No. 648,202. Patented Apr. 24, 1900.

R. A. HALL.

STOP MECHANISM FOR FRICTIONAL GEARING.

(Application filed Feb. 11, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1.

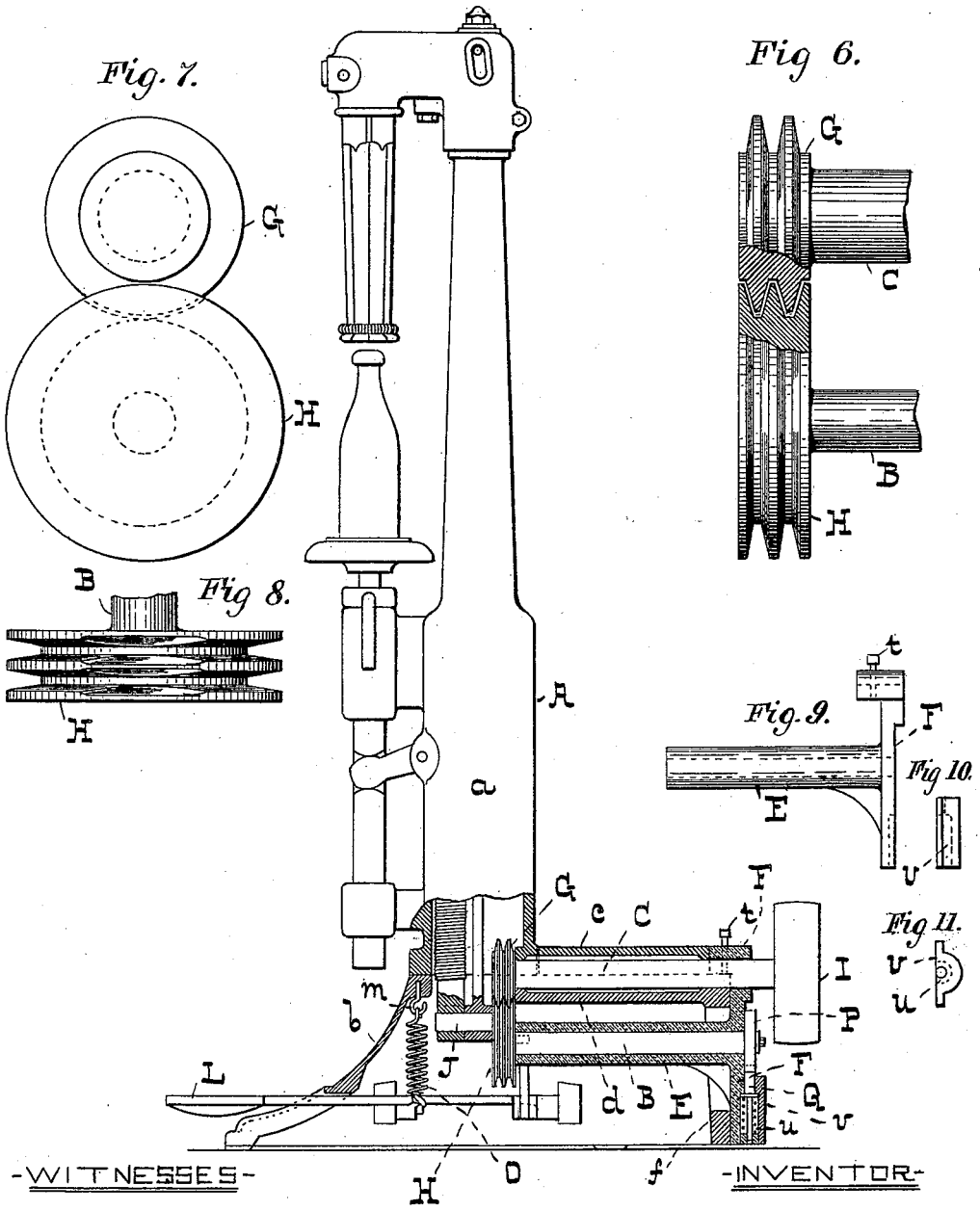

Fig. 7.

