March 29, 1932. W. R. ADAMS 1,851,414

CURRENT CONTROL DUMPING DEVICE

Filed Oct. 15, 1931 3 Sheets-Sheet 1

Fig. 1.

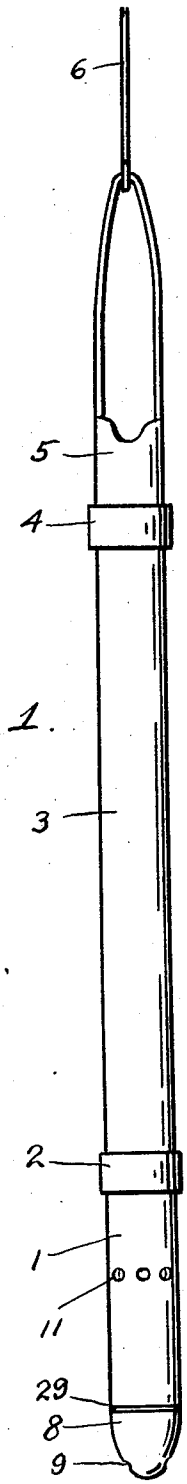


Fig. 7.

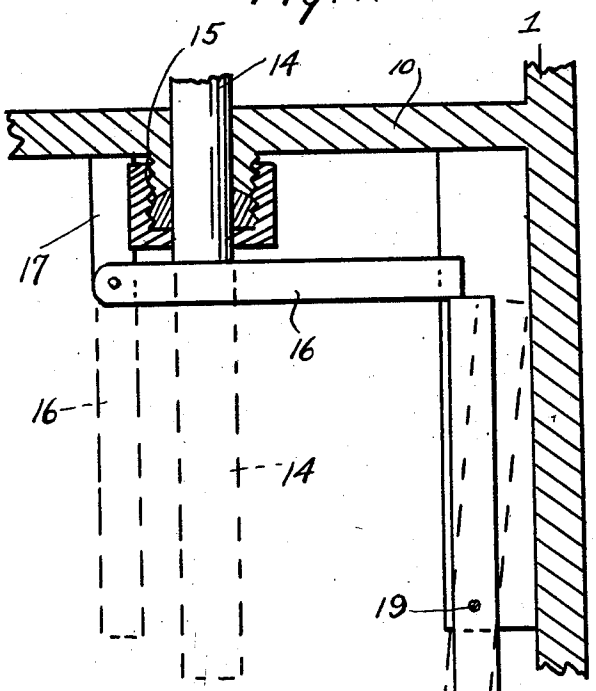
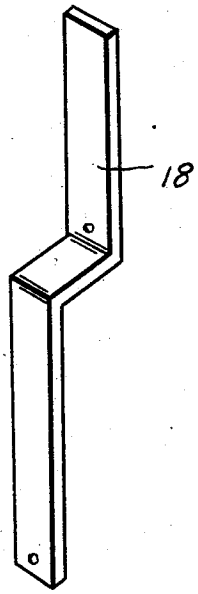


Fig. 8.



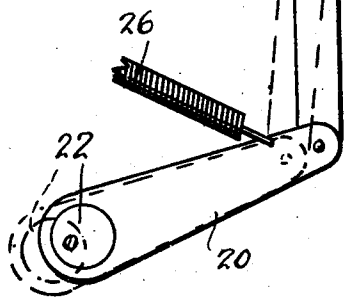
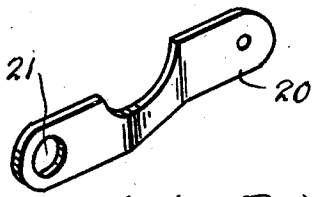


Fig. 9.



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CURRENT CONTROL DUMPING DEVICE

Filed Oct. 15, 1931 3 Sheets-Sheet 2

Fig. 2.

