E. H. GOLD.

HOSE COUPLING.

APPLICATION FILED APR. 10, 1902.

948,667.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

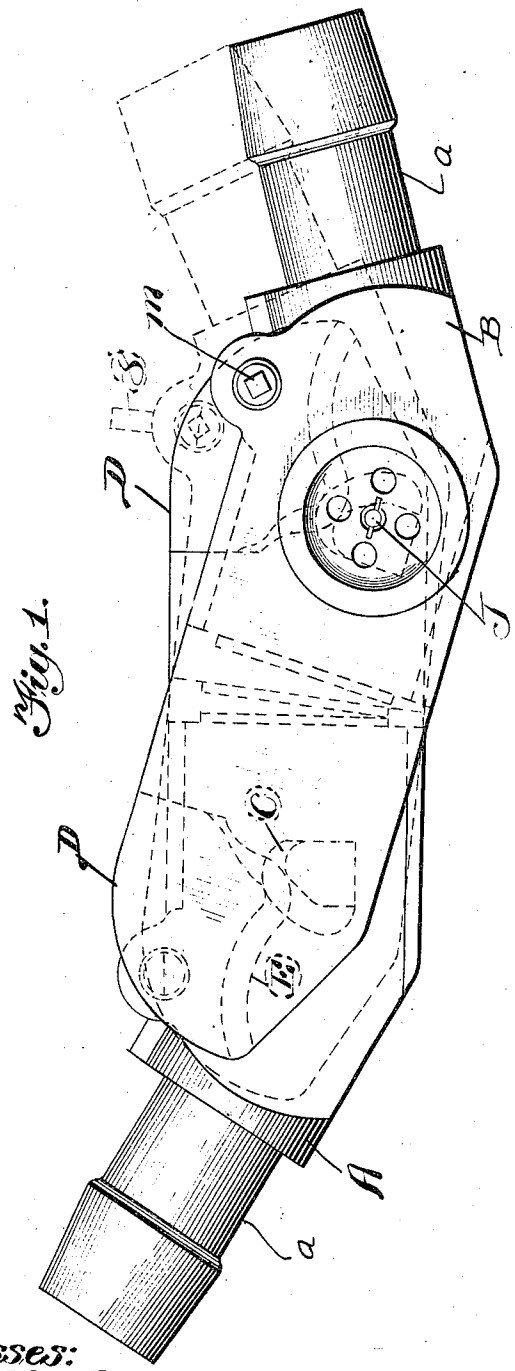

Fig. 1.

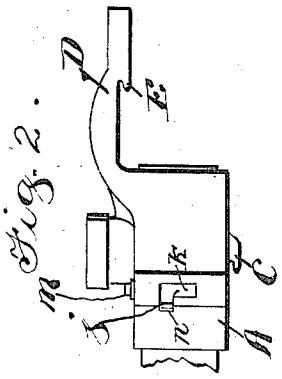

Fig. 2.

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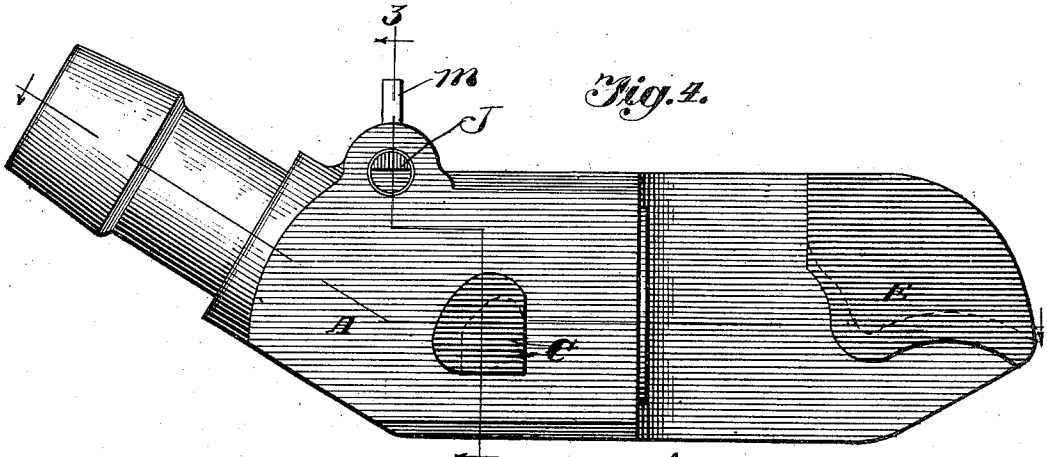

Fig. 4.

