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J. LORENZ.

MEANS FOR ATTACHING SWINGLETREES TO DOUBLETREES.

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Fig. 1.

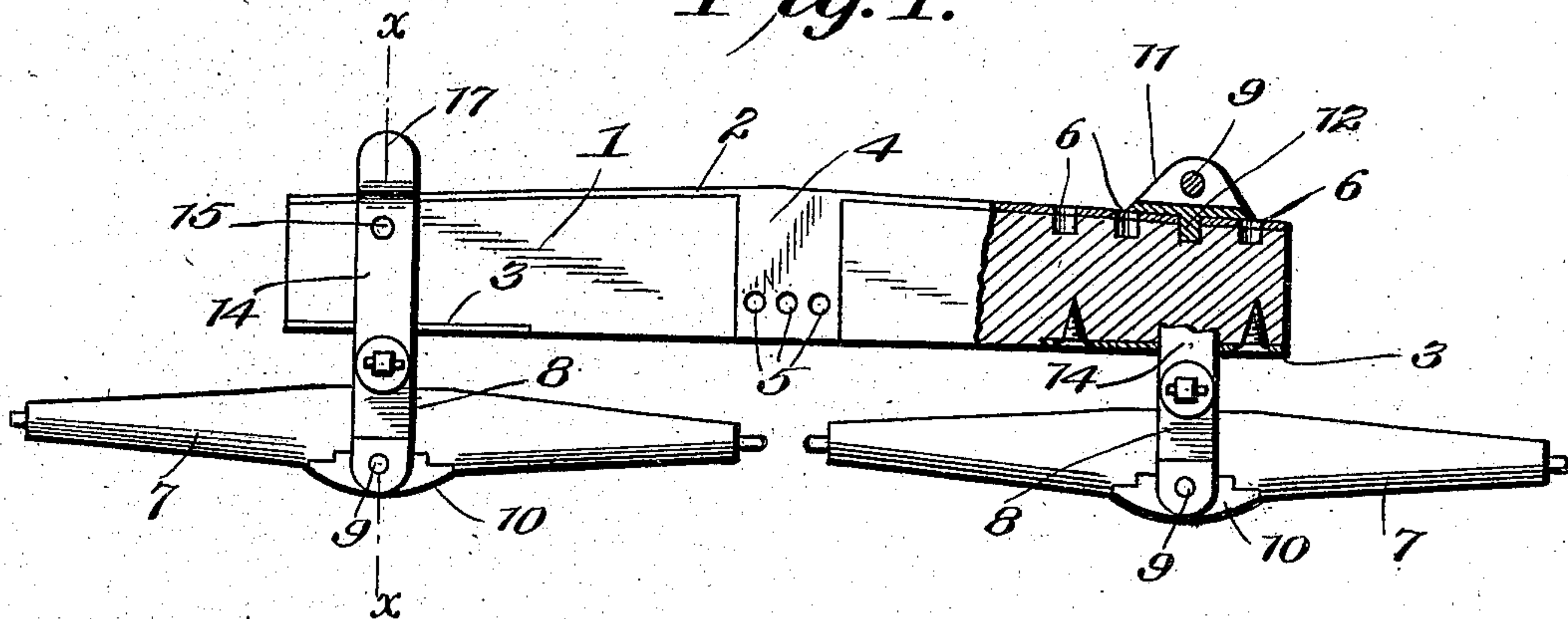


Fig. 2.

