Feb. 14, 1928.

1,659,074

F. C. BECKER

CLAMPING MECHANISM

Filed Feb. 28, 1923

Fig. 1

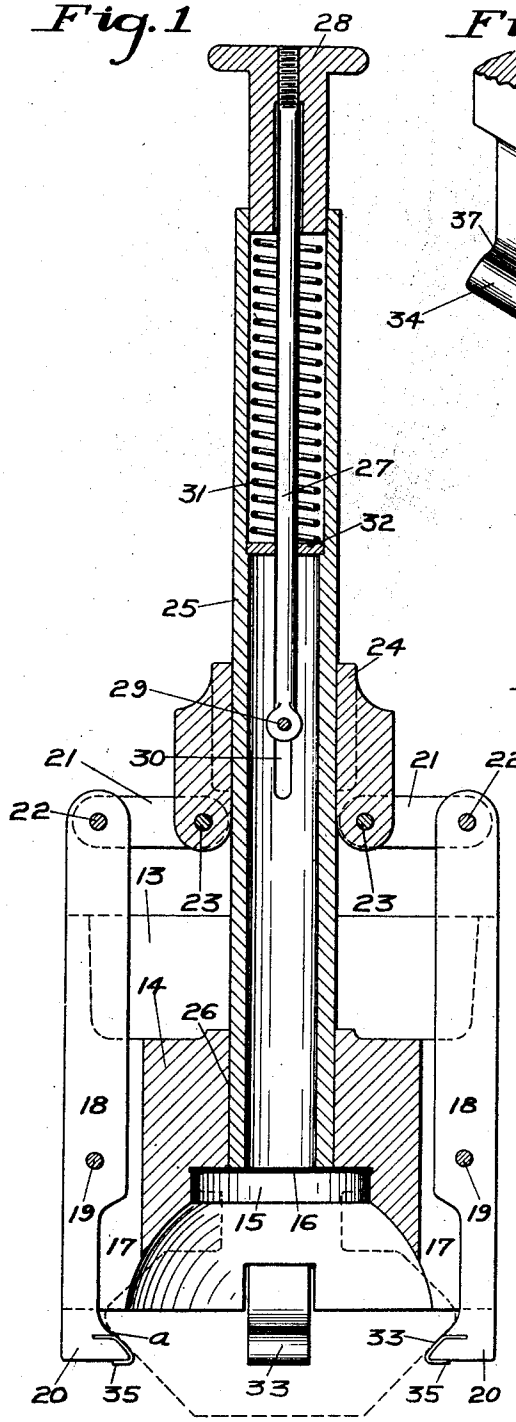


Fig. 3

Fig. 4

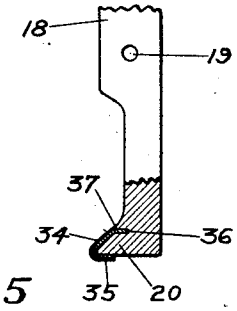


Fig. 5

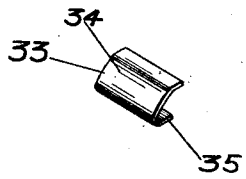
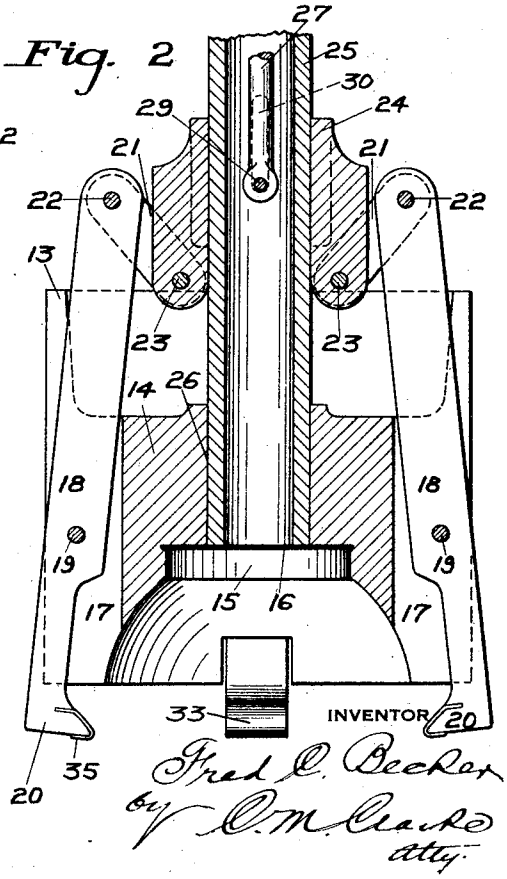


Fig. 2



INVENTOR

Fred C. Becker

by C. M. Clark

Atty.

Patented Feb. 14, 1928.

1,659,074

UNITED STATES PATENT OFFICE.

FRED C. BECKER, OF JEANNETTE, PENNSYLVANIA, ASSIGNOR TO WESTMORELAND SPECIALTY COMPANY, OF GRAPEVILLE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

CLAMPING MECHANISM.

Application filed February 28, 1923. Serial No. 621,883.

