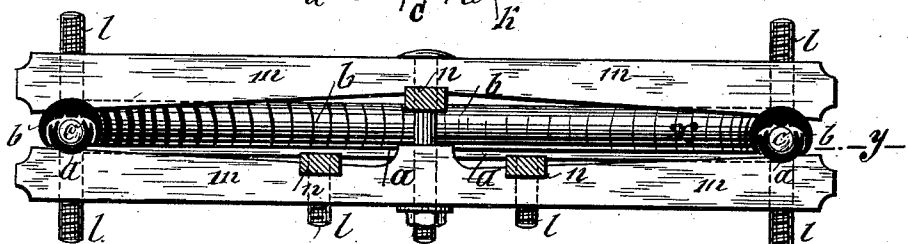
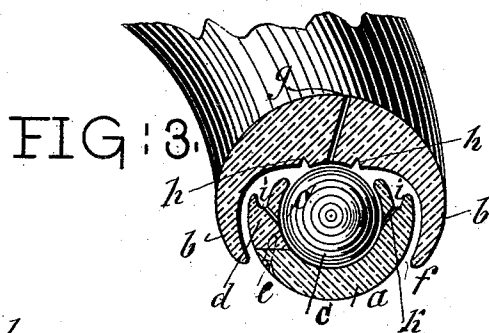
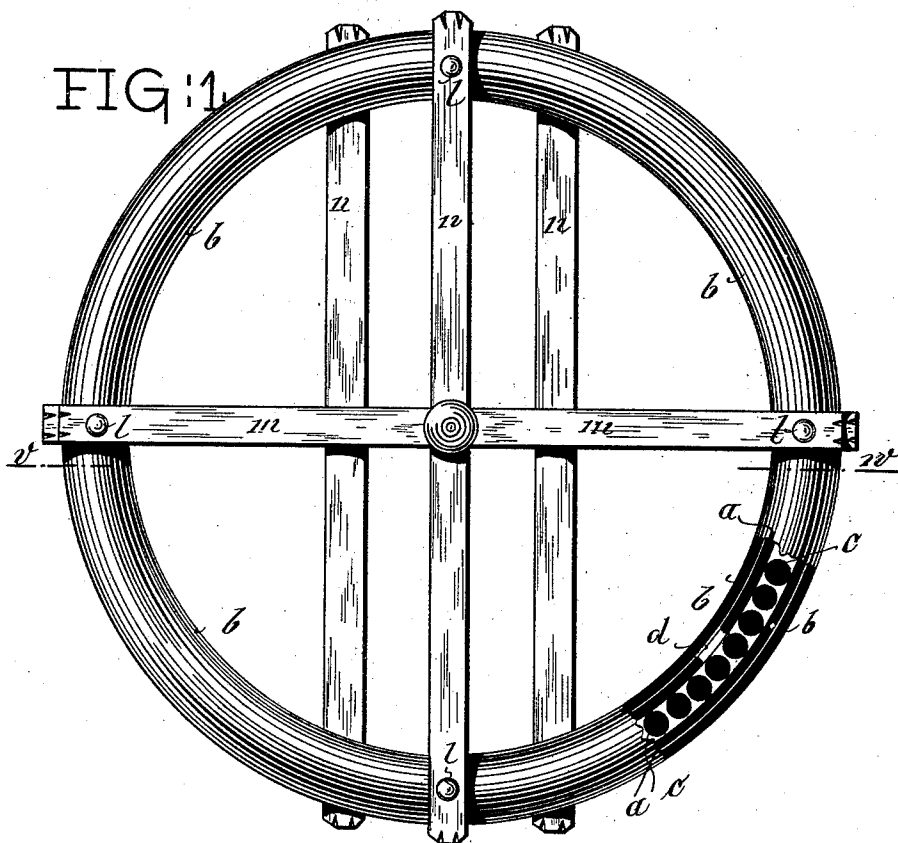


(No Model.)

J. RETZBACH.
FIFTH WHEEL FOR VEHICLES.

No. 419,708.

Patented Jan. 21, 1890.



Witnesses:
Theodor Kuhl
John Harker

Inventor
Joseph Retzbach,
per Max Schilling,
attorney

UNITED STATES PATENT OFFICE.

