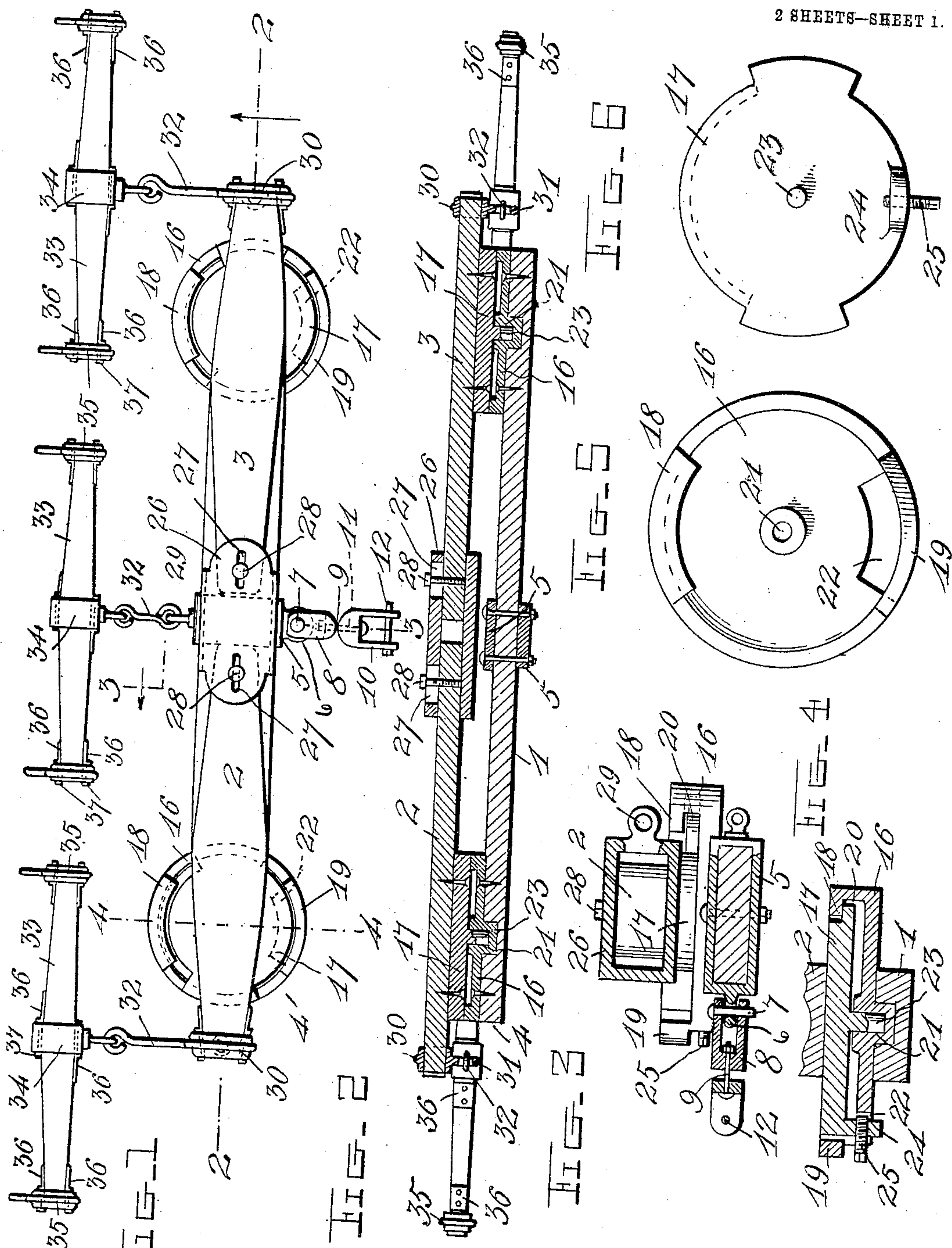


No. 832,115.

PATENTED OCT. 2, 1906.

