G. KOCH.

Casing for Oil-Wells.

No. 208,610. Patented Oct. 1, 1878.

Fig. 1.

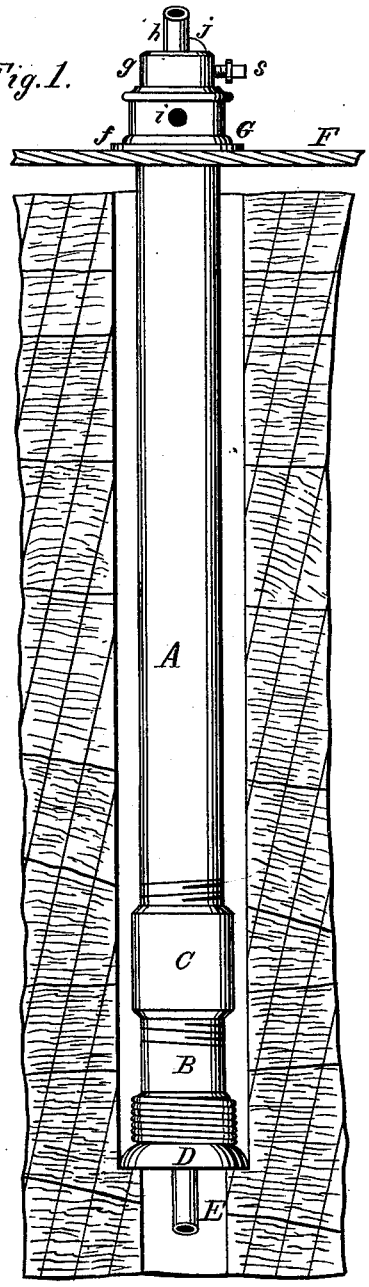
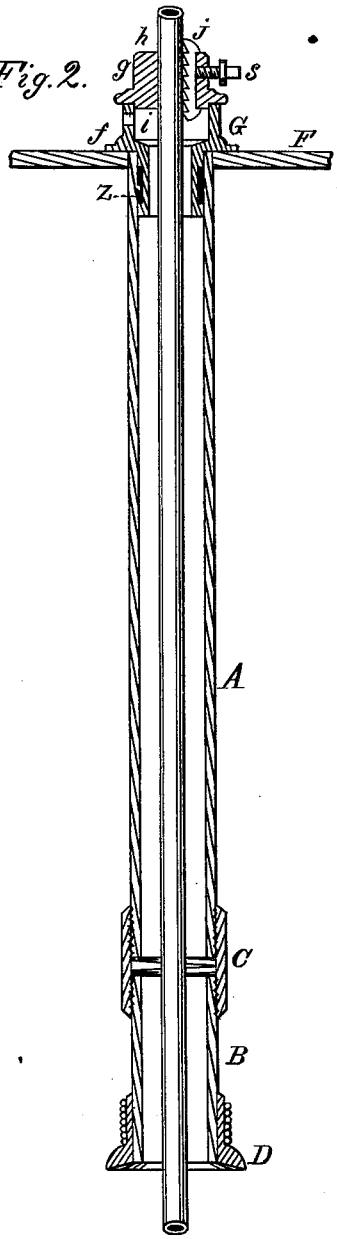


Fig. 2.



WITNESSES

Villette Anderson.

Geo. C. Poulton

INVENTOR

George Koch,

by E. W. Anderson.

ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE KOCH, OF ST. PETERSBURG, PENNSYLVANIA.

IMPROVEMENT IN CASINGS FOR OIL-WELLS.

Specification forming part of Letters Patent No. **208,610**, dated October 1, 1878; application filed March 31, 1877.

To all whom it may concern:

Be it known that I, GEORGE KOCH, of St. Petersburg, in the county of Clarion and State of Pennsylvania, have invented a new and useful Improvement in Casings for Oil-Wells, which invention will be readily understood from the following description, taken in connection with the accompanying drawing, wherein—

Figure 1 represents a vertical section of an oil-well, showing my improved casing therein; Fig. 2, a vertical transverse section of the casing and all the parts comprising my invention.

