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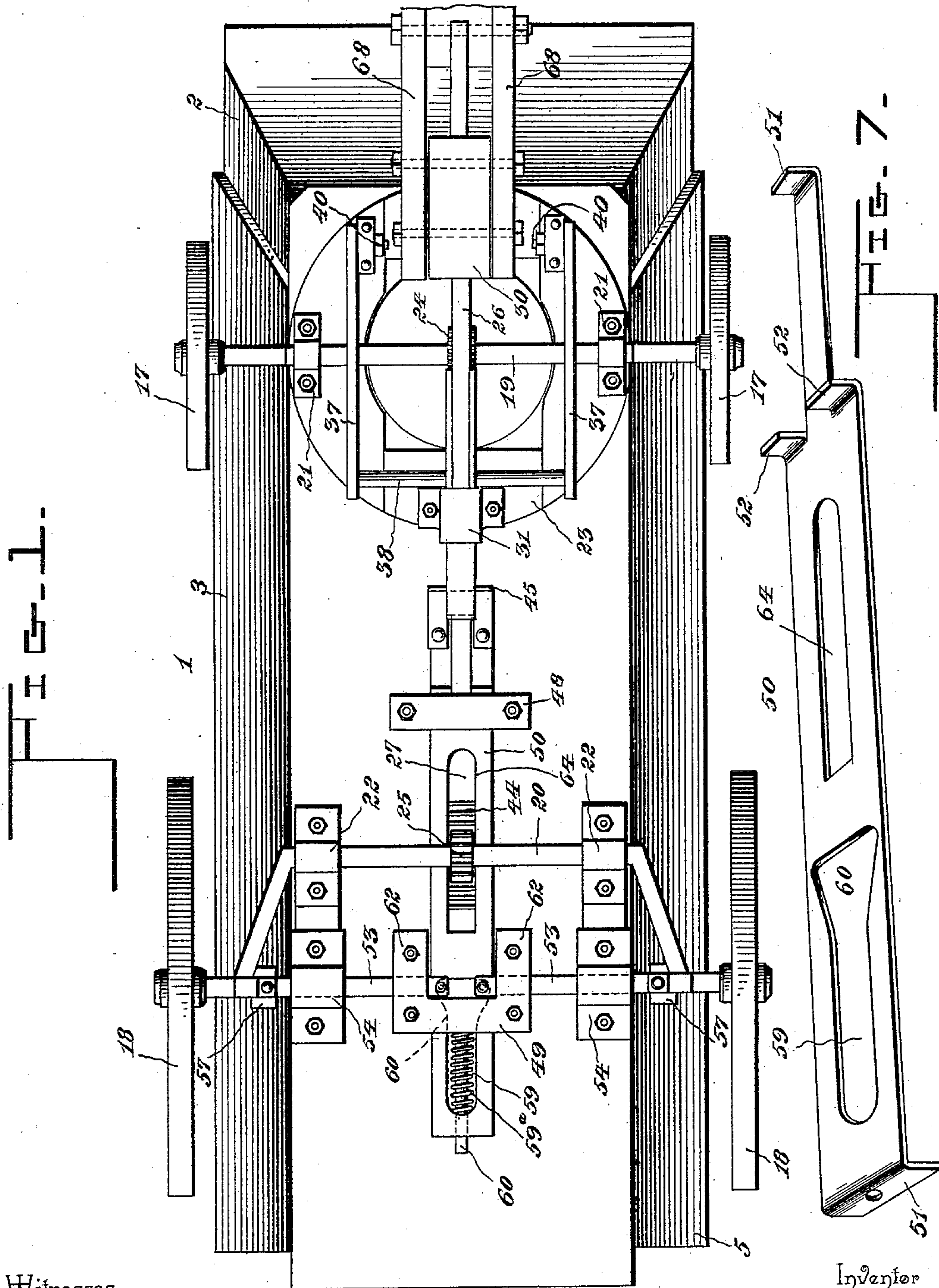
Patented Sept. 12, 1899.

