To all whom it may concern:

Be it known that I, GEORGE D. PETTINGELL, a citizen of the United States, and a resident of the city of Jefferson, in the county of Greene and State of Iowa, have invented certain new and useful Improvements in Automatic Railway Steam and Air Pipe Couplers or the Like; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates more particularly to an improved steam, air, and hot-water coupling for railway-cars designed to be coupled automatically when the draw-heads of the cars are brought together in coupled relation.

The object of the invention is to provide means whereby when cars or the like equipped with air-brakes or other fluid connections are brought together the act of coupling the draw-heads also serves to couple the air-pipes, steam-pipes, hot-water, or other pipes at the same moment.

The invention also embraces means adapted to bring all the pipes to be coupled into perfect alignment and in coupling relation with each other even though the cars be brought together at a considerable angle or though the platforms of the same be of unequal heights.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a side elevation of a device embodying my invention. Figure 2 is a section taken on line 2 2 of Fig. 1. Figure 3 is a section taken on line 3 3 of Fig. 1. Figure 4 is a section taken on line 4 4 of Fig. 2. Figure 5 is a vertical transverse section of the oscillator plate and casing. Figure 6 is a longitudinal section illustrating in detail the construction of the pipe ends. Figure 7 is a section taken on line 7 7 of Fig. 6. Figure 8 is a front elevation of a coupler embodying my invention. Figure 9 is a section taken on line 9 9 of Fig. 4. As shown in said drawings, the coupling devices are supported from beneath the draw-heads at the ends of the car or other rolling stock which it is desired to automatically couple by means of the guide-hangers A, each comprising an integral strap or bar bent at its ends to provide the straps a a', adapted to be secured on the draw-head, and providing intermediate of said ends a a' the approximately horizontal guides a'. As shown, said guide-hangers are arranged in pairs, one on each side of each draw-head, as illustrated in Figs. 1 and 8.

Rigidly bolted or otherwise secured on the horizontal guide a' of each guide-hanger, near the front end thereof, is the guide A, slotted longitudinally at its front end, as shown in Fig. 1, to provide a bearing for the trunnions B, which engage in said slots and which are integrally connected at their inner ends with the oscillator-casing B', as shown in Fig. 4. Said casing B', as shown, is cylindric in form and is provided with a cover b, rigidly bolted thereto, and forms a relatively shallow circular box, in which is supported the oscillator-plate C. Said plate is provided on its underside with a transverse rib e, extending diametrically across the same and engaging transversely of the coupling on the bottom of the casing B', as shown in Fig. 5, when the oscillator is in position.

Located near the rear ends of the guides is the transverse strap of metal C', through the apertured ends of which extend the bolts c', which are rigidly secured to the guides and which hold said strap or bar from movement longitudinally of the coupler. The apertures to receive said bolts, however, are sufficiently large to permit said bar to cant or incline under the varying stress therein in coupling. Rigidly secured on the trunnions B are the thrust-rods d, the rear ends of which extend through said bar C', as shown in Fig. 9, and on each of which a strong spiral spring is secured, which engages at its rear end against said bar C' and acts to hold the oscillator-casing at the forward limit of its movement in the guides.

