

UNITED STATES PATENT OFFICE.

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CHECK-CONTROLLED APPARATUS.

SPECIFICATION forming part of Letters Patent No. 640,390, dated January 2, 1900.

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To all whom it may concern:

Be it known that we, JOHN KOLB and JOHN C. VOGEL, citizens of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Check-Controlled Apparatus, of which the following is a specification, reference being had to the accompanying drawings, and to the reference characters marked thereon, which form a part hereof.

This invention pertains to check-controlled apparatus of the class used more especially for measuring liquids, and pertains more particularly to that class of mechanism and devices which are operated by checks having different forms for representing different quantity values for determining the quantity of liquid to be delivered.

The invention consists in the combination and arrangement of the several devices and contrivances which are used in the construction of the machine, together with the peculiar action and operation of the same in relation to each other, as we will hereinafter fully describe, and which will also be fully set forth in the claims.

The principle object we attain by our invention is to provide a check-controlled apparatus for measuring liquids in desired quantities which will be cheap and easy of construction and durable and accurate in its operation and which at the same time can be operated by a novice without long practice or experience.

Another object of the invention is to provide a check-controlled apparatus which will operate in a sure and accurate manner to control the delivery of a special quantity of liquid and which will also be capable of easy attachment to any ordinary form of pump for regulating the quantity of liquid to be passed through the same.

The accompanying drawings illustrate the devices and mechanism by means of which we attain these objects, and the same reference characters will be found indicating the same parts or elements throughout the several views therein.

Figure 1 shows a side view, partly sectional, of the controlling mechanism attached to the lifting-rod of an ordinary pump. Fig. 2 is a

plan view of the apparatus, partly sectional. Fig. 3 is a side view of the same in elevation and partly sectional and looking from the right. Fig. 4 is a view of one side of our improved check. Fig. 5 is a transverse section of the same. Fig. 6 shows one side of a check of a different value.

1 represents a casing which incloses the mechanism and which is arranged for attachment to an ordinary pump or other suitable device of that character for moving liquids, and 2 is a pump-rod passing vertically through the casing near one side thereof. Upon this pump-rod a toothed rack 3 is secured in a manner to allow a vertical adjustment of the rack along the rod, and 4 is a quadrant-section of a gear-wheel having on its periphery teeth which intermesh with the teeth on the rack and is mounted on a stud or shaft 5, passed through the hub 6 of the quadrant-section and which is carried by a stand 7, extending upwardly from the bottom of the casing or other convenient support. This hub 6 is provided with an outwardly-extending arm or projection 8, upon which is pivoted a pawl 9, arranged with its free end for engagement with the teeth of a ratchet-wheel 10, which is mounted for revolving around the shaft 5, and upon one side of this ratchet-wheel is a tooth-pinion 11, rigidly secured to or formed integral with the ratchet-wheel, so that they revolve together around the shaft, and the teeth of this pinion intermesh with the teeth upon a gear-wheel 12, which is suitably mounted for revolution upon the front side of a stand 13, carried by the bottom of the casing. Upon the front side of this gear-wheel the hub 31 projects outwardly and is provided with a series of fine teeth 14.

Directly in front of and with its end presented to the hub 31 is a trough or receiver 15, having a transverse inside dimension and contour conforming to the contour of the check to be used, and the end of this receiver is located in relation to the face of the hub 31 so as to leave a space sufficient for the check to pass between when desired.

Within the receiver 15 is arranged a plunger 16, having a rod 17 extending forwardly through the front side of the casing and provided on its outer end with a pull-knob, while 18 is a spring around the inner portion of the

rod and arranged for actuating the rod and plunger inwardly toward the hub of the gear-wheel. The inner face of the plunger is provided with a central pin 19, projecting slightly from the face, and above the receiver, at a short distance from the hub, the casing is provided with an opening 20, conforming to the dimension and contour of the check to be used.

Upon the frontside of the rack 3 is arranged a series of openings or indentations 21, while 22 is a bolt suitably supported and arranged for sliding in its bearings, so that its inner end may engage with one of the indentations 21 for locking the rack against movement, and 23 is a spring for actuating the bolt into engagement with the indentations. Standing at a right angle with the bolt is a lever 24, pivotally secured to a permanent support 25 at its middle, and one end of this lever is pivotally connected with the bolt 22, while its opposite or inner end 32, extending to the hub 31, is turned to project a short distance outwardly beyond the face of the hub.

As shown in Figs. 4, 5, and 6, a check 26 is arranged, practically of a circular form, with one portion of its periphery removed to form a straight edge 27, and thereby reduce the dimension of the check in transverse section in one direction, and an axial opening is arranged in the check, while one face of the check is provided with a series of raised teeth 29, arranged around the axial opening and fitted for engagement with the teeth 14 on the hub. At a suitable position upon the circular portion of the check is arranged a notch or opening 30 of a suitable dimension to allow the outwardly-projecting inner end 32 of the lever 24 to pass freely into the notch.

