

No. 609,065.

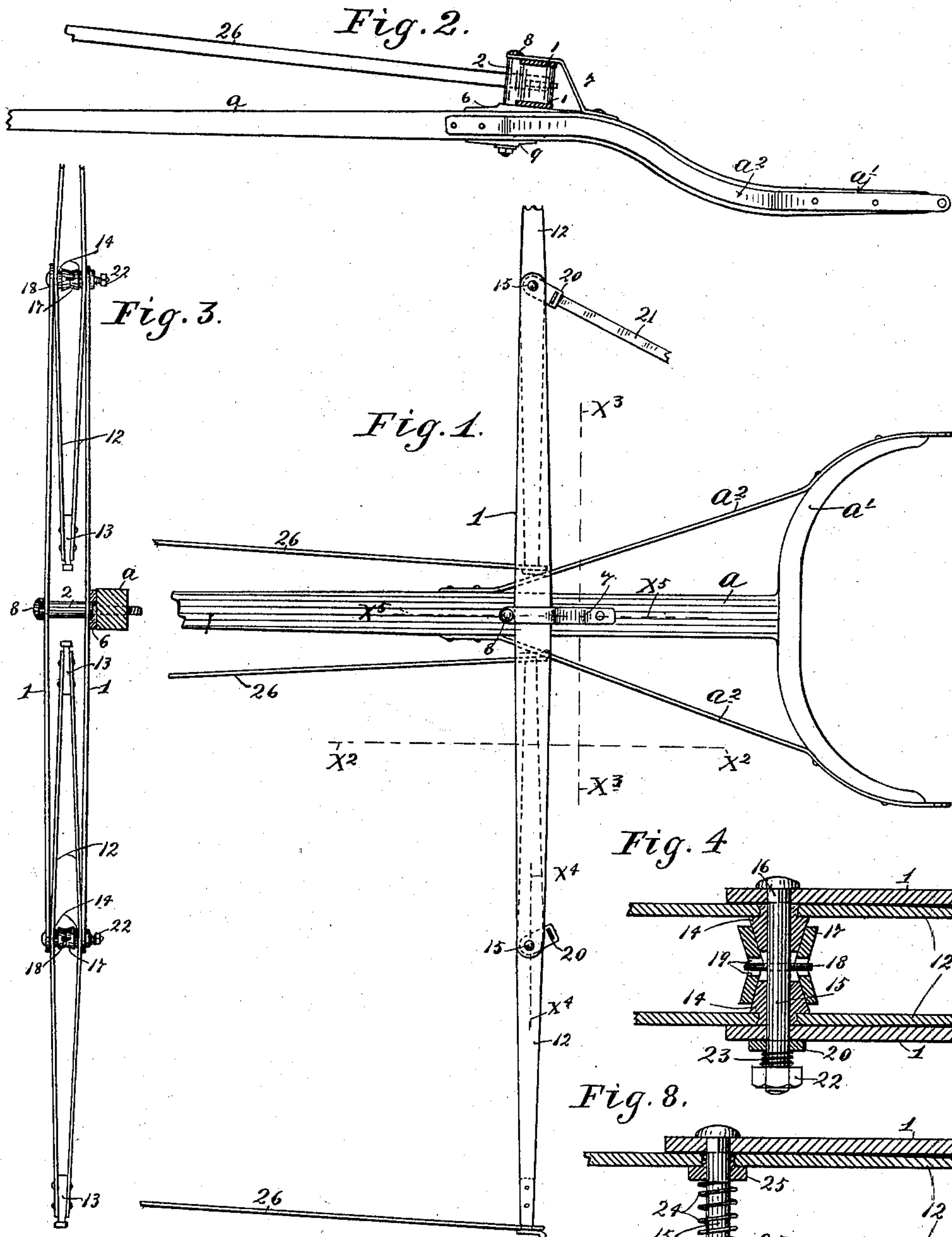
Patented Aug. 16, 1898.

