

No. 887,828.

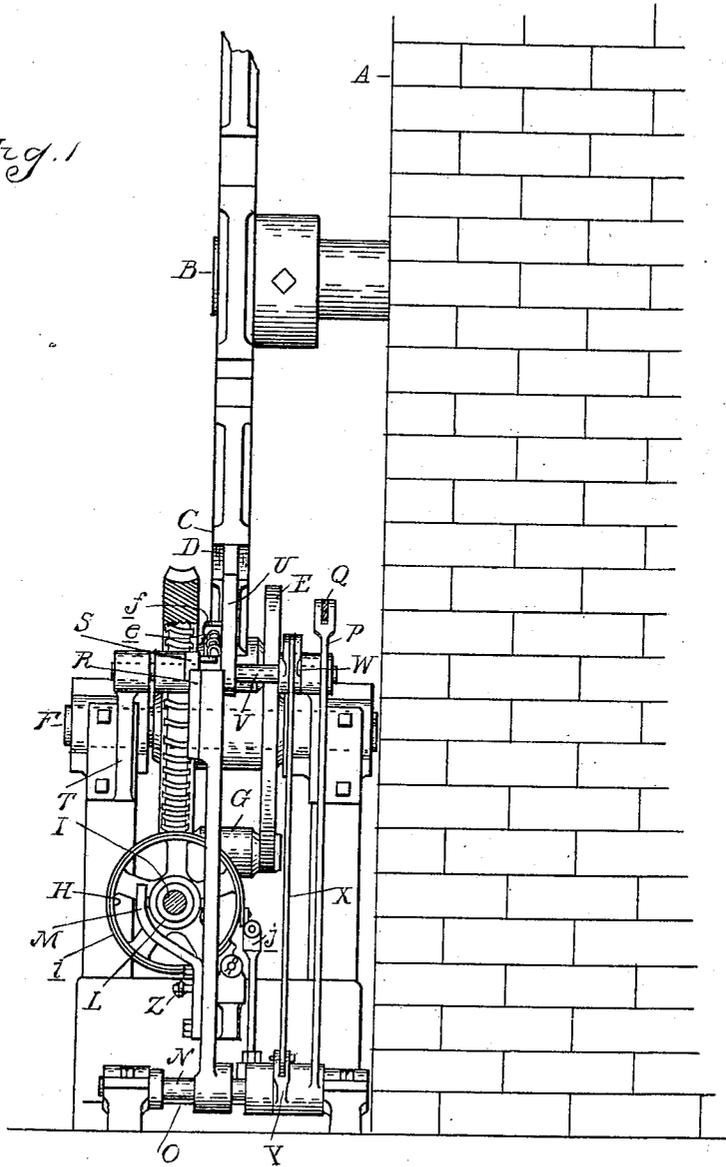
PATENTED MAY 19, 1908.

