No. 648,102. Patented Apr. 24, 1900.

L. E. FAGAN.

DRAFT EQUALIZER.

(No Model.) (Application filed Aug. 31, 1899.)

2 Sheets—Sheet 1.

Fig. 1.

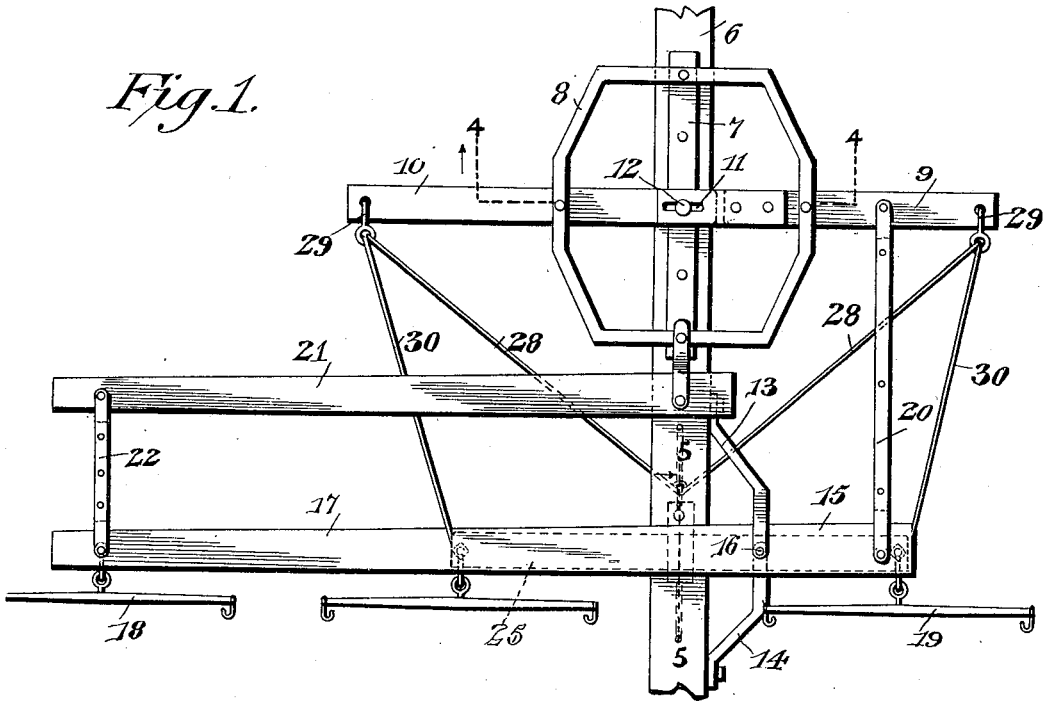
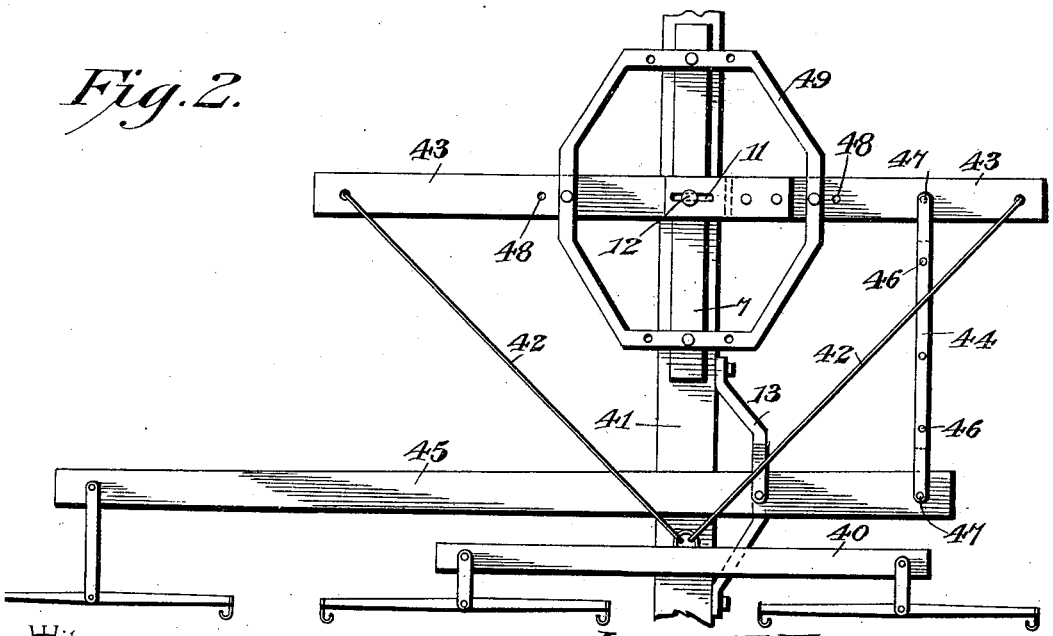


Fig. 2.



