(No Model.)

2 Sheets—Sheet 1.

W. F. WHITE.

TRAIN PIPE COUPLING.

No. 574,695. Patented Jan. 5, 1897.

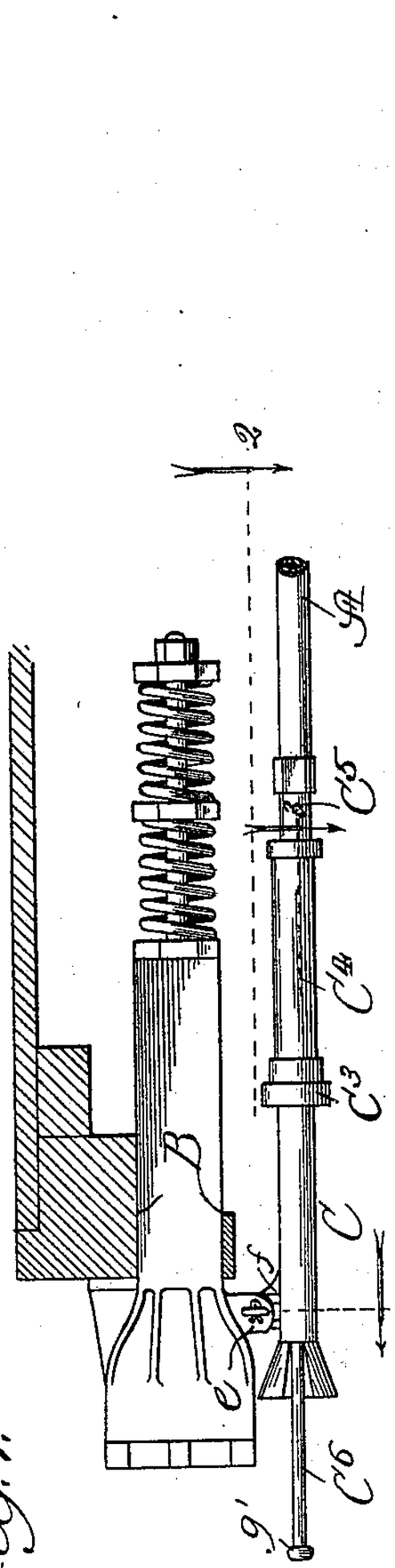

Fig. 1.

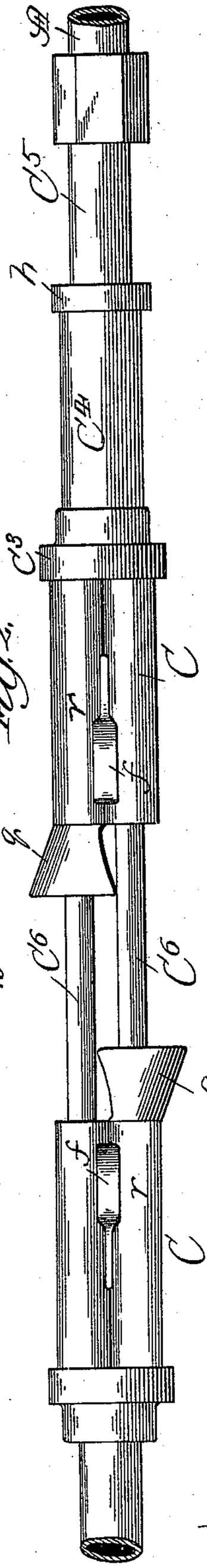

Fig. 2.

