

W. MITKIEWICZ-JOLTOK.
METHOD OF RAISING NAPHTHA.
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934,745.

Patented Sept. 21, 1909.

Fig. 4.

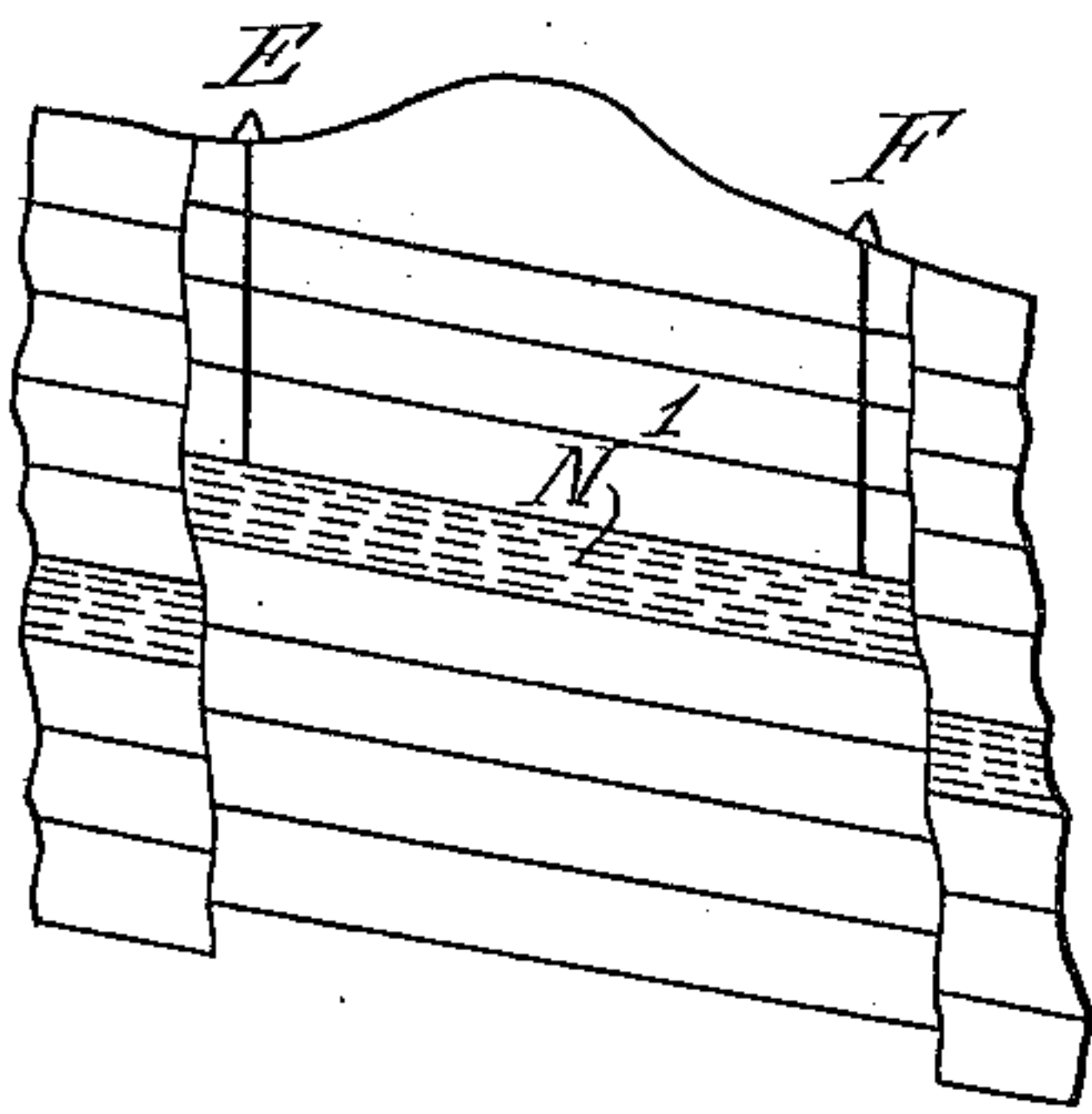


Fig. 1.