My invention is an improvement in the art of grinding glass articles, and relates particularly to the construction of the chuck for holding the article to be ground. It is an improvement on the construction shown in my prior application filed January 5, 1922, and relates particularly to the gripping end portion of the clamping arm which comes directly into holding engagement with the blank.

In the drawings:

Fig. 1 is a vertical sectional view showing the clamping mechanism for the blank, in closed position;

Fig. 2 is a partial similar view, showing the clamping mechanism opened;

Fig. 3 is a detail view in perspective, showing the gripping end of the clamping arm;

Fig. 4 is a detail view in sectional elevation, showing the same in further detail;

Fig. 5 is a perspective detail view of one of the soft metal shoes, detached.

The clamp for holding the unit is composed of a holding frame in the form of a ring or cylinder 13 having a transverse integral middle web portion 14, the lower central portion of which is open or socketed for clearance of the inner crown portion of the unit. It is also centrally apertured as at 15, and a rubber disk 16 is inserted as shown, providing a resilient or cushioned bearing for the inwardly extending middle portion of the knob.

Cylinder 13 is radially slotted at four equi-distant locations, as indicated at 17, and a series of four clamping arms 18 are pivotally mounted at 19 in such slots, for the purpose of providing opening and closing action for the arm terminals. The outer terminals of arms 18 are provided with gripping end portions 20 adapted to embrace the annular edges of the knob a when tightened thereon, depending on the strength of spring 31, as in Fig. 1. The inner faces of the gripping terminals 20 are abruptly inclined so as to embrace the ware a and wedge it backwardly against the cushioning disk 16. The resiliency of the cushion tends to compensate for inequalities in the ware units, and thus cooperates with the wedging action of the gripping terminals.

The outer portions of the arms are brought together for such tightening, or opened for release, as in Fig. 2, by the action of toggle arms 21. The latter are pivoted at 22 to the upper ends of arms 18 and at their inner ends, at 23, to lateral lugs on the inner end of a ring 24.

Ring 24 is slidably mounted around a tubular stem 25 which is fixedly connected at its inner end with the middle hub portion 14 of cylinder 13, as by riveting at 26. A central stem 27 having an outer knob or disk terminal 28 telescopically interfits within tubular stem 25, and stem 27 is connected with sleeve 24 by a cross pin 29 extending through slot 30 of stem 25. Terminal 28 is adjustably threaded on the end of stem 27.

A spring 31 is inserted between the inner end of terminal 28 and a washer 32 shouldered in tube 25, the spring tending to normally thrust stem 27 outwardly to hold the clamping arms in operative engagement with the unit a, as in Fig. 1. Inward pressure of stem 27 against the spring acts to thrust ring 24 inwardly and to draw the upper ends of arms 18 inwardly by links 21, throwing the clamping terminals outwardly for release or insertion of the unit, as in Fig. 2.

I have found in practice that with gripping arms of ordinary steel or other hard metal, there is a tendency to scratch or mar the surface of the glass unit, and the present improvement is designed to overcome any such action, while at the same time improving the hold on the unit.

For such purpose, the inner active face of the gripping end portions, are covered with an applied shoe or facing 33, which in turn is preferably covered with a coating or film 34, adapted to make direct contact against the glass unit a. The shoe 33 is of a comparatively soft metal, as copper, and its gripping face is covered with a still softer material, as lead, solder, or the like, laid over the shoe, and renewed from time to time, as it wears down.

The shoe is bent to fit around the hooked terminal 20, doubled over its top and extended partway underneath, as at 35, the upper end being tightly inserted in a cross slot 36, extending partway back into the shank of the terminal arm, as shown.

In this manner, the shoe may be very firmly attached to the arm terminal, and its outer facing coat 34 assists in the protecting

and holding action by slightly lapping over onto the shank, as at 37. When worn, the shoe may be driven out through the slot and off of the terminal, when a new shoe may be applied, with its supplemental coating, as will be readily understood.

The construction and operation of the invention will be readily understood from the foregoing description, and its advantages will be appreciated by all those familiar with the use of holding chucks for glass units.

It enables the tightly gripping action of the jaws upon the glass article to be performed with very considerable pressure, and resulting tight holding, without in any manner injuring or affecting the surfaces.

In certain cases, if desired, the coating film 34 may be omitted, in which case the shoe, of copper or other suitable soft metal, will grip directly against the glass unit.

The improvement is very simple, cheap, and efficient, and has the added advantage of preventing any wear whatever on the metal face of the jaw itself.

What I claim is:

In a ware holding clamp, the combination of a body portion having an endmost ware receiving socket, an inner resilient bearing disk in said socket, a central stem, and a spring retracted plunger rod connected with a head slidably mounted on the stem, of a plurality of gripping arms pivoted to the outer body portion having link connection with said head and each provided with an inwardly extending ware gripping terminal shoe having a sloping face provided with a covering plate in slotted connection with the shoe and in clamping engagement with its terminal edge, and adapted to engage the sloping faces of a blank and to effect wedging movement thereof against the bearing disk.

In testimony whereof I hereunto affix my signature.

FRED C. BECKER.