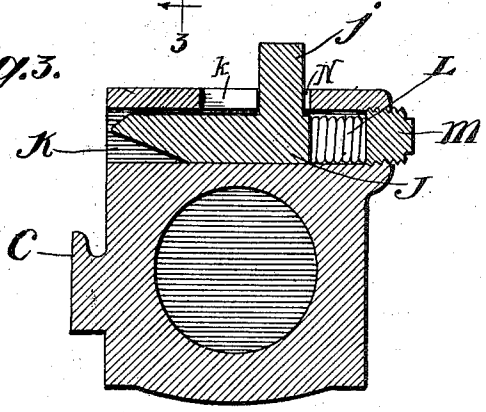

Fig. 3.

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UNITED STATES PATENT OFFICE.

EGBERT H. GOLD, OF CHICAGO, ILLINOIS.

HOSE-COUPLING.

948,667. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed April 10, 1902. Serial No. 102,197.

To all whom it may concern:

Be it known that I, EGBERT H. GOLD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hose-Couplings, of which the following is a specification.

My invention relates more especially to means for coupling together between cars the sections of hose constituting the ends of the train pipes at each end of railway cars, through which steam for heating purposes is conducted from the engine to the different cars of the train, but is adaptable to any hose coupling where similar service conditions exist.

In particular, my invention relates to what is commonly called the "Sewall" type of hose coupler. This type of hose coupler, as clearly illustrated in the drawings, is a direct port, gravity coupler, in which the complementary halves of the coupler are caused to co-engage by a downward, swinging movement, and each half of the coupler is provided with an upwardly projecting member, usually in the form of a nipple, to which a flexible hose is attached, so that when, from any cause, the slack in the flexible hose between the car ends is taken up and the hose approaches a horizontal position, the resulting pull on these upwardly projecting members, or nipples, which tends to bring such nipples toward a horizontal position, will result in automatically uncoupling the complementary coupling members. As was commonly known in this art, long prior to the date of this application, a primary purpose of such construction is to provide a hose coupler which will automatically uncouple, in case the cars of a train shall separate, either from pulling out of the draw-heads, or from any other cause, or which shall automatically uncouple in case the cars are separated but the uncoupling of the hose coupler has been overlooked, thereby preventing any rupture of the hose, or other injury to the apparatus connected therewith. In practice, however, it has been found that frequent conditions arise, whereby the flexible hose between the cars is put under more or less tension without a separation or uncoupling of the cars and that such tension has been sufficient to cause the automatic uncoupling of the hose coupler while a train is running between stations, thereby causing waste of steam, interfering with the heating system of the train and causing other damage and annoyance.

The primary object of my present invention is to prevent such accidental uncoupling of a coupler of this type, while at the same time not interfereing with the normal, automatic uncoupling action of the coupler under conditions of extreme strain such as arises when two cars of a train are separated from any cause. This and such other objects as may hereafter appear are attained by my invention, a convenient embodiment of which is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved coupling. Fig. 2 is a plan view of a portion of Fig. 4. Fig. 3 is a cross-sectional view, on the line 3—3 of Fig. 4, looking in the direction indicated by the arrows; and Fig. 4 is a side elevation of a Sewall type of train-pipe coupling, fitted with my locking device.

Like letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A, B, are the complementary halves, respectively, of a train-pipe coupling of the direct port, gravity, or Sewall type. Each half of the coupling shown is provided with an undercut lug C upon one side of the body of the coupling, and with an arm D, carrying an undercut lug E, on the opposite side of the body of the coupling, which lug E on each arm D engages the lug C upon the opposite or complementary half of the coupler, thereby clamping the coupling hose together. Ordinarily, in coupling a coupler of this type, the halves of the coupler are brought together with the upwardly projecting nipples *a* in say a substantially horizontal position, the coupler halves being brought together adjacent to their lower edges; whereupon, with a downward, swinging movement, the lugs E on the arms D are hooked over the lugs C on the body portion of the coupler, whereupon the coupler hangs by gravity between the cars at the bottom of the loop formed by the coupler and the adjacent flexible hose sections to which it is coupled in the well-known manner, the body of the coupler being in a substantially horizontal position and the nipples *a* projecting diagonally upward. This position of the coupler is a matter of common knowledge in this art, and will be understood from Fig. 1, in which the

