July 12, 1938. O. W. BROWN 2,123,165

SLIPPER-TYPE PISTON BLANK

Filed Feb. 15, 1937

FIG. 1

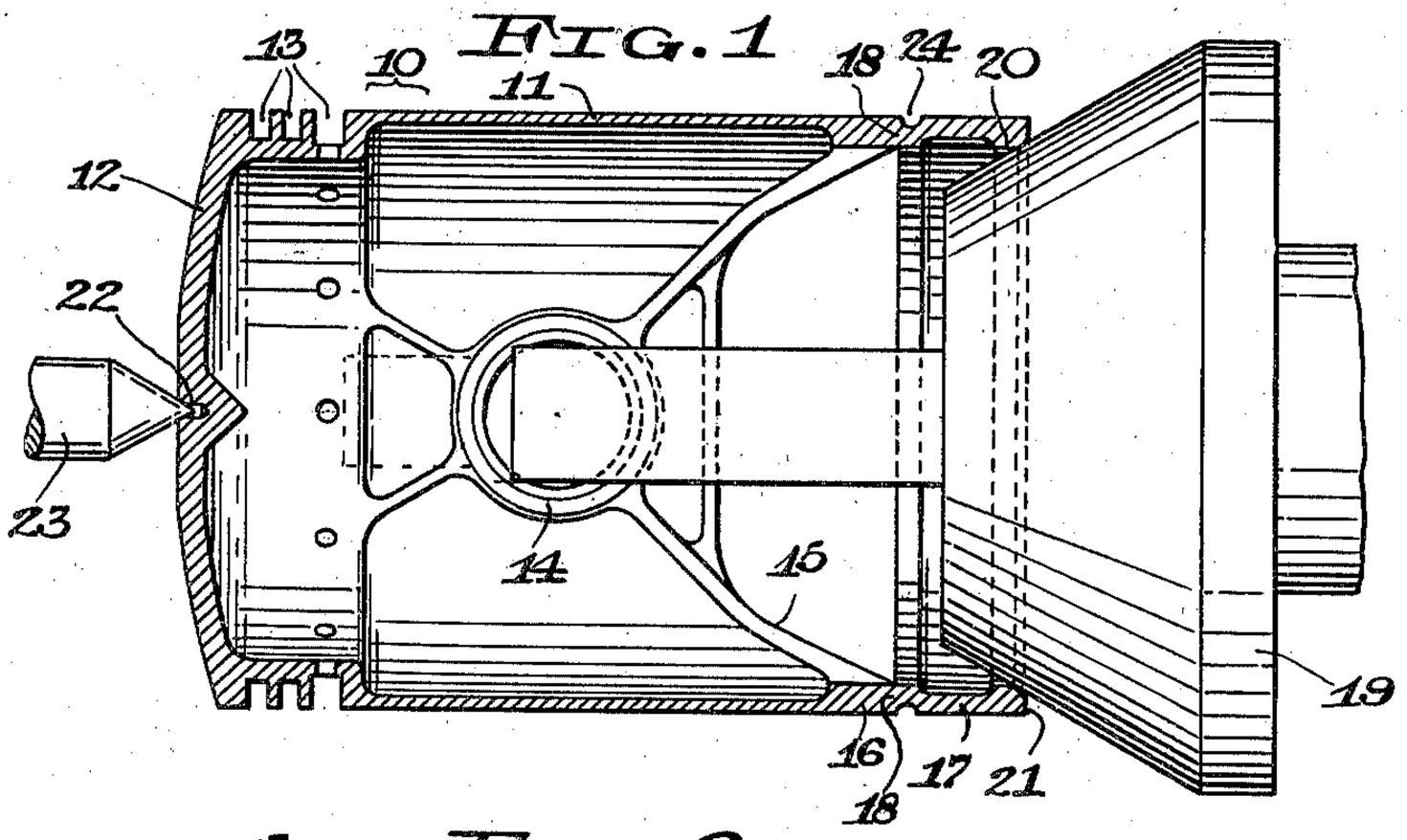


FIG. 2

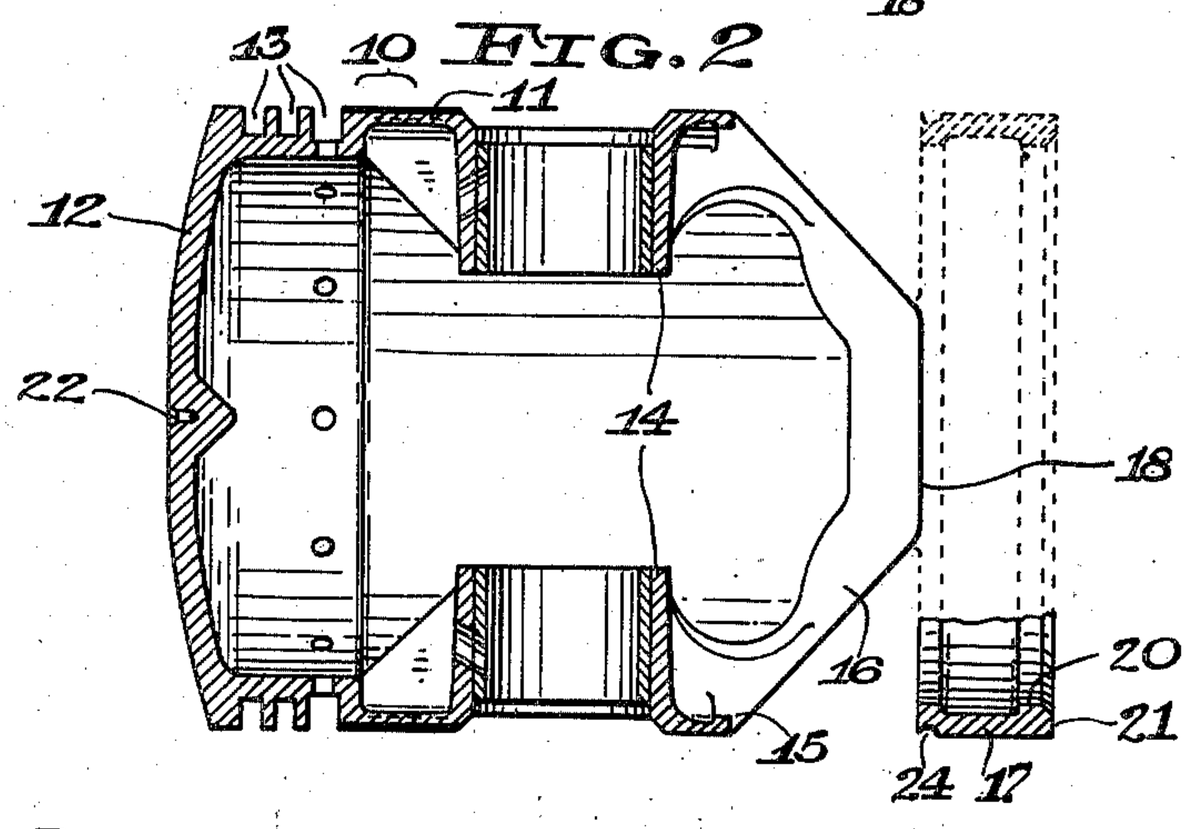


FIG. 3

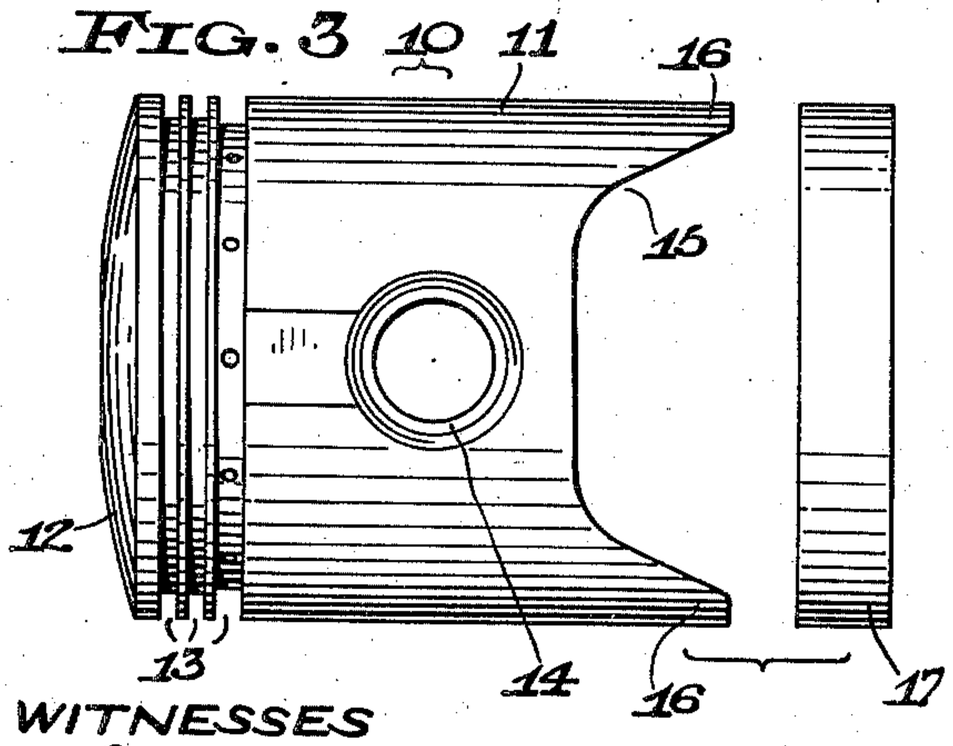
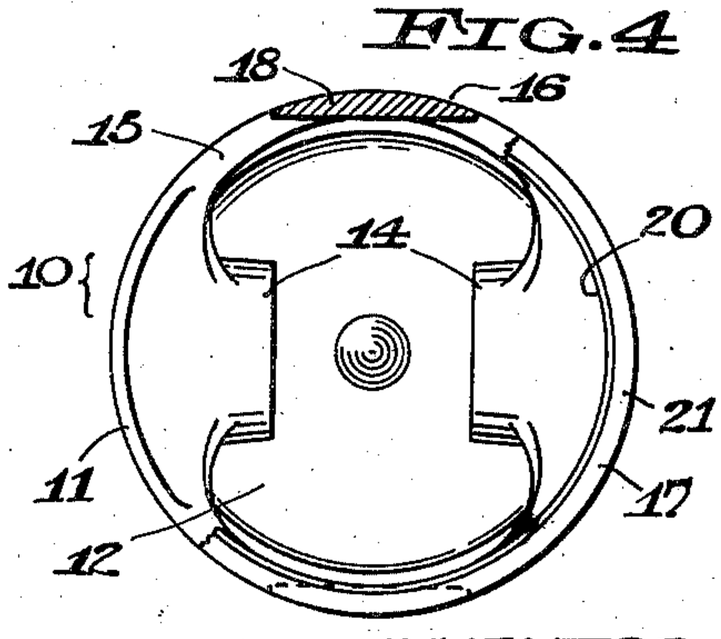


FIG. 4



WITNESSES

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SLIPPER-TYPE PISTON BLANK

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6 Claims. (Cl. 29—156.5)

The invention relates to slipper-type pistons.

In a slipper-type piston of customary construction, the piston skirt is not continuous at its open end, but has recesses or cut-outs on opposite sides of such extent and character that the usual or conventional type of chucking or holding devices for finishing of pistons can not be used.

An object of the invention is to provide an improved slipper-type piston blank which is so constructed as to enable standard or ordinary piston finishing equipment to be readily used in machining and finishing the piston blank.

The invention further consists in the several features hereinafter described and claimed.