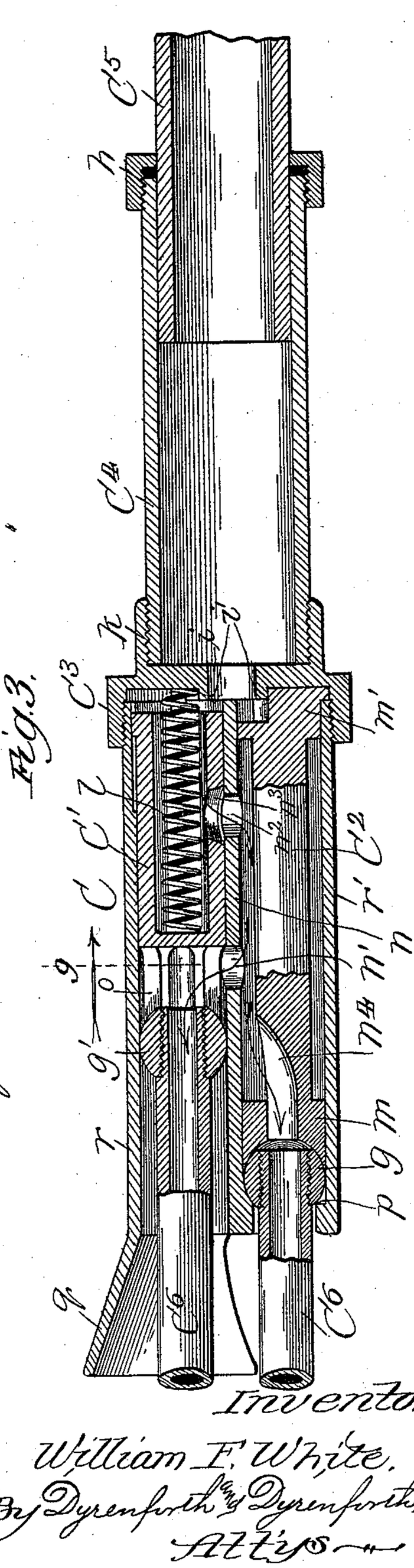

Fig. 3.

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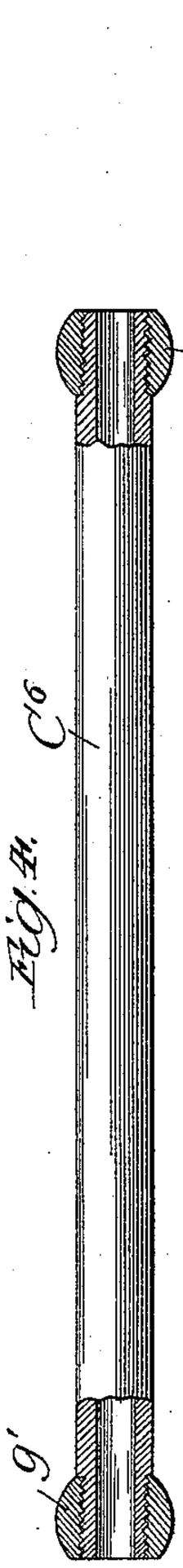
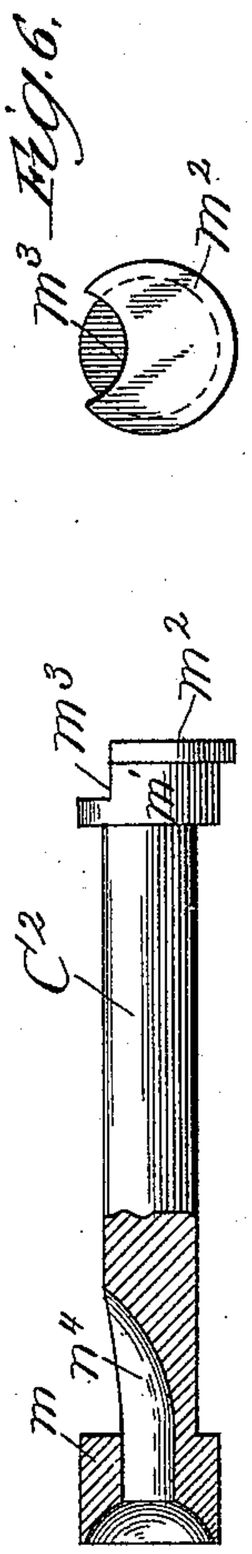
(No Model.) 2 Sheets—Sheet 2.

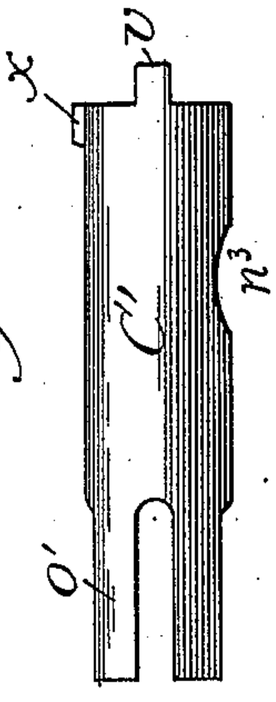
W. F. WHITE.

