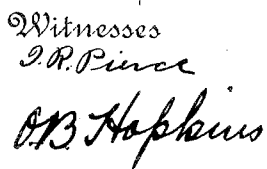


1,009,907.

2 SHEETS—SHEET 1.



G. M. Kessler.

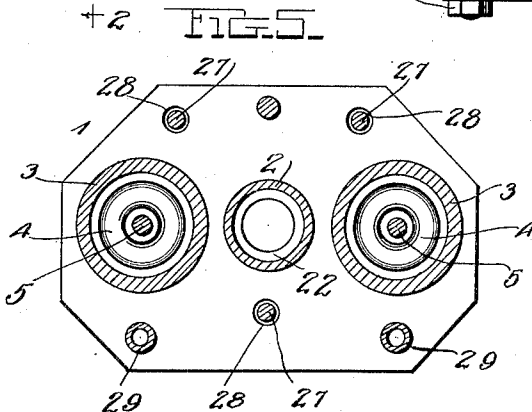
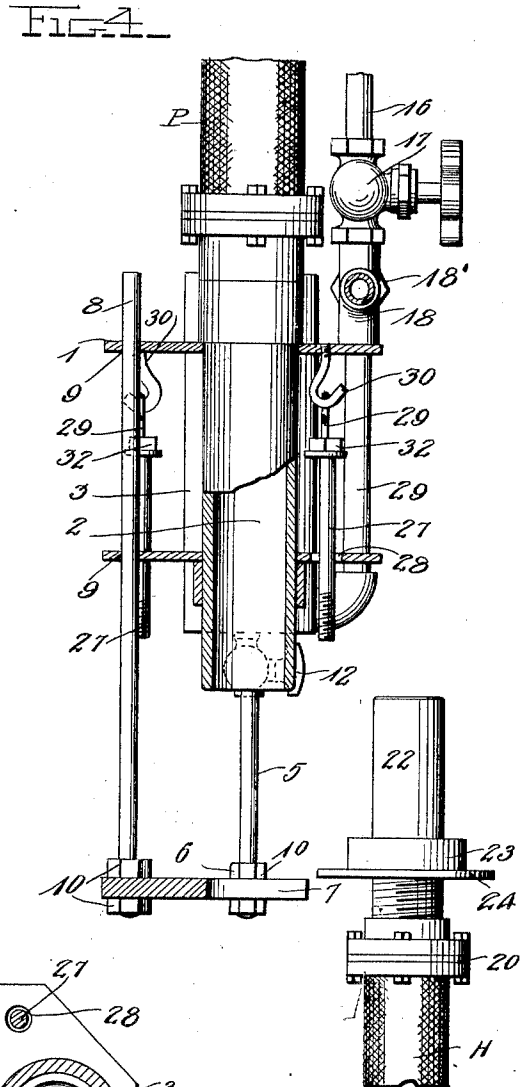
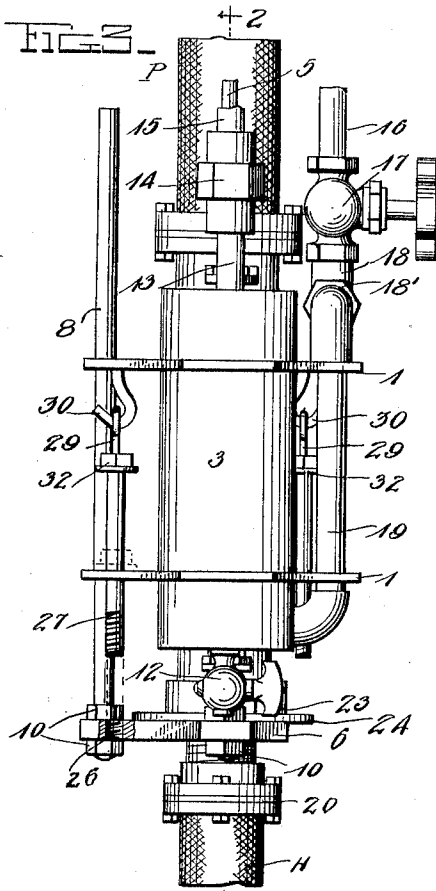
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G. M. KESSLER.
 SUCTION HOSE COUPLING.
 APPLICATION FILED MAY 11, 1911.

1,009,907.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

GEORGE M. KESSLER, OF GREGSON, MONTANA.

SUCTION-HOSE COUPLING.

1,009,907.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed May 11, 1911. Serial No. 626,551.