D. ZERFING.
DRAFT EQUALIZER.
APPLICATION FILED OCT. 5, 1905.

2 SHEETS—SHEET 1



Witnesses

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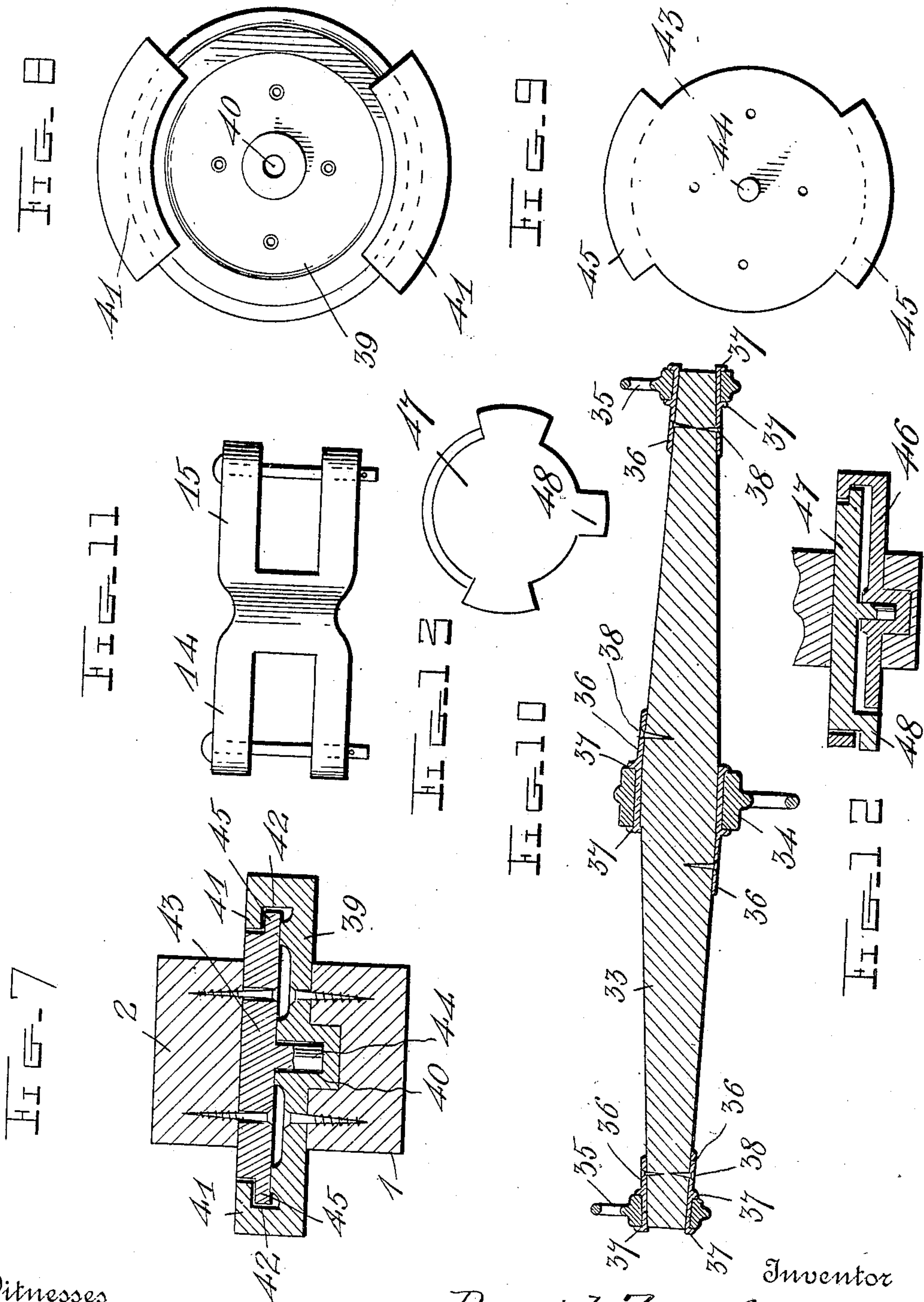
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

DAVID ZERFING, OF IOWA CITY, IOWA.

DRAFT-EQUALIZER.

No. 832,115.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed October 5, 1905. Serial No. 281,553.

To all whom it may concern:

Be it known that I, DAVID ZERFING, a citizen of the United States, residing at Iowa City, in the county of Johnson and State of Iowa, have invented certain new and useful Improvements in Draft-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.

This invention relates to improvements in draft-equalizers.

The object of the invention is to provide a simple and improved construction of three-horse draft-equalizers, whereby the same will be rendered more efficient and durable in use and by which the weight of a load will be more evenly distributed among the draft-animals.

