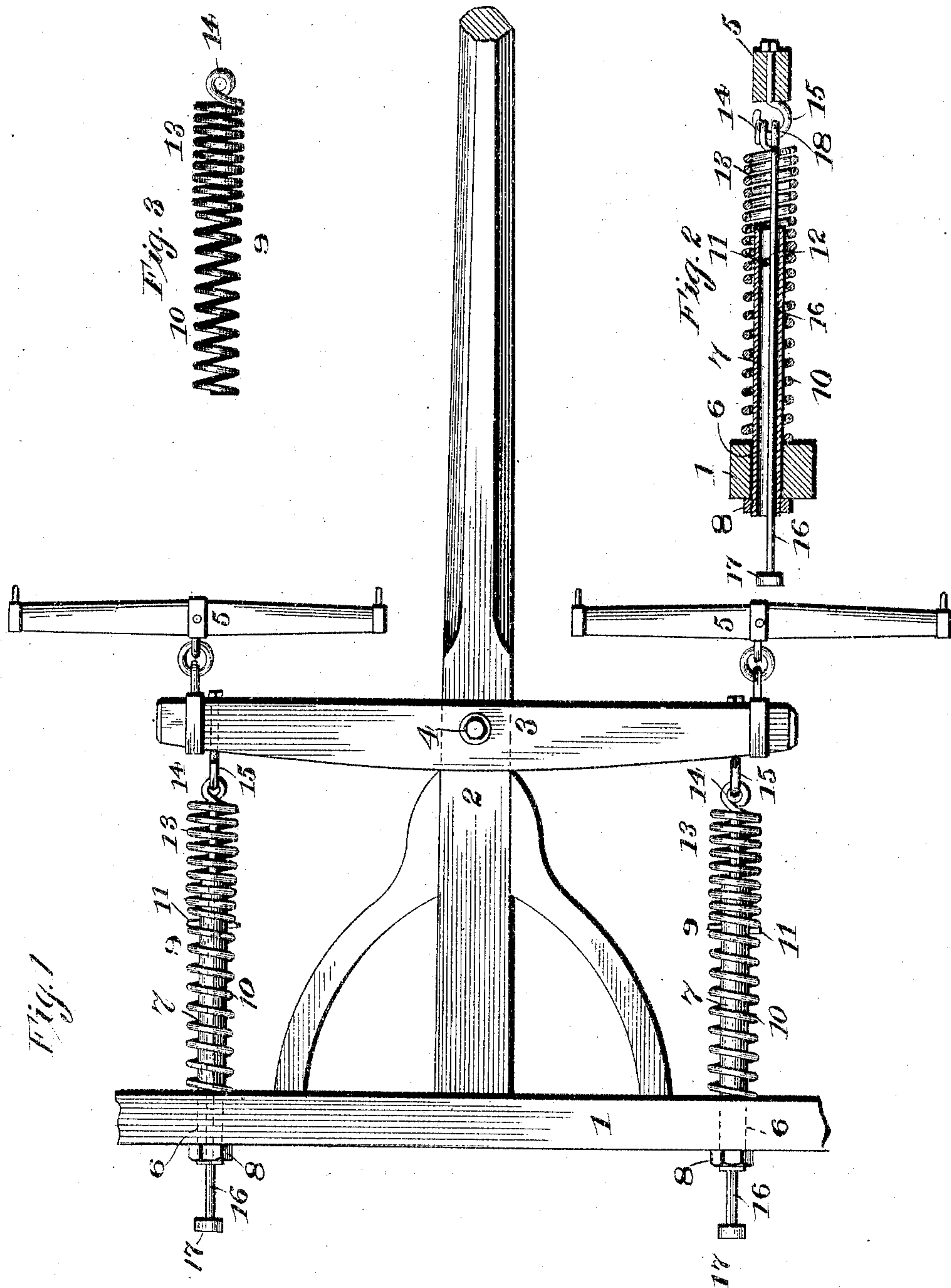


No. 780,084.

PATENTED JAN. 17, 1905.

J. YOST.
DRAFT EQUALIZER.
APPLICATION FILED JUNE 2, 1904.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN YOST, OF THORNVILLE, OHIO.

DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 780,084, dated January 17, 1905.

Application filed June 2, 1904. Serial No. 210,801.

To all whom it may concern:

Be it known that I, JOHN YOST, a citizen of the United States, and a resident of Thornville, in the county of Perry and State of Ohio, have
5 made certain new and useful Improvements in Draft-Equalizers, of which the following is a specification.

This invention relates to carriages and wagons and concerns itself especially with the
10 draft mechanism.

The object of the invention is to produce a draft-equalizer of simple construction which will operate effectively at all times, so that the doubletree may accommodate itself to circum-
15 stances and distribute the work of hauling between the draft-animals.

The invention consists in the construction and combination of parts, to be more fully described hereinafter and definitely set forth in
20 the claims.

In the drawings, which fully illustrate the invention, Figure 1 is a plan. Fig. 2 is a longitudinal vertical section through the axis of a spring and its contiguous parts which constitutes a part of the invention. Fig. 3 is a
25 plan of the spring referred to above.

Throughout the drawings and specification the same numerals of reference denote like parts.

30 Referring more particularly to the parts, 1 represents the forward axle of a carriage or wagon, to which attaches a tongue 2 in any suitable manner. A doubletree 3 is pivotally attached at 4 to the upper side of the tongue
35 in the usual manner, and this doubletree carries at or near its extremities the usual swingletrees 5.

In applying the invention the axle 1 is preferably provided at opposite points with openings 6, through which openings guide-tubes 7
40 pass loosely, the said guide-tubes having threaded inner extremities, enabling the attachment of nuts 8, as shown.

Disposed coaxially with the tubes 7 and encircling the same, springs 9 are provided. The inner extremities of these springs abut against the forward face of the axle 1, as indicated. The coils of the inner portions 10 of these
45 springs normally dispose themselves at a dis-

tance apart, as shown, so that these portions 50 of the springs are adapted to resist a compressing force, and near the outer or forward extremities of the tubes 7 transverse pins 11 are provided, which project laterally, as shown, passing through openings 12 in the sides of 55 the tubes. These pins rest against the coils of the springs, as indicated. The coils of the outer or forward portions 13 of the springs normally dispose themselves close together, as shown, so that these portions of the springs 60 are adapted to resist a tensile or extending force. The coils 9 terminate forwardly in eyes 14, which are attached to hooks 15, which hooks are secured, preferably, in the back of the doubletree, as indicated. 65

In order to limit the pivotal or rocking movement of the doubletree, stop-rods 16 are provided, which are preferably disposed coaxially within the tubes 7, projecting rearwardly from the extremities thereof, as shown, 70 and these stop-rods are formed at their rear extremities with heads 17. From this arrangement the forward movement of each side of the doubletree will be arrested as soon as the corresponding head 17 engages the rear 75 extremity of its corresponding tube. This mode of operation follows from the fact that the stop-rods 16 are provided forwardly with eyes 18, which also attach to the hooks 15 with the springs. 80

From the construction described it follows that when either side of the doubletree 3 moves forwardly that side will operate to extend the forward portion of the spring attached to it, while the opposite side of the doubletree, which 85 moves toward the rear, will operate to compress the rear portion of the spring lying behind the same. Evidently the springs operate very advantageously to equalize the draft of the animals, producing a forward pressure 90 tending to right the doubletree.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a draft-equalizer, in combination, a 95 movable member adapted to have draft-animals attached thereto, and springs attached to said movable member, said springs having portions

adapted respectively to receive compression and tension.

2. In a draft-equalizer, in combination, a pivoted tree, swingletrees attaching thereto, 5 springs attaching to said tree, said springs having portions adapted respectively to receive compression and tension, said portions being integral, and means for limiting the movement of said pivoted tree.

10 3. In a draft-equalizer, in combination, a movable tree, means for attaching draft-animals thereto, coiled springs attaching to said tree, a member movable longitudinally with respect to said springs, said springs having 15 portions adapted to receive tension and portions adapted to receive compression, and means carried by said movable members for engaging the coils of said springs between the said portions thereof.