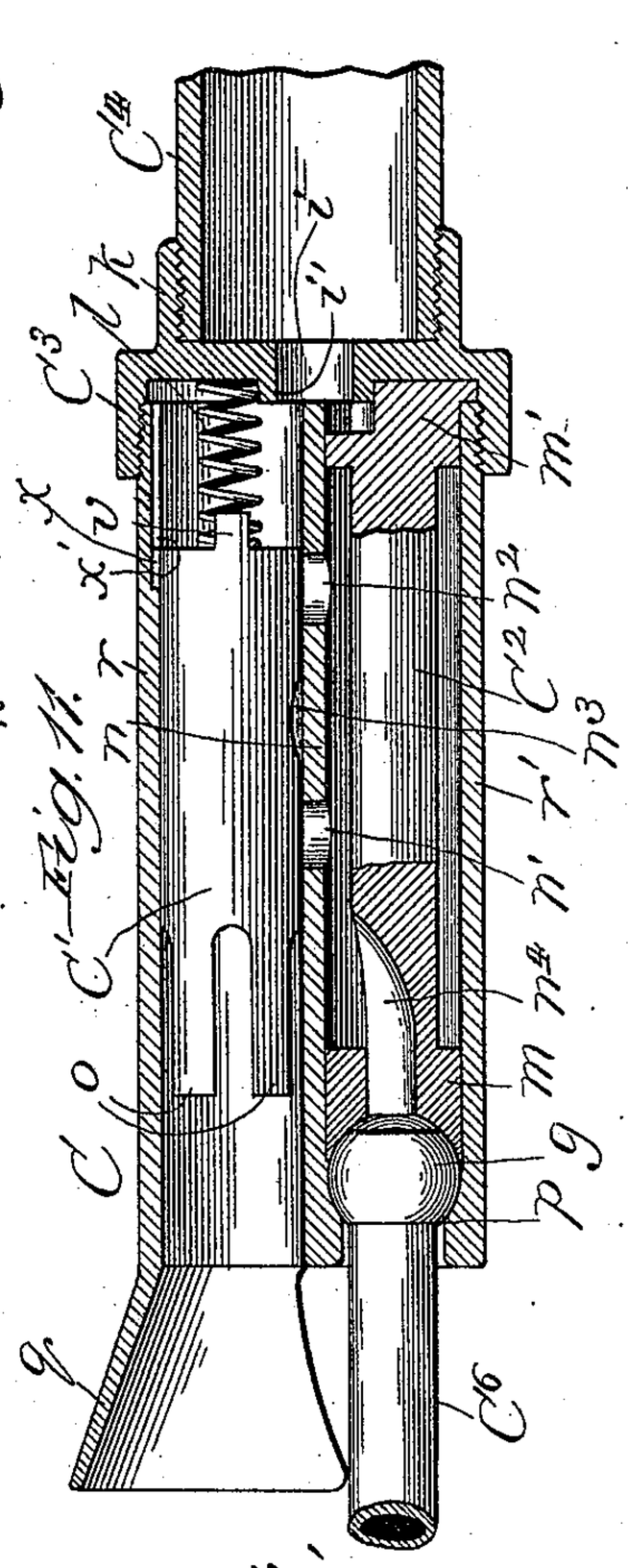
TRAIN PIPE COUPLING.

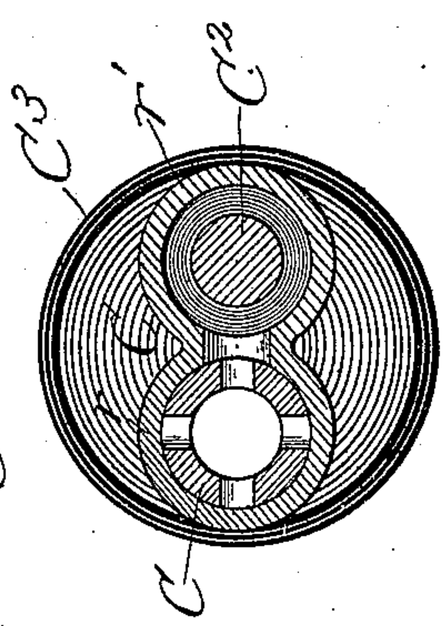
No. 574,695. Patented Jan. 5, 1897.