A. C. PETERSON.
COMBINED WAGON AND BOAT.

(Application filed Apr. 24, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

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By his Attorneys,

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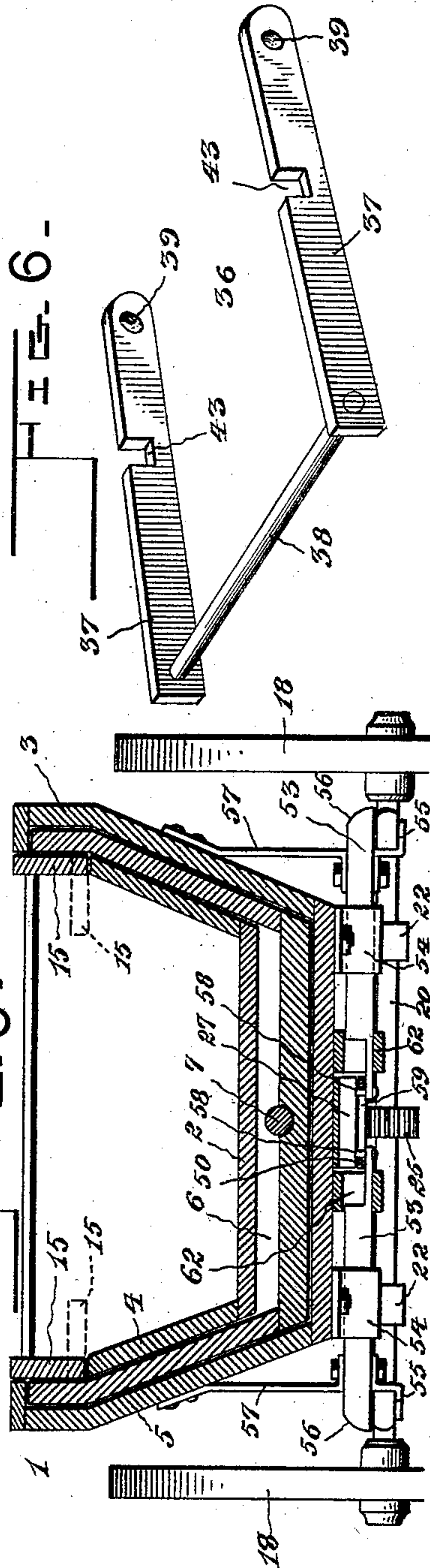
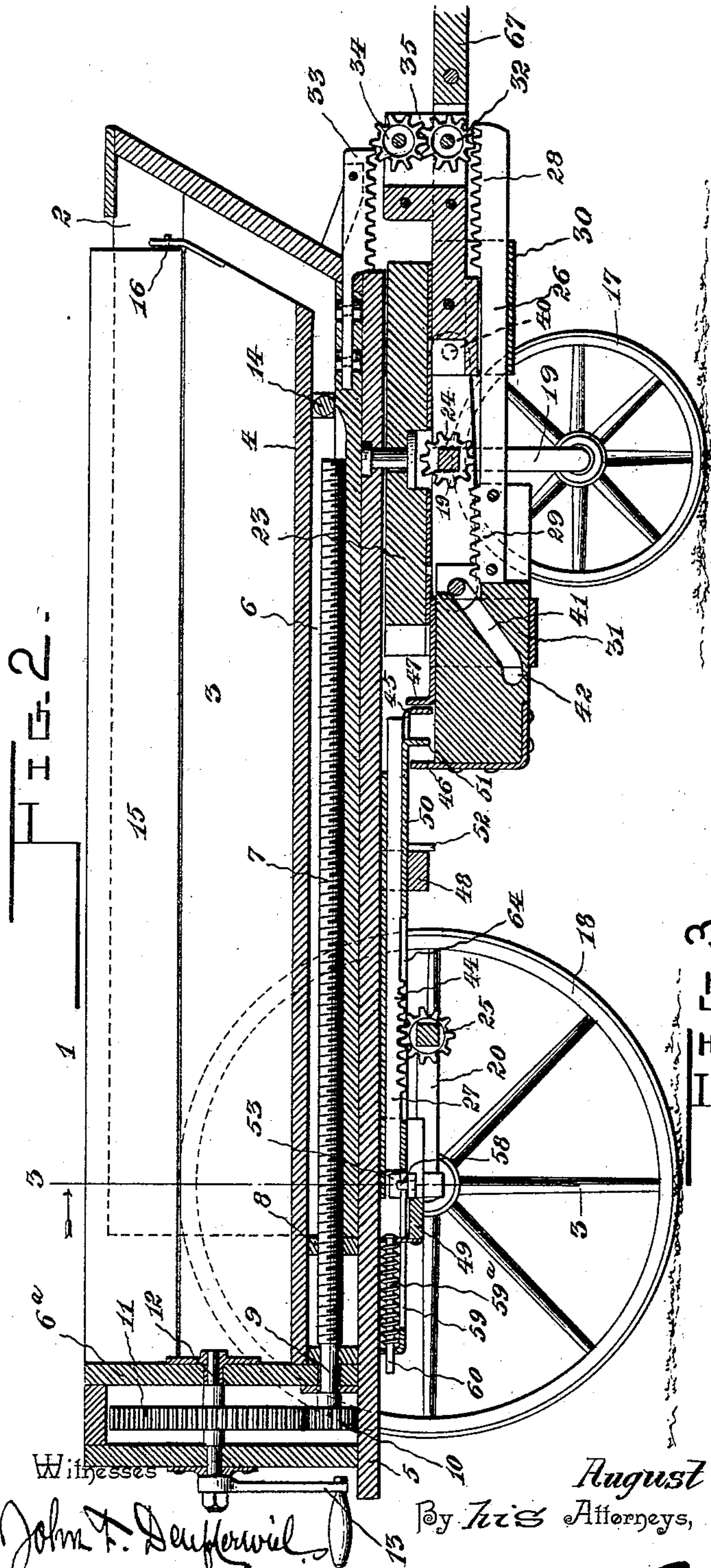
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3 Sheets—Sheet 2.



