

S. A. APPOLD.
STEAM COUPLING FOR RAILROAD CARS.

No. 106,648.

Patented Aug. 23, 1870.

Fig. 1

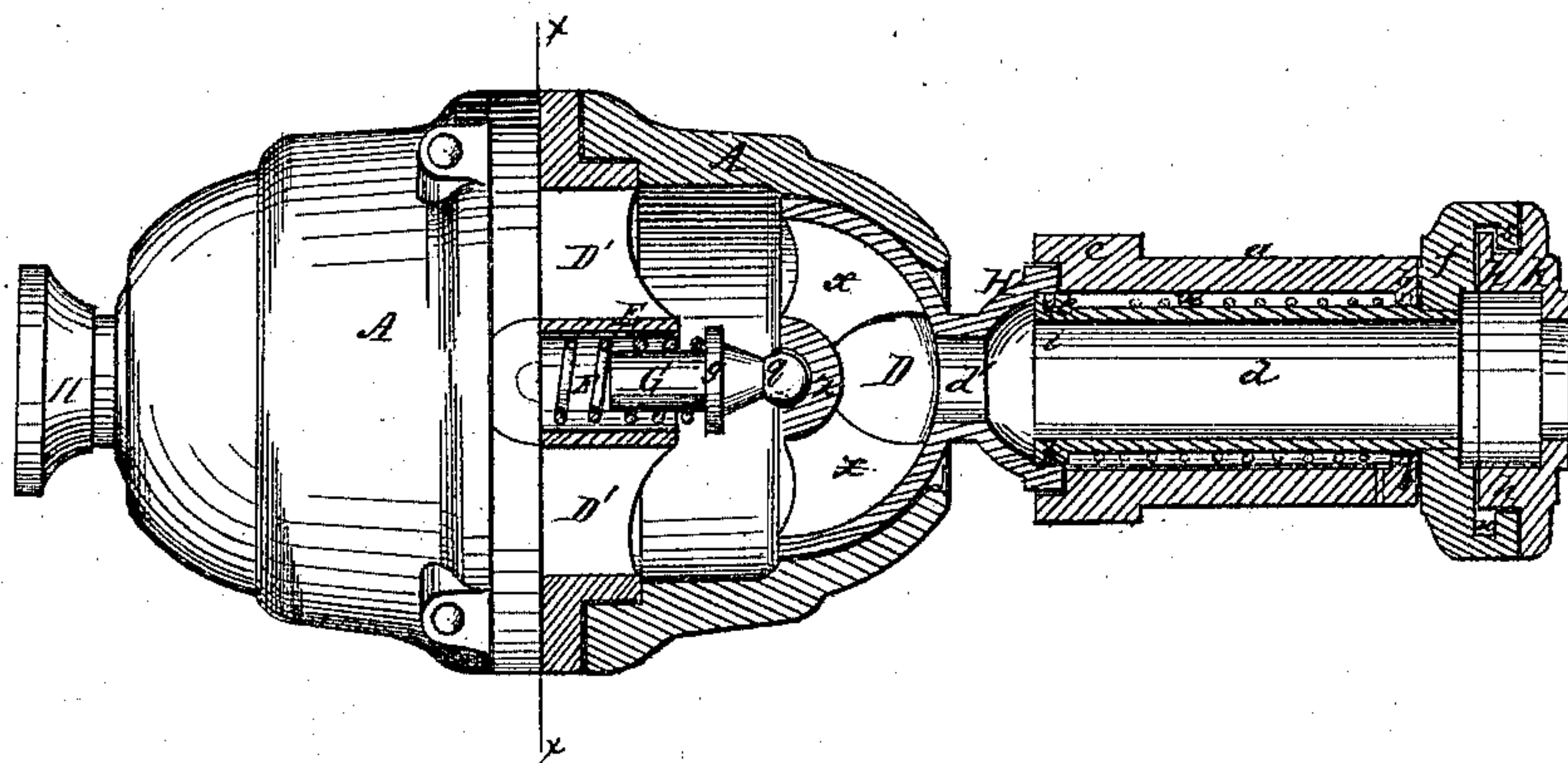
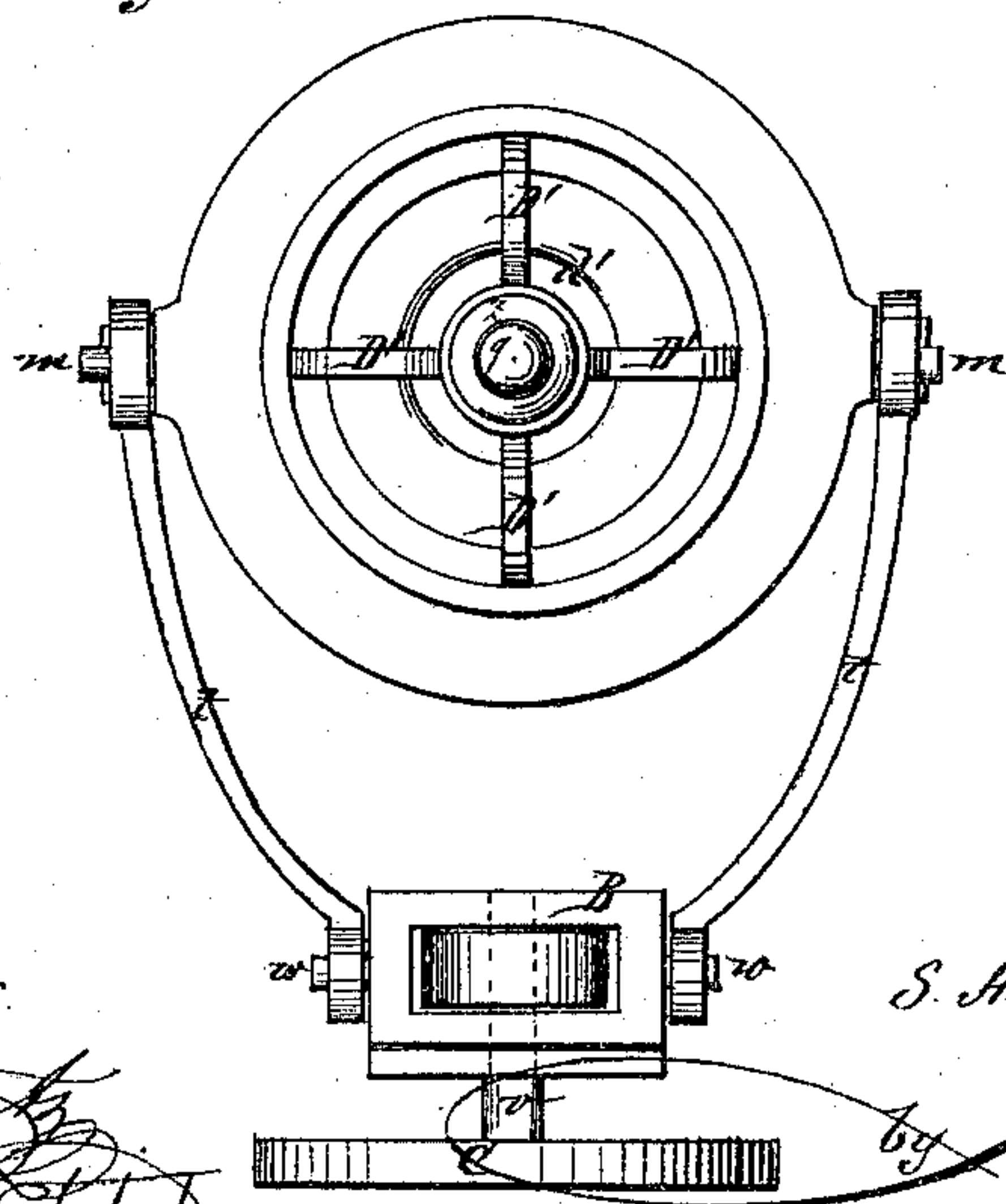


