

No. 617,644.

Patented Jan. 10, 1899.

G. DOPKINS.  
DRAFT EQUALIZER.

(Application filed Mar. 25, 1898.)

2 Sheets—Sheet 1.

(No Model.)

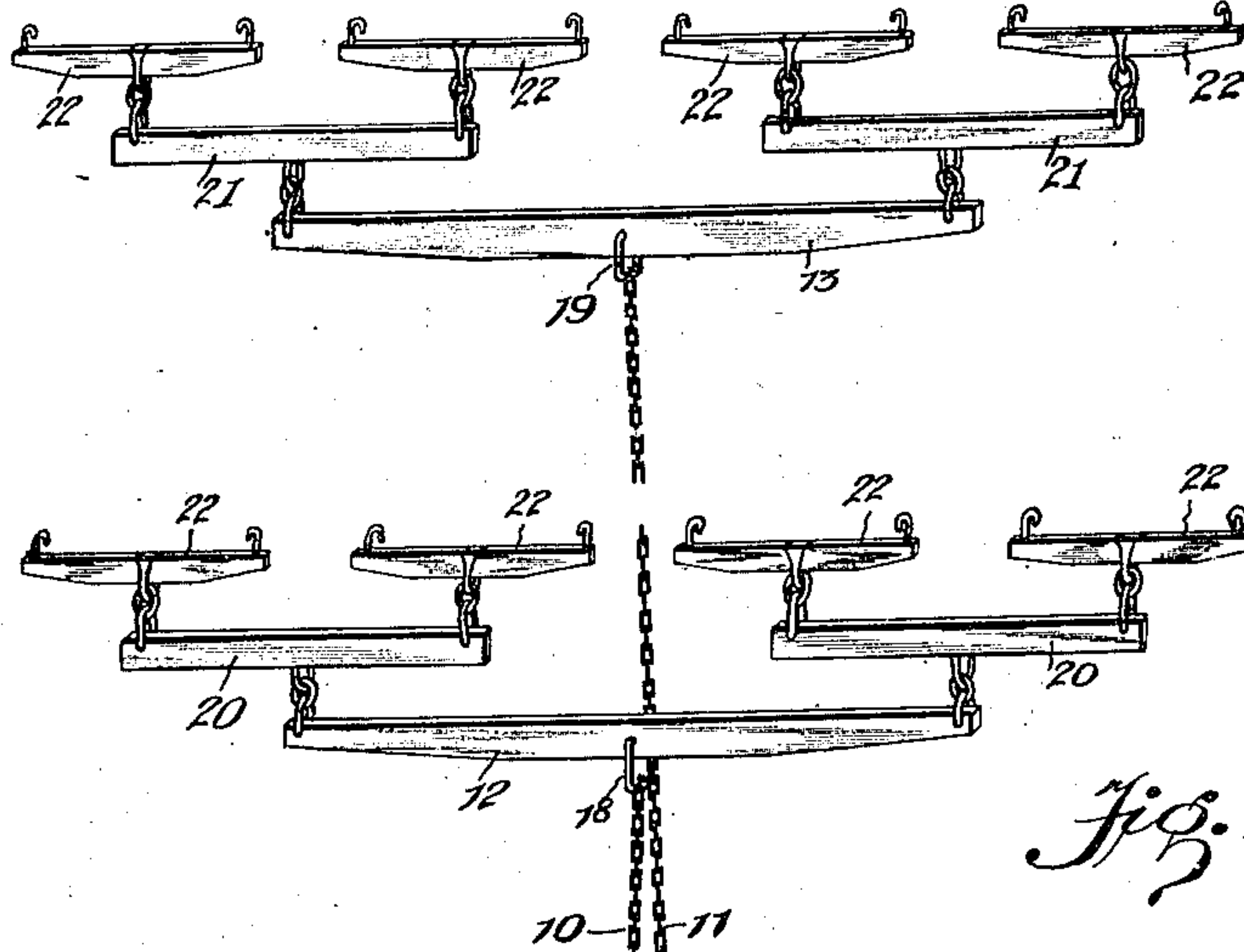
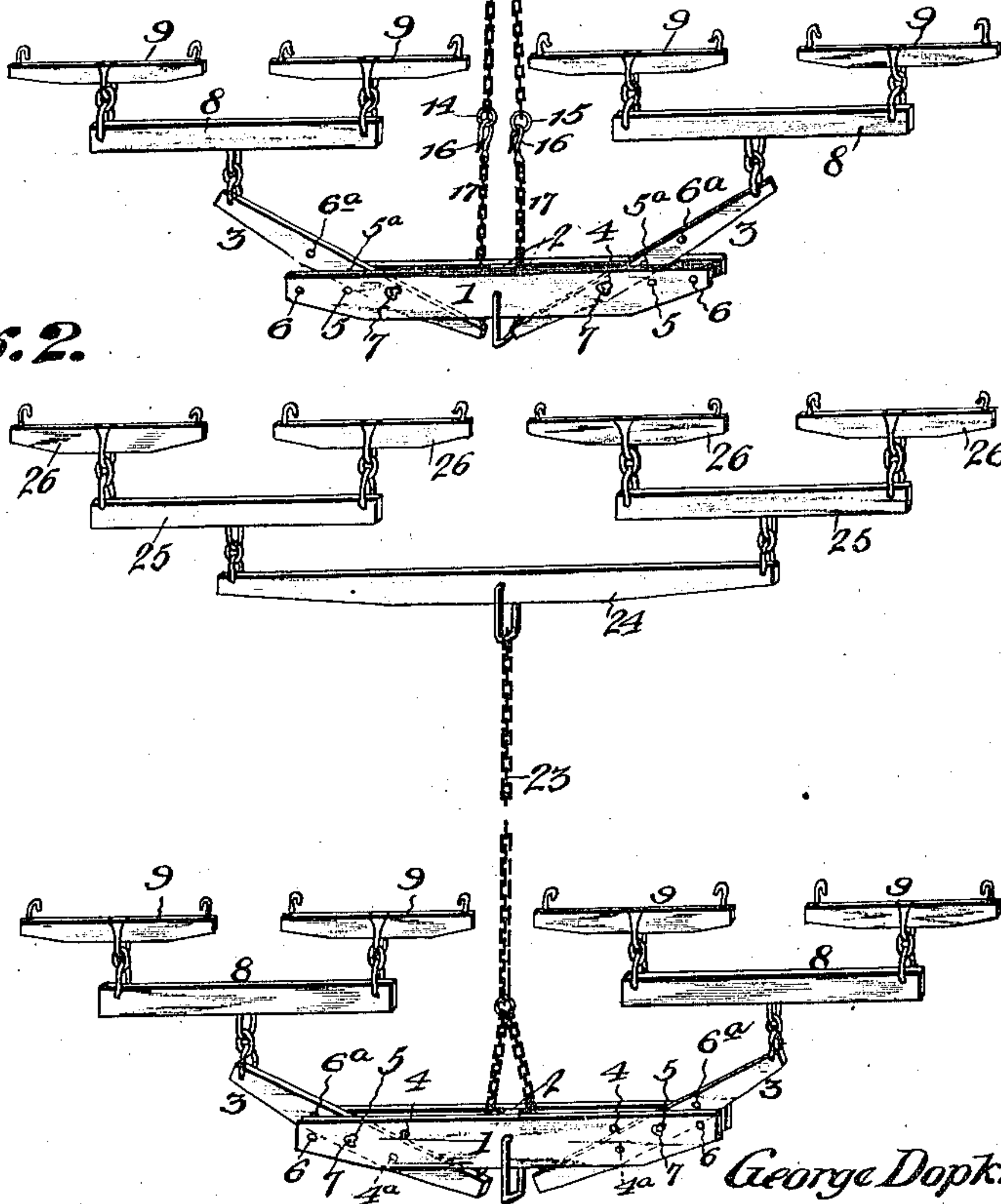


Fig. 1.

