

(No Model.)

I. K. HOPKINS.  
DRAFT EQUALIZER.

No. 434,901

Patented Aug. 19, 1890.

Fig. 1

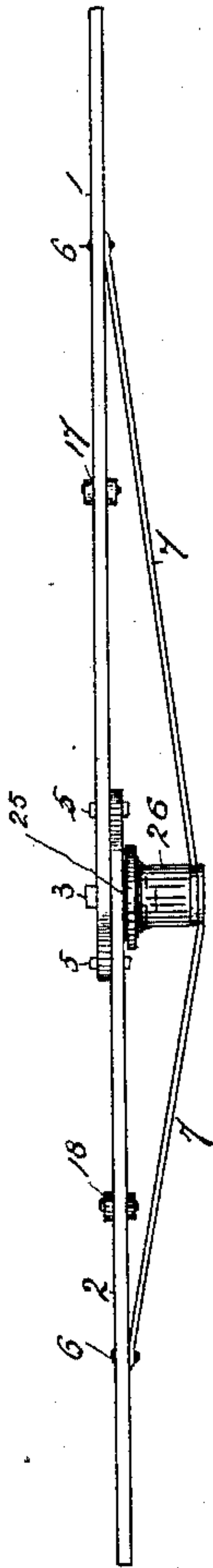


Fig. 2

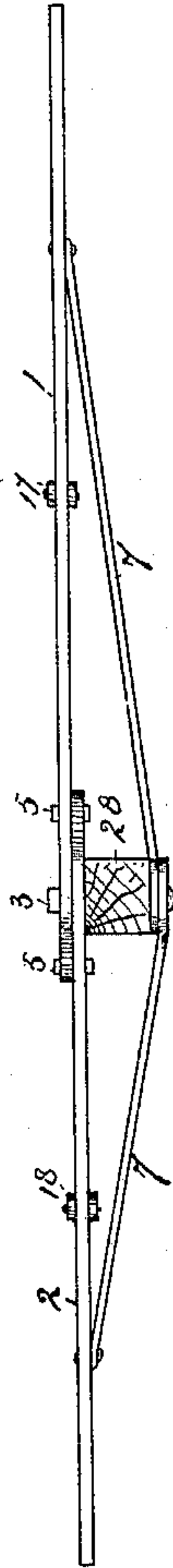
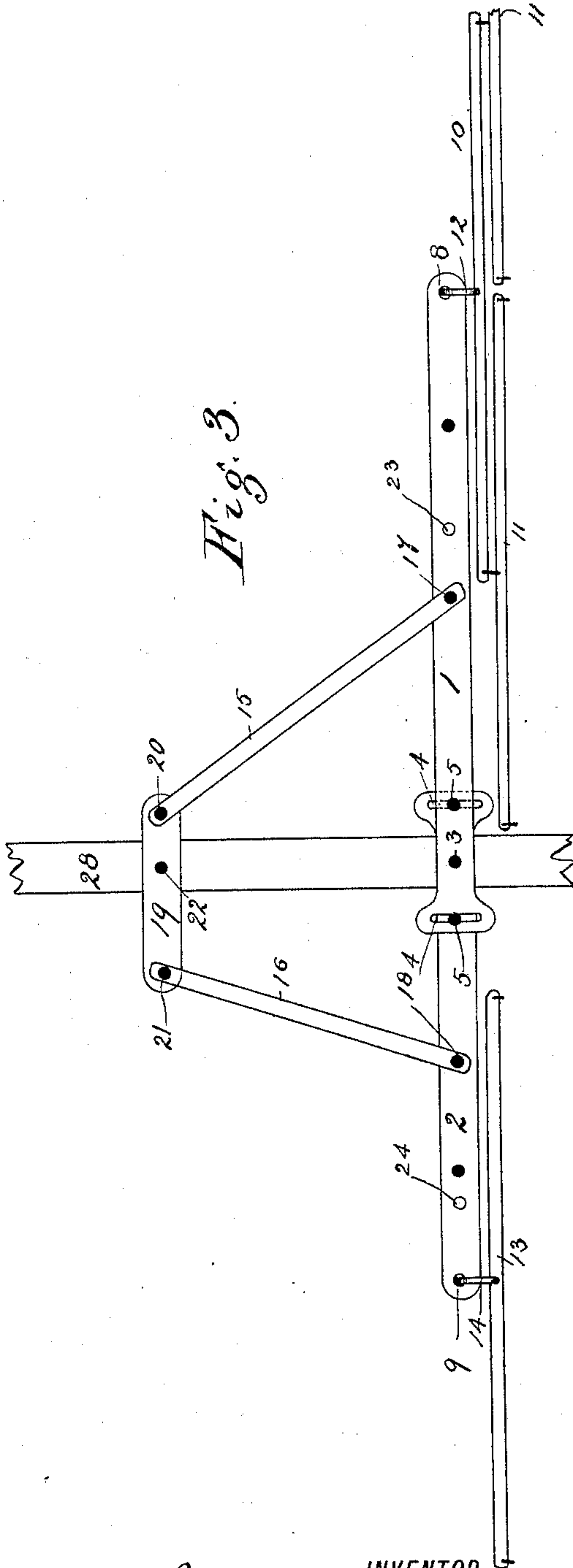