Fig. 2



Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL A. APPOLD, OF BALTIMORE, MARYLAND.

STEAM-COUPLING FOR RAILROAD-CARS.

Specification forming part of Letters Patent No. 106,648, dated August 23, 1870.

To all whom it may concern:

Be it known that I, SAMUEL A. APPOLD, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and Improved Coupling for Steam Car-Heating Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation, partly sectional, and Fig. 2 is a transverse vertical section in the line *x x*, Fig. 1.

This invention relates to an apparatus for heating railway-cars by steam, whether the same be the exhaust from the locomotive-cylinder, or live steam from the locomotive-boiler or from a smaller boiler provided specially for the purpose.

The invention has for its object to connect the steam-heating system of pipes of one car with the steam-heating system of pipes of another car by a universally-jointed and expandible coupling placed beneath the bumpers, and so constructed that it may accommodate itself to the curves and irregularities of railways, and to the inequalities in speed which produce variations in the intervals between the cars of a moving train.

In the drawings, *a*, Fig. 1, is a cast-metal pipe, having at one end an internally-projecting flange, *b*.

c is a head on the outside of the pipe *a*, at its opposite extremity, and projecting beyond the end of the pipe some little distance.

d is the steam-pipe inclosed within the pipe *a*, said steam-pipe having an outwardly-projecting flange, *e*, at one extremity, in a recess in which flange is a composition ring, *i*, which is expanded by heat whenever steam enters the pipe *d*, and forms a steam-tight joint between the pipes *a* and *d*, a rubber grommet, *o*, which is let into the flange *b*, also forming a steam-tight joint between the two pipes.

f is a head on the opposite extremity of the steam-pipe *d* from the flange *e*, and outside of the pipe *a*, and containing a circular groove, *n*.

h is an annular tongue on the end of a head, *k*, which is formed on the extremity of another steam-pipe, that is attached to the heating system of the next car, and may be connected with the pipe *d* by introducing the tongue *h* into the groove *n* and turning the head *k* until

its ears *r* come within the ears *s* of the head *f*. The two heads *f* and *k* are at the middle of the space between the two cars, and an apparatus similar to that shown in Fig. 1, on the left of the steam-pipe *d*, is supposed to be connected with the steam-pipe of which *k* is the head. The pipe *d* is movable lengthwise in the pipe *a*, and is drawn outward as often as the car to which it is attached moves faster than the one immediately following. A spring, *u*, draws the pipe *d* back to its former position in the pipe *a* whenever the rear car comes up.

A A, Fig. 1, are two hollow cast-iron cones, which are screwed together at their bases. Trunnions *m* project from opposite sides of the base of one of the cones A, and to the trunnions are jointed, near their lower ends, two connecting-rods, *t t*, which are jointed near their upper extremities upon pins *w*, projecting horizontally from the ends of a box, B. In the box B is stepped a stem, *v*, which is formed with a disk, C, on its upper end. The disk C is supposed to be attached to the lower side of the bumper of the car. The stem *v* and box B are so connected that the latter may turn on the former. The connecting-rods are capable of turning on the pins *w*, and the box, made up of the two cones A A, is capable of turning in the connecting-rods. This combination of joints renders the coupling sufficiently flexible. The heads of the cones A are open. Hollow hemispheres D, formed of composition metal, fit into the concavities within the cones A at their heads, the hemispheres being each formed with four or more internal ribs, *x*, Fig. 1, which converge upon and are radial to a hollow knob, *z*. One of the cones A is formed with four or more internal ribs, D', which converge upon and are radial to a tube, E, placed centrally of the cone. Within the tube E is a spiral spring, F, inclosing two plugs, G, one at each end of the tube, each plug being formed with a flange, *g*, against which the spring bears, and each plug having a globular head, *q*, which rests in the concavity of the knob *z*. By means of the spring F and plugs G the hemispheres D are kept in contact with the cones A. The springs allow the hemispheres to ease themselves toward the tube E when expanded by heat. The hemispheres are connected by short pipes *d'*, which are continuations of the steam-pipes, with cups H, which are screwed into the heads *c* of the pipes *a*. By these means the steam-

pipes are connected with the cones by a universal joint, the hemispheres rolling in all directions in their seats in the cones A. The cup H at the left of Fig. 1 is supposed to be screwed into a pipe similar to *a*, and that pipe is connected by an elbow with the heating system of the car.

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

1. The combination of the cones A, ribs D', tube E, spring F, plug G, and hemisphere D,

substantially as and for the purpose specified.

2. The combination of the cones A, pipes *a d*, hemisphere D, and cup H, substantially as and for the purpose set forth.

3. The combination of the cones A, connecting-rod *t*, box B, stem *v*, and disk C, substantially as and for the purpose explained.

SAMUEL A. APPOLD.

Witnesses: .

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