(No Model.) 2 Sheets—Sheet 1.

S. W. SUMMERS.

AUTOMATIC PIPE COUPLING.

No. 568,466. Patented Sept. 29, 1896.

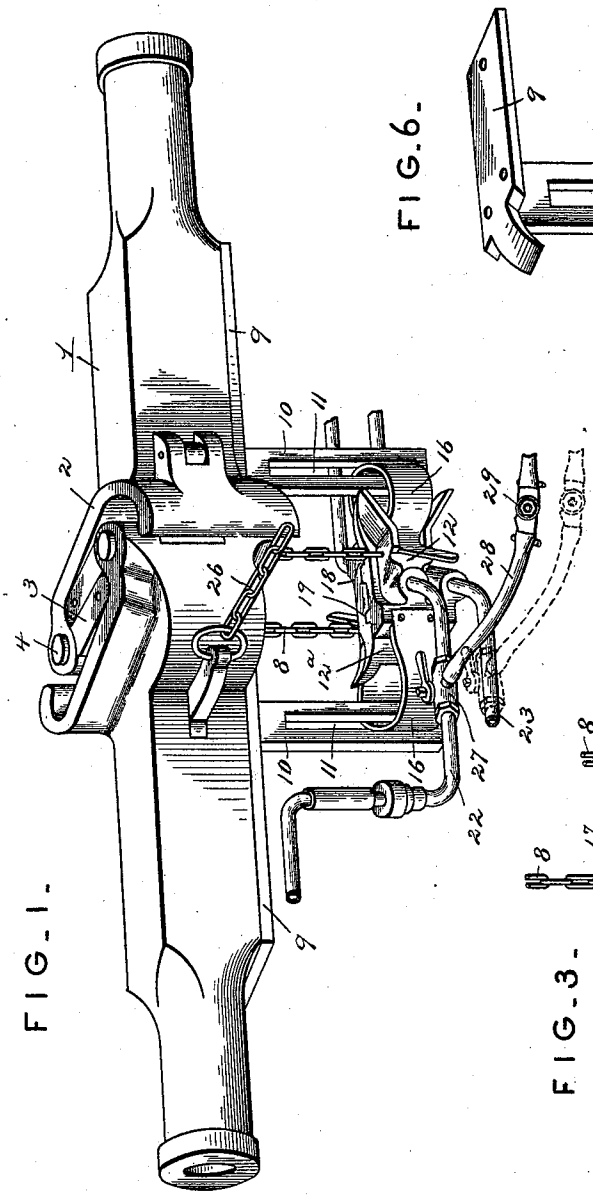

FIG. 1.

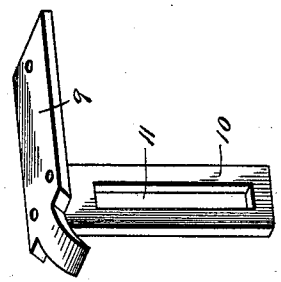

FIG. 6.

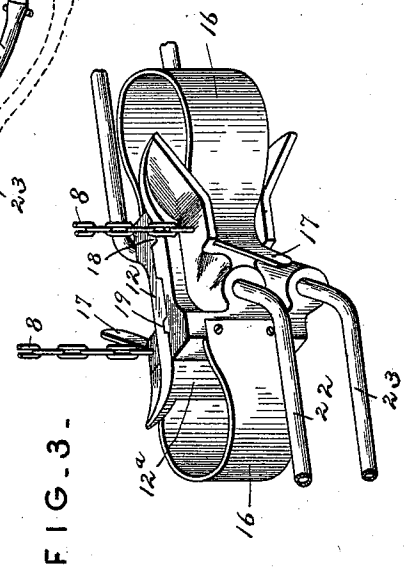

FIG. 3.

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Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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AUTOMATIC PIPE COUPLING.