J. N. WILSON.
TWO HORSE EVENER.

(Application filed Sept. 18, 1897.)

(No Model.)

3 Sheets—Sheet I.



Witnesses.
A. B. Opsahl.
Harry Kiegron.

Inventor.
James N. Wilson.
By his Attorney.
Jas. F. Williamson.

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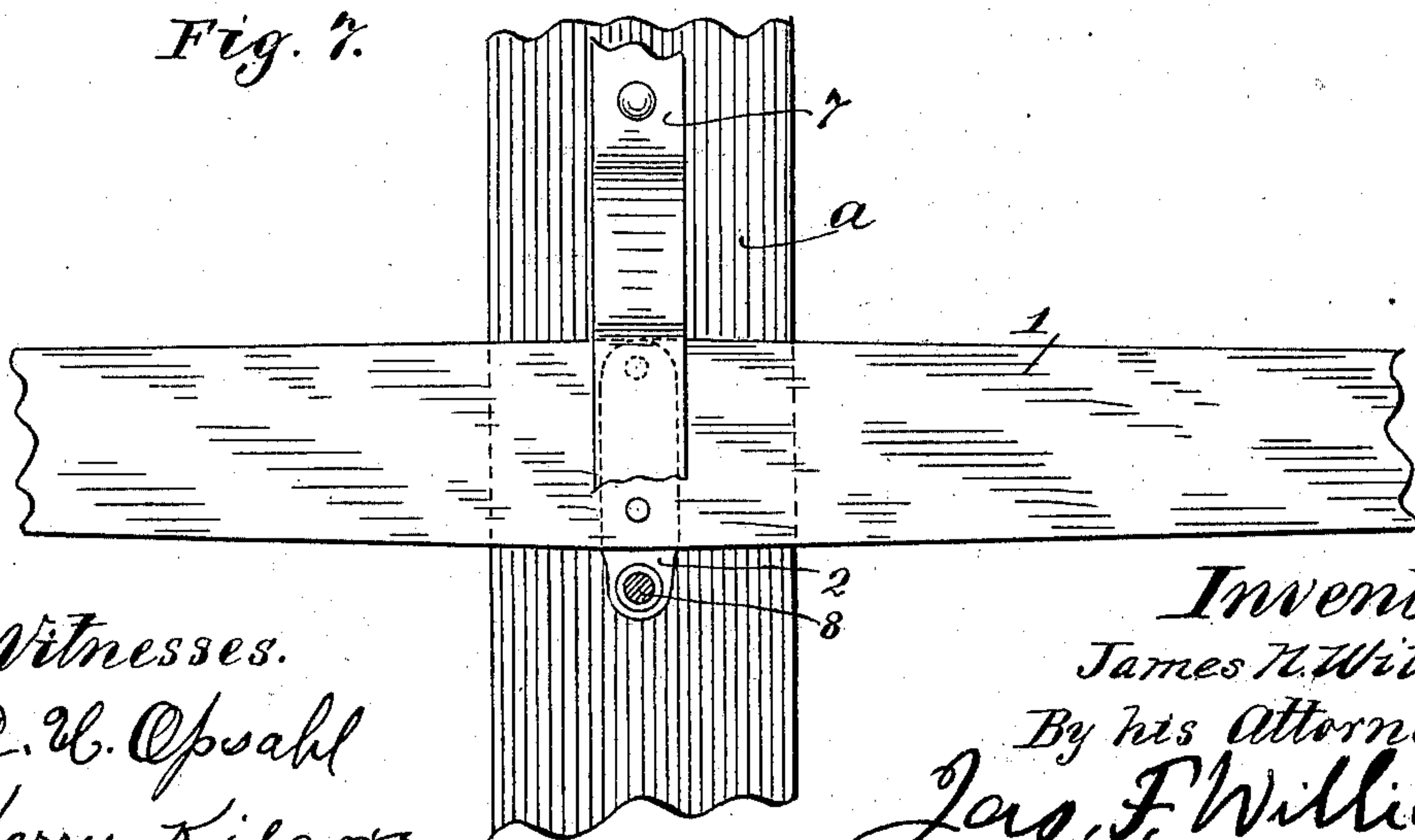
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3. Sheets—Sheet 2.



