H. F. BEAM.

SWAB.

APPLICATION FILED DEC. 11, 1913.

1,122,246.

Patented Dec. 29, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

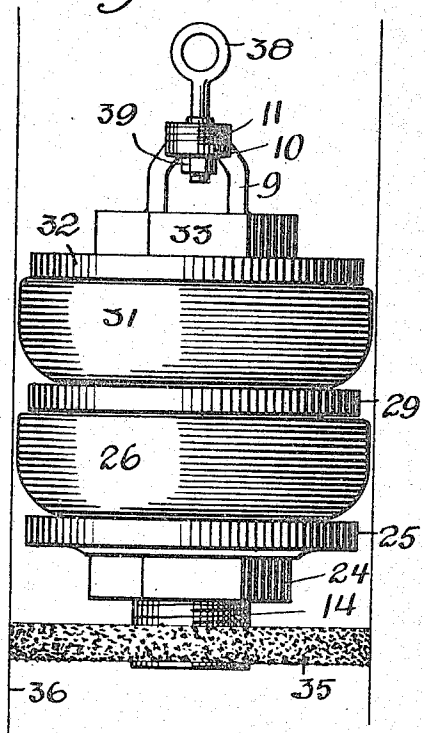


Fig. 2.

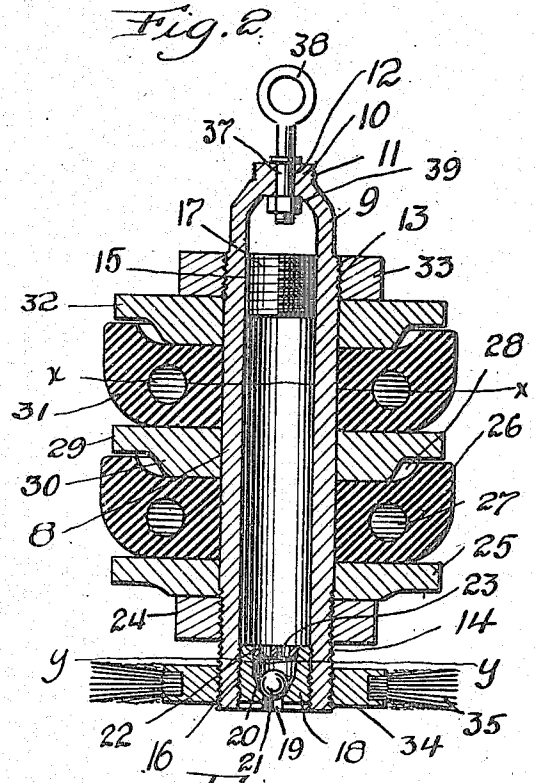


Fig. 3.

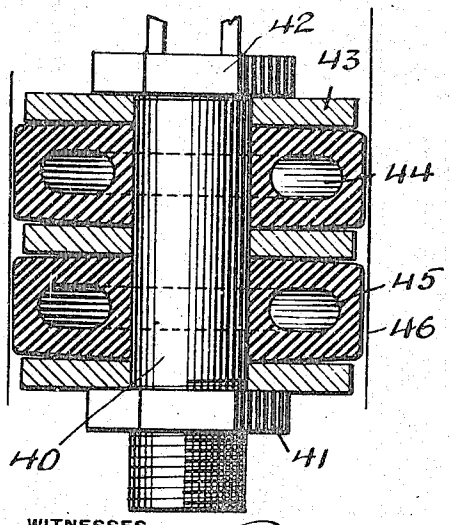
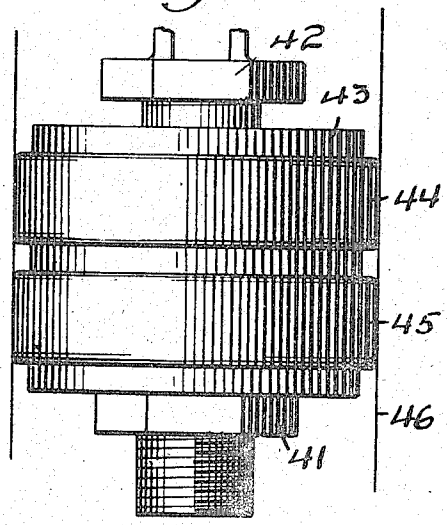


Fig. 4.



WITNESSES

Samuel Payne.

Max N. Ludwig

INVENTOR

H. F. Beam

By Henry C. Evert

Att'y

H. F. BEAM.

SWAB.

APPLICATION FILED DEC. 11, 1913.

1,122,246. Patented Dec. 29, 1914.

2 SHEETS—SHEET 2.

Fig. 5.

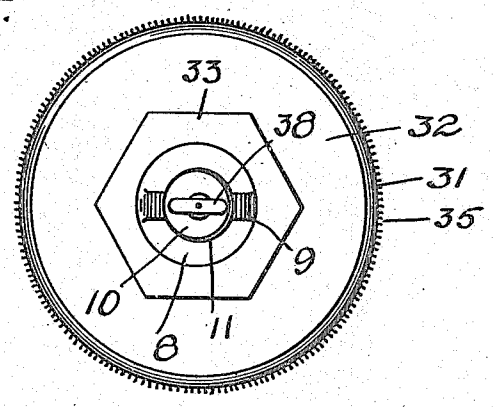


Fig. 6.