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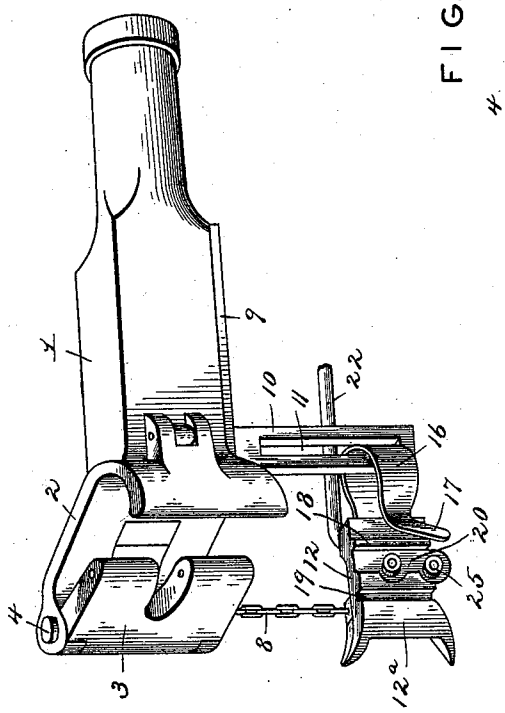

FIG. 2.

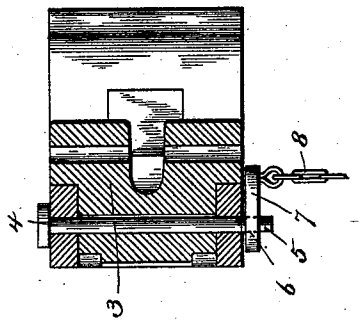

FIG. 5.

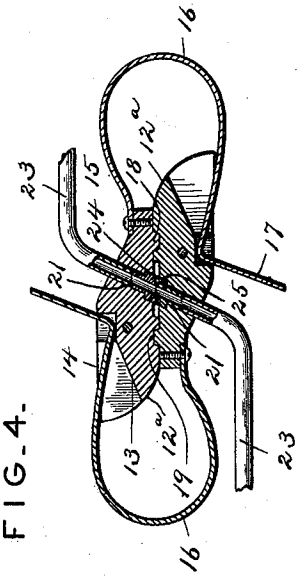

FIG. 4.

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UNITED STATES PATENT OFFICE.

SMITH WHITE SUMMERS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE INTERNATIONAL AUTOMATIC AIR BRAKE COUPLER COMPANY, OF ILLINOIS.

AUTOMATIC PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 568,466, dated September 29, 1896.

Application filed September 15, 1894. Serial No. 523,125. (No model.)

To all whom it may concern:

Be it known that I, SMITH WHITE SUMMERS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Improvement in Automatic Pipe-Couplings, of which the following is a specification.

This invention relates to air-brake and other pipe-couplings for cars; and it has for its object to provide a coupling of this character adapted for use in connection with the ordinary automatic car-coupling, whereby the usual air-brake and steam-pipe couplings between the cars may be effected without the necessity of an attendant stepping between the cars for this purpose.

To this end the main and primary object of the invention is to provide a pipe-coupling adapted to couple automatically and simultaneously with the coupling of the cars and adapted for support by any of the ordinary styles of automatic car-couplings now in use.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a pair of ordinary automatic car-coupling heads, the same being provided with the hereinafter-described automatic pipe-coupling. Fig. 2 is a perspective view of one of the car-coupling heads with a pipe-coupling shoe suspended therefrom. Fig. 3 is a perspective view on a somewhat larger scale showing two of the pipe-coupling shoes coupled together. Fig. 4 is a longitudinal sectional view through the coupling-shoes coupled. Fig. 5 is a detail sectional view including the knuckle of one of the coupling-heads of the car-coupling. Fig. 6 is a detail in perspective of one of the rear slotted hangers.

