

April 19, 1932.

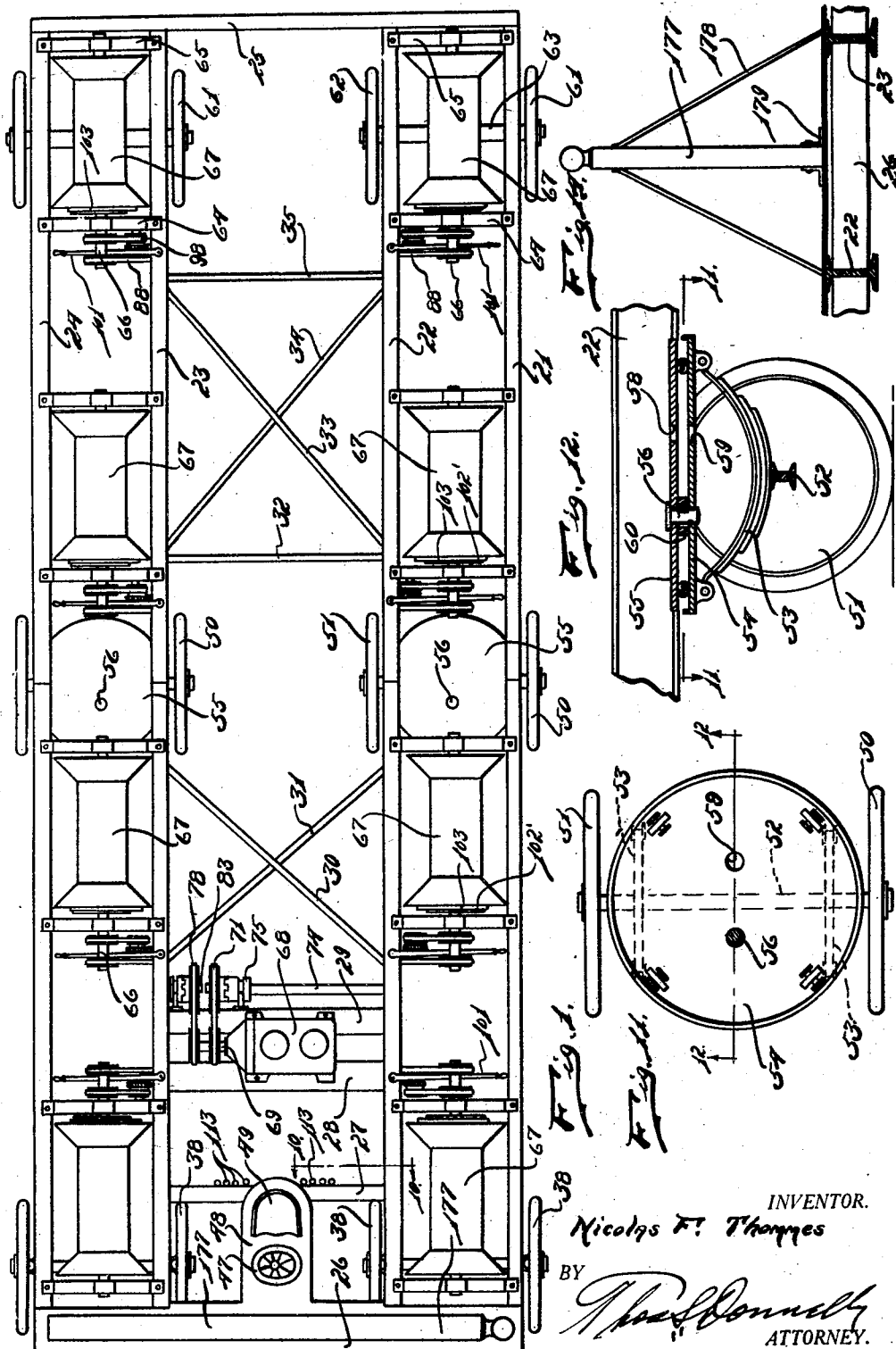
N. F. THOMMES

1,854,494

LANDING AND TAKING-OFF MECHANISM

Filed Sept. 19, 1929

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Fig. 2.