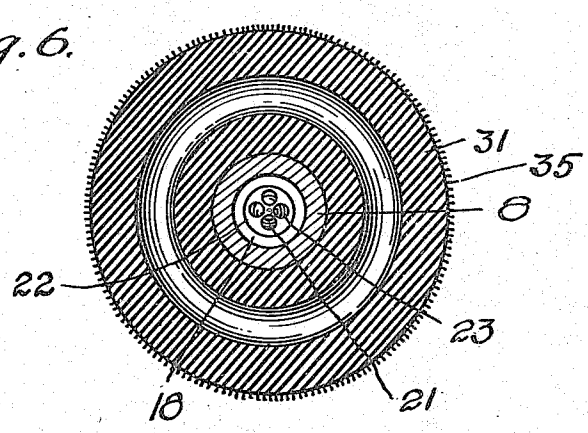
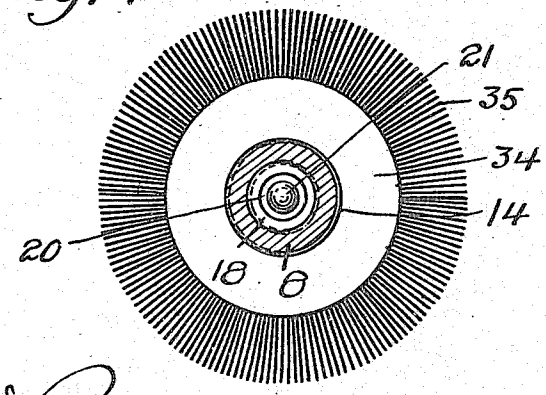


Fig. 7.



WITNESSES

Samuel Payne.

Max N. Siedwitz

INVENTOR

H. F. Beam

By Henry C. Evert.

Att'y

UNITED STATES PATENT OFFICE.

HOWARD F. BEAM, OF HARMONY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO SAMUEL A. BEAM, OF HARMONY, PENNSYLVANIA.

SWAB.

1,122,246. Specification of Letters Patent. Patented Dec. 29, 1914.

Application filed December 11, 1913. Serial No. 806,072.

To all whom it may concern:

Be it known that I, HOWARD F. BEAM, a citizen of the United States of America, residing at Harmony, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Swabs, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to swabs, and has for its object to provide a device of such class, in a manner as hereinafter set forth, for cleaning oil well casings and to so set up the device whereby it will be in operative engagement only with the casing on the upstroke of the device.

A further object of the invention is to provide a swab for oil wells, in a manner as hereinafter set forth, with a plurality of expansible swabbing members capable of being expanded, by the weight of the water, when the device is elevated whereby on the upstroke, the device will perform its swabbing or cleansing function.

Further objects of the invention are to provide an oil well swab which is simple in its construction and arrangement, strong, durable, efficient and convenient in its use, formed of a plurality of removable and expansible swabbing elements, readily set up and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—Figure 1 is a side elevation of a swabbing device in accordance with this invention, Fig. 2 is a vertical sectional view thereof, Fig. 3 is a vertical sectional view of a modified form, Fig. 4 is a side elevation of the form shown in Fig. 3, Fig. 5 is a top plan of the form shown in Fig. 1, Figs. 6 and 7 are sectional views respectively on line X—X and Y—Y Fig. 2.

Referring to Figs. 1 and 2 of the drawings, 8 denotes a hollow cylindrical body portion having formed integral with the top thereof a bail 9 formed at its upper end with a cylindrical enlargement 10 having peripheral threads 11 and a centrally disposed opening 12. The body portion 8 at its upper end is formed with peripheral threads 13 and at its lower end with peripheral threads 14.

The inner face of the body portion 1 near the top thereof is threaded as at 15, and the said inner face at its lower end is threaded as at 16. Engaging with the threads 15 is a check valve casing 17 and engaging with the threads 16 is a check valve casing 18. Each of the check valve casings is formed with an inlet 19 and a valve seat 20 for a spherical valve body 21. The upper end of each casing is closed through the medium of a perforated disk 22, the perforations of the disk which are indicated by the reference character 23 constitute outlets for the casing.

Mounted upon the threaded portion 14 is a supporting member 24, the latter having interior threads for engagement with the threads 14 and surrounding the body portion 8 and mounted upon the supporting member 24 is a metallic spacing disk 25, upon which is mounted an expansible and contractible swabbing member 26, preferably formed of rubber and formed with a chamber 27 and also having its upper face formed with a concave recess 28. Positioned upon the member 27 is a metallic spacing disk 29 having a depending portion 30, which extends into the recess 28. Positioned upon the disk 29 is an expansible and contractible swabbing member 30 of the same construction as the member 26 and positioned upon the member 31 is a metallic spacing disk 32 of the same construction as the disk 29. Engaging with the threads 13 is a clamping nut 33, the latter abuts against the disk 32 and maintains the disks 25, 29, and 32 and members 26 and 31 detachably clamped together and in position upon the body portion 8. The disks 25, 29 and 32 are of less diameter than the members 26 and 31. As shown in the drawings, two members 26 and 31 are employed, but it is obvious that this number can be increased. The members 26 and 31 are cup-shaped in cross section.