Fig. 3



WITNESSES:

Wm. McConnell  
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INVENTOR

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# UNITED STATES PATENT OFFICE.

IRA K. HOPKINS, OF SEMPER, COLORADO.

## DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 434,901, dated August 19, 1890.

Application filed June 9, 1890. Serial No. 354,836. (No model.)

*To all whom it may concern:*

Be it known that I, IRA K. HOPKINS, a citizen of the United States, residing at Semper, in the county of Jefferson and State of Colorado, have invented certain new and useful Improvements in Three - Horse Equalizers; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a novel and improved form and construction of three-horse equalizers of the class designed more especially for use on turning-plows, but which may be employed in the many and varied relations in which it is designed to work three horses abreast.

In the use of three-horse eveners, as hitherto constructed many difficulties have presented themselves, among which may be mentioned as chief the difficulty of so dividing and adjusting the evener that each horse shall perform his proper amount of the work; in so constructing and arranging the evener that the middle horse shall have ample room in which to work, while the draft on the two outside horses shall not tend to bring them together; in so attaching the implement to be drawn thereto that all side draft shall be effectually obviated; in providing an evener which while being flexible with reference to a horizontal plane shall be perfectly rigid with reference to a vertical plane, and numerous other difficulties, all of which are but too well known to persons accustomed to the use of three-horse teams.

The obviation of such difficulties is the object of my invention, the device to be so arranged and constructed as to consist of a combined evener and tripletree which shall possess many and superior advantages over those now in use, and which while being adapted to be used on plows, harrows, wagons, and all manner of implements, whether tongued or tongueless, shall provide ample room for each and every horse attached thereto and compel each to perform his proper portion of the work to be accomplished; the de-

vice to be so constructed that while possessing a limited degree of flexibility with reference to a horizontal plane shall be perfectly rigid with reference to a vertical plane, thereby affording peculiar advantages, as hereinafter set forth; the device to be so arranged that all side draft shall be obviated, thus causing the implement drawn to have a smooth and steady run, and thus reducing to a minimum the work of the team; a three-horse evener of simple and economical construction, reliable and durable in use, efficient for the purpose intended, and possessing numerous other advantages and important features, each of which shall be properly set forth during the course of this specification.

To these ends my invention consists in the features, arrangements, and combinations hereinafter described and claimed.