In the accompanying drawing,

Fig. 1 is a longitudinal sectional view of a slipper-type piston blank constructed in accordance with the invention, the piston blank being mounted on chucking means;

Fig. 2 is another longitudinal sectional view of the piston blank taken on a plane at right-angles to the plane of Fig. 1, a severable chucking section of the piston blank being shown partly in dotted lines and partly in full lines;

Fig. 3 is a side view of the finished piston and its severed chucking section, and

Fig. 4 is an end view of the piston blank with its chucking section, parts being broken away and parts being shown in section.

In the drawing, 10 designates a slipper-type piston having a cylindrical skirt 11 and a head 12. The skirt has the usual piston ring grooves 13 and is provided with the usual bushed piston pin bosses 14. The piston skirt is cut away or apertured at 15 at its open end on the pinhole sides to form diametrically opposite slipper projections 16.

A rigid annular chucking member or section 17 is cast integral with the ends of the slipper projections 16 to form a piston blank and is concentric with the piston skirt and of the same external diameter, the chucking section defining edges of the apertures 15 in the skirt. The junction regions between the skirt and chucking section are indicated at 18 and are diametrically opposite. The chucking section 17 is adapted to be engaged, externally and internally, by the usual chucking means of standard or ordinary machining and finishing equipment designed for pistons of the full skirt type. One form of chucking means is indicated at 19 in Fig. 1, but it will be understood that various forms of chucking and holding means may be employed during the several finishing operations. The internal diameter 20 of the chucking section 17 is machined concentric with the external diameter, to be engaged by the chucking means, and the outer end of the chucking section has a flat machined surface 21 perpendicular to the piston axis. The piston head 12 is provided with the usual bore 22 to receive a supporting center 23. The chucking device 19 is here indicated to be of the well-known cone and flat drive type in which a frusto-conical portion enters and centers the open end of the piston and another portion enters between the piston bosses.

The annular chucking section or collar 17 of the piston blank, being integrally attached to what will eventually be the free ends of the slipper projections, serves to prevent deformation or deflection of these projections during machining of the blank.

After the piston is finished, the chucking section 17 is severed from the piston skirt by a suitable cut-off tool, not shown, cutting inwardly at an annular groove 24 formed about the chucking section. The finished slipper-type piston then has the appearance seen in Fig. 3. The severed annular chucking section may either be discarded or be used for other purposes.

By means of the invention, slipper-type pistons may be accurately and easily machined, ground, and otherwise finished by the standard or conventional type of finishing equipment commonly used for ordinary pistons.

What I claim as new and desire to secure by Letters Patent is:

1. A slipper-type piston blank having a skirt with slipper projections, and having a severable, centrally open, annular chucking section integrally joined to the ends of said slipper projections and presenting an inner chucking periphery.

2. A slipper-type piston blank having a skirt with slipper projections, and having a severable, centrally open, annular chucking section integrally joined to the ends of said slipper projections, said chucking section having the same external diameter as the skirt and presenting an inner chucking periphery.

3. A slipper-type piston blank having a skirt with diametrically opposite slipper projections, and having a severable, centrally open, annular chucking section integrally joined at diametrically opposite points to the ends of said slipper projections, said chucking section having an inner chucking periphery.

4. A slipper-type piston blank having a skirt with slipper projections, and having a severable, centrally open, annular chucking section in-

tegrally joined to the ends of said slipper projections, said chucking section having a peripheral groove formed thereabout at its line of severance, and having an inner chucking periphery.

5. As an article of manufacture, a slipper-type piston blank having a skirt with slipper projections and having a severable, centrally open, annular chucking section integrally joined to the ends of said slipper projections, the open center of said chucking section defining an inner chucking periphery, the diameter of which is of the same order of size as the inner diameter of the piston skirt, said chucking section forming a support to prevent deflection of said slipper projections during machining of the blank.

6. As an article of manufacture, a slipper-type piston blank having a skirt with diametrically opposite apertures and a severable, centrally open, annular chucking section concentric and integral with the open end portion of said skirt and defining edges of said apertures, said chucking section having an inner chucking periphery, and the portions of said skirt between said apertures forming slipper projections the ends of which are located at the line of severance of said chucking section, said chucking section forming a support to prevent deflection of said slipper projections during machining of the blank.

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