Secured upon the body portion 8, at the

lower end thereof, is an annular member 34 having interior threads for engagement with the threads 14 and connected to the member 34 is a circumferentially extending series of wire scraping elements 35, the function of which is to scrape the oil well casing.

When the device is lowered, the water or other liquid or fluid will be forced up through the body portion 8, the check valves 21 opening for such purpose. When the device is elevated, the weight of the fluid will expand the members 26, 31, so that the diameter thereof will increase whereby the said members will perform a swabbing function during the elevation of the device.

The oil well casing is indicated by the reference character 36 and by reference to Fig. 1, it will be noted that the normal diameter of the members 26 and 31 is less than the diameter of the casing, under such conditions the said members do not engage the casing when the device is lowered, but only engage the casing when weight upon the device will expand said members. The wires 35 engage the casing on the up and down stroke of the device.

By setting up the expansible members in the manner as stated, the life thereof is increased due to the fact that the wear upon said members is only had on the upstroke of the device. In devices now in general use, the swabbing elements are of a diameter to engage the casing on both the up and down strokes.

The swabbing elements are detachably mounted upon the body portion 8, whereby if one becomes injured or damaged it can be readily removed and a new one substituted, under such conditions disposing with the casing aside of the entire device and such arrangement is a considerable saving.

Extending through the opening 13 is the shank 37 of an eye bolt, the eye of the latter being indicated by the reference character 38. The shank 37 carries a nut 39 for connecting the eye bolt to the bail 9.

In Figs. 3 and 4 of the drawings, the body portion which is indicated by the reference character 40 is of the same construction as the body portion 8, and mounted upon said body portion is a supporting member 41 and a retaining member 42 for the spacing disk and expansible and contractible swabbing members. In Figs. 3 and 4, the spacing disks are indicated by the reference character 43 and are flat, while the swabbing members are indicated by the reference character 44. The spacing disks 43 are alternately disposed with respect to the members 44. Each of the members 44 is chambered as at 45, and each has its upper and its lower face upon an inclination from the center toward the outer edge of the member, the inclination of the upper face being toward the lower face and the inclination of the lower face being toward the upper face whereby the member will gradually decrease in thickness outwardly. The members 44 are of less diameter than the casing 46, and of greater diameter than the disk 43. In Figs. 3 and 4, the scraping element is not shown. The operation of the form of the device shown in Figs. 3 and 4 is the same as that referred to in connection with the forms shown in Figs. 1 and 2.

What I claim is:—

1. An oil well swabbing device comprising a hollow body portion, a series of spacing elements mounted thereon, a plurality of expansible and contractible swabbing elements mounted upon the body portion and alternately disposed with respect to said spacing elements, means for detachably securing said spacing and swabbing elements to said body portion, and a scraping element secured to the lower end of said body portion.

2. An oil well swabbing device comprising a hollow body portion, a series of spacing elements mounted thereon, a plurality of expansible and contractible swabbing elements mounted upon the body portion and alternately disposed with respect to said spacing elements, means for detachably securing said spacing and swabbing elements to said body portion, a check valve mounted in said body portion at the upper and lower end thereof, and a scraping element secured to the lower end of said body portion.

3. An oil well swabbing device comprising a hollow body portion, a series of spacing elements mounted thereon, a plurality of expansible and contractible swabbing elements mounted upon the body portion and alternately disposed with respect to said spacing elements, means for detachably securing said spacing and swabbing elements to said body portion, said swabbing elements being hollow, and a scraping element secured to the lower end of said body portion.

4. An oil well swabbing device comprising a body portion, a plurality of expansible and contractible swabbing elements carried thereby and normally of less diameter than the diameter of the oil well casing and expanding to engage the casing by the weight upon said elements on the up-stroke of these latter, and a scraping device connected to the lower end of the body.

5. An oil well swabbing device comprising a body portion, an expansible and contractible swabbing means carried thereby and normally of less diameter than the diameter of the oil well casing and expanding to engage said casing on the up-stroke of the device, and a scraping device connected to the lower end of the body portion.

6. An oil well swabbing device compris-

ing a valved body portion, a plurality of expansible and contractible swabbing elements removably mounted upon said body portion and normally of less diameter than the diameter of the oil well casing and expanding to engage said casing by the weight upon the device when the device is elevated, and a scraping element connected to said body portion.

7. An oil well swabbing device comprising a valved body portion, spacing and swabbing elements removably mounted thereon, said swabbing elements alternately disposed with respect to said spacing elements and normally of less diameter than the diameter of the oil well casing and expanding to engage the casing by the weight upon the device when the latter is moved upwardly, and a scraping element connected to the body portion.

In testimony whereof I affix my signature in the presence of two witnesses.

HOWARD F. BEAM.

Witnesses:

ALEXANDER F. HUMPHREY,

CHARLES W. BEAM.