

No. 870,241.

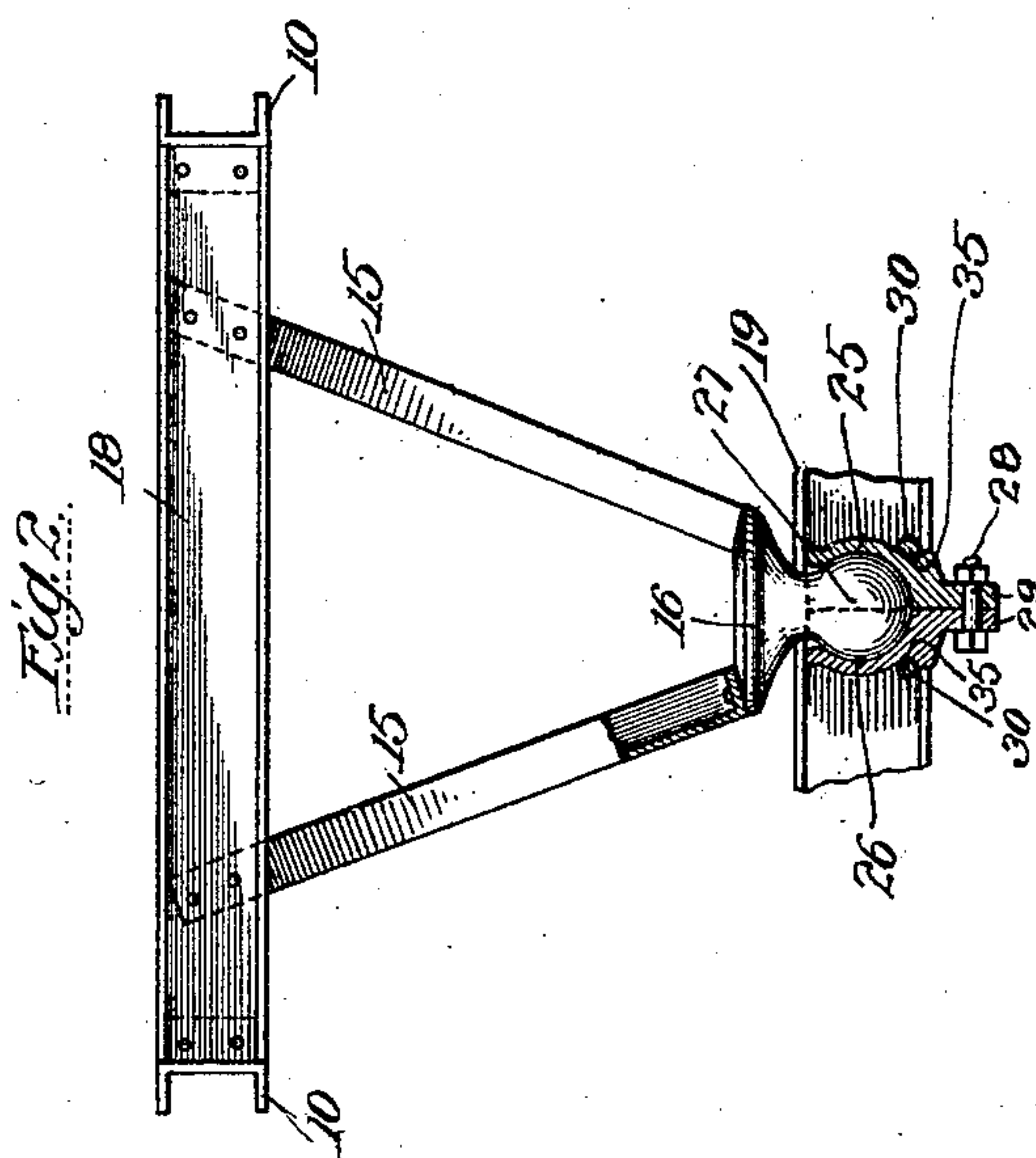