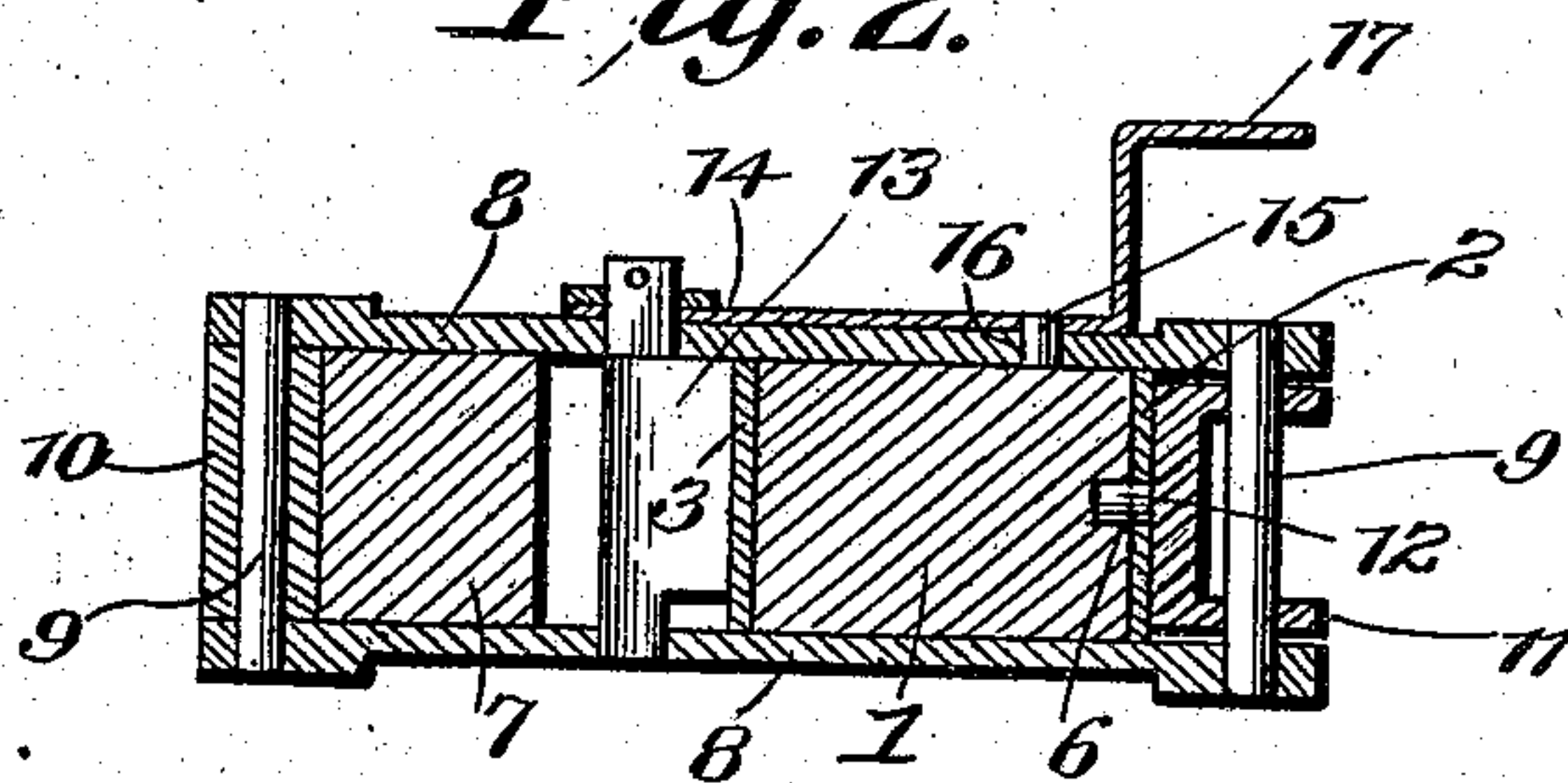