Witnesses

Jas. K. McCathran

Geo. H. Chandlee.

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By his Attorneys,

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Fig. 3.

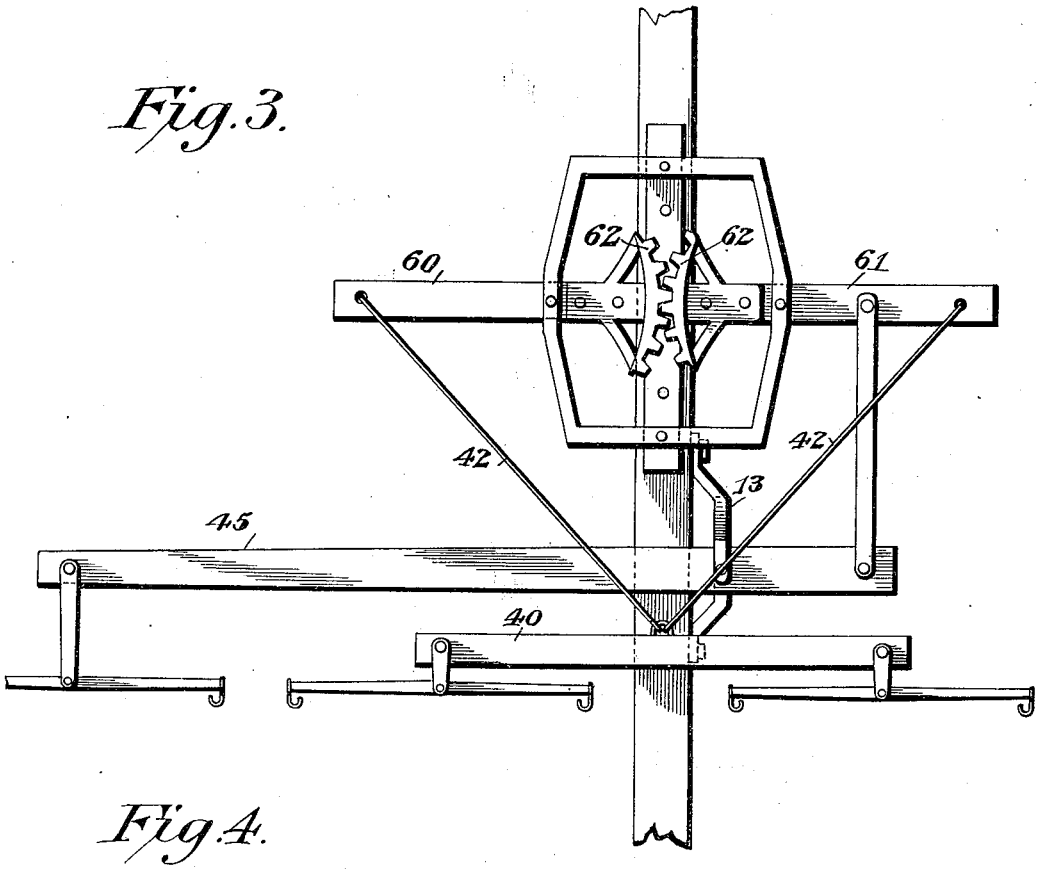


Fig. 4.

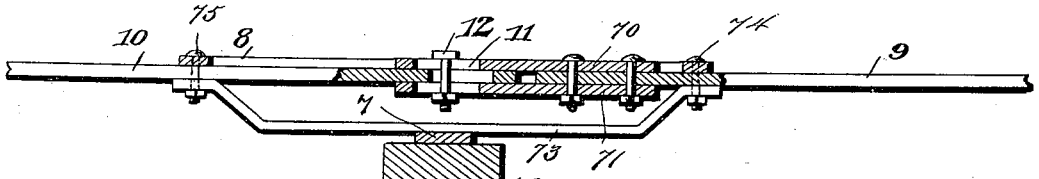
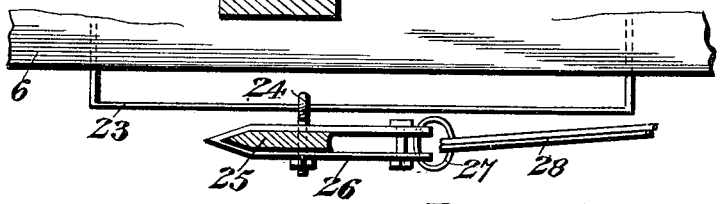


Fig. 5.



