beam coupled by one end to the free end of said draw-bar and carrying a doubletree and its connected swingletrees coupled adjustably at its free end, a fulcrum-bar intermediately coupled adjustably to said draw-bar in the rear of said evener-beam, a link connecting the shorter end of said fulcrum-bar with said evener-beam intermediately of its length, a triangular link member coupled by its rear terminal to the longer end of said fulcrum-bar and at its intermediate terminal to the pivotal point of said evener-beam by a coupling-link, and a doubletree and its connected swingletrees movably connected to the forward terminal of said triangular link member, substantially as specified.

2. In a draft-equalizer, a draw-bar pivotally connected to the draft-beam, a primary evener-beam coupled by one end to the free end of said draw-bar and carrying a doubletree and its connected swingletrees coupled adjustably at its free end, a fulcrum-bar intermediately coupled adjustably to said draw-bar in the rear of said evener-beam, a link connecting

the shorter end of said fulcrum-bar with said evener-beam intermediately of its length, a triangular link member coupled by its rear terminal to the longer end of said fulcrum-bar and at its intermediate terminal to the pivotal point of said evener-beam by a coupling-link, extending over and supported by the inner end of said evener-beam, and a doubletree and its connected swingletrees movably connected to the forward terminal of said triangular link member, substantially as specified.

3. In a draft-equalizer, a draw-bar pivotally connected to the draft-beam, a primary evener-beam coupled by one end to the free end of said draw-bar and carrying a doubletree and its connected swingletrees coupled adjustably at its free end, a fulcrum-bar intermediately coupled adjustably to said draw-bar in the rear of said evener-beam, a link connecting the shorter end of said fulcrum-bar with said evener-beam intermediately of its length, a triangular link member coupled by its rear terminal to the longer end of said fulcrum-bar and at its intermediate terminal to the pivotal point of said evener-beam by a coupling-link, a secondary evener-beam intermediately coupled to the forward terminal of said triangular link member, a swingletree coupled to the longer arm of said secondary evener-beam, and a doubletree and its attached swingletrees coupled to the shorter arm of said secondary evener-beam, substantially as specified.

4. In a draft-equalizer, a draw-bar pivotally connected to the draft-beam, a primary evener-beam coupled by one end to the free end of said draw-bar and carrying a doubletree and its connected swingletrees coupled adjustably at its free end, a fulcrum-bar intermediately coupled adjustably to said draw-bar in the rear of said evener-beam, a link connecting the shorter end of said fulcrum-bar with said evener-beam intermediately of its length, a triangular link member having its forward arm adjustable and coupled by its rear terminal to the longer end of said fulcrum-bar and at its intermediate terminal to the pivotal point of said evener-beam by a coupling-link, and a doubletree and its connected swingletrees movably connected to the forward terminal of said triangular link member, substantially as specified.

5. In a draft-equalizer, a draw-bar pivotally connected to the draft-beam, a primary evener-beam coupled by one end to the free end of said draw-bar and carrying a doubletree and its connected swingletrees coupled adjustably at its free end, a fulcrum-bar intermediately coupled adjustably to said draw-bar in the rear of said evener-beam, a link connecting the shorter end of said fulcrum-bar with said evener-beam intermediately of its length, a link member coupled by its rear terminal to

the longer end of said fulcrum-bar and by its forward terminal adjustably to said primary eyener-beam at its pivotal point by a coupling-link, and a doubletree and its attached
5 swingletrees movably connected to the forward terminal of said link member, substantially as specified.

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

CHARLES C. HOLZWORTH.

Witnesses:

C. F. MOREY,
G. H. TIBBETS.