

(No Model.)

E. S. BURMAN.

MECHANISM FOR IMPARTING AND REVERSING MOTION.

No. 557,486.

Patented Mar. 31, 1896.

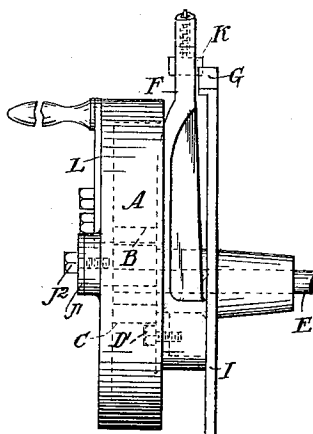
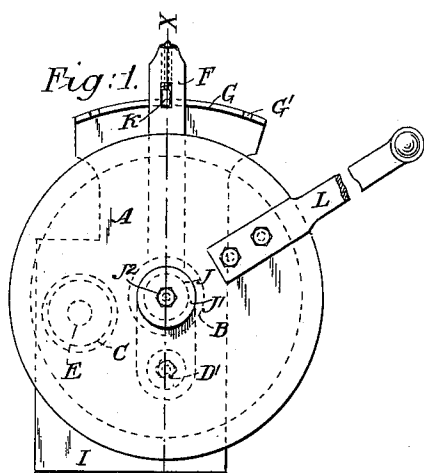


Fig. 2.

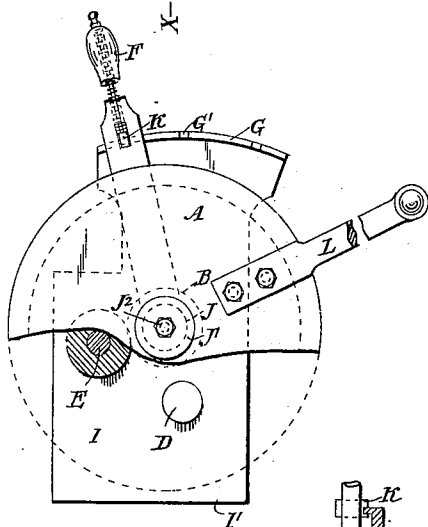


Fig. 3

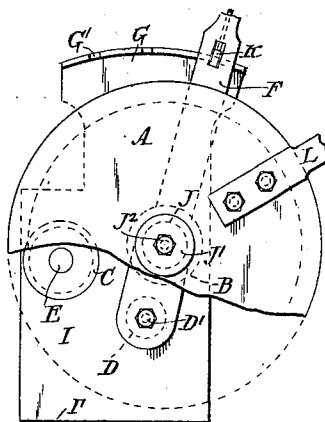


Fig. 4.

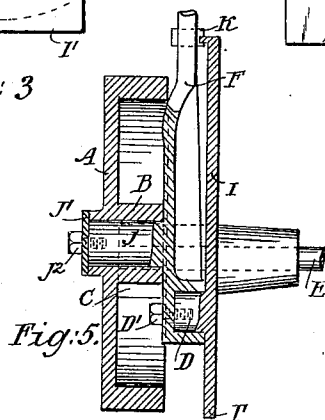


Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

ERNEST S. BURMAN, OF MELBOURNE, VICTORIA.

MECHANISM FOR IMPARTING AND REVERSING MOTION.

SPECIFICATION forming part of Letters Patent No. 557,486, dated March 31, 1896.

Application filed November 22, 1895. Serial No. 569,835. (No model.)

To all whom it may concern:

Be it known that I, ERNEST SYDNEY BURMAN, a subject of the Queen of Great Britain, and a resident of No. 487 Collins Street, Melbourne, in the Colony of Victoria, have invented certain new and useful Mechanism for Imparting and Reversing Motion, of which the following is a specification.

This invention has been devised to provide improvements in machinery in which a quick return motion is required, and has special reference to machines, such as butter-workers, where a slow forward motion of a certain member of the mechanism fulfils the chief function of a machine and where such member has to be brought back to its starting-point prior to its next operation. For instance, in a butter printing and weighing machine a rod or pusher ejects or pushes forward a lengthy core of butter which has been previously passed through a graded orifice. This ejection must, as aforesaid, be done slowly, and some considerable time will therefore elapse before the head of the ejecting rod or pusher reaches its destination. It naturally follows that the same mechanism when reversed will cause considerable time to be lost before the pusher has been again returned to the position ready for a fresh operation. It is to save this loss of time occurring in machines of this class that my invention has been designed.

