(No Model.)

W. V. HARDMAN.

COMBINED CASING CAP AND TUBING TESTER AND CLEANER.

No. 343,239. Patented June 8, 1886.

Fig. 1.

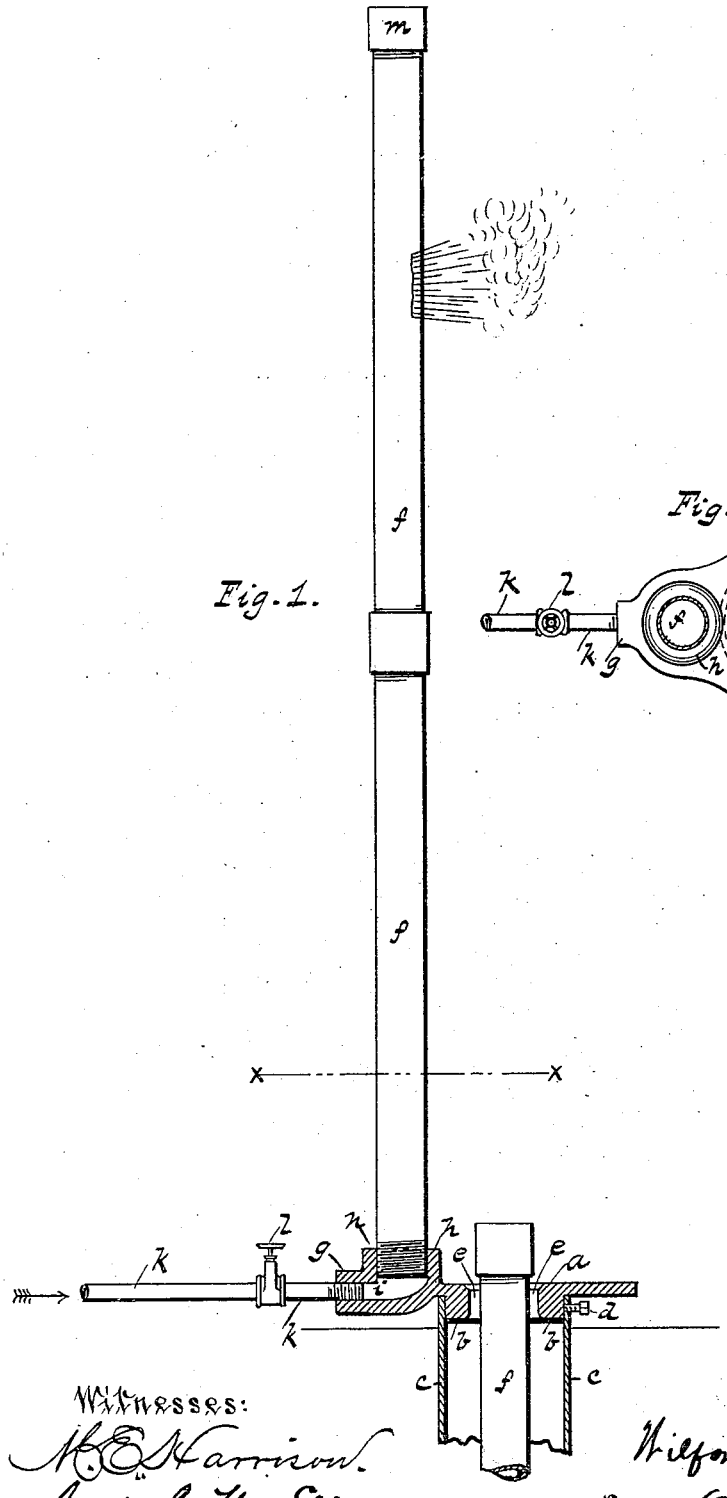
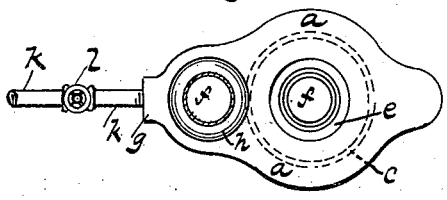


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILFORD V. HARDMAN, OF BUTLER, PENNSYLVANIA.