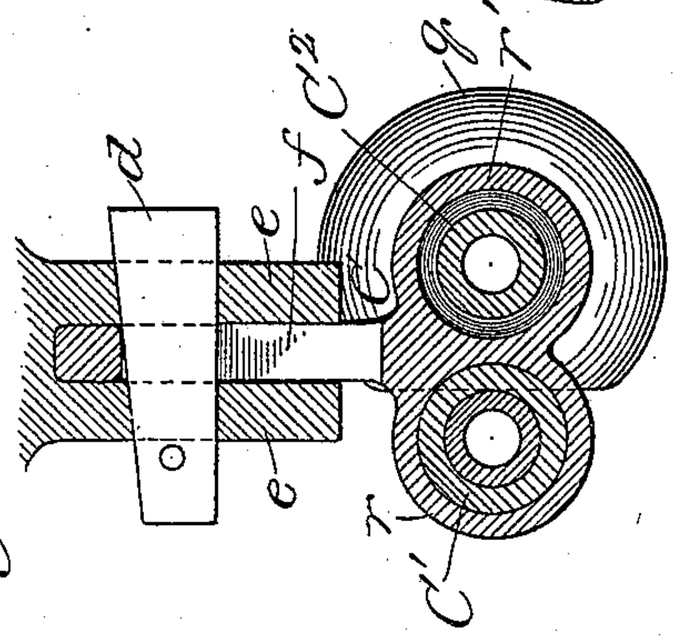












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UNITED STATES PATENT OFFICE.

WILLIAM F. WHITE, OF CHICAGO, ILLINOIS.

TRAIN-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No. 574,695, dated January 5, 1897.

Application filed July 13, 1896. Serial No. 599,050. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. WHITE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Train-Pipe Couplers, of which the following is a specification.

My invention relates to an improvement in the means employed for coupling between cars the pipes through which air is supplied to the brake-cylinders or steam is supplied for heating the cars.

My object is to provide a train-pipe coupler which shall operate automatically to couple the train-pipe between cars by the act of coupling the cars and to uncouple the train-pipe and close it against the escape of the fluid it is employed to conduct by the act of uncoupling the cars.

Referring to the accompanying drawings, Figure 1 shows my improved train-pipe coupler, by a view in side elevation, in operative position below the car-coupler, from which it is suspended. Fig. 2 is an enlarged view regarded in the direction of the arrow on the line 2 of Fig. 1, showing two of my improved coupling devices in their coupled relation; Fig. 3, a section taken at the line 3 on Fig. 1, viewed in the direction of the arrow and enlarged; Fig. 4, a broken view, in side elevation, of one of the coupling-tubes; Fig. 5, a similar view of an impact-stem detail; Fig. 6, an end view of the same; Fig. 7, a view in side elevation of the tubular-valve detail; Fig. 8, an end view of the same; Fig. 9, a section taken at the line 9 on Fig. 3 and viewed in the direction of the arrow; Fig. 10, a broken section taken at the line 10 on Fig. 1, viewed in the direction of the arrow and enlarged, showing the manner of supporting my improved coupling device from a car-coupler; and Fig. 11, a longitudinal section of the coupling device, showing the tubular-valve device in its forward closed condition.

A is a train-pipe, which, for the application to it of my improved automatic coupler, should extend, at least as to its end portions, lengthwise below the car-coupler B.

Following is a description of my improved coupling device in all its details.

C is a double-barreled tube, the right-hand barrel r of which terminates at one end in a bell-shaped or flaring mouth q, while the other barrel r' terminates at the corresponding end in an internal seat p for a ball-joint, hereinafter described. The wall n between the barrels r and r' contains two ports n' and n^2. In the barrel r is confined a tubular valve C', closed at its outer end, at which it has a pronged extension o, and open at its opposite end, from which extend the lugs v, while between its ends the tubular valve is provided with the port n^3, and on the side of the tubular valve at its rear end is provided a feather x to enter a longitudinal groove x' in the barrel r to guide the valve in its movements. In the barrel r' is confined the impact-stem C^2, having at its forward end a tubular head m, affording a seat for a ball-joint, hereinafter described, and into which there leads a port n^4 from a side of the stem adjacent to the head, and at its rear end the stem C^2 terminates in a head m', provided with a flange m^2 and which contains in one side an arc-shaped recess m^3. In the tubular valve C' is confined a spring l.

At its rear end the double-barreled tube C is rounded and externally screw-threaded to adapt it to have screwed upon it an annular head C^3, having a central opening i, surrounded at its forward end with a circular flange i', concentric with the annulus of the head. A tube-section C^4 is screwed at one end into an extension k of the head C^3 and has telescopically connected with it at its rear end, where a suitable stuffing-box h is provided, a tube-section C^5, coupled with the train-pipe A.

