No. 743,829. PATENTED NOV. 10, 1903.

C. P. CLARK.

AXLE.

APPLICATION FILED JULY 9, 1903.

NO MODEL.

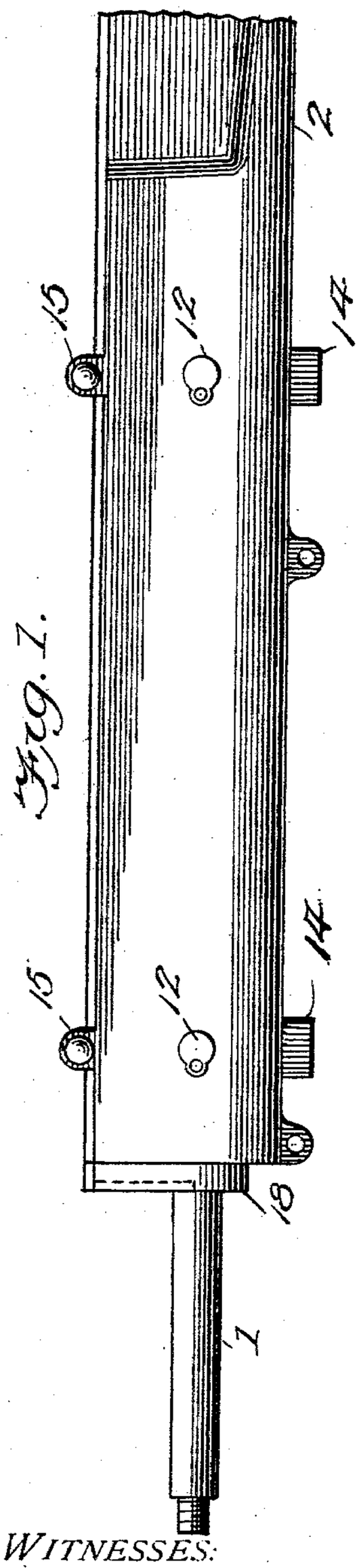

Fig. 1.

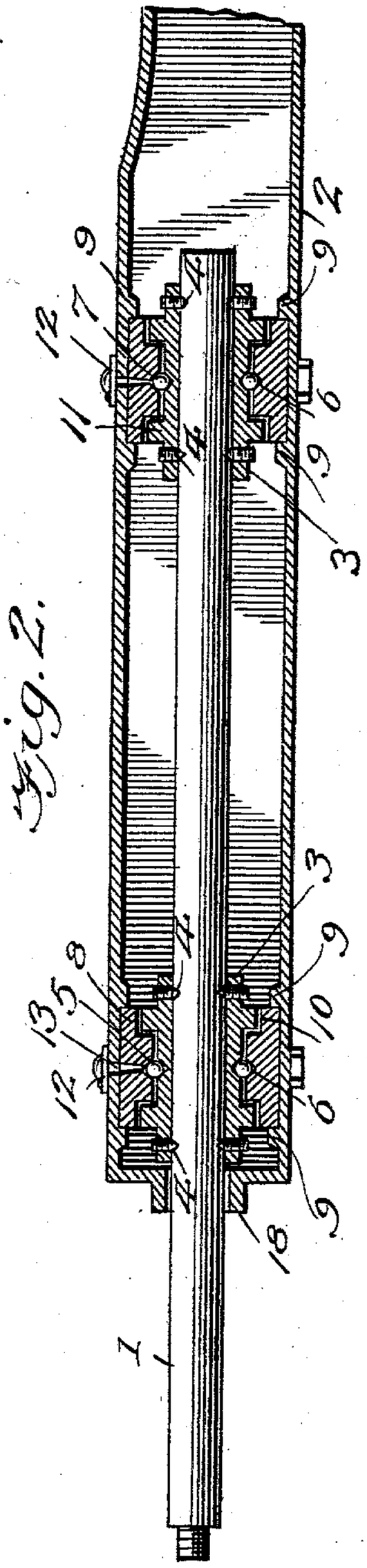

Fig. 2.

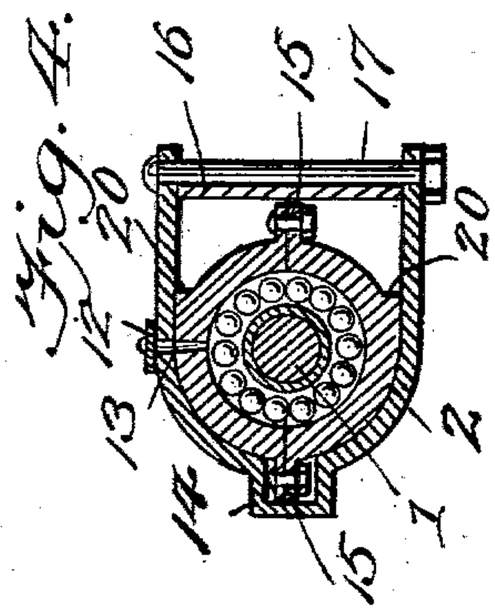

Fig. 4.

Fig. 3.

WITNESSES:

Geo. Ackman Jr.

