No. 652,244. Patented June 26, 1900.

A. S. BROWN.

STEERING OR GUIDING AND LOCKING DEVICE FOR VEHICLES, VESSELS, &c.

(Application filed Aug. 22, 1899.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 1.

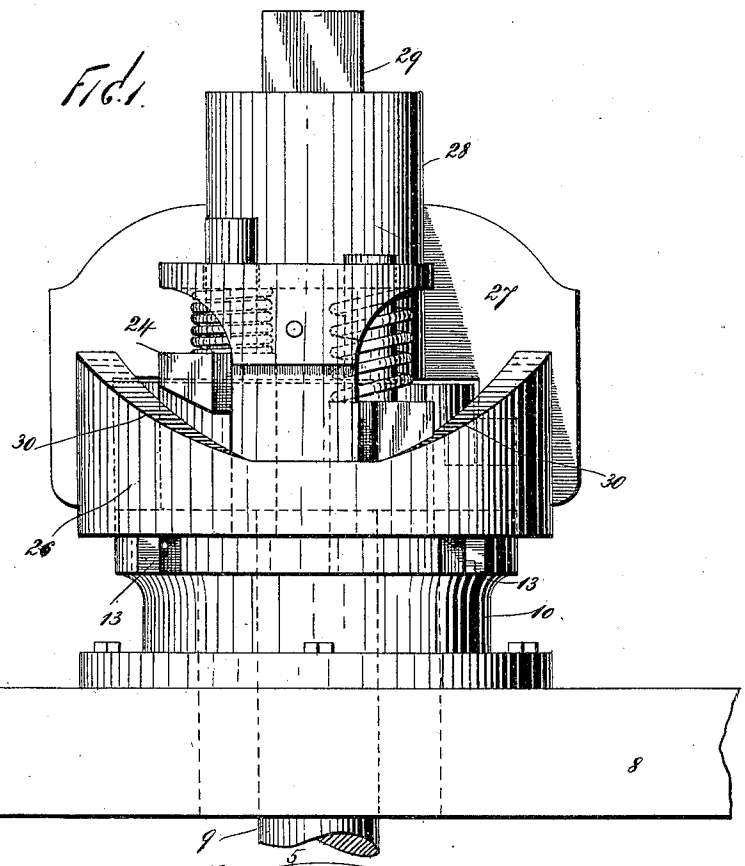
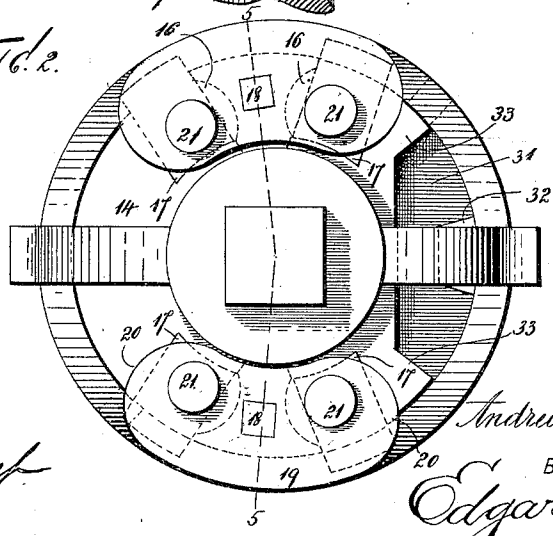


FIG. 2.



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FIG. 3.

