J. H. GUTTRIDGE.

MECHANICAL TOY.

APPLICATION FILED AUG. 5, 1919.

1,355,665.

Patented Oct. 12, 1920.

2 SHEETS—SHEET 1.

Fig. 2.

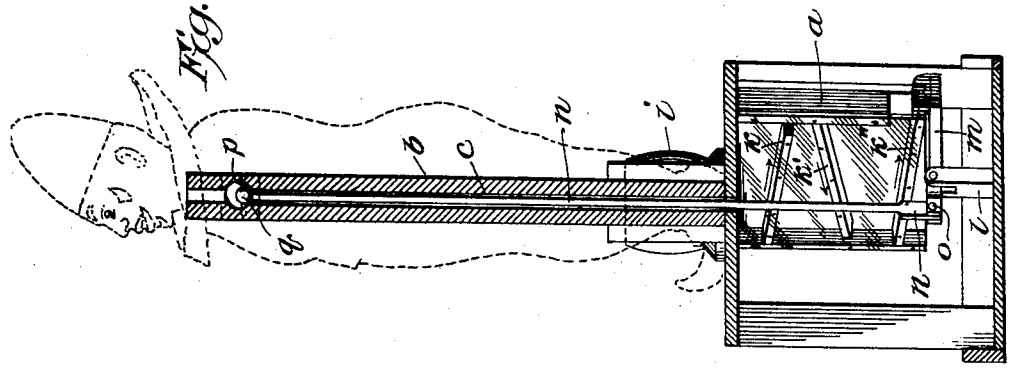



Fig. 1.

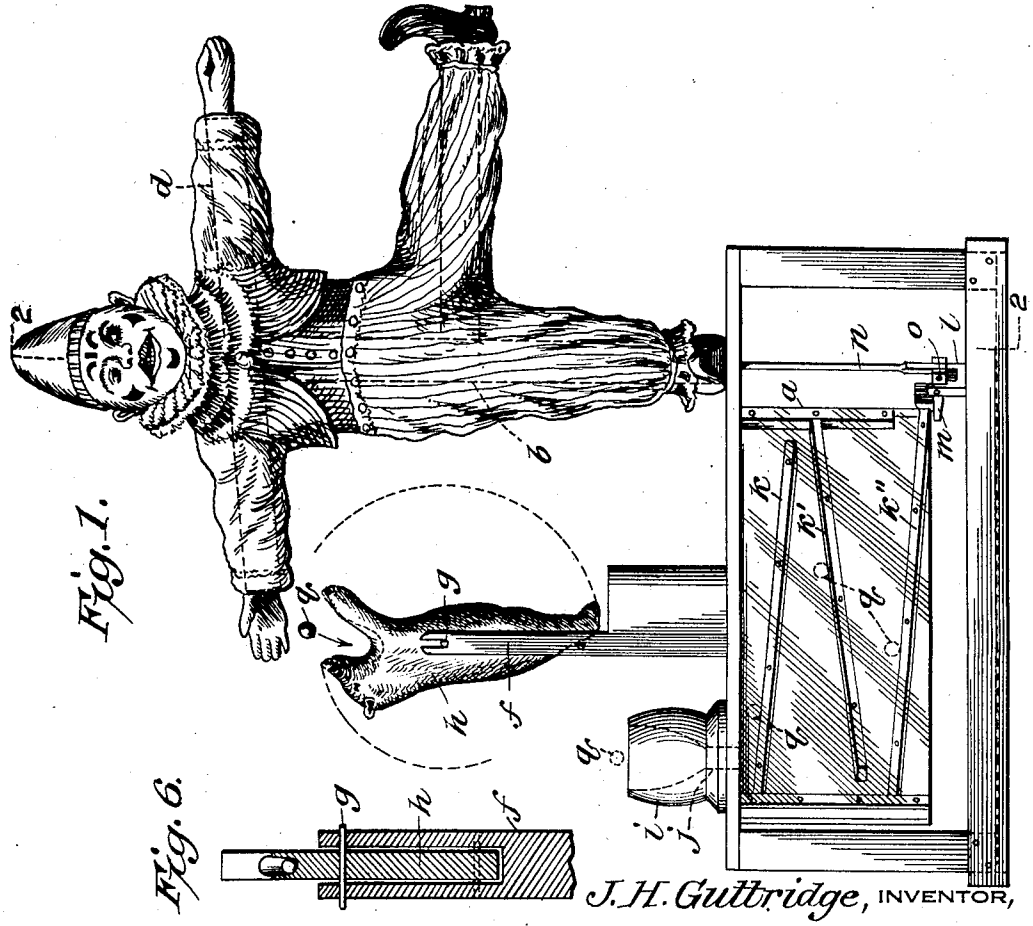



Fig. 6.




J. H. Guttridge, INVENTOR,

BY W. C. Carman

ATTORNEY

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2 SHEETS—SHEET 2.

Fig. 3.