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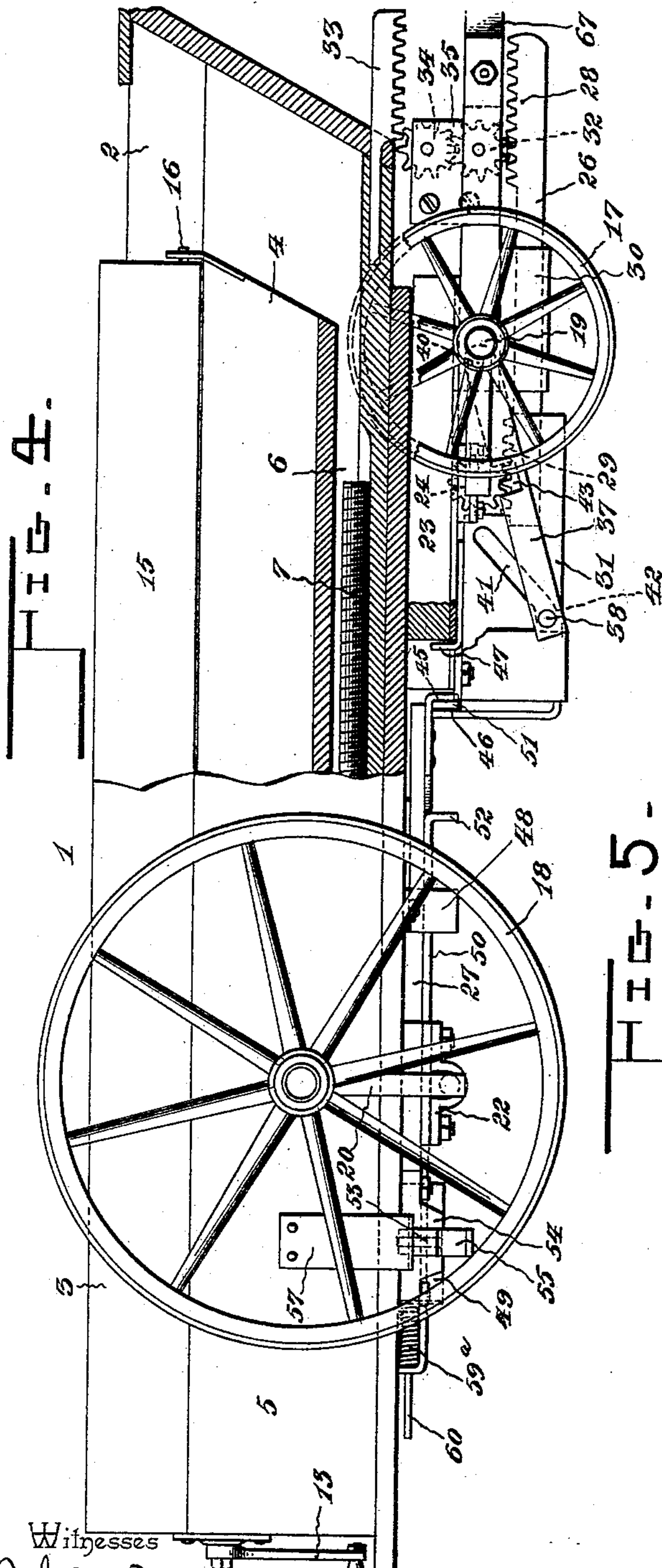
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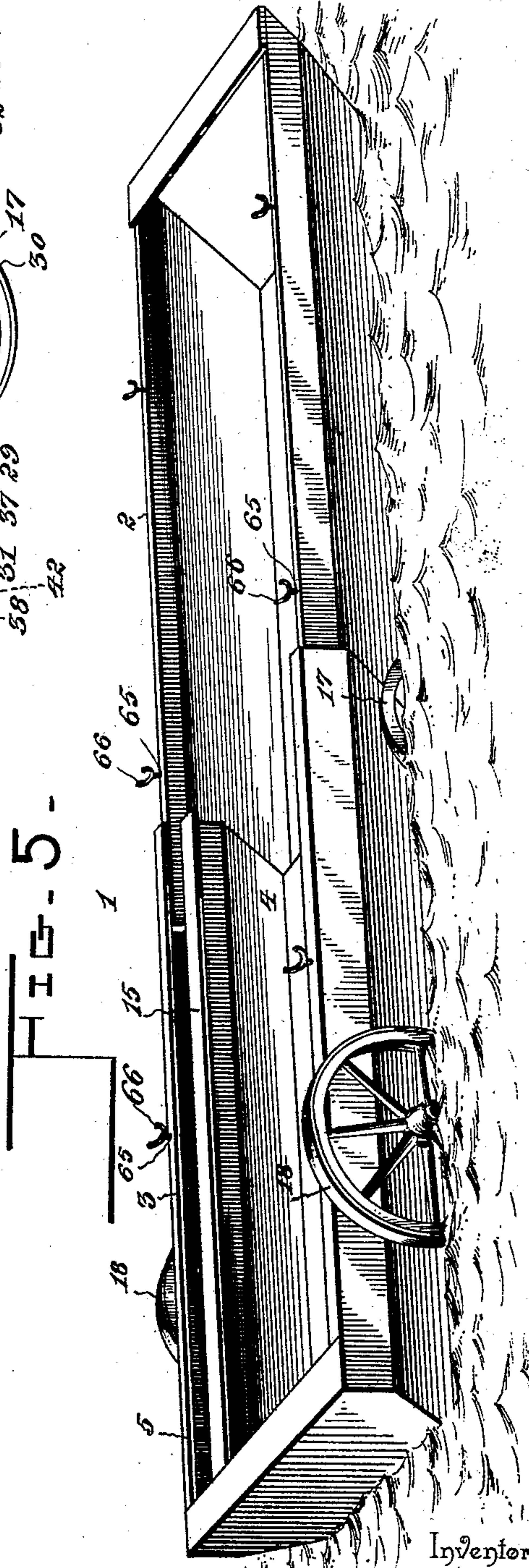
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

