

W. R. EDELEN.

Casing-Head Cap for Oil and other Wells.

No. 221,162.

Patented Nov. 4, 1879.

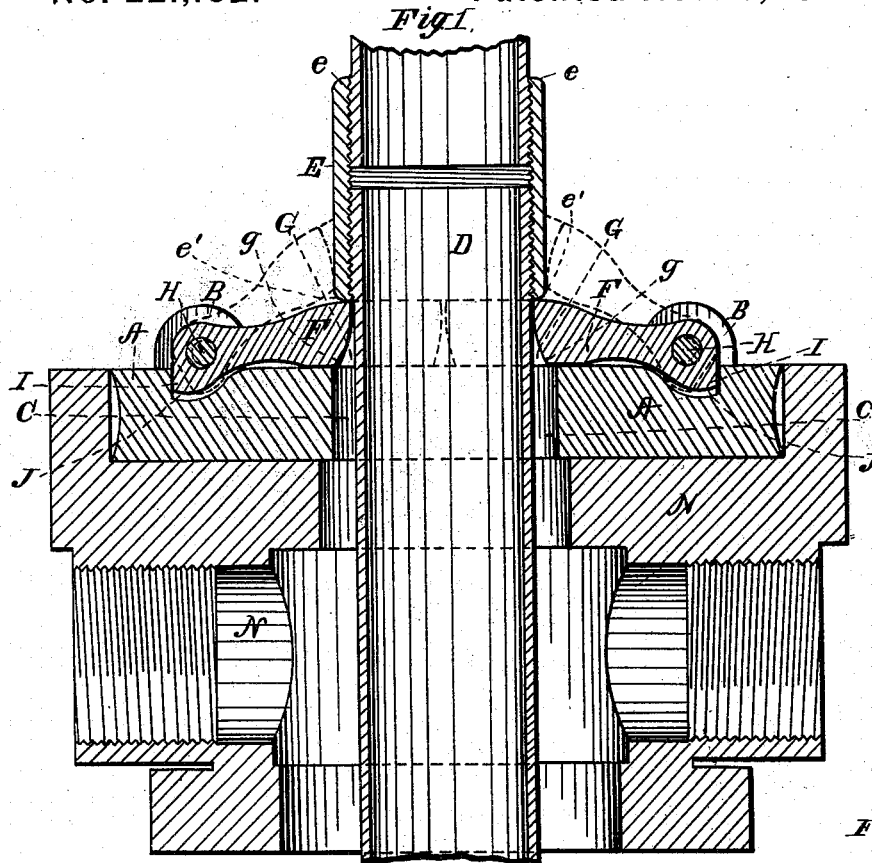
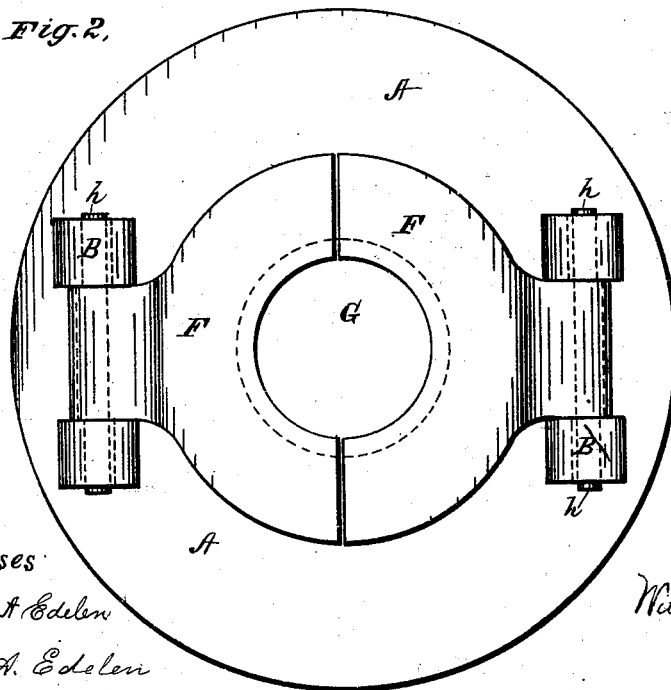


Fig. 2.