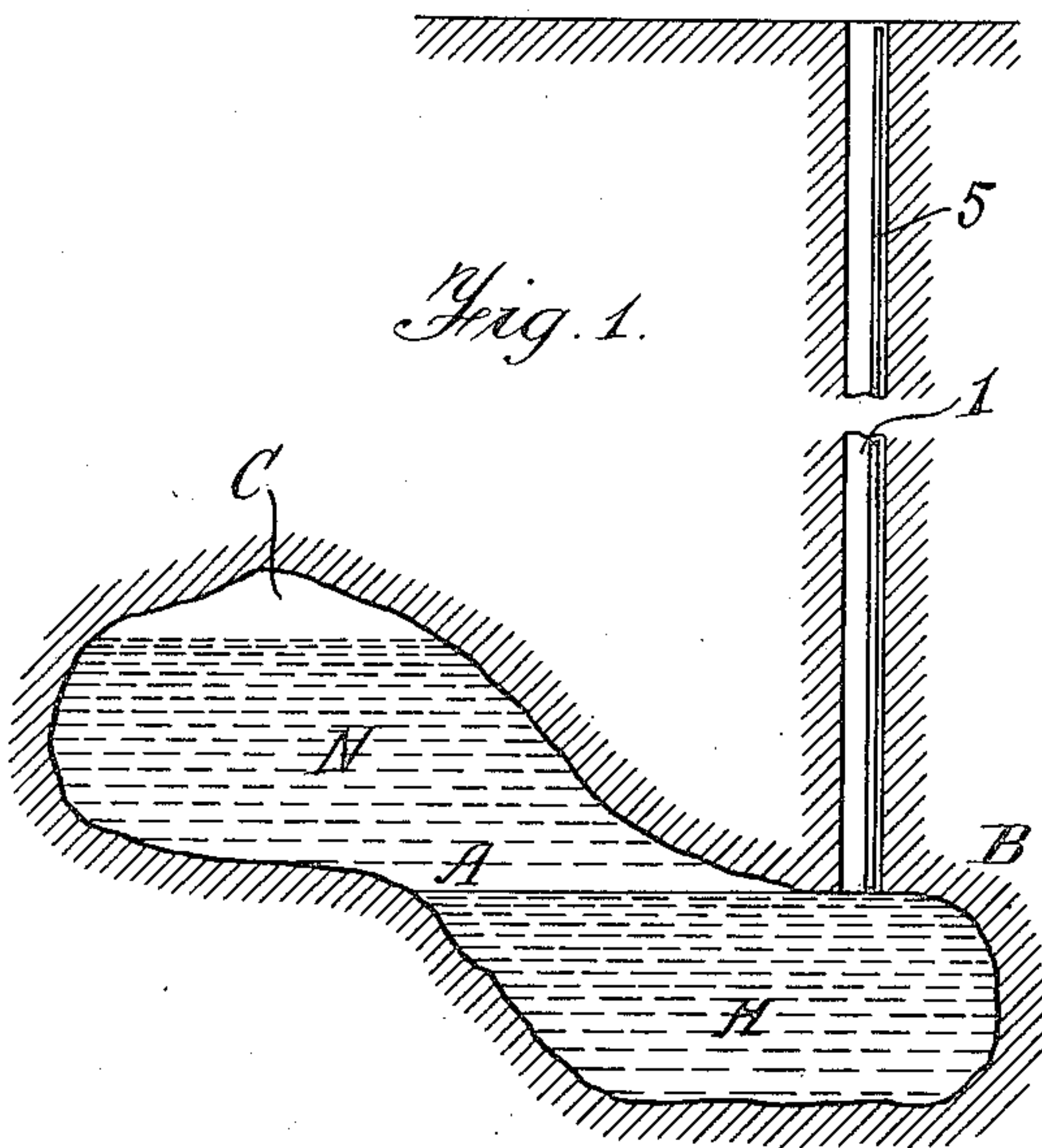


Fig. 2.

