June 21, 1927. 1,632,889

L. F. DAVIS

OIL SAVER AND ANTISPLASHER

Filed July 3, 1924

Fig. 1.

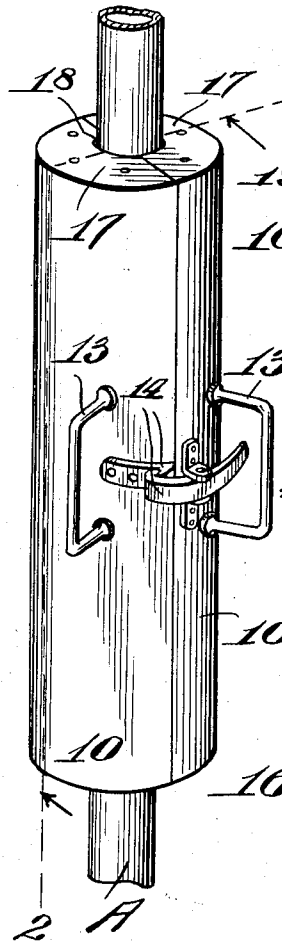


Fig. 2.

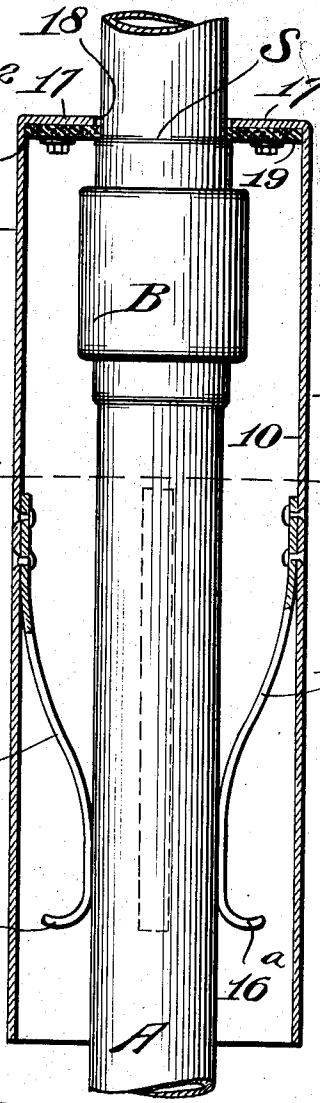


Fig. 3.

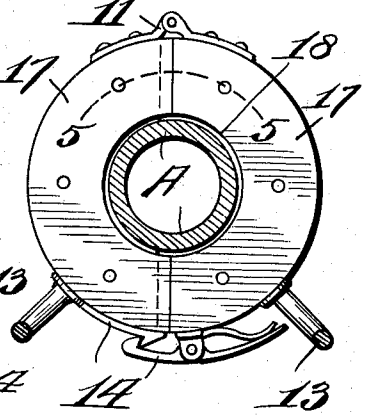


Fig. 4.

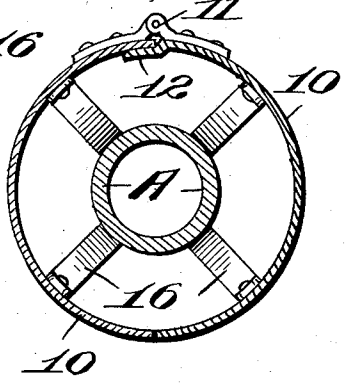
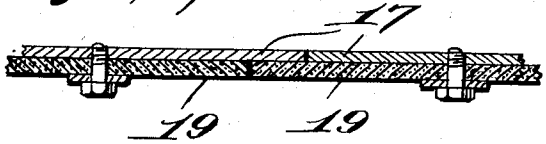


Fig. 5.



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UNITED STATES PATENT OFFICE.

LEWIS F. DAVIS, OF HUNTINGTON BEACH, CALIFORNIA.

OIL SAVER AND ANTISPLASHER.

Application filed July 3, 1924. Serial No. 723,937.

My invention relates to an appliance that is adapted to be applied to oil well tubing while the same is being withdrawn from a well and the stands or sections thereof are being broken or disconnected, the principal objects of my invention being to provide a relatively simple, strong, durable and lightweight housing that is capable of being readily applied to the string of well tubing around the joint that is to be broken or disconnected and which housing will be effective in preventing the oil that discharges from the stand of tubing above the broken or disconnected joint, from splashing onto the workmen and machinery that occupy the floor of the well derrick.

A further object of my invention is to provide a device of the character referred to that will be effective in saving the greater portion of the oil that discharges from the strand of tubing above the disconnected joint, by directing the discharged oil downwardly into the "cellar" beneath the derrick platform and from whence said oil may be drained or pumped into suitable receptacles.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a perspective view of an antisplasher and oil saving device of my improved construction, the same being shown in position for use on a string of tubing.

Fig. 2 is an enlarged vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is a top plan view of the appliance.

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged detail section taken on the line 5—5 of Fig. 3.

Referring by numerals to the accompanying drawings, A designates an oil well tubing string and B the coupling that is used in connecting the tube sections.

The body of my improved anti-splasher and oil saver is in the form of a hollow cylindrical shell or housing that is constructed, preferably of suitable sheet metal and divided on a centrally arranged longitudinally disposed plane so as to form two substantially identical parts 10.

