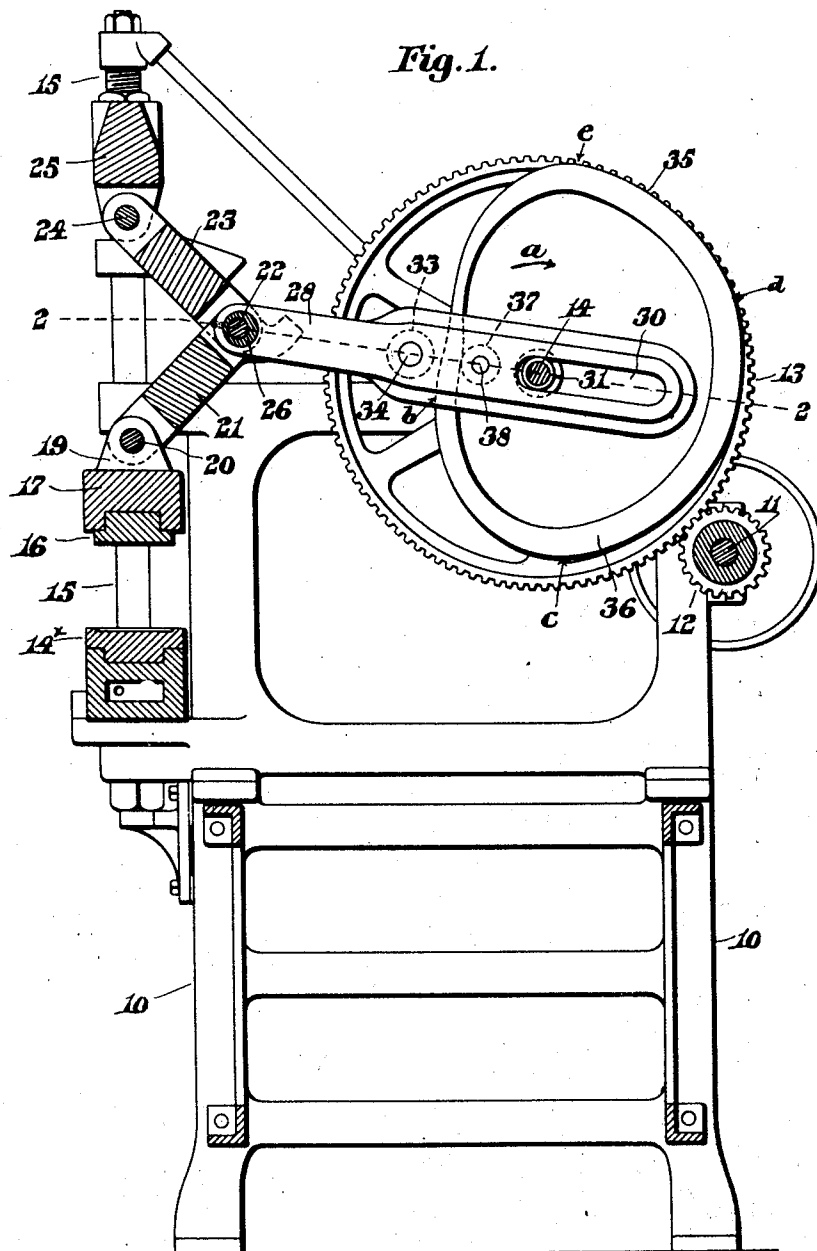


C. J. WENNBERG.
 TOGGLE PRESS.
 APPLICATION FILED APR. 8, 1919,

1,333,648.

Patented Mar. 16, 1920.
 2 SHEETS—SHEET 1.



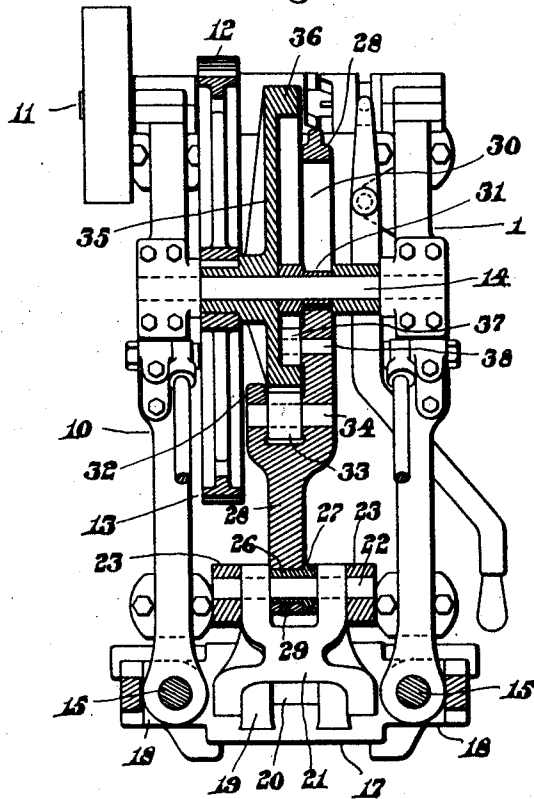
Inventor:
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Fig. 2.