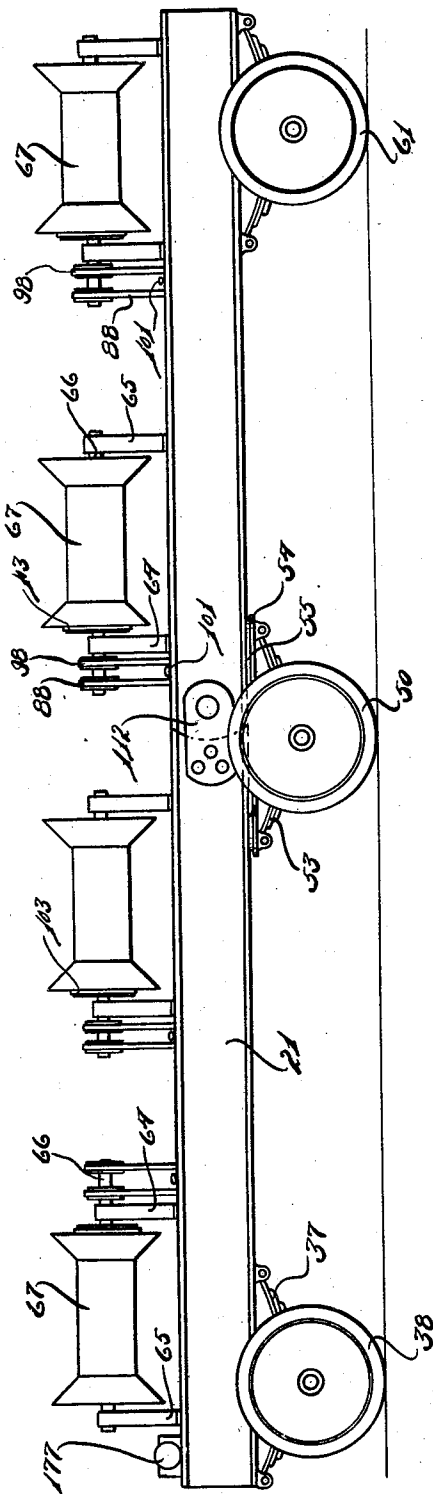
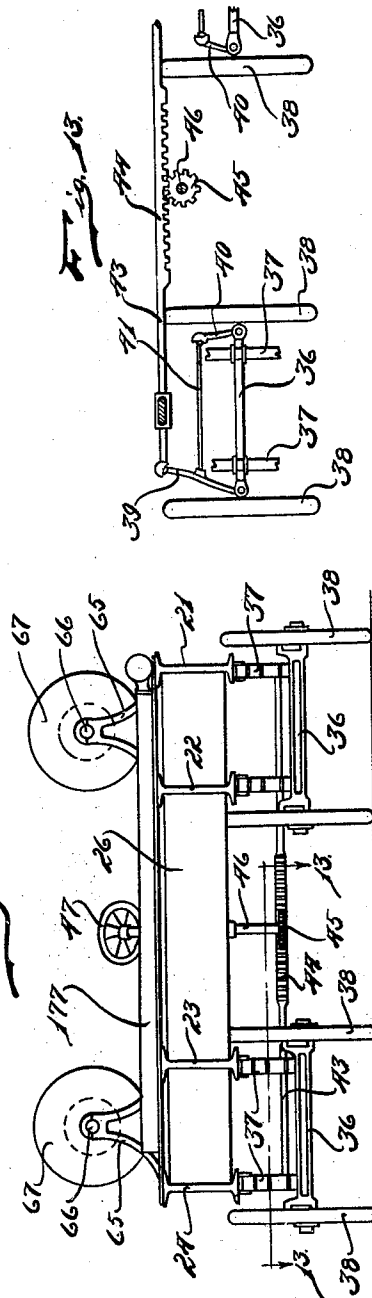


Fig. 3.



