(No Model.)

E. H. TAYLOR.

TUMBLING BOX.

No. 433,663. Patented Aug. 5, 1890.

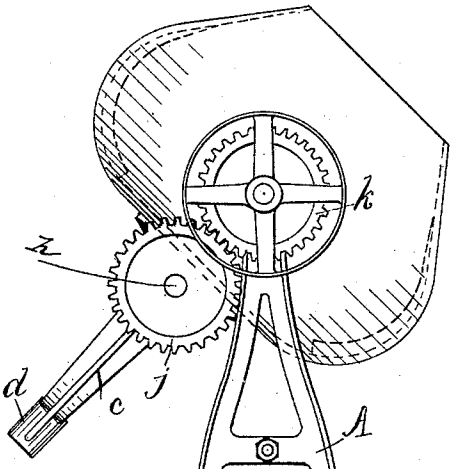


Fig. 1.

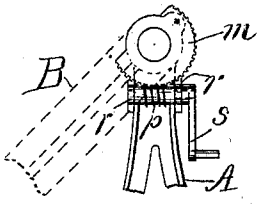


Fig. 3.

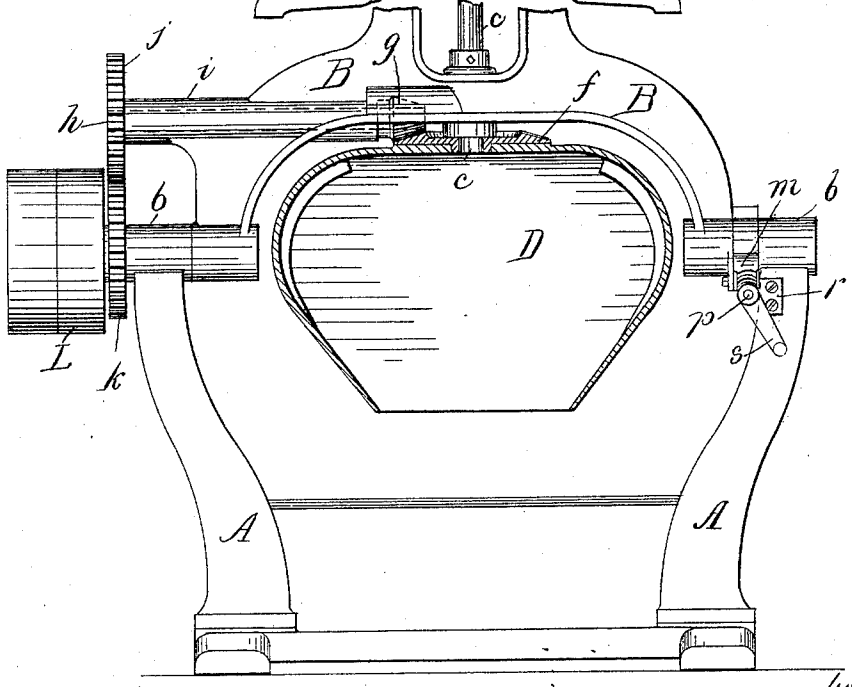


Fig. 2.

WITNESSES.

Robert Wallace.

Henry D. Bennett.

INVENTOR.

Eugene H. Taylor

by Wm. A. Macleod.

his atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EUGENE H. TAYLOR, OF LYNN, MASSACHUSETTS.

TUMBLING-BOX.

SPECIFICATION forming part of Letters Patent No. 433,663, dated August 5, 1890.

Application filed April 5, 1890. Serial No. 346,708. (No model.)

To all whom it may concern:

Be it known that I, EUGENE H. TAYLOR, of Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Tumbling-Boxes, of which the following is a specification, taken in connection with the drawings accompanying and forming a part hereof, in which—

Figure 1 is an end elevation of my improved device; and Fig. 2 is a front elevation showing the receiver or box bottom up, the shaft to which it is secured being in a vertical position, said shaft and a portion of its supporting-frame being broken away. Fig. 3 is detail of the worm and gear device in elevation.

My invention is an improvement on the device shown and described in Letters Patent No. 418,144, granted to me; and it has for its object to produce an easily-handled and efficient tumbling-box which may be run with comparatively little power and which may be adjusted while in operation, if desired, so as to vary the degree of violence with which the articles in the box are agitated or tumbled; and it consists in the device shown and hereinafter described, and which is more particularly pointed out in the claims appended hereto.