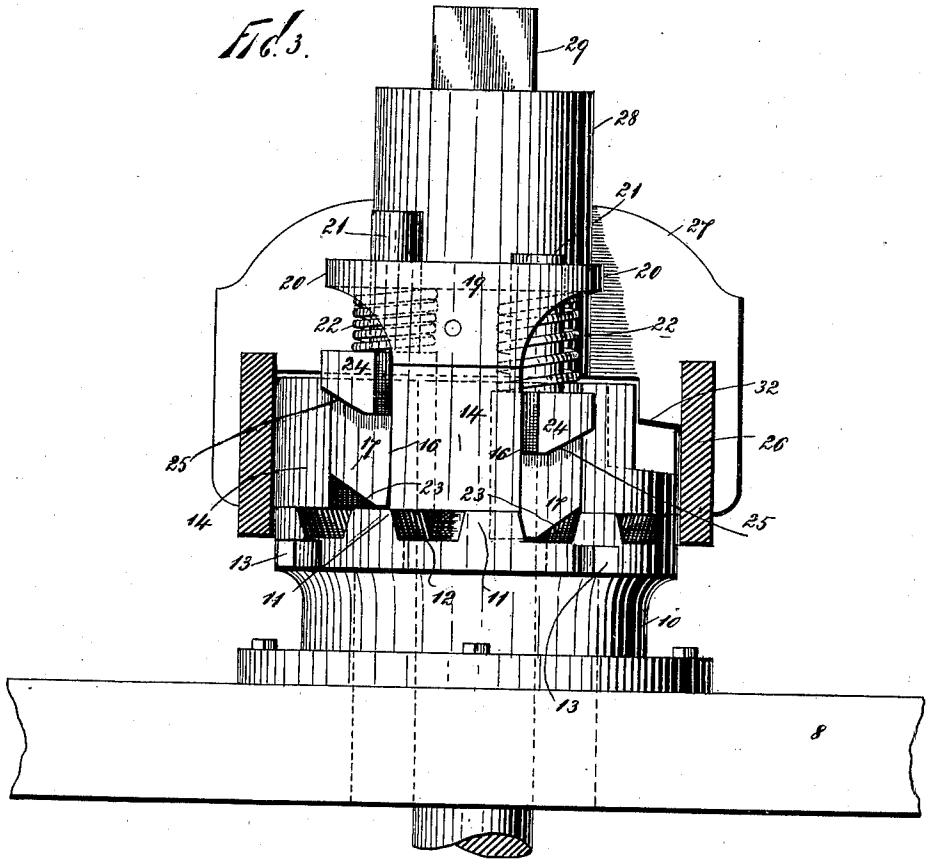
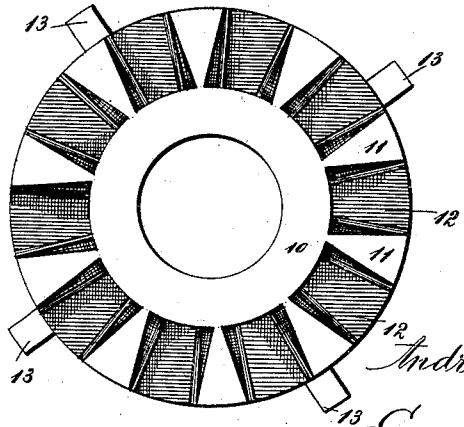


FIG. 4.



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Fig. 5.

