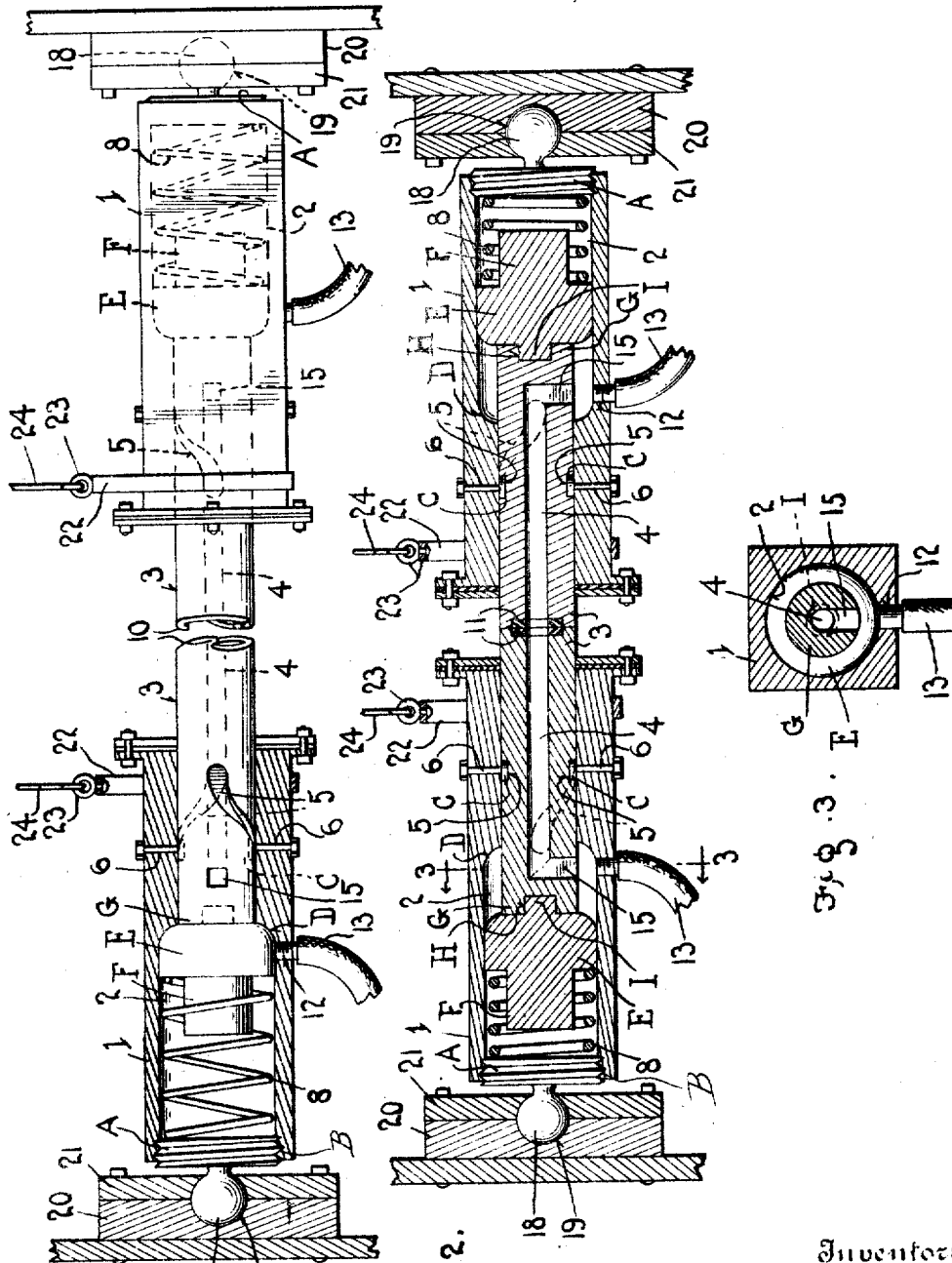


W. Z. PULLIAM & F. VAN PELT.
 TRAIN PIPE COUPLING.
 APPLICATION FILED JULY 27, 1911.

1,009,570.

Patented Nov. 21, 1911.



Witnesses
 S. B. James
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 Fig. 1.

Fig. 2.
 Fig. 3.
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UNITED STATES PATENT OFFICE.

WILLIAM Z. PULLIAM AND FRANK VAN PELT, OF RANDELSBURG, CALIFORNIA.

TRAIN-PIPE COUPLING.

1,009,570.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed July 27, 1911. Serial No. 640,884.

To all whom it may concern:

Be it known that we, WILLIAM Z. PULLIAM and FRANK VAN PELT, citizens of the United States, residing at Randsburg, in the county of Kern and State of California, have invented certain new and useful Improvements in Train-Pipe Couplings; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to detachable pipe couplings, and more especially to those which are used for coupling hose and the like as in train pipes; and the object of the same is to effect certain improvements on our prior Patent No. 992,059, issued May 9, 1911.

With this end in view the invention consists in the details of construction herein-after more fully described and claimed and shown in the drawings wherein—

Figure 1 is a side elevation of one coupling and a central longitudinal section of the other, with the two disconnected; Fig. 2 is a central longitudinal section of two couplings showing them connected with each other; Fig. 3 is a cross section on the line 3—3 of Fig. 2.

