

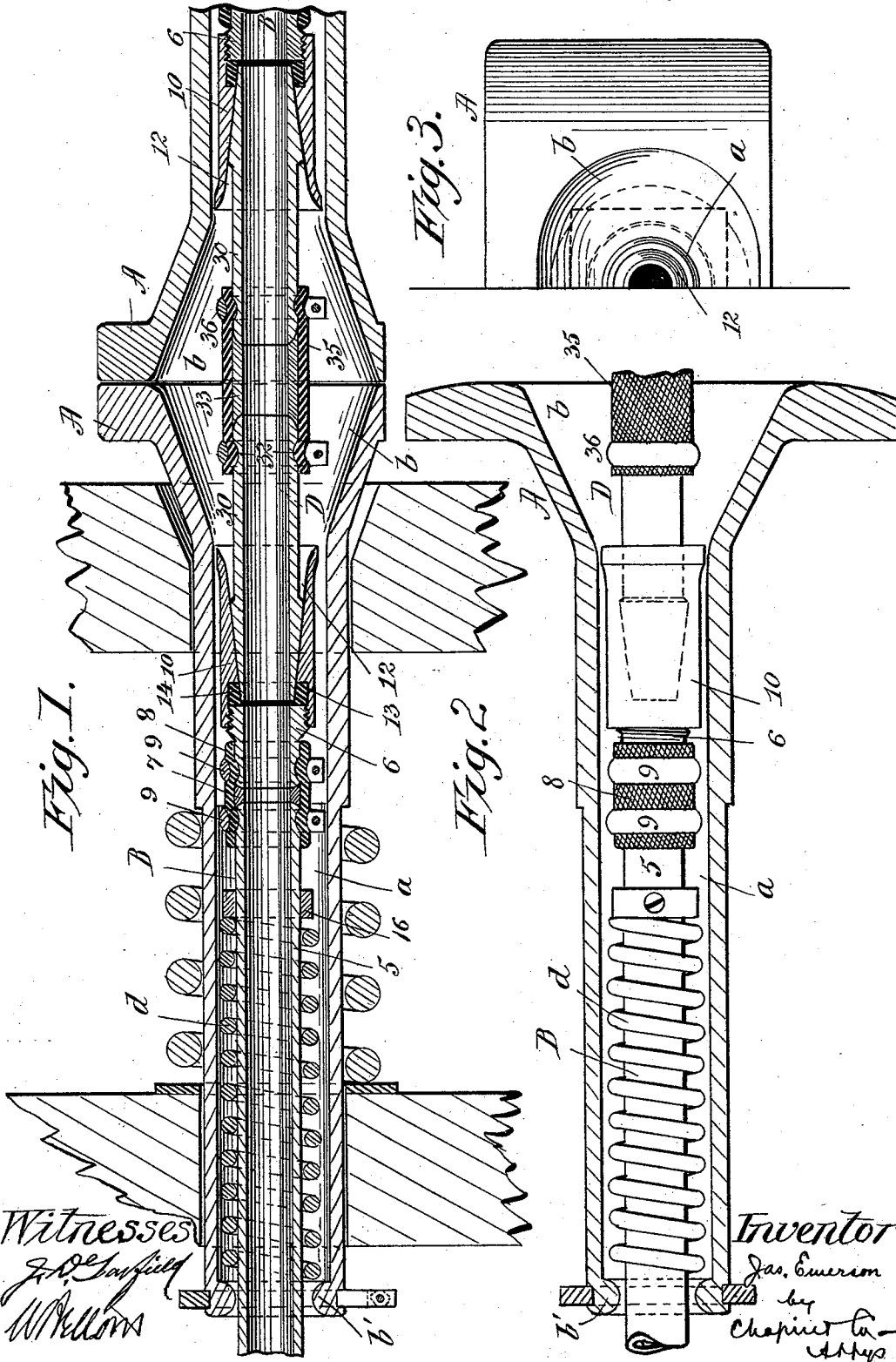
(No Model.)

2 Sheets—Sheet 1.

J. EMERSON.
AUTOMATIC COUPLING.

No. 536,861.

Patented Apr. 2, 1895.