To all whom it may concern:

Be it known that I, GEORGE M. KESSLER, a citizen of the United States, residing at Gregson, in the county of Silverbow and State of Montana, have invented certain new and useful Improvements in Suction-Hose Couplers; and I 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 the class of water distribution, and more especially to detachable hose pipe couplings, and the object of the same is to produce a fluid-operated machine for quickly coupling and uncoupling the suction hose of the feeding pump in a mine with the barrel of the suction pump or the pipe leading to it.

It is a well known fact among miners that every time a blast occurs in the bottom of a shaft where a sinking pump is employed, it is necessary to disconnect the suction hose and place it out of the way of the blast so that it will not be injured, and after the blast has been fired the hose is again let down into the mine and must be reconnected with the barrel of the suction pump or with the pipe which leads to said pump. By the present method this takes much time as there are two flanges on the pipe which leads from the pump and one on the nipple connected with the hose, and there are four nuts to unscrew and take care of as well as the gaskets, and both nuts and bolts as well as the gaskets are liable to fall into the shaft which necessitates getting new ones and the whole operation becomes slow and tedious.

It is the purpose of the present invention to shorten the time of making this connection and breaking it, to avoid the possible loss of bolts and nuts and gaskets, to make a firmer connection between the hose and pump barrel or pump pipe than hitherto, and for this purpose to use the fluid pressure which is always present where a sinking pump is being operated, sometimes air, often steam, and occasionally water. This object is carried out by the invention whose construction is hereinafter more fully described and claimed, and is shown in the drawings wherein—

Figure 1 is a front elevation. Fig. 2 is a vertical section on line 2—2 of Fig. 3. Fig. 3 is an edge view. Fig. 4 is a vertical section on line 4—4 of Fig. 1 showing the hose detached from the coupler. Fig. 5 is a horizontal section on line 5—5 of Fig. 1. Fig. 6 is a perspective detail of one of the emergency screws.

In the drawings the numeral 1 designates a frame, herein consisting of two horizontal plates through whose center extends an upright sleeve 2 and through which at opposite sides of said sleeve extend upright cylinders 3 in which move pistons 4 mounted on piston rods 5 whose lower extremities are connected by a yoke 6 having a notch 7 in its front edge. A guide rod 8 may rise from the yoke and pass through an eye 9 in one or both of the plates forming the frame, and this rod and the piston rods may be connected with the yoke by nuts 10 above and below it so that the yoke stands ever parallel with said plates. The piston rods move through glands in the heads of the cylinders and may have piston rings as usual, but these parts are not numbered as they form no portion of the present invention.

In the lower end of each cylinder is a pet cock 12, and through its upper end opens a pipe 13 connected by a coupling 14 with any suitable exhaust 15. An inlet pipe 16 leads from the source of fluid pressure (air, water, or steam) through a valve 17, beneath which is a T-coupling 18 where this inlet branches and leads thence outward and downward as at 19 and into the sides of the cylinders near their lower ends. It is obvious that when this valve 17 is open and the pet cocks are closed, the inrush of fluid pressure beneath the pistons will cause them to rise, and with them move the yoke; on the other hand, when the valve 17 is closed and the pet cocks are open, the pistons and yoke will descend under the weight of the hose or may be forced downward by admitting pressure at 15.

The suction hose H is connected by a coupling 20 with the lower end of a pipe 22 around which is secured a cup 23 which has around it a flat flange 24 adapted to rest upon the yoke. The pipe 22 is of a size to enter the notch 7, and its upper portion is preferably ground externally so as to make a close fit inside the sleeve 2, and the cup 23 may contain a gasket 25 for fitting against the lower end of said sleeve when it is drawn up against it. The yoke is provided with a plurality of holes 26, and the

flange 24 may have one such, numbered 260 in Fig. 1, any of which are adapted to be detachably engaged by the threaded lower ends of emergency screws 27 which extend loosely upward through holes 28 in the lower plate 1 and have eyes 29 at their upper ends adapted to engage hooks 30 depending from the upper plate 1, and the heads 32 of these screws are adapted to rest upon the lower plate when their threaded ends engage the holes in the yoke as dotted in Fig. 3. These heads are preferably made angular so that a wrench may be applied thereto to draw all parts into firm connection, to raise the yoke and with it the cup, and to cause the cup and its pipe 22 to make a close and water-tight connection at the lower end of the sleeve 2. The letter P designates a pipe connected by a coupling with the upper end of said sleeve and leading to a pump, or the pump barrel may be connected directly with said upper end if preferred.