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UNITED STATES PATENT OFFICE.

LEWIS E. FAGAN, OF ONSLOW, IOWA.

DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 648,102, dated April 24, 1900.

Application filed August 31, 1899. Serial No. 729,061. (No model.)

To all whom it may concern:

Be it known that I, LEWIS E. FAGAN, a citizen of the United States, residing at Onslow, in the county of Jones and State of Iowa, have invented a new and useful Draft-Equalizer, of which the following is a specification.

This invention relates to draft-equalizers, and to that class adapted to equalize the draft of an odd number of horses hitched abreast to a vehicle, the object of the invention being to provide a construction in which the off horse will have a load equal to the pole horses when the draft apparatus is designed for hitching up three animals, it being of course understood that the proportions of the structure may be altered and that doubletrees may be substituted for the singletrees to permit the hitching of a greater number of animals.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a plan view showing one embodiment of the invention. Fig. 2 is a plan view showing a second embodiment of the invention. Fig. 3 is a plan view showing the same structure as in Fig. 2, with the exception of the connections of the toggle-levers. Fig. 4 is a section on the line 4 4 of Fig. 1, showing the method of connection of the doubletree to the tongue. Fig. 5 is a section on line 5 5 of Fig. 1, showing the method of connection of the doubletree to the tongue and to the draft-rods connected with the toggle-levers.

Referring now to the drawings, and more particularly to Figs. 1, 4, and 5, 6 represents a tongue of usual construction and upon the upper face of which is fixed a plate 7, having its ends turned upwardly and outwardly, and connected with which is a substantially-octagonal frame 8, opposite parallel sides of which lie parallel with the tongue in a plane above the plane of the body-plate 7 for the passage of toggle-levers 9 and 10, which are pivoted to the under sides of these side portions of the frame 8. The inner end of the lever 9 has plates 70 and 71 upon its upper and lower faces and between which plates the inner end of the lever 10 is disposed. The lever 10 is connected with the plates 70 and 71 through the medium of a pin 12 passed through the lever 10 and having its ends disposed in the longitudinal slots 11 in the plates. This structure permits the movement of the levers 9 and 10 upon their pivots to lie at various angles to each other, the pin 12 being loosely disposed in the slots in the plates 70 and 71 and the end of the lever 10, so that it may have slidable movement therein.

Fixed to one side of the tongue 6 and in advance of the frame 8 are brackets 13 and 14, extending in opposite directions and the adjacent ends of which are spaced apart vertically and lie parallel one above the other for the reception between them of an equalizing-lever 15, which is pivoted to the parallel ends of the brackets through the medium of a bolt 16. This lever 15 crosses the upper side of the tongue 6 and extends beyond the latter with its major portion as shown at 17, and at the end of this major portion or power end of the lever is secured a singletree 18 in the usual manner. The opposite end of the lever 15 extends a short distance beyond the pivot 16, and arranged therebelow is a singletree 19. Connected also with the short or work end of the lever 15, just described, is a connecting-bar 20, the opposite end of which is pivotally connected with the toggle-lever 9, intermediate its pivot and its outer extremity.

A supplemental lever 21 is pivoted to the upper face of the tongue 6, adjacent the front side of the frame 8, and lies parallel with the lever 15, the outer end of the lever 21 being pivotally connected with the power end of the lever 15 by means of a connecting-bar 22.

Upon the under side of the tongue 6 and lying transversely of the lever 15 is a guide-rod 23, the ends of which are turned at right angles thereto and connected with the tongue, as shown in Fig. 5 of the drawings. Upon this rod is loosely mounted a follower 24, fixed to a doubletree 25. Centrally of this doubletree is secured a clevis 26 through the medium of the stem of the eye 24, which is passed therethrough, and connected with the ring 27 at the end of the clevis are draft-rods 28, leading to the outer ends of the toggle-levers 9 and 10, with which latter they are pivotally connected through the medium of clevises 29, having pivotal connection in turn with the levers. Additional draft-rods 30 are pivotally connected with these clevises and lead to and are connected with the extremities of

the doubletree, as indicated in dotted lines in Fig. 1.

The doubletree 25 has singletrees 19 attached thereto, and thus it will be seen that while the draft upon the singletrees 19 will tend to move the inner ends of the toggle-levers rearwardly the connecting-bar 20 under the influence of the lever 15 will tend to move said levers in an opposite direction, the draft upon the singletree 18 being thus opposed to the draft upon the doubletree 25, with the result that with a proper proportion of parts there will be a balance.

As shown in the drawings, the connecting-bars 20 and 22 are each provided with a plurality of perforations, through the medium of which they may be adjusted with respect to their connected parts to vary the effect of the lever 15 in its opposition to the draft upon the doubletree 25 to adapt the apparatus for use with animals of different powers.