As shown in the drawings, the present invention is illustrated in connection with an ordinary twin-jaw automatic car-coupling, and for convenience of illustration an ordinary automatic Master Car-Builders' coupling is shown, but it will be understood that the invention hereinafter described may be applied to any of the couplers now in use with but slight modification for the adaptation, and, referring to the accompanying drawings, the numeral 1 designates the draw-bar of each coupling-head that is provided at its front end with the usual fixed jaw 2, and the pivoted knuckle 3, that is mounted on the knuckle-pin 4 in the ordinary manner. In the present invention the knuckle-pin 4 is provided with a lower threaded end 5, extended below the head of the coupling and receiving thereon the threaded opening 6, formed in one end of the hanger-arm 7, to the other end of which is suitably connected the upper end of a short hanger-chain 8, and by reason of thus connecting the hanger-arm 7 to the knuckle-pin it will be understood that the inner end of said hanger-arm that carries the short hanger-chain will be disposed near the longitudinal center of the car-coupling to provide for properly positioning the parts of the attachment suspended from the chain, as will be more particularly referred to.

The short hanger-chain 8 forms a front hanger of the attachment, and directly in rear and at one side of said hanger-chain a hanger-bar 9 is bolted, banded, or otherwise suitably secured to the under side of the draw-bar 1, and said hanger-bar 9 is shaped to correspond with the under configuration of the draw-bar to which it is attached. The hanger-bar 9 is of an inverted-L shape and is provided with a depending hanger portion 10, having a vertical or longitudinal slot 11, the function of which will presently appear, it being understood that the hanger 10 forms the rear hanger of the attachment, while the chain 8 forms the front hanger and is suitably secured at its lower end to the upper side of a self-adjusting coupling-shoe 12.

The self-adjusting coupling-shoe 12 is provided with an inner convexed face 12^a at one end, whereby the two shoes of a coupling may freely ride by each other, and it will now be more clearly understood that the disposition of the arm 7, that supports the chain 8 for each of the coupling-shoes, disposes such shoes directly under the longitudinal center of the car-coupling heads thereabove, so that

the simultaneous coupling of the shoes and said heads will be insured. Each of the self-adjusting shoes 12 is further provided at its front edge or end and upon the outer side thereof with an inclined beveled or wedge portion 13, inclosed between a pair of converging guide flanges or ribs 14, and at the rear end of the shoe and at its outer side directly opposite the beveled portion 13 is secured, by bolts or other suitable means 15, one end of a curved or bowed spring 16, that is almost of the same width as the shoe itself and loosely extends through the slot 11 of the adjacent hanger 10 and around to a point directly opposite or opposing the inside coupling-face of the shoe, at which point the free end of said spring is flared out or deflected, as at 17, to provide for guiding the opposing coupling-shoe in place.

Each of the coupling-shoes 12, that are suspended from the heads of the car-coupling, is provided upon the inner side thereof with a vertically-disposed transverse lock-tongue 18 and a similarly-disposed groove 19, which are separated from each other, the tongue being located at one side of the center of the shoe and the groove at the opposite side of the center of the shoe, and said tongues and grooves are reversely disposed on one shoe with respect to the tongues and grooves on the opposing shoe, so that when the two shoes are coupled together said tongues and grooves will ride into interlocking engagement with each other, and by reason of the interlocking tongues and grooves of the two coupling-shoes it will be obvious that after the same are coupled together the shoes cannot twist or wabble to such an extent as to affect the alinement of the pipe connections therewith, which is a very important feature in connection with couplings of this character.

Intermediate of the tongue and groove 18 and 19 each of said coupling-shoes 12 is provided with a slightly-recessed or shallow face 20, in which is formed a series of pipe openings or perforations 21, to correspond to the number of air and steam pipes to be connected thereto, and in the present instance I have illustrated two pipe openings or perforations, with one of which is connected the train-pipe 22 and with the other of which is connected an ordinary signal-pipe 23. The inner ends of the pipe openings or perforations 21 are recessed, as at 24, to receive the usual rubber gaskets 25, which project slightly beyond the pipe openings or perforations to form a tight joint with the corresponding gasket carried by the opposing coupling-shoe, and at this point it may be noted that the raised tongues 18 of each coupling-shoe will hold the faces of the shoes sufficiently apart while riding into engagement with each other so as to prevent the rubber gaskets from being forced out of their seats.

The present car-coupler, as is well known, is operated through impact alone, the two heads coming together and the pivoted knuckles becoming automatically locked, and in connection with these pivoted knuckles and the locking means therefor I have illustrated the ordinary uncoupling-chain 26 in one of the figures of the drawings.