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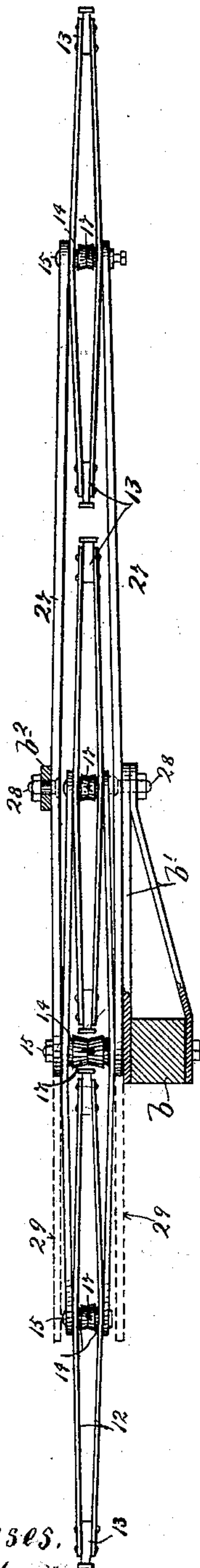
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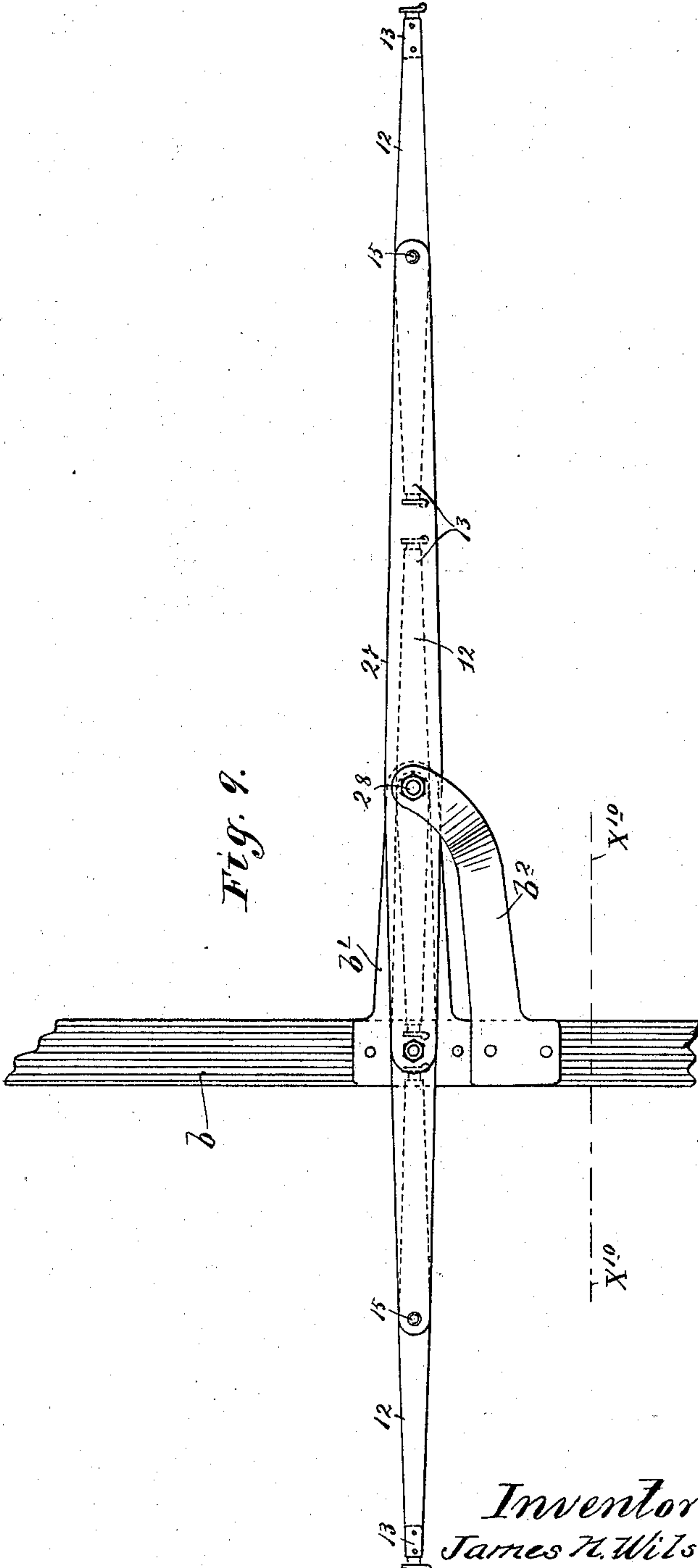
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Fig. 10.