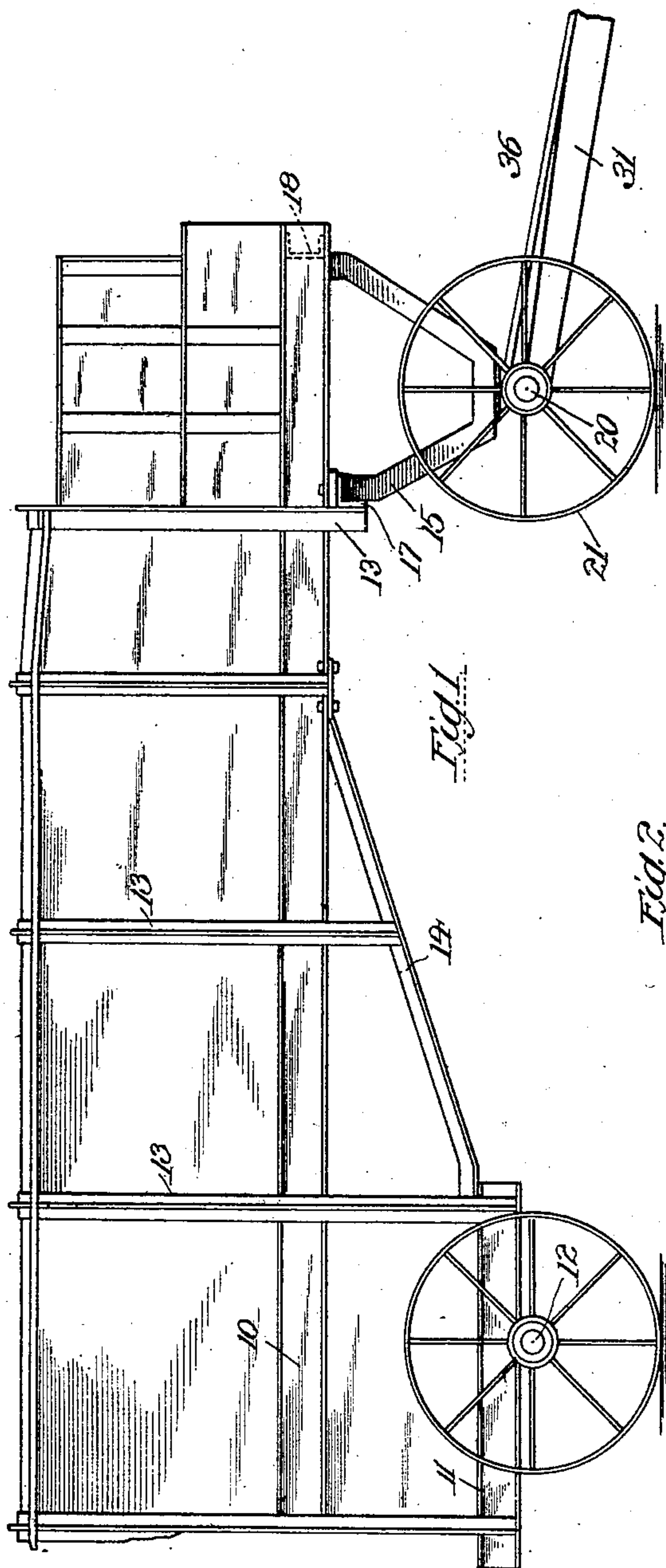
PATENTED NOV. 5, 1907.