AUGUST C. PETERSON, OF VICTORIA, ILLINOIS.

COMBINED WAGON AND BOAT.

SPECIFICATION forming part of Letters Patent No. 632,741, dated September 12, 1899.

Application filed April 24, 1899. Serial No. 714,223. (No model.)

To all whom it may concern:

Be it known that I, AUGUST C. PETERSON, a citizen of the United States, residing at Victoria, in the county of Knox and State of Illinois, have invented a new and useful Combined Wagon and Boat, of which the following is a specification.

The invention relates to improvements in combined wagons and boats.

10 The object of the present invention is to improve the construction of combined wagons and boats and to provide a simple, inexpensive, and efficient one designated for army use and adapted to be readily arranged as
15 either a wagon or a boat and capable when converted into a boat of having its capacity increased to accommodate both men and draft-animals.

20 A further object of the invention is to provide a construction whereby the wheels will be automatically adjusted relative to the combined wagon body and hull to drop the latter as the same is extended, so that the draft of the boat will be lightened to enable it to
25 be used as a boat on shallow bodies of water and streams.

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

In the drawings, Figure 1 is a reverse plan view of a combined wagon and boat constructed in accordance with this invention.
35 Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view on line 3 3 of Fig. 2. Fig. 4 is a side elevation partly in section. Fig. 5 is a perspective view showing the device arranged to form a
40 boat. Fig. 6 is a detail perspective view of the pivoted locking device of the front axle. Fig. 7 is a similar view of the sliding bar which operates the locking devices of the rear axle.

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

1 designates a combined wagon body and hull composed of extensible front and rear
50 sections 2 and 3, the rear section 3 consisting of inner and outer shells 4 and 5, forming an intervening space 6 to receive the front sec-

tion 2, which telescopes into the rear section to arrange the parts to form a wagon-body, as clearly shown in Fig. 2 of the accompanying drawings, and the said sections are adapted to be extended to form a boat, as illustrated in Fig. 5 of the accompanying drawings. The rear section is provided near its rear end with a transverse partition 6, forming a narrow transverse compartment or space for the reception of gearing for operating a longitudinal screw 7, which is connected with a nut 8, consisting of a threaded opening of a transverse bar arranged at the rear end of the bottom of the front section; but any other form of nut or threaded opening may be employed. The rear end of the screw is swiveled at 9 to the transverse partition of the rear section and it extends through the same into the transverse compartment and carries a pinion 10, which meshes with a gear-wheel 11. The gear-wheel 11, which is disposed vertically over the pinion 10, is keyed or otherwise secured to a short horizontal shaft 12, journaled in suitable bearings of the transverse partition 6 and the rear wall of the section 3 and provided at its rear end with an exteriorly-arranged crank-handle 13. The crank-handle 13 is adapted to be operated to rotate the longitudinal screw, which is centrally arranged, as clearly illustrated in Fig. 2 of the accompanying drawings, and when the said screw is rotated it slides the front section 2 inward or outward, according to the direction of such rotation. The front end of the inner shell of the rear section is provided at its bottom with a transverse cleat 14, which is adapted to support the inner shell at that point when it is subjected to a heavy load or severe strain. The inner shell is provided at the upper portions of its sides with movable longitudinal sections 15, pivoted at their lower edges at 16 and adapted to be swung downward to provide seats, as clearly illustrated in Fig. 5 of the accompanying drawings, and any suitable form of catches may be employed for securing the hinged sections or seats in a vertical position when the same are not in use.

The combined wagon body and hull when the parts are arranged to form a wagon-body is supported by front and rear wheels 17 and 18, journaled on spindles of front and rear

drop-axles 19 and 20, which are journaled in suitable bearings 21 22 and are adapted to rotate therein to arrange the wheels in the positions illustrated in Figs. 2 and 4 of the accompanying drawings. When the parts are arranged, as shown in Fig. 2, to form a wagon, the combined body and hull is elevated, and by rotating the axles in their bearings the crank or drop bends are swung downward to drop the combined body and hull to the position illustrated in Fig. 4, thereby lightening the draft and enabling the boat to be navigated on shallow bodies of water and in shallow streams. The bearings of the rear axle are mounted directly upon the bottom of the combined body and hull, and those of the front axle are located at opposite sides of a fifth-wheel 23, consisting of a centrally-pivoted disk or frame adapted to be rotated partially to permit the vehicle to be turned.

The front and rear axles 19 and 20 are provided with centrally-arranged pinions 24 and 25, which mesh with front and rear longitudinally-reciprocating rack-bars 26 and 27, which are operated through the movement of the front section 2, whereby the raising and lowering of the combined wagon body and hull will be simultaneous with the inward and outward movement of the said front sections. The front rack-bar, which is located beneath the front axle, is provided at its front and rear portions with teeth 28 and 29 and is mounted in front and rear guides 30 and 31 of the turn-table. The front ratchet-teeth 28 mesh with a lower pinion 32, which receives its motion from a short upper rack-bar 33 through the medium of a pinion 34, and the said pinions 32 and 34 are mounted within a housing or casing 35, located at the front of the fifth-wheel and preferably formed integral with the front guide. The short upper longitudinal rack-bar 33, which is located in advance of the front section, is provided with a shank and is adapted when the front section moves outward to rotate the gearing sufficiently to lower the combined body and hull from the position shown in Fig. 2 of the drawings to the position shown in Fig. 4, and the continued outward movement of the section 2 carries the short upper rack-bar beyond the gearing, which remains stationary during the rest of the said outward movement. The axles remain in the position illustrated in Fig. 4 until the front section 2 has nearly completed its inward movement, when the rack-bar 33 will engage the upper pinion and rotate the axles to raise the combined body and hull.