COMBINED CASING-CAP AND TUBING TESTER AND CLEANER.

SPECIFICATION forming part of Letters Patent No. 343,239, dated June 8, 1886.

Application filed March 12, 1886. Serial No. 195,036. (No model.)

To all whom it may concern:

Be it known that I, WILFORD V. HARDMAN, a citizen of the United States, residing at Butler, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in a Combined Casing-Cap and Tube Tester and Cleaner; and I do hereby 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in a combined casing-cap, tube tester, and cleaner, the objects being to provide a means whereby the tubes of an oil or gas well may be tested to detect leakage; also, to provide a means for cleaning the same, and, further, to combine the foregoing with the casing-cap of the well; and with these ends in view my invention consists in a metallic cap provided with a flange on the under side constructed to fit neatly into the casing of an oil-well, a circular opening through the center of the same to admit or withdraw the tubing, and two projecting bosses placed at right angles to each other, into one of which the tubing is secured either to clean or detect leakage, the other being permanently attached to a steam-pipe and in communication with that before described, as will be more fully described hereinafter.

In the accompanying drawings, Figure 1 is a sectional elevation of my improvement, showing the manner of attaching the same to the casing of an oil-well. Fig. 2 is a sectional plan view of the same on the line *x x*.

To put my invention into practice, I construct a cap, *a*, provided with a flange, *b*, on the under side of a diameter equal to that of the casing *c* of the well over which it is placed. A suitable number of set-screws, *d*, through the casing *c* provides a means for securing the cap *a* in place. A circular opening, *e*, of somewhat greater diameter than the tubing *f* of the well, is formed in the center of the cap *a*, through which the tubing *f* may be readily withdrawn or lowered into the well. On one end of the cap *a*, I form two projecting bosses, *g h*, or enlargements, at right angles to each other, with a short communicating passage, *i*. Into one of these projecting bosses, *g*, I permanently secure a steam-supply pipe, *k*, provided with a valve or cock, *l*, for regulating and controlling the flow of steam. Into the other boss, *h*, the tubing, *f*, to be tested or cleaned is secured in a vertical position.

When it is desired to clean the tubing of an oil-well provided with my improvement, I withdraw several sections of the tubing *f* and secure the same in the projecting boss *h*. Steam is admitted into the sections *f* through the supply-pipe *k* by opening the valve or cock *l*, and the steam, rushing with great velocity through the tubing, cleans and carries all foreign matter out of the top. This section is now detached and another put in place. If, however, the tubing *f* is to be tested to detect leakage, I secure the same as before described and attach a cap, *m*, to the top, which confines the steam from the supply-pipe *k*, and shows the defects, if any, by escaping.

The advantage of having an arrangement for testing the tubing within a short distance of the opening *e* of the cap *a* is, when several lengths of the tubing *f* are withdrawn from the well, the threads of the same may be easily entered into the boss *h* without injury thereto, the tubing being in a vertical position.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination with the casing of an oil or gas well, a cap provided with a downwardly-projecting flange for securing the same to the casing, a circular opening for withdrawing or lowering the tubing into the well, a steam-supply pipe attached to one end of the cap provided with a valve or cock for regulating and controlling the supply of steam, and a means whereby the tubing may be attached to the cap and in communication with the steam supply pipe, as and for the purpose described.

2. An oil-well-casing cap provided with means for attachment to the casing of an oil well, and having a circular opening to admit or withdraw the tubing, a steam-supply pipe attached to one end of the cap, a valve or cock for regulating and controlling the supply of steam thereto, a projection provided with a screw-thread for connecting the same with the tubing, and a short passage communicat

ing with the steam-supply pipe, substantially as set forth.

3. An oil-well-casing cap, tube tester, and cleaner combined, consisting of the cap *a*, provided with a flange, *b*, for attachment with the casing *c*, the opening *e*, and projections *g h*, placed at right angles to each other, having a short communicating passage, *i*, as and for the purpose described.

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