In Fig. 2 of the drawings there is shown a construction similar to that shown in Fig. 1, with the exception that the doubletree 40 is disposed upon the upper side of the tongue 41 and has the draft-rods 42 pivotally connected to the center portion thereof and to the outer ends of the toggle-links 43, the rods 30 (shown in Fig. 1) and also the supplemental lever 21 and its connection being omitted. In this construction the doubletree 40 is free to move pivotally, the adjustment of the structure being secured by means of the connecting-bar 44, removably attached to the work end of the lever 45 and to one of the toggle-links 43 intermediate its outer end and its pivot, said bar 44 being provided with perforations 46 for the reception of the attaching bolts or pins 47, through the medium of which it is secured to the toggle-link and the lever. A further means of adjustment is provided by the formation of additional perforations 48 in the links 43, and through the medium of which said links may be adjusted in their connection with the octagonal frame 49.

In Fig. 3 of the drawings is shown a structure similar in every respect to that shown in Fig. 2, with the exception that the parts are not adjustable and in which the toggle-links 60 and 61 are provided at their inner ends with intermeshing segmental gears 62, adapted to transmit motion from one to the other.

From the above description it will be seen that while a greater draft is applied to the doubletree than to the singletree at the outer end of the equalizing-lever the structure is such and the proportions are so established that the draft upon the equalizer is opposed to that upon the doubletree and is balanced therewith, resulting in a most effective draft upon the vehicle connected with the tongue.

It will of course be understood that in practice the specific construction shown may be varied and that any proportions and materials may be employed without departing from the spirit of the invention.

In order to brace the octagonal frame, the brace 73 is secured to the plate 7 transversely thereof, and has its ends bent upwardly and outwardly and connected with the pivot-bolts 74 and 75, which connect the levers 9 and 10 to the frame.

What I claim is—

1. In a draft-equalizer, the combination with a tongue, of a frame carried by the tongue, toggle-links pivoted to the frame and having their ends in mutual engagement within the frame, a doubletree connected with the outer ends of the toggle-links, an equalizing-lever pivotally connected with the tongue and with a toggle-link, and a singletree connected with the equalizing-lever.

2. In a draft-equalizer, the combination with a tongue, and a frame carried thereby, of toggle-links pivoted to the frame and having their inner ends in mutual engagement, a doubletree slidably connected with the tongue, connections between the outer ends of the doubletree and the outer ends of the toggle-links, additional connections between the outer ends of the toggle-links and that portion of the doubletree connected with the tongue, and an equalizing-lever provided with a singletree said equalizing-lever being pivoted to the tongue and having a connecting-bar attached thereto and to a toggle-link intermediate the pivot and the outer end of the latter.

3. In a draft-equalizer, the combination with a tongue and a frame carried thereby, of toggle-links pivoted to the frame and having their inner ends connected and adapted for slidable movement with respect to each other, a doubletree slidably connected with the tongue, draft-bars connecting the outer ends of the doubletree with the outer ends of the toggle-links, additional draft-bars connecting the outer ends of the toggle-links with the central portion of the doubletree and an equalizing-lever pivotally connected with the tongue and having a connecting-bar adjustably connected therewith and with a toggle-link intermediate the pivot and the outer end of the latter, said equalizing-lever being adapted for the attachment of a draft-animal.

4. In a draft-equalizer, the combination with a tongue, of a frame carried by the tongue, toggle-links pivoted to the frame, and adjustable with respect thereto and having their inner ends in mutual engagement, a doubletree connected with the outer ends of the toggle-links, and an equalizing-lever pivotally connected with the tongue and adjustably connected with a toggle-link, said lever having a singletree connected therewith.

5. In a draft-equalizer, the combination with a tongue, of a frame carried by the tongue, toggle-links pivoted to the frame and having their ends in mutual engagement, a doubletree connected with the outer ends of the toggle-links, an equalizing-lever pivotally connected with the tongue and with the toggle-links, a singletree connected with the

equalizing-lever, and a supplemental lever pivotally connected with the tongue and with the equalizing-lever.

6. In a draft-equalizer, the combination with a tongue of a frame carried by the tongue, toggle-links pivoted to the frame and lying between it and the tongue and having their adjacent ends overlapping and slotted; a pin passed through the slots of the links, a doubletree connected with the outer ends of the toggle-links, an equalizing-lever pivotally connected with the tongue and with a toggle-link, and a singletree connected with the equalizing-lever.

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

LEWIS E. FAGAN.

Witnesses:
GEO. L. LOVELL,
JOHN FAGAN.