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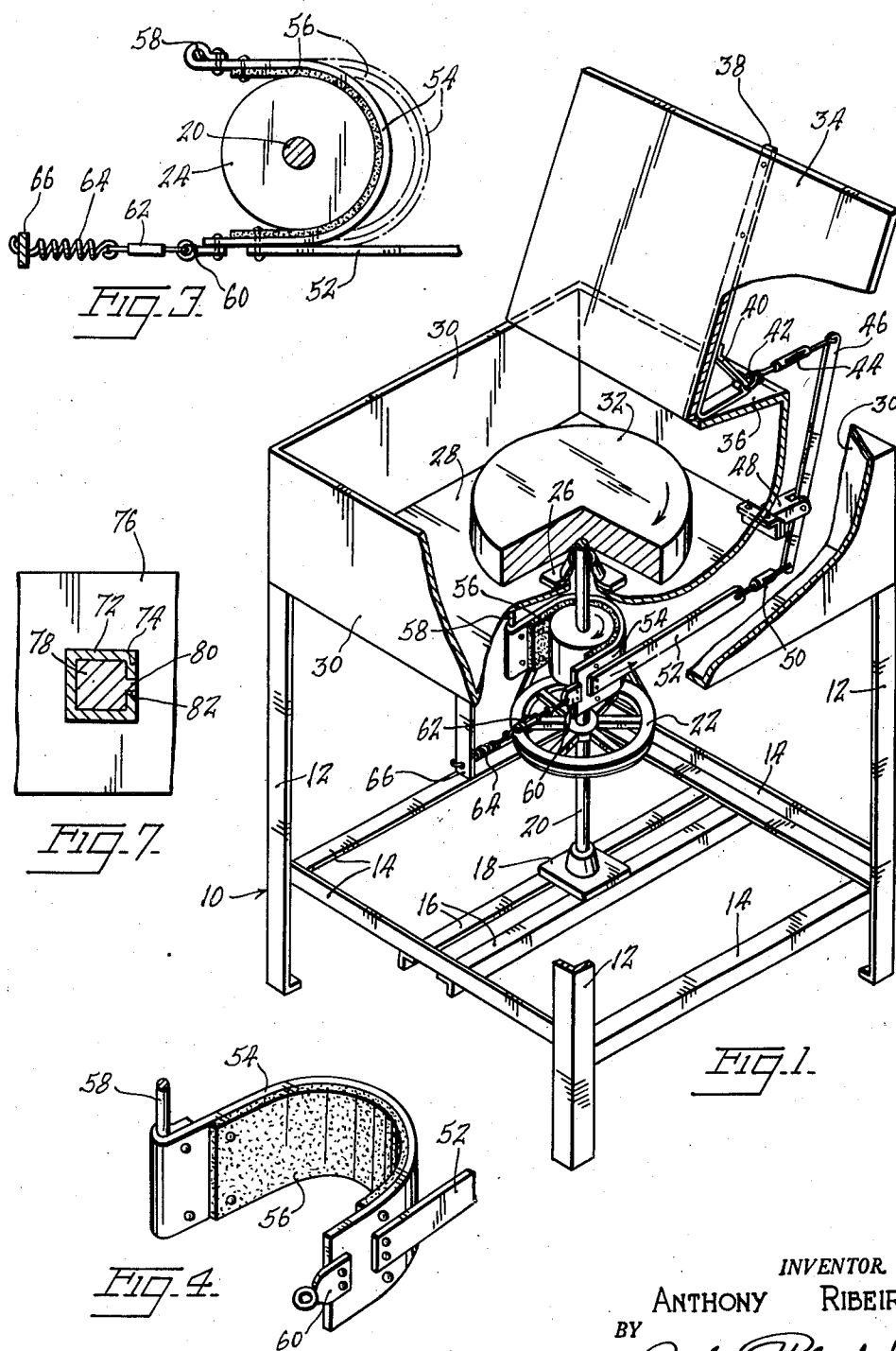
A. RIBEIRO