parts are shown in partially coupled position. Consequently, in uncoupling, the operation is reversed and, as incident to such uncoupling, the nipples *a* are swung downwardly toward a horizontal position. Therefore, when there is a straight pull on the hose connected with the nipples, as when cars are separated, the apparatus will automatically uncouple. This is all clearly shown in the Sewall patent No. 363,553. But, as previously noted, as ordinarily constructed and applied, it is not essential to the automatic uncoupling of the device, that the connecting hose shall be absolutely taut. Consequently, when the slack in the flexible hose is partially taken up, as, for example, when the train is passing over reverse curves and the rear end of one car swings laterally in one direction, while the forward end of the other car swings laterally in the other direction, the upwardly projecting nipples on the coupler are pulled sufficiently toward the horizontal to cause the device to automatically uncouple. Such uncoupling is not the intended or normal operation of the device, but is distinctly in the nature of an accidental uncoupling. To prevent the accidental uncoupling, I provide the lock shown in Figs. 3 and 4. This lock, in the embodiment shown in the drawings, consists of a locking pin J, provided with an arm *j*, and mounted within a transverse recess K in the coupling. This recess is so located that when the coupling members are clamped together or coupled, the pin J projecting from the recess K will engage the upper edge of the arm D of the coupling. The locking pin J is normally forced outwardly into a position to lock with the arm D, by means of a spring L which is secured within the recess K and back of the pin J, in any suitable manner, such, for instance, as by means of the plug M which closes one end of the recess K. The arm *j* serves as a means for manually retracting the pin J against the spring L and projects upwardly through a slot *k*. The pin J is preferably of such size and shape in cross-section as will permit of its rotation within the recess K. Extending at an angle to the slot *k*, and connecting therewith, adjacent to the rear end thereof, is a slot N of such a size as to receive the arm *j*. When constructed in this form, the pin J may be retracted to the position shown in Fig. 3 and, being rotated axially by means of the arm *j*, said arm *j* will be thrown more or less completely out of the slot *k* and into the slot N, as shown in Fig. 2. It will thus be seen that the slot N may be used as a catch to engage the arm *j* and hold the pin J in unlocked position. When the coupling has been completed, the pin J may be released by disengaging the arm *j* from the slot N, whereupon the pin J will be thrown outwardly by the spring L and into locking engagement with the arm D. However, if preferred, the pin J may be provided with a short, inclined face at the upper side of its forward end, as shown in Figs. 3 and 4, in which event the pin J may be first released, that is, before coupling the coupler members together, and then, as the coupling members are brought into coupling engagement, the under edge of the arm D will engage this inclined or wedged face, thereby automatically forcing the pin J backward sufficiently to allow the arm D to pass to coupled position, whereupon the pin J will be immediately forced by the spring L back into its locking position and in engagement with the upper side of the arm D. In case, however, of any trouble with the locking device, the arm *j* supplies a convenient means whereby the locking pin J may be manually retracted, or whereby a tool may be applied to force the locking pin J backwardly.

I also preferably provide the under face of the forward end of the pin J with a long, inclined face, which, as shown, extends backwardly at such an angle that any ordinary upward pressure of the arm D against said face will not tend to force the pin J backwardly, but, on the contrary, the combined action of the spring L and this long, inclined face will be to constantly wedge the pin J against the upper face of the arm D and normally hold the coupling in a tightly locked position at all times, thereby minimizing the wear between the co-engaging lugs of the coupling members which would result from or give rise to lost motion, and preventing the automatic uncoupling of the device under anything less than an extreme tension, such, for example, as that which results when the cars are separated, when, of course, the hose attached to the coupler is subjected to great strain, with resulting danger of rupture to the hose or of damage to some connected part but for the automatic uncoupling action of the device.

Inasmuch as in practical service these coupling members must be coupled together manually, there should, of course, be no great resistance or interference with this coupling action, and the inclined face on the upper end of the locking pin J should extend, therefore, at such an angle that, while it serves to permit of the automatic forcing backwardly of the pin J in the coupling operation, it should not offer such resistance as to delay the trainmen in making the coupling. On the other hand, the resistance offered by the inclined face on the under side of the pin J should be such as to resist any tension which, in the operation of the train, would tend to accidentally separate the coupling members, as previously explained.

Inasmuch as in the proper and ordinary construction and application of these coup-

ling devices, it should be impossible for any movement of the cars in the operation of the train to wholly take up the slack of the steam hose between the cars so long as the cars remain otherwise coupled together, the coupler cannot under such conditions be put under sufficient tension to automatically uncouple it as against my lock, but whenever the cars are otherwise uncoupled, the strain to which the coupling is subjected as the cars pull apart will overcome the resistance of my lock and permit the coupling to uncouple in the normal and intended manner. It will thus be seen that my invention provides a lock, which, under normal conditions, is, for all practical purposes, a positive lock, but which, as against the breaking in two of a train or the separation of the cars for any other purpose, is an impositive lock, and, therefore, my invention efficiently prevents the automatic uncoupling of the apparatus so long as the cars are otherwise coupled together, and thus entirely avoids the danger of uncoupling.