A. MILL & A. W. COPLAND.
ACTUATING MECHANISM FOR OVEN CARRIERS.

APPLICATION FILED JAN. 31, 1902

2 SHEETS—SHEET 1.

Fig. 1



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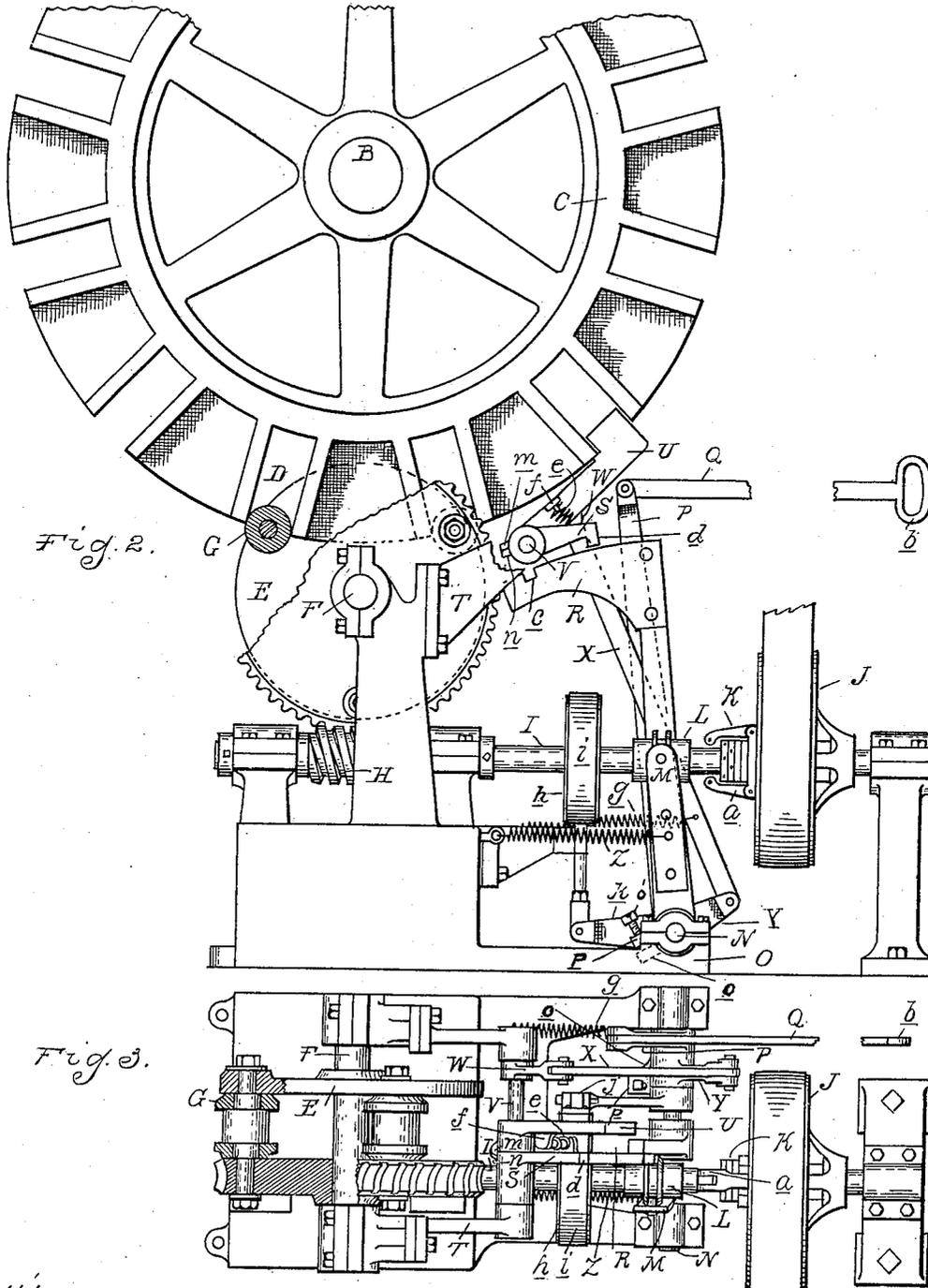
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UNITED STATES PATENT OFFICE.

ANTON MILL, OF CINCINNATI, OHIO, AND ALEXANDER W. COPLAND, OF DETROIT, MICHIGAN;
SAID MILL ASSIGNOR TO SAID COPLAND.

ACTUATING MECHANISM FOR OVEN-CARRIERS.

No. 887,828.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed January 31, 1902. Serial No. 91,994.