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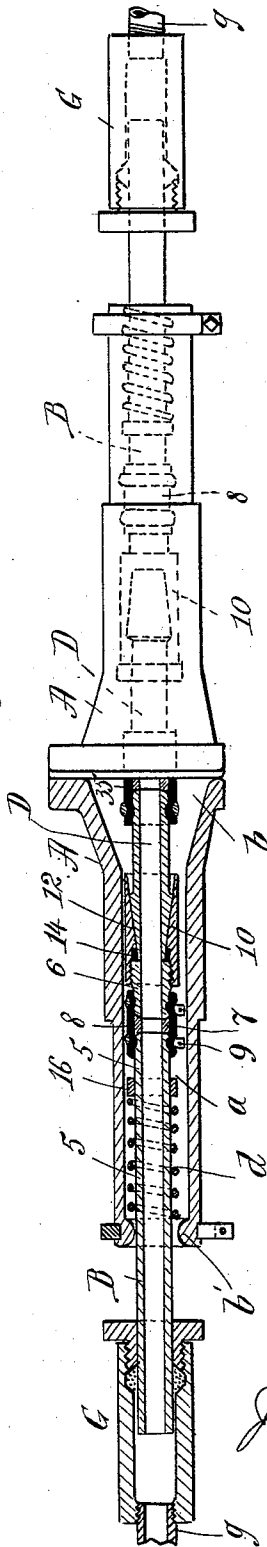
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Fig. 4.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC COUPLING.

SPECIFICATION forming part of Letters Patent No. 536,861, dated April 2, 1895.

Application filed April 30, 1891. Serial No. 391,071. (No model.)

To all whom it may concern:

Be it known that I, JAMES EMERSON, a citizen of the United States, residing at Willimansett, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Steam or Air Conduits and Automatic Couplings for Railway-Cars, of which the following is a specification.

This invention relates to improvements in steam or air conduits and automatic couplings therefor, for railway cars.

The purpose of the invention is to secure the most compact disposition of the steam or air pipes that is possible consistent with the efficiency and automatic capability of the same, for obvious reasons, and otherwise to improve and simplify the equipments of the car provided with steam or air conduits.

The invention essentially embodies a buffer of tubular form and the steam or air pipe of the car which by the portion thereof which comprises, or is adjacent to, the pipe coupling, is disposed within the said tubular buffer.

Further features or details in the construction and arrangement of the parts will be hereinafter more fully described and specified in the claim.

Referring to the accompanying drawings, Figure 1 is a central, vertical section through the buffer for one car and a portion of the buffer for another car assumed to be coupled, and showing the end portions of the steam pipes for said cars, and the uniting devices or coupling for said pipes as coupled. Fig. 2 is a central, horizontal, longitudinal section of one of the tubular buffers and pipe terminals. Fig. 3 is an illustration in front end elevation of the same. Fig. 4 is an elevation of one buffer and pipe coupling with the stuffing-box therefor and a central-longitudinal section of the buffer coupling and stuffing-box for another car.

In the drawings, A represents the buffer. The same is by its shank or stem supported on the car and is externally formed substantially as usual. The buffer is, however, formed tubular, the passage *a*, extending throughout the entire length thereof, terminating at the forward end in the outwardly flaring or conical mouth *b*. The buffer at its rear end is outwardly flanged or shouldered as at *b'*.

B represents the end portion of a conduit for the steam or air, the same extending from the rear of the buffer-stem to a suitable distance at the rear of the flaring mouth at the forward end of the buffer. The end portion of the conduit is formed in sections, 5 and 6, which are separated by the ring 7, the said sections 5 and 6, having their approached ends rounded to fit the concave or depressed opposite faces of the said ring. 8 represents a sleeve of durable and flexible material which incloses, and in part constitutes, the flexible joint between the said sections, said sleeve being held in confinement by the binding straps 9, 9. The said section 6, at its forward end is externally screw threaded, receiving thereupon the section 10, having the forwardly flaring passage, or mouth, through it, as indicated at 12. The said section 10, has in its rear end portion the circular seat or depression 13, within which is placed a ring 14, of rubber or other suitable compressible material. The internal periphery of said ring 14, forms substantially a continuation of the conical wall surrounding the said flaring passage 12, the same, by its reaction, however, standing slightly within the contour of said flaring wall when the coupling member D is not in its coupling relation with said section 10.

The terminal conduit portion B the same comprising the sections 5, 6 and 10, are mounted for movement longitudinally of the buffer, and more or less independently of such movement, and the said portion B, is maintained in a forward disposition, normally, by the spring *d*, which encircles the section 5, and bearing by its forward end against the collar 16, the rear end of the said spring having a bearing upon the said internal buffer flange *b'*.