In order that my invention may be the more easily understood, reference may be made to the accompanying drawings, in which—

Figure 1 is a front elevation, and Fig. 2 a side elevation, of apparatus constituting my improvements. Figs. 3 and 4 are front elevations of Figs. 1 and 2 with part of wheel A broken away. Fig. 5 is a vertical section on line *x x* of Fig. 1.

In the drawings my invention is represented as being provided with frictional gear-wheels; but it is evident that the contacting surfaces of the said wheels may be provided with meshing teeth without departing from the spirit of the invention.

The letter A designates a wheel or disk, one side of which is provided with a projecting hub and rim, between which a small friction-wheel C is adapted to operate, to be en-

gaged when necessary either by the periphery of the hub or the inner surface of the rim, and thus have direct or reverse motion transmitted from the wheel A to the shaft of the friction-wheel C.

The wheel A runs loose on a stud J, forming part of a handle-bar F, and is prevented from leaving said stud by a washer J' and set-screw J².

The friction-wheel C is secured to its shaft E, from which motion is transmitted to any machine with which my apparatus is connected.

The handle-bar F has its lower end journaled on a stud D, which projects outward from a supporting-plate I. The said bar is held on the stud by means of a set-screw, as shown at D'.

The wheel A is shown in the drawings as having a crank-handle L connected therewith, so that same may be operated by manual power; but it may be driven by an endless belt or rope from any kind of motor, provision being of course made in using an endless belt or rope to allow for the radial or differential positions of the wheel A, caused by the forward and backward movements of the handle-bar F. This may be done through any ordinary means—such, for instance, as jockey or idle pulleys conveniently arranged for said purpose.

It will be readily understood by reference to the drawings that the speed of the friction-wheel C and its shaft E can be regulated by the proportion of the diameters of the said wheel and hub and rim surfaces with which it is designed to engage.

The upper part of supporting-plate I is provided with a segmental flange G, having notches or key-stops G' formed therein, with which the head of a spring-actuated catch K connected with the handle-bar F is designed to engage to hold the said bar in position, with the friction-wheel C at its lowest end engaging the rim or hub of the wheel A, or at a point midway between same, as may be required.

Fig. 3 shows the handle-bar F in locked position so that the hub B may impart motion to the friction-wheel C and its shaft E. The revolution of the said shaft E will cause a for-

ward motion to be communicated to the butter-working machine, so that the ejector or pusher of the latter or other machinery requiring a slow forward movement will move slowly forward at the required speed.

Fig. 4 shows the handle-bar F in position, so that the rim of the wheel may impart motion to the friction-wheel C and its shaft E at a much more accelerated speed than resulted from the engagement between the hub B and friction-wheel C and also in an opposite direction thereto—that is to say, the friction-wheel C and its shaft E will revolve at a much greater speed in the opposite or return motion, consequently causing the pusher of the butter-worker connected with shaft E to return with much quicker speed than that with which it proceeded forward.

Fig. 1 illustrates another altered position of the handle-bar F upon the locking-quadrant G, from which it will be seen that both the wheel-rim and hub are thrown out of engagement with friction-wheel C. This is the "out-of-gear" position, and no motion is imparted to the machine, while wheel A will run idly upon the pin or stud J.

The plate I is preferably made of cast-iron of staunch proportions and may be provided with a sole-plate at its bottom I', or the said plate I may be an integral portion of the but-

ter-worker or other machine to which my improvements are fitted.

I would have it understood that I do not confine myself to any particular material for constructing my apparatus, nor to any arbitrary diameters or sizes of the parts hereinbefore referred to, as I may vary same to suit different requirements so long as such parts are so proportioned that the radial alteration of a lever, as F, in manner described will cause a wheel-rim or hub to engage with a friction-wheel, as C, for the forward or backward motions, respectively.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In mechanism requiring a quick return motion, the combination of the lever F, locking device K, notched segment G and wheel A having gear-surfaces as described with the handle L studs J and D, pinion C and shaft E, substantially as and for the purpose set forth.

Signed this 11th day of October, 1895.

ERNEST S. BURMAN.

Witnesses:

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