Fig. 2.



Witnesses

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2 Sheets—Sheet 2.

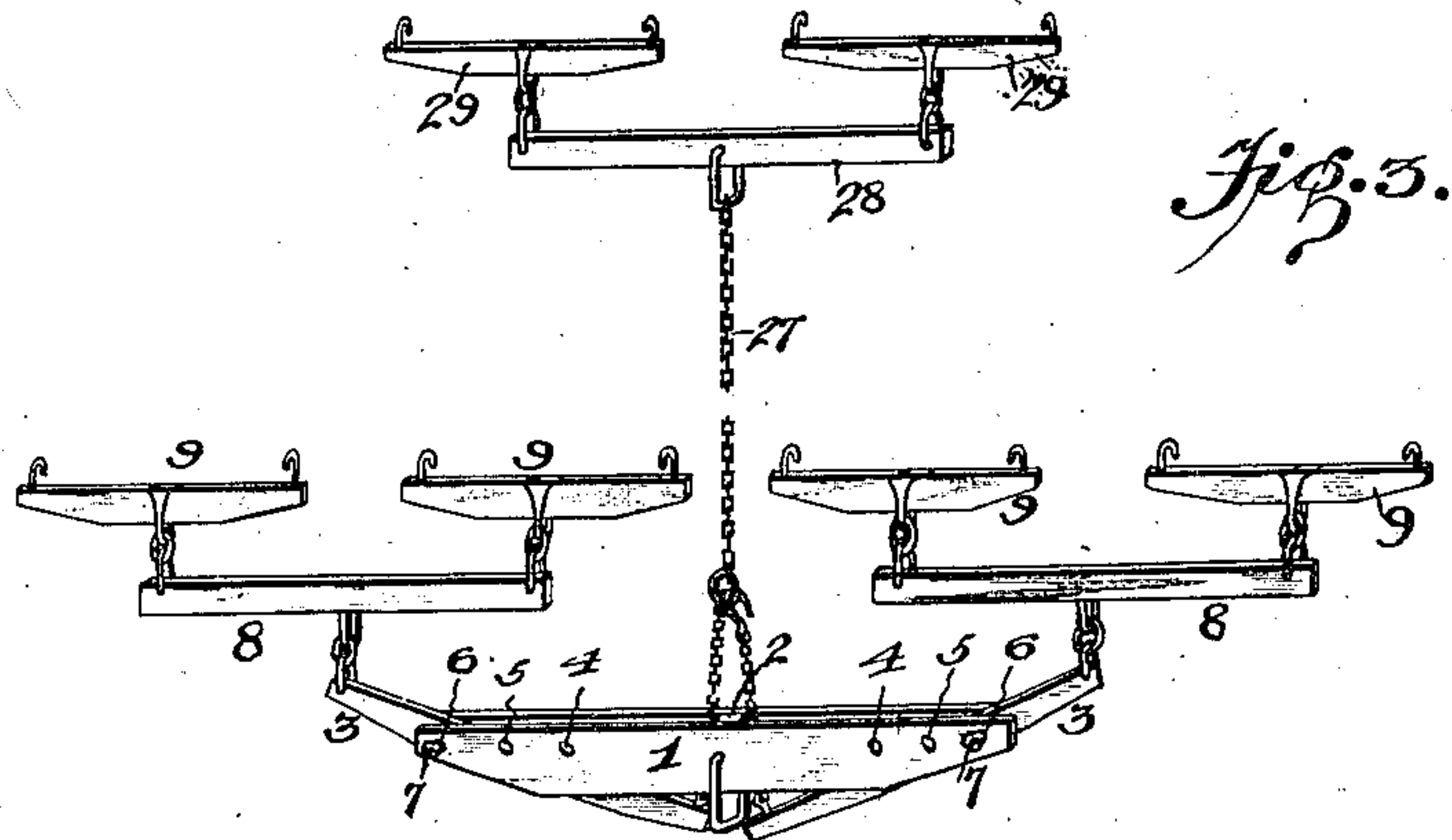


Fig. 3.