In the drawings the numeral 20 designates the coupling head having a socket 19, and 21 is a plate closing said socket around a ball 18 at the inner end of a plug A which is screwed as at B into the inner end of a valve chamber 2 within the casing 1, the latter being supported beneath the end of the car by a frame 22 having a swiveled ring 23 attached to a supporting rod 24 whose upper end is secured to any suitable part of the car. The flexible train pipe 13 communicates with this valve chamber 2 through a port 12 at its bottom and leads thence to the brake mechanism beneath the car body and which need not be illustrated or described here. Within the front end of the casing reciprocates a cylindrical plunger 3 having exterior cam grooves 5 engaging pins 6 extending inward through the casing, and the inner ends of said pins may have rollers C for reducing the friction of the sides of the grooves thereon. At the front end of the plunger is formed spiral threads or projections 10 which, when two of such plungers are brought together and turned, will interlock and thus firmly connect the plun-

gers in coupled engagement. The bore 4 of the plunger communicates with the valve chamber 2 through a radial port 15 just forward of the closed rear end of the plunger, and at its front end this bore is surrounded by a packing ring 11 so as to make a fluid-tight connection with a similar packing ring in the companion plunger when the two are coupled together.

Thus far the reference numerals designate similar parts in our prior patent hitherto referred to, and the reference letters designate points of improvement therein.

Coming now more particularly to the gist of our present invention, we prefer to make the valve chamber 2 cylindrical and close its rear end by a screw plug A as described above, for the reason that cylindrical chambers are more easy to make even though they have threads cut in their inner walls. At the front end of this chamber is formed an internal valve seat D standing just forward of the port 12, and the letter E designates the valve whose operative face is shaped to fit said seat, whose rear end is formed with a stud F around which is coiled the expansive spring 8 whose front extremity bears against the rear of the valve and its rear extremity bears against said plug A and by which the valve is held normally upon its seat D. In the closed rear end G of the plunger we prefer to form a cylindrical socket H, and the front end of the valve is provided with a second stud I loosely fitting said socket so that if necessary the plunger may rotate relatively to the valve but these two elements will be held in constant alinement. In operation, when two of these couplings are brought together, the plunger in each is pressed to the rear and its cam grooves 5 engaging the rollers C cause it to make a quarter rotation so that its port 15 which normally stands at one side of the device is turned to a point at its bottom and above the port 12 of the flexible pipe 13 and communication is established through the plunger and into the pipe. Meanwhile the quarter rotation of the two plungers will bring their projections 10 into engagement with each other so that they will be securely locked together as long as they stand depressed or pushed to the rear within the casing 1. The movement of each plunger to the rear is resisted by the expansive force of the spring 8, and in order to compress the latter the valve

It must be moved to the rear off its seat D which of course uncovers the port 12 so that communication can be established between the latter and the port 15 as just described.

6 In the act of uncoupling, the two plungers are drawn out of their respective casings and the cam grooves 5 cause a reverse partial rotation of each so that the radially outer end of the port 15 is closed by the inner wall of the casing; and the valve, which follows the plunger forward under the impulse of the spring 8, moves over the port 12 and closes communication with the train pipe. Hence it will be seen that by this construction the outlet of compressed fluid from the hose beneath the car is cut off at three points, first where the valve covers the port 12, next where the valve seats upon its seat D, and third where the port 15 from the bore 1 of the plunger is closed by the inner wall of the casing 1.

All parts of this device are of the desired sizes, shapes, proportions and materials.

When it is desired to remove the plunger, the pins 6 are withdrawn and the plunger can be taken out the front end of the casing; and in order to remove the spring and valve the plug A is withdrawn from the rear end thereof.

30 The operation of train pipes and air-brake systems is too well understood to need a further amplification of the uses of our invention.

What is claimed as new is:

35 1. In a train pipe coupling, the combination with a pair of members each comprising a casing having a cylindrical bore with an internal valve seat and internal threads at its rear end, a tubular plunger movable longitudinally in the front end of the casing and having a radial port opening from the rear end of its bore, a socket in its closed rear end, and cam-grooves on its exterior, spiral projections at its front end adapted to interlock with those of a companion plunger, and pins through the casing having rollers engaging said grooves; of a valve shaped to fit said seat and having a stud at its front end loosely engaging the socket in the plunger and a stud at its rear end, an expansive spring in the rear portion of the casing surrounding said stud and standing against the rear end of the valve, a plug re-

movably closing the rear end of the casing and against which the spring bears, and the train pipe communicating through a port in the side of the casing just in rear of said seat.

2. In a train pipe coupling, the combination with a pair of members each comprising a casing having a cylindrical bore with an internal valve seat and a port in rear of the same, a tubular plunger movable longitudinally in the front end of the casing and having a port opening from its bore, and cam-grooves on its exterior, spiral projections at its front ends adapted to interlap with those of a companion plunger, and pins through the casing having rollers engaging said grooves; of a train pipe communicating with said port in the casing, a plug in the rear end of the latter, an expansive spring forward of said plug, and a valve slidable in the bore of the casing against the rear end of the plunger and having a stud at its rear end projecting into said spring.

3. The herein described train pipe coupling consisting of a pair of members each comprising a casing having a cylindrical bore with its rear end removably closed and a port through its bottom, the train pipe communicating with said port, an expansive spring in the rear portion of the casing, a valve forward of said spring having a stud projecting beyond its active face, the interior of the casing having a valve seat forward of its port with which said face contacts, a tubular plunger within the front portion of the casing having a port opening radially from its bore, a socket in its rear end receiving the stud on the valve, and cam-grooves on its exterior, spiral projections at its front end adapted to interlock with those on a companion plunger, and pins through the casing having rollers engaging said grooves as and for the purpose set forth.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WILLIAM Z. PULLIAM,
FRANK VAN PELT.

Witnesses:

ROBERT GUNDERSON,
E. J. EIDER.