The axles are rectangular in cross-section and the front one is maintained in its operative position by means of a pivoted locking device 36, consisting of a frame composed of parallel sides 37 and a transverse connecting bar or rod 38. The front terminals of the sides 37 are pivoted at 39 to lugs or enlargements 40 of the fifth-wheel, and the transverse rod 38, which extends across the rear portion of the fifth-wheel, passes through a

slot 41 of the front rack-bar. The slot 41, which is arranged at an inclination, is provided at its rear end with a short horizontal portion or seat 42, and when the rack-bar moves inward and outward it will, through the medium of the said slot, swing the locking device upward and downward. The locking device is provided between its ends with recesses 43, conforming to the configuration of polygonal portions of the front axle and adapted to receive the same, whereby the front axle is held rigidly against rotation when the pivoted locking device is arranged in a horizontal position.

The rear ratchet-teeth 29 of the front rack-bar are located a short distance in rear of the front pinion 24 when the parts are disposed as shown in Fig. 2, and the said rack-bar will have sufficient longitudinal movement to disengage the locking device 36 from the front axle before the rear ratchet-teeth mesh with the front pinion 24 and rotate the axle.

The rear rack-bar 27 is provided between its ends with ratchet-teeth 44, which mesh with the pinion 25, and the front end of the said rack-bar 27 is provided with a depending lug or flange 45, which is arranged between a pair of upwardly-extending lugs or flanges 46 and 47, projecting from the rear portion of the front rack-bar, which is enlarged at the slot 41. This connection between the front and rear rack-bars does not interfere with the rotation of the fifth-wheel when the parts are arranged to form a wagon, and it also provides for a limited independent longitudinal movement of the front rack-bar to enable the same to release the locking device of the rear axle before the latter is rotated. The rear rack-bar is arranged in longitudinally-alined openings of guides 48 and 49, which openings also receive a sliding longitudinal bar 50, provided at its front portion with depending lugs or flanges 51 and 52, located in front and in rear of the lug or flange 46 of the front rack-bar, whereby the sliding bar will be moved forward in advance of the rear rack-bar.

The locking device of the rear axle consists of a pair of transversely-disposed spring-actuated bolts 53, mounted in guides or casings 54 and disposed substantially in alinement with the spindles of the rear axle when the arch or drop bend thereof is in a horizontal position. The bolts, which are provided at their outer ends with recesses 55 to receive the end portions of the rear axle, are beveled at their upper faces at 56 to enable them to engage the rear axle automatically as the combined body and hull is elevated. The outer portions of the bolts are secured to the lower ends of substantially vertical springs 57, depending from the sides of the combined body and hull and secured to the exterior of the outer shell of the rear section at a point between the top and bottom of the same; but any other form or arrangement of springs may be employed for throwing the bolts outward. The inner ends or portions of the

bolts are provided with upwardly-extending projections or studs 58, which are located within a longitudinal slot or opening 59 of the sliding bar 50. The front portion of the opening 59 is tapering to form rearwardly-converging side edges 60, which engage the studs or projections, whereby the sliding bolts will be retracted when the bar 50 moves forward, and the rear portion of the slot has parallel side edges which maintain the bolts in their retracted position while the wagon-body is lowered. The studs or projections may be provided with antifriction-sleeves, and when the front rack-bar moves rearward the sliding bar 50 is carried in advance of the rear rack-bar by a coiled spring 59, disposed on a rod 60 and interposed between the guide 49 and a lug or flange 51, which is located at the rear end of the bar 50. The guide 49 is provided with side extensions 62, having openings and adapted to support the inner ends of the transverse bolts. The sliding bar 50 is provided between its ends with a longitudinal opening 64, through which project the teeth of the rack-bar, and the lugs or flanges 51 and 52 are preferably formed integral with the bar 50, as clearly illustrated in Fig. 7 of the accompanying drawings.

The sides of the front and rear sections 2 and 3 are provided at intervals with sockets 65, which when the parts are arranged to form a boat receive the shanks of oar-locks 66, so that the boat may be propelled by oars. A tongue 67 is arranged at the front of the vehicle and is connected with the front portion of the running-gear by means of bars 68, as clearly shown in Fig. 1; but it may be mounted on the fifth-wheel in any other suitable manner. The bolts 69 or other fastening devices employed for securing the bars 68 to the front guide permit the tongue to be readily detached preparatory to converting the device into a boat.

