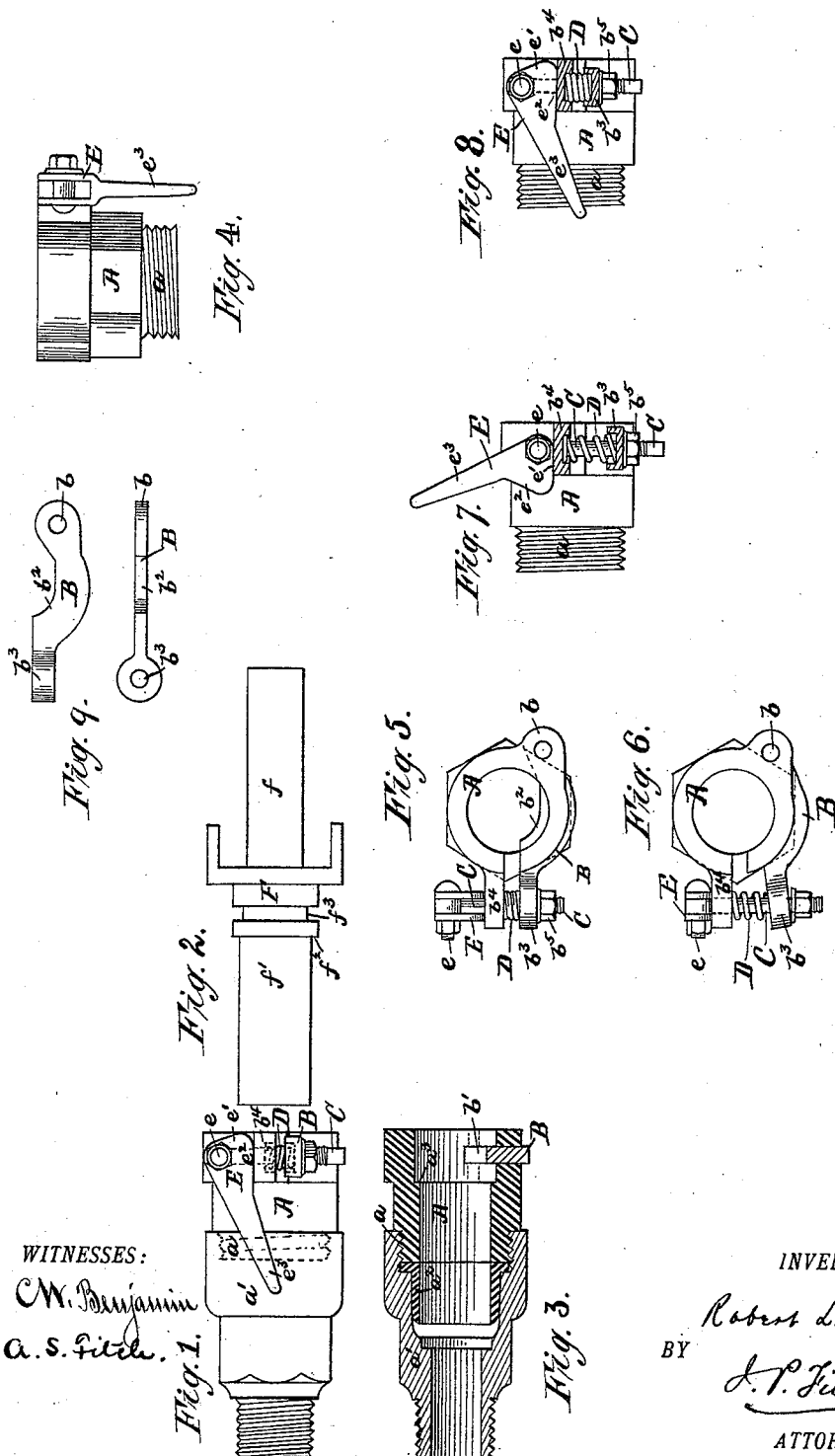


(No Model.)

R. L. AMBROSE.
HOSE COUPLING.

No. 421,647.

Patented Feb. 18, 1890.



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HOSE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 421,647, dated February 18, 1890.

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To all whom it may concern:

Be it known that I, ROBERT LUNNAN AMBROSE, of Burden, county of Columbia, State of New York, a citizen of the United States, have invented an Improved Hose-Coupling, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a coupling device for uniting the ends of two sections of hose, and is particularly useful in making a detachable connection to the cylinder of a rock-drill or other machine of the hose or flexible pipe employed to conduct to said cylinder the compressed air or other motive medium for operating the machine; and my invention consists in the devices hereinafter specified, constructed and combined to operate substantially as set forth, and as more at length recited in the claims.

Figure 1 is a side elevation of the female portion of the coupling containing my invention, and showing the stuffing-box which unites this portion to the cylinder of a drill. Fig. 2 is an elevation of the male portion of the coupling. Fig. 3 is a longitudinal section of the parts shown in Fig. 1. Fig. 4 is a plan of the female portion of the coupling. Fig. 5 is an end view of the female portion of the coupling, showing the coupling-latch closed. Fig. 6 is a similar view of the same, showing the said latch open. Fig. 7 is an elevation of the same, showing the parts in position when the latch is open. Fig. 8 is a similar view of the same, showing the parts in position when the latch is closed; and Fig. 9 is a side and edge elevation of the coupling-latch detached and showing the form thereof.

A is the female portion of the coupling, which is furnished with means or is adapted in structure to be attached to the end of a section of hose or to a tube to which connection is to be made of the other section of hose.