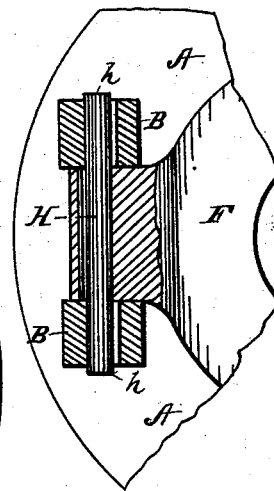


Witnesses

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Fig. 3.



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Fig. 6.

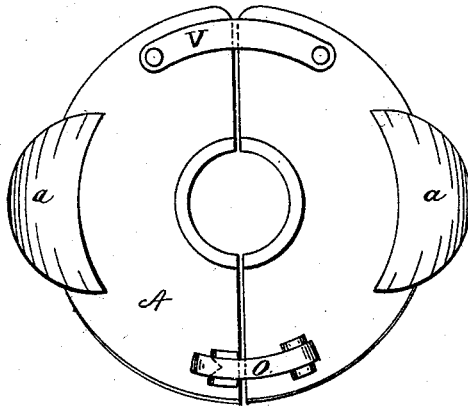


Fig. 7.

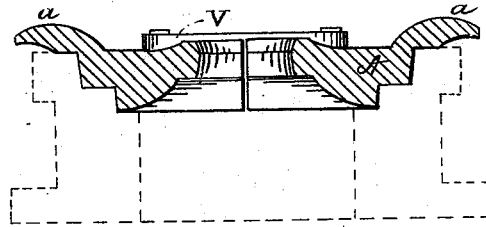


Fig. 4.

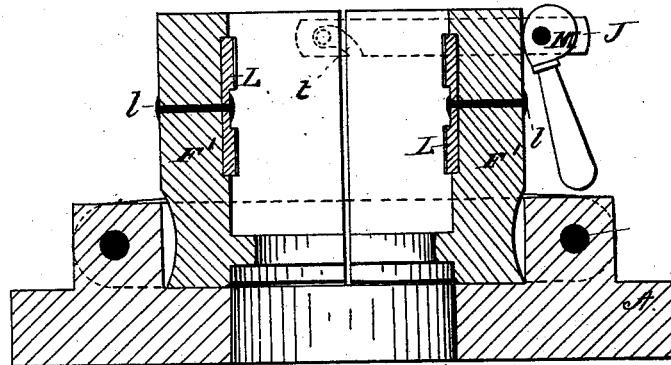
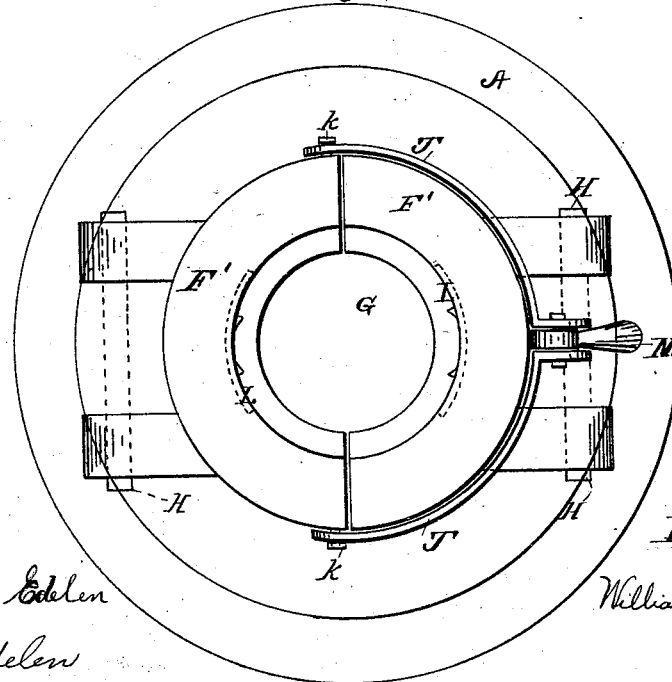


Fig. 5.



