

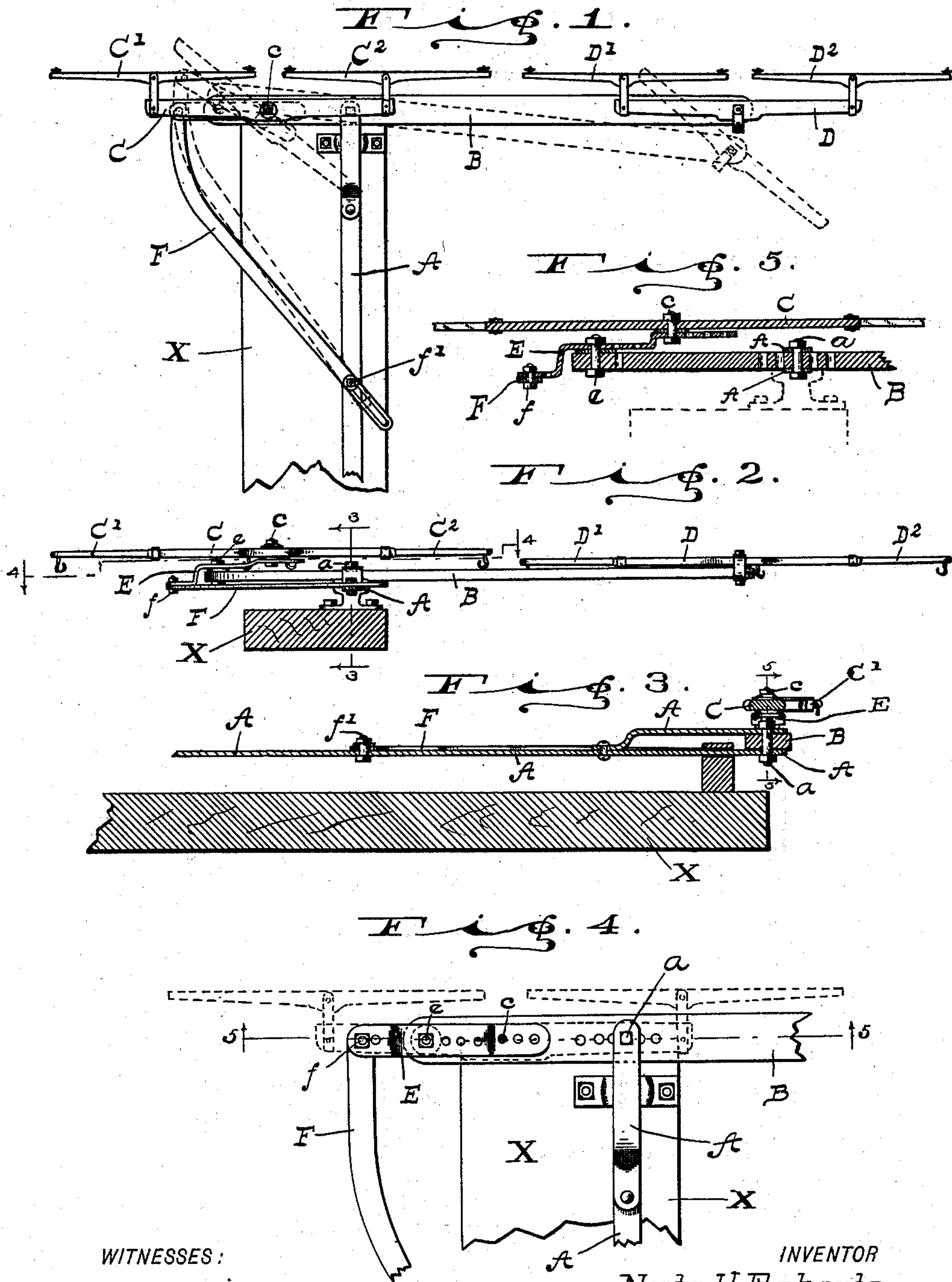
(No Model.)

2 Sheets—Sheet 1.

N. H. ROBERTS.
DRAFT EQUALIZER.

No. 524,790.

Patented Aug. 21, 1894.



WITNESSES:

F. W. Warner.
J. A. Walsh.

INVENTOR

Nate H. Roberts.

BY

Chester Bradford,
ATTORNEY.

