

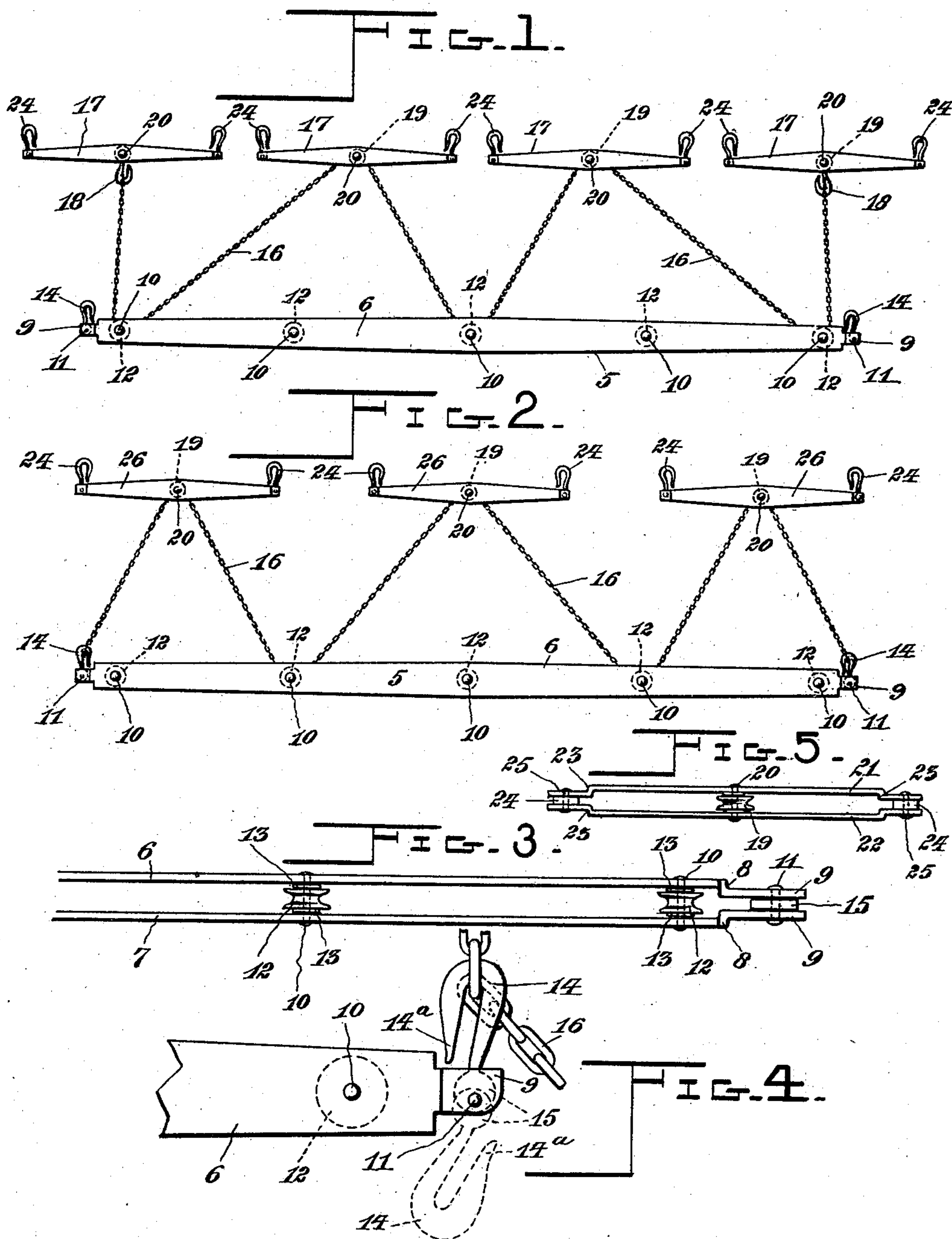
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E. HARBOTTLE.
DRAFT EQUALIZER.

(Application filed Oct. 27, 1900.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

EDWIN HARBOTTLE, OF BURFORD, CANADA.

DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 665,965, dated January 15, 1901.