With the parts of both the car and air-brake couplings in the position described it will be seen that two approaching draw-heads will couple and that the convex faces of the shoes 12 will be brought together and ride against each other until the beveled ends 13 come in contact with the springs 16. At this point the said beveled ends 13 take under the bent or outwardly-flared ends 17 of the springs and force the springs away from their respective shoes, so that the extremities of the springs will pass between the flanges or ribs 14 and will embrace the shoes and hold the same firmly together. As the shoes slide on one another they are so held apart as to prevent the gaskets on the opposite shoes from rubbing together, and when the gaskets are in alinement with one another and the tongues 18 opposite to the grooves 19 the shoes are interlocked by the pressure of the springs, and in this position the interlocked coupling-shoes will have their rubber gaskets tightly impacting one upon the other. It will therefore be seen that simultaneous with the coupling of the cars an automatic coupling of the train-pipes will be effected, and that the coupling will take place regardless of the relative position of the cars upon which the shoes are located, and that the same is entirely automatic, requiring no attention on the part of the brakeman. As soon as the car-couplings are unlocked and the cars are pulled apart the springs will yield and permit of a separation of the shoes.

In employing the herein-described attachment-shoe for air-brake couplings in connection with the ordinary car-coupling head of a car it will be understood that a car thus equipped will sometimes have to be coupled to a car not provided with this attachment and having the ordinary Westinghouse or other brake-hose coupling, and to make provision for effecting a coupling with such a car the air-pipes connected with the coupling-shoes are provided at any convenient point, other than, or, as shown in the drawings, with an ordinary three-way cock 27, with which is directly connected or indirectly connected by means of the usual brake-hose pipe 28, one member of the usual brake-hose coupling 29, which provides means for coupling the brake-hose of two cars together.

It will now be understood that to couple with a car not having the herein-described coupling-shoe it is simply necessary to manipulate the three-way cock of each pipe to cut off connection with the pipe openings or perforations in the adjacent coupling-shoe and at the same time to open up communication through the brake-shoe, so that the brake-hose of the unequipped car can be coupled to the brake-hose of the equipped car in the

usual manner to make the proper connections with the pipes.

I do not limit my invention to the precise details of construction herein shown and described, but hold that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

I do not broadly claim means whereby the half-sections of the coupling are held laterally away from the coupled position until the portions of the coupling which are brought into contact to form the union or joint between the pipes are in position to register with one another, as a construction embodying such feature is described and shown, but not claimed, in Letters Patent No. 526,119, granted and issued to the International Automatic Air Brake Coupler Company, as my assignee, under date of September 18, 1894, and such feature, which was illustrated by me in connection with other subject-matter of my own invention, is believed by me to be the invention of one James Bryant Thomas.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. The combination of a pipe-coupling shoe having a lateral opening through its face, and means for automatically coupling said shoe with a companion shoe, the face of said shoe through which the opening is made being provided with a tongue and groove adapted to engage a corresponding tongue and groove of a similar shoe by a lateral movement toward the same, substantially as set forth.

2. The combination of a pipe-coupling shoe, a tongue and groove on a lateral face of the shoe, adapted to engage a similar tongue and groove on a similar shoe, and curved or bent springs secured to said shoes and adapted to automatically engage said shoes and hold them in place by pressure thereon toward their abutting lateral faces, substantially as set forth.

3. The combination, with an automatic pipe-coupling shoe, of a tongue on the lateral coupling-face of the shoe which is adapted to engage with the lateral face of a similar shoe when the two shoes approach each other by a longitudinal movement and thereby to hold the shoes laterally apart, and a groove adapted to receive the tongue on a similar shoe whereby the shoes may be brought together into coupled position by a lateral movement at the end of the longitudinal movement, substantially as set forth.

4. In a combined car and air-brake coupling, the combination with the car-coupling heads; of the coupling-shoes suspended from the heads and provided on their inner faces with vertically disposed and spaced interlocking tongues and grooves, and pipe connections with said shoes, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SMITH WHITE SUMMERS.

Witnesses:
EDWIN LOKER,
JOS. P. KERR.