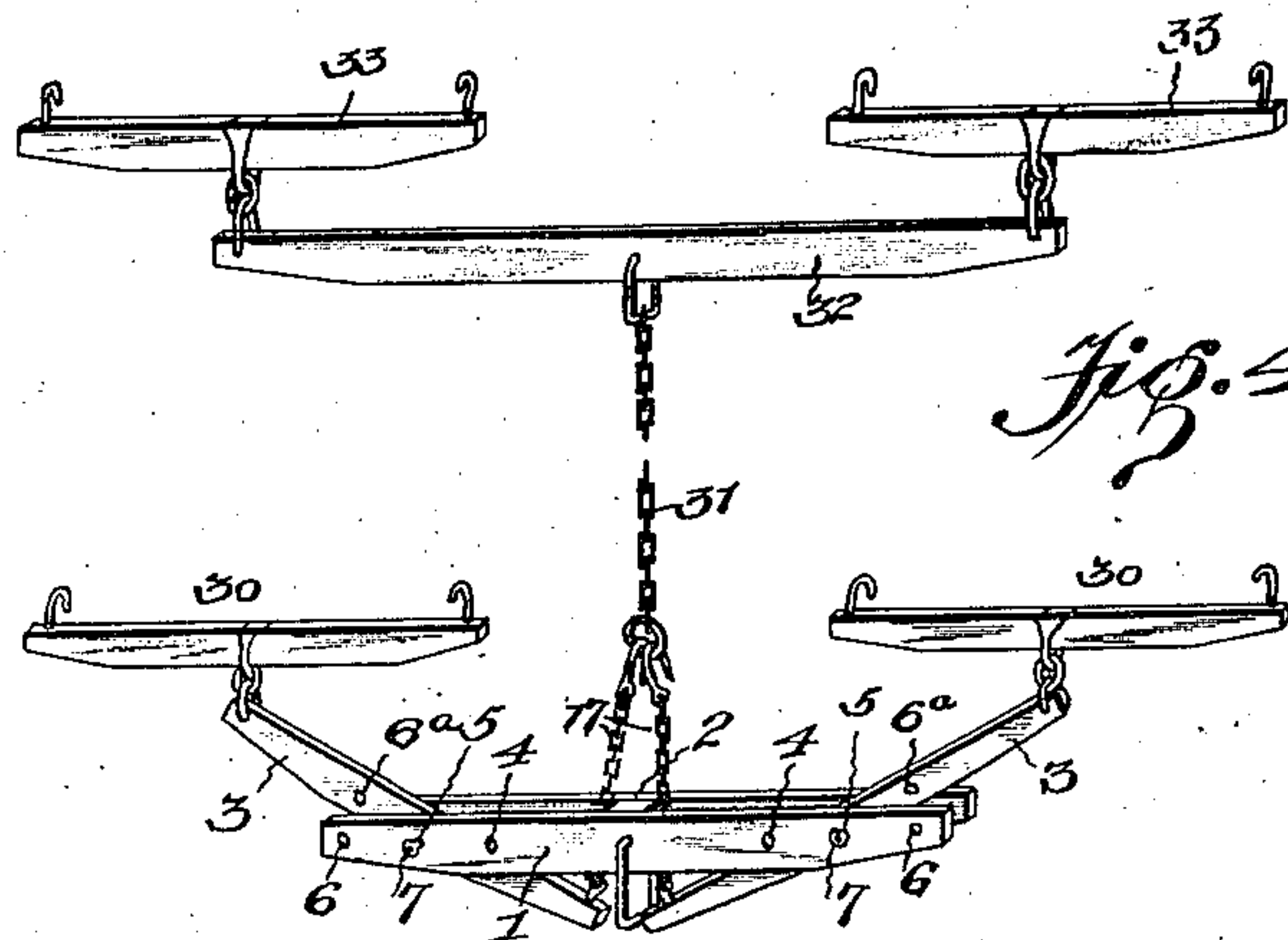


Fig. 4.