2,857,638

BRAKING DEVICE FOR JEWELRY MOLDS

Filed July 25, 1955

2 Sheets-Sheet 1



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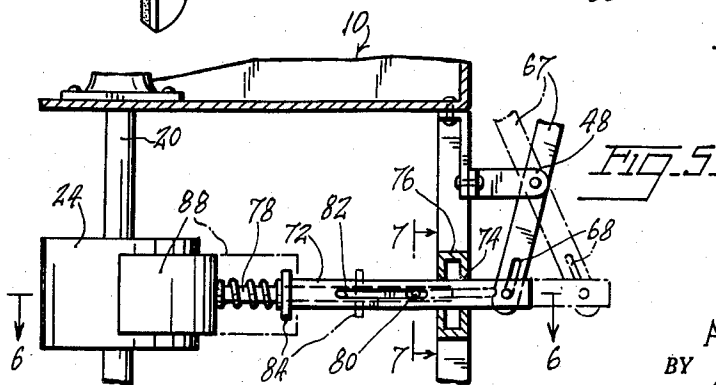
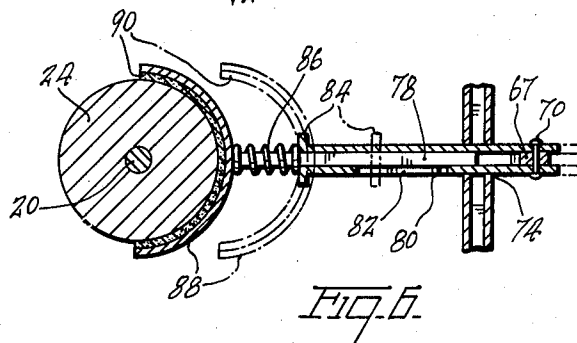
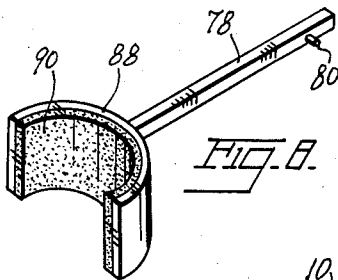
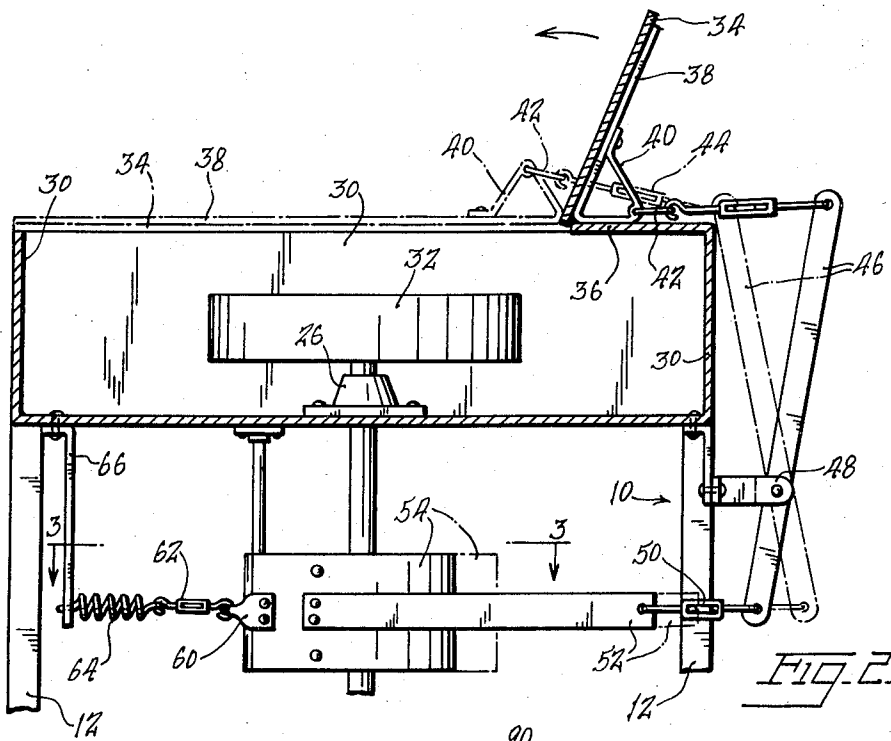
A. RIBEIRO

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BRAKING DEVICE FOR JEWELRY MOLDS

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2 Sheets-Sheet 2



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BRAKING DEVICE FOR JEWELRY MOLDS

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1 Claim. (Cl. 22—65)

This invention relates to the art of jewelry manufacture, and more particularly has reference to a braking device for a jewelry mold, adapted as an attachment to a mold structure of conventional construction.

A jewelry mold is rotatably mounted in a frame including a box-like, open-topped enclosure in which the mold rotates, covered by a hinged lid which in conventional practice is disposed in a closed position when the mold is rotating.

When the mold has been rotated to the desired extent, the cover is opened in order to remove the molded jewel. However, the removal of the jewel cannot be accomplished until the rotary motion of the mold is halted, and this is usually done manually.

The use of one's hands as a braking device is, of course, undesirable, and not only is considerable time lost in bringing the mold to a stop, but additionally, discomfort is experienced by the worker. Accordingly, an important object of the present invention is to provide a braking device for a jewelry mold, which device will automatically be shifted to a braking position effective for halting rotation of the mold, responsive to opening of the lid.

Another object is to so form the braking device as to cause the same to be shifted to a released position whenever the lid closes, so that the mold can rotate with the lid closed in the regular manner.

A further object of importance is to so design the braking device as to permit it to act upon the conventional fly wheel carried by the mold-rotating shaft, thus to reduce to a minimum the necessity of modification or redesign of the conventional mold and its associated supporting frame.