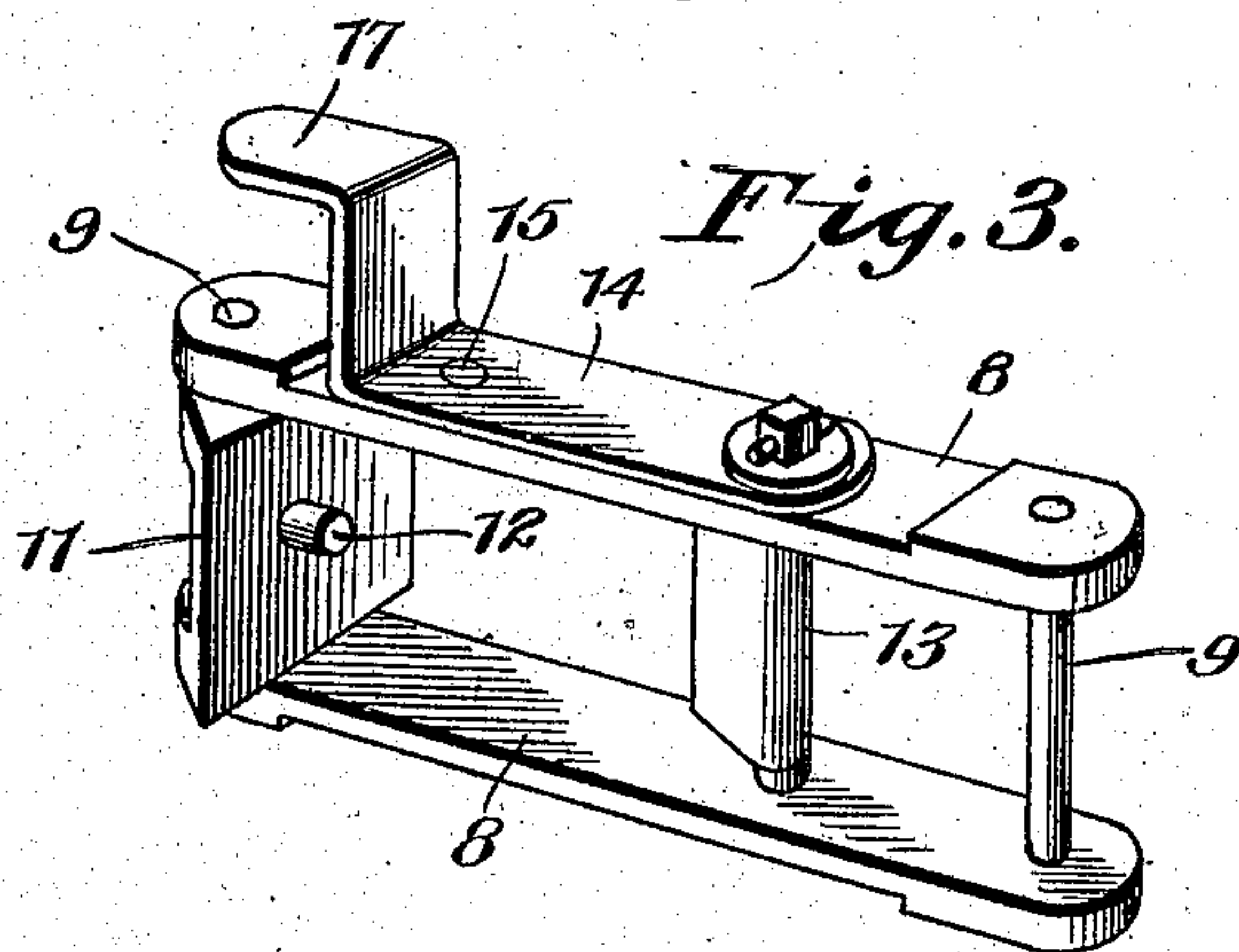