My device will be readily understood from the following description, in which reference is made to the accompanying drawings.

A represents the supporting-frame of the machine, which may be of any well-known construction, but which preferably consists of two uprights, as shown, securely set and tied together. At the upper ends of the uprights A are bearings *b*, in which are journaled studs or trunnions which are fast at either end of the Y-shaped swinging frame B. As will be clear, the trunnions or studs might be fast to the uprights A. A receiver D, preferably of the shape shown in Figs. 1 and 2, is mounted on the end of a shaft *c*, which is set in bearings lengthwise of the Y-shaped frame B, said shaft *c* having two bearings in said frame, one near the receiver where the arms of the Y meet, and another at *d*, in the lower end of the frame shown in Fig. 1. On the end of the shaft *c*, inside the arms of the Y-shaped swinging frame B, I secure the beveled gear *f*, and to this gear and the shaft *c* is firmly secured the receiver D, into which the articles to be tumbled are placed. A beveled pinion *g* is in mesh with the beveled gear *f* and is mounted on the end of a shaft *h*, which is set in an aperture or bearing *i* in one of the arms of the Y-shaped frame B. (See Fig. 2.) The other end of the shaft *h* has secured to it a gear *j*, which is in mesh with a gear *k*, which is mounted loosely on one of the trunnions of the swinging frame B, said trunnion being allowed to project beyond its bearing in the frame A to receive fast and loose pulleys and the said gear *k*. The gear *k* is fast to the pulley L, but, as before stated, turns loosely with said pulley on the trunnion or stud of the swinging frame. At the end of one of the arms of the Y-shaped frame B is secured a gear-sector *m*, which is in mesh with a worm *p*, (see Fig. 3,) the latter being journaled in brackets *r*, which are secured to the uprights A, near the upper end thereof.

The precise construction of the worm and gear device is not important. In the machine shown in the drawings the worm *p* is mounted horizontally and is provided at one end with a crank *s*, by which it may be turned. By this device the angle of inclination of the receiver D may be readily changed and set at any desired point, as will be clear.

The interior of the receiver D may be provided, if desired, with the well-known fins or buckets to carry the contents upward as the receiver revolves. By the construction shown, and above described, the receiver D is so mounted as to swing on its center, the trunnion or pivot being set in line or substantially in line with its center of gravity, and said receiver and its load are thus balanced, or nearly so, in any position. A counterpoise or weight is therefore unnecessary, and the worm and gear adjusting and holding device is freed from strain.

The operation of my device is as follows: The articles to be tumbled having been placed in the receiver D, power is applied by shifting the belt onto the pulley L, which drives the gear *k*, which is fast to said pulley, and the gear *h*, which is in mesh with the gear *k*. It will be noted that the gears *k* and *h* will be in mesh regardless of the angle of inclina-

tion of the shaft *c*. The movement of the gear *j* is transmitted, through the shaft *h* and the beveled gears *g f*, to the receiver D, which is caused to revolve. By turning the handle *s* of the worm and gear device the receiver D may be set in a vertical position or varied to any position between vertical and horizontal or beyond, and it will be clear that as the receiver leaves the vertical position and approaches the horizontal the degree of violence with which the articles in the receiver are shaken or agitated will be increased.

By the use of the worm and gear device, as above described, the position of the receiver D may be very easily and accurately adjusted, even while the machine is in operation, and the necessity for a counterpoise or weight on the shaft *c* is done away with.

What I claim is—

1. A tumbling-box having a receiver mounted in a swinging frame, said frame being supported on horizontal trunnions or pivots set substantially in line with the center of gravity of the receiver, whereby the said receiver may be easily adjusted vertically without the use of a counterpoise, substantially as shown and described.

2. The combination, with the frame A, of a swinging frame B, the receiver D and its shaft *c*, journaled in said swinging frame, the gear *m*, fast to said swinging frame, and a worm co-operating with said gear *m* and mounted on the stationary frame A, substantially as shown and described.

3. The combination, with the frame A, of the swinging frame B, the receiver D and its shaft *c*, mounted in said swinging frame, the shaft *h*, also mounted in said swinging frame, the beveled gears *g f*, and the gears *h* and *k*, the latter being fast to the driving pulley, substantially as shown and described.

EUGENE H. TAYLOR.

Witnesses:
WM. A. MACLEOD,
ROBERT WALLACE.