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Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES N. WILSON, OF MINNEAPOLIS, MINNESOTA.

TWO-HORSE EVENER.

SPECIFICATION forming part of Letters Patent No. 609,065, dated August 16, 1898.

Application filed September 18, 1897. Serial No. 652,090. (No model.)

To all whom it may concern:

Be it known that I, JAMES N. WILSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Two-Horse Eveners, &c.; and I do hereby 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.

My invention relates to draft-equalizing devices of that class which embraces double-trees or two-horse eveners and three and four horse eveners or equalizers. It has been the especial object of my present invention to provide an improved antirattling doubletree or two-horse evener for carriages and similar pleasure-vehicles.

To the ends above noted my invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

My invention is illustrated in the accompanying drawings, wherein, like characters indicating like parts throughout the several views—

Figure 1 is a plan view showing a carriage pole or tongue equipped with a doubletree or two-horse evener which is constructed in accordance with my invention, some parts being broken away. Fig. 2 is a vertical section taken on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a vertical section taken on the line $x^3 x^3$ of Fig. 1. Fig. 4 is an enlarged detail view taken on the line $x^4 x^4$ of Fig. 1. Fig. 5 is an enlarged view, partly in side elevation and partly in section, on the line $x^5 x^5$ of Fig. 1. Fig. 6 is a vertical section taken approximately on the line $x^6 x^6$ of Fig. 5, some parts being broken away. Fig. 7 is a plan view of the parts shown in Figs. 5 and 6. Fig. 8 is a detail corresponding in the line of its section to Fig. 4, but illustrating a modified construction. Fig. 9 is a plan view showing a portion of a wagon tongue or pole to which a three-horse evener constructed in accordance with my invention is applied; and Fig. 10 is a transverse section taken through the pole on the line $x^{10} x^{10}$ of Fig. 9, looking toward the evener.

a indicates a carriage-pole of the ordinary

construction, the same being provided with the pronged rear end a' , which is braced from the pole by brace-irons or brackets a^2 . 55

Directing attention first to the construction of the doubletree or two-horse evener illustrated in Figs. 1 to 7, inclusive, it will be noted that the equalizing-beam is made up of a pair of vertically-spaced spring-steel bars 1, which are tied together at their central portions by a center casting 2. The spring-bars 1 are preferably secured to the center casting 2 by a pair of short rivets 3 and a long rivet 4, as best shown in Fig. 5. 65 The center casting 2 is formed with a sleeve-like hub portion 5, the ends of which project to form trunnions both above and below the casting. The lower trunnion or end of the sleeve 5 fits into a suitable seat formed in a bearing-plate 6, which is secured on the upper face of the pole a by means of bolts, rivets, or otherwise, and the upper trunnion or end of said sleeve 5 is journaled in the upper portion of a brace-iron or bracket 7, 75 which is also riveted or otherwise secured to said tongue or pole a .