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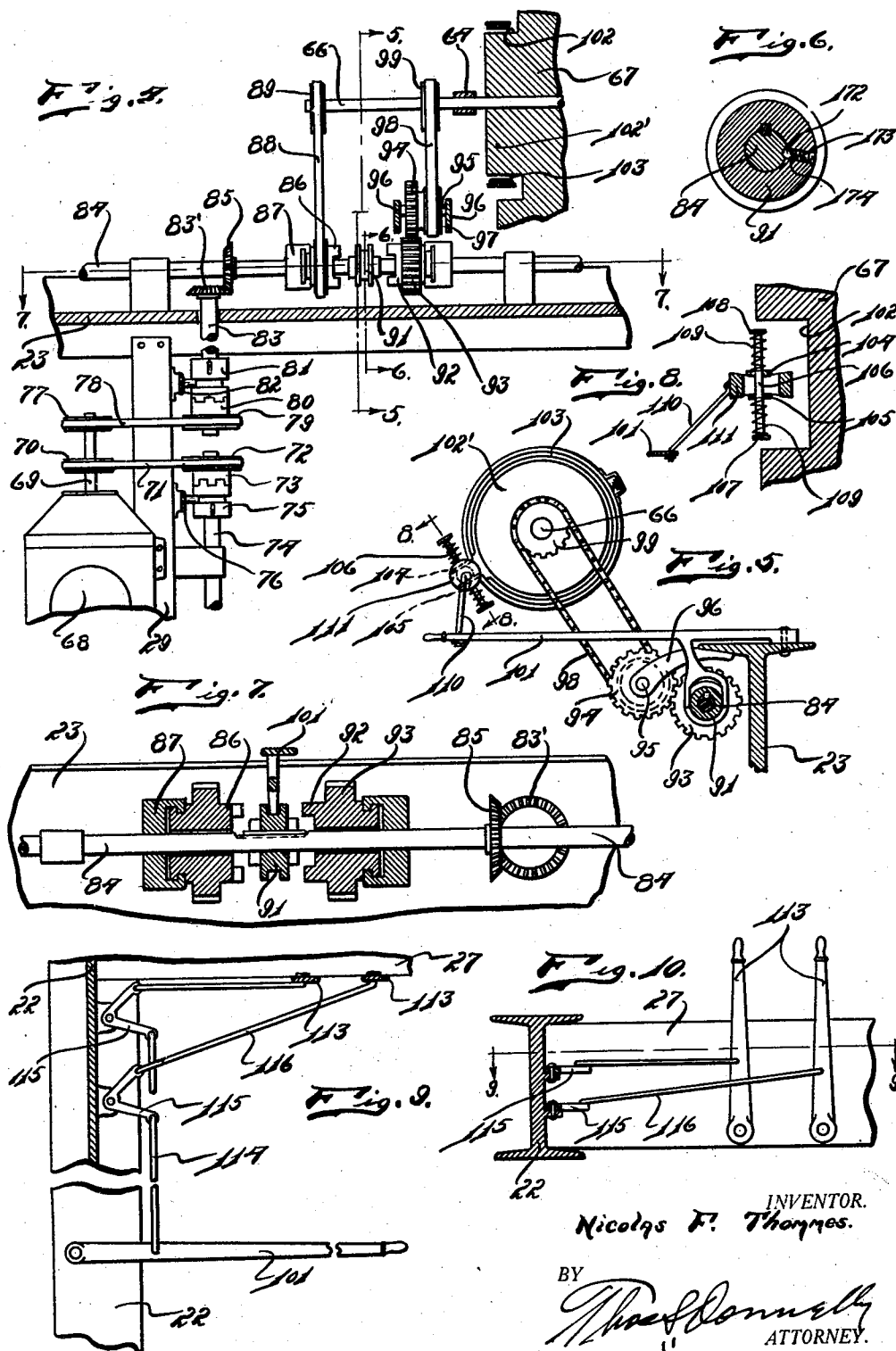
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## LANDING AND TAKING-OFF MECHANISM

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## UNITED STATES PATENT OFFICE

NICOLAS F. THOMMES, OF DETROIT, MICHIGAN

## LANDING AND TAKING-OFF MECHANISM

Application filed September 19, 1929. Serial No. 393,652.

My invention relates to a new and useful improvement in a landing mechanism adapted for use in landing airships, balloons, and the like. It is an object of the present invention to provide a landing mechanism of this class which will be easily operated, quickly transported from place to place, of durable construction, and highly efficient in use.

Another object of the invention is the provision of a device of this class having steering mechanism whereby it may be steered into any desired position.

Another object of the invention is the provision of a plurality of reels on which flexible elements may be wound and which are provided with individual operating mechanism.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawings which form a part of this specification and in which,

Fig. 1 is a top plan view of the invention.