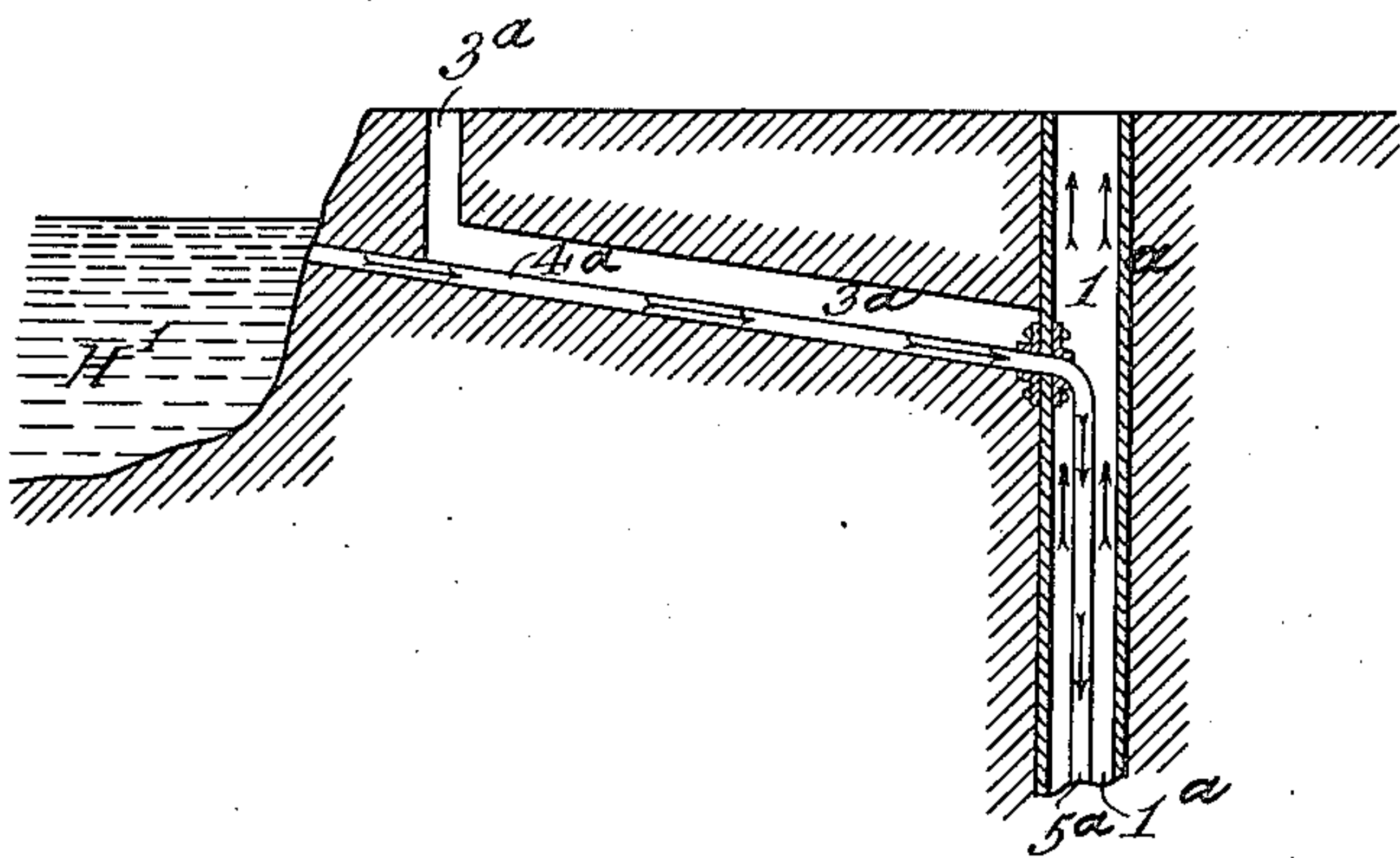
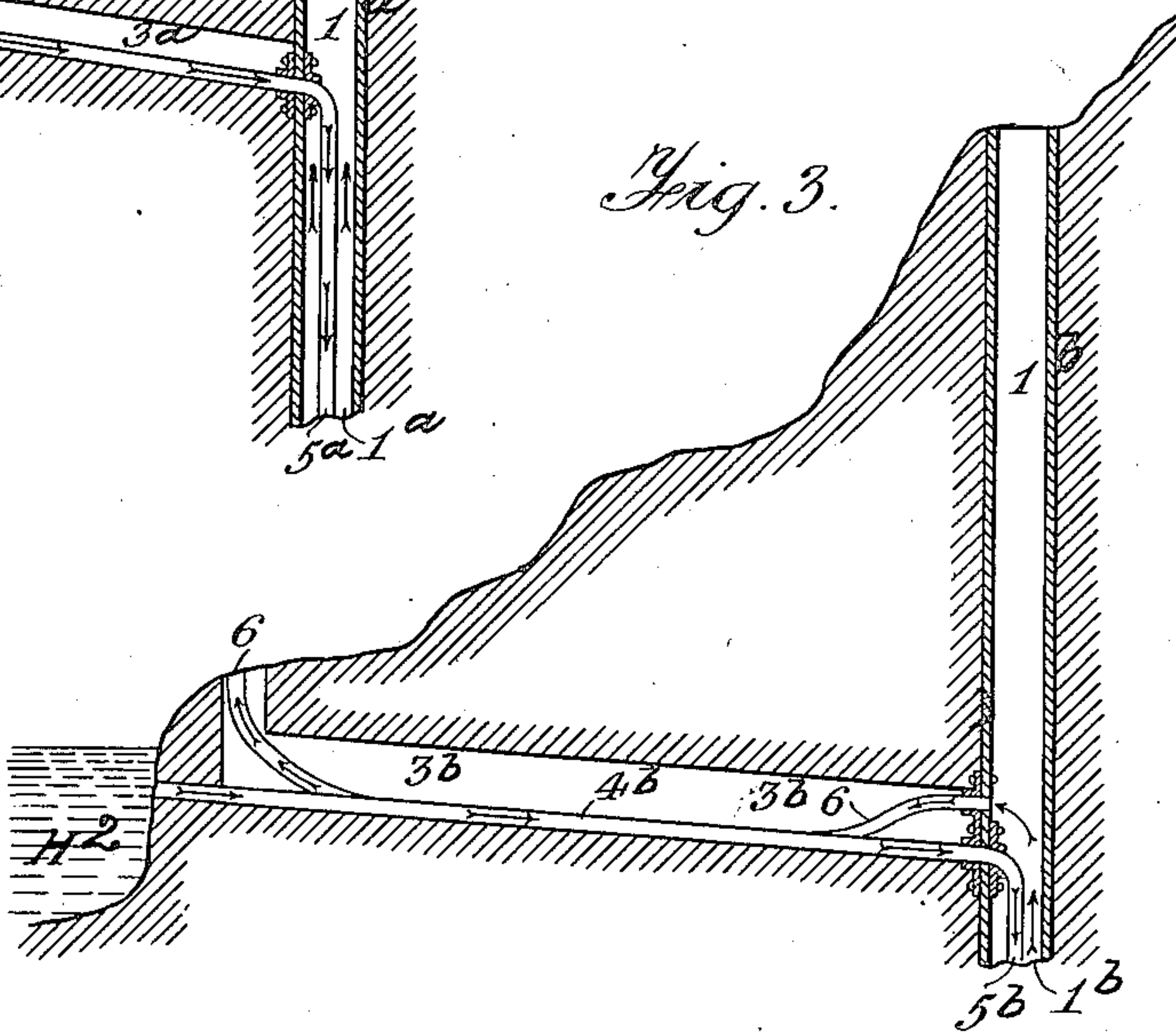


