

No. 651,679.

Patented June 12, 1900.

G. F. TAIT.

CASING HEAD FOR OIL OR ARTESIAN WELLS.

(Application filed Jan. 22, 1900.)

(No Model.)

Fig. 1.

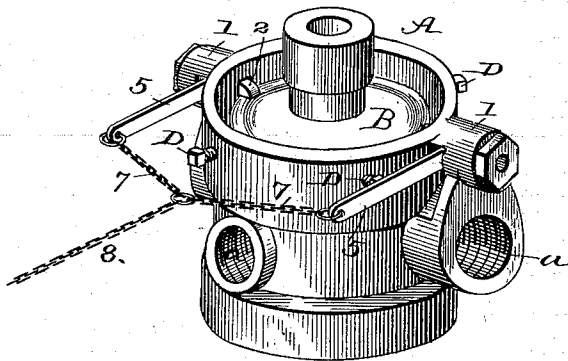


Fig. 2.

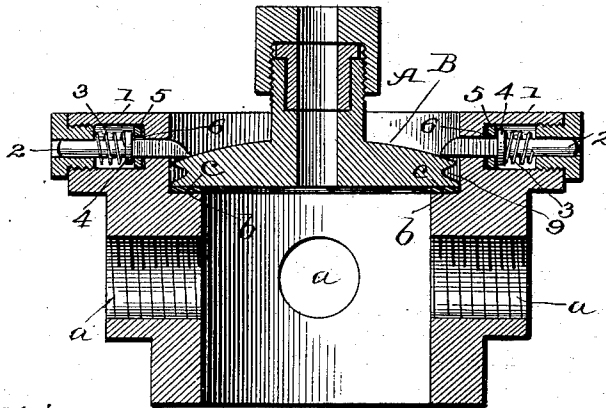


Fig. 3.

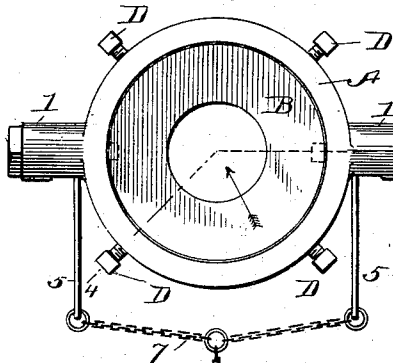
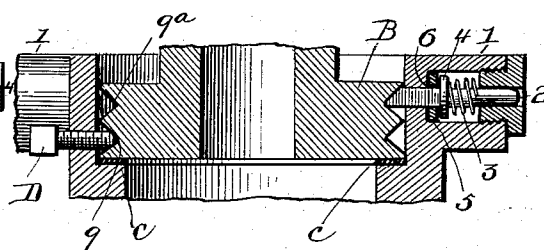


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CASING-HEAD FOR OIL OR ARTESIAN WELLS.

SPECIFICATION forming part of Letters Patent No. 651,679, dated June 12, 1900.

Application filed January 22, 1900. Serial No. 2,353. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. TAIT, a citizen of the United States, residing at McDonald, in the county of Washington, State of Pennsylvania, have invented certain new and useful Improvements in Casing-Heads for Oil or Artesian Wells; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a casing-head embodying my invention. Fig. 2 is a vertical central section of the same, taken through the yielding dogs or catches which hold the cap in position. Fig. 3 is a plan view of a modified form of the casing-head and cap; and Fig. 4 is a sectional view of the modification on the dotted line 4 4, Fig. 3.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of that class of devices termed "casing-heads" employed for closing the upper end of the casing or outer tubing of artesian and oil wells and for supporting the inner or pumping tube, and has for its objects to facilitate the removal and to expedite the application of the "cap" to the casing-head at all times, and especially when, as in drilling, a crevice is struck or from any cause the well suddenly commences to gush or flow. The common practice at present is to secure the cap to and in position on the casing-head by a series of jam or set screws inserted through the walls of the casing-head and which take over the inclined upper surface of the cap, thus forcing the cap down on the packing-ring which is supported on an annular shoulder or ledge within the casing-head. This, while effective, is a slow and troublesome method of securing the head, and in case of flowing wells or those which flow or gush suddenly while drilling results in much loss or waste of the product, as well as attendant inconvenience and danger. To overcome these several objections to casing-heads as at present constructed, I combine with the casing-head and its detachable cap a series of yielding dogs adapted to automatically recede to admit and