The casing is secured in any suitable manner upon the upper portion of a pump of any ordinary construction, with the mechanism in position for receiving the check and with the locking-bolt in engagement with one of the indentations on the rack. The plunger 16 is then withdrawn by means of the rod and knob, and the check 26 is dropped into the opening 20, with the teeth 29 facing the hub 31, and the check being held against revolution by the chord or straight side 27 against the flat side of the receiver then drops before the inner face of the plunger, and then on the release of the knob the plunger moves inwardly by means of the spring 18 and passes its pin 19 into the axial opening of the check and then moves the check inwardly, and the inner face of the check then coming in contact with the inner end 32 of the lever moves the same inwardly and oscillates the lever on its pivot and moves its outer end with the bolt 22 outwardly and frees the bolt from engagement with the indentation of the rack, and the plunger still pressing inwardly upon the check then engages the teeth 29 with the teeth 14 upon the hub and retains the parts in position, and the pump-rod is then reciprocated vertically in the ordinary act of pumping, and this reciprocates the rack

and oscillates the quadrant gear-section on its bearing, which by means of the pawl and ratchet, together with the pinion 11, causes the gear-wheel 12, with its hub and the check, to revolve slowly in the direction shown by the arrow in Fig. 1, the end 32 of the lever sliding against the side of the check near its outer periphery until the notch 30 is reached, and then the end 32, passing into the notch 30, allows the bolt 22 to be shot into engagement with one of the indentations 21 by the spring 23 for locking the pump-rod against movement. Then when the plunger is withdrawn the check having turned to move its circular edge over the inner end of the straight or flat side of the receiver 15 is held by the same against following the plunger as it is withdrawn, and then the pin leaving the axial opening in the check allows the check to drop below the end of the receiver into a receptacle or chamber arranged for that purpose.

It will be seen that by arranging the periphery of the check with one portion of its edge removed a straight side is formed and the transverse dimension of the check is reduced, so that the check can only be passed into the receiver in one position, and the receiver, being fitted with an inside contour corresponding to the peripheral contour of the check, then retains the check in this position until the teeth on its side are engaged with the teeth on the hub, and then by arranging the notch 30 at different locations in different checks relative to the straight-edge portion checks having a different quantity value are produced, the notch being arranged to allow any desired number of strokes or reciprocations to be made, so that any desired quantity of liquid can be pumped by placing the proper check in the receiver.

Having described our improvement, what we claim as new, and desire to secure by Letters Patent, is—

1. In a check-controlled delivery apparatus, a check for operating the same, and consisting of a disk of circular contour with a portion of one edge of its periphery removed for forming a straight side, and for reducing the transverse dimension of the check to limit its introduction in a predetermined position to the check-holder of the delivery apparatus, and provided with a central opening, and having on one side face the portion around said opening raised out and provided on its outer face with teeth for engagement with teeth in the check-holder of the delivery apparatus, and provided on one portion of its periphery with a notch cut out for the purpose described, substantially as set forth.

2. In a check-controlled apparatus, the combination of a pump-rod having a toothed rack connected thereto and provided with a spring-actuated bolt for engaging and locking the rod against reciprocation, a quadrant-section provided on its periphery with teeth for engaging the rack, and having an axial hub

mounted on a shaft carrying a ratchet and spur gear-pinion, a pawl carried by the quadrant-section for engaging the ratchet-wheel, a spur gear-wheel engaging the pinion and
5 provided with a hub having around the center of its side face a series of projecting teeth for engaging and revolving the controlling-check, a lever pivotally supported by its middle portion and having one end extending
10 over the face of the hub for contact with the controlling-check, and with its opposite end pivotally connected to the said spring-actuated bolt, a receiver for the check with its open end presented to the face of the spur
15 gear-wheel hub, a spring-actuated plunger for forcing the check against the face of the hub and the lever, for actuating the lever to unlock the pump-rod, substantially as set forth.

3. In a check-controlled apparatus, the combination of a pump-rod provided on one side with a rack, a quadrant-section having teeth on its periphery intermeshing with the teeth on the rack and provided with a hub-section mounted upon a shaft carrying a ratchet-
25 wheel and a pinion, a pawl carried by the quadrant-section for engaging the ratchet-wheel to revolve the pinion, a gear-wheel

mounted with its teeth engaging the teeth of the pinion and having on one side a projecting hub provided on its side face with projecting teeth around its axis for engaging a controlling-check, a spring-actuated bolt having its end engaging with an indentation in the rack for holding the pump-rod against movement, a lever pivotally supported by its middle and pivotally connected by one end to the
35 spring-bolt and with the opposite end extending over the face of the said hub for engagement with the controlling-check, a check-receiver having its open end presented to the
40 face of said hub, a plunger within the receiver, a spring for actuating the plunger toward the hub-face, and an opening in the receiver for the admission of the check, substantially as set forth. 45

In testimony whereof we have hereunto affixed our signatures in the presence of two witnesses.

JOHN KOLB.
JOHN C. VOGEL.

Witnesses:

JAS. E. THOMAS,
GEO. P. THOMAS.