Application filed October 27, 1900. Serial No. 34,676. (No model.)

To all whom it may concern:

Be it known that I, EDWIN HARBOTTLE, a subject of Her Majesty the Queen of Great Britain, residing at Burford, in the county of Brant, Province of Ontario, Canada, have invented certain new and useful Improvements in Draft-Equalizers; and I do hereby declare that the following is 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.

My invention relates to improvements in draft-equalizers; and the primary object of the invention is to provide a convertible structure which may be easily adjusted to serve as a means for hitching either three or four draft-animals to a machine of any suitable character.

A further object of the invention is to simplify the construction of a convertible evenner, so as to secure the greatest strength with economy in manufacture, and, furthermore, to minimize the friction and wear on the working parts of the structure.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the novelty in the combination and construction of parts will be defined by the claims:

In the drawings hereto annexed, forming a part of this specification, Figure 1 is a plan view of a four-horse equalizer. Fig. 2 is another plan view illustrating the equalizer adapted for hitching three draft-animals thereto. Fig. 3 is an edge elevation of a part of the evenner-beam. Fig. 4 is an enlarged plan view of an end portion of the evenner-beam, illustrating the operative position of the connecting-hook for the shiftable evenner-chain. Fig. 5 is an edge view, in side elevation, of one of the singletrees.

The same numerals of reference denote like parts in each of the figures of the drawings.

5 designates the main beam of my improved draft equalizer or evenner, the same consisting of parallel plates 6 7, arranged one above the other and having the inwardly-bent end portions 8, whereby the extremities 9 of the plates are brought into close relation. These parallel plates are connected at points interme-

diate of their length by the transverse bolts or pins 10 and at their end portions by the transverse bolts or pins 11, as clearly shown by the drawings. The transverse bolts 10 serve as the arbors for a series of grooved sheaves 12, which are loosely mounted on said bolts and are arranged in the space between the parallel beam-plates 6 and 7, (see Fig. 3,) said sheaves being spaced relative to the inner faces of the beam-plates by the interposed washers 13, which are held in place by the bolts 10. A series of five bolts 10 and sheaves 12 are employed in the construction of the evenner-beam 5, two of said bolts and sheaves being located near the bent end portions 8 of the beam-plates, while the remaining three sheaves and bolts are spaced equidistant along the beam, as clearly represented by Figs. 1 and 2. The end portions of the evenner-beam are equipped with the attaching-hooks 14, each of which is formed with an enlargement 15, that is preferably in the form of a disk, as represented by dotted lines in Fig. 4, said disk being pierced at one side of its center by an aperture that is eccentrically arranged. This eccentrically-perforated disk of the attaching-hook is fitted snugly between the adjacent end portions 9 of the parallel beam-plates, as shown by Fig. 3, and one of the end bolts or pins 11 passes through the adjacent end portions 9 of the beam-plates and through the eccentric aperture of the enlargement 15 at the inner portion of the hook 14, whereby the hook is eccentrically and pivotally attached to the end portion of the evenner-beam, as clearly shown by Fig. 4. This eccentric pivoting of the hook 14 to the beam enables the hook when in its operative position on the front side of the evenner-beam to have its beak or terminal extremity 14^a arranged very close to the beam, the space between said hook-beak and the edge of the beam being less than the thickness of one of the chain-links. In the operative position of the hook 14 the chain cannot become accidentally detached, owing to the fact that the draft on the hook tends to keep it in its working position; but this hook 14 can be swung in a horizontal plane around the pivot-bolt 11, so as to assume a position at the rear side

of the evener-beam. When the hook 14 is thus manipulated, the eccentric pivotal connection of said hook to the beam makes the free end of the hook lie at a suitable distance from the rear edge of the beam, as represented by dotted lines in Fig. 4, whereby the link of the evener-chain may be easily disconnected from the hook.

As shown by Figs. 1 and 2, my draft-equalizer contemplates the employment of a single continuous length of chain 16, which is used in connection with a series of singletrees and with certain of the sheaves on the evener-beam, the number of the singletrees employed and the arrangement of the evener-chain depending upon the number of draft-animals which it is desired to hitch to the evener-beam.