Still another object is to form the braking device as a separate attachment for the mold machine, which attachment can be secured to the associated parts of the machine with a minimum of difficulty.

Still another object is to so design the braking device as to provide a highly simplified structure, that can be manufactured at low cost, without sacrifice of ruggedness or durability, and will be substantially trouble-free in operation.

Yet another object, in at least one form of the invention, is to cause the braking device to shift to its operative, braking position, almost instantaneously as the movement of the lid from a closed position is begun, thus to cause the rotary motion of the mold to be halted in a minimum amount of time when the lid is opened.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a conventional mold structure equipped with a braking device formed in accordance with the present invention, portions of said structure being broken away.

Fig. 2 is a vertical sectional view through the upper

portion of the structure in which the braking device is shown in side elevation, said device being shown in full lines in its braking position and in dotted lines in its release position.

Fig. 3 is a horizontal sectional view on line 3—3 of Fig. 2.

Fig. 4 is an enlarged perspective view of the brake shoe per se.

Fig. 5 is a fragmentary vertical sectional view through a jewelry mold structure showing in side elevation a modified form of the invention.

Fig. 6 is a sectional view on line 6—6 of Fig. 5.

Fig. 7 is an enlarged, detail sectional view on line 7—7 of Fig. 5.

Fig. 8 is a perspective view of the modified brake shoe, per se, used in the form of the invention shown in Fig. 5.

A conventional mold structure or machine generally designated 10 includes a supporting frame formed with vertically disposed legs 12 at the several corners thereof, rigidly connected adjacent their lower ends by cross braces 14. Fixedly secured at opposite ends to and extended between a pair of the cross braces 14 are closely spaced, parallel support bars 16 on the midlength portion of which is mounted a lower bearing 18 in which is journaled the lower end of a mold drive shaft 20 rotated by a drive pulley 22, about which passes a belt extending from a suitable prime mover, not shown.

Intermediate its ends, the shaft is provided with a fly-wheel 24, fixedly secured to the shaft, and adjacent its upper end, the shaft 20 is journaled in an upper bearing 26 mounted centrally upon a flat, rectangular mold table 28 secured fixedly at its several corners to and supported upon the upper ends of the corner legs 12. Extending upwardly from the several edges of the mold table 28 are relatively high side walls 30, cooperating with the mold table in defining a rectangular, open-topped inclosure for a rotary mold 32 in which the jewelry, not shown, to be molded is disposed.

The box-like enclosure for mold 32 is closed, when the mold is rotating, by a lid 34 hinged to an inwardly projecting ledge 36 formed on the upper edge of one of the side walls 30.

All this is conventional construction and does not per se constitute part of the present invention.

In accordance with the present invention, secured to the lid 34, intermediate the opposite side edges thereof, is a metal strap 38 terminating, adjacent ledge 36, in an outwardly projecting triangular extension 40, to the apex of which is loosely connected a ring 42 connected to one end of a turn-buckle 44 the other end of which is connected to the upper end of a lever 46.

The lever 46 swings in a vertical plane, and below the midlength portion thereof, is fulcrumed upon a lever support bracket 48 bolted or otherwise fixedly connected to the back wall 30 of the mold table. At its lower end, the lever 46 is pivotally connected to one end of a turnbuckle 50 to the other end of which is attached one end portion of a horizontally disposed, elongated link 52, the other end portion of which is riveted or otherwise fixedly secured to a flexible brake shoe or band 54 of metal, adjacent one end of the brake shoe. Riveted, bonded, or otherwise secured to the inner surface of the flexible brake shoe 54, and extending through substantially the full length of the brake shoe, is a brake lining 56 of friction-producing material, adapted to engage against the periphery of the flywheel 24 when the braking device is applied.

That end of the brake shoe 54 remote from the link 52 is provided with a transversely extending loop or sleeve, in which is engaged the free end of a vertically

disposed brake shoe support rod 58 depending from and fixedly secured at its upper end to the underside of the table 28.

Connected to and projecting beyond that end of the brake shoe 54 to which the link 52 is attached is a connector plate 60, having (see Fig. 4) a ring in which is hooked one end of a turnbuckle 62 hooked at its other end to one end of an expansion spring 64. The expansion spring 64, at its other end, is hooked to the lower, free end of a vertically depending bar 66 attached fixedly at its upper end to the underside of table 28, as shown in Fig. 2.

The several turnbuckles are used for adjusting the parts in their working relationship, it being obvious that the extent of the throw of the lever can be predetermined. Further the extent of the frictional engagement of the brake shoe against the flywheel can be adjustably pre-set by adjustment of the turnbuckle 62, which has the effect of adjusting the tension of spring 64 in the engaged position of the braking device. Still further, the extent to which the brake shoe moves away from the flywheel when the brake is released can be predetermined by selective adjustment of the turnbuckle 50.