Fig. 3.



Inventor

Julius Lorenz

Witnesses

W. H. Woodman

By

R. A. Macy

Attorneys

UNITED STATES PATENT OFFICE.

JULIUS LORENZ, OF MATTEAWAN, NEW YORK, ASSIGNOR OF ONE-HALF TO J. H. ROBESON,
OF MATTEAWAN, NEW YORK.

MEANS FOR ATTACHING SWINGLETREES TO DOUBLETREES.

No. 881,423.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JULIUS LORENZ, citizen of the United States, residing at Matteawan, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Means for Attaching Swingletrees to a Doubletree, of which the following is a specification.

The present invention provides novel means to admit of adjustably connecting swingle-trees with a double-tree so that leverage may favor the weaker animal.

The invention also has for its object to strengthen the double-tree and to provide for adapting the device to swingle- and double-trees already in use.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a top plan view of a double-tree and swingle-trees connected by means embodying the invention, an end portion of the double-tree being in section, and a portion of the upper shackle bar broken away. Fig. 2 is a section on the line $x-x$ of Fig. 1. Fig. 3 is a detail perspective view of the coupling means.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The double-tree 1 is strengthened by means of a metal strip 2 attached to its rear edge, and by plates 3 secured to the front edge and extending from the ends of the double-tree inward a short distance. The strip 2 and plates 3 may be separate parts or portions of a continuous strip, in which latter event, end portions of the strip are bent to embrace end portions of the double-tree. Plates 4 are attached to the upper and lower sides of the double-tree at a central point and may be separate from or form a part of the strip 2, the latter construction being preferred. A series of openings 5 are provided in the front

ends of the plates 4 and provide for adjustably connecting the double-tree to the tongue or other part of the vehicle to which the appliance may be attached. The plates 4 strengthen the double-tree and sustain the wear and strain coming upon the double-tree when connected to the vehicle. A series of openings or indentations 6 are provided in the end portions of the metal strip 2 and insure positive connection of the swingle-tree with the double-tree when moved to the required adjusted position.

Each swingle-tree 7 is connected to the double-tree by means of upper and lower shackle bars 8. These shackle bars are of like formation and are thickened at their ends to provide reinforcements in which openings are formed for receiving the fastenings 9. The shackle bars have a limited swinging movement in any adjusted position. Metal reinforcements 10 are fitted to the front sides of the swingle-trees and are apertured to receive the front fastenings 9 which connect the forward ends of the shackle bars thereto. The metal reinforcements serve to sustain the wear and at the same time brace the swingle-trees at a central point besides forming substantial connecting means between the swingle-trees and the respective shackle bars.

Slides 11 are pivotally mounted upon the rear fastenings 9 and have projections 12 at their front sides to enter selected openings 6 so as to fix the position of the shackle bars and swingle-trees. Upon moving a swingle-tree rearward with reference to the double-tree, the projection 12 of the slide shackled thereto is caused to clear the opening 6 in which it was entered, thereby permitting adjustment of the swingle-tree and slide to any position within the range of adjustment depending upon the number of openings 6 and when the swingle-tree is moved to the required position and the projection 12 brought opposite to an opening 6, a forward movement of the swingle-tree causes said projection to enter said selected opening, thereby positively connecting the slide to the double-tree.

To prevent casual displacement of the projection 12 when entered into one of the openings 6, a cam 13 is journaled to the upper and lower shackle bars at a point between the swingle and doubletrees. The cam is of wedge form in horizontal or cross section and

the tapered edge is adapted to touch the front side of the double-tree when the cam is in position to hold the projection 12 within the opening 6.

5 A spring lever 14 is connected to a journal of the cam 13, the projecting portion of said journal being made angular to fit a corresponding opening of the spring lever, whereby the lever and cam turn together. The
10 spring lever has a projection 15 which enters an opening 16 near the rear end of a shackle bar so as to hold the spring lever and cam in position when the cam is moved to hold the projection 12 in the selected opening 6. The
15 rear end of the spring lever is bent to provide a finger piece 17 which for convenience stands away from the shackle bar to admit of its convenient grasping when it is required to disconnect the projection 15 from the
20 opening 16 and move the spring lever either to the right or to the left to throw the cam away from the double-tree, whereby the projection 12 may be caused to clear the opening 6 preliminary to adjustment of the swingle-tree to a new position. After the swingle-tree has been adjusted and the projection 12
25 entered into the selected opening 6, the spring lever is moved to return the cam 13 into position to prevent unseating of the projection 12 from the opening, said spring lever being made secure by entering the projection
30 15 into the opening 16.