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UNITED STATES PATENT OFFICE.

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TOGGLE-PRESS.

1,333,648.

Specification of Letters Patent.

Patented Mar. 16, 1920.

Application filed April 8, 1919. Serial No. 288,861.

To all whom it may concern:

Be it known that I, CARL J. WENNBURG, a citizen of the United States of America, and a resident of East Milton, in the county of Norfolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Toggle-Presses, of which the following is a specification.

This invention relates to toggle presses and has for its object the production of a machine of this character which will be particularly adapted to mold articles from plastic materials, such for instance, as records for talking machines.

The invention consists in actuating the toggle mechanism by a cam so constructed that it will break the toggle rapidly and in the initial movement of straightening said toggle, a quick movement will be imparted thereto and a very slow movement will be imparted to the toggle as the movable die approaches the fixed die.

The invention further consists in providing a cam for actuating the toggle mechanism which will be so constructed as to retain the two dies in fixed relation to each other for a definite period in order to give the plastic material time to set while interposed between the dies under pressure.

The invention further consists in providing the toggle mechanism with a connection with the cam actuated arm which may be adjusted so that the wear of the cams will not prevent the proper operation of the toggle mechanism.

The invention further consists in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims to be hereinafter given.

For the purpose of illustrating the invention, one preferred form thereof is illustrated in the drawings, this form having been found to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and that the invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described, except as required by the scope of the appended claims.

Of the drawings—

Figure 1 represents a vertical section of a

machine embodying the features of the present invention, and

Fig. 2 represents a horizontal section of the same on line 2, 2, on Fig. 1.

Similar characters indicate like parts throughout the several figures of the drawings.

In the drawings, 10 is a framework having mounted in bearings thereon, a driving shaft 11 having a pinion 12 secured to and revoluble therewith.

The pinion 12 meshes with and drives the gear 13 secured to the revoluble shaft 14 also mounted in bearings on the framework 10.

On the framework 10 is mounted a fixed die 14* interposed between two guide rods 15 on which a movable die 16 is adapted to reciprocate, said die 16 being mounted in a support 17 having ears 19 having a pin 20 extending therethrough.

The pin 20 extends through one end of a toggle member 21, the opposite end of which is connected by a hinge pin 22 with one end of another toggle member 23, the opposite end of which is pivotally connected by a pin 24 with a cross bar 25 adjustably secured to the upper ends of the guide rods 15.

The machine as thus far described may be of any well-known construction.

Surrounding the hinge pin 22 is an eccentric bushing 26 provided with a head 27 having a plurality of radial sockets therein by which with a pin inserted in said sockets, said eccentric bushing may be rotated about the axis of the hinge pin 22.

The bushing 26 is positioned in one end of an arm or link 28 and is secured in adjusted position therein, by means of the set screw 29.

The opposite end of the body portion of the arm or link 28 is provided with an extension in which is formed a longitudinal slot 30 through which the revoluble shaft 14 extends, said shaft having a roller 31 surrounding that portion of it within said slot 30.

The opposite end of the body portion of the arm or link 28 is also provided with an ear 32 parallel with the extension of said arm and between said extension and ear is positioned a roller 33 revolubly mounted on a pin 34 extending through said extension and ear.

This roller 33 is in alinement with the

body portion of the arm 28 and in the path of movement of a cam 35 secured to and revoluble with said shaft 14 and coacts with the full width of the peripheral surface thereof.

The cam 35 is provided on one face with a continuous lateral rib 36, the inner face of which has a cam surface with which coacts a roller 37 revolubly mounted on a pin or stud 38 extending inwardly from the extension of the arm 28.