The invention has the following advantages: The combined wagon and boat, which is simple and comparatively inexpensive in construction, is especially designed and adapted for army use, and when it is converted into a boat its capacity is increased and it is adapted to receive both men and the draft-animals. When it is arranged to form a boat, the vehicle-wheels and the combined body and hull are adjusted relatively to each other to lower the former and thereby provide a boat of light draft adapted to be employed for crossing shallow streams and bodies of water. The raising and lowering of the combined wagon body and hull is effected simultaneously with the extension and retraction of the front section 2, and the entire operation is performed by simply rotating the handle 13 at the back of the vehicle. In converting the wagon into a boat the body or hull is gradually lowered, as it is extended, without jarring its contents, and in arranging the parts to form a wagon the body or hull is gradually elevated as the front section reaches

the limit of its inward movement. The locking devices which engage the front and rear axles prevent the same from accidentally rotating and lowering the body when the device is used as a wagon, and the parts are locked in their adjusted position when the device is converted into a boat, so that there is no liability of the wheels dropping to the bottom of a stream or body of water and interfering with the navigation of the boat.

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

What is claimed is—

1. A combined wagon and boat comprising a combined body and hull, and vehicle-wheels adjustably connected with the combined body and hull, whereby the latter is adapted to be raised and lowered to provide a boat of light draft and to bring the wheels in operative position, substantially as and for the purpose described.

2. A combined wagon and boat, comprising supporting-wheels, and a body mounted upon the wheels and adapted for adjustment to project beyond the wheels at one end thereof to form a boat of greater displacement than the body of the wagon.

3. A combined wagon and boat, comprising a hull or body portion composed of sections adapted to be extended to form a boat of greater displacement than the wagon, the connections of the sections being water-tight.

4. A combined wagon and boat comprising an extensible hull or body, and wheels supporting the same and adjustably connected therewith, whereby the said hull or body is adapted to be lowered to provide a boat of light draft, substantially as described.

5. A combined wagon and boat comprising an extensible hull or body, wheels adjustably connected with the same, and gearing for extending and contracting the body and for adjusting the wheels simultaneously therewith, substantially as described.

6. A combined wagon and boat comprising a hull or body composed of front and rear sections, one of the sections consisting of inner and outer shells and having the other section telescoping into it, gearing connected with the sections, and supporting-wheels, substantially as described.

7. A combined wagon and boat comprising a body or hull, drop-axles journaled on the body or hull, gearing connected with the axles and the body or hull for rotating the former, whereby the latter is raised and lowered, and wheels, substantially as described.

8. A combined wagon and boat comprising a hull or body having front and rear extensible sections, a longitudinal screw swiveled to the rear section and engaging a threaded opening of the front section, gearing connected with the screw for rotating the same, and supporting-wheels, substantially as described.

9. A combined wagon and boat comprising a hull or body composed of front and rear extensible sections, the front section being provided with a nut, a longitudinal screw mounted on the rear section and engaging the nut of the front section, a pinion fixed to the screw, a winding-shaft having an exterior handle, and a gear-wheel mounted on the said shaft and meshing with the pinion, substantially as described.

10. A combined wagon and boat comprising a hull or body, front and rear axles journaled thereon, gearing for rotating the said axles, and locking devices engaging the axles and holding the same in operative position, said locking devices being connected with and operated by the gearing, substantially as and for the purpose described.

11. A combined wagon and boat comprising a hull or body composed of extensible sections, axles journaled on the hull or body and carrying pinions, reciprocating rack-bars meshing with the said pinions, and a rack-bar carried by the hull or body and connected by gearing with the said rack-bars, substantially as described.

12. A combined wagon and boat comprising a hull or body provided with an extensible front section, an upper rack-bar mounted thereon, a front axle journaled on the hull or body and provided with a pinion, a rack-bar meshing with the same, and pinions meshing with each other and with the said rack-bars, substantially as and for the purpose described.

13. A combined wagon and boat comprising a hull or body having an extensible front section, means for operating the same, a front axle journaled on the hull or body, gearing connected with the front axle for rotating the same, and a short rack-bar carried by the extensible section of the hull or body and arranged to mesh with the said gearing at the commencement and at the termination of the movement of the said extensible section, substantially as and for the purpose described.

