W. LANE.

CAR-COUPLINGS.

No. 195,025. Patented Sept. 11, 1877.

Fig. 1.

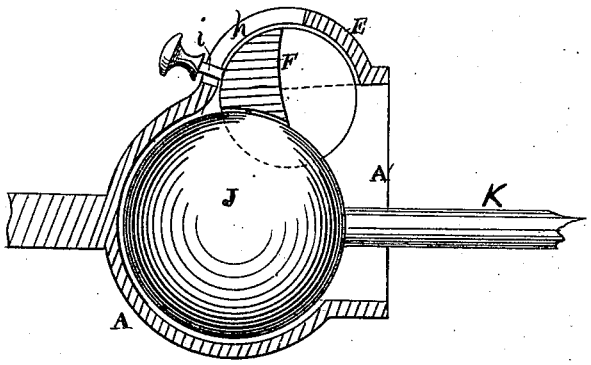


Fig. 2.

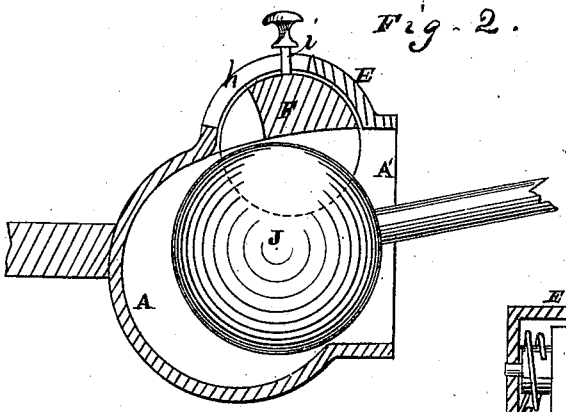


Fig. 3

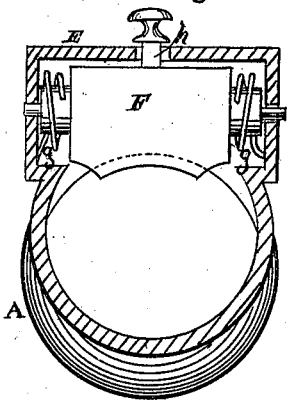
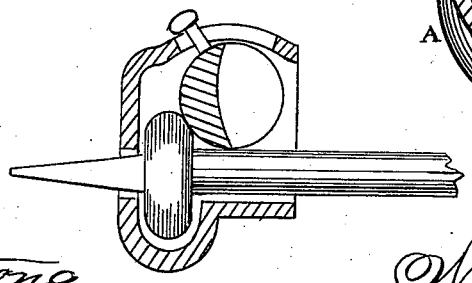


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM LANE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **195,025**, dated September 11, 1877; application filed June 26, 1877.

To all whom it may concern:

Be it known that I, WILLIAM LANE, of the city and county of San Francisco and State of California, have invented an Improved Ball-and-Socket Coupling; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improved coupling device for connecting together two objects—such, for instance, as two railway-cars, connecting pieces of chains, attaching a wagon-pole to a wagon, and the like.

Referring to the accompanying drawings, Figures 1, 2, 3, and 4 represent sections of my invention.

Let A represent a hemispherical socket or shell, the open side of which is extended in a tubular form a short distance from the socket, as represented at A′. This socket I secure to one of the objects to be coupled together, with its mouth or open end projecting in the direction of the opposite object.

A hollow cylindrical case, E, is formed transversely across the socket or shell A, on its outside, the length of which is equal to the diameter of the socket. This case is cast with the shell A, so that it is cut in a circular form by the shell on its lower side, the shell entering about half-way through the case at its middle, thus forming an opening between the shell and case inside of the shell. In this case I place a solid cylinder, F, the ends of which fit in the projecting tubular ends of the case, while its intermediate portion passes across the upper part of the shell or socket A.

One side of this cylinder is cut away, so that it will correspond with the interior of the shell when it stands in the proper position in the case. A spring, *g*, has one of its ends secured to one end of the cylinder, and is coiled once or more around the cylinder, while its opposite end is attached to the case. The case E has a slot, *h*, made transversely in its upper side, and a pin, *i*, passes through the slot, and is secured in the cylinder. The force of the spring forces the cylinder around until the pin strikes against the rear end of the slot, and by drawing the pin forward in the slot the cylinder can be partially rotated.

The pin *i* is so adjusted that when it is drawn forward against the forward end of the slot the cut-away portion of the cylinder will coincide with the interior of the socket, but when the cylinder is rotated by the force of the spring until the pin is stopped by the rear end of the slot, the full diameter of the cylinder is brought to a vertical position, and a portion of it, equal to nearly one-half the diameter of the cylinder, will extend into the shell or socket.

J is a ball, which is formed on the end of the coupling-rod K. This ball is of the proper size to pass through the tubular front portion of the shell A and enter the hemispherical socket in the rear of the cylinder F, after the pin *i* has been moved to the forward end of the slot and the cylinder rotated so as to coincide with the interior of the shell; but, after the ball has been thus entered, if the cylinder is rotated by the spring, so as to force the pin against the rear end of the slot, it will prevent the withdrawal of the ball. The cylinder is also cut away to coincide with the socket when it stands in its bearing position.

Now, if the ball be forcibly entered through the tubular portion of the shell A it will strike the lower edge of the cylinder, and cause it to rotate backward, thus allowing the ball to pass into the socket, after which the spring will force the cylinder forward again, and bar the withdrawal of the ball, thus coupling the two together. To uncouple the parts, the pin *i* is moved forward to the front end of the slot, thus rotating the cylinder until the opening is large enough to permit it to withdraw.

Fig. 4 represents a flat or button-shaped ball and a corresponding socket, which are more particularly adapted for coupling the pole to a wagon. The construction and operation are otherwise the same, as above described.

I thus provide a simple, cheap, and convenient coupling device, which can be adapted wherever a coupling is required.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

The socket or shell A, with its tubular extension A′, and having the cylinder F arranged in a case, E, transversely across it, said cylinder being formed on one side with a depression to correspond with the interior of the shell, and provided with a pin, *i*, which moves in a transverse slot in the case, and a spring, *g*, for keeping the cylinder in its proper position, in combination with a coupling-rod, K, and ball J, all combined and arranged to operate substantially as and for the purpose described.

In witness whereof I have hereunto set my hand and seal.

WILLIAM LANE. [L. S.]

Witnesses:

OLWYN T. STACY,
FRANK A. BROOKS.