Sept. 18, 1934. G. S. COATS 1,974,014

ADJUSTABLE PUMP HEAD

Filed June 20, 1932

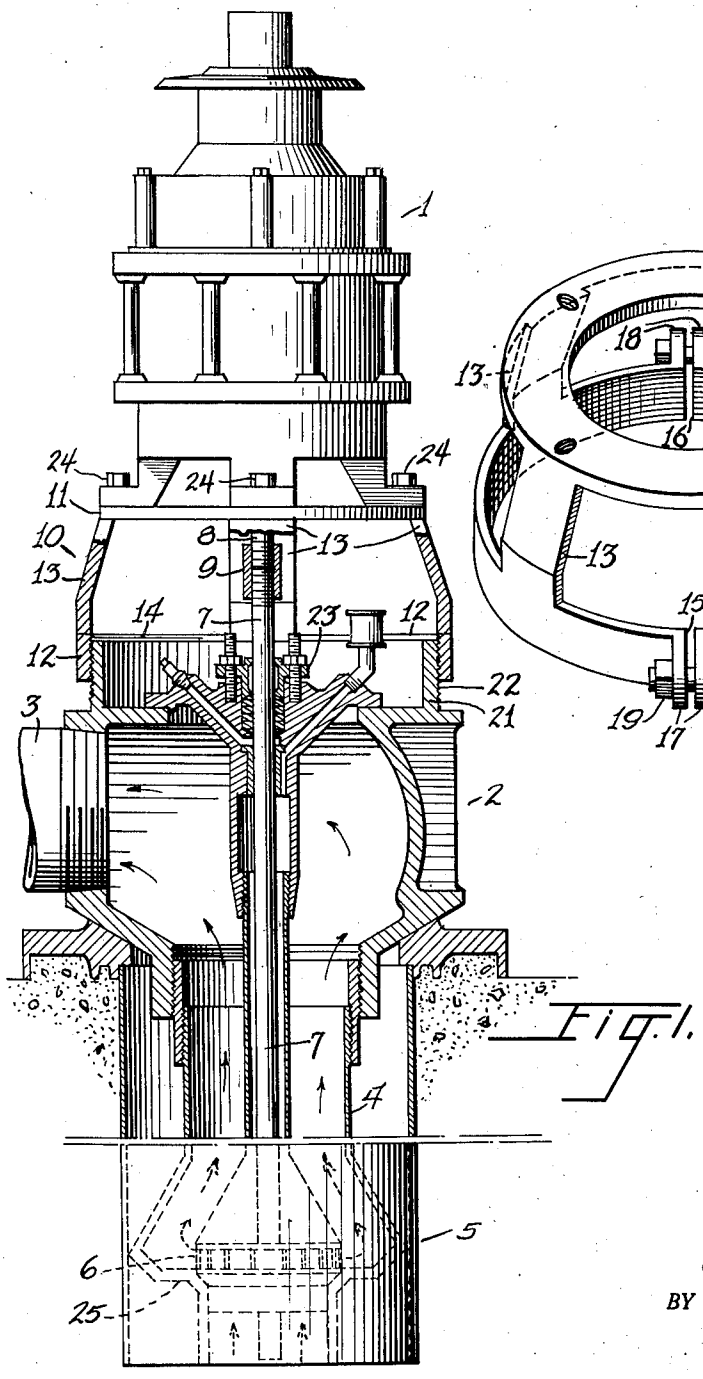


Fig. 1.

Fig. 2.

INVENTOR.
George S. Coats
BY Munn & Co.
ATTORNEYS.

Patented Sept. 18, 1934

1,974,014

UNITED STATES PATENT OFFICE

1,974,014

ADJUSTABLE PUMP HEAD

George S. Coats, Visalia, Calif.

Application June 20, 1932, Serial No. 618,364

5 Claims. (Cl. 103—102)

My invention relates to improvements in adjustable pump heads, and it consists of the combinations, constructions and arrangements hereinafter described and claimed.

In deep well turbine pumps, the driving shaft connected with the motor and with the runner lengthens through use and it is necessary to shorten this length periodically in order that the runner will not contact with the runner casing. In order to overcome this, hollow motor shafts have been resorted to, and the solid shaft connected to the runner is received in the hollow shaft and is provided with an adjusting nut so that the solid shaft can be moved axially in a vertical direction with respect to the hollow shaft. Hollow shaft motors are expensive.

