I. PODOBIEDOFF.

APPARATUS FOR WASHING WITH SLIME THE BORE END OF A WELL.

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1,240,776.

Patented Sept. 18, 1917.

Fig. 1.

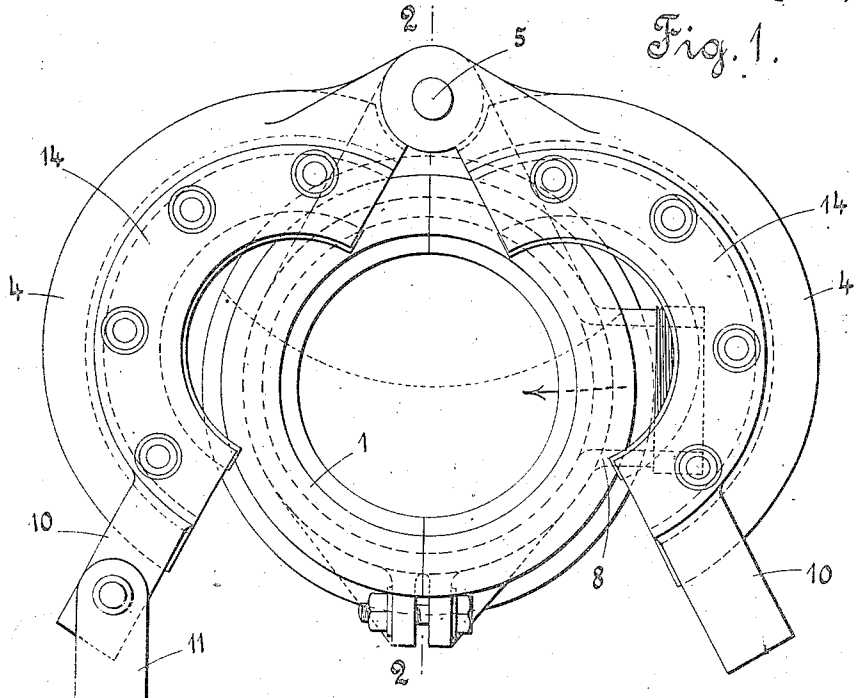
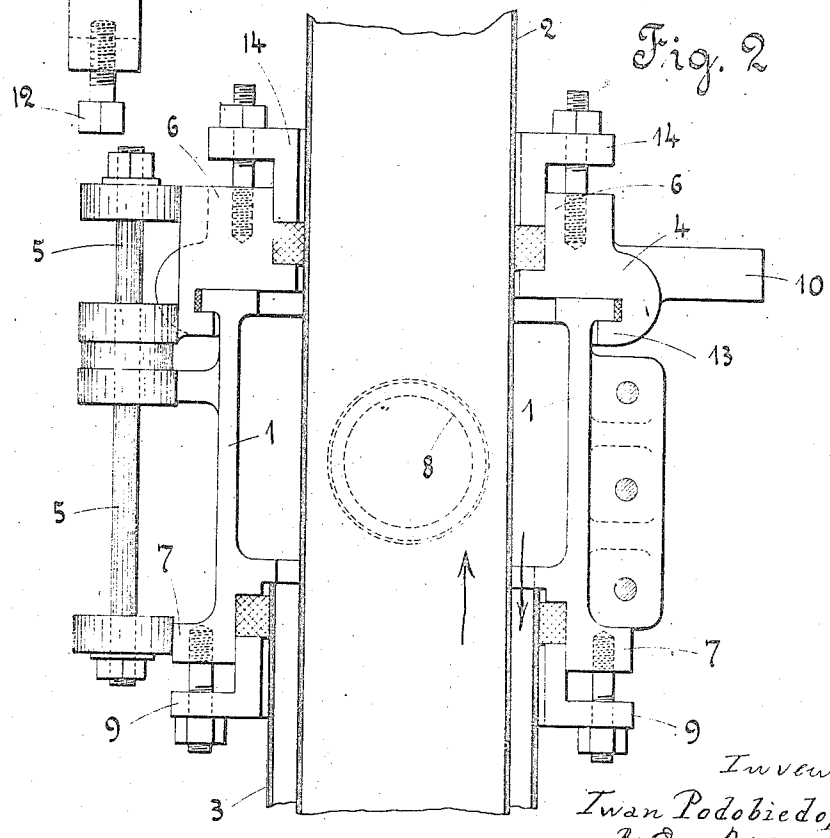


Fig. 2



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UNITED STATES PATENT OFFICE.

IWAN PODOBIEDOFF, OF PETROGRAD, RUSSIA.

APPARATUS FOR WASHING WITH SLIME THE BORE END OF A WELL.

1,240,776. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed February 2, 1916. Serial No. 75,750.

To all whom it may concern:

Be it known that I, IWAN PODOBIEDOFF, subject of the Czar of Russia, residing at Chornaia Retchka 49, Petrograd, Russia, have invented certain new and useful Improvements in Apparatus for Washing with Slime the Bore End of a Well, of which the following is a specification.