Fig. 2 is a side elevational view of the invention.

Fig. 3 is an end elevational view of the invention.

Fig. 4 is a fragmentary sectional view illustrating the driving connection.

Fig. 5 is a view taken on line 5—5 of Fig. 4.

Fig. 6 is a view taken on line 6—6 of Fig. 4.

Fig. 7 is a view taken on line 7—7 of Fig. 4.

Fig. 8 is a view taken on line 8—8 of Fig. 5.

Fig. 9 is a view taken on line 9—9 of Fig. 10.

Fig. 10 is a view taken on line 10—10 of Fig. 1.

Fig. 11 is a view taken on line 11—11 of Fig. 12.

Fig. 12 is a view taken on line 12—12 of Fig. 11.

Fig. 13 is a view taken on line 13—13 of Fig. 3.

Fig. 14 is an elevational view of a mooring mast used.

The device comprises a carriage formed from rails 21 and 22, which extend parallel

and in spaced relation at one side of the carriage, and the rails 23 and 24 which extend parallel to each other in spaced relation at the opposite side of the carriage. End rails 25 and 26 serve to connect the rails 21 and 22, 23 and 24 at their ends. The rails 22 and 23 are connected by the bars or cross members 27, 28, 29, 32, and 35 and the braces 30, 31, and 33 and 34. Axles 36 are supported at opposite sides of the carriage by springs 37 which are rigidly connected to the rails 21 and 22 and the rails 23 and 24. The construction at the opposite sides of the carriage is the same so that a description of one side will suffice for both.

Steering knuckles 39 and 40 connect to the traction wheels 38 which are pivotally mounted on the axles 36. A tie rod 41 connects the steering knuckles 39 and 40, and the steering knuckle 39 is pivotally connected to the operating rod 43 which has a portion 44 formed as a rack bar which meshes with the pinion 45 fixedly mounted on the steering post 46 on which is mounted the steering wheel 47, the steering post projecting through the platform 48 on which the driver's seat 49 is mounted.

Mounted intermediate the ends of the carriage are traction wheels 50 and 51, these traction wheels being mounted on the axle 52 which is attached fixedly to the springs 53, the ends of the springs 53 being connected to the disc 54 which is positioned below the disc 55 which is mounted in the rails 21 and 22. A pin 56 pivotally connects the discs 54 and 55 eccentrically of each other, rollers 57 and a spacer 60 serving to retain the discs 54 and 55 in spaced relation. Aligning openings 58 and 59 are formed in the discs 55 and 54 so that the pin 56 may be removed from the position in which it is shown in Fig. 12 and projected through the openings 59 and 58.

Mounted on the axle 63 which is supported by springs as are the front axles 36 are traction wheels 61 and 62 which are not angularly movable relatively to the axle 63. Mounted upon and projecting upwardly from the rails 21 and 22 and from the rails 23 and 24 are pairs of standards 64 and 65

in each pair of which there is journaled an axle 66 on which is fixedly mounted the rails or winding spool 67. As shown in Fig. 1 these pairs of standards 64 and 65 positioned at opposite sides of the carriage are in alignment with each other.

Mounted on the cross members 28 and 29 is an engine 68 which may be of the internal combustion type or of any other suitable power driven type which may be adapted for the purposes intended. The shaft 69 of the engine is provided with a sprocket 70 which connects by the chain 71 to the sprocket 72 carried by the clutch section 73 which is loosely mounted on the shaft 74. Nonrotatively mounted on the shaft 74 is the clutch section 75 rockable by the lever 76 so that the shaft 74 may be made to rotate in unison with the shaft 69 when the clutch sections are engaged as shown in Fig. 4. A sprocket 77 is fixedly mounted on the shaft 69 and connected by the chain 78 to the sprocket 79 carried by the clutch section 80 which is engageable with the clutch section 81 which is rockable by means of the arm 82 axially of the shaft 83.

The section 81 rotates in unison with the shaft 83 while the section 80 is loosely mounted on the shaft 83. As shown in Fig. 4 and Fig. 1 the shaft 83 projects to one side of the carriage while the shaft 74 projects to the other side of the carriage, the operations and connections of these shafts at the sides of the carriage being the same.