It is the purpose of the present invention to provide novel means for uniformly lifting the entire motor casing and runner shaft so as to compensate for the lengthening of the shaft and any wear that may have taken place. The means for uniformly lifting the entire motor casing and runner shaft does away with the necessity of using hollow motor shafts, although the device can be used with solid or hollow motor shafts.

After the motor and runner shaft have been adjusted, they can be secured in adjusted position. The device is extremely simple in construction and can be adapted to standard equipment after making but a slight alteration.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing forming a part of this application, in which

Figure 1 is a vertical section through the device, portions being shown in elevation; and

Figure 2 is a perspective view of the adjustable pump head.

In carrying out my invention, I make use of a motor indicated generally at 1, and I further make use of a water outlet casing 2. The casing has an outlet pipe 3 communicating therewith and a water pipe 4 that extends down to the pump, indicated generally at 5. The pump has a runner 6 that is operatively connected to a drive shaft 7, and this shaft in turn is connected to the motor shaft 8 by means of a coupling 9. The motor shaft 8 may be solid or hollow. Since a solid motor shaft is less expensive, I prefer to use this type.

Between the casing 2 and the motor 1, I dispose an adjustable pump head indicated generally at 10. This head is shown in perspective in Figure 2. The head comprises a top disc 11 that support the motor casing and a bottom ring 12 that is connected to the disc 11 by legs 13. The ring 12 is threaded internally, as at 14, and is split at 15 and 16. Integral ears 17 and 18 are disposed at the ends of the split ring portions, and the ears are secured together by bolts 19 and 20, or other suitable fastening means.

The casing 2 is provided with an integral flange 21, and this flange is threaded externally, as at 22, for receiving the ring 12.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

When assembling the device, the drive shaft 7 extends above the packing gland 23 in the top of the casing 2. The motor casing 1 is secured to the disc 11 by screws 24, and the adjustable pump head 10 is mounted on the flange 21 so that the threads 14 on the ring 12 mesh with the threads 22 on the flange. The motor shaft 8 registers with the drive shaft 7 and is initially connected thereto by the coupling 9. The adjustable pump head may now be rotated with respect to the flange 21 so as to lower the motor casing 1 with respect to the casing 2. The coupling 9 may now be tightened so as to draw the shafts 7 and 8 into abutting relation. The adjustable pump head 10 may be further rotated in either direction so as to properly position the runner 6 with respect to the casing 25 of the pump 5. The bolts 19 and 20 are now tightened so as to clamp the split ring 12 around the flange 21 and prevent accidental rotation. The device is now ready for use.

When the shaft 7 lengthens, the motor casing 1 can be uniformly raised and carry with it the shaft until the runner 6 assumes the proper position in the casing 25. The raising of the motor 1 is accomplished by first loosening the bolts 19 and 20 and then rotating the adjustable pump head through the desired number of degrees, after which the bolts can be tightened. The rotating of the pump head causes it to move upwardly on the flange 21 and to move the motor casing 1 and the shaft 7 vertically.

In this simple manner, the lengthening of the shaft 7 can be compensated for.

While I have shown only the preferred form of my invention, it should be understood that various changes or modifications may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. In combination, a pump casing, a runner disposed in the casing, a vertical shaft connected to the runner and projecting above the casing, an adjustable pump head having a single means for vertically positioning the casing, said single means including a threaded flange fixed to the casing and having a threaded connection with the pump head, and a motor carried by the adjustable head and being connected to the shaft, said head being adjustable for moving the motor, shaft and runner for properly positioning the runner in the pump casing.

2. The combination with a pump casing and a motor, of an adjustable head supporting the motor and having a single means for vertically positioning the pump casing, said single means including a threaded flange fixed to the casing and having a threaded connection with the pump head,

3. In combination, a pump casing, a runner disposed in the casing, a vertical shaft connected to the runner and projecting above the casing, an adjustable pump head having a single means for vertically positioning the casing, said single means including a threaded flange fixed to the casing and having a threaded connection with the pump head, a motor carried by the adjustable head and being connected to the shaft, said head being adjustable for moving the motor, shaft and runner for properly positioning the runner in the pump casing, and means for locking said head against movement.

4. The combination with a pump casing and a motor, of an adjustable head supporting the motor and having a single means for vertically positioning the pump casing, said single means including a threaded flange fixed to the casing and having a threaded connection with the pump head, and means for locking said head against movement.

5. The combination with a pump casing having an annular threaded flange and a motor, of an adjustable pump head supporting the motor and having a threaded split ring receivable by the flange, and means for tightening the ring on the flange after the head has moved the motor into the desired position.

GEORGE S. COATS.