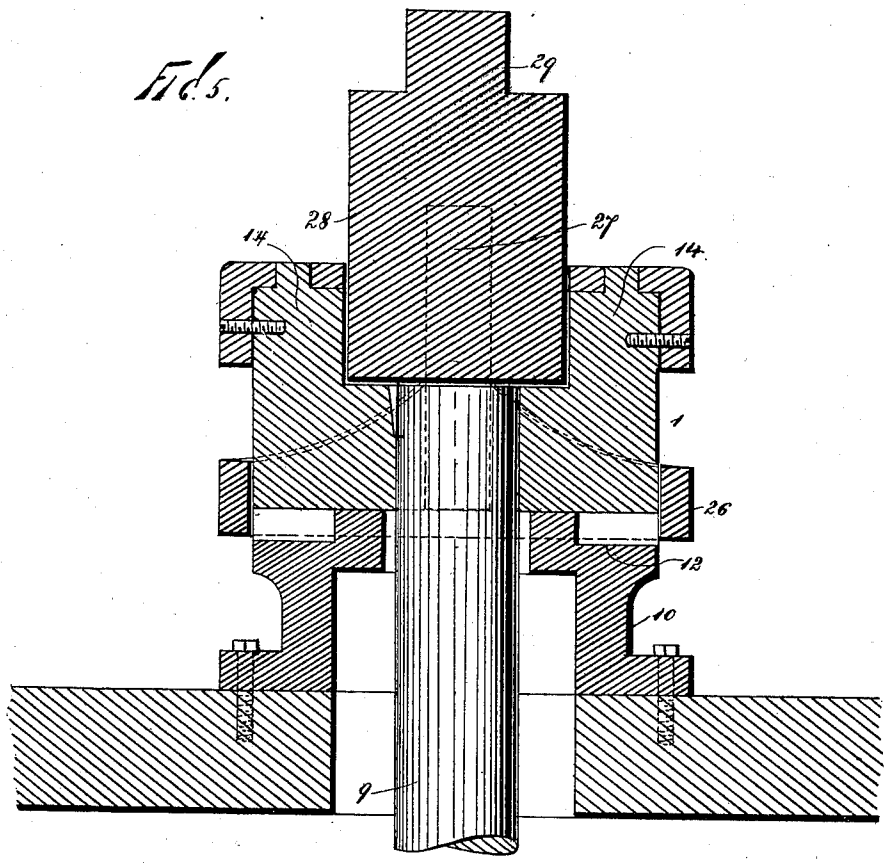
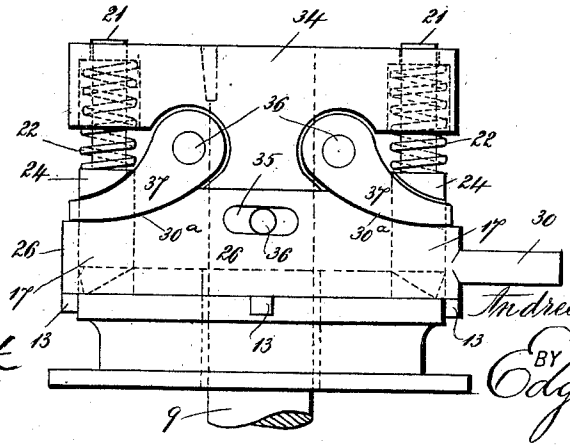


Fig. 6.



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UNITED STATES PATENT OFFICE.

ANDREW S. BROWN, OF NEW YORK, N. Y.

STEERING OR GUIDING AND LOCKING DEVICE FOR VEHICLES, VESSELS, &c.

SPECIFICATION forming part of Letters Patent No. 652,244, dated June 26, 1900.

Application filed August 22, 1899. Serial No. 728,094. (No model.)

To all whom it may concern:

Be it known that I, ANDREW S. BROWN, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Steering or Guiding and Locking Devices for Vehicles, Vessels, &c., of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to steering devices for fire-trucks, automobiles, or other vehicles; and one object thereof is to provide an improved device of this class by means of which vehicles of the class described may be guided and held to any desired course of movement, a further object being to provide a device of the class described which may also be applied to the rudders of vessels for manipulating the same and holding the vessel to any desired course; and with these and other objects in view the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

The invention described and claimed herein is an improvement on that described and claimed in Letters Patent of the United States issued to me September 5, 1899, No. 632,232, and is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a side view of my improvement; Fig. 2, a plan view; Fig. 3, a view similar to Fig. 1, part of the construction being shown in section; Fig. 4, a plan view of a detail of the construction; Fig. 5, a vertical section on the line 5 5 of Fig. 2; and Fig. 6, a view similar to Fig. 1, showing a modification.

In the drawings forming part of this specification the separate parts of my improvement are designated by numerals of reference, and in said drawings I have shown at 8 a part of a truck-frame or any suitable support and at 9 a shaft, which may represent a tiller-shaft, the shank of the spindle of a motor-vehicle, or the steering-shaft of a fire-truck, and this shaft 9, as shown in the drawings, passes vertically through the support 8; but said shaft 9 may be arranged horizontally, if desired. The shaft 9 also passes through a circular stationary base 10, secured to the support 8 and a plan view of which is given in Fig. 4, and the perimeter of the top of the base 10 is preferably wider than the body portion thereof and provided in its upper surface with radial teeth 11, between which are corresponding radial spaces 12, and the perimeter of the top of said base is also preferably provided with outwardly-directed lugs or projections 13, any desired number of which may be employed.

