

No. 631,189.

Patented Aug. 15, 1899.

J. K. THOMA.
FIFTH WHEEL.

Application filed Feb. 1, 1899.)

(No Model.)

Fig 1

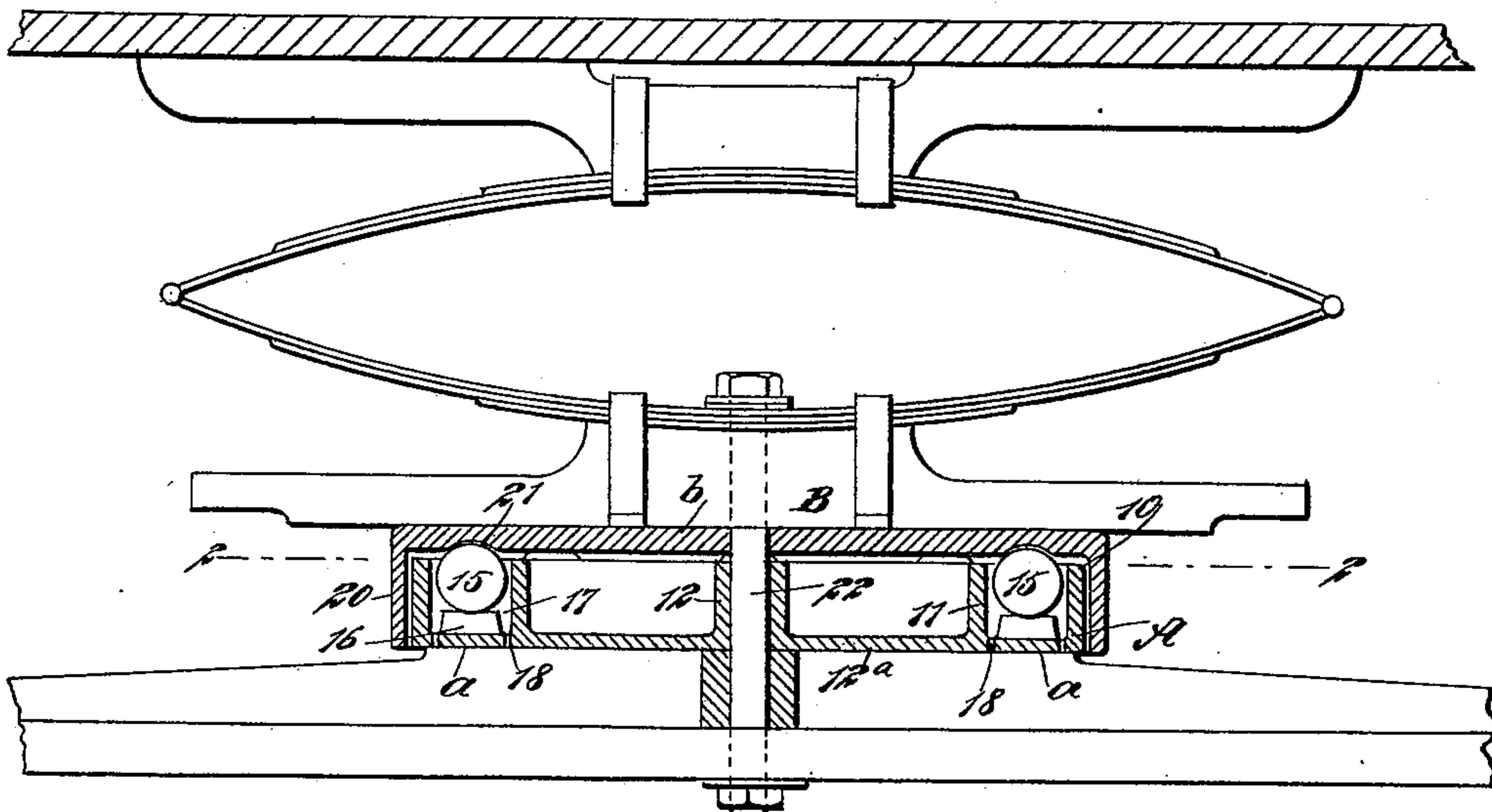


Fig 2

