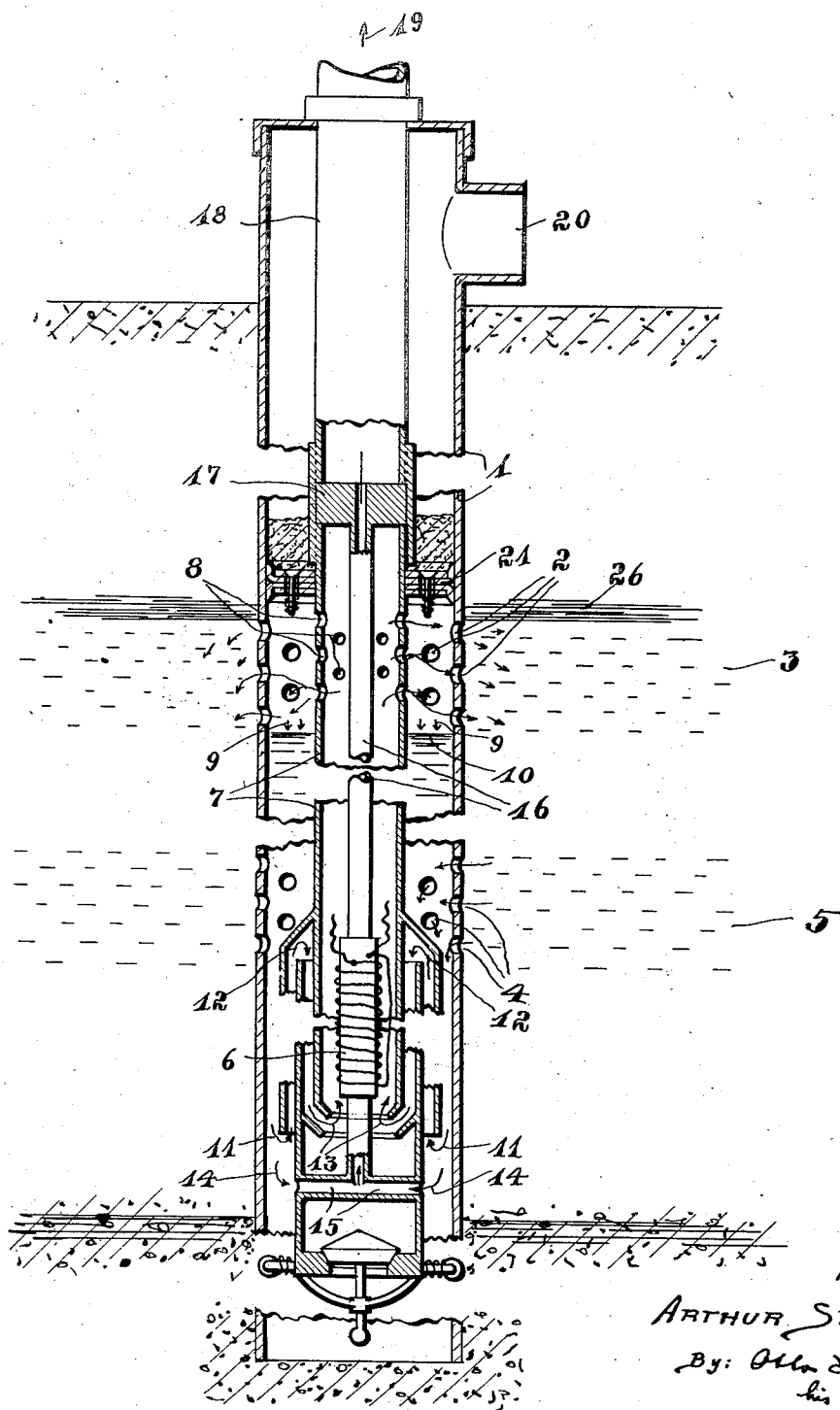


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OIL EXTRACTING DEVICE

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OIL EXTRACTING DEVICE

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This invention relates to devices adapted to cause a rising of oil and related products from the ground.

One of the objects of this invention is to provide a heating apparatus designed to be disposed in a well near the level of oil or near a strata from which certain products are to be brought to the surface, the apparatus being particularly designed to produce a pressure medium by which products can be caused to rise to the surface.

Another object is to artificially create a condition of pressure within the ground similar to naturally existing conditions in so-called gushers.

Another object is to provide an apparatus with a partition by which a pressure medium created in the well can be retained below this partition to act upon the top of matter that is to be brought to the surface, the apparatus having also means by which such matter can escape from a point below the pressure zone.

Other objects will appear from the following description and appended claims as well as from the accompanying drawing, in which—

The figure is a vertical midsectional view of a deep well casing having an apparatus inserted therein and being designed to operate according to this invention.