JOSEPH RETZBACH, OF OFFENBURG, BADEN, GERMANY.

FIFTH-WHEEL FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 419,708, dated January 21, 1890.

Application filed September 21, 1889. Serial No. 324,622. (No model.) Patented in France December 22, 1888, No. 195,024.

To all whom it may concern:

Be it known that I, JOSEPH RETZBACH, of Offenburg, Grand Duchy of Baden, Empire of Germany, have invented an Improvement in the Turning-Plate of Vehicles above the fore wheels, (for which I have received Letters Patent in France under date of December 22, 1888, No. 195,024,) of which the following is a specification.

The turning device for vehicles forming the object of the present invention is based on a ball mechanism constituting its distinction from the slide or plate contrivances hitherto used for the same purpose.

In the annexed drawings, Figure 1 is a top view; Fig. 2, a vertical section along line *v w*, Fig. 1, of the improved device; and Fig. 3 a cross-section of the ball mechanism proper, on an enlarged scale.

The turning device consists of the rings *a* and *b*, of iron or steel. The lower ring *a* is so hollowed or turned out at the top as to have space for receiving balls *c*, which project upward for about one-fourth of their diameter. They are placed side by side around the circumference, and are introduced into or removed from *a* through an aperture *d* about three centimeters long, and adapted to be closed with a corresponding piece of metal by means of screws *e*, or in any other convenient manner. Instead of hollowing the whole circumference of the lower ring *a* and filling the same with balls side by side, *a* may be hollowed only at certain places—for instance, at four, six, or eight places—and provided therein with one ball or a suitable number of balls. On the balls *c* is supported the upper ring *b*, which is so hollowed at the bottom as to embrace about three-fourths of the lower ring *a*, leaving sufficient play *f*.

The lubrication is effected through a small bore *g* in the upper ring *b*. In order to prevent the oil from accumulating at the latter, two sharp edges *h* are provided, respectively, on the right and left of *g*, said edges repelling the oil, which, if it does not reach direct the balls *c*, is received by the canal *i*, turned into the lower ring, whence it flows through a few apertures *k* to the balls.

The upper and lower halves *a* and *b* of the turning device are separately attached, the lower one to the spring-frame and the upper one to the box, by means of a screw device. The screws *l* are parts of the ball-ring, while the cross-stays *m m* and *n n n* appertain to the vehicle. They are made of wood by the respective carriage-builder, and are shown in the drawings merely for the sake of clearness.

The following are the advantages of the ball-turning device over the plate devices hitherto known.

While the plate devices with straight friction-surface when used the whole day often become dry by friction and require renewed lubrication, the improved ball device is exempt from this drawback, as not a drop of lubricating material is lost, but all the oil is led to the hollowed lower ring *a* and to the balls *c*, owing to the receiving contrivances provided. The oil, in the event of congelation in winter, resumes its liquid state by the least use of the vehicle through the friction of the balls, whereas with the slide or plate turning mechanism the oil when frozen is immediately pressed out to the right and left when using the vehicle.

The oil in the new device being protected from escaping, is also prevented from soiling the varnish of the vehicle, which results in considerable economy in sponge and leather-cloth for cleaning the latter.

The ball device requires cleaning and lubrication only a few times a year, and not a few times a day, like the slide or plate device. Owing to the extraordinary mobility of the balls, the vehicles can be turned by a child, and horses therefore need not use any force for turning, and are consequently greatly spared.

The improved turning device is also easily applicable to old carriages or coaches.

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

The turning device for vehicles, consisting of the combination, with the balls *c*, of the hollowed rings *a* and *b*, of iron or steel, the lower ring *a* embracing the balls *c* about

three-fourths of their diameter and being provided with an aperture *d*, that may be locked, for introducing or removing balls *c*; further, with the canal *i* and a few apertures *k*, the
5 upper ring *b* on the other side embracing ring *a* about three-fourths of its height and being provided with the lubrication-bore *g*, and repelling edges *h* on the right and left of *g*, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH RETZBACH.

Witnesses:

CARL BÖHRINGER,
ALBRECHT REUP.