The operation of this device is as follows: When the parts stand as seen in Fig. 2, the operation of the pump creates suction through the hose H and the water is constantly drawn out of the mine in the usual way. When now it becomes desirable to create a blast within the mine and it is necessary to withdraw the hose so that it will not be injured, the pet-cocks are opened and the yoke and hose should descend by gravity to the position shown in Fig. 1; but if not, fluid pressure is admitted through the pipes 13 to force the pistons downward, and the yoke moves by this pressure to the position therein shown. The cup 23 and its pipe 22 are then drawn forward out of the notch 7 in the yoke, and with the cup comes the hose H which may be lifted out of the mine. All this can be done very quickly, as there is no coupling or union to disconnect. After the explosion has occurred the hose is reinserted in the mine, the cup replaced within the notch so that its flange rests upon the yoke, the pet-cocks closed and the valve 17 opened, and the fluid-pressure causes the rise of the pistons and with them the yoke, which latter draws upward on the cup until it makes a close connection with the lower end of the sleeve, and the hose is therefore coupled to the latter. Its upper end being connected with the pump, pumping may then be resumed. If preferred the valve 17 may be left open so that fluid-pressure will hold the parts in this position, but if it is desired to hold them rigidly connected the screws are engaged with the yoke by simply disconnecting their eyes or rings from the hooks in the upper plate and letting them down and screwing them into the holes with which the yoke is provided for that purpose; and to make a very tight joint a wrench may be applied to the head of each screw and it can be turned until the gasket within the cup is

compressed against the lower end of the sleeve.

Unions 18' are preferably employed in the short pipes connecting the T-couplings 18 with the elbows of the feed pipes 19 whereby the T-couplings and the parts connected thereto may be readily detached from said feed pipes.

All parts are by preference of metal, and the proportion is about as shown although that is not necessary.

Changes in unimportant details may be made without departing from the principle of my invention.

What is claimed as new is:

1. The combination with an upright sleeve adapted to be connected at its upper end with a pump, cylinders at opposite sides of said sleeve, pistons therein, piston rods depending from these pistons through the lower heads of the cylinders, and connections for moving the pistons in either direction by fluid-pressure; of a yoke connecting the piston rods and having a notch in its front edge, a pipe removably engaging said notch and connected at its lower end with a hose, and a cup surrounding the pipe and adapted to make a tight joint with the lower end of the sleeve when it is elevated by the rise of said yoke.
2. The combination with two upright cylinders and an upright sleeve between them adapted to be connected at its upper end with a pump, and a frame inclosing these members and comprising spaced horizontal plates whereof the lowermost has holes through it and the uppermost has depending hooks; of pistons in the cylinders, rods depending from the pistons through the lower heads of the cylinders, a yoke connecting said rods and having a notch, a cup having a flange adapted to rest upon said yoke around its notch, the flange having threaded holes registering with those in the lowermost plate, a hose connected with said cup, and screws passing loosely through the holes in the lower plate and having threaded lower ends adapted to engage the holes in said flange and eyes at their upper ends adapted to engage said hooks for the purpose set forth.
3. The combination with a plurality of cylinders, a sleeve disposed between them and adapted to be connected at its upper end with a pump, pistons in the cylinders, rods depending from the pistons through the lower heads of the cylinders, and valved connections between a source of fluid-pressure supply and the extremities of the cylinders; of a yoke connecting the lower ends of said rods and having a notch in its edge, a hose, and a cup connected with its upper end and adapted to be raised by the yoke into contact with the lower end of said sleeve.

4. The combination with a plurality of cylinders, a sleeve disposed between them and adapted to be connected at its upper end with a pump, pistons in the cylinders, rods depending from the pistons through the lower heads of the cylinders, and valved connections between a source of fluid-pressure supply and the extremities of the cylinders; of a yoke connecting the lower ends of said rods and having a notch, a pipe adapted to make a ground-joint with said sleeve, a hose connected with the lower extremity of said pipe, a cup secured around the pipe and adapted to embrace the lower end of said sleeve, and a gasket within said cup.

5. The combination with a plurality of cylinders, a sleeve disposed between them and adapted to be connected at its upper end

with a pump, pistons in the cylinders, rods depending from the pistons through the lower heads of the cylinders, and valved connections between a source of fluid-pressure supply and the extremities of the cylinders; of a yoke connecting the lower ends of said rods, a hose, a cup connected with its upper end and adapted to be raised by the yoke into contact with the lower end of said sleeve, and means for positively supporting said cup when it is raised into connection with said sleeve.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE M. KESSLER.

Witnesses:

HARRY U. DOERING,
JOSEPH S. CARY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."