Fig 6.

Fig 8.

Fig. 9.

Fig 10.

Fig 11.

-WITNESSES-

Dan'l Fisher

A. Constantine,

-INVENTOR-

Robert A. Hall,

by Wm. W. J. Howard, atty.

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Fig 2.

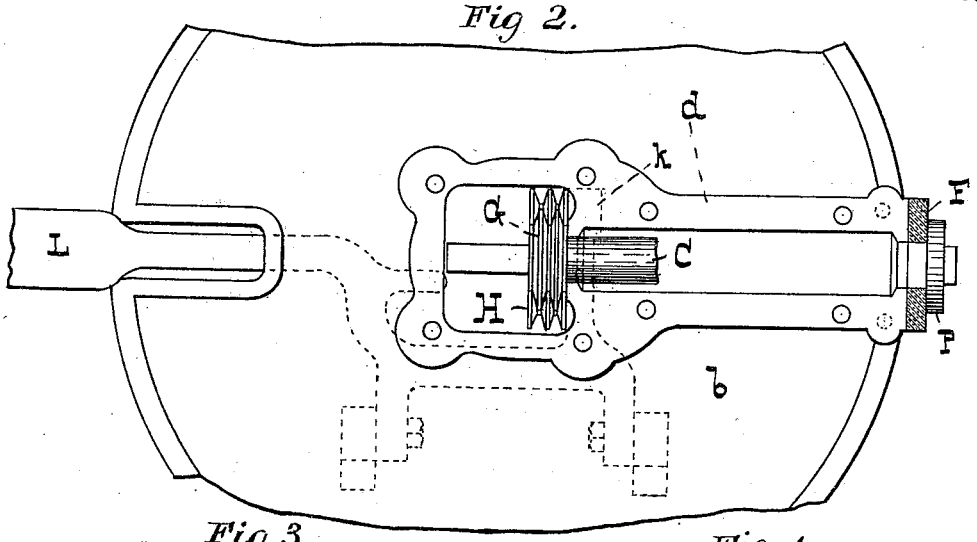


Fig 3.

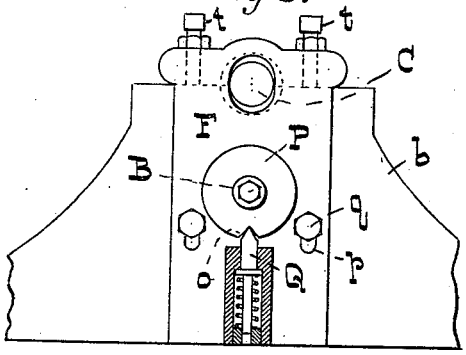


Fig 4.

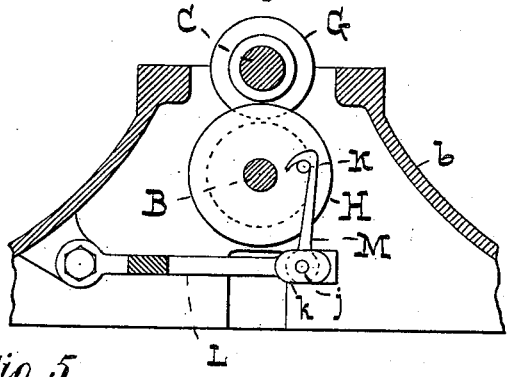
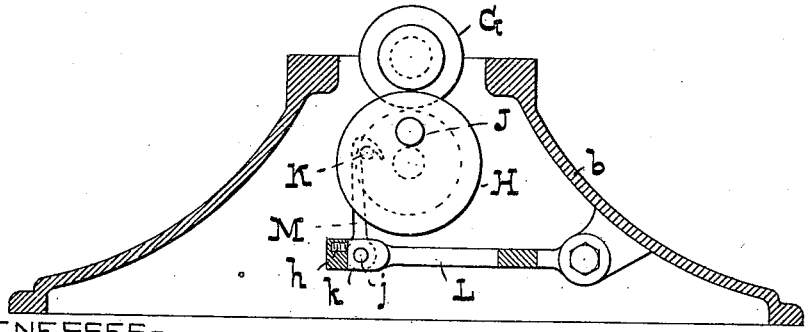


Fig 5.