While I have shown my invention embodied in what I consider its preferred form, it will be understood that the form shown simply shows one convenient embodiment which serves to illustrate and explain the principle of my invention, which is, however, not limited to such specific embodiment, but is broadly set forth in the claims hereto attached.

I claim:

1. A hose coupler having a body-portion provided on one side with a forwardly projecting wing adapted to overlap and engage with a similar body-portion of a complementary coupler, and having also a spring pin in the body-portion located in line with a wedging surface formed on the projecting wing of the complementary coupler whereby the pin exerts a wedging action on the said wing to maintain it in its engaging position.

2. A Sewall type, direct port, gravity coupler, provided with a longitudinally movable spring-pressed latch mounted on one member of the coupler and movable transversely of the longitudinal axis of the coupler, said latch being provided at one end with an inclined face adapted to be engaged by the other member of the coupler in coupling, and on its under surface with an inclined face adapted to engage such member after it has passed to coupled position, so as to wedge said member in coupled position.

3. A direct port, gravity coupling comprising reciprocal coupling members having each a head with an external locking arm on one side and an external locking projection on the opposite side, combined with a spring latch on one member adapted to engage the opposite member, there being two pairs of engaging faces on said member and latch, one of the engaging faces of one pair being inclined, whereby the said latch is automatically forced back in the operation of coupling, and one of the engaging faces of the other pair being inclined and both of said faces being transverse to the direction of movement of the members in coupling and uncoupling, whereby the spring pressure tends to force the members in the direction of coupling after the coupling is made.

4. A direct port, gravity coupling comprising reciprocal coupling members having each a head with a locking arm on one side and a locking projection on the opposite side, combined with a spring latch on one member adapted to engage the opposite member, there being a pair of engaging faces on said latch and the member which it engages, of which one is inclined, and both of which are transverse to the direction of movement of the heads in coupling and uncoupling, whereby the spring pressure tends to force the heads in the direction of coupling after the coupling is made.

5. A direct port, gravity coupler comprising reciprocal coupling members having each a head with a locking arm on one side and a locking projection on the opposite side, and supplemental means adapted to prevent the disengagement of the members of said coupler, said means comprising a spring latch on one member adapted to engage the opposite member, the engaging faces being so inclined, respectively, that the spring pressure upon said latch tends to wedge the locking projections into closer engagement.

6. A direct port, gravity hose coupler for railway cars having a locking arm on one side and a locking projection on the opposite side adapted to couple with its reciprocal coupler by a downward, swinging movement, and to automatically uncouple with an upward movement by the tautening of the hose as the cars draw apart, combined with auxiliary locking means arranged to resist, but not to prevent, the uncoupling movement of the members of the coupling.

7. A direct port, gravity hose coupler for railway cars, having a locking arm on one side and a locking projection on the opposite side, adapted to couple with its reciprocal coupler by a downward, swinging movement and to automatically uncouple with an upward movement by the tautening of the hose as the cars draw apart, combined with a spring latch impositively engaging the reciprocal coupler and resisting, but not preventing, the uncoupling movement.

8. A direct port, gravity hose-coupler for railway cars, comprising reciprocally-engaging heads having locking means comprising a lug on one side of each head and an arm on the opposite side formed with a

hook for engaging the lug on the other head, adapted to couple by a downward, swinging movement, to hold the heads coupled against internal pressure during normal running, and to uncouple automatically with an upward movement by the tautening of the hose as the cars draw apart, combined with an auxiliary spring latch on one head impositively engaging the other head, and adapted in coöperation with said locking means to resist the uncoupling movement sufficiently to prevent accidental uncoupling but not sufficiently to prevent automatic uncoupling, as the cars draw apart.

9. A direct port, gravity hose-coupler for railway-cars, comprising reciprocally-engaging heads having locking means comprising a lug on one side of each head and an arm on the opposite side formed with a hook for engaging the lug on the other head, adapted to couple by a downward, swinging movement, to hold the heads coupled against internal pressure during normal running, and to uncouple automatically with an upward movement by the tautening of the hose as the cars draw apart, combined with an auxiliary spring latch on one head impositively engaging the other head to resist the uncoupling movement, and adapted to be displaced by said movement against the stress of its spring.

10. A direct port, gravity hose-coupler having locking means comprising a lug on one side of its head and on the other side a hooked locking arm adapted to engage such lug on a mating coupler, combined with an auxiliary impositive spring latch engaging the opposite head, the engaging faces being relatively shaped to press back said latch against the stress of its spring during the uncoupling movement, and said latch adapted in coöperation with said locking means to resist the uncoupling movement sufficiently to prevent accidental uncoupling, but not sufficiently to prevent automatic uncoupling as the cars draw apart.

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