(No Model.)

F. HILDRETH.

FIFTH WHEEL.

No. 430,648. Patented June 24, 1890.

FIG. 1.

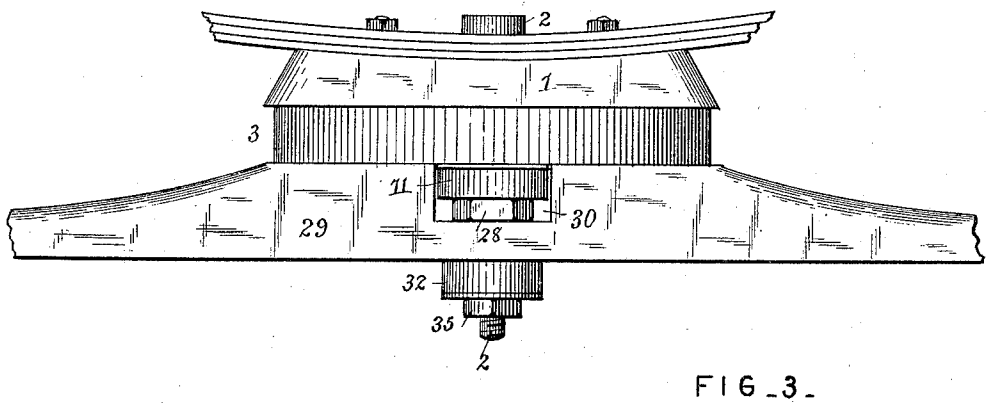


FIG. 2.

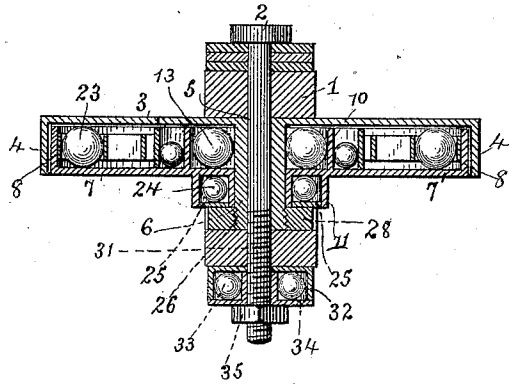


FIG. 3.

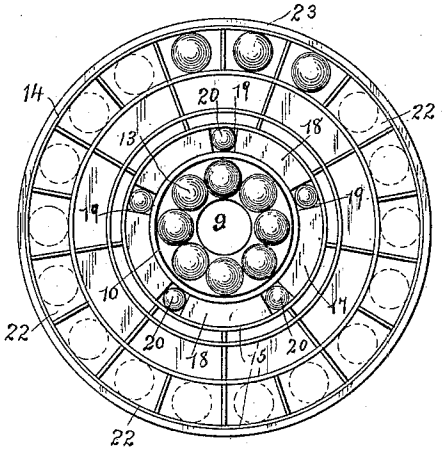


FIG. 4.

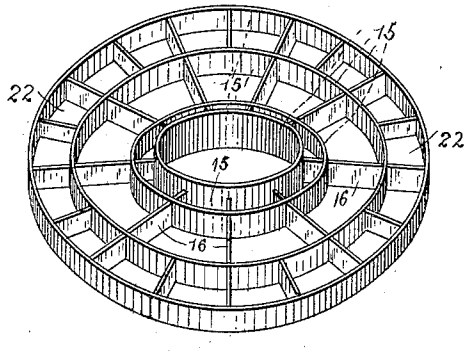
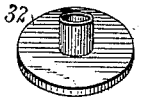


FIG. 5.



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FRANCIS HILDRETH, OF CLERMONT, NEW JERSEY.

FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 430,648, dated June 24, 1890.

Application filed March 18, 1890. Serial No. 344,407. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS HILDRETH, a citizen of the United States, residing at Clermont, in the county of Cape May and State of New Jersey, have invented a new and useful Fifth-Wheel, of which the following is a specification.

