

No. 698,826.

Patented Apr. 29, 1902.

W. S. EMERT.
DRAFT EQUALIZER.

(Application filed Feb. 5, 1902.)

(No Model.)

Fig. 1.

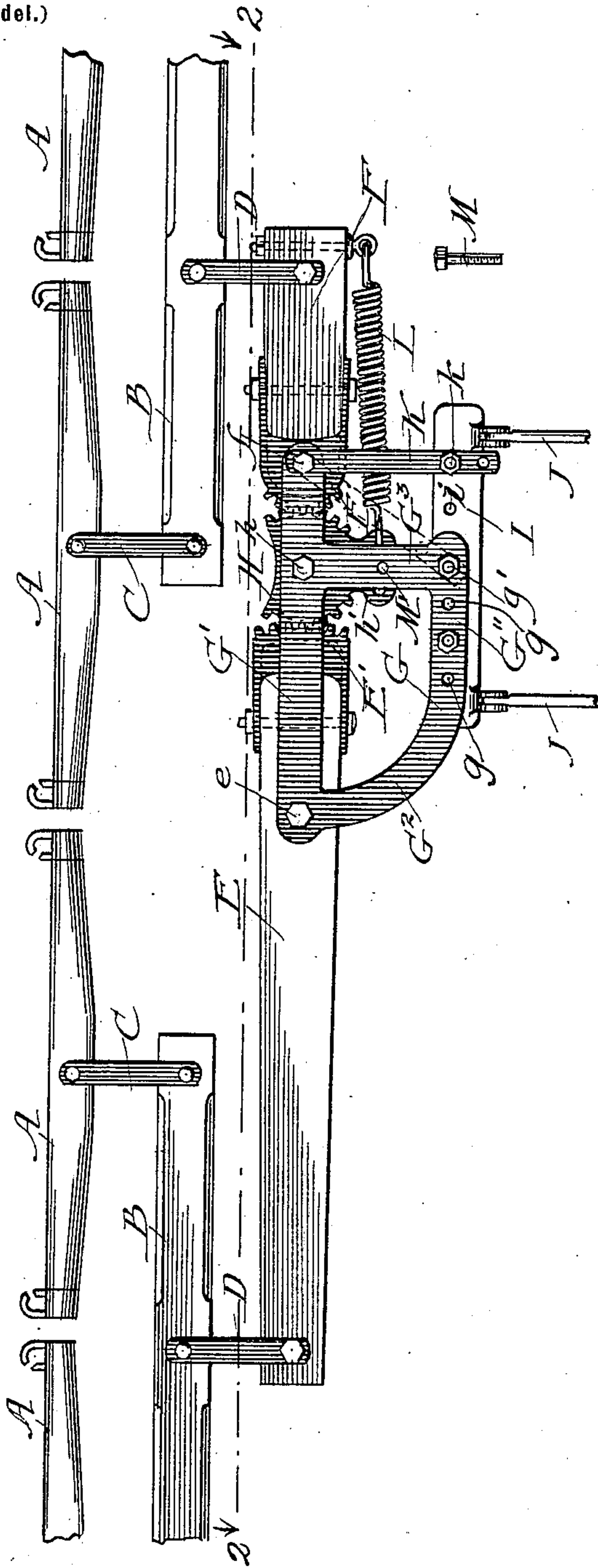
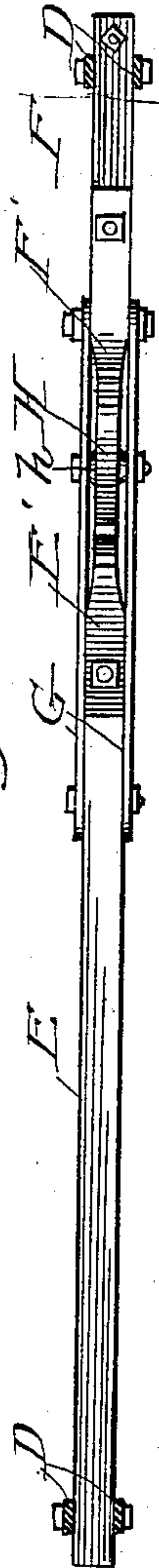


Fig. 2.



Witnesses:
Frank D. Blanchard
Bella Evans.

Inventor:
W. S. Emert
By *[Signature]*
and *[Signature]*
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM S. EMERT, OF AVERYVILLE, ILLINOIS.

DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 698,826, dated April 29, 1902.

Application filed February 5, 1902. Serial No. 92,653. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. EMERT, a citizen of the United States, residing at Averyville, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Draft-Equalizers, of which the following is a specification.

The purpose of draft-equalizers is so well known by those skilled in the art that it need not herein be specifically set forth.

The principal object of the invention is to provide a draft-equalizer having improved mechanism for equalizing inequalities, due to any cause whatsoever, tending to produce side draft on the plow, harvester, vehicle, or other machine or implement; and to this end the invention, broadly stated, consists in a pair of differential levers fulcrumed in a suitable frame and adapted to react upon each other through the medium of an intervening part.

A minor object of the invention is to provide such a device with means for locking the levers and restraining them from movement about their respective fulcrums, thereby converting them into the equivalent of a rigid equalizing-bar of common construction, such as is customarily used for transmitting the draft to the pair of doubletrees used for a four-horse team; and this part of the invention, broadly stated, consists in means for locking together and confining against movement the relatively movable parts of a draft-equalizer.

