

UNIT 1. THE BASIS OF DRILLING. OIL WELL DRILLING TECHNIQUES.

1. Read the text and give Russian equivalents to the underlined expressions:

Oil is a non-renewable energy source and is one of the driving forces of world's economy. Crude oil is located on a different part of the Earth under the soil. Majority of the oil is under the sea, thus off-shore oil exploration is more demanding and challenging.

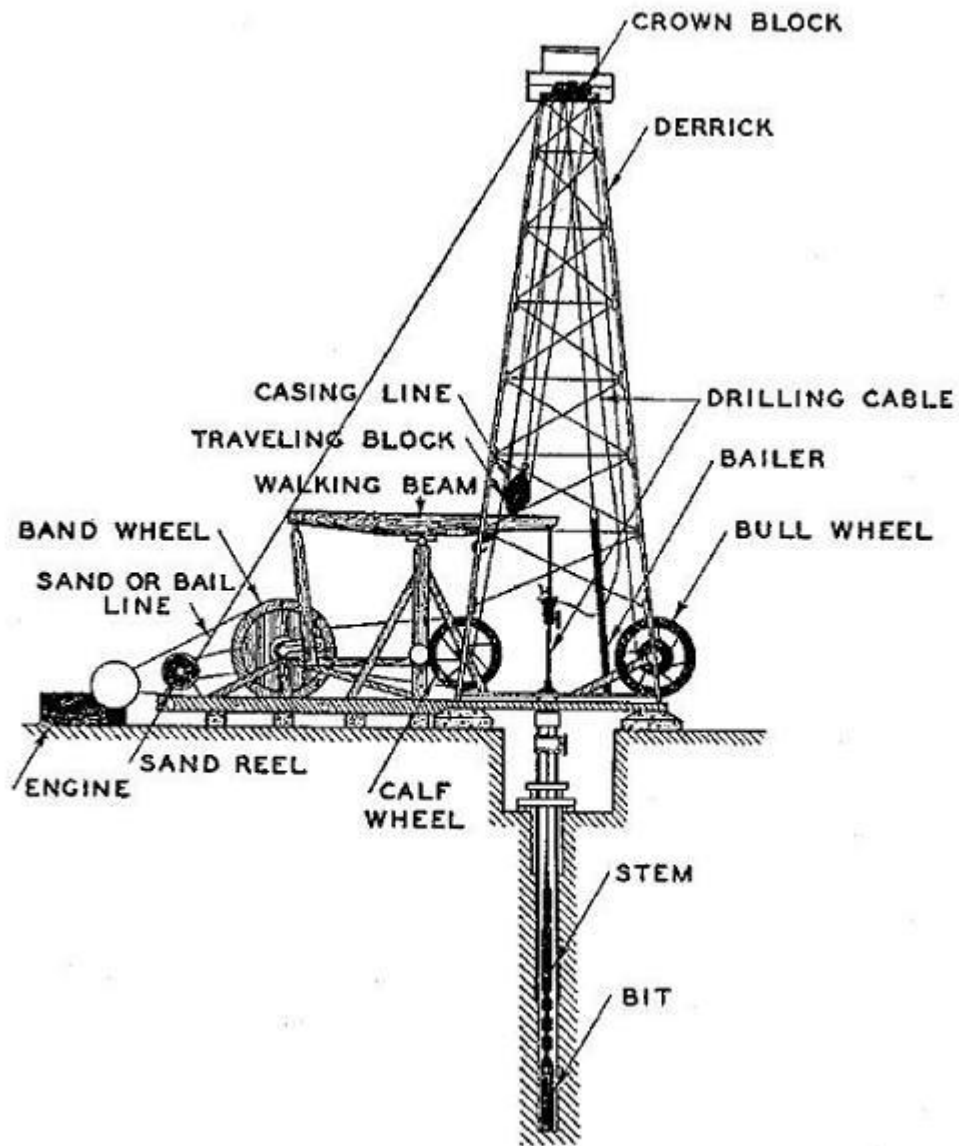
Oil drilling is the process by which tubing is bored through the Earth's surface and a well is established. After drilling the well flows by its self-pressure or a pump is connected to the tube and the petroleum under the surface is forcibly recovered from underground. Oil drilling is a highly-specialized business that grew into the largest industry on the planet by the early 21st century.

Cable tool drilling

The method Edwin Drake used to drill oil wells is called cable-tool or percussion drilling. A hole is punched into the ground by a heavy cutting tool called a bit that is attached to a cable and pulley system. The cable hangs from the top of a four-legged framework tower called a derrick.

The cable raises and drops the drill bit over and over again, shattering the rock into small pieces or cuttings. Periodically, those cuttings have to be wetted down and bailed out of the hole. By the late 1800s, steam engines had become available for cranking the drill bit up and down and for lowering other tools into the hole.

Although this method is sometimes still used for drilling shallow wells through hard rock, almost all present-day wells are bored by rotary drilling equipment, which works like a corkscrew or carpenter's drill. Rotary drilling originated during the early 1900s in Europe.



VOCABULARY BOX

a non-renewable energy source невозобновляемый источник энергии

crude oil сырая нефть

off-shore oil exploration разведка залежей нефти, залегающих на дне
берегового шельфа

to be bored through бурить сквозь

to be punched into the ground

a heavy cutting tool инструмент для бурения на большой глубине

a four-legged framework tower четырехопорная конструкция

a derrick вышка

to drill shallow wells through hard rock бурить неглубокие скважины в твердой породе

carpenter's drill дрель плотника

cable tool drilling rig буровая установка канатного бурения

rotary drilling process процесс роторного бурения

raise and drop the drill bit поднимать и опускать буровое долото

shatter the rock into small pieces or cuttings дробить породу на мелкие части или шлам

to be wetted down and bailed out of the hole оттаргивать нефть из скважины

lower other tools into the hole опускать в скважину другие инструменты

crank the drill bit up and down проворачивать буровое долото вверх и вниз

to be attached to a hollow drill pipe быть прикрепленным к полой бурильной трубе

derricks are constructed of high-strength steel мачты создаются из высокопрочной стали

drill string колонна буровых труб

to be twisted by a rotating turntable скручиваться под воздействием вращающимся столом ротора

be pulled out of the hole to change the bit извлекать из скважины для смены долота

to be unscrewed and stacked on the derrick откручивать и отставлять на мачту

to reach oil-bearing formation добраться до нефтеносного пласта

hole is lined with pipe скважина заполняется трубой

drilling mud буровой раствор