A king-bolt 8 is passed through the sleeve 5, through the bearing-casting 6, the pole a , and a washer-plate 9 on the bottom of the pole. Said bolt 8 is also passed through the central portion of a truss-bracket 10, the ends of which are riveted or otherwise secured to the under member of the spring-bars 1. This bracket 10 serves to hold the equalizing-beam 85 against vertical movement at its ends. As shown, a nut 11 on the lower end of the bolt 8 holds the same in working position.

It will be noted that the bearing-faces of the upper bearing-iron 6 and of the washer-plate 9 are both inclined upward in the direction of the end of the pole. This, as will later appear, tilts the doubletree or evener so that it will stand in the plane through which the tugs will pass from the whiffletrees 95 to the collars on the horses' necks.

The whiffletrees are also constructed of spring-steel bars 12, the ends of which are riveted together and to the base ends of the tug-hooks 13. At their central portions the whiffletree-bars 12 are spread apart, preferably by cone-bearings 14, as shown in Fig. 4. The whiffletrees work between the bars of the equalizing-beam and are pivotally connected 100

one to each free end of the same by means of bolts 15, which work through suitable seats in the bars 1 and cones 14. The bolts 15 are preferably provided with square or angular sections 16 where they pass through the upper bar 1, so as to hold said bolt from turning with respect to the equalizing-beam.

A double convex conical bearing-sheath 17 works on each pair of cones 14. A pin 18 is passed through the bolt 15 and engages vertically-elongated slots 19 formed in said sheath 17.

20 indicates strap-keepers which are loosely secured one on the lower end of each bolt 15. The stop-straps 21 for limiting the vibratory movements of the equalizing bar or beam 1 are secured at their rear ends one to each prong a' of the pole a and of course have sufficient slack to permit the desired vibrations of the equalizing-beam.

On their lower ends the bolts 15 are shown as provided with nuts 22 and with springs 23, compressed between the strap-keepers 20 and said nuts 22. These springs 23 draw downward on the bolts 15 and keep the cones 14 crowded into the conical sheath 17, and thus prevent rattling of the parts at these pivot-joints. As the conical sheath 17 is held rigid or against rotary movement with respect to the whiffletrees and cones 14 by means of the pins 18, said cones 14 will be caused to move in said sheath 17 as a bearing. Even if the springs 23 were dispensed with the spring of the bars 12 and 1 would press the parts together, so that they would not ordinarily rattle; but said springs are nevertheless desirable, as they insure the antirattling action of the device.

A modified construction (illustrated in Fig. 8) shows a coiled spring 24 on the intermediate portion of the bolt 15 and bearing-blocks 25 secured one to the inner face of each whiffletree-bar 12. In this arrangement the cone-bearings are dispensed with; but the spring 24, acting against the bearing-blocks 25, will prevent all possible rattling of the parts.

26 indicates the tugs of a harness.

A three-horse evener constructed in accordance with my invention is illustrated in Figs. 9 and 10. In this construction b indicates the tongue or pole of a heavy wagon or of a harvesting-machine, for example. b' indicates a bracket secured to the pole or tongue b and projected to the right-hand side of the same, and b^2 indicates another bracket which is also secured to the pole and terminates at its extended end immediately over the extended end of the bracket b' .

In this three-horse evener I employ a part which corresponds to the doubletree or two-horse evener above described, but which instead of being mounted on the pole directly is pivotally mounted in the short free end of a secondary equalizing-beam which is formed by a pair of vertically-spaced steel or metal bars 27. In the long free end of this secondary equalizing-beam 27 I pivotally mount a

single whiffletree 12, preferably by the same means as above described as being used to connect the whiffletrees to the equalizing-beam 1. The short or left end of the equalizing-beam 27 is but half as long as the right-hand or long end of the same. Hence it is obvious that the pulling strain of two horses applied to the left-hand end of said beam 27 through the primary equalizing-beam 1 will equalize with the drawing strain of the single horse applied to the right-hand end of said beam 27.