W. F. MACGREGOR & W. H. CAHALL.

DRAFT APPARATUS FOR WAGONS AND THE LIKE.

APPLICATION FILED JULY 17, 1905.

2 SHEETS—SHEET 1.



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Let's Alter

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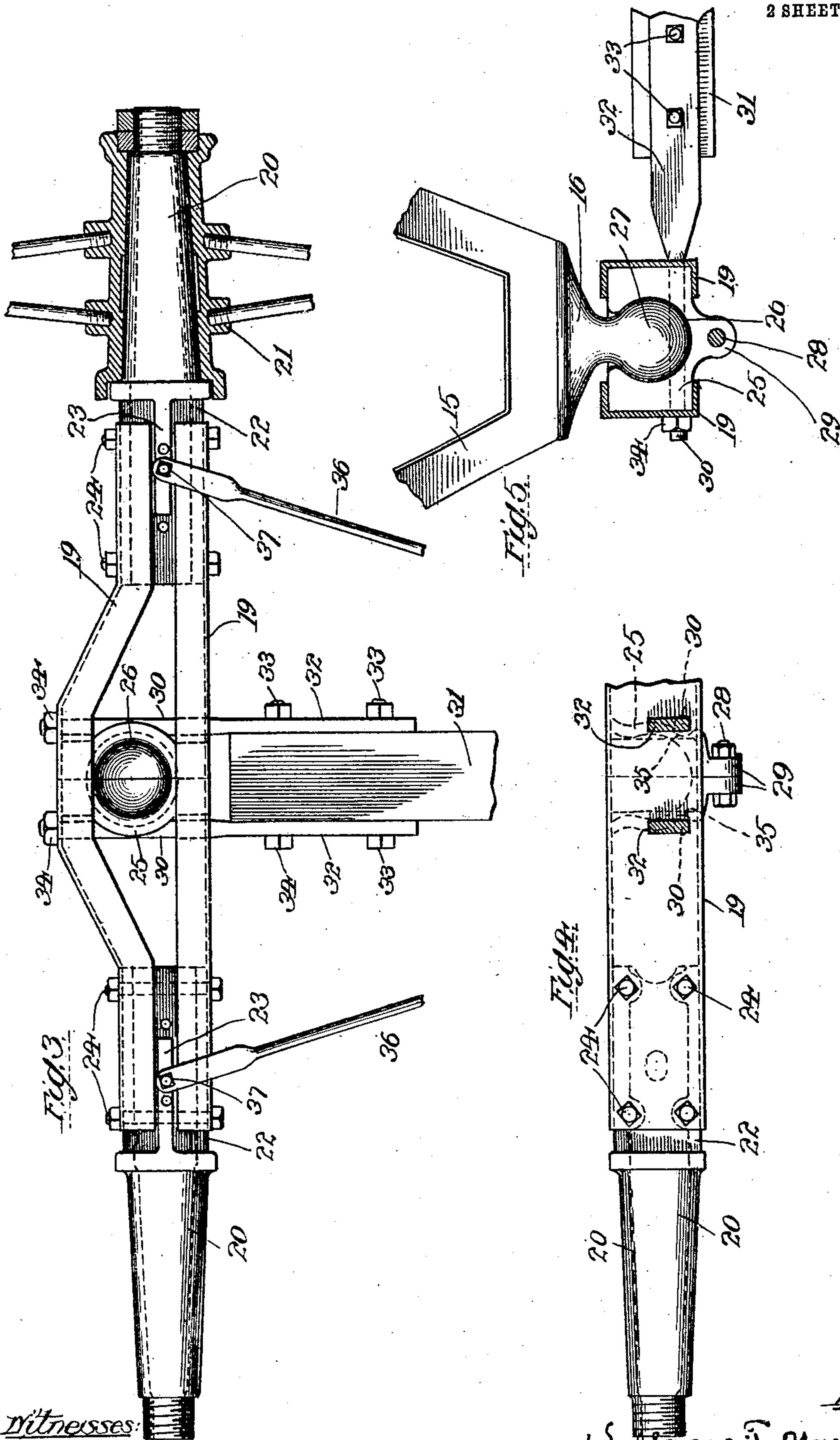
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Witnesses:

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UNITED STATES PATENT OFFICE.

WALLACE F. MACGREGOR AND WILLIAM H. CAHALL, OF RACINE, WISCONSIN, ASSIGNORS TO
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DRAFT APPARATUS FOR WAGONS AND THE LIKE.

No. 870,241.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed July 17, 1905. Serial No. 269,957.

To all whom it may concern:

Be it known that we, WALLACE F. MACGREGOR and WILLIAM H. CAHALL, citizens of the United States, and residents of Racine, county of Racine, and State of Wisconsin, have invented certain new and useful Improvements in Draft Apparatus for Wagons and the Like, of which the following is a full, clear, and exact description.