Chas. S. Hoyer.

INVENTOR

Chancy P. Clark,

BY Victor J. Evans

Attorney

No. 743,829. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

CHANCY PHILIP CLARK, OF CHATTANOOGA, TENNESSEE.

AXLE.

SPECIFICATION forming part of Letters Patent No. 743,829, dated November 10, 1903.

Application filed July 9, 1903. Serial No. 164,841. (No model.)

To all whom it may concern:

Be it known that I, CHANCY PHILIP CLARK, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented new and useful Improvements in Axles, of which the following is a specification.

This invention relates to axles, and particularly to the bearings for the axles of buggies, carriages, wagons, and similar vehicles, the object of the invention being to simplify and improve the construction of vehicle-axles and at the same time provide for light and easy running qualities while increasing the strength and durability of all parts.

With the above general objects in view the invention consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a plan view of an axle and its casing constructed in accordance with the present invention. Fig. 2 is a vertical longitudinal section through the same, showing the axle-spindle in elevation. Fig. 3 is an end view of the same, and Fig. 4 is a cross-section taken in line with one of the bearings.

Like reference-numerals designate corresponding parts in all figures of the drawings.

In carrying out the present invention the vehicle-wheel is mounted fast upon the axle-spindle or axle proper shown at 1, so that the axle and wheel rotate together. The axle-casing 2 embraces and receives the spindle or axle proper, 1, as shown in Figs. 2 and 4. At two or more points the spindle 1 is provided with an inner box or sleeve 3 of suitable length and held fast on the spindle by means of set-screws 4 or other suitable fastening devices.

Centrally the sleeve 3 is provided with an annular groove or ball-race 5, in which travels a circular series of antifriction-balls 6, which also travel in a similar groove 7 in an outer box 8, which extends around the sleeve 3 and is secured to the inner side of the axle-casing 2, as shown in Fig. 2, the said axle-casing being provided with lugs or shoulders 9, between which the outer box 8 is held.

The outer box or casing 8 is provided at opposite ends with annular grooves or rabbets 10, while the inner box or sleeve 3 is provided near its opposite ends with annular flanges 11, which work in the grooves 10, thus preventing endwise movement of the spindle or axle proper.

12 designates an oil-cap which is pivotally mounted on the axle-casing and which normally closes an oil-hole 13, leading to the ball-race in which the antifriction-balls travel, thus providing for proper lubrication of the bearings.

As shown in the drawings, two complete bearings such as above described are provided for each spindle or axle proper, and these bearings are both arranged within the axle-casing, which is U-shaped in cross-section, as shown in Fig. 4, and offset, as shown at 14, to make allowance for the lateral lugs 15, by means of which the two parts of the diametrically-divided outer box 8 are bolted or otherwise fastened together, as shown in Fig. 4. The open side of the casing 2 is closed by means of a plate 16, which is interposed between the upper and lower sides of the casing, as shown in Fig. 4, and held in place by means of clamping-bolts 17, which pass through the upper and lower sides of the casing. At the end the casing is provided with a projecting flange 18, while the space within the flange is closed by means of a plate 19, thus excluding dust, dirt, and other foreign matter from the bearings.

The ball-bearings above described are laterally insertible in and removable from the axle-casing 2, and, as shown in Fig. 4, said bearings are provided with projections or shoulders 20, which in connection with the upper and lower sides of the casing prevent the outer boxes of said bearings from turning or revolving within the casing 2. The lugs 15, lying within the offset 14, also prevent the outer boxes from turning when in proper place.

The construction above described provides for increased strength of all parts, gives increased durability, renders the wheel easy running, and provides for properly oiling all parts of the bearings, the oil being retained within the bearings and axle-casing. This also obviates greasy or oily wheel-hubs and prevents the oil from finding its way to the tires, spokes, and tenons and loosening the

parts of the wheel and also obviates the tendency of the nuts to work loose by reason of an excess of oil around the same. The parts of the bearing are easily accessible for repair and renewal.

Having thus described the invention, what is claimed as new is—

1. A vehicle-axle comprising an axle-casing, a spindle rotatably mounted therein and adapted to have the vehicle-wheel fastened thereon, a plurality of bearings on the spindle arranged at points remote from each other within the axle-casing, and a removable section of the axle-casing forming one of the sides of said casing, substantially as described.

2. A vehicle-axle comprising an axle-casing open along one of its sides, a spindle rotatably mounted therein and provided with a plurality of ball-bearings arranged at a distance from each other, a removable section of the axle-casing in the form of a plate insertible between opposite sides of the casing, and clamping-bolts passing through the opposite sides of the casing for holding said plate in position, substantially as described.

3. A vehicle-axle comprising an axle-casing open at one side and comprising substantially parallel upper and lower portions, a removable section of said casing consisting of a plate interposed between said parallel portions of the casing, bolts for securing said plate in position, a plurality of ball-bearings laterally insertible in and removable from the axle-casing and arranged at a distance from each other, and an axle-spindle journaled in said bearings and projecting beyond the end of the casing, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHANCY PHILIP CLARK.

Witnesses:
J. FRANK BEARD,
A. N. SLOAN.