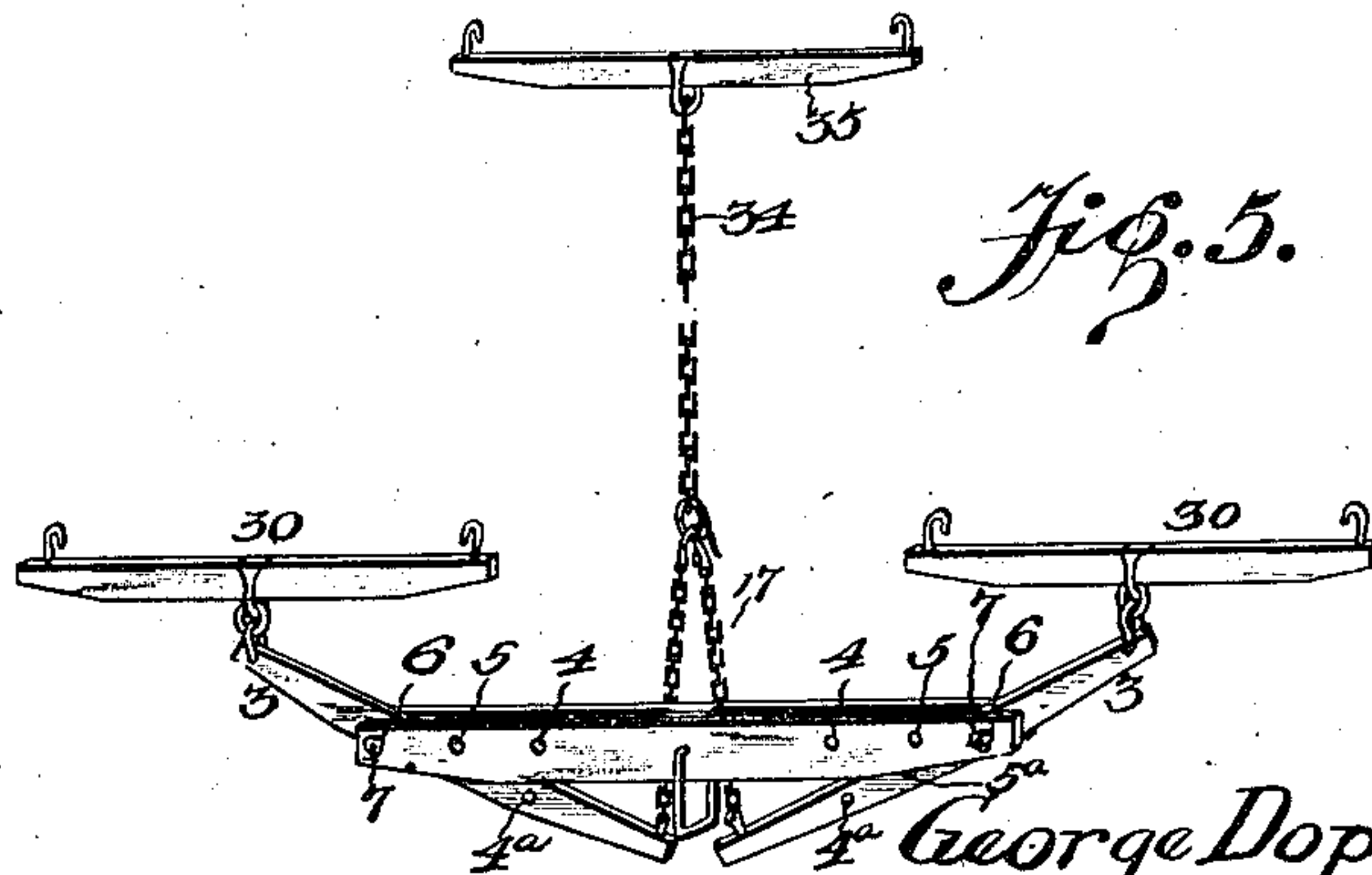


Fig. 5.