In the accompanying drawings, which are made a part of this specification, Figure 1 is a plan view of a draft-equalizer embodying the invention. Fig. 2 is a vertical section thereof on the line 2 2, Fig. 1, looking in the direction of the arrows.

The four singletrees A are connected in pairs with the doubletrees B by means of links C or other suitable devices. The doubletrees are in turn connected by links D with the outer ends of a pair of levers E and F fulcrumed at *e* and *f*, respectively, in a suitable frame G. These levers carry at their inner ends toothed segments E' and F', which are concentric with their fulcrums, respectively, and which mesh with corresponding teeth of a rocker H in the nature of a segmental gear-wheel fulcrumed at *h* upon the frame G. Preferably each of the levers is

constructed of a heavy bar of wood and a malleable-iron casting carrying the toothed segment and having a socket in which the end of the bar is secured by a bolt or other suitable device. The frame G is made up of two similar plates, one of which is above and the other below the levers E and F and the rocker H, said plates being perforated for receiving the fulcrums *e*, *f*, and *h*, and being provided also with a series of perforations *g* for receiving the bolt or bolts *g'* or other device or devices through the medium of which it is attached to the machine to be drawn. In the drawings I have shown it as being attached to a device I in the nature of a double clevis connected by any suitable means with the beams of a gang-plow, fragments of which beams are shown at J. This double clevis consists of a heavy cross-head having a series of perforations *i*, adapted to be brought to register with the perforations *g* of the frame G and to receive the bolt or other device by which the clevis and frame are connected.

Each of the two plates forming the frame comprises a straight portion G', lying parallel with the levers E and F when the latter are in normal position, a portion G'', in which the perforations *g* are formed, a curved portion G³, connecting the portions G' and G'' at one end, and the portion G², connecting the other end of the portion G'' with the portion G' at a point opposite the fulcrum *h* of the rocker, the portion G' being extended beyond this point to receive the fulcrums *f* of the lever F. In order to sustain this projecting end of the portion G', links K are used. They are perforated for the passage of the fulcrum-pin *f* and for the passage of a pin *k*, which passes also through one of the perforations of the clevis I or through the perforations of the plates aforesaid at the junctions of the portions G'' and G³, as indicated by dotted lines in Fig. 1. The object in providing the clevis I and the frame G each with a series of perforations is to enable the frame G to be set to the right or left, as may be necessary, and it may sometimes happen that their relative positions will not enable the links K to reach the clevis. It is in order to meet this condition that provision is made for connecting the links K with the frame G. Otherwise the projecting end of the portion G' of the

frame might be subjected to injurious strains. I desire to have it understood, however, that in its broadest aspect the invention is not limited to a frame of the precise form shown in the drawings, but on the contrary comprehends a frame of any construction that will provide bearings for the fulcrums of the parts E, F, and H and that has provision for connecting it to the plow or other implement or machine.

The operation of the device is apparent from the foregoing description and an inspection of the drawings. It is manifest that any strain put upon either of the differential levers E or F will react upon the other of said levers through the medium of the rocker H, and the resulting strains will be transmitted to the frame G through the medium of the fulcrums *e*, *f*, and *h*.

In the drawings I have shown the arms of the lever E as having the relations of three to one and the arms of the lever F as having the relations of four to one approximately; but I desire to have it understood that in this respect the invention is not limited. On the contrary, the differential of the levers may be changed to meet the requirements of particular cases.

In order to hold the levers normally in line with each other, one of them, preferably the short one, is connected by a coiled spring L with an arm *h'*, projecting from the rocker H.

When it is desired to do so, the levers E and F may be locked in line with each other, thereby converting them into the equivalent of a rigid equalizing-bar such as is commonly used, and to this end the rocker and the frame G are provided with registering perforations M' for receiving a pin M. When this pin is in place, the rocker is held against movement, and it in turn holds the levers E and F against movement.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a draft-equalizer, the combination of a pair of levers having toothed segments concentric with their respective fulcrums, an interposed rocker having teeth meshing with

the teeth of the levers, and a suitable frame supporting the fulcrums of the levers and rocker, substantially as described.

2. In a draft-equalizer, the combination of a pair of differential levers having toothed segments concentric with their respective fulcrums, an interposed rocker having teeth meshing with the teeth of the levers, a frame supporting the fulcrums of the levers and rocker, and a coiled spring connected at one end to one of the levers and at the other end to the rocker, substantially as described.

3. In a draft-equalizer, the combination of a pair of differential levers arranged in line with each other, a frame supporting the fulcrums of the levers, said frame being provided with a series of perforations arranged parallel with said levers, means interposed between the levers for transmitting movement from one to the other, said transmitting means being supported by the frame, and a link mounted upon the fulcrum of one of the levers and adapted to be connected to the frame, or to the plow, or other machine, substantially as described.

4. In a draft-equalizer, the combination of a pair of differential levers, means interposed between them for transmitting movement from one to the other, a suitable frame supporting the fulcrums of the levers and means for locking the levers and holding them against relative movement, substantially as described.

5. In a draft-equalizer, the combination of a pair of differential levers, a rocker interposed between them for transmitting movement from one to the other, said levers and rocker having intermeshing teeth, a frame supporting the fulcrums of the levers and rocker, said frame and rocker being provided with perforations adapted to register, and a pin adapted to be inserted in said perforations for locking the rocker and thereby holding the levers in line with each other, substantially as described.

WILLIAM S. EMERT.

Witnesses:

GEORGE A. YOUNG,
ROBT. E. MEYER.