advance to clutch and retain the cap when applied, and such a construction embodies the main feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates a casing-head which may be of any approved form and provided with the usual gas-outlets (see *a*, Fig. 1) and with the usual annular ledge or shoulder *b* on its interior for the reception of the cap B and an interposed gasket or packing-ring *c*; and at the usual points just above said ledge *b* the casing-head may be provided with set-screws D for the final securing of the cap to the casing-head. To the above-noted extent the casing-head is of well-known construction, and as the same involves no part of the present invention may find its equivalent in any approved form of casing-head.

At suitable intervals around the casing-head I provide dog or latch pockets 1 for containing yielding dogs or latches 2, arranged to project into the casing-head over the annular ledge or cap-seat *b*, and preferably said dogs or latches are yieldingly supported and projected by suitable springs 3 within the pockets 1, the dogs or latches being at such distance above ledge *b* as either to take over the casing-cap B at its periphery (see Fig. 2) or into a peripheral groove thereon, (see Fig. 4,) as the case may be.

The dogs or latches 2 are preferably in the form of sliding bolts, each encircled by a spiral spring and provided with a collar 4, which forms one bearing for the spring 3 thereof and also acts as a bearing for a lever-handle 5, having an eye 6, through which the stem of the dog or latch 2 passes, and by means of which lever the dog or bolt may be withdrawn to release the cap B. In order to simultaneously withdraw the several dogs or latches 2, the levers 5 may be coupled by a coupling-chain 7, with which a draft-chain 8 is connected.

The casing-cap B may be of any approved form and provided with a single peripheral

groove 9 to receive the points of the set or binding screws D, (see Fig. 2,) or it may have a plurality of peripheral grooves 9 9^a, one of which receives the yielding dogs 2 at the instant the cap B is applied to the casing-head A, while another subsequently receives the points of the set-screws D as the same are screwed home to ultimately secure the cap B to the casing-head.

10 The construction being substantially such as hereinbefore pointed out, the devices will operate as follows: In case a crevice is struck while drilling and the well begins to gush or flow, the dogs or latches 2 are simultaneously withdrawn to release the cap through which the drill-cable passes (the set-screws having been previously withdrawn, if used) and the cap, drill-cable, &c., removed, whereupon the cap intended for use with the pumping-tubing (or a closed cap, if desired) is applied and forced to its seat *b* in the casing-head, the dogs or levers automatically receding to admit and advancing to clutch the cap, thus effectively holding it in position in the casing-head and preventing loss or waste of the product. Subsequently and at leisure the set-screws may be adjusted to more securely hold the casing-cap. In like manner the casing-cap may be removed, replaced, or another substituted without material loss of time or well product.

It will be evident to a skilled mechanic that an alternative construction may be adopted, if desired—that is to say, the yielding dogs may be mounted on the casing-cap and the grooves with which the ends of the dogs engage may be formed on the interior of the casing-head above the cap-seat *b* without departing from the spirit of my invention or the scope of the claims hereinafter made; but such a construction is not recommended, as means for simultaneously withdrawing the

dogs to release the cap could not be as conveniently applied and operated.

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

1. The combination with a casing-head, of a series of yielding dogs mounted thereon and which normally project into said casing-head, of a detachable casing-cap, substantially as and for the purposes specified.

2. The combination with a casing-head having a cap-seat or ledge in its interior, of yielding dogs arranged to project into the casing-head over said cap-seat, and a detachable casing-cap, substantially as and for the purposes specified.

3. The combination with a casing-head, of yielding dogs arranged to project into said casing-head, means for simultaneously retracting said dogs, and a detachable casing-cap, substantially as and for the purposes specified.

4. The combination with a casing-head, of spring-pressed dogs arranged to project into said casing-head, a detachable casing-cap, and coupled levers adapted to simultaneously retract said dogs to facilitate the application and removal of the casing-cap.

5. The combination with a casing-head having set-screws for securing the casing-cap, of a casing-cap having a groove in its periphery to receive the set-screws of the casing-head, and yielding dogs for confining the cap to the casing-head, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 17th day of January, 1900.

GEORGE F. TAIT.

Witnesses:

T. W. LANGSTON,
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