C^6 is a tubular stem carrying ball-shaped heads g and g' at its opposite ends. The stem C^6 seats at its head g in the barrel r' at p to form a ball-joint therewith and projects beyond the barrel.

My improved coupling device is supported from the base of a car-coupler B by a loop f on the upper side of the double-barreled tube C, embraced between perforated pendent lugs e and fastened in place by a cotter-pin d, passed through the loop and lugs.

As will be understood, a car is equipped with two of my improved pipe-couplers, one at each end, with the tubular connecting-stem of each extending at its outer end into alinement with the bell-mouth q of the other.

Thus when two cars are brought together for coupling at their couplers B in the usual manner the connecting-stems C^6 of my two opposing train-pipe couplers enter each the barrel r of the other against the tubular valve C′ therein and force it inward against the resistance of its spring l till its port n^3 coincides with the port n^2. Communication between the train-pipes A on the two cars is thereby opened, the fluid passing through the pipe-sections C^5 C^4, opening i, valve C′, and ports n^3 n^2 into the barrel r', whence part passes through the port n' between the prongs o of the tubular valve into the tubular stem C^6, and thus enters the barrel r' of the coupler device on the other car, and part passes through the port n^4 into the tubular stem C^6, projecting from such other coupler device, and by which it enters the latter at its barrel r.

The strain of any impact in the coupling is taken up by the impact-stems, which transmit it to the heads C^3, about the flanges i' of which the recessed heads m' fit, and the strain slides the tube-sections C^4 back on the telescopic tube-sections C^5. Moreover, this telescopic connection of each train-pipe coupler with the train-pipe A affords to it play for the same purpose as longitudinal play is provided for in the car-coupler B by its draw-bar spring, so that as the draw-bar moves my pipe-coupler may move correspondingly.

When cars are uncoupled at their couplers B, their separation withdraws the connecting-stems C^6 from the respective barrels r of the train-pipe couplers, whereby the spring l in each is released, and its recoil forces forward the tubular valve C^3 controlled by it until the port n^3 in the valve coincides with and is closed by the section of the wall n between the ports n' and n^2 in the latter. In this position of the valve C′ the train-pipe is closed against the egress of air (or steam) from it.

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

1. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with means for connecting it with the train-pipe, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, and a tubular stem extending from said other barrel, substantially as described.

2. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with means for connecting it with the train-pipe and with means for suspending it from a car-coupler, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, and a tubular stem extending from said other barrel, substantially as described.

3. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with a telescopic tubular extension for connection with the train-pipe, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, and a tubular stem extending from said other barrel, substantially as described.

4. In an automatic train-pipe coupler, the combination of a double-barreled tube provided with means for connecting it with the train-pipe, a spring-controlled valve in one barrel controlling communication therewith of the other barrel, a bell-mouth on the end of the valve-containing barrel, and a tubular stem extending from said other barrel, substantially as described.

5. In an automatic train-pipe coupler, the combination of a double-barreled tube C provided with means for connecting it with the train-pipe, ports n' and n^2 in the wall between the barrels r and r', a tubular valve C′ in the barrel r, having a port n^3 and provided with a spring l, and a tubular stem C^6 extending from the barrel r', substantially as described.

6. In an automatic train-pipe coupler, the combination of a double-barreled tube C provided with a head C^3 having a telescopic tubular extension for connection with the train-pipe, ports n' and n^2 in the wall between the barrels r and r', a hollow tubular valve C′ in the barrel r, having a port n^3 and provided with a spring l, an impact-stem C^2 in the barrel r', having a hollow head m at one end and a port n^4 opening into said head, and a tubular stem C^6 having a head g at one end at which it is retained by a ball-and-socket joint in said barrel r' to extend therefrom, substantially as described.

7. In combination with the car-coupler and train-pipe on a car, an automatic train-pipe coupler comprising, in combination, a double-barreled tube C provided with a head C^3 having the telescoping tube extensions C^4 and C^5 at which it is coupled to the train-pipe, ports n' and n^2 in the wall between the barrels r and r', a bell-mouth q on the barrel r and a hollow tubular spring-controlled valve C′ confined therein, having a port n^3, an impact-stem C^2 in the barrel r', having a port n^4, a tubular stem C^6 extending from the barrel r', and means on the tube C and said car-coupler for suspending from the latter the train-pipe coupler, substantially as described.

WILLIAM F. WHITE.

In presence of—
M. J. FROST,
R. T. SPENCER.