Extending longitudinally of the carriage adjacent the rail 23 or the rail 22 is a shaft 84 on which is mounted the bevel gear 85 meshing with the bevel gear 83'. Loosely mounted on the shaft 84 is the clutch section 86 carrying the guide collar 87 and connected by the chain 88 to the sprocket 89 which is fixedly mounted on the shaft 66 extending through the standard 64 and 65 and centrally through the spool or winding reel 67, this spool or winding reel 67 being fixed to the shaft 66.

The clutch section 86 is of the female type, and slidably mounted on the shaft 84 and rotatable therewith is the male clutch section 91. Loosely mounted on the shaft 88 is a female clutch section 92 carrying the gear 93 which is adapted to mesh with the gear 94 rotatably mounted on the shaft 95 journaled in the standards 96. A sprocket 97 carried by the gear 94 is connected by the chain 98 to the sprocket 99 which is fixedly mounted on the shaft 66. An operating arm 101 is used for rocking the section 91 of the clutch into engagement either with the section 86 or the section 92.

The spool driving mechanism described is mounted on the shaft 84 adjacent each of the spools or winding reels 67. Each of the spools is provided at one end with a recess 102 to provide the reduced portion 102' around

which is passed a brake band 103 having the ends 104 and 105 angularly turned to extend parallel to each other. Through these angularly turned ends is extended the pin 106 having a head 107 at one end and a head 108 at the other. The springs 109 positioned in embracing relation on the pin 106 serve to normally retain the ends 104 and 105 in close relation so that the brake is normally applied. When the lever or arm 101 is rocked so as to cause a rotation of the drum in either direction, the brake is loosened simultaneously with the engagement of the clutch. This is effected by the connection 110 which connects the arm 101 to the wedge shaped spacer 111 positioned between the ends 105 and 104. When the clutch is in disengagement, the arm 101 will be in such a position as to retain the wedge shaped spacer 111 in the position shown in Fig. 5 so that the springs may apply the brake.

In operation, when desired to steer the carriage while being propelled over the terrain, the driver may, through manipulating the steering wheel 87, turn the front wheels 38 angularly in either direction. The rails 21 and 22, and 23 and 24 are formed sectionally connected by a pivotal connection using a plate 112. The wheels 51 may turn angularly. When it is desired to back the vehicle, the pin 56 would be positioned in the openings 58 and 59. The winding of the reels may be effected either individually or collectively by making the necessary connections with the clutches described so that cables wound on the reel 67 may be wound or unwound as desired.

Adjacent the operator's seat 49, I have provided a plurality of levers so that the various clutches on the shafts 84 may be operated from the driver's seat. To this end I have connected each of the levers 113 referred to through rods 114 and bell cranks 115 and rods 116 to the operating arm 101 of the various clutches.

It is believed obvious that the structure may be used both for landing and taking off purposes, the operation of the mechanism for taking off being reversed to its operation when used for landing.

As shown in Fig. 6 the clutch member 91 is locked yieldably against axial movement on the shaft 84 by the ball 172 which is positioned in the socket 173 and pressed by the spring 174 into engagement with the periphery of the shaft 84 which is provided with a recess therein.

In Fig. 14 I have illustrated a mooring mast 177 which may be used in connection with airships and which may be mounted in upright position on the frame supported by braces 178 and brackets 179.

While I have illustrated and described the preferred form of my invention, I do not wish to limit myself to the precise details of

structure shown, but desire to avail myself of such variations and modifications as may come within the scope of the appended claims.

5 Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device of the class described, comprising: a frame; traction wheels positioned at the forward end of said frame; traction  
10 wheels intermediate said frame; means for turning said forwardly positioned traction wheels angularly of said frame for steering the same; and means for mounting said second mentioned traction wheels on said frame  
15 for free angular turning relatively thereto.

2. A device of the class described, comprising: a frame formed from a pair of aligning sections; means for pivotally connecting  
20 said sections together for rocking in vertical planes relatively to each other; a plurality of winding spools on said frame at opposite sides thereof; means for rotating said spools; means for controlling the direction of rotation of said spools; and a brake mechanism  
25 for retarding the rotation of said spools.

In testimony whereof I have signed the foregoing specification.

NICOLAS F. THOMMES.

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