The invention relates to improvements in the arrangement of the front steering axle and draft tongue and in the manner in which the axle is connected to the body of the wagon. The improvement is particularly designed for threshing machines and seeks to provide a construction by which the weight of the draft tongue or pole is balanced and which obviates the necessity of employing any brace or fifth wheel to hold the front axle in proper position.

Another object of the invention is to provide a connection between the body of the machine and the front axle which will permit the axle to tilt vertically to a limited extent without materially affecting the level position of the body of the wagon or threshing machine.

The invention consists in the features of construction, combinations and arrangements of parts hereinafter set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

In the drawings Figure 1 is a side elevation of a threshing machine with the present improved front axle applied thereto. Fig. 2 is a view in cross section of the connections between the front axle and the body of the threshing machine. Fig. 3 is a plan view of the front axle. Fig. 4 is a front elevation thereof and Fig. 5 is a longitudinal section of the connection to the front axle.

The frame of the threshing machine shown, is preferably formed of structural metal bars and comprises the elevated, horizontal main sills 10, the sub-sills 11 below the rear ends of the main sills and connected to the rear axle 12, the uprights 13 secured to the sills and the strengthening inclined brace-bars 14 connecting the forward ends of the main and sub-sills. The front ends of the sills are connected by the depending U-shaped bars 15 to the head or bolster 16 of the front axle. Such a frame does not require the presence of any strengthening reach between the axles and moreover, the arrangement of the front axle is such that it does not require a king bolt or fifth wheel which must be braced from a reach.

The front uprights 13 depend below the main sills 10 and are connected by a cross angle-bar 17 which is also rigidly connected to the sills 10. The extreme forward ends of the sills are connected by the cross channel-bar 18. The connections 15 are preferably formed of angle-bars and are bent to U-form as shown, with their upper, divergent ends rigidly bolted to the cross-bars 17 and 18.

The two U-shaped connecting bars 15 are inclined inwardly toward each other from their points of connection with the cross-bars 17 and 18 (see Fig. 2) and at their lower ends are bolted or otherwise rigidly secured to the upper end of the head or bolster 16.

The front axle is preferably formed of two channel-bars 19 set on edge and the flanges of which are turned inwardly toward each other. The journal pieces or studs 20 (see Figs. 3 and 4) upon which the front wheels 21 are mounted, are preferably hollow and formed of cast metal. These journal pieces or studs are provided with square, inner ends which extend between the ends of the channel-bars 19 and hold the latter spaced apart, as shown. Preferably also, the squared portions 22 are provided with ribs 23 which extend upwardly between the ends of the channel-bars. Bolts 24 extend through the channel-bars and the squared portions 22 of the journal pieces, and rigidly connect the parts of the axle together.

The central portion of the rear channel-bar 19 is bent outwardly, as shown, to receive the block or box 25 having a spherical socket 26 which receives the ball 27 upon the lower end of the head or bolster 16. The ends of the box 25 are square as shown, and set within the flanges of the channel-bars 19 of the axle. The box is split, preferably on the line at right angles to the axle, and the sections are connected together by a bolt 28 which extends through lugs 29 on the lower portions of the box sections. Bolts 30 extend transversely through the channel-bars 19 of the axle on opposite sides of the sections of the box 25, and the rear end of the tongue 31 is arranged between the flat and outer ends 32 of the bolts 30 and is rigidly connected thereto by the cross bolts 33. The rear ends of the bolts 30 are provided with nuts 34 which draw the latter snugly to position. The bolts 30 snugly engage curved recesses 35 in the sides of the box sections and hold the same against spreading. Brace-rods 36 are connected to the ends of the axle by bolts 37 and at their outer ends are connected to the tongue or pole 31.

The ball and socket connection for the axle not only allows for the horizontal swing, but permits it to shift vertically to a considerable extent without materially changing the level of the threshing machine. With this arrangement it is only necessary to level up the rear axle when the threshing machine is set for operation. Moreover, inasmuch as the axle can tilt vertically, it is possible to connect the draft tongue or pole rigidly thereto instead of being hinged, as in the ordinary construction. It will also be noted that the center of the axle connection is slightly in the rear of the line of centers of the journals 20, so that the weight of the machine serves to counter-balance the weight of the draft pole or tongue which, in the threshing machine, is usually long and heavy.