In the drawings I show the portion A furnished with the threaded end a , by means of which it may be seated, similarly to a gland in the stuffing-box a' , which in turn is adapted to be seated in an opening in the valve-chest of the cylinder of a rock-drill. Said stuffing-

box a' is packed at a^2 , and the gland or portion A, when screwed to its place, bears against this packing. The packing being in the form of a leather ring or other yielding substance in like form, the leakage of pressure in the stuffing-box is prevented, the pressure toward the gland operating to press the ring-flange into contact with the male portion of the coupling, presently to be described.

B is an arm or latch piece hung or pivoted to the female portion A, as to a lug at b , and working in a slot b' in the wall of said portion A, which slot is substantially semicircular or extending about half round the wall of said portion A. The arm or latch piece B is of such a width that when it is swung inwardly of the slot its inner edge b^2 will project inwardly beyond the inner face of the wall of the portion A, as shown in Figs. 5 and 9. Said inner edge b^2 is preferably curved or concave, as shown in Figs. 5 and 9, so as to be substantially concentric to the circle of the inner wall of the portion A.

C is a rod or bolt which passes through the free end b^3 of the latch-piece B, working loosely therein, and through an opening in a lug b^4 on the side of the portion A. A nut b^5 , or equivalent means, holds said rod in engagement with the latch-piece, and a spring D is arranged to bear between the opposed faces of the end b^3 of said latch-piece and the lug b^4 , it being preferably arranged, as shown, coiled as a spiral on the rod C, and seated in recesses in the faces of the arm end and lug to maintain it in place at all times.

E is an eccentric cam mounted to rotate on a short shaft e , passing transversely of the end of the rod C beyond the lug b^4 , as shown. The said cam has the faces e' and e^2 , the face e' being the nearest to the axis of the cam and adapted to engage the outward face of the lug b^4 , as shown in Figs. 6 and 7, and when in this position to permit the rod C to extend through the lug b^4 and be drawn outward to its farthest limit by the spring D, and consequently to swing the latch-piece B outwardly in the slot b' in the portion A. The face e^2 is farthest from the axis of the cam, as shown, and when brought into engagement with the outward face of the lug b^4 is consequently adapted to pull the rod C through said lug,

and thus to draw the latch-piece B toward the lug and into the slot b' , so that the inner edge of said latch-piece projects into the portion A through said slot, as shown in Figs. 5 and 8. The latch-piece is pulled against the stress of the spring D, and when the face e^2 is set in engagement with the lug b^4 to close the latch-piece into the slot in the portion A, as shown and described, the stress of the spring operates to hold the cam tightly in such engagement and to prevent the cam's escape from such engagement. In similar manner, when the face e' is set in engagement with the lug b^4 and the latch-piece is thrown outward and open in its slot in the portion A, the stress of the spring operates to hold the cam in this position and prevent its escape from such engagement. The cam E may be provided with a handle or lever e^3 , by which it may be positively operated against the stress of the spring. Any similar and proper means may be used to thus positively operate the cam.

F is the male portion of the coupling. This is adapted to be secured to the opposed end of a section of hose, and preferably by a stem f , as shown. The nozzle or barrel f' of the male portion is adapted in length and diameter to fit into the socket of the female portion A, and is preferably formed with an annular shoulder f^2 , adapted to abut against the corresponding shoulder a^3 on the inner wall of the socket to fix the limit of the inward movement of the barrel f' on its introduction into the socket.

On the outer face of the male portion F, and coincident with the line of the latch-piece B therein, when the male portion is seated, as described, I form the circumferential groove or recess f^3 , into which the latch-piece B takes when it is swung inwardly by the movement of the cam, as hereinbefore described.

By means of the described devices I constitute a hose-coupling in which one section is joined to another with ease and dispatch, and in which the latch-piece B is held fixedly in engagement with the groove f^3 on the male piece and is prevented escaping therefrom except by a positive movement of the operating-cam. This is very desirable in many hose-couplings where the joint made is subjected to motion or jarring in use, and particularly in connection with rock-drills where the coupling is subjected to constant and severe jarring during the running of the drill.

In couplings as heretofore made for rock-drills this jarring has tended to loosen the joint, with the result of frequently causing an unseating of the locking devices of the coupling and a "blowing out" of the male end of the coupling, sometimes attended by injury to attendant workmen.

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

1. In a hose-coupling, the combination of the female or socket portion having a pivoted or swinging latch-piece adapted to be swung to project beyond the inner face of the socket-wall, a spring-bolt working in a bearing on the socket and engaging said latch-piece, and an eccentric two-faced cam engaging said bolt and adapted to reciprocate the same, together with the male portion of the coupling having an exterior circumferential groove adapted to be engaged by said latch-piece and held rigidly thereby when said latch-piece is swung to project beyond the inner wall of the socket portion, as set forth.

2. In a hose-coupling, the combination of the female portion A, provided with the latch-piece B, pivoted to work in a slot b' therein, the bolt C, working in the free end of said latch-piece, and a lug b^4 on said female portion, a spring D, seated between the opposed faces of the arm end and said lug, and the eccentric cam E, having the faces e' and e^2 , together with the male portion F of the coupling having the circumferential groove f^3 , adapted to coincide with and be engaged by the latch-piece B when said latch-piece is swung to project beyond the inner face of the wall of the female portion of the coupling, as and for the purpose set forth.

3. The combination, in the female portion of a hose-coupling, of the socket A, the spring-pressed latch-piece B, pivoted therein and adapted to be swung to project beyond the inner face of the wall of the socket and to engage a groove on a male coupling-piece inserted in said socket, a reciprocating bolt C, working in the free end of the latch-piece, and a lug on the socket, and a two-faced eccentric cam E, engaging said bolt and bearing on said lug, as and for the purpose set forth.

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Witnesses:

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