The first part of my invention consists in such a construction and combination of a packing with the outside lower end of an oil-well casing-tube that the packing shall not only surround a certain portion of such tube, to which it is firmly affixed, but extend downward beyond its end, so as to rest upon a shoulder or offset found in the rock, and seat itself thereon in advance of the tube, by which a perfectly water-tight joint between the two is easily effected.

It also consists in the construction and novel arrangement of parts, as will be hereinafter shown and described.

In the drawing, representing an oil-well, is placed a tubular casing, A, that may be made in several sections, screwed together, and which united correspond to the depth of casing required, after the manner of those already in use. Attached to and near the bottom of this casing is a short piece of tubing, B, of the same diameter—in fact forming simply a continuation of the main line—which short piece is secured to its immediate upper tube, A, by means of a left-hand screw, that engages with a correspondingly-shaped thread cut on the inside of a union-socket, C, the upper part of which is in like manner provided with a right-hand screw, connecting it with the main tube or casing A. Surrounding the lower part of this short tube is a gum-elastic packing, D, secured thereto by a wrapping of wire or stout cord, which packing is made to extend a short distance below the extreme end of the said tube, so that when lowered in the well it will come in contact with and seat itself on the rock E somewhat in advance of the descending tube, and through its flexibility comply with the inequalities of the rock, and thereby make a perfectly water-tight joint, after which all the water may be pumped out and the operation of drilling into the rock proceeded with without further interference or delay.

For reasons not necessary to specify, the withdrawal of the casing from the well is often required, and as the casings heretofore in use make that very difficult, partly owing to their construction and partly to an accumulation of earthy matter around and above the lower end, the severance of the tube by cutting it off some distance above its lower end is often resorted to as a means of releasing the main portion of the tube, which accomplished the remaining portion is removed after the manner known to oil-well drillers.

By having the lower portion of the casing short, and united to the upper tube by means of a right-and-left-hand screw-socket, as described, the parts, if necessary, may be readily detached, the one from the other, and when the upper portion is removed the short piece B may be easily dislodged from its seat, and brought to the surface by such means as are found in practice most convenient, thus obviating the necessity of cutting or otherwise mutilating the pipe.

The top of the cylindrical casing extends up and just through the derrick-floor F, and is fitted with a circular head, G, that is made to slide some distance into the casing, and is supported thereon by means of an outside overhanging flange, *f*.

Between the casing and its head such packing *z* may be used as will prevent any escape of gas in that direction, and yet allow the head to slide upward, should the pressure be great, and it often becomes great enough to move and lift the entire casing where the head is screwed or otherwise fastened to it.

For conveying the accumulated gas to any desirable distant place, a hole, *i*, is made through the side of the head, from which pipes may be led for that purpose.

On top of the head just described is placed a tightly-fitting cap, *g*, through the center of which is lowered the pump-tube *h*, which tube may be caught, securely held, or released for proper adjustment at any desirable point by

the toothed gib *j* and its appropriate pinch-screw *s*.

Having stated the nature of my invention, I claim—

1. In combination with an oil-well casing-tube, A, the gum-elastic packing D, so constructed and applied to the bottom thereof that said gum packing shall not only reach for a distance up and around the tube, but shall extend for a short distance below it, so as to seat itself upon the rock somewhat in advance of the descending tube, and thereby make a perfectly water-tight joint, substantially as and for the purposes set forth.

2. The combination, with an oil-well casing and its lower detachable section, B, having an elastic bearing, D, extending beyond its lower edge, of the right and left threaded union C, connecting the casing and its lower section, substantially as specified.

3. The detachable shouldered casing-cap *g*, in combination with the binding-gib *j* and pinch-screw *s*, substantially as specified.

GEORGE KOCH.

Witnesses:
JOHN LERAH,
ARON KOCH.