Extending through the oscillator case and plate C and rigidly secured to said plate is the standard D, which supports the pipe ends which the coupler is designed to couple automatically. Rigidly secured on the lower end of said standard is the resilient push-rod D',...
which passes through a tubular stem D, rigidly connected with the bar C, and in which are provided coiled springs, as shown more clearly in Fig. 4, one of which engages above said resilient push-rod D and the other of which engages on the under side thereof. Said springs and the resiliency of said rod act when the coupler is forced rearwardly, thrown out of a perpendicular, or deflected laterally to return the same immediately to alignment. Rigidly secured on the standard D above the oscillator-case is the cross-head E, at the ends of which are secured, integrally if preferred, the forwardly-projecting parallel rods E', E. On the outer ends of said rods, respectively, are the conical heads e and the funnel-shaped sockets e', as shown in Fig. 2. Said conical heads and the socketed heads e' are complementary and are adapted to engage each with the complementary part of the coupler carried on the car with which the coupling is to be made, as shown in Figs. 1 and 2. The train-pipes F, G, and H are adjustably engaged and supported in said standard D, as shown, and are below and two above the oscillator-case and passing through aperture enlarged on the standard D and firmly secured therein in an adjusted position by means of set-screws f, g, and h. Said pipes are provided on their inner ends with couplings f', g', h', adapted to secure thereto the usual hose-pipes f'', g'', h'', and at the outer ends with heads or fittings f''', g''', h'''. Each of said heads is provided on its front face at its bottom and sides with inwardly-turned flanges f''' to engage the gasket f', in which is provided a bottom and lateral grooves, as shown in Figs. 6 and 7, to secure said flanges. Said flange f''' is omitted at top of said head to permit the gasket to be slipped readily into position or to be removed therefrom. Adjacent to the outer end of each of said pipes is provided a stay of metal I, provided with clips, which engage around the pipes F, G, and H and serve to rigidly connect the same near the heads and act to hold the same in unvarying relation.

The operation is as follows: The casing C' is adapted to reciprocate backwardly and forwardly on the guides, while the plate C is adapted to oscillate through a considerable arc on the ridge or edge c. When two cars equipped with devices embodying my invention are brought together in coupling relation, when the draw-heads come into position to engage the conical heads on one of the automatic couplers engages in the complementary socket-heads of the other, thereby directing the ends of the train-pipes into register as the draw-head is coupled. The air and steam pipes when forced into alignment by the interaction of the conical head and said socket-heads are not only brought into exact register thereby, as shown in Figs. 1, 2, and 4, but the adjustment of said pipes is such that when in coupled position said pipes and the oscillator-casing of each coupler are forced rearwardly against the tension of the spring b on the thrust-rods, which are of sufficient strength to force the gasket ends of the pipes firmly together, producing very rigid contact with the ends of said pipes and acting at all times to hold the same firmly in alignment and register independent of the movement of the train. Obviously the interfiting conical heads and socketed heads serve to hold the ends of the train-pipes from lateral or vertical displacement due to the motion of the train over a rough track or on curves and prevent said pipes getting out of register at any time from any cause. Obviously many details of construction may be varied without departing from the principles of my invention.

I claim as my invention—

1. An automatic train-pipe coupler comprising hangers adapted to be suspended from a draw-head, longitudinal guides secured on said hangers, an oscillatory standard pivotally supported on the guides, a cross-head thereon, train-pipes supported near their ends on said oscillatory standard and guide members rigidly secured on the cross-head on each side of the pipes and adapted to interfit with like members on a similar coupler and acting to hold the ends of the train-pipes of both couplers in register when the cars are coupled.

2. In an air-pipe coupler for railway-cars, the combination with guide-hangers supported below the draw-heads of the cars, of a horizontally-disposed oscillatory bearing member pivotally supported upon and adapted to reciprocate on the guide-hangers, a standard pivotally supported on the bearing member extending above and below the same and adapted to turn upon, to oscillate and to reciprocate with the bearing member, train-pipes rigidly secured near their ends on the standard adapted to positively engage and register with the train-pipes of another car when the cars are coupled.

3. In an automatic pipe-coupler for railway-cars, the combination with guide-hangers supported below the draw-heads of the cars, of an oscillatory cup pivotally supported upon and adapted to reciprocate on said guide-hangers, a plate supported in said cup, a vertical standard thereon adapted to turn within to oscillate and to reciprocate with said cup, train-pipes having rigid ends and passing through said standard and adjustably but rigidly secured therein and means on each side of the train-pipes adapted to bring the ends thereof into register with like ends of a similar coupler when the cars are coupled.

4. In a train-pipe coupling for cars the combination with slotted guide-hangers, of an oscillatory cup pivotally supported upon and adapted to reciprocate on said guide-hanger, rearwardly-projecting rods secured to the said cup, a cross-bar adjustably secured on the said hangers and through which the ends of said rods project, springs upon the rods acting to press the adjustable cross-bar and
cup oppositely and means for adjusting the tension of said springs.