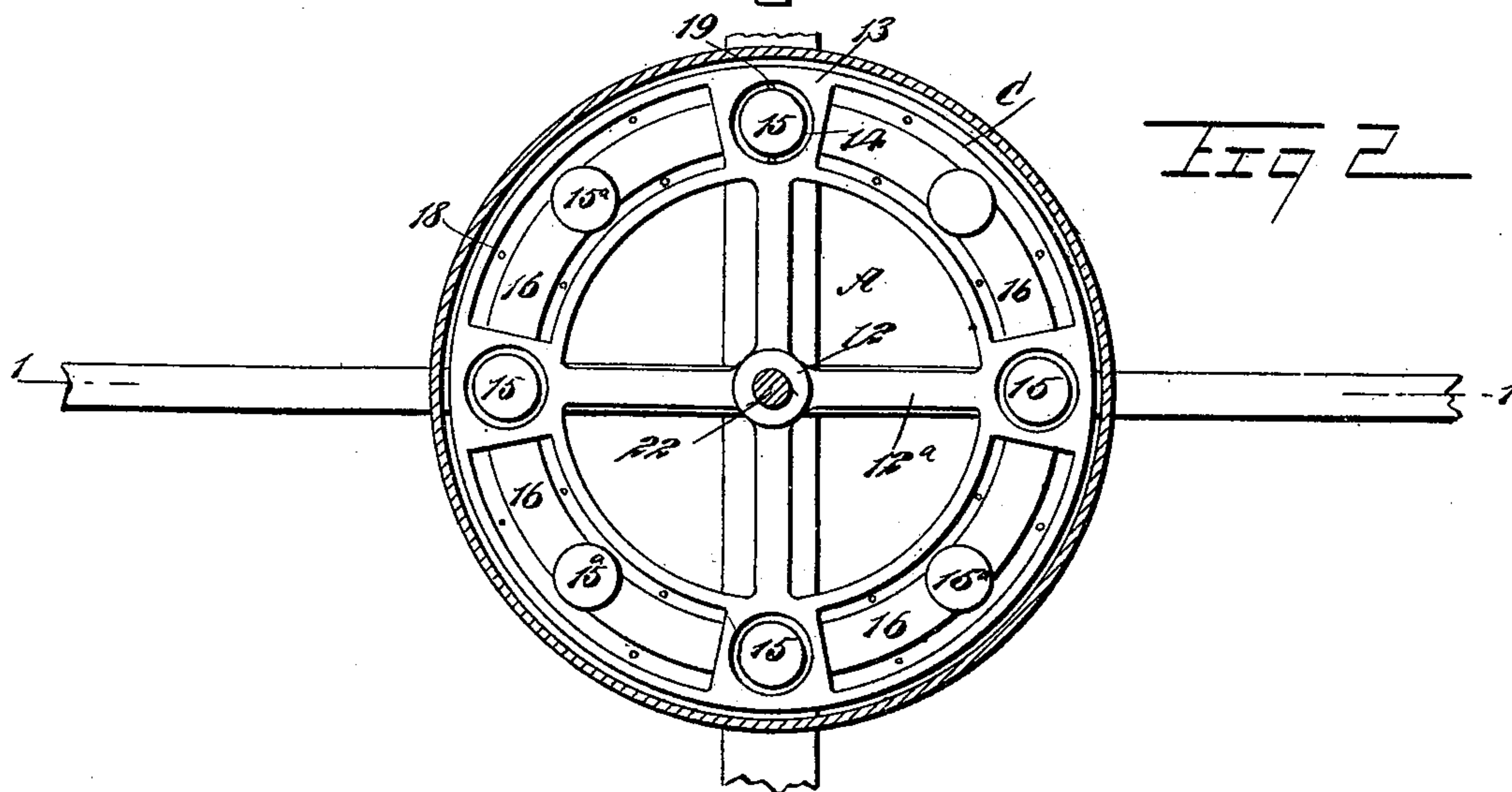
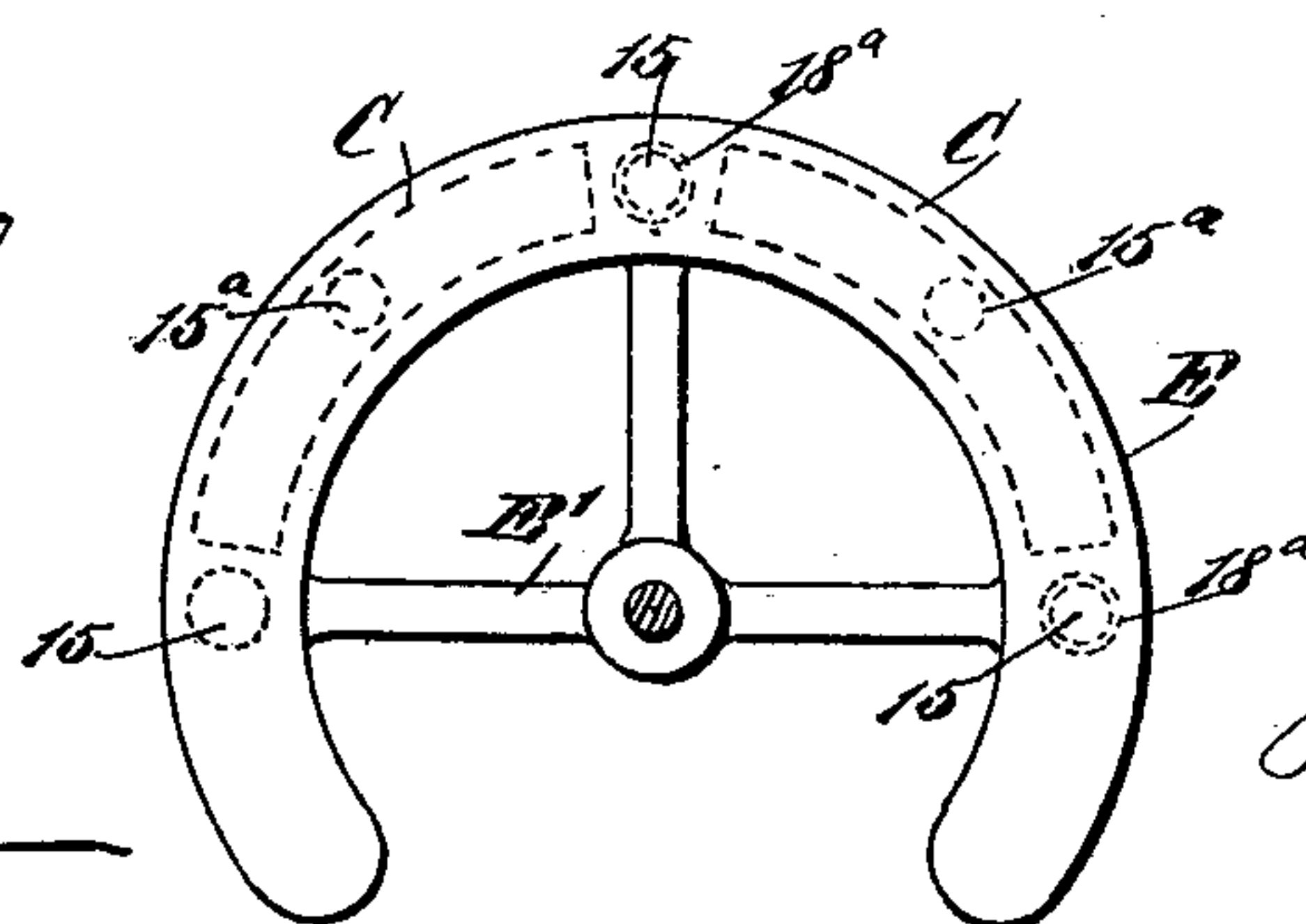