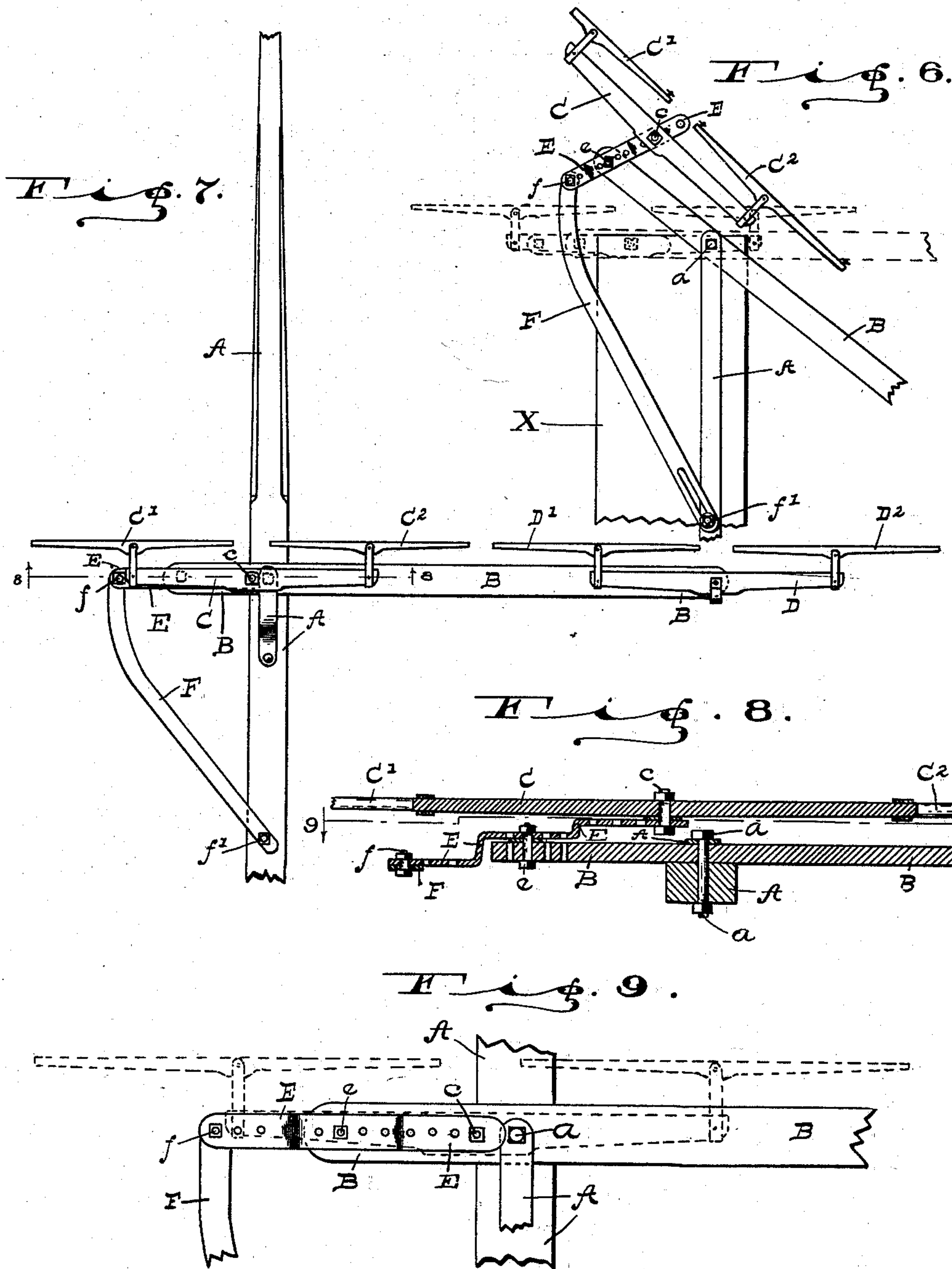
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UNITED STATES PATENT OFFICE.

NATE H. ROBERTS, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF
TO ELIAS C. ATKINS, OF SAME PLACE.

DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 524,790, dated August 21, 1894.

Application filed October 28, 1893. Serial No. 489,419. (No model.)

To all whom it may concern:

Be it known that I, NATE H. ROBERTS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Draft-Equalizers, of which the following is a specification.

The object of my said invention is to provide a device by which a considerable number of animals may be attached for work, abreast, with unequal numbers upon the respective sides of the draft attachment. It is especially valuable in plowing, reaping and such like work where one animal only can properly be upon the work side, while the remainder should be upon the other side.

I have illustrated a draft equalizer arranged for four horses, with three upon one side of the draft-bar or tongue, and one upon the other.

This invention will be first fully described, and the novel features thereof then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a draft equalizer embodying my said invention attached to the draft-bar of a plow;—such a plow, for instance, as that shown in Letters Patent of the United States No. 496,119, dated April 25, 1893; Fig. 2, a rear elevation thereof, the draft-bar and plow-beam being shown in cross section; Fig. 3 a sectional view, on a somewhat enlarged scale, on the dotted line 3 3 in Fig. 2; Fig. 4 a view, also on an enlarged scale, looking downwardly from the dotted line 4 4 in Fig. 2; Fig. 5 a detail sectional view on the dotted line 5 5 in Fig. 4; Fig. 6 a view similar to a portion of Fig. 1, showing another position of the parts, as when the team is turning, an intermediate position being shown in dotted lines in Fig. 1; Fig. 7 a top or plan view of my said invention when applied to a tongue instead of a draft-bar; Fig. 8 a sectional view on the dotted line 8 8 in Fig. 7, and Fig. 9 a view as seen from the dotted line 9 9 in Fig. 8. Figs. 7, 8 and 9 show the same general construction as the other figures, but the relative sizes and positions of some of the parts are varied some-

what to show the adaptation of the invention to a tongued vehicle or implement.

