Aug. 27, 1929. J. F. LYONS 1,726,079

COMBINED GUIDING AND CENTERING DEVICE

Filed Sept. 17, 1928

Fig. 1.

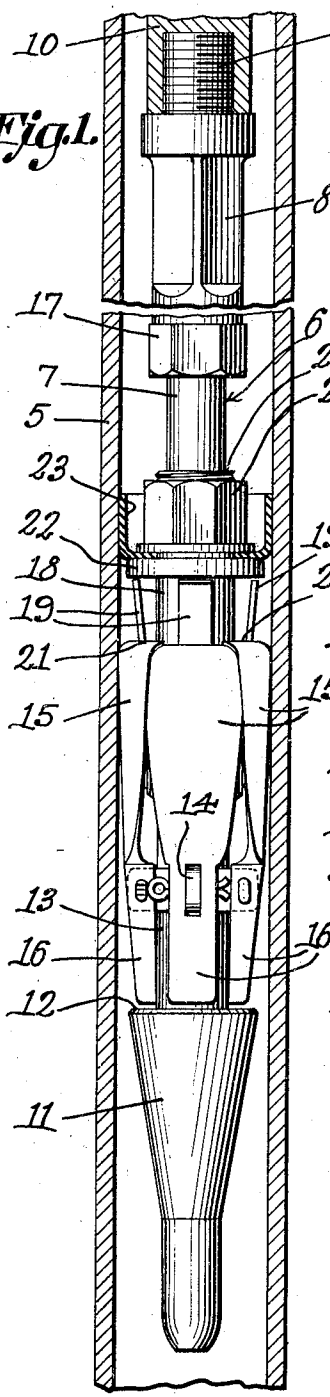


Fig. 2.

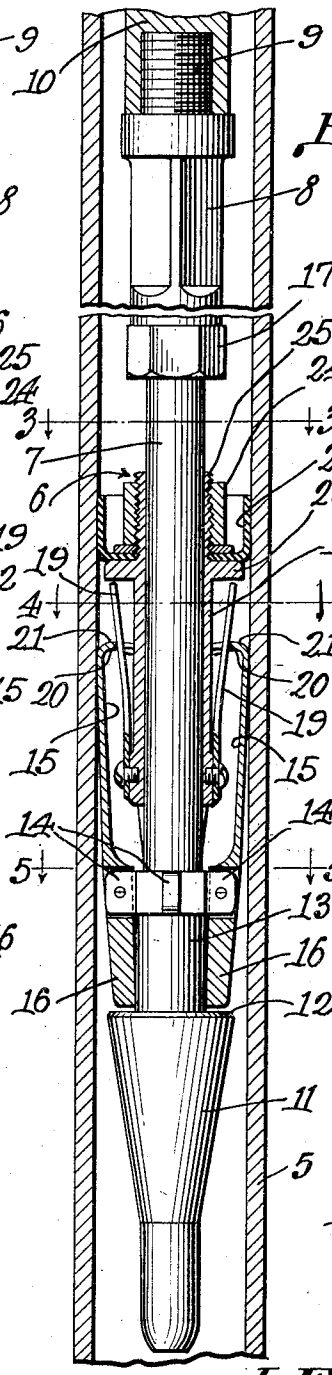


Fig. 3.

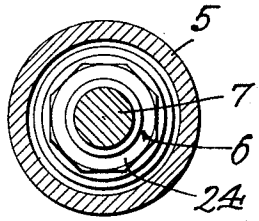


Fig. 4.

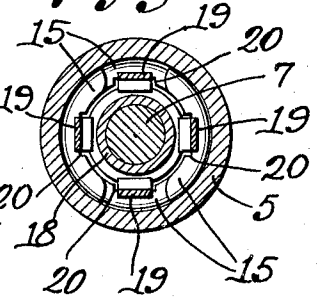
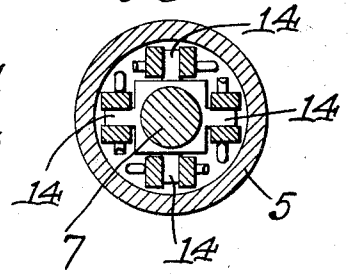


Fig. 5.



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UNITED STATES PATENT OFFICE.

JESS F. LYONS, OF CHANUTE, KANSAS.