The shaft 9 is provided above the base 10 with a circular head 14, which is keyed thereto and adapted to turn on the base 10, and said head is also provided at its opposite sides with two vertical slots, grooves, or spaces 16, in which are mounted vertically-movable locking-bolts 17, and radially between the locking-bolts 17 upon each of the said opposite sides the head 14 is provided with an upwardly-directed standard 18, to which is secured a cap 19, having lateral projections 20. The locking-bolts 17 are square or rectangular in cross-section and are provided with upwardly-directed cylindrical extensions 21, which pass through the lateral projections 20 of the caps 19, and mounted on the cylindrical extensions 21 of said locking-bolts, between the rectangular portions thereof and the lateral extensions 20 of the caps 19, are spiral springs 22, which operate to force said locking-bolts downwardly. The lower ends of the locking-bolts 17 at each side of the head 14 are beveled at their lower outer corners, as shown at 23, and the lower ends of these locking-bolts in the operation of the device, as hereinafter described, are adapted to enter the radial spaces 12 in the top of the base 10 and operate in connection with the radial teeth 11. The locking-bolts 17 are also provided, at the top of the rectangular portion thereof, with outwardly-directed or radial lugs or projections 24, and these lugs or projections are each beveled on their lower corners, as shown at 25.

The vertical grooves or recesses 16 in the head 14, in which the locking-bolt 17 moves, as hereinbefore described, are rectangular in

cross-section at the lower ends thereof; but the upper portions of said grooves or spaces are circular in form, as indicated by the dotted lines in Fig. 2, in order to accommodate the springs 22.

Mounted on the head 14 and adapted to turn thereon and upon the projections 13 is a ring or band 26, the opposite sides of which are connected over said head 14 by a cross-plate 27, in the central portion of which is a vertical cylindrical head 28, and said ring or band 26, the cross-plate 27, and the cylindrical head 28 are preferably formed integrally, and the head 28 is provided centrally of its upper end with a lug or projection 29, with which a crank or other device may be connected. The ring or band 26 is cut out at its opposite sides to form two inclined cam-surfaces 30, and the outwardly-directed lugs or projections 24 on the locking-bolts 17 rest on these inclined cam-surfaces, and said bolts are raised by turning the ring or band 26, and said ring or band may be turned by a crank applied to the head 28 at 29 or in any desired manner, and instead of employing the cross-plate 27 and the head 28, as shown in Fig. 1, the ring or band 26 may be provided at one side with a handle 30^a, as shown in Fig. 6. In this form of construction one of the locking-bolts 17 at each side of the head 14 is always in the raised position and the other in the lowered position, this position of said parts being shown in Fig. 3, and two of said bolts are always in engagement with the teeth 11. When one of the locking-bolts is engaged with one of the teeth 11, as shown at the right of Fig. 3, the diametrically-opposite bolt is resting on one of the teeth 11, and when one of the locking-bolts, as shown in Fig. 3, is resting on one of the teeth 11 the diametrically-opposite locking-bolt is resting in the corresponding recess 12 on the opposite side. By turning the ring or band 26 clockwise when the locking-bolts are in the position shown in Fig. 3 the two which are in engagement with the teeth 11 of the base 10 will be raised against the operation of the springs 22, and the head 14 will be turned clockwise, thus turning the shaft 9.

The head 14 is provided in one side with a chamber 31, as shown in Fig. 3, in which works a lug or projection 32 on the inner side of the ring or band 26, and the movement of the ring or band independently of the head 14 is limited by the side walls 33 of the chamber 31. This independent movement of the ring or band 26 on the head 14 operates to raise the bolts 24, and at the limit of said movement the shaft 9 is turned with said ring or band, and as soon as the movement of the ring or band and the shaft stops one set of the bolts 17 will drop back into the position shown at the right of Fig. 3, and the head 14 of the shaft 9 will be locked to the base 10. When the head 14 of the shaft 9 is turned counter-clockwise, two of the locking-bolts 17 will be raised and the other two will pass backwardly over the teeth 11 of the base 10, and as said ring or band is turned clockwise the above-described operation will be reversed, and the shaft will be turned clockwise, and it will be apparent that said shaft may be locked in any desired position by simply stopping the movement of the ring or band 26, at which time two of the locking-bolts will always be projected downwardly and engaged with the teeth 11. There might be a little movement of the shaft 9 when the ring or band is stopped, and this movement may be in either direction; but said movement will be slight, as it will be apparent that the extent thereof could not be greater than the distance across the tops of the radial teeth 11.