Fig. 3.



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WIACZESLAW MITKIEWICZ-JOLTOK, OF ST. PETERSBURG, RUSSIA.

METHOD OF RAISING NAPHTHA.

934,745.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed April 6, 1907. Serial No. 366,731.

To all whom it may concern:

Be it known that I, WIACZESLAW MITKIEWICZ-JOLTOK, a subject of the Emperor of Russia, residing at St. Petersburg, in Russia, have invented a certain new and useful Method of Raising Naphtha, of which the following is a specification.

This invention relates to a method of raising naphtha or crude petroleum from the depths of the earth.

The improved method is illustrated in the annexed drawing in which—

Figures 1 to 4 are diagrammatic sections, Fig. 1 illustrating a shaft tapping a naphtha cavity. Fig. 2 the method of supplying water when the naphtha shaft is near natural surface water in low lying land, and Fig. 3 when it is near natural surface water in mountainous land. Fig. 4 is a section of a naphtha bearing stratum.

C represents a naphtha cavity and 1 a shaft thereto. If water is admitted through the pit shaft to the cavity C it will commence to force out the naphtha (under which term is hereinafter included crude petroleum) and lift it up, as a lighter substance. When a sufficient volume of water has entered the cavity to raise the naphtha to the top of the pit shaft it will commence to run over of its own accord. The filling of the cavity whence the naphtha is raised is effected through a water pipe such as 5 in order to avoid the considerable mixture of water and naphtha in the pit shaft. The displacement of the naphtha out of the cavity C by addition of water can be carried on until the level A—B of the water (designated by H) reaches the lower end of the pit-shaft 1. At this stage of the operation the further addition of water will displace the naphtha in the pit shaft until the water reaches the top of the pit shaft, whereupon no more naphtha will overflow and an indication is thus afforded that the supply of water is no longer efficacious. The inflow of water is then stopped and it is necessary, first, to bail or pump the water out of the pit shaft and also so much of the water out of the cavity as is necessary to be removed in order to open a passage to the pit shaft for the naphtha (designated by N) still remaining in the upper part of the cavity C. The head of naphtha in the cavity will cause some quantity thereof to flow into the pit shaft until the pressure in the cavity and pit shaft become equal. As the naphtha is

bailed or pumped out of the pit shaft, further naphtha will flow therein from the cavity until all or nearly all the naphtha has been extracted.