My invention relates to a new apparatus for washing with slime the bore-end of a well, applicable to rope, rod or other systems of boring.

The method of washing the well with my improved apparatus differs essentially from that usually followed, in that the movement of the washing liquid is in a reverse direction to that which it ordinarily takes, viz: the slime is delivered by the pump not into the inner or working pipe of the apparatus, but into the annular space between the working pipe and the outer or conducting pipe (if such has been sunk). The slime therefore descends outside the working pipe, first in the space between the outer and inner pipes and then between the ground and the latter. Having reached the bore-end and washed same, the slime, forced under proper pressure, passes through the chisel inside the inner or working pipe, rises along it to the top, flows over its edge into a trough directing it to the slime shed for setting and is then returned to the well and again used for washing.

The drawing presented herewith illustrates a preferred embodiment of an apparatus for carrying out the method set forth above. Figure 1 shows a top view of the apparatus. Fig. 2 is a sectional elevation, the section being taken on the line 2—2 of Fig. 1.

The hood 1 serves to supply the washing liquid (the slime and sometimes water) to the annular space between the inner and outer pipes. This hood is mounted on the inner pipe 2 below the collar supporting it and engages the upper edge of the conducting (or previously sunk) outer pipe 3 with its lower edge. The hood 1 and its cover 4 are divided into two halves adapted to be opened by rocking on a common hinge pin 5, so that they may be mounted on the inner pipe or dismounted therefrom without interfering with the latter. The washing slime is introduced into the hood 1 through its side branch 8, connected by means of a hose-pipe with a suitable pump. The body of the hood 1 is of cylindrical form and as above stated, opens on a hinge in two halves, the side of the hood opposite the hinge being provided with lugs, which are fastened together by small threaded bolts or screws when the hood is put in place. The lower edge of the hood is of such form that when the hood halves are screwed together and mounted in place on the end of the conducting pipe projecting from the well (or on the end of the last guide pipe sunk), a kind of tightening stuffing-box 7 is formed around the latter, where rubber or other resilient packing is inserted and compressed by the bush 9 which also consists of two halves for convenience in mounting. By tightening the bush a somewhat resilient tight connection of the hood to the pipe will be attained. On the opposite side from the hinge both halves of the cover have projecting lugs 10, 10. On one of them a pivoted latch 11 is fastened, which serves to lock the cover, for which purpose, after the halves of the cover have been closed, it is swung over the projection 10 of the other half and presses both halves together firmly by a screw 12. At its bottom edge the cover is formed with an in-turned flange 13, which fits tightly around the upper flange of the hood 1. Semi-circular recesses, forming a round opening when the cover is closed, are left for the working pipe in the halves of the cover 4, the diameter of this opening being slightly greater than the diameter of the working pipe, so that curvature or other like defect of the latter will not prevent the closing of the cover. For tightness, a similar kind of stuffing-box 6 with a similar resilient packing is arranged on the cover 4, as at the bottom of the body of the hood 1, and the bush 14 and the packing itself are divided diametrically into two halves and each is independently fitted and mounted on its half of the cover, also remaining on it in such assembled state when opened. Thus in closing the cover it is sufficient to close its two halves, move the latch 11 into place and press both halves together by the locking screw 12. At the same time the cover will grasp the hood simultaneously with its lower flange and will also grip the working pipe firmly with its packing. In the case of insufficient tightness of the bearing of the latter and the leakage of slime, it will only

be necessary to tighten the bushing 14 still more, which can be carried out while working.

Such a method of supplying washing liquid, the latter being caused to move in the direction mentioned above, leaves the working pipe altogether free, open and accessible the whole time for boring according to any system now in use, *i. e.* rope, rod and even rotative methods. At the same time the washing may be effected (with slime or water, as the case may be) without stoppage, altogether independently of the boring work. The stoppage of washing is only required when lowering a new section of the working pipe, as the well becomes deeper, for even during the riveting on of a new section of pipe to the working pipe the washing need not be stopped and a stoppage has only to be made while the working section is actually being lowered; for which purpose it will be necessary to open the cover 4 of the hood 1 in order to free the column and, when the section has been lowered and placed on its collar, the hood cover may be closed again and the washing resumed. With the arrangement of the hood cover as described above not more than three to five minutes will be required for opening the cover and for closing it and tightening the screw 12.

What I claim is:

In a well-washing apparatus, the combination with spaced working and conducting pipes arranged one within the other, of a hood mounted on the upper end of the outer pipe and divided into two halves, said hood communicating with the annular space between said pipes and being connected with a source of washing liquid under pressure, a hinge pin about which both the hood halves may be swung, packing between the hood and the outer pipe, a bushing associated with said packing for compressing the same, a cover divided into two halves swinging about the said pin and provided with a similar packing and a lower inwardly projecting rim adapted to engage the flanged upper edge of the hood, and means for fastening together the halves of the cover and the halves of the hood, respectively.

In testimony whereof I affix my signature.

IWAN PODOBIEDOFF.

Witnesses:

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