From the foregoing, it will be understood that the double-tree may be adjustably connected to the pole or tongue or other part of
35 the vehicle, and when required, either swingle-tree may be adjusted to vary the leverage according to the difference in strength of the animals so as to equalize the load and prevent side draft or the pulling ahead of the
40 stronger animal.

After the swingle-tree has been adjusted and secured, it is permitted to have a limited play, because in constructing and assembling
45 the parts, the space between the inner face of the slide 11 and the inner edge of the cam 13 is slightly greater than the distance between the front and rear sides of the double-tree. Moreover, the play between the several
50 joints is sufficient to admit of the swingle-tree having a limited pivotal movement. Even should the parts touch and fit close when first assembled, a slight use will produce sufficient wear to bring about the pivotal movement hereinbefore referred to and
55 answer for the shackle connection in order to admit of the free oscillatory movements of the double-tree.

Having thus described the invention, what
60 is claimed as new is:

1. In combination a double-tree, a swingle-tree, a shackle connection between the swingle and double-trees, a slide having pivotal connection with the shackle connection in-
65 terlocking means between the shackle con-

nection and one edge of the double-tree, and means applied to said shackle connection to engage with the opposite edge of the double-tree to prevent casual separation of the
70 aforesaid interlocking means, whereby the swingle-tree with reference to the double-tree remains fixed.

2. In combination a double-tree, a swingle-tree, a shackle connection between the swingle and double-trees, an interlocking projection between the shackle connection and
75 an edge portion of the double-tree, a cam fitted to said shackle connection and adapted to engage with the opposite edge of the double-tree to prevent separation of the aforesaid interlocking means between the shackle
80 and double-tree, and means for securing the cam when moved into operative position with reference to the double-tree.

3. In combination a double-tree, a swingle-tree, a shackle connection between the swingle and double-trees, an interlocking projection between the shackle connection and
85 an edge portion of the double-tree, a cam fitted to said shackle connection and adapted to engage with the opposite edge of the double-tree to prevent separation of the aforesaid interlocking means between the shackle and double-tree, a lever having connection with said cam and serving as operating
90 means therefor, and interlocking means between said lever and the shackle connection to hold the lever and cam in operative position.

4. In combination a double-tree, a swingle-tree, a shackle connection between the swingle and double-trees, an interlocking projection between the shackle connection and
100 an edge portion of the double-tree, a cam fitted to said shackle connection and adapted to engage with the opposite edge of the double-tree to prevent separation of the aforesaid interlocking means between the shackle and double-tree, a spring lever having connection with said cam and having a
105 finger-piece and a projection carried by said spring lever to engage with the shackle connection and hold the lever and cam in operative position.

5. In combination swingle and double-trees, upper and lower shackle bars having pivotal connection at one end with the swingle-tree, a slide pivotally connected to the
115 opposite ends of the shackle bars and adapted to engage with the rear edge of the double-tree, interlocking means between said slide and double-tree to fix the position of the swingle-tree, and means supported by the shackle bars and arranged to engage with the front edge of the double-tree to prevent
120 casual disengagement of the aforesaid slide from the double-tree after the parts have been properly engaged.

6. In combination, swingle and double-trees, upper and lower shackle bars having
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pivotal connection at one end with the swingle-tree, a slide connected to the opposite ends of the shackle bars and adapted to engage with the rear edge of the double-tree, interlocking means between said slide and double-tree to fix the position of the swingle-tree, a cam journaled to the shackle bars and adapted to engage with the front edge of the double-tree, a lever having connection with said cam and serving as operating means

therefor, and interlocking means between said lever and a shackle bar to hold the lever and cam in operative position.

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

JULIUS LORENZ.

Witnesses:

VINCENT D. STEARNS,
BERTHA E. NIFFEN.