In order to leave a passage between the bars 27 through which the central member of the whiffletrees may work, I pivotally connect the bars 27 of the secondary equalizing-beam to the offset brackets b' b^2 by means of short nutted bolts 28, extending one upward and the other downward through said brackets, with their heads countersunk into the said bars.

By providing the bars 27 with extensions at their left ends, as indicated by dotted lines at 29 in Fig. 10, the equalizing device may be easily changed from a three-horse evener into a four-horse evener. To accomplish this, it would be necessary to move the pivotal connection between the two-horse evener and said bars 27 outward toward the left twice the distance which it occupies when used in the three-horse evener. Then to complete the four-horse evener another doubletree would have to be substituted for the whiffletree at the right-hand end of the bars 27.

In all of the constructions above described it will be noted that the whiffletrees are located in line with the equalizing-beams, so that with the doubletree and three and four horse equalizers the horses may be located as far back on the tongue or as close to the vehicle as in the case of a single horse attached to the whiffletree of the one-horse vehicle. This of course is made possible from the fact that the whiffletrees are adapted to work within or through the equalizing-beams to which they are attached.

Another important advantage arises from the fact that the strain transmitted to the equalizing-bar from the whiffletrees will be applied in the same plane in which the equalizing-bar itself lies, so that no torsional strain whatever will be put onto said equalizing-beam or the pivotal connection between the same and said whiffletrees.

This construction, whether it be in the form of a doubletree or a three or four horse evener, is very compact and neat in appearance and is at the same time light, strong, and durable. The parts may be stamped from sheet spring-steel and nickel-plated or painted and put together at a small cost. Furthermore, as already pointed out, it will be absolutely silent or antirattling in its action.

When the pole or tongue of the vehicle is constructed to give the proper clearance for the ends of the whiffletrees, the bars of the equalizing-beam may be placed one above and

the other below the tongue, and in this case the draft strain will be applied to the center of the pole at the point of application of said equalizing-beam.

5 It will be understood that various alterations in the specific details of construction other than those above set forth may be made without departing from the spirit of my invention.

10 What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a draft-equalizing device, an equalizing-beam formed of a pair of vertically-spaced bars, whiffletrees formed of vertically-spaced bars, certain of which bars are adapted to spring, and springs applied to press the bars of said beam and said whiffletrees into engagement, to avoid rattling, substantially as described.

20 2. In a draft-equalizing device, an equalizing-beam formed of a pair of vertically-spaced metallic bars, and whiffletrees formed of vertically-spaced metallic spring-bars, which whiffletrees are under spring-tension to spread at their centers to avoid rattling of the parts, substantially as described.

30 3. In a draft-equalizing device, an equalizing-beam formed by vertically-spaced metallic bars, whiffletrees formed by vertically-spaced spring-metal bars that are of themselves under spring-tension to spread, to avoid

rattling, and springs applied to reinforce the spreading action of said whiffletrees, substantially as described.

4. In a draft-equalizing device, an equalizing-beam formed by vertically-spaced metallic bars, whiffletrees formed by vertically-spaced metallic spring-bars provided with cone-bearings at their centers, cone-bearing sockets secured against rotation with said cones, and pivot-bolts passing through said cones and pivotally connecting said whiffletrees to and between the bars of said equalizing-beam, substantially as described.

5. The combination with vertically-spaced bars forming part of a draft connection to a vehicle, of a whiffletree pivoted between said bars, by means of cone-bearings.

6. The combination with an equalizing-beam formed by vertically-spaced bars, of whiffletrees pivoted between said bars, by means of cone-bearings, and means for pressing the cooperating members of said cone-bearings into engagement, with a spring action, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES N. WILSON.

Witnesses:

LILLIAN C. ELMORE,
F. D. MERCHANT.