Certain features and details referred to in this application relate to matter and details to some extent fully and otherwise partly disclosed in my copending application, filed March 17th, 1930, Serial Number 436,436, now Patent No. 1,820,291, August 25, 1931.

As disclosed and illustrated in the accompanying drawing the outer casing 1 is provided with perforations 2, designed and arranged to come within a suitable strata 3, while other perforations 4 are provided to reach into the ground into the strata indicated at 5.

A heating element 6 is disposed and designed to evaporate matter in the ground and develop a suitable pressure to be discharged into the ground adapted to cause a rising of oil from the ground to the surface, either through the casing 1 or through any suitable

member inserted through the casing into the ground.

Inasmuch as any oil coming into contact with the heating element must previously have entered the inner tubing 7, the evaporated or heated product is caused to rise within the tubing 7 until it escapes through the perforations 8 in the upper portion of this tubing, to either escape through the apertures 2 back into the ground or act directly on the surface or from the top downwardly on the oil within the casing in the direction of the arrows 9.

The level of the oil being indicated at 10, it must, nevertheless, be understood that the level of the oil may vary considerable between the upper apertures 2 and the lower apertures 4 in the casing.

Any evaporated or heated matter, whether escaped through the apertures 2 back into the surrounding ground or if remaining within the casing over the top of the oil as stated above with respect to the arrows 9, may substantially be said to result in a useful pressure medium.

So-called gushers are considered to operate under gas pressure or a pressure medium, and it may be said that the pressure medium applies from the top or on the top of the oil in the ground in such a natural condition.

The principal feature of this invention may therefore be said to involve an artificial production of a pressure medium to operate in the natural manner, or similar to the operation under natural condition of an oil well of the gusher type.

Oil may enter through the apertures at 4 and rise within the casing 1 to the level indicated at 10. Hence the oil may pass in the directions of the arrows 11, 12 and 13 to the extent to which it is drawn by the action of evaporation past the heating element 6.

Surplus oil in the casing 1 may also pass in the direction of the arrows 14 through the cross tube 15 and through the upright tube 16 to a point above the partition 17 to finally escape either through an extra tube 18 in the direction of the arrow 19 or through the outlet 20 of the main casing 1.

The partition 21 serves to prevent the

raised oil from passing back into the ground after it has passed through the tube 16, on the one hand, and on the other hand it keeps the pressure medium in the ground where it is to be utilized continuously.

From the above it will be understood that the extra tube 18 may be left off since the raised oil or matter can just as well rise through the casing 1 directly as soon as it reaches a point above the partition jointly formed by the two members separately designated by the numerals 17 and 21, and for that matter the partition can be made in form of a single body as long as the outer edge is made yielding to allow a sliding and lowering of the whole apparatus through the casing.

Having thus described my invention, I claim:

1. In an oil extracting device, in combination with a well casing, the casing being provided with perforations to communicate with an oil strata, a partition in the casing, a tubular member firmly mounted in said partition and extending downwardly from the partition and having passages in communication with the inside of the casing at a point near the said partition and at a separate point near the bottom end of the tubular member, a heating element disposed within said tubular member, and a conduit with its lower termination in communication with the inside of said casing at a point below the heating element and also in communication with a surface outlet through the casing above the said partition.

2. In an oil extracting device, in combination with a well casing, the casing being provided with perforations to communicate with an oil bearing strata in the ground, a partition in said casing at a point above said perforations, a conduit having its outlet through said partition and having its lower inlet in communication with the inside of said casing, a heating element in operative relation to said conduit, and a tubular member closed at its top end by said partition and provided with perforations near the partition and also at its bottom end in communication with the inside of the casing adapted to draw oil from the said strata through some of said first-named perforations in the said casing past the said heating element to create a pressure medium to act on the top of the oil that accumulated in the casing to result in a forcing of oil through the said conduit to the surface.

3. A pressure creating apparatus comprising a casing embodying means adapted to retain a created pressure in a pressure zone of a well including passages in the casing near the pressure zone the casing having other distinct passages, a pressure creating device in the casing, and a conduit with its lower termination at a point near the second-named

passages and with its upper termination above the pressure zone.

4. A pressure creating apparatus comprising a casing having retaining means adapted to be disposed near an oil-bearing strata in the ground and passages below the retaining means, a heating element for creating pressure in the casing and in operative relation to the retaining means and passages for also creating pressure in said strata, and a conduit in operative relation to the heating element and to the retaining means adapted to discharge matter from a point below said strata-under-pressure to a point above said retaining means.

5. A pressure creating apparatus comprising a casing having apertures adapted to form a communication between the inside of the casing and a strata to be evacuated and including a sealing means between the surface of the ground and the strata to form a compression chamber, a heating element disposed in operative relation to said chamber and adapted to maintain said strata under pressure, and a conduit disposed in operative relation to a lower portion of said apertured casing and adapted to bring matter from a point below said strata-under-pressure to above it.

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