This invention has relation to improvements in fifth-wheels of that class employing anti-friction balls or rollers, and among the objects in view are to so dispose the balls or rollers as to overcome, so far as possible, all friction or wear of the parts, and to provide for an adjustment of the same by which the wear as occurring may be compensated for, thus continually presenting a uniform surface, and preventing any rattling of the parts or unevenness in movement.

With the above objects in view the invention consists in certain features of construction, hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is an elevation of a head-block and axle and an intermediate connecting fifth-wheel constructed in accordance with my invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a top plan of the lower fifth-wheel disk or section. Fig. 4 is a perspective of the anti-friction ball-holding ring or spider. Fig. 5 is a perspective of the bearing-plate and thimble for receiving the king-bolt.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 represents the head-block of a vehicle, and through the same there is inserted the vertical king-bolt 2, which depends below the head-block in the usual manner.

Rigid with the head-block is the upper disk 3 of the fifth-wheel, which disk is provided with a central opening for the passage of the king-bolt, and is rigidly connected to the head-block in the usual manner. The perimeter of the disk is provided with a depending surrounding flange 4, and the central opening 5 of said disk is provided with a depending hollow post or stud 6, through which is passed the king-bolt and below which the king-bolt extends, said hollow stud being about double the width of the flange 4.

The lower disk or section of the fifth-wheel (designated as 7) is provided within its periphery with an annular flange 8, extending upwardly therefrom and adapted to fit within the flange 4 of the upper disk. The lower disk is also provided with a central opening 9 for the passage of the depending hollow stud 6, and is encircled upon its upper side with a collar 10 and upon its under side with a collar 11, said collars being larger than the opening which they surround, and forming a circular track for the reception of a series of anti-friction balls, the upper ones of which are designated as 13.

14 represents a spider-frame or ball-support, which comprises in this instance a series of concentrically-arranged rings 15, connected by radial spokes 16, the inner ring of the series being somewhat larger than the collar 9, and combining with the same to form an intermediate space 17, provided with a concentric series of blocks 18, forming intermediate pockets 19 for the reception of a series of anti-friction balls 20. The two outer rings or rims are divided by the spokes into a concentric series of pockets 22, in each of which there is mounted an anti-friction roller 23. The series of concentric rollers described all bear upon the under surface of the upper disk 3, and, as will readily be apparent, tend to facilitate movement of the two disks against each other and reduce to a minimum the friction caused by such movement.

The collar upon the under side of the disk 7, and through which depends the stud 6 of the upper disk, forms a track for a series of anti-friction balls 24, fitted over which is a bearing-washer 25 of a diameter adapting the same to fit snugly within the collar 10. The lower end of the stud 6 is threaded, as at 26, and upon the same, and bearing upon the under side of the collar 25, and therefore serving to adjust the tension of the collar 25 upon the balls, is a set-nut 28.

29 represents the axle, which at its center is provided with a recess 30, in which depends the lower collar, anti-friction balls, and set-nut. The axle is provided with an opening 31 at the center of its recess, and surrounding the opening and depending therefrom is a collar 32, through which there depends the lower end of the king-bolt. Surrounding the king-bolt, and mounted within, the collar is a series of anti-friction rollers 33, and forming a lower bearing for said rollers, thus closing the collar, is a bearing-disk 34, said disk hav-

ing a central perforation, through which passes the lower end of the king-bolt, and is bound in position by a terminal nut 35, threaded upon said king-bolt.

From the above construction it will be apparent that every point at which friction can possibly take place in the movements of the vehicle is carefully guarded by anti-friction rollers, which rollers may be easily adjusted, and they and their tracks are carefully guarded against dust and grit.

The spider can be dispensed with by substituting a channel or circular track for the balls to travel in.