In Fig. 6 I have shown a modification in which the cross-plate 27 and cylindrical head 28 are omitted, and the shaft 9 is provided with a large circular head 34, which is keyed thereto. In this form of construction the ring or band 26 is provided in one side with a slot 35, through which passes a pin 36, secured to the shaft 9, which limits the movement of the ring or band. The head 34 takes the place of the head 14, hereinbefore described, and at each side, as shown at 36, are curved dogs 37, which taper outwardly and rest on the cam-surfaces 30 of the ring or band 26, and the lugs or projections 24 of the locking-bolts 17 rest on the upper curved sides of the dogs 37, and by turning the ring or band 26 by the handle 30 or in any other desired way the locking-bolts 17 will be operated exactly as hereinbefore described, said locking-bolts or the lower ends thereof being shown in dotted lines.

In the construction shown in Fig. 6 the handle 30, secured to one side of the ring or band 26, takes the place of the cross-plate 27 and the cylindrical head 26, (shown in Fig. 1,) and said ring or band may be turned in either direction by the handle 30 or by any other preferred means.

In both of the forms of construction herein shown and described the locking-bolts 17, the springs 22, mounted thereon, and the ring or band 26 are all substantially the same, and the only difference between the construction shown in Fig. 6 and that of the other figures consists substantially in the employment of the pivoted dogs 37, by means of which the locking-bolts are raised, it being understood that the free ends of these dogs are raised and lowered on the cam-surfaces 30 by turning the ring or band 26.

By means of this device the shaft 9 may be turned in either direction and locked in any desired position whenever required, all that is necessary to accomplish this result being to turn the ring or band 26.

The entire apparatus is simple in construction and operation and well adapted to accomplish the result for which it is intended, and

it will be apparent that changes in and modifications of the construction herein described may be made without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a device of the class described, a stationary base or support, a shaft passing therethrough, and provided with a head, said base being provided on its upper surface with radial teeth, and said head being provided on each side with two spring-operated locking-bolts which are adapted to engage the said teeth, and a cam-ring adapted to turn on said head and to move said bolts against the operation of said springs, substantially as shown and described.

2. In a device of the class described, a stationary base or support, a shaft passing therethrough, and provided with a head, said base being provided on its upper surface with radial teeth, and said head being provided on each side with two spring-operated locking-bolts which are adapted to engage the said teeth, and a cam-ring adapted to turn on said head and to move said bolts against the operation of said springs, said cam-ring being provided on each side with two inclined surfaces, substantially as shown and described.

3. In a device of the class described, a stationary base provided with radial teeth, a shaft passing through said base and adapted to turn therein, and provided with a head which is secured thereto, two spring-operated bolts mounted in each side of said head and adapted to engage with said teeth, a cam-ring mounted on said head and adapted to turn thereon, and provided at each side with two inclined cam-surfaces, said locking-bolts being provided with outwardly-directed lugs or projections which are adapted to engage said cam-surfaces, substantially as shown and described.

4. In a device of the class described, a stationary support, a circular base secured thereto, and provided with radial teeth, a shaft passing through said base and provided with a head which is secured thereto, two spring-operated bolts mounted in each side of said head and adapted to engage with said teeth, the ends of said bolts on each side being beveled at their outer corners, a cam-ring mounted on said head and adapted to turn thereon, said cam-ring being provided at each side with two inclined cam-surfaces, and said locking-bolts being provided with outwardly-directed shoulders or projections which are adapted to engage said cam-surfaces, substantially as shown and described.

5. In a device of the class described, a stationary circular base, provided with radial teeth, a shaft passing therethrough and adapted to turn therein, and provided with a circular head, a plurality of spring-operated locking-bolts mounted in said head and adapted to engage said teeth, the ends of said bolts which engage said teeth on the opposite sides of said head being beveled at their outer corners, and a ring or band mounted on said head and provided on each side thereof with two cam-surfaces, said locking-bolts being provided with outwardly-directed lugs or projections adapted to be engaged by said cam-surfaces, and means for turning said ring or band on said head, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 21st day of August, 1899.

ANDREW S. BROWN.

Witnesses:
F. A. STEWART,
K. E. LANGTRY.