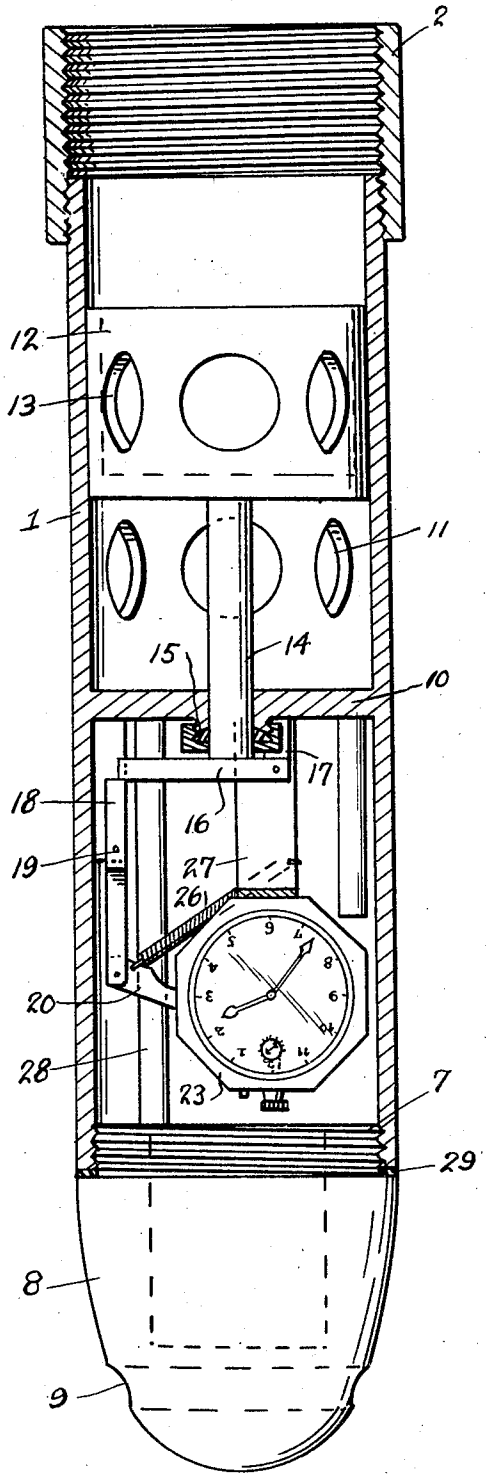
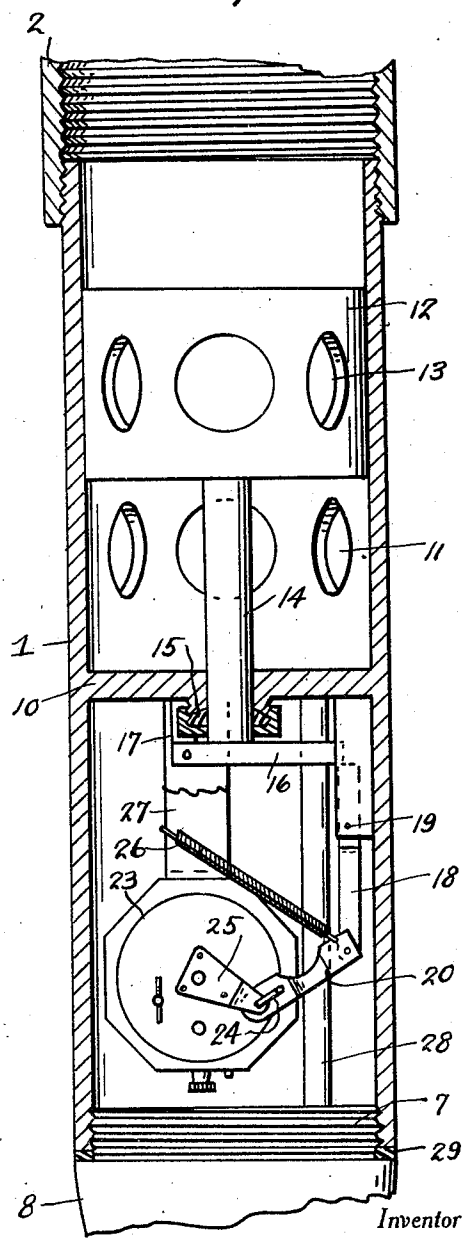


Fig. 3.



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Filed Oct. 15, 1931 3 Sheets-Sheet 3

Fig. 4.