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# UNITED STATES PATENT OFFICE.

GEORGE DOPKINS, OF MORRIS, MINNESOTA.

## DRAFT-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 617,644, dated January 10, 1899.

Application filed March 25, 1898. Serial No. 675,104. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE DOPKINS, a citizen of the United States, residing at Morris, in the county of Stevens and State of Minnesota, have invented a new and useful Draft-Equalizer, of which the following is a specification.

The invention relates to improvements in draft-equalizers.

The object of the present invention is to improve the construction of draft-equalizers and to provide a simple, strong, and efficient one adapted to be readily arranged for equalizing the draft between two, three, four, six, eight, or twelve horses.

The invention consists in the construction and novel combination and arrangement of parts, as hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of the draft-equalizer constructed in accordance with this invention and shown arranged for twelve horses. Fig. 2 is a similar view, the device being arranged for eight horses. Fig. 3 is a perspective view, the device being arranged for six horses. Fig. 4 is a similar view, the device being arranged for four horses. Fig. 5 is a perspective view, the draft-equalizer being arranged for three horses.

Like numerals of reference designate corresponding parts in the figures of the drawings.

1 designates a main whiffletree, composed of upper and lower parallel bars and centrally connected by a spacing block or portion 2, the entire space between the spacing-block 2 and the ends of the upper and lower bars being free and receiving adjustable equalizing bars or levers 3, which are also adapted to serve as singletrees when they are simply pivoted and when the device is arranged for two horses. The main whiffletree 1 is provided at each side of its center with perforations 4, 5, and 6, and the equalizing bars or levers are provided with corresponding perforations 4<sup>a</sup>, 5<sup>a</sup>, and 6<sup>a</sup>, and the pivots 7, which connect the equalizing bars or levers to the main whiffletree, are removable and are adapted to be placed in any one of the three sets of perforations for the purposes hereinafter

described, the equalizing bars or levers retaining their same position relative to the main whiffletree.

When the draft-equalizer, as illustrated in Fig. 1 of the accompanying drawings, is arranged for twelve horses, the pivots 7 are passed through the innermost perforations 4 and 4<sup>a</sup>, the outer arms of the levers or equalizing-bars being the longer and having doubletrees 8 connected to them, as shown. Each doubletree carries a pair of singletrees arranged, as shown, at opposite sides of the center of the device, and the inner or shorter arms of the equalizing bars or levers are connected by chains 10 and 11 with intermediate and front main whiffletrees 12 and 13. The chains 10 and 11 are provided at their rear ends with enlarged links 14 and 15, which are engaged by hooks 16 of short chains 17, which extend from the inner ends of the equalizing bars or levers. The front ends of the chains 10 and 11 are connected with swinging loops or clevises 18 and 19 of the whiffletrees 12 and 13.

The whiffletrees 12 and 13 are connected at their ends to doubletrees 20 and 21, and each doubletree is provided with a pair of singletrees 22, arranged similar to the singletrees 9. One of the whiffletrees 12 and 13 is connected with one of the equalizing-bars, and the other whiffletree is connected with the other equalizing-bar, the bars or levers equalizing the pull between the four horses of each of the main whiffletrees 12 and 13 and the two horses at the outer end of each of the equalizing bars or levers.

In Fig. 2 of the accompanying drawings the parts are arranged for equalizing the draft between eight horses arranged in groups of fours. The pivots 7 of the equalizing bars or levers are arranged in the perforations 5 and 5<sup>a</sup>, and the equalizing bars or levers are connected at their outer ends to doubletrees, which are provided with singletrees and arranged as illustrated in Fig. 1. The inner ends of the draft-equalizing bars or levers are connected by a chain 23 with a main whiffletree 24, which is connected at its ends to doubletrees 25, each doubletree being provided with a pair of singletrees 26. The chain 23 is provided at its rear end with a ring, into which are hooked the chains 17, and the four



horses at the back of the device equalize the four horses at the front.