In Fig. 1 of the drawings a series of four singletrees are employed in connection with the single continuous chain and the evener-beam 5, said evener-chain 16 passing around the two end sheaves and the middle sheave on the evener-beam 5. In this embodiment of the invention the end portions of the evener-chain are connected to the hooks 18, which are provided on the two end singletrees of the series of four singletrees, whereas the two intermediate singletrees are equipped with the sheaves 19, as shown by Figs. 1 and 5. It is to be understood that the hooks 14 of the evener-beam are not employed in connection with the chain 16 when the equalizer is adapted for service as a four-horse equalizer; but the chain 16 has its right-hand end portion connected to one hook 18 of one end singletree, thence passed around an end sheave 12 on the evener-beam, thence passed around a sheave 19 of the second singletree, thence around the middle sheave of the evener-beam, thence around the sheave of the third singletree, thence around the other end sheave on the evener-beam, and, finally, connected to the hook of the fourth singletree. The hooks 18 of the end singletrees may be pivotally connected, as at 20, to the middle portion of the singletree.

I prefer to make each singletree in the manner shown by Fig. 5—that is to say, the singletree consists of a pair of parallel plates 21 22, having the bent end portions 23, adapted to receive the trace-hooks 24, which are pivoted thereto by the pins or bolts 25. Each trace-hook of each singletree is pivoted eccentrically to an end portion of said singletree in a manner similar to the eccentric pivotal connection of the hook 14 to the end of the evener-beam, whereby the trace-hooks 24 will ordinarily prevent the traces from becoming disconnected accidentally therefrom when in its normal position, and said trace-hooks may be turned backward to an inoperative position for the ready disconnection of the traces. It is to be understood that the two inside singletrees of the four-horse evener are equipped

with the sheaves 19, which are mounted in a manner similar to the sheaves 12 in the evener-beam, as clearly shown by Fig. 5; but the end singletrees of the four-horse evener should be equipped with the hooks 18, as clearly shown by Fig. 1.

In the three-horse evener (represented by Fig. 2) a series of three singletrees 26 are employed, each having the trace-hooks at its end portions and a central sheave mounted between its parallel plates. The right-hand end portion of the evener-chain 16 is connected with the corresponding hook 14 on the evener-beam. From thence the chain passes around the sheave on the first singletree, thence around the second sheave of the evener-beam, thence around the sheave of the second singletree, thence around the fourth sheave of the evener-beam, and thence around the sheave of the third singletree, and its end portion is connected to the left-hand hook of the evener-beam.

From the foregoing description, taken in connection with the drawings, it will be seen that I have provided a convertible draft-evener in which a single continuous length of chain is shiftably connected to a series of singletrees and a single evener-beam, so that the chain may be moved lengthwise in order to even up the pull of the draft-animals on the machine. I have found that a chain of a given length will serve in connection with a single evener-beam and a series of three or four singletrees; but it is necessary to arrange the evener-chain in a four-horse evener somewhat differently from the same chain for a three-horse evener.

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

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

1. In a draft-equalizer, an evener-beam having a series of sheaves, and chain-attaching hooks pivotally and eccentrically connected to the end portions of said beam, combined with a series of singletrees, and a continuous evener-chain adapted to have its end portions connected detachably to the hooks, substantially as described.

2. In a draft-equalizer, an evener-beam consisting of parallel plates having the inwardly-bent portions, a series of sheaves supported between said plates, and attaching-hooks pivotally and eccentrically connected to the inwardly-bent portions of said beam-plates, combined with a series of singletrees, and a continuous chain connected with the singletrees and the sheaves of the evener-beam, substantially as described.

3. In a draft-equalizer, a singletree comprising a pair of plates, a central chain-connecting device between said plates, and a pair of trace-hooks each having a pivotal eccentric
5 connection with an end portion of said singletree and mounted thereon for reversal to an inoperative position, combined with an evener-beam, other singletrees of like nature,

and a single continuous chain, substantially as described. 10

In witness whereof I have hereunto set my hand in the presence of two witnesses.

EDWIN HARBOTTLE.

Witnesses:

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