In use of the device, and with the lid in closed position, the parts will appear as shown in dotted lines in Figs. 2 and 3. It will be seen that the lever will be swung counterclockwise about its fulcrum, causing the link 52 to be shifted horizontally to the right in Fig. 2, thus pulling the brake shoe to the dotted line position of Fig. 3, for disengaging the braking device from the flywheel. Thus, as the lid shifts to closed position, the brake is automatically released.

Subsequently, when the lid is opened, the lever 46 will be returned to its full line position as shown in Fig. 2, and link 52 will shift to the left in Fig. 2. Spring 64, contracting, will pull the brake shoe into firm engagement with the flywheel 24, thus causing the shaft 20 and the mold 32 to stop their rotary movement.

In Figs. 5-8, a modification is shown. The modified form is applied to a mold machine 10 identical to that previously illustrated and described. Further, the strap 38, and turnbuckle 44, are formed exactly as in the first form of the invention.

In this form of the invention, the lever has been designated at 67, and is fulcrumed on the bracket 48 in the same manner as the lever 46. Adjacent its lower end, lever 67 has a slot 68 through which passes a pin 70, carried by the bifurcated rear end of an elongated tube 72 of rectangular cross section. Tube 72 is guided in a straight line, between the full and dotted line positions shown in Fig. 5, by reason of being slidably mounted in opposed openings 74 formed in a guide bar 76 extending horizontally between the rear legs 12 of the mold machine.

Sliding in the tube 72 is a shoe-support bar 78 of rectangular cross section (see Fig. 7) having intermediate its ends a laterally projecting lug 80 disposed in a longitudinal, closed guide slot 82 formed in one wall of the tube 72.

At its front end, the tube 72 has a collar 84 against which abuts one end of a compression spring 86, circumposed about the projecting forward end of the bar 78. The other end of the spring abuts against the midlength portion of an arcuate, rigidly constituted brake shoe 88 welded or otherwise fixedly secured to the bar 78, and provided with a friction lining 90 engageable against the flywheel.

In this form of the invention, when the lid is closed, the parts will be in the dotted line position shown in Fig. 5, the brake shoe being out of engagement with the flywheel. When the lid is open, the lever 67 is swung to its full line position shown in Fig. 5, and as the tube 72 shifts to the left in Fig. 5, the lug 80 will initially be at the left-hand end of the slot 82. However, the brake shoe will engage the flywheel almost instantaneously, and the spring 86 will begin to be placed under increased com-

pression, as further movement of the lid to open position continues. As the spring 86 compresses further, the bar 78 telescopes within the tube 72, and in the final position of the parts, the lug 80 will be adjacent the right-hand end of the slot as shown in Fig. 5.

It will be seen that in this arrangement, the tube 72 may shift to the right from its full line position in Fig. 5 a substantial distance, but due to the telescoping mounting of the bar 78 therein, the bar will not shift to the right in Fig. 5 to the same extent, thus permitting the shoe to be disposed relatively closely to the flywheel 24.

Further, by reason of the arrangement illustrated and described in Figs. 5-8, increased braking pressure results as the lid begins to move to a full open position, due to the fact that the spring 86 is placed under progressively greater tension during the movement of the lid from a fully closed to a fully open position.

It will be understood that any suitable means can be employed to provide for pre-adjustment of the rest position of the several parts, thus to locate the shoe a close distance from the flywheel when the brake is in release position, and thus, additionally, to adjust the tension of the spring for the purpose of causing the brake shoe to bind against the flywheel with a selected amount of friction. In this way, as the lid moves to an open position, the braking action is set up immediately, and when the lid reaches a full open position, rotation of the mold will have been effectively halted.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

Braking mechanism in combination with a jewelry mold having a frame, an open top box on the frame, a rotatable mold in the box, a flywheel rotatably mounted on the frame, means of connection between the mold and flywheel, and a hinged lid for the open top of the box, said braking mechanism comprising a brake shoe partially circumposed around the flywheel, said shoe including a flexible metal band with a flexible lining of friction producing material, one end of said band being rigidly connected to the box, the other end of the band being resiliently connected to the box, said resilient connection including an expansion spring attached at one end to the box and a turnbuckle interposed between the other end of the spring and said other end of the band, and means of connection between said other end of the band and the lid whereby upon closing of the lid the brake lining is moved out of braking contact with the flywheel and upon opening of the lid the brake lining is moved into contact with the flywheel, said means of connection including a link secured at one end to the other end of the band, a lever pivoted intermediate its ends to the box, a strap having a triangular extension secured to the lid, a ring loosely engaged on said extension, a turnbuckle connection between one end of the lever and the ring, and another turnbuckle connection between the other end of the lever and said link.

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