In said drawings the portions marked A represent the draft-bar or tongue to which my improved draft equalizer is or may be attached; B the evener-bar; C and D the double-trees; E a lever secured to the double-tree C and to the evener B, and F a stay-bar running from the end of the lever B back to a point on the tongue or draft-bar.

The draft-bar or tongue A may, so far as my present invention is concerned, be of any ordinary or desired construction. In Figs. 1 to 6, inclusive, it is the draft-bar of the plow of Patent No. 496,119, above referred to, a fragment X of the plow-beam being also shown; and in Figs. 7 to 9, inclusive, it is an ordinary tongue. These two devices are shown by way of illustration merely, however, and any other forms would bear the same relation to the invention. I may say, however, that practical use of the invention upon the plow referred to has shown it to be of great value in connection therewith.

The evener B is in itself simply a straight strong bar secured at an appropriate point to the draft-bar or tongue by means of a bolt *a*, said point being much nearer one end than the other. It is one of a system of levers by which the desired advantage is secured whereby an unequal number of animals will be positioned upon the two sides of the line of draft.

The double-tree C is secured by a central pivot *c* to one end of the lever E. In itself it is an ordinary double-tree and carries the single-trees C' and C² at its ends in an ordinary and well known manner. The double tree D is an ordinary double tree, and is attached in the ordinary manner to the end of the evener bar B, and carries the usual single-trees D' and D².

The lever E is a bent lever, as shown, and is secured to one end of the evener B by a pivot *e* at a point intermediate its ends, the double-tree C being upon one end, and the stay-bar F being secured to the other by a pivot-bolt *f*. This lever is the means by which the great advantage or leverage in draft may be secured. As will be observed, this lever, as well as the evener B itself, is provided with

a series of holes, whereby the various attachments may be shifted, and the desired adjustment thus secured.

The stay-bar F in ordinary operation serves merely as a support for the fulcrum for the lever E (which is a lever of the second order) whereby the pull on the double-tree C is enabled to be effectively exerted through the bolt *e* upon the evener B, it being observed that the fulcrum point *f* is nearer the load, which is attached at *e*, than said load is to the pulling point, which is at *c*, these various points being, however, as before observed, adjustable as desired. This stay-bar F ordinarily rests against the stay-bolt *f'*, as shown most plainly in Figs. 1 and 6, and in ordinary operation presses back against said stay-bolt. In turning, however, it is necessary that the evener-bar B should swing, and this is permitted by a slot in the end of the stay-bar F, as will be readily seen upon a comparison of Figs. 1 and 6.

It will be observed that although the animals attached to the single-trees C² and D' and D² are upon one side of the point of attachment, or nearly so, and the animal attached to the single-tree C' alone upon the other side, still, by reason of the attachment of the double-tree to the lever E, which multiplies the pull upon the short end of the evener B, the animals may be all held properly in line, without one having advantage over the others, except such as may purposely be given in case where one animal or one pair of animals is stronger than the other or others.

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

1. The combination, in a draft equalizer, of the evener secured to the draft-bar or tongue at a point nearer one end than the other, a lever secured to the short end of said evener, a

stay-bar or fulcrum support extending back from the end of said lever to the draft-bar or tongue, a double-tree secured upon the other end of said lever, and a second double-tree secured to the long end of said evener, substantially as shown and described.

2. The combination, in a draft equalizer, of the long evener bar secured to the vehicle or implement to be drawn at a point nearer one end than the other, the usual double-trees and single-trees, one set whereof are secured directly to the long end of the evener, and the other set to a lever, said lever, which is secured to the short end of said evener at a central point, and a stay-bar or fulcrum support attached to the outer end of said lever and extending back and attached to a suitable point on the vehicle or implement.

3. The combination, in a draft equalizer, of an evener B secured to a draft-bar or tongue by a pivot-bolt *a* and provided with several holes in either of which said pivot-bolt may be placed, a lever E secured to said evener by a bolt or pivot *e*, a stay-bar or fulcrum support secured to said lever by a pivot or fulcrum *f*, said lever being provided with several holes in either of which said pivot or fulcrum may be placed, and a double-tree C secured to the long end of said lever E by a pivot bolt *c*, said lever being provided also at this end with several holes in either of which said pivot may be placed, the whole being arranged and operating substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 23d day of October, A. D. 1893.

NATE H. ROBERTS. [L. S.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.