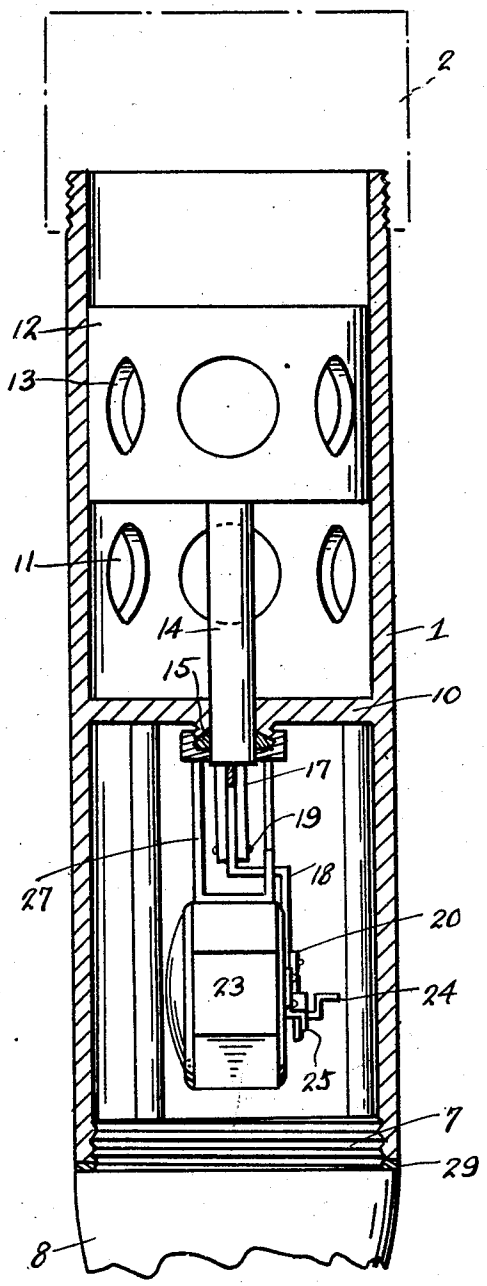


Fig. 5.

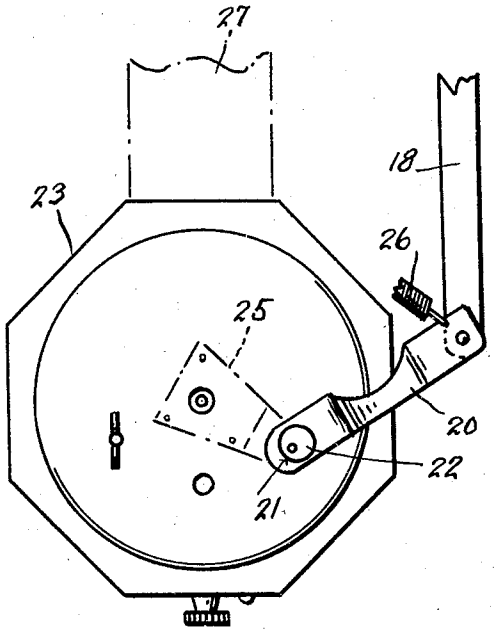
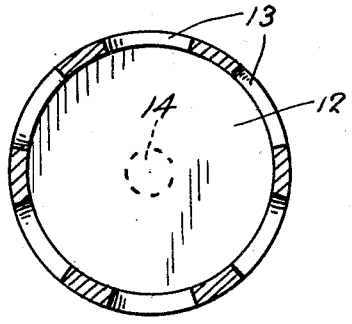


Fig. 6.



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Patented Mar. 29, 1932 1,851,414

UNITED STATES PATENT OFFICE

WILLIAM R. ADAMS, OF PAWNEE, OKLAHOMA

CURRENT CONTROL DUMPING DEVICE

Application filed October 15, 1931. Serial No. 569,093.

This invention relates to a current control dumping device which is mainly designed for dumping cement in oil or gas wells and which can be of course used for other purposes, the general object of the invention being to provide a cylinder having a piston thereon, the piston and cylinder having holes therein which will register with each other when the piston is in dumping position, with a clock controlled latch for holding the piston in raised position so that by setting the clock mechanism at any desired time, the clock will release the latch at such time and the piston will lower to dumping position so that the material will pass through the holes in the piston and cylinder.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters designate like or corresponding parts thruout the several views, and in which:—

Figure 1 is a view of the device attached to the lower end of the tube having a bail at its upper end.

Fig. 2 is a longitudinal sectional view through the device with parts in elevation.

Fig. 3 is a similar view but looking towards the rear part of the clock.

Fig. 4 is a longitudinal sectional view looking toward a side of the clock.

Fig. 5 is an enlarged view of the rear of the clock showing the arm attached to the long winding stem and also showing portions of the trip arm and a part of the spring.

Fig. 6 is a transverse sectional view through the piston.

Fig. 7 is a diagrammatic view of the trigger arrangement.

Fig. 8 is a view of the trip arm.

Fig. 9 is a view of the arm attached to the long winding stem.

In these drawings, the numeral 1 indicates the cylinder, the upper end of which is threaded to receive a collar 2 which couples the upper end of the cylinder to a pipe 3 having a collar 4 at its upper end to receive a bail 5 to which a bailer line 6 is attached. The lower end of the cylinder is provided with fine threads to receive the threaded part 7 of a cap 8 which is rounded as shown, so as to guide the device down through the hole or well without danger of the device being caught after dumping, or by the sides of a crooked hole. This cap or nose is formed with a transverse hole 9 so that a bar or the like can be passed therethrough in order that the cap or nose can be threaded tightly into the lower end of the cylinder.