It will also be noted that the arrangement obviates the necessity of a fifth wheel or other brace for the king bolt or axle and does away with the use of a reach so that the front wheels may be swung under the vehicle to turn square corners, or be swung through a complete semi-circle to bring the pole beneath the wagon for shipping. By balancing the weight of the heavy pole it can be easily raised and lowered for coupling it to a traction engine or the like, or for connecting the team thereto.

The arrangement of the box 25 in rear of the center line of the axle only requires that one of the channel-bar shafts be bent outwardly to receive it.

It will be noted that the ball 27 is considerably more than a hemisphere and has a contracted neck portion, while the socket section extends above the center line of the ball, so as to securely connect the bolster and axle. The parts may be readily disconnected by removing the bolts 28 and 30, since the sections of the socket-box are then free to slide apart within the channel-bars of the axle. The vertical shift of the axle is of course limited by the engagement of the edges of the socket-box with the neck of the ball.

While designed for threshing machines, it is obvious that the improved connection is equally applicable to other wagons. It is also obvious that numerous changes may be made in the details of structure without departure from the essentials of the invention.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. The combination with a bolster having a ball connected to its lower end by a neck, of the front steering axle formed of connected channel bars having inturned flanges, a box split in a vertical plane, the sections of which are supported between the flanges of said channel bars, said box having a socket formed in its separate sections to receive said ball, and means for securing said sections together and to clamp the same upon said ball, substantially as described.

2. The combination with the bolster having a ball at its lower end, of the axle formed of channel-bars with inturned flanges, journal studs secured between the end of said bars, a split box, the sections of which are supported between the flanges of said channel-bars, said box having a socket to receive said ball, and bolts extending through said channel-bars on opposite sides of said split box, substantially as described.

3. The combination with the bolster having a ball at its lower end, of the axle formed of channel-bars with in-

turned flanges, journal studs secured between the ends of said bars, a split box, the sections of which are supported between the flanges of said channel-bars, said box having a socket to receive said ball, the center of said ball-and-socket connection being in rear of the center line of said journal studs, bolts extending through said channel-bars on opposite sides of said split box, said bolts having flattened ends and a pole rigidly secured between the flattened ends of said bolts, substantially as described.

4. The combination with the wagon body comprising the main sills, the sub-sills arranged below the rear ends of said main sills, connecting uprights, inclined brace bars connecting the forward ends of said main and sub-sills and a rear axle connected to said sub-sills, of the set of depending brace bars connected at their upper, divergent ends to the forward ends of said main sills, the head or bolster connected to the lower ends of said brace bars, the front steering axle having a ball and socket connection with said bolster and a draft pole rigidly secured to said axle, substantially as described.

5. The combination with the main sills, sub-sills arranged below the rear ends of said main sills, connecting uprights, inclined brace-bars connecting the forward ends of said sills and rear axles connected to said sub-sills, of depending brace-bars connected to the front end of said main sills, the head or bolster connected to the lower ends of said depending brace-bars, the front steering axle having a ball-and-socket connection with said bolster, the center of which connection is in rear of the center line of the axle journals and a draft pole rigidly secured to said front axle, substantially as described.

6. The combination with the bolster and the axle block having a ball-and-socket connection with said bolster, of the axle formed of two channel-bars set on edge and having inturned flanges supporting said block, and axle studs secured between the ends of said channel-bars, the central portion of the rear channel-bar being outwardly bent around said axle block, substantially as described.

7. The combination with the main sills and cross bars connecting the same, of the U-shaped brace bars having their upper, divergent ends connected to said cross bars, said U-shaped bars being inclined inwardly and downwardly toward each other, a ball connected by a neck to the lower end of said brace bars, a front steering axle, a box mounted thereon having a socket to receive said ball, said box being split on a vertical plane, means for securing the sections of said box together and a pole rigidly secured to said axle.

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