To all whom it may concern:

Be it known that we, ANTON MILL, residing at Cincinnati, in the county of Hamilton and State of Ohio, and ALEXANDER W. COPLAND, residing at Detroit, in the county of Wayne and State of Michigan, citizens of the United States, have invented certain new and useful Improvements in Actuating Mechanism for Oven-Carriers, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to bakers' ovens of that type known as reel ovens. In these the pans for holding the articles to be cooked are suspended from a rotary head and at one point in their revolution come into registration with the opening in the oven wall so as to permit of removing the cooked product and replacing it by the uncooked. These reels are usually provided with a number of pans which are successively brought into registration with the opening in the oven wall by a series of intermittent movements. Heretofore it has been customary to turn the reel by hand which requires the attention of one workman, and moreover must be carefully done in order that no sudden jar or vibration be imparted to the reel, which will result in causing the dough to "fall."

It is the object of the present invention to provide power actuated mechanism for moving the reel which is under complete control of the operator and which is absolutely free from sudden jar or vibration, and stops automatically.

To this end the invention consists in the construction as hereinafter described and claimed.

In the drawings, Figure 1 is a sectional front elevation showing a portion of an oven and the actuating mechanism for the reel. Fig. 2 is a side elevation thereof, and Fig. 3 is a plan.

A is the oven and B is the supporting shaft for the reel (not shown) which projects outward from the side wall of the oven.

In order to give the required movement to the reel, the shaft B must be rotated by a series of steps, each one of which will bring a pan into registration with the oven opening. In imparting the movement to the shaft it is necessary that it be gradually started and as gradually brought to a stop in order that the inertia and momentum of the reel be over-

come without vibration. It is also desirable that the mechanism may be set into operation by a quick movement of the workman, and that it require no further attention from him so that his time may be otherwise employed. To accomplish these results we have devised an actuating mechanism in which a series of step by step movements are imparted to the shaft, each movement being of a harmonic character, that is beginning very gradually, accelerating in speed and then as gradually diminishing to an almost imperceptible stop. The movement is started by the actuation of a trip, but stops automatically at the completion of one step.

The specific mechanism preferably employed is of the following construction: C is wheel secured to the shaft B outside of the oven wall. This wheel is provided with a series of radial slots D, preferably extending inward from the periphery. E is a radial head secured to a shaft F adjacent to the periphery of the wheel C. This head is provided with a series of pins, or preferably anti-friction rolls G projecting therefrom and adapted to successively engage with the radial slots D of the wheel C. The arrangement is such that when one of said rolls is entering one of the slots the one previously engaged is passing out of its slot. The orbit through which the rolls pass is so arranged in relation to the wheel C that the radial slots will be tangent thereto at the point where the rolls enter and pass out of engagement. The result will be that if rotary movement is imparted to the head E harmonic step by step movement will be transmitted to the wheel C.

The head E has preferably formed on its periphery a worm gear which meshes with a worm H upon the shaft I. This shaft has sleeved thereon a pulley J which is connected by a belt or other suitable means with a constant drive connection.

K is a clutch for coupling the pulley J with the shaft I.

L is an actuating member for the clutch K which is sleeved upon the shaft I and adapted when moved longitudinally thereon towards the pulley J to spread the levers *a* of the clutch and couple it to the shaft. The sleeve L is actuated by a forked rock arm M secured to the shaft N journaled in bearings upon the base O, which also preferably supports the other mechanism.

P is a rock arm sleeved upon the shaft N and having connected to its free end a link Q extending to a convenient position for actuating by the workmen and provided with a suitable handle, such as *b*.

g is a spring for releasing the rock arm P.

R is a segment secured to an extension of the rock arm M and provided with a notch *c* with which a dog S pivoted to a stationary bracket T is adapted to engage to automatically hold the clutch in engagement after being thrown in.

U is a locking dog for the wheel C adapted to engage with one of the radial slots therein. This dog is preferably secured to a rock shaft V journaled in the brackets T and which also forms the pivot for the dog S, the free movement of the latter being limited by engaging lugs *m* on the dog U and *n* on the dog S respectively.

W is a rock arm on the shaft V connected by a link X with a rock arm Y sleeved upon the shaft N and connected to the arm P.

o and *p* are lugs respectively connected to the arm Y and the shaft N and extending into the paths of each other.

o' is a set screw in the lug *o* forming an adjustable stop for the lug *p*.