20 4. In a draft-equalizer, in combination, a doubletree, coiled springs attaching thereto at their forward extremities, means for supporting the rear extremities of said springs, movable members mounted within the coils of said 25 springs, means for guiding said movable members longitudinally, the rear portions of said springs being adapted to resist a compressing force, the forward portions of said springs being adapted to resist a tensile force, and means 30 carried by said movable members for engaging said springs between the forward and rear portions thereof.

5. In a draft-equalizer, in combination, an axle, a tongue attached thereto, a doubletree 35 carried by said tongue, swingletrees attaching to said doubletree, and springs lying between said axle and said doubletree, said springs having portions adapted to receive compression and portions adapted to receive tension.

40 6. In a draft-equalizer, in combination, a doubletree, an axle, a tongue connecting the same, coiled springs attaching to the rear side of said doubletree, movable members disposed within the coils of said springs and adapted to 45 compress portions thereof, portions of said springs affording means for actuating said movable members.

7. In a draft-equalizer, in combination, an axle, a tongue attached thereto, a doubletree 50 carried by said tongue, coiled springs connecting said doubletree with said axle, said springs being adapted to resist a tensile force or a compressing force, members disposed longitudinally with respect to said springs, means 55 for guiding the same, and means carried by said members for engaging said springs.

8. In a draft-equalizer, in combination, a doubletree, a transverse member disposed behind said doubletree, springs connecting said 60 doubletree with said transverse member, guide members disposed longitudinally with respect to said springs, means for guiding the same upon said transverse member, means for limiting the longitudinal movement of said guide

members, and means carried by said guide 65 members limiting the movements of the coils of said springs.

9. In a draft-equalizer, in combination, an axle, a tongue, a doubletree attached to said tongue, springs connecting said doubletree 70 with said axle, the coils of a portion of said springs being adapted to receive a tensile force, another portion of said springs being adapted to receive a compressing force, members disposed longitudinally with respect to said 75 springs, means for guiding the same upon said axle, means carried by said members for engaging the coils of said springs between said portions thereof and means for limiting the movement of said members. 80

10. In a draft-equalizer, in combination, an axle, a tongue, a doubletree attached to said tongue, springs attaching to the rear of said doubletree, said springs having an extensible 85 forward portion and a compressible rear portion, guide members disposed longitudinally with respect to said springs, pins carried thereby adapted to engage the coils of said springs between the said forward and rear portions thereof, means for guiding said guide mem- 90 bers at said axle and means for limiting the forward movement of said guide members.

11. In a draft-equalizer in combination, an axle, a tongue attached thereto, a doubletree 95 attached to said tongue, coiled springs attaching to the rear of said doubletree, said springs having extensible forward portions and compressible rear portions thrusting against said axle, guide members disposed within said 100 springs extending forwardly from said axle and adapted to support said springs, transverse pins carried by said guide members engaging the coils thereof between said forward and rear portions and means for limiting the forward movement of said guide members. 105

12. In a draft-equalizer, in combination, an axle, a tongue attached thereto, a doubletree attached to said tongue, springs connecting said doubletree with said axle, tubular mem- 110 bers coaxial with said springs, means for guiding the same across said axle, said springs having extensible portions and compressible portions, transverse pins carried by said tubular members and engaging the coils of said 115 springs between the said portions thereof, means for limiting the movement of said tubular members and rods attaching at the rear of said doubletrees and passing longitudinally through said tubular members, said rods being adapted to limit the movements of said 120 doubletree.

13. In a draft-equalizer, in combination, an axle, a tongue attached thereto, a doubletree attached to said tongue, coiled springs connecting said doubletree with said axle, said 125 springs having extensible forward portions and compressible rear portions, tubular members mounted within said springs, means for

guiding said tubular members through said
axle, said tubular members having means for
limiting the forward movement thereof, trans-
verse pins carried by said tubular members
5 and engaging the coils of said springs between
the said portions thereof, stop-bars attaching
to said doubletree and extending rearwardly

through said springs, said stop-bars having
heads adapted to engage said tubular members
to limit the movement of said doubletree.

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Witnesses:

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