5. In a train-pipe coupling for cars, the combination with guide-hangers, of a bearing member pivotally supported thereon and free to oscillate and to reciprocate thereon, a pipe-coupling section pivotally carried thereon, a cross-bar adjustably secured transversely on the guide-hangers, a depending guide thereon, springs interposed between the cross-bar and bearing member and acting to force the same oppositely, and a spring-blade connecting the bearing member and depending guide.

6. In a train-pipe coupling for cars, the combination with the guide-hangers, of a cup supported to oscillate and reciprocate thereon, a pipe-coupling section carried thereon, rearwardly-projecting rods on said guide-hangers having screw-threaded ends fitted with nuts, a cross-bar fitted upon said rods, a depending bracket-guide thereon, springs interposed between the cup and cross-bar, and a spring-blade connecting the cup and bracket-guide.

7. In a train-pipe coupling for cars the combination with the guide-hangers, of the oscillatory cup supported to reciprocate thereon, a pipe-coupling section carried thereon, a rod projecting rearwardly from the said cup and supported upon a cross-bar, of the guide-hangers, a spring on said rod acting to press the cup and cross-bar oppositely, a depending guide on said cross-bar, a spring-blade connecting the cup and depending guide and a spring carried on said depending guide and pressing said blade.

8. In a train-pipe coupling for cars, the combination with guide-hangers, of the oscillatory cup supported to reciprocate thereon, a spring acting to hold said cup in the forward end of its movement, a plate supported to turn within said cup, a vertical standard secured on said plate and extending above and below the same, and a plurality of pipes supported on said standard above and below said oscillating cup, and guides rigidly secured on the standard on each side of the pipes and adapted to interfit with like guides on a similar coupler.

9. A train-pipe coupling for railroad-cars, a horizontal hanger-cup section reciprocating therein, a pipe-supporting standard journaled in said cup-section, a pipe-coupling at the outer end thereof and guides upon opposite sides of the said couplings to bring it in line with the pipe-coupling of the car to be connected therewith.

10. A pipe-coupling for railway-cars comprising a centrally-apertured cup-bearing, a reciprocating and an oscillatory upright standard journaled therein and extending therethrough carrying pipe-couplings nozzles adapted to engage suitable nozzles in the connecting car-coupling, laterally-disposed guides outside of and at a distance from the axis of said pipe-coupling to engage with 65 coupling-guides of the other car and enter therein in advance of the engagement of the nozzles to be connected therewith.

11. A pipe-coupling for railway-cars comprising a reciprocating cup-bearing, a reciprocating and oscillatory pipe-coupling section, a plate rigidly secured on said section adapted to oscillate within said cup, a guide-rod and guide-funnel placed upon opposite sides of and at equal distance from the axis of the oscillatory pipe-coupling to bring the pipe-couplings into alignment and register with the pipe-coupling to be connected therewith.

12. A train-pipe coupling for railway-cars comprising an oscillatory pipe-coupling section, guide-rods rigidly secured on opposite sides thereof and parallel therewith, a guide-funnel on the outer end of one of said rods and a conical head on the opposite rod adapted to interfit with the guide-funnel and conical head of the coupling-section to be connected therewith and insure the alignment of the pipes of the coupling-sections.

13. In a pipe-coupling for railway-cars, the combination with the hanger of a cup-supported ed thereon, springs to press the cup forward to the coupling-contact line, a pipe-supporting standard adapted to oscillate within said cup, a pipe-coupling and guides or deflectors secured to the pipe-supporting standard outside of the pipe-coupling adapted to engage with the guides and deflectors of a car to be connected therewith.

14. In a pipe-coupling for railway-cars, the combination with the hanger, of a horizontal cup supported thereon, a pipe-supporting standard carrying a pipe-coupling and adapted to oscillate within said cup, a spring for holding the pipe-coupling in proper alignment with the car and guides or deflectors secured to the pipe-supporting standard laterally of the pipe-coupling.

In witness whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

GEORGE D. PETTINGELL.

Witnesses:
C. W. HILLS,
ALFRED C. ODELL.