Having thus described my invention, what I claim is—

1. The combination, with the head-block of a vehicle, the upper section or disk of the fifth-wheel having a depending flange, an opening formed centrally in the disk and in the head-block, a hollow boss depending from the disk, and a king-bolt depending through the head-block and the stud, of a lower disk provided with a surrounding flange adapted to be received by the flange of the upper disk, a spider mounted between the disks and secured to the lower disk and having a series of annularly-arranged pockets, one of which surrounds the stud and another of which is near the outer edge of the disks, a series of anti-friction rollers mounted in the pockets, an axle secured to the under surface of the lower disk, and a binding-nut for binding the head-block and axle together, and mounted upon the king-bolt, substantially as specified.

2. The combination, with the head-block of a vehicle, the upper section of a fifth-wheel, and a depending king-bolt passing therethrough, of the lower section of the fifth-wheel, anti-friction balls mounted between the sections, a collar concentric with the opening of the lower section and depending from the under surface thereof, the king-bolt passing through the opening, a series of anti-friction balls mounted in the collar and surrounding the fifth-wheel, a bearing-disk mounted within the collar, means for adjusting the same, and an axle having an opening for the passage of the king-bolt, and a nut mounted on the bolt, substantially as specified.

3. The combination, with the bolster of a vehicle, the upper section of a fifth-wheel rigidly connected therewith, centrally perforated and provided with a hollow boss threaded at its lower end, and a king-bolt depending through the boss and section, of a lower section having a central opening for the passage of a boss, anti-friction devices interposed between the two sections, an annular collar depending from the under side of the lower section and surrounding the boss, a series of anti-friction balls mounted within the collar, a bearing-disk bearing against the balls encircling the stud or boss and received by the collar, a set-nut threaded on the lower end of the boss and bearing against the disk, an axle having an opening for the reception of a king-bolt, and a nut mounted upon the lower end of the same, substantially as specified.

4. The combination, with the head-block, a fixed upper disk or fifth-wheel section, and a king-bolt passing through the head-block, the center of the section, and depending below the same, of an axle having a central opening, a depending collar encircling the opening, a lower fifth-wheel section secured to the axle, through which and the collar passes a king-bolt, a thimble encircling the bolt and having at its lower end a bearing-disk, a series of anti-friction balls supported by the disk, and a set-nut mounted on the lower end of the king-bolt and bearing against the disk, substantially as specified.

5. The combination, with the head-block, the upper disk having the peripheral flange and the central opening, and the depending king-bolt passing through the disk and head-block and through a hollow stud or boss depending from the center of the disk, of a lower fifth-wheel section provided near its end with a circular flange adapted to fit within the depending flange of the upper section, and having a central opening through which pass a hollow stud and king-bolt, a spider-frame mounted upon the lower disk and having an annular series of pockets, anti-friction balls mounted therein, and provided upon its under side with a depending circular collar surrounding the hollow stud, a series of balls mounted in the collar, a ring or washer for supporting the balls and received by the collar, a set-nut threaded on the lower end of the stud for the adjustment of the ring, an axle having a recess for the reception of the collar and nut, and an opening for the passage of the bolt, and upon its under side provided with a depending collar, a series of balls mounted in the collar and surrounding the bolt, a thimble mounted on the bolt and having at its lower end a circular disk or flange adapted to fit within the collar, and a binding-nut mounted on the lower end of the bolt and serving to adjust the thimble, substantially as specified.

6. The combination, with the upper section or disk of the fifth-wheel, having a depending flange, and a hollow boss depending from the disk, of a lower disk provided with a surrounding flange adapted to be received by the flange of the upper disk, and a series of annularly-arranged pockets, one of which surrounds the stud and another of which is near the outer edge of the disks, and a series of anti-friction rollers mounted in the pockets, substantially as specified.

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

FRANCIS HILDRETH.

Witnesses:
JOHN B. HUFFMAN,
LIDA L. DOUGLASS.