



# United States Patent Office.

WILLIAM P. DUNLAP, OF MAQUOKETA, IOWA.

Letters Patent No. 66,638, dated July 16, 1867.

## IMPROVEMENT IN EQUALIZING THE DRAUGHT OF HORSE-POWERS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM P. DUNLAP, of Maquoketa, in the county of Jackson, and State of Iowa, have invented a new and useful Improvement for Equalizing the Draught of Horse-Powers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings and letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a plan view of my equalizer.

Figure 2 is a sectional elevation of one of the arms, showing how the segment is fitted to and held in position for operation.

The nature of my invention consists in applying a segment to the end of each draw-bar, so arranged that a radius rigidly attached to one end of said segment may pass into a slot, formed by cutting away the top of the end of the draw-bars, and covering said end of the bars with suitable metallic plates, in order that the inner end of the radius may be pivoted to the draw-bars at such points as to allow the segments to swing on said pivots when a greater power is applied to one draw-bar than to the others. I use, in connection with the above, a central ring, to which connecting-rods are attached, and also secured to the ends of the segments, for the purpose of causing one or more horses travelling faster than the others to carry one end of the segment inward toward the centre of the horse-power, and the central ring toward the said segment, by which means the greatest portion of the draught is thrown upon the teams moving the fastest, without increasing the motion of the horse-power. This principle is well understood, but I claim to have made an improvement in the use of the segment not heretofore employed, in the following particulars:

First. The segment is operated in a substantial guide or slot, and is less liable to get out of order than the common levers, and does not get entangled with straw or when fractious teams are used.

Second. Provision is made, by means of the radius, for giving a team attached to any one segment all of the advantage that the nature of the case requires with less trouble than by means of any style of equalizer now in use, as will be hereinafter shown:

A are the draw-bars, attached to the horse-power B in the usual manner. C represents my segment, which is made of suitable metal, and rigidly attached to the radius or bar D, and operates in the slot E, fig. 2, made between the tops of the draw-bars A and the metallic plates F. These plates are made to pass over the ends of the draw-bars, and are bolted fast to the same, in order to provide a suitable support for the segment C and bar D. This bar is pivoted to the draw-bar A at H, and has the holes *m n* made through it for attaching the rods J, the inner hole *m* being used only when it is required to give the team hitched to any segment the advantage of draught. The general construction of the rods J and ring I is similar to equalizers now in use; I therefore make no claim to originality in regard to them, but simply use the arrangement in connection with my device.

### Operation.

The power must be applied to the segments C at S in the usual manner, after which the equalizer can be worked without further attention. The red lines K represent the position which the segments will occupy when the team attached to the segment C' has moved forward more rapidly than those attached to the other segments. It will be seen, from the position of these lines and the direct line X, that the fastest moving team draws the end of the segment C nearest to the centre of the horse-power, and also draws the central ring I outward, thus losing leverage, and as a result is compelled to travel the same pace as the other teams attached to the segments.

Having thus fully described my device, what I claim and desire to secure by Letters Patent of the United States, is—

The arrangement and combination of the segment C, having the radius D, with rods J, ring I, and arms A, substantially as and for the purpose set forth.

WILLIAM P. DUNLAP.

Witnesses:

GEORGE L. CHAPIN,  
A. HAYWARD.