The above and other objects are accomplished by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of an equalizer constructed in accordance with the invention. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a central transverse vertical sectional view of the equalizer. Fig. 4 is a transverse vertical sectional view taken through one end of the device on the line 4-4 in Fig. 1, showing the pivotal connection of one of the evener-bars. Fig. 5 is a plan view of the lower stationary member of said connection. Fig. 6 is a bottom plan view of the upper rotary member of the same. Fig. 7 is a transverse vertical sectional view similar to Fig. 4, showing a modified construction of the pivotal connection of the evener-bars. Fig. 8 is a plan view of a lower stationary member of said connection. Fig. 9 is a bottom plan view of the upper rotary member of the same. Fig. 10 is a sectional view through one of the swingletrees. Fig. 11 is a detail view of a modified form of clevis for use on the main equalizing-bar. Fig. 12 is a detail vertical sectional view similar to Fig. 4, showing another modification of the pivotal connection of the evener-bars; and Fig. 13 is a top plan view of the rotary member of the connection shown in Fig. 12.

Referring more particularly to the drawings, 1 denotes a main draft-equalizing bar, and 2 and 3 denote secondary equalizing-bars which are pivotally mounted intermediate their ends by means of my improved pivotal connections 4 upon the ends of the

main bar 1. The main bar 1 may be of any suitable form or construction, and, as shown, has secured thereto a centrally-disposed clip 5, which has a rearwardly-projecting apertured lug 6, through which is adapted to be projected a coupling-pin 7, by means of which one member 8 of a coupling or clevis 9 is pivotally connected thereto. The other member 10 of the clevis 9 is similar in construction to the member 8 and is pivotally connected to the latter by means of a bolt 11. The member 10 is adapted to be connected by means of a pivot-pin 12 to the draft connection of an agricultural machine or any other object; but, if desired, the clevis may be pivoted directly to the draft tongue or pole of a machine or vehicle, as will be readily understood. In place of the clevis or coupling 9, as shown in Fig. 1, I may employ the one shown in Fig. 11. This clevis is very similar to the other one, the only difference being that its two members 14 and 15 are formed integrally with each other instead of being pivotally connected, as in the first instance.

The swivel or pivotal connections 4 of the secondary equalizing-bars 2 and 3 each consists of a stationary member 16, which is secured to one end of the bar 1, and a rotary member 17, which is secured to one of the bars 3, preferably at the point shown. The stationary member 16 consists of a plate of substantially circular form, which has projecting upwardly at its front and rear ends guide-flanges 18 and 19. These flanges are curved or segmental in shape and the forward one 18 is undercut, as shown at 20, to receive the forward edge of the rotary member 17. In the center of the stationary member 16 is formed a centrally-disposed pivotal aperture 21, and adjacent to the central portion of the rear flange 19 is formed a guide opening or slot 22. The rotary member 17 is substantially circular in form and has depending from its center a pivot-stud 23, which is rotatably mounted in the pivot-opening 21 of the member 16. At the rear of said rotary member 17 is a downwardly-projecting lug 24, which is adapted to project into and to slide in the guide opening or slot 22. In order to hold the lug in said slot and the member 17 upon the member 16, I provide in said lug 24 a set-screw 25, as clearly shown in Fig. 4 of the drawings. By this arrangement it will be seen that when the set-screw 25 is removed the upper rotary mem-

ber 17 may be readily removed or disengaged from the lower or stationary member 16 of the connection. When, however, the set-screw is in place, as shown in Fig. 4, the parts
5 will be held together and the draft-equalizing bars 2 and 3 permitted to have a limited swinging or pivotal movement upon the bar 1.