-WITNESSES-

Dan'l Fisher.

H. Constantine.

-INVENTOR-

Robert A. Hall,

by Wm. W. J. Howard,

Atty.

UNITED STATES PATENT OFFICE.

ROBERT ALLISON HALL, OF BALTIMORE, MARYLAND.

STOP MECHANISM FOR FRICTIONAL GEARING.

SPECIFICATION forming part of Letters Patent No. 648,202, dated April 24, 1900.

Application filed February 11, 1898. Serial No. 669,939. (No model.)

To all whom it may concern:

Be it known that I, ROBERT ALLISON HALL, of the city of Baltimore, in the State of Maryland, have invented certain Improvements in Stop Mechanism for Frictional Gearing, of which the following is a specification.

This invention relates to an improved stop mechanism for frictional gearing, embracing as an element thereof a treadle or some other equivalent actuating device, whereby upon the treadle being depressed a shaft forming a part of a machine is made to perform one complete and exact revolution and then stop until the treadle is again depressed, as will hereinafter fully appear.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a partly-sectional side view of a bottle-sealing machine to which is applied the improved stop mechanism. Figs. 2 to 8, inclusive, are enlarged details of the machine. Figs. 9, 10, and 11 are details of the machine on the same scale as Fig. 1.

The machine for sealing bottles, the principal parts of which are herein shown, is of the same character as that illustrated and described in the application of Albert A. Carper, Serial No. 661,634, filed December 13, 1897, and its representation herein is for the purpose of illustrating one of the many uses to which the present invention may be applied.

Referring now to the drawings, A is the frame of the bottling-machine, consisting in the present case of the columnar stand *a* and the base *b*.

B is the main shaft of the machine, which has to be operated by the clutch mechanism from the driving-shaft C.

The driving-shaft C is seated in a bearing-box in two parts, which consist of the stationary or fixed portion *d* and the removable cap *c*.

The main driving-shaft B revolves in a sleeve E, formed, preferably, as a part of a plate F, secured to the face of a lateral extension *f* of the base *b*.

G and H are interlocking grooved friction-wheels, the former and smaller one being fastened to the driving-shaft C and the latter to the main shaft B of the bottling-machine. The driving-pulley is denoted by I.

The crank-pin, which operates the bottling-machine and which is represented by J, is secured to the driven friction-wheel H. (See Fig. 1.)

Referring to Figs. 6, 7, and 8, which are respectively a partly-sectional side view of the two friction-wheels, with a portion of their shafts, a face view of the two wheels, and a top view of the lower friction-wheel, it will be seen that in the driven wheel is a cavity of such character that when the two wheels are in the relative position shown in the said figures there is no contact between them, and the driving-wheel may be revolved independently of the other; but should the driven friction-wheel be turned sufficiently to establish contact between it and the driver the latter cannot be revolved without communicating a corresponding movement to the driven wheel, which movement is continued until the cavity is again brought to its first position or the one shown particularly in Fig. 7. In the machine shown the driving friction-wheel is in constant revolution and communicates motion to the driven one, H, until the cavity in that wheel effects the disconnection before described.

The means employed to turn the driven friction-wheel H sufficiently to establish contact between it and the driver when they are disconnected consist, preferably, in a pin K, which projects from the rear face of the driven wheel, a treadle L, and a hook M, hinged to the treadle and adapted to connect with the said pin, as shown in Fig. 4 in full lines and in Fig. 5 in dotted lines. A spring *h*, situated in a hole in the treadle, bears against the hook M at a point a short distance above the fulcrum *j* and serves to yieldingly retain the said hook in the position shown in Figs. 4 and 5. The upper end of the hook M is angular, so as to present an inclined surface to the pin K when the same is above the hook for a purpose hereinafter described.