Z is a spring connected to the rock arm M or other convenient point and tending to throw the clutch K out of engagement.

With the parts constructed as described, whenever the handle *b* is drawn outward by the operator, the arm P will move the sleeve L upon the shaft I. This will cause said sleeve to spread the levers *a* and couple the pulley J to the shaft I. At the same time the movement of the shaft N will cause the rock arm Y to draw upon the link X and rock the shaft V through the rock arm W. This will cause the dog U to be withdrawn from engagement with the radial slot in the wheel C. The movement of the rock arm M will move the segment R outward until the notch *c* therein comes in registration with a hook or lug *d* upon the dog S and as the latter has a limited movement upon the shaft V said lug *d* will drop into engagement with the notch. To make the locking more positive a spring *e* bearing at one end against a lug *f* on the dog U is arranged to press against the dog S to throw it into engagement. All of these movements which occur simultaneously upon the actuation of the handle *b* will throw the parts into position, where the shaft I is coupled to the pulley J the wheel C is released by the dog U and the rock arm M is locked in a position to hold the clutch in engagement. Movement will then be imparted to the rotary head E through the worm H and this will cause one of the rolls G to move inward in a corresponding slot D while the other roll is moved out from its slot. As before described this movement will cause a gradual starting of the wheel C which accel-

erates in speed until the roll G reaches its central position, after which the movement is gradually retarded until the roll is almost ready to pass out of engagement from its slot. During this movement the rock arm P is held from being returned by the spring *g*, by reason of the engagement of the dog U with the periphery of the wheel C. As soon however as the roll G is in the position to pass out of the slot the dog U will come into registration with another one of the slots D and on account of the tension of the spring *g* acting through the medium of the rock arm P, rock arm Y, link X, rock arm W and shaft V will be thrown into engagement with said slot. Simultaneously the dog S will be disengaged from the segment R being actuated by the engagement of the lugs *m* and *n*. This will release the arm M and permit the spring Z to return it to its normal position thereby releasing the clutch K. As soon as the clutch K is released the pulley J will no longer drive the shaft I, so that the movement of the wheel C will cease. In order, however, to prevent any further movement on account of the momentum of the parts a brake is preferably applied to the shaft I. This consists of a wheel or a disk *h* upon the shaft I, having a peripheral brake strap *i* therearound, one end of which is stationary and the other end secured to a link *j* connected to a rock arm *k* upon the shaft N. The result is that as soon as the shaft N is returned to its initial position the brake will be applied which will bring the mechanism to a stand.

What we claim as our invention is:

1. In a baker's oven having a rotatable carrier with a series of radially extending bearings thereon, antifriction members for successively slidingly engaging said radial bearings to rotate said carrier, and auxiliary means operatively associated with said bearings for stopping the carrier as it is disengaged by said antifriction members.

2. In a baker's oven having a carrier reel, the combination of an actuating mechanism therefor, comprising a wheel on the reel shaft having a series of radially extending bearings thereon, anti-friction members for successively slidingly engaging said radial bearings to rotate said wheel, and a dog adapted to engage one of said radially extending bearings to stop the wheel as it is disengaged by said antifriction members.

3. In a baker's oven, having a carrier reel, the combination of an actuating mechanism therefor, comprising a wheel on the reel shaft having a series of radially extending bearings thereof, a rotary drive member having a series of pins for successively slidingly engaging said radial bearings to rotate the wheel, a dog adapted to engage another of said bearings, and means operable by the movement of said dog for rendering said drive member inoperative.

4. In a baker's oven having a carrier, a
wheel on the shaft thereof having a plurality
of radial bearings, a movable member ar-
ranged to slidably engage said bearings for
5 imparting rotary movement to the wheel,
and supplemental means also engaging said
bearings to stop the wheel.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

ANTON MILL.

ALEXANDER W. COPLAND.

Witnesses:

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PHILIP HAYWARD.