Witnesses.

Alice A Edelen

M. A Edelen

Inventor

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UNITED STATES PATENT OFFICE.

WILLIAM R. EDELEN, OF OIL CITY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
OF HIS RIGHT TO BENJAMIN F. BRUNDRED, OF SAME PLACE.

IMPROVEMENT IN CASING-HEAD CAPS FOR OIL AND OTHER WELLS.

Specification forming part of Letters Patent No. **221,162**, dated November 4, 1879; application filed
August 9, 1879.

To all whom it may concern:

Be it known that I, WILLIAM R. EDELEN, of Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Casing-Head Caps for Oil and other Wells; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to caps or tops for casing-heads which are used in connection with a derrick for supporting the tubing in an oil-well.

The devices heretofore employed for this purpose are varied in construction, and some of them are inconvenient in operating, and dangerous to persons and to the interests of well-owners. Among these devices are clamping-jaws hinged to a perforated head-plate at such an angle as to have its impinging edges made to indent the tubing at any place of its length; but with such jaws the tubing cannot be lowered in the well without first turning them out of the way, and rendering them useless in case of accidental slipping of the tubing, and even while in position for action, any sudden fall of the tubing will cause them to engage thereupon with such force as to collapse the latter.

The object of my invention is to attach to a casing-head a simple safety device provided with hinged trap-doors or jaws to automatically close under the connecting-thimbles of tubing and sustain the latter at that point.

My invention consists of a plate or cap provided with a central circular opening of sufficient size to allow the thimbles or couplings which connect the various joints of tubing together to pass through, in connection with one or more hinged jaws, which are adapted to project horizontally over the central opening of said cap and encircle the whole or a portion of the circumference of the tubing under its thimble without necessarily impinging upon it; and it consists, also, in the mode of securing these jaws to ears, which are, preferably,

cast solid with the cap or plate, and in providing the hinged ends of these jaws (preferably under the hinge-pins) with lugs or projections, which enter depressions formed in the caps, and receive the entire outward thrust or strain, if any, thus relieving the pins from all pressure, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a vertical section of my improved cap placed in a casing-head, and supporting tubing by means of the coupling or thimble resting upon the jaws of the cap, as shown in full lines, and also shown elevated in dotted lines. Fig. 2 is a top view of the cap, exhibiting the contour of the jaws and the ears for retaining the same. Fig. 3 is a top view of a portion of the cap with the hinge broken away, showing the hinge eccentric-pin in plan. Fig. 4 is a section of a modification, having the bisected jaws in the form of a cylinder. Fig. 5 is a top view of the same. Fig. 6 is a top view of another modification, showing a cap bisected and provided with a hinge and latch, and also with handles. Fig. 7 is a vertical section of the last-mentioned device, represented as placed in a casing-head. (Shown in dotted lines.)

The plate or cap A is secured to a casing-head, N, by any ordinary means, and may rest on a rubber gasket to prevent the escape of gas thereunder. It is provided with ears B, which are cast with and form part of said plate. The cap is provided with a circular opening, C, of such size as to allow the string of tubing D, with its thimbles E, which connect the various lengths of said tubing together, to pass through. Secured between these ears B are hinged jaws F, which extend toward the center of plate A, and form a circular opening, G, the top of said opening being slightly larger than the tubing. The lower part of the opening is preferably flaring, at g, outwardly from the tubing, to allow the latter free passage when elevating it, as the jaws are raised, when the thimble is passing through, about thirty degrees, as shown by dotted lines in Fig. 1.

The edges of the opening G formed between the jaws overlap the opening C in plate A to about the extent of the thickness of the metal

of the thimbles. These jaws are secured to the ears by means of pins or bolts H. Said pins have their ends *h* preferably eccentric to the body of the pin, which prevents them from being driven out accidentally or by malicious persons, while the weight of the tubing is supported by the jaws, as shown in Figs. 2 and 3. These hinged jaws are also provided at their hinged end and on their under side with lugs I, which enter depressions J in the plate A, the outer side of said depressions forming bearings for the lugs to receive all the thrust or strain, if any, occasioned by the tubing, thus relieving the pin from all strain or pressure.

