April 27, 1948. M. H. BOW 2,440,571

OIL GAUGE-LINE WIPER

Filed May 16, 1946

Fig. 1.

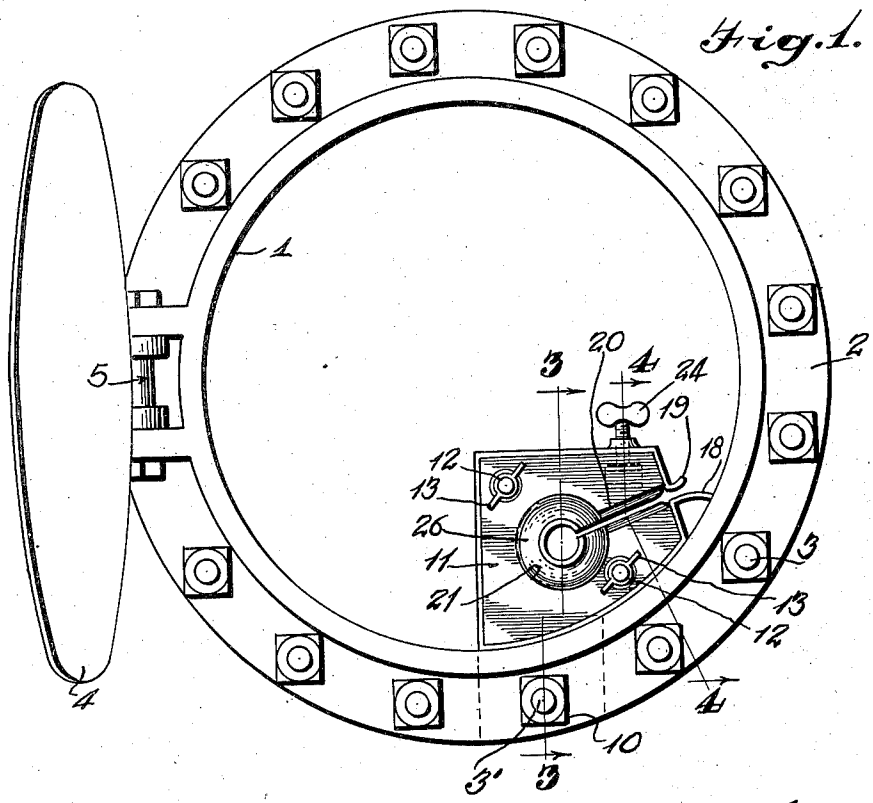


Fig. 2.

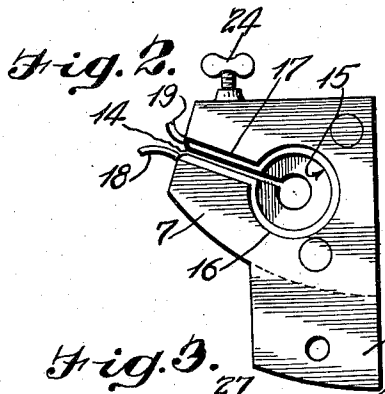


Fig. 4.

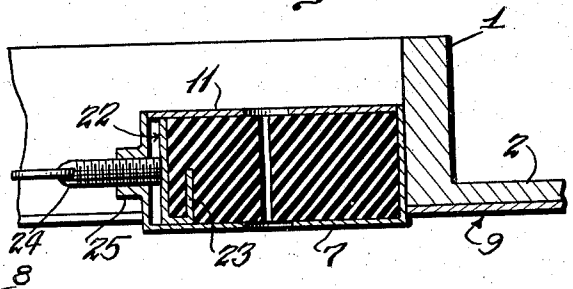
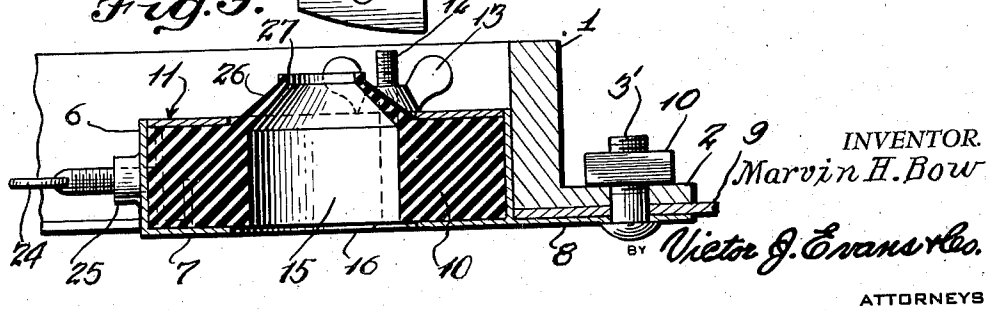


Fig. 3.



INVENTOR.
Marvin H. Bow

BY Victor J. Evans & Co.

ATTORNEYS

Patented Apr. 27, 1948 2,440,571

UNITED STATES PATENT OFFICE

2,440,571

OIL GAUGE-LINE WIPER

Marvin H. Bow, Ardmore, Okla., assignor of one-half to Horace S. Bow, Ardmore, Okla.