The rib 36 is of varying thickness, the widest part thereof being the same as the distance between the peripheries of the two rollers 33, 37, and when this widest portion is between the said rollers, the roller 33 is in contact with the outer cam face and the roller 37 is in contact with the inner cam face.

The cam 35 rotates in the direction of the arrow "a" on Fig. 1 of the drawings in which figure the toggle is shown broken.

As the cam begins to move in the direction of the arrow, the inner cam face will immediately leave the roller 37 and as soon as the point "b" reaches the roller 33, said roller will be forced outwardly by the peripheral cam surface and at this time the roller 37 will be free from contact with the inner cam surface on rib 36.

The part of the outer cam surface between "b" and "c" is so constructed as to give quick action at the initial movement in straightening the toggle and when the point "c" reaches the center line of the arm 28, the width of the rib 36 will be such that both rollers 33 and 37 will be in contact with the opposite cam surfaces of said rib.

At this time the movable die 16 will be approaching the fixed die 14* and consequently the rib 36 between "c" and "d" is made in such a manner as to give a very slow action at the final straightening of the toggle.

When the point "d" reaches the center line of arm 28, the movable die 16 will be in its extreme downward position and it will remain in this position while the portion of rib 36 between "d" and "e" is passing between the rollers 33 and 37 thus permitting the plastic material to set under pressure.

At this time both rollers 33, 37 will be in contact with the outer and inner cam surfaces.

As soon as the point "e" passes the rollers 33, 37, the rib 36 becomes narrower and the outer cam surface will be freed from contact with the roller 33 and the inner cam surface will act upon the roller 37 to quickly remove the movable die from the material and the toggle will be again broken and returned to the position indicated in Fig. 1.

It will be observed that the upward movement of the die 16 is effected in about one quarter of a revolution of the cam 35 and the

downward movement is effected in about one-half of a revolution of said cam.

It is self evident that when the dies are doing no work the movable die will be moved quickly into operative position and when said die has reached a point where it is about to contact with the plastic material to be molded, a very slow downward movement will be imparted to said die 16.

When sufficient pressure has been given the plastic material ample time will be given for the material to set while the portion "d," "e," of rib 36 remains between the rollers 33, 37 and during the setting of said material the movable die 16 is held from movement in either direction.

The roller 33 is of considerable width and bears against the broad face of the periphery of the cam 35 thus insuring a most effective operation of the toggle during the operating stroke of the toggle.

The roller 37 is of less width, as this roller has considerable less work to do, its principal office being to break the toggle and return it to its normal position preparatory to another operation.

Should it become necessary to make adjustments due to the wear of the operating parts of the cam or roller, this adjustment may be effected by loosening the set screw 29 and turning the eccentric bushing 26 in its bearing and then again locking the same in adjusted position by means of said set screw 29.

Moreover, it is self evident that the pressure upon the material may be varied by adjusting the eccentric bushing.

This makes a very simple but most effective device for molding plastic materials in making such articles as records for talking machines.

It is believed that the operation and many advantages of the invention will be readily understood without further description.

Having thus described my invention, I claim—

1. In a device of the class described, the combination of a revoluble shaft; a toggle mechanism including a central hinge pin; a movable die member reciprocated by said toggle mechanism; a fixed die coacting therewith; an arm having one end articulated to said hinge pin with a slot at the opposite end through which said shaft extends, said arm having an ear formed thereon; a stud in said arm and ear; a roller thereon; a cam secured to and revoluble with said shaft and having a rib on one face with the outer peripheral face of which said roller coacts during the straightening of the toggle; and a second roller on said arm adapted to coact with the inner face of said rib when the toggle is to be broken.

2. In a device of the class described, the combination of a revoluble shaft; a toggle

mechanism including a central hinge pin; a
movable die member reciprocated by said
toggle mechanism; a fixed die coacting
therewith; an arm having one end of its
5 body portion articulated to said hinge pin
with a slot at the opposite end through
which said shaft extends, said arm having
an ear formed thereon at one side of the
other end of said body portion; a stud in
10 said arm and ear; a roller thereon opposite
the end of said body portion; a cam secured

to and revoluble with said shaft and having
a rib of varying thickness on one face with
the outer peripheral face of which said
roller coacts; and a second roller on said arm 15
coacting with the inner face of said rib.

Signed by me at 4 Post Office Square, Bos-
ton, Mass., this 3rd day of April, 1919.

CARL J. WENNBERG.

Witnesses:

WALTER E. LOMBARD,
NATHAN C. LOMBARD.