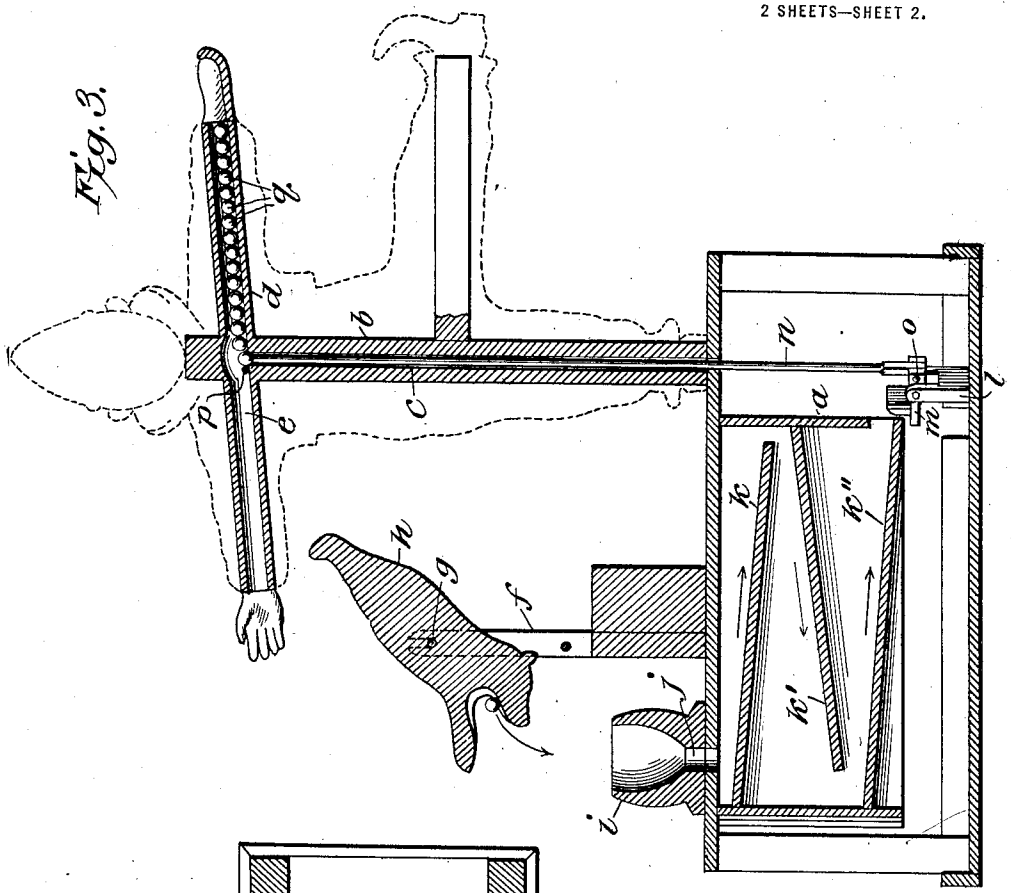



Fig. 4.

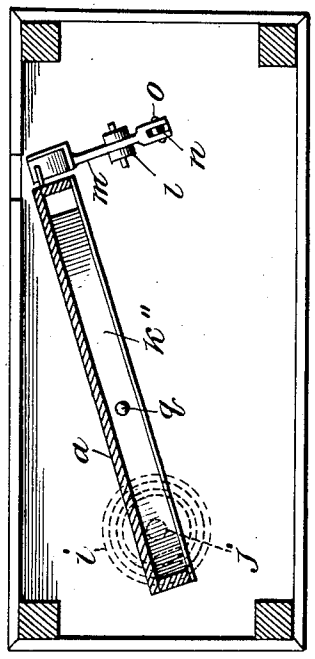
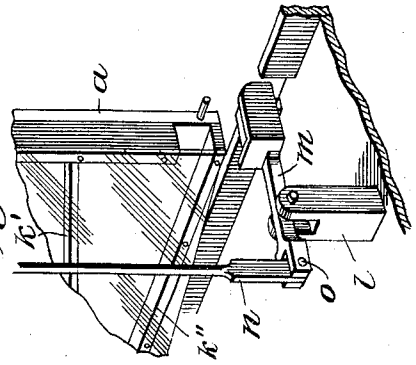



Fig. 5.




J. H. Guttridge, INVENTOR,

BY W. C. Carman

ATTORNEY

# UNITED STATES PATENT OFFICE.

JOSEPH HARRY GUTTRIDGE, OF YOUNGSTOWN, OHIO.

## MECHANICAL TOY.

1,355,665. Specification of Letters Patent. Patented Oct. 12, 1920.

Application filed August 5, 1919. Serial No. 315,492.

*To all whom it may concern:*

Be it known that I, JOSEPH HARRY GUTTRIDGE, citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Mechanical Toys, of which the following is a specification.

This invention relates to mechanical toys, the mechanism of which is operated by rolling balls placed in a ball-way or race, each ball automatically releasing the following one until the supply of balls in the ball-race is exhausted.