By reference to Fig. 2, which is a plan of a portion of the base *b*, it will be seen that the treadle, which is shown mainly in dotted lines, has its fulcrum at one side thereof and is provided with an arm *k*, to which the hook M is connected, and it is in this portion of the treadle that the spring before referred to is

situated. A spiral spring O unites the treadle to a hook *m* in the base *b* (see Fig. 1) and serves to retain the treadle yieldingly in an elevated position.

On the outer end of the driven or main shaft B is a disk P, having a single V-shaped notch *o* in its circumference, and Q a spring-held bolt in a socket *u*, covered by a cap *v*, the end of which is adapted to fit in the said notch. The office of these devices is to insure the stoppage of the driven friction-wheel as soon as its cavity is adjacent to the driving-wheel, as shown in Fig. 7.

To insure a close contact of the driven friction-wheel H with the driver G, I make the sleeve E, carrying the main shaft B, adjustable in height by slotting the holes *p* in the plate F, through which pass the holding-bolts *q*, and providing the overhanging portion of the plate F with set-screws *t*, which bear on the upper surface of the fixed portion of the bearing-box. By setting up these screws the main shaft is raised and the driven friction-wheel forced against the driving one. After this adjustment the holding-bolts are tightened.

Supposing the driving-shaft to be in revolution and the driven friction-wheel in the position shown in Fig. 7, no movement is communicated to the said wheel and the machine to which the friction mechanism is applied is motionless.

When it is desired to put the machine in operation, the attendant bears down on the treadle, and the driven friction-wheel is slightly turned through the medium of the hook M. The moment that contact between the two clutch-wheels is established the main shaft is revolved until the cavity in the driven one arrives at its original position, when it stops, the driven friction-wheel, with its shaft, having made one complete revolution. The momentum of the working parts of the machine have a tendency to carry the driven friction-wheel past the stopping-point, and it is to counteract this tendency that the spring-held bolt Q and its disk P are used, they forming a stop which is effective for the purpose in view, while they do not interfere with the movement of the driven friction-wheel effected by the foot of the operator, as before described, to again put the machine in operation. Before a second revolution of the driven friction-wheel can be made it is necessary that the operator should release the treadle, so as to allow the hook M to come to such position as will admit of its engagement with the pin K, and it is to allow of this re-engagement that the upper end of the said hook is inclined, so that the said hook is deflected from a vertical position when struck by the pin K.

The friction apparatus described is well adapted to a machine for sealing bottles, as it is necessary or preferred that there should be a pause or stoppage of the working parts of the machine to enable the operator to remove a sealed bottle and replace it with an unsealed one; but it is evident that the said apparatus is equally as well adapted to a variety of machines for other purposes where a continuous revolution of a shaft is not required.

While a treadle is described as the means for effecting the operation of the hook M, it will be understood that the said hook could be operated by a hand-lever or other equivalent device.

I claim as my invention—

1. In a stop mechanism for frictional gearing, one friction member thereof having a cavity in its circumference, whereby in a certain relative position of the two members, frictional contact is destroyed, combined with mechanism which is independent of the driving member to effect a slight circumferential movement of the driven friction member and thereby establish frictional contact between the two members, substantially as, and for the purpose specified.

2. In a stop mechanism for frictional gearing, the combination of two peripherally-grooved clutch-wheels, which consist of a driving and a driven member, the driven member having a cavity in its circumference, a pin in the face of the driven friction-wheel, a treadle, and a detachable hook to connect the treadle with the said pin, substantially as, and for the purpose specified.

3. In a stop mechanism for frictional gearing, one friction wheel or member thereof having a cavity in its circumference whereby in a certain relative position of the two members, frictional contact between them is destroyed, combined with mechanism which is independent of the driving member to effect a slight circumferential movement of the driven member, and stopping devices to temporarily hold the driven member from contact with the driving one, substantially as specified.

ROBERT ALLISON HALL.

Witnesses:
WM. T. HOWARD,
DANL. FISHER.