Suitable hinges 11 connect the parts 10 on the rear side of the housing and in order to provide a practically oil tight joint between the rear edges of the housing members 10 when the housing is closed and in position on a string of tubing, one edge of the metal forming the wall of one half of said housing overlaps the corresponding edge of the wall of the other half as designated by 12, Fig. 4.

Secured to the front sides of members 10 and preferably at points midway between the ends thereof are outwardly projecting handles, such as 13 and secured on said members 10 adjacent to their front edges and between said handles are the cooperating members 14 of a latching device that is effective in holding the parts of the housing together when applied for use to the string of tubing.

Secured to the walls of the housing members 10, on the inner sides thereof are the upper ends of flat springs 16, the lower portions of which project inwardly toward the center of the housing and when the latter is applied to a string of tubing, these springs frictionally engage said tubing and thus anchor the housing thereto.

The lower ends of the springs 16 are curved outward as designated by 16^a so that they will ride freely over the coupling members B, in the event that the housing, while closed is moved downward on the tubing past a joint therein.

Projecting inwardly from the upper edges of the walls of members 10 are top plates 17, the meeting edges of which are cut away to provide a circular opening 18 for the accommodation of the tubing to which the device is applied.

The opening 18 is slightly larger in diameter than the external diameter of the tubing to which the housing is applied and, in order to form a practically leakproof joint between the edges of the plates 17 and the tubing, sections of heavy flexible material 19, such as rubber, rubberized fabric or leather are secured to the under sides of plates 17 and the meeting edges of said flexible members, are cut away to provide a circular opening that is concentric with, but slightly smaller in diameter than opening 18.

Thus, the edges of the flexible members 19 that are adjacent to and project slightly beyond the edges of the plates 17 around opening 18, provide a heavy flexible packing which, when the device is applied for use rests on the shoulder or "upset" S that is

formed adjacent to the end of oil well tube sections and forms a leakproof joint that prevents the outflow of oil from the upper end of said device when the tubing joint to which the latter is applied is broken or disconnected.

I prefer to arrange the packing members 19 so that their straight inner edges to the sides of the circular opening are offset or "break joints" with the corresponding straight edges of the top plates 17, so as to prevent the discharge of oil between the meeting edges of said top plates and the packing members. (See Fig. 5.)

In the removal of a tubing from an oil well, it is the general practice to lift the string until a stand, usually three lengths of pipe, project above the derrick floor and then to break the joint that is located a few feet above the rotary drill table.

Thus, when the joint is broken, the oil within the stand above the table joint discharges with considerable force, outwardly over the adjacent machinery and workmen and the greater portion of the oil thus discharged is lost.

Where my improved anti-splasher is used, it is opened and placed around the joint of the tubing that is to be broken, with the latching members engaged to hold the parts in closed position and with the edges of packing members 19 resting upon shoulder S. By the use of tongs or like tools, the stand of tubing above the joint to which the device is applied is rotated so as to unscrew the lower end of said stand from its coupling and, as the lower end of the stand leaves said coupling, the oil discharging from the open lower end of said stand will be prevented from splashing outwardly and will be directed downwardly through the housing and after discharging from the open end of the latter, will pass through the floor or platform into the cellar from whence it may be drawn or drained into suitable containers.

After the stand of tubing has been disconnected from the coupling member B, said stand is generally elevated a few inches to permit the discharge of oil from the open lower end of said stand and during such movement the springs 16 bear upon the relatively stationary portion of the tubing and retain housing in proper position thereupon. Should the disconnected stand of tubing be accidentally elevated to such a degree as to discharge the housing from the relatively stationary tubing, the lower portions of the springs readily ride over the coupling member B and thus the device will be freed from the stationary tubing without injury or disarrangement of any of its parts.

After the oil has been discharged from the disconnected stand of tubing, the housing is removed therefrom by manual engagement of the handles 13, a release of latch 14 and by then swinging the members of the housing apart.

An anti-splasher and oil saver of my improved construction is comparatively simple, may be easily and cheaply produced, is capable of being readily applied to, or removed from a string of tubing and is very effective in performing its intended functions.

It will be understood that minor changes in the size, form and construction of the various parts of my improved oil saver and anti-splasher may be made and substituted for those herein shown and described without departing from the spirit of the invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. In an oil saver and anti-splasher, a substantially cylindrical housing formed in two parts that are hinged to each other whereby the device may be detachably applied to well tubing so as to enclose one of the joints thereof, the hinged edges of the parts of which housing overlap each other when the housing is closed so as to form a substantially oil-tight joint, handles projecting from the front portions of the two parts of the housing whereby the latter may be manually manipulated when applied to or removed from well tubing, means at the top of said housing for producing a leak-proof joint between said housing and the tubing to which it is applied and flat springs having their upper ends secured to the parts of the housing on the interior thereof, which springs extend downwardly and inwardly and are adapted to frictionally engage the well tubing to which the housing is applied.

2. In an oil saver and anti-splasher, a substantially cylindrical housing formed in two parts that are hinged to each other whereby the device may be detachably applied to well tubing so as to enclose one of the joints thereof, and form a liquid seal on the top of said housing between said well tubing and the housing, the bottom of the housing being open so as to permit unrestricted discharge of oil downwardly from the bottom of the housing and yielding means arranged within the housing for frictionally engaging the tubing to which it is applied for holding said housing against upward pressure of the oil that discharges upwardly from the broken joint.

In testimony whereof I affix my signature.

LEWIS F. DAVIS.