In the drawings, Figure 1 is a side elevation; Fig. 2 is a vertical transverse section on line 2—2 Fig. 1; Fig. 3 is a central vertical longitudinal section; Fig. 4 is a top-plan view of the lower ball-race, showing its relation to the tripping or releasing mechanism; Fig. 5 is a fragmentary view in perspective, showing in detail the construction of the tripping or releasing mechanism; Fig. 6 is a vertical transverse section, illustrating the manner of mounting the swinging object or member, shown in the drawings in the form of a bear.

Similar reference characters designate corresponding parts throughout the various figures of the drawings.

*a* represents the base of the structure in the form of a box, which may be provided with transparent sides and ends, such as mica. Rigidly mounted upon the top of the base *a*, and adjacent one end thereof, is the standard or column *b*, having a central bore *c*. Rigidly secured to the upper end of column *b*, is the slightly inclined cross-arm *d*, also provided with a central bore *e* to form a ball-race, as plainly shown in Fig. 3. It is obvious, of course, that this ball-race may be formed by cutting a groove in the upper face of the cross-arm *d* instead of providing the central bore *e* as shown in the drawings. A pin *p* may be placed in the bore *e* or the ball-race in the arm *d*, adjacent the bore *c* in the column *b*, to insure against the premature passage of this point by the balls.

Rigidly mounted upon the base or box *a*, and adjacent the longitudinal center thereof, is the bracket *f*, to the upper end of which is swingingly mounted upon the pin *g* the member *h*, shown in the drawings in the form of a bear. Further rigidly mounted upon the top of the base or box *a*, and adjacent the end opposite the column *b*, is the bowl or receptacle *i*, provided with a central orifice *j*.

Mounted within the base or box *a*, is the bearing block 1 (see Fig. 5), in the upper end of which is pivotally mounted the tripping lever *m*. Reciprocatingly disposed within the bore *c* of column *b*, and extending the full length thereof, is the actuating stem *n*, the lower end of which is pivotally connected with one end of the lever *m*, as at *o*.

Within the base or box *a*, I provide one or more inclined ball-races or chutes (three being shown in the drawing *k*, *k'* and *k''*), the receiving end of the upper-most one of which is disposed immediately beneath the orifice *j* in the lower part of the bowl *i*, while the delivery end of the lower-most one is disposed immediately above the free end of the lever *m* and the delivery end of each of the other chutes is disposed immediately above the receiving end of the one below it.

The operation of my device is as follows: One end of the bore *e* in the cross-arm *d* is filled with balls *q*—*q*, the inner-most one of which will rest in the upper end of the bore *c* in column *b*, and against the pin *p*. Then the spindle *n* is manually lifted to release the first ball over the pin *p*. This ball is then delivered from the lower end of the cross-arm *d* into the arms, so to speak, of the swinging member *h*, as shown in Fig. 1. The weight of this ball is sufficient to overcome the normally balancing weight of the lower end of the swinging member *h*, causing the latter to swing on its pivot *g* to the point where it will deliver the ball into the bowl or receptacle *i*, as shown in Fig. 3, after which the member *h* will swing back to its normal position as shown in Fig. 1. The ball will then find its way through the orifice *j* into the inclined chute *k*, from which it will be delivered into the chute *k'*, thence into *k''*, and so on until it reaches the lower-most of the inclined chutes, from which it will be delivered on top of the free end of lever *m*, depressing the same and thereby raising the spindle *n*, which will release the next ball in the cross-arm *d*, and thus, the operation will be repeated until all of the balls are out of the cross-arm.

I claim—

1. In a device of the class described, a base, a column mounted upon said base, a cross-arm secured to said column and provided with a ball-race, a swinging member mounted upon said base, a receptacle rigidly

mounted upon said base and communicating therewith, one or more inclined ball-chutes within said base, a trip lever mounted within said base, and a spindle having its lower end connected with said trip-lever and the other end extending upwardly to the ball-race in said cross-arm.

2. In a device of the class described, a base, a column mounted upon said base, a cross-arm secured to said column and provided with a ball-race, a swinging member mounted upon said base, a receptacle rigidly mounted upon said base and communicating therewith, one or more inclined ball-chutes within said base, a plurality of rolling members, and means for automatically successively releasing said rolling members.

3. In a device of the class described, a base, a column mounted upon said base and provided with a central longitudinal bore, a cross-arm secured to said column and provided with a ball-race communicating with the bore in said column, a swinging member mounted upon said base, a receptacle rigidly mounted upon said base and communicating therewith, one or more inclined ball-chutes within said base, a trip-lever mounted within said base and a spindle slidably mounted in the bore of said column and having its lower end connected with said trip-lever.

4. In a device of the class described, a base, a column mounted upon said base and provided with a central longitudinal bore, a cross-arm secured to said column and provided with a central longitudinal bore communicating with the bore in said column, a swinging member mounted upon said base, a receptacle rigidly mounted upon said base and communicating therewith, one or more inclined ball-chutes within said base, a trip-lever mounted within said base, and a spindle slidably mounted in the bore of said column and having its lower end connected with said trip-lever.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

J. HARRY GUTTRIDGE.

Witnesses:

RICHARD E. FRANCIS,

C. W. STILLSON.