The modification shown in Figs. 4 and 5 is essentially the same as the device shown in Figs. 1 and 2, with the exception of the vertical bisected cylindrical jaws F', which are higher, and provided with clutches L, secured by rivets *l*. These jaws are drawn together by means of the tightening-strap T, through the medium of the eccentric-lever M, said strap being secured to the jaw by means of a hook, *t*, formed on each end of the strap, engaging with a pin, *k*, projecting from the outer face of one of the jaws.

The modification shown in Figs. 6 and 7, Sheet 2, is a similar device for retaining the tubing, but having the cap or top bisected, and preferably provided with a hinge, V, and a latch, O, of any desired form. The top is also provided with projecting handles *a*, for lifting it out of the head when desired.

Operation: In drawing tubing from an oil-well, the upper end of the thimble *c* strikes against the under side of the jaws at *g*, and raises said jaws, as shown in dotted lines in Fig. 1. They remain in this position until the thimble has passed through, when they close by gravity under the thimble, and the tubing is slightly lowered until the lower end of the thimble, at *c'*, comes in contact with the closed jaws or with the tubing-elevators, which may be placed upon the jaws while the tubing is being detached from the thimble with tongs in the ordinary manner; and this operation is repeated until all the tubing is removed from the well.

In lowering tubing it is only necessary to throw the jaws open before passing the thimble, and close them after against the tubing, which will slide easily through said jaws until the under side of the thimble comes in contact, when the next piece of tubing is connected thereto, and the operation repeated until the entire tubing is in the well, the last thimble resting on the jaws and remaining so until it is necessary to withdraw the tubing again.

The old style of securing tubing is with clamps under the thimbles. The two halves of said clamps are united on the side with a bolt and nut, which keeps them from spreading open, and thus prevents the tubing from dropping down the well. With this old device any malicious person can remove the nut

and drop the tubing down the well, which would cause considerable loss of time, and damage, perhaps ruin, the well.

With my improved automatic caps there is no danger of dropping the tubing into the well, as it is held in position by the weight of tubing, which could not be raised without the aid of the engine; and as it is self-acting in engaging under the thimble, it is obvious that in case the tubing would slip, the jaws would arrest it at the next thimble; and I am not acquainted with any device by which this has been accomplished. A solid ring has been used for the purpose, but it presents still more serious objectionable features. The danger with it is in removing and replacing it under the thimble, and it is a very awkward operation to perform, as the thimbles are never removed from the upper end of the tubing, but the tubing is detached from the thimble next below, always leaving a thimble at the upper end of the tubing.

With my invention this ring is entirely dispensed with when raising or lowering tubing, and the elevators can rest on top of the casing-head cap.

Having now fully described my invention, I claim—

1. A cap or top for a casing-head, having self-acting hinged jaws, adapted to drop horizontally under the thimbles or couplings of a string of tubing and sustain them independently of side pressure against the tubing, substantially as shown and described.

2. A cap for a casing-head, provided with jaws having lugs or projections under the hinge-pin, adapted to rest against stationary shoulders or in recesses of the cap, and receive the thrust from the jaws independent of the pin or bolt of the hinge, as shown and described.

3. A casing-head cap bisected, and having jaws preferably flaring under the thimble-sustaining edge, and forming a divided ring adapted to rest horizontally under the collar or thimble of tubing, as shown and described.

4. A casing-head cap having jaws F hinged to ears B on said cap by pins or bolts H, having their ends *h* eccentric to prevent the same from being driven out when supporting a string of tubing, substantially as shown and described.

5. A casing head or top provided with bisected cylindrical jaws F' and internal clutches, L, in combination with a tightening-strap, T, and eccentric lever, as shown and described.

6. A bisected top or cap provided with a hinge, V, and latch O, and handles *a*, in combination with a casing-head, as shown and described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM R. EDELEN.

Witnesses:

ALICE A. EDELEN,
MARY A. EDELEN.