The rear extremity of the pipe section 5, is supported upon, and plays within, a stuffing-box G, which is suitably connected to the main steam or air conduit of the car, the latter being indicated by *g*, in Fig. 4.

The flaring passage 12, through the section 10, terminates at the rear of the flaring mouth *b*, of the buffer, forming a continuation of the said flaring mouth.

The union between the two buffer-inclosed steam pipe terminals is made by the interpo-

sition between them of the tubular coupling member D, adapted by its ends to be held under compression and with a close fit in the flaring walls 12, 12, and by its longitudinal passage to form a continuation of the passage from one pipe to the other; and as particularly shown said coupling member comprises axially aligned metallic tubular sections 30, 30, having their farthest extremities tapered externally to peripherally fit the flaring passages within the sections 10; and back from its outer end each section is of less diameter. The inner ends of said sections are approached, and just back from said ends are peripherally grooved or depressed as at 32, a ring 33, of brass, or other suitable metal or material is interposed between the approached ends of the sections 30, 30. The ends of the thimble are reamed out to form seats in which the chamfered or rounded ends of said sections firmly rest, the sections being capable of a swinging movement angularly to their common axial line without being removed from said ring seats, there being between the said ring and the section ends a close yet free rocking or rolling bearing. The flexible sleeve 35, incloses the ring and extremities of the section 30, and is thereon firmly secured by the binding straps 36, 36, which are placed over the depressions 32.

As two cars approach each other and the coupling member D, is properly fitted in the flaring passage 12, at the end of the pipe within one buffer and projects forwardly beyond the front face of said buffer, the other end of the coupling member will impinge against some portion of the wall constituting the flaring mouth of the buffer on the other car, and will be thereby guided to the flaring passage 12, which is located at the throat of the buffer opening. It will therefore be seen that the buffer formed as described and having the pipe terminal B, inclosed therein in the relation substantially as indicated, serves the useful purpose, not only of inclosing and protecting the said pipe portion B, but of aiding in the coupling action as hereinabove mentioned.

The pipe terminals B, being forwardly spring sustained, and having the flexibly jointed forward sections, and coupled by the member D, substantially as described, are eased, or rendered free from strain as affected by the one part or the other at the time of coupling and also during the maintenance of the coupling relations.

The forward section, 10, being flexibly jointed to the pipe terminals within each buffer, is permitted to sag, within the space, which may be between the throat of the buffer and the outside of the forward section 10, so that before coupling the lower inner

walls of the buffer and the flaring passage 12 will be practically continuous inclined surfaces, and so that the nose of the coupling member, D, may at the time of coupling be readily guided up and properly seated in the said flaring passage 12, of the said forward section.

There are further practical advantages derived from the invention embodying the adaptation of the buffers for the reception of the pipe coupling devices therein, and of the disposition of the coupling devices as stated; and it will be here mentioned that it is of course understood that the buffers, A A, for performing the functions of constituting parts of the pipe coupling devices, and for also inclosing such devices, in addition to their ordinary functions of acting as buffers merely, are as usual located on the cars,—that is, very near or directly under the car floor and platform, being above the car couplings. The pipes being thus arranged at their terminals at the highest available level, permit of the inclination of the steam pipes from such level slightly downwardly and rearwardly toward the middle of the car, which place is in practice regarded as the most convenient and available for the drainage of the pipes; and even with an inclination of the latter to the middle of the car their position thereat is not necessarily much below the car floor, and the manipulation of the drainage cocks or devices may be effected from the interior of the car through the usual trap-door therein. Of course the advantage of having the steam pipes arranged closely under the car floor for the whole length thereof will be readily appreciated.

What I claim as my invention is—

The combination with buffers of two cars adapted for end to end abutments with each other and unsecured and capable of free transverse sliding movements, the end of one across that of the other, and each buffer having a passage through it with a flaring mouth, of an independent steam or air conduit within each buffer having a flaring mouth at its forward end which is located next to the rear of, or in the throat of said buffer mouth, said conduit being jointed at the rear of its flaring mouth whereby the latter mouth may, when the parts are uncoupled, sag or lie at the lower inner inclined wall of the buffer, and a spring applied between each of said buffers and said conduits for normally maintaining the mouths of the latter at the throats of the buffer mouths, substantially as and for the purposes set forth.

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Witnesses:

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