In carrying out my invention I employ two overlapping bars pivoted or otherwise flexibly secured together at or near the center of their overlapping portion. The inner extremities of these bars, which are preferably enlarged or made broader, are provided with transverse slots, through which pass suitable bolts or pins, over which the slots may slide freely, said bolts or pins being secured in the corresponding overlapping piece. To the under side of each of these main pieces is pivotally secured a suitable brace, said braces extending obliquely downward therefrom and being pivotally united directly beneath the pivotal point of the two main pieces, the braces being secured to the main pieces at this point by a pin or bolt passing there-through and serving as a pivotal point for both main pieces and braces.

Extending backward from each of the main pieces and departing therefrom at points proportionately remote from the central pivotal point is a bar or rod, the opposite extremity of which is pivotally secured to one extremity of a suitable evener. This evener is properly a lever of the first class, is divided proportionately, so that each end of the tripletree shall draw its proper portion of the draft, and is adapted to be secured to the beam, tongue, or other suitable place of attachment of the implement to be drawn.



At points proportionately remote from the central pivotal point of the main pieces are made therein suitable apertures, where may be clevised at their respective ends the double-  
5 tree and the single whiffletree.

Reference being now made to the accompanying drawings, wherein is illustrated an embodiment of my invention, Figure 1 is a front view of the device as attached to a plow-beam;  
10 Fig. 2, a front view thereof as attached to the tongue of a wagon or other machine; Fig. 3, a top or plan view of the same.

Referring now to the views, the reference-numerals 1 and 2 designate the two overlapping main pieces, which are hinged or otherwise flexibly secured together by a suitable pin or bolt 3. The inner extremities of these pieces or the extremity of the overlapping portions of each of bars 1 and 2 is slightly  
20 enlarged or broadened, and is provided with a transverse slot 4, through which project suitable pins or bolts 5, which are rigidly secured to the corresponding overlapping piece, and over which said slots may move or slide  
25 freely.

At points 6 on pieces 1 and 2 are pivotally secured suitable braces 7, said braces extending obliquely downward therefrom and meeting directly beneath the pivotal point 3 of  
30 main pieces 1 and 2, where they are pivotally secured together and to pieces 1 and 2 by pin 3 passing therethrough, said pin serving as a pivotal point for the entire tripletree.

Pivotally secured to pieces 1 and 2 and at  
35 points proportionately remote from pivotal point 3, are bars 15 and 16, bar 15 being secured to piece 1 (which is the longer of the two pieces 1 and 2) at a point 17, the bar or rod being preferably bifurcated, so as to form a  
40 clevis-joint, and thus greatly increase the strength of the connection of said bar or rod with main piece 1, while bar 16, which differs from bar 15 in length only, is similarly secured to main piece 2 at 18.

The reference-numeral 19 designates a suitable evener or equalizer, which is primarily a lever of the first class, the rear extremities of bars 15 and 16 being pivotally secured thereto by joints 20 and 21, similar to those  
50 of 17 and 18. This piece is provided with a suitable aperture 22, located near joint 20, said aperture dividing the lever 19 proportionately, and thus giving the horse hitched to the single whiffletree a proper advantage  
55 over the two horses hitched to the doubletree.

To the outer extremities of pieces 1 and 2 and at points proportionately remote from pivotal point 3 are secured the double and single whiffletrees, the doubletree 10, to which  
60 are secured two whiffletrees for the two horses, being secured by a clevis-connection 12 at 8, while the single whiffletree 13 is secured by a clevis-connection 14 at 9 to the opposite extremity of the tripletree.

24 and 23 are apertures made in the tripletree for regulating the amount of advantage the horse hitched to the single whiffletree

shall have over the two horses hitched to the doubletree.

When using my improved equalizer on a  
70 beamed plow, the pin 3 is removed and the horizontal clevis 25 inserted between the main pieces 1 and 2 and the block or washer 26, when pin 3 is again placed in position, while lever 19 is secured to the beam or other suitable portion of the implement by a suitable  
75 pin passing through aperture 22, said pin serving as a fulcrum for said lever. This is best illustrated in Fig. 1.