The inner ends of the bars 2 and 3 project
10 into the open end of a rectangular frame or connection 26, which has formed in its upper side two longitudinally-disposed slots 27. Projecting through said slots 27 and into the inner end of the bars 2 and 3 are screws or
15 studs 28, which are adapted to limit the sliding movement of the frame or connection 26 upon the ends of the bars 2 and 3 and to retain the latter within said connection. Upon the front of said connection 26 is
20 formed a forwardly-projecting apertured lug 29, and upon the outer end of each of the equalizing-bars 2 and 3 is a clip 30, which is formed with a downwardly-projecting apertured lug 31. To each of the lugs 29 and 31 is
25 connected by means of a link 32 a swingle-tree 33. The link 32 is preferably constructed as herein shown and is adapted to be engaged with a clip 34, secured centrally to the swingle-trees 33. Upon each end of the
30 swingle-trees 33 are clips 35, which are similar in construction to the clips 30 and 34. As clearly shown in Figs. 1 and 10 of the drawings, each of the clips 30 and 34 is secured in position by pairs of metal plates 36, which
35 are inserted between the outer faces of the bars and the walls of the recesses in said clips through which said bars are passed. On the outer end of each of the plates 36 is
40 formed a right-angularly projecting flange 37, the inner end of said plates being secured by means of a nail or screw, as shown at 38.

In Figs. 7, 8, and 9 is shown a modified construction of the pivotal or swivel connection between the main and secondary equal-
45 izing-bars, said connection consisting of a stationary plate or member 39, which is circular in form and is adapted to be secured to the main equalizing-bar 1, as shown. In the plate 39 is formed a centrally-disposed pivot-
50 pin 40, and on the opposite front and rear edges of said plate are formed upwardly-projecting segmental flanges 41, said flanges being undercut, as shown at 42. Removably mounted upon the lower stationary member
55 39 is an upper rotary plate or member 43, said member being provided with a centrally-disposed pivot-stud 44, which is adapted to engage the pivot-opening 40 of the plate 39. On the opposite edges of the rotary
60 plate or member 43 is formed segmental projections 45, which are adapted to be engaged with the undercut segmental flanges 41 of the stationary member 39, whereby when said
65 rotary member is engaged with said stationary member the former will be rotatably

held in place upon said stationary member or plate, thereby permitting the secondary equalizing-bars 2 and 3, which are connected to said rotary members, to have a free oscillatory movement on the equalizing-bar 1. 70

In Fig. 12 is shown a detail sectional view of another modified construction of the pivotal connection between the main and secondary equalizing-bars. In this instance the stationary and rotary members 46 and 47 are
75 similar to those shown in Fig. 4, except that the rotary member is provided with a rearwardly-projecting lug 48 to take the place of the set-screw 25, as shown in said Fig. 4.

From the foregoing description, taken in
80 connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, 85 and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what 90 I claim as new, and desire to secure by Letters Patent, is—

1. A draft-evenner comprising a main equalizing-bar, two secondary equalizing-bars pivotally mounted intermediate their
95 ends upon the ends of said main bar, a sliding and pivotal connection between the inner ends of said secondary bars, said connection comprising a rectangular frame adapted to receive the ends of said secondary bars and
100 formed with longitudinally-disposed slots, guide-studs passed through said slots and into the ends of said secondary bars, and draft devices upon said connection and the outer ends of the said secondary bars, sub-
105 stantially as described.

2. In a draft connection, the combination with two bars, of a pivotal or swivel connection between them, comprising a stationary member secured to one of said bars and
110 formed with a pivot-stud opening and a guide-slot, guide-flanges upon said stationary member, a rotary member secured to the other of said bars and seated between the guide-
115 flanges of said stationary member, a pivot-stud upon said rotary member seated in said opening in said stationary member, and a lug upon said rotary member and projecting into and sliding in the slot in said stationary member, substantially as described. 120

3. A swivel or pivotal connection of the character described, comprising a stationary member formed with a pivot-stud opening and a guide-slot, curved guide-flanges upon
125 said member, one of said flanges being undercut, a rotary member mounted in said stationary member between its guide-flanges, a pivot-stud upon said rotary member in pivotal engagement with said opening, a lug upon said rotary member projecting into and 30

having limited movement in said guide-slot, and means for retaining said rotary member in said stationary member, substantially as described.

- 5 4. A swivel or pivotal connection of the character described, comprising a stationary member formed with a pivot-stud opening and a guide-slot, curved guide-flanges upon
10 said member, one of said flanges being undercut, a rotary member mounted in said stationary member between its guide-flanges, a pivot-stud upon said rotary member in piv-

otal engagement with said opening, a tongue upon said rotary member projecting into and having limited movement in said guide-slot, 15 and a set-screw for retaining said rotary member in said stationary member.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DAVID ZERFING.

Witnesses:

GEO. W. BALL,
E. A. LLOYD.