Application May 16, 1946, Serial No. 670,128

4 Claims. (Cl. 15—210)

1

The present invention relates to an improved oil gauge-line wiper adapted especially as an attachment for use with the gauge-hatch of an oil field tank, or similar storage container for liquids; and the present invention involves improvements in devices of this character of the type shown in Patent #2,201,517 issued May 21, 1940, to M. H. Bow for gauge line wipers.

The device of the instant invention is adapted for use in cleansing the flat, narrow steel measuring tape or gauge line, and its plumb bob, employed in measuring or gauging the quantity of oil contained in the field tank or other container, and for guiding the tape or line as it is being inserted into the tank and withdrawn therefrom.

By passing the tape or line through the wiping device the gauge line is cleansed and oil wiped therefrom so that the oil may be permitted to drop back into the tank, thus preventing undesirable accumulation of waste oil upon the exterior parts of the hatch, or cover of the tank, and surrounding parts.

As a wiping medium a resilient and elastic, spongy body or filler is employed, and the specific improvements in the instant invention reside in means for applying pressure to various parts of the wiping medium to enhance the efficiency and durability of the device.

The invention consists in certain novel combinations and arrangements of parts in the unitary structure forming the wiper device as will more specifically be pointed out and claimed.

In the accompanying drawings one complete example of the physical embodiment of the invention is illustrated wherein the parts are combined and arranged in accord with one mode so far devised for the practical application of the principles of the invention, but it will be understood that various changes and alterations may be made in these exemplifying drawings without departing from the principles of the invention.

Figure 1 is a top plan view of a hatch, with its cover open, showing a wiping device attached thereto and in which the invention is embodied.

Figure 2 is a bottom plan view of the wiping device detached from the hatch.

Figure 3 is an enlarged detail sectional view, as at line 3—3 of Fig. 1.

Figure 4 is another enlarged sectional detail view, as at line 4—4 of Figure 1.

In the plan view of Fig. 1, the equipment for use with the hatchway or opening to the interior of an oil field tank includes a circular housing having a cylindrical collar 1 and an exterior annular attaching flange 2, which flange is usually fastened

2

by bolts 3 to a complementary base flange of the tank, and a cover or lid 4 for the hatch is hinged at 5 to the collar 1, the cover being shown in open position for convenience of illustration.

The wiper, as a unit, includes a cup-shaped metallic casing 6 having a base or bottom plate 7 fashioned with an extension or attaching flange 8 which is inserted between the flange 2 of the collar and the complementary base flange of the hatchway, and one of the attaching bolts or screws, as 3' is passed through registering holes in the flange 8, a gasket 9, and flange 2 for the reception of a clamp nut 10, which nut rigidly clamps the device to the flange of the collar.

The wiper unit is located and arranged in position where it is readily accessible for insertion and withdrawal of the measuring tape or gauge line and its plumb bob, and one wall of the casing or cup 6 is curved to conform to the inner annular surface of the collar 1 so that the wiper unit may be adjusted to desired position within the hatch housing, and then rigidly fixed in place.

Within the casing is enclosed a filler or body 10 that is fashioned of resilient and elastic, compressible, and oil-resisting material, preferably of synthetic rubber of the neoprene type, which is durable, and highly satisfactory for performing its functions as a wiper for the measuring tape and its plumb bob.

The filler or body 10 conforms to the interior shape of the casing or cup 6, and it is retained therein by means of a top metallic presser plate 11 fitted within the open top of the casing. For retaining the plate and for compressing the resilient and elastic body 10 to a desired degree the presser plate may be adjusted by means of a pair of spaced clamp screws 12, 12 that are passed upwardly through registering holes in the base plate, the body or filler, and the presser plate, and wing nuts 13, 13, are mounted on the projecting ends of the screws, above the presser plate, for clamping the plate upon the resilient and elastic body 10. These screws are spaced and located diametrically of the centrally arranged aperture for the plumb bob to pass through, in order that they may vertically compress the resilient material and thereby cause a lateral contraction in the size of the plumb bob aperture, for a purpose to be explained. The presser plate also applies an equally distributed tension throughout the resilient body or filler to enhance the wiping action on the measuring tape or steel gauge line and tis plumb bob.

The filler or body 10 is shown fashioned with a vertically disposed slot 14 which extends from

one side thereof inwardly to an enlarged cylindrical aperture 15 for the passage of the plumb bob, and this aperture opens within a concentric and enlarged opening 16 in the bottom plate or base plate 7 of the casing 6.

In addition to the enlarged circular opening 16, the base plate is fashioned with an enlarged radially extending slot 17 having its edges parallel with the slot 14, and as best seen in Fig. 2 the slot 17 opens at the edge of the plate coincident with the opening of the wiper slot 14.

One vertical wall of the cup-shaped casing 6 is also slotted to register with the open mouth of the wiping slot 14, and the ends of this slotted wall terminate in a pair of outwardly flaring lips 18 and 19 for guiding the steel measuring tape or gauge line into and out of the wiping slot 14.