A partition 10 extends across the cylinder and divides the same into upper and lower chambers, and the cylinder is provided with a plurality of holes 11 located above the partition. A cylinder of cup-shape as shown at 12 is located in the upper chamber and has a plurality of holes 13 therein which register with the holes 11 when the piston is in lowered position, so that material such as cement or the like placed in the tube 3 will pass through the holes 13 and 11 into the well.

Of course when the piston is raised in position the hole 13 is out of alinement with the hole 11 and material cannot escape. The piston rod 14 passes through a packing gland 15 carried by the partition and the trigger bar 16 is pivoted to a hanger 17 carried by the partition for extending under the lower end of the rod 14 to hold the piston in raised position. A trigger arm 18, of the shape shown in Fig. 8, is pivoted to a part of the cylinder in the lower chamber thereof as shown at 19. When the end of this arm is located under the free arm of the trigger bar 16 as shown in Figs. 2 and 3, the piston is held in raised position as shown in these figures.

An arm 20 has one end pivoted to the lower end of the arm 18 and an opening 21 in the other end of the arm 20 fits over a cam 22 attached to the alarm winding stem of a clock 23, the handle of the stem being shown at 24. A bracket 25 attached to the rear face of the clock acts as a brace for the winding stem of the alarm mechanism of the clock.

A spring 26 has one end attached to the

outer end of the arm 20 and its other end is attached to a part 27 which forms part of the supporting means of the clock.

Other portions of the clock supporting means is shown at 28 and extends between the partition and the nose of cap 8 and a gasket 29 is placed between the nose or cap 8 and the lower end of this cylinder make a water tight joint between the two parts so that no moisture can enter the chamber where the clock is located.

From the foregoing it will be seen that after the parts are set as shown in Figs. 2 and 3, the device on cylinder 1 is attached to the tube 3 and the stem or other material is placed in the tube and is supported therein by the piston 12. The device is then lowered into the well at any desired position, it being of course understood that the clock mechanism is set to operate the trigger at any desired time. When this time occurs, the arm 20 is moved from under the trigger bar so that the cylinder drops and the holes 13 therein are in register with the holes 11 in the cylinder, and thus the material will pass through the holes into the well. The parts are then withdrawn and the trigger mechanism re-set so that the device can be used over again.

Attention is called to the fact that this device will dump its load wherever necessary, and it is not necessary to lower the device to the bottom of the well, and by controlling the dumping by the clock mechanism the device can be positioned wherever it is desired, as sufficient time is provided for properly adjusting the device before the dumping act.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

Having thus described my invention, what I claim as new is:—

1. A device of the class described comprising a cylinder having an opening therein, a piston in the cylinder having an opening therein for registering with the first opening when the piston is in lowered position, trigger mechanism for holding the piston in raised position and time controlled mechanism for releasing the trigger mechanism.

2. A device of the class described comprising a cylinder having an opening therein, a piston in the cylinder having an opening therein for registering with the first-mentioned opening when the piston is in lowered position, trigger mechanism for normally holding the piston in raised position, clock controlled mechanism for releasing the trigger mechanism, a closed chamber in the cylinder in which the clock and trigger mechanism are located and a rod connected with the piston and entering said chamber.

3. A device of the class described comprising a cylinder having a partition therein, and an opening in the cylinder above the partition, pistons in the cylinder above the partition and having an opening therein for registering with the first-mentioned opening when the piston has been lowered, a rod connected with the piston and extending through the partition, a packing gland surrounding the rod, a trigger bar pivoted in the cylinder below the partition, a trigger arm pivoted in the cylinder below the partition for holding the trigger bar in raised position with the piston in raised position, clock mechanism for moving the trigger arm to releasing position, a nose member threaded in the lower end of the cylinder for closing the lower end thereof, and means for attaching the upper end of the cylinder to a tube having a bail connected with its upper end.

4. A dumping device for dumping cement and the like in wells, comprising a cylinder attached to a chute for containing the cement, said cylinder having holes therein, a piston in the cylinder having holes therein for registering with the first-mentioned holes when the piston is in lowered position, the closed chamber in the lower part of the cylinder, a rod connected with the piston at the end of the chamber, trigger means in the chamber for engaging the rod for holding the piston in raised position, clock mechanism in said chambers for releasing the trigger mechanism at any desired time, and a nose threaded in the lower end of the cylinder for closing the lower end of the chamber.

In testimony whereof I affix my signature.

WILLIAM R. ADAMS.