When working in hard rock the explosion of torpedoes in underground receptacles from which the naphtha has been bailed out is very frequently practiced with the object of making the walls fall in and obtaining naphtha from the neighboring crevices and caverns. I intend to make these explosions in the underground receptacle when filled with water and owing to the incompressibility of water the explosion will cause incomparably greater destruction of the rock and deliver larger quantities of naphtha than in the case of an explosion in an empty receptacle. If the friction of the water against the walls of the underground receptacle is not taken into consideration, it may be calculated that the shock during the explosion is transmitted by the water, without loss of its strength and therefore by a series of successive explosions immense cracks may be formed in the naphtha bearing strata and in some cases, perhaps, may reach the primary places of origin of the naphtha, as water, acting as a wedge, will lengthen the cracks which have been formed more and more. This gradual descent into the naphtha bearing rock may obviously be looked upon as a continuation of the boring.

Naphtha is always accompanied by gases, which form the motive power, forcing the naphtha out of the porous places of origin into the pit-shafts. This, of course, is only possible when the birth place of the naphtha is located, so to say, in hermetical packing among other rock species which do not allow the naphtha to penetrate through them. In the proposed means it is intended to force the naphtha out of its porous birth places by increasing the pressure in them by filling the pit-shafts with water.

In Fig. 4 is shown a section N¹ of a naphtha bearing layer and two pit-shafts E and F leading to it. If we commence to pour water through a water-pressure pipe into one of these pit-shafts into F for instance, the pressure in the naphtha bearing layer N¹ may gradually increase, effecting the rise of the level of naphtha not only in pit-shaft F but also in the pit-shaft E, as well as in all the pit-shafts which lead into the same plot of naphtha bearing layer. With a sufficient filling of the naphtha bearing birth place

with water the naphtha will reach the surface of the earth and commence to run of its own accord. In view of the fact that the water will run into the naphtha bearing layer under enormous pressure, often of 40 and more atmospheres, it must be expected that the filling of the naphtha birth place with water will proceed rather energetically although it will be dependent to a great extent upon the character of the birth place itself *i. e.* whether the naphtha is soaking through sand, gravel or other porous stratum.

With the existing means of obtaining, considerable quantities of naphtha may remain in the naphtha bearing birth places as the gases are unable to force it out of there. It is therefore possible to make a very probable supposition that with the system now proposed the naphtha obtained will be gained from a certain birth place in a considerably larger quantity, than at present and that old, given-up naphtha birth places may still contain immense quantities of naphtha.

The pit-shafts may be filled by means of pumps, siphons or by making the water run down of its own accord.

In view of the fact that it is only rarely possible to fill the pit-shafts with water by making it run over the top of the shaft of its own accord, I propose to pass the water inlet pipe into the pit-shaft 1^a at some point (see Fig. 2) which lies below the level of the basin H¹, from which water is taken. This may be done by a gallery 3^a, along which a pipe 4^a is laid, communicating in the pit-shaft with the water pipe 5^a. If the pit-shafts are located at a considerable

height, it may happen, that the pressure of water from basin H² directed through the pipe 4^b in the underground gallery 3^b (see Fig. 3) and the pipe 5^b in the pit shaft 1^b will not be able to lift the naphtha up to the brim of the pit-shaft 1^b. It is then necessary to direct the naphtha to the surface of the earth, as shown in Fig. 3, through a special pipe 6, laid along the same underground gallery 3^b.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. The method of obtaining naphtha from its natural places of origin, consisting in sinking a shaft thereto, raising part of the naphtha to the surface by adding water until the latter reaches the level of the bottom of the shaft and subsequently removing the remainder of the naphtha by pumping or bailing it out of the shaft.

2. The method of obtaining naphtha from a naphtha bearing stratum, consisting in sinking shafts thereto, displacing the naphtha by adding water through any of said shafts until naphtha ceases to flow from said shafts and subsequently removing the remainder of the naphtha by pumping or bailing.

In witness whereof I have signed this specification in the presence of two witnesses.

WIACZESLAW MITKIEWICZ-JOLTOK.

Witnesses:

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