In Fig. 3 of the drawings the device is arranged to accommodate six horses, and the pivots 7 are arranged in the outermost perforations 6 and 6<sup>a</sup>. The doubletrees 8 and the singletrees 9 are arranged, as before described, at the outer ends of the bars or levers 3, which have their inner ends connected by a chain 27 with a doubletree 28. The doubletree 28 is provided with a pair of singletrees 29, and the two horses at the front of the device are connected with the longer arms of the equalizing bars or levers 3, and the draft between them and the four rear horses is thus equalized.

Instead of arranging the parts as shown in Fig. 3 six horses may be accommodated by the general arrangement shown in Fig. 1 by dispensing with each set of doubletrees and singletrees and substituting therefor a singletree, thus providing a pair of singletrees for each of the main whiffletrees 1, 12, and 13.

In Fig. 4 of the accompanying drawings the device is shown arranged for four horses, the pivot 7 being arranged in the central perforations 5 and 5<sup>a</sup>. The outer ends of the equalizing bars or levers 3 are connected with singletrees 30, and the chains 17 at the inner ends of the bars or levers 3 are connected by a chain 31 with a doubletree 32 and a pair of singletrees 33, similar to those shown in Fig. 3. By this arrangement the two horses at the front equalize the draft of the two horses at the back.

Fig. 5 shows an arrangement for accommodating three horses, the pivots 7 being arranged in the outermost perforations 6 and 6<sup>a</sup> and the outer ends of the equalizing bars or levers being connected with singletrees, as illustrated in Fig. 4. The chains at the inner ends of the equalizing bars or levers are connected with a chain 34 of a singletree 35, to which is connected a single draft-animal, which pulls against a pair of horses at the back of the device, the draft being equalized by the arrangement of parts just described.

When it is desired to connect two horses to the main whiffletree 1, the equalizing bars or levers serve as singletrees and are provided with whiffletree-hooks, the pivots 7 being arranged in the central perforations 5 and 5<sup>a</sup>.

The invention has the following advantages:

The equalizer is simple, strong, and durable, and it is adapted to be adjusted for equalizing the draft between two, three, four, six, eight, or twelve horses, and it is capable of adapting them to vehicles and various kinds of machines—such as road-graders, ditching-machines, gang-plows, and the like.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What I claim is—

1. A device of the class described comprising the main whiffletree 1 provided with perforations 4, 5 and 6, the draft-equalizing bars or levers 3 provided with perforations 4<sup>a</sup>, 5<sup>a</sup> and 6<sup>a</sup>, pivots adapted to be arranged in the said perforations, doubletrees provided with singletrees and connected with the outer ends of the equalizing bars or levers, the intermediate and front whiffletrees 12 and 13 connected with the ends of the equalizing bars or levers at the center of the main whiffletree 1 and the doubletrees 20 and 21 provided with pairs of singletrees and arranged at the ends of the whiffletrees 12 and 13, substantially as described.

2. A device of the class described comprising the main whiffletree 1 provided with perforations 4, 5 and 6 and composed of upper and lower bars spaced apart and centrally connected, the draft-equalizing bars provided with perforations 4<sup>a</sup>, 5<sup>a</sup> and 6<sup>a</sup> and operating in the spaces between the bars of the main whiffletree, at opposite sides of the center thereof, pivots adapted to be arranged in the said perforations, a pair of short chains connected with the inner ends of the draft-equalizing bars and arranged at opposite sides of the central connection, whiffletrees connected with the outer ends of the draft-equalizing bars, whiffletrees located in advance of the said whiffletrees, and a long chain connecting the advance whiffletrees with the short chains at the inner ends of the draft-equalizing bars, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE DOPKINS.

Witnesses:

GUS BRAGG,

CYNTHIA DOPKINS.