The use of my improved device on tongued  
80 implements will be better understood by reference to Fig. 3, pin 3 and washer or block 26 being removed and the tongue 28 placed between braces 7 and pieces 1 and 2, while the wagon-hammer is substituted for pin 3, and  
85 lever 19 is suitably fulcrumed to a pin on the rear portion of the tongue.

From the description given with reference to the drawings it will be observed that an important advantage is obtained by having the  
90 tripletree flexible at 3—namely, it gives the horse hitched to the single whiffletree an opportunity to catch up and be even with the other two when by chance it happens to get behind, while it will also be seen that the  
95 tripletree must be rigid with reference to a vertical plane, so as to properly control the plow or other implement used.

It will be observed from the description of the construction and operation of the device  
100 as heretofore given that side draft is entirely done away with by the use of my improvement, and that each horse hitched thereto pulls or draws in a direct line with the forward direction of movement.  
105

Having thus described my invention, what I claim is—

1. A three-horse equalizer consisting of two overlapping pieces pivotally secured together near the center of their overlapping portions,  
110 transverse slots made in the extremities of the overlapping portions, suitable pins or bolts passing through said slots and being secured in the corresponding pieces, suitable means of attaching a doubletree to one ex-  
115 tremity of the tripletree and a single whiffletree to the opposite extremity thereof, and a suitable evener pivotally secured to the overlapping pieces, substantially as described.

2. A three-horse equalizer consisting of  
120 overlapping pieces pivotally secured together, transverse slots in the extremities of the overlapping portion, braces pivotally secured to the overlapping pieces and pivotally united directly beneath the pivotal joint of the main  
125 overlapping pieces, suitable means of hitching two horses to one extremity and one horse to the opposite extremity of the tripletree, and a suitable evener pivotally secured to the overlapping pieces, substantially as  
130 described.

3. A three-horse equalizer consisting of overlapping pieces 1 and 2, pivotally secured together by a pin or bolt 3 and having trans-



verse slots 4, through which extend pins 5, said pins being secured to the corresponding overlapping pieces, braces 7, pivotally secured to overlapping pieces 1 and 2 and pivotally united by pin 3, passing therethrough, bars 15 and 16, pivotally secured to bars 1 and 2 at points proportionately remote from point 3 and extending backward therefrom, the opposite extremities of said bars being pivotally secured to a suitable evener 19, proportionately divided by an aperture 22, by which it is adapted to be fulcrumed to the implement used, and suitable means of hitching three horses thereto, substantially as described.

4. A three-horse tripletree consisting of overlapping pieces 1 and 2, pivotally secured together by pin 3, braces 7, pivotally secured to pieces 1 and 2 at 6, said braces being pivotally united by pin 3 and a suitable block or washer 26, through which pin 3 passes, said block holding braces 7 from pieces 1 and 2, a suitable evener consisting of bars 15 and 16, pivotally secured to pieces 1 and 2 and having a piece 19 secured to their opposite extremities, said piece being proportionately divided by an aperture 22, and suitable means of hitching three horses thereto, substantially as described.

3. A three-horse equalizer consisting of a long arm 1 and a short arm 2, the inner extremities of these arms overlapping and being pivotally secured together by a pin 3, and having transverse slots 4, through which pass suitable pins connecting the two arms and allowing a certain movement at these points of the one arm upon the other, a suitable three-horse evener located in the rear of arms 1 and 2 and pivotally secured to a suitable support at a point to one side of its longitudinal center, the longer arm of evener 19 corresponding to the shorter arm of the tripletree, and vice versa, the corresponding arms of the evener and tripletree being connected by suitable draft-rods 15 and 16, the extremities of said rods being pivotally secured to their connecting parts, and suitable means of hitching one horse to the shorter arm of the tripletree and two horses to the longer arm thereof, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

IRA K. HOPKINS.

Witnesses:

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WM. McCONNELL.