COMBINED GUIDING AND CENTERING DEVICE.

Application filed September 17, 1928. Serial No. 306,546.

This invention relates to a combined guiding and centering device for swabs especially designed for use in oil well operations, and aims to provide a novel form of swab which will automatically adjust itself within the well tubing, the construction being such that the swab may operate in tubing or a pipe that has not been reamed or wherein the tubing or pipe is blistered or formed with other irregularities.

Another object of the invention is to provide a device of this character which may be dropped into a well, the construction being such that all friction between the swab and pipe is eliminated.

A still further object of the invention is the provision of a movable stem operating through that portion of the swab contacting with the pipe of the well so that should the swab hang in the pipe, the movable portion may be moved against the swab to jar and loosen the swab.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:

Figure 1 is a longitudinal sectional view through a well pipe showing the swab as positioned therein.

Figure 2 is a longitudinal sectional view through the pipe and swab.

Figure 3 is a sectional view taken on line 3—3 of Figure 2.

Figure 4 is a sectional view taken on line 4—4 of Figure 2.

Figure 5 is a sectional view taken on line 5—5 of Figure 2.

Referring to the drawing in detail, the reference character 5 designates the well pipe in which the swab operates, the swab being indicated generally by the reference character 6.

The swab includes a rod 7 formed with a threaded extremity to which the coupling 8 is connected, which in turn has a threaded portion 9 to connect with the supporting rod 10 to which the swab is secured.

At the lower end of the rod 7 is a head 11 that defines a shoulder 12 and a reduced portion 13, there being provided outwardly extended lugs 14 provided in spaced relation with each other and disposed adjacent to the head 11.

Pivotally mounted on the lugs 14 are blades 15 which are curved to closely fit within the pipe in which the swab is positioned, there being provided fingers 16 adjacent to the shoulder that contact with the inner surface of the pipe to guide the swab.

Slidably mounted on the rod 7, and disposed between the nut 17 and the blades 15, is the washer or cup support 18 to which the spring fingers 19 are secured at points adjacent to the lower ends of the spring fingers, the spring fingers normally extending outwardly as shown by Figure 2 of the drawing.

These spring fingers move in notches 20 formed in the inturned ends 21 of the blades 15 so that rotary or twisting movement of the blades independently of the member 18 will be prevented at all times.

Above the spring fingers 19 and formed integral with the washer support 18 is a substantially wide circular flange 22 that provides a support for the cup washer 23 that is held in position by means of the nut 24 operating on the threaded portion 25 of the support 18.

Thus it will be obvious that owing to the construction of the blades 15 which guide the swab in its movements, irregularities which may be present on the inner surface of the pipe will not cause the swab to wedge, it being obvious that the movement of the blades 15 will compensate for such irregularities. It will further be seen that owing to the construction the swab may operate within a pipe that has not been reamed.

I claim:

1. In a combined guiding and centering device, a rod having a head at one end, pivoted overlapping blades mounted on the rod and adapted to contact with a pipe in which the device is positioned, a vertically movable washer carrying member on the rod, and spring fingers on the movable washer carrying member for engaging the blades to urge the blades outwardly.

2. In a combined guiding and centering device, a rod having a head at one end, a plurality of laterally movable blades pivotally mounted on the rod and adapted to guide the rod into a pipe, a movable washer carrying member mounted on the rod, spring fingers secured to the washer carrying member and

engaging the blades to normally urge the blades outwardly to automatically adjust the blades in the pipe in which the device moves.

3. In a combined guiding and centering device, a rod, a plurality of substantially wide overlapping blades pivotally mounted on the rod, and spring members movable longitudinally of the rod and adapted to engage the blades to automatically adjust the blades within the pipe in which the device is positioned.

4. In a combined guiding and centering device, a rod, pivoted members mounted on the rod, a vertically movable washer carrying member slidable on the rod, upwardly extended spring fingers on the washer carrying member and engaging the pivoted members to normally hold the pivoted members outwardly and a head at the lower end of the rod.

5. In a combined guiding and centering device, a rod, pivoted blades having inwardly extended upper end portions, each of the inwardly extended upper end portions having a cut out portion, a movable washer carrying member on the rod, spring fingers on the washer carrying member and disposed in the cut out portions of the blades to normally urge the blades outwardly to guide the rod.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JESS F. LYONS.