As best seen in Fig. 1, the presser plate 11 is also provided with an enlarged slot 20 disposed with its edges or walls parallel with and outset from the walls of the slot 14, and this slot terminates in an enlarged circular opening 21 concentric with the cylindrical aperture 15 of the body.

From this description and disclosure it will be apparent that the elastic and resilient material forming the body of the wiping device, is provided with a wiping slot for the passage of the steel measuring tape, and the tape passes through the slot with the walls of the slot in frictional, wiping, engagement with the opposite faces of the tape, for the purpose of removing from the tape the oil film or drops as the tape emerges from the tank.

Friction between the walls of the slot and the opposite faces of the tape may be varied to alter the resistance to a pull or push on the tape, to vary the squeezing action of the wiper, and to compensate for wear of the wiping walls caused by insertion and withdrawal of the measuring tape.

For this purpose an inner, vertically arranged metallic pressure wall 22 is interposed between the casing wall and an exterior face of the body 10, and this wall is fashioned with a U-shaped hook 23 embedded in the material of the body as best seen in Fig. 4. For co-action with this presser wall a clamp screw 24 is threaded in a complementary bearing or exterior bushing 25 integral with the casing, and the screw is located in a plane perpendicular to the wall of the presser wall, and at an obtuse angle to the slot 14. It will be obvious that by turning the screw against the presser wall, the resilient and elastic body may be compressed toward the wiping slot 14 for the purpose of increasing the frictional engagement of the slot walls with the opposite faces of the steel tape.

In the operation of removing the tape from the tank and the lower end of the line reaches the under side of the wiping device, the line is slipped laterally into the aperture 15, so that the plumb bob will be alined with the aperture for passage therethrough.

As best seen in Fig. 3 the body or filler 10 is fashioned with a frusto-conical, or tapered wiping cap 26 projecting upwardly over the aperture 15, and this cap, or wiping head, of resilient and elastic material, terminates in a neck 27 of reduced diameter. The frusto-conical walls of this head are comparatively thin and they taper down to the neck, in order that the plumb bob, as it is slipped up through the aperture 15, spreads the head and neck, but due to the resiliency and elasticity of the material of the

head and neck they wipe off the oil film and drops from the upwardly emerging plumb bob, permitting this excess oil to drop back into the tank.

It will be noted that the openings in the metallic parts of the casing, complementary to the slots and openings in the body or filler, are of larger area than the body openings and slots, thus insuring resiliency and elasticity in the walls that come in contact with the measuring tape and the plumb bob.

Having thus fully described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In a wiping device for a gauge line, the combination with a body of resilient material having an open-edge wiping-slot, a stiff presser wall carried by the body and spaced from said wiping-slot, and a casing enclosing the body and wall and having enlarged slots registering with the body-slot, of a presser screw operatively mounted in a wall of the casing and engaging said presser-wall.

2. In a wiping device for a metallic measuring tape, the combination of an enclosing casing having upper and lower open-edge slots and upper and lower concentric openings terminating said respective slots, a body of resilient material enclosed within the casing and having a wiping-slot registering with the body slots and a wiping aperture registering with said openings, and said wiping aperture having an upwardly extended frusto-conical wall forming a wiping-cap.

3. In a wiping device for a metallic measuring tape, the combination of an enclosing casing including an adjustable presser plate, said casing and plate having open-edge slots and upper and lower openings terminating said respective slots, a body of resilient material enclosed within the casing and presser plate, said body having a wiping slot in alignment with the casing and plate slots and a wiping aperture concentric with said openings, said wiping aperture having an upwardly extended frusto-conical wall forming a wiping cap, and means on said casing for moving said presser plate to compress the resilient body thereby varying the size of the wiping slot and wiping aperture.

4. A wiping device for a gauge line having a bob comprising a bottom plate having a supporting portion and an attaching flange portion adapted to be secured to the entrance of an oil hatch, a side wall extending vertically about and from the supporting portion of the bottom plate, the ends of said side wall terminating in opposed guide lips spaced relative to each other, said supporting portion of the bottom plate having an opening and a slot extending therefrom to the edge of the bottom plate and in alignment with said opposed guide lips, a resilient compressible member on said bottom plate and within said wall, said compressible member having a cylindrical opening therethrough and a slot extending from said opening to the edge of said compressible member, a presser plate slidably received within said side wall, said presser plate having an opening and a slot extending from said opening to the edge of said presser plate, all said openings and slots respectively aligned, means extending through said presser and bottom plates for adjusting the distance therebetween to vary the degree of compression of said resilient member, a hollow frusto-conical portion formed on said resilient member, said frusto-conical portion being aligned with said re-

silient member opening and extending through said pressure plate opening, a reinforcing means anchored in said resilient member opposite the slot thereof and means adjustably mounted in the side wall and abutting said reinforcing means for moving the same to vary the distance between opposed portions of the resilient member slot.

MARVIN H. BOW.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,814,075	Burkhardt	July 14, 1931
2,035,379	Stewart	Mar. 24, 1936
2,201,517	Bow	May 21, 1940
2,285,742	Miller	June 9, 1942