Fig 3



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JAMES K. THOMA, OF WINFIELD, KANSAS.

FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 631,189, dated August 15, 1899.

Application filed February 1, 1899. Serial No. 704,103. (No model.)

To all whom it may concern:

Be it known that I, JAMES K. THOMA, of Winfield, in the county of Cowley and State of Kansas, have invented a new and Improved Fifth-Wheel, of which the following is a full, clear, and exact description.

The object of the invention is to provide a ball-bearing fifth-wheel adapted to be used upon any vehicle and in which the balls will be so distributed as to secure the best possible results with the least friction.

Another object of the invention is to provide a means for dividing the balls into two independent yet coacting series, the balls of each series being free to turn, and yet the balls of one series will be prevented from traveling laterally, while the balls of the other series will have limited lateral travel.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the improved fifth-wheel, taken practically on the line 1 1 of Fig. 2, the section being also through the bottom of the body of the vehicle to which the fifth-wheel is applied. Fig. 2 is a horizontal section taken practically on the line 2 2 of Fig. 1; and Fig. 3 is a plan view of a three-quarters fifth-wheel, the wheel shown in Figs. 1 and 2 being a full circle.

The wheel comprises two members—a bottom member A and a top member B. The bottom member is attached to the gear-bed or axle of the vehicle, and the said bottom member comprises an outer annular flange 10, an inner concentric flange 11, a bottom portion *a*, connecting the two flanges, a central hub 12, and a spider 12^a, connecting the hub with the inner flange 11, as shown in Figs. 1 and 2. The space between the two flanges 10 and 11 of the bottom member of the fifth-wheel is divided into equal sections through the medium of horizontal partitions 13. These partitions are located equidistant apart, and each partition 13 is provided with a pocket 14, in which a ball 15 is mounted to turn. The pockets 14 are circular, and the balls 15, con-

tained in said pockets, are loosely fitted therein. Thus it will be observed that the partitions 13 divide the space between the inner and outer flanges 10 and 11 into a series of runways or races C, and in each runway or race a track 16 is constructed upon or formed integral with the bottom *a* of the said space, and the said tracks 16 are provided with upwardly and inwardly inclined sides, providing a space 17 between the sides of the said tracks 16 and the aforesaid flanges 10 and 11, and openings 18 are made in the bottom *a*, connecting the flanges 10 and 11, which openings are located between the sides of the track and the inner faces of the flanges, as shown particularly in Fig. 1. These openings 18 are adapted as outlets for water or other extraneous matter that may lodge in the space between the concentric flanges 10 and 11, so as not to interfere with the movement of balls 15^a, that are adapted to travel on the said tracks 16, one ball being usually provided for each track in each of the runways or races C; but more than one ball may be used in a race when the gear is heavy. The pockets 14 are provided with apertures 19 similar to the apertures 18 and designed for the same purpose.

It will be observed that the balls 15^a may not only turn, but they may also travel in a lateral direction on the tracks 16, whereas the balls 15 are prevented from moving laterally, but are free to turn in their pockets 14.

The top member B of the fifth-wheel is adapted for attachment to the bolster of the vehicle, and said top member consists of an upper plate *b*, having a pendent annular flange 20, and the plate *b* is of such dimensions that the flange 20 may extend down at the outside of the outer flange 10 of the bottom member A of the fifth-wheel, thus capping the said bottom member, and an annular groove 21 is made in the under face of the body portion *b* of the top member B, the said annular groove being adapted to receive the upper portions of the various balls carried by the bottom member of said fifth-wheel. A king-bolt 22 is passed through the bolster, the central portion of the top member of the fifth-wheel, and through the hub 12, likewise through the axle and the gear-bed, which is usually carried by the axle. The members

of the fifth-wheel may be secured to the bolster and gear-bed in any approved manner; but preferably the screws or other attaching medium used in connection with the bottom member A of the fifth-wheel are passed through the bottom of the pockets 14.

In Fig. 3 I have illustrated the invention applied to a three-quarters fifth-wheel E, in which the spider E' comprises but three members, whereas in the full-circle wheel the spider comprises four members and in the full-circle wheel four pocketed balls are employed, whereas in the three-quarters-circle wheel but three pocketed balls are used, as shown in dotted lines. Otherwise the construction of the various parts of the fifth-wheel is identical with that in the full-circle wheel.

The balls in the pockets serve to keep the wheel level, as they prevent the balls in the long races or runways C having detrimental influence upon the wheel should the balls in the said races or runways become broken or jammed, since at all times in a full-circle wheel four firm bearings at equal distances apart will be provided for the wheel. In the improved wheel it will be observed that no matter which way the wagon is turned the balls in the races or runways will follow in the same direction and are likewise in the same position relative to one another, providing a uniform bearing for all parts of the wheel.

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

1. In a fifth-wheel, two sections, one adapted to turn upon the other, one section being provided with ball-bearings arranged in two independent yet coacting series, the balls of each series being free to turn, but the balls of one series being prevented from traveling laterally while the balls of the other series have limited travel in a lateral direction, as described.

2. In a fifth-wheel, a bottom and a capping

section, one section being adapted to revolve around the other section, the bottom section being provided with concentric flanges, partitions arranged transversely of the space between the flanges, each partition being provided with a pocket, whereby a series of runways is formed between the partitions, balls located in each of the said pockets, a ball located in each runway, whereby the balls in the pockets are free to turn but are held against lateral movement, while the balls in the runways are also free to turn and have limited lateral travel, the upper surfaces of the balls being arranged for engagement with the under surface of the member of said fifth-wheel opposing the member in which the balls are located, for the purpose described.

3. In a fifth-wheel for vehicles, the combination, with a bottom member provided with concentric flanges, partitions extending transversely of the space between the said flanges, each partition being provided with a circular pocket whereby a series of runways or races is formed between the partitions, tracks located at the bottom portion of the runways or races, the runways or races and the pockets being provided with apertures extending through the bottom portion of said bottom member and the said pockets, a ball held to revolve in each pocket, and a ball located upon the track in each runway or race, the balls in the runways or races being adapted to turn and being capable of lateral travel on the said tracks, of a capping member, embracing the bottom member of the fifth-wheel, the balls in the bottom member engaging with the under face of the capping member, and means, substantially as described, for pivoting the capping member upon the bottom member of said fifth-wheel, as described.

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Witnesses:

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