14. A combined wagon and boat, comprising a hull or body, a front axle journaled thereon and provided with a pinion, a reciprocating rack-bar arranged to mesh with the pinion, and a pivoted locking device connected with the rack-bar and arranged to be swung by the same into and out of engagement with the said axle, substantially as described.

15. A combined wagon and boat comprising a hull or body, an axle journaled thereon and provided with a pinion, a reciprocating rack-bar arranged to mesh with the pinion, and provided with an inclined slot or way, and a pivoted locking device operating in the said slot or way, whereby it is swung into and out of engagement with the axle, substantially as described.

16. A combined wagon and boat comprising a hull or body, an axle journaled thereon and provided with a pinion, a rack-bar arranged to mesh with the pinion and having an inclined slot or way, and a pivoted locking de-

vice composed of two sides arranged to engage the axle, and a transverse connecting-piece passing through the slot or way, whereby the locking device will be swung into and out of engagement with the axle, when the rack-bar is reciprocated, substantially as described.

17. A combined wagon and boat comprising a hull or body, an axle journaled thereon, gearing for rotating the axle, and a locking device for holding the axle stationary when the same is in operative position, substantially as described.

18. A combined wagon and boat comprising a hull or body, a fifth-wheel provided at opposite sides with bearings, a drop-axle journaled in the said bearings, a pinion mounted on the axle, a reciprocating rack-bar arranged to mesh with the pinion, and a locking device engaging the axle and connected with and operated by the rack-bar, substantially as described.

19. A combined wagon and boat comprising a hull or body, an axle journaled thereon, gearing for rotating the axle, and reciprocating bolts engaging the axle and connected with and operated by the gearing, substantially as described.

20. A combined wagon and boat comprising a hull or body, a drop-axle journaled thereon, the transversely-disposed spring-actuated bolts engaging the end portions of the axle, and means for operating the axle and the bolts, substantially as described.

21. A combined wagon and boat comprising a hull or body, a drop-axle journaled thereon, the transversely-disposed bolts engaging the axle, and a reciprocating bar having converging portions arranged to engage the bolts, whereby the latter are reciprocated, substantially as described.

22. A combined wagon and boat comprising a hull or body, a drop-axle connected with the same, and gearing for rotating the axle, whereby the body is lowered to provide a boat of light draft, substantially as described.

23. A combined wagon and boat comprising a hull or body, an axle journaled thereon, a pinion mounted on the axle, a reciprocating rack-bar arranged to mesh with the pinion, bolts engaging the axle, and a sliding bar arranged to move with the rack-bar, and connected with and adapted to operate the bolts, substantially as described.

24. A combined wagon and boat comprising a hull or body, provided with a fifth-wheel, the front axle journaled thereon, a rear axle journaled on the hull or body, pinions mounted on the axles, a front rack-bar provided with projections or lugs, and a rear rack-bar having a projection or lug located between those of the front rack-bar, substantially as described.

25. A combined wagon and boat comprising a hull or body provided with a fifth-wheel, a front axle journaled thereon and having a pinion, a rear axle journaled on the hull or

body and having a pinion, and the front and rear reciprocating rack - bars arranged to mesh with the said pinions, said rack-bars being interlocked at their adjacent ends and
5 having a limited movement independent of each other, substantially as described.

26. A combined wagon and boat comprising a hull or body, front and rear axles provided with pinions, a front rack-bar having front
10 and rear lugs and meshing with the pinion of the front axle, a rear rack-bar having a lug arranged between those of the front rack-bar, a sliding bar provided with lugs or projections arranged in front and in rear of the rear
15 lug of the front rack-bar, and locking devices connected with and operated by the sliding bar, substantially as described.

27. A combined wagon and boat comprising a hull or body, a rear axle journaled thereon
20 and provided with a pinion, a rack-bar meshing with the pinion, a sliding bar having an

opening forming converging edges, a spring engaging the sliding bar, and spring-actuated locking devices adapted to engage the rear axle and having projections or studs arranged
25 in the opening of the sliding bar, substantially as described.

28. A combined wagon and boat comprising a hull or body composed of front and rear sections, one of the sections consisting of in-
30 ner and outer shells, the inner shell being provided with upper hinged portions adapted when lowered to form seats, and means for operating the sections, substantially as described.
35

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

AUGUST C. PETERSON.

Witnesses:

A. M. WAFFLE,
OTTO A. RABE.