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C. V. BUTTERFIELD ET AL

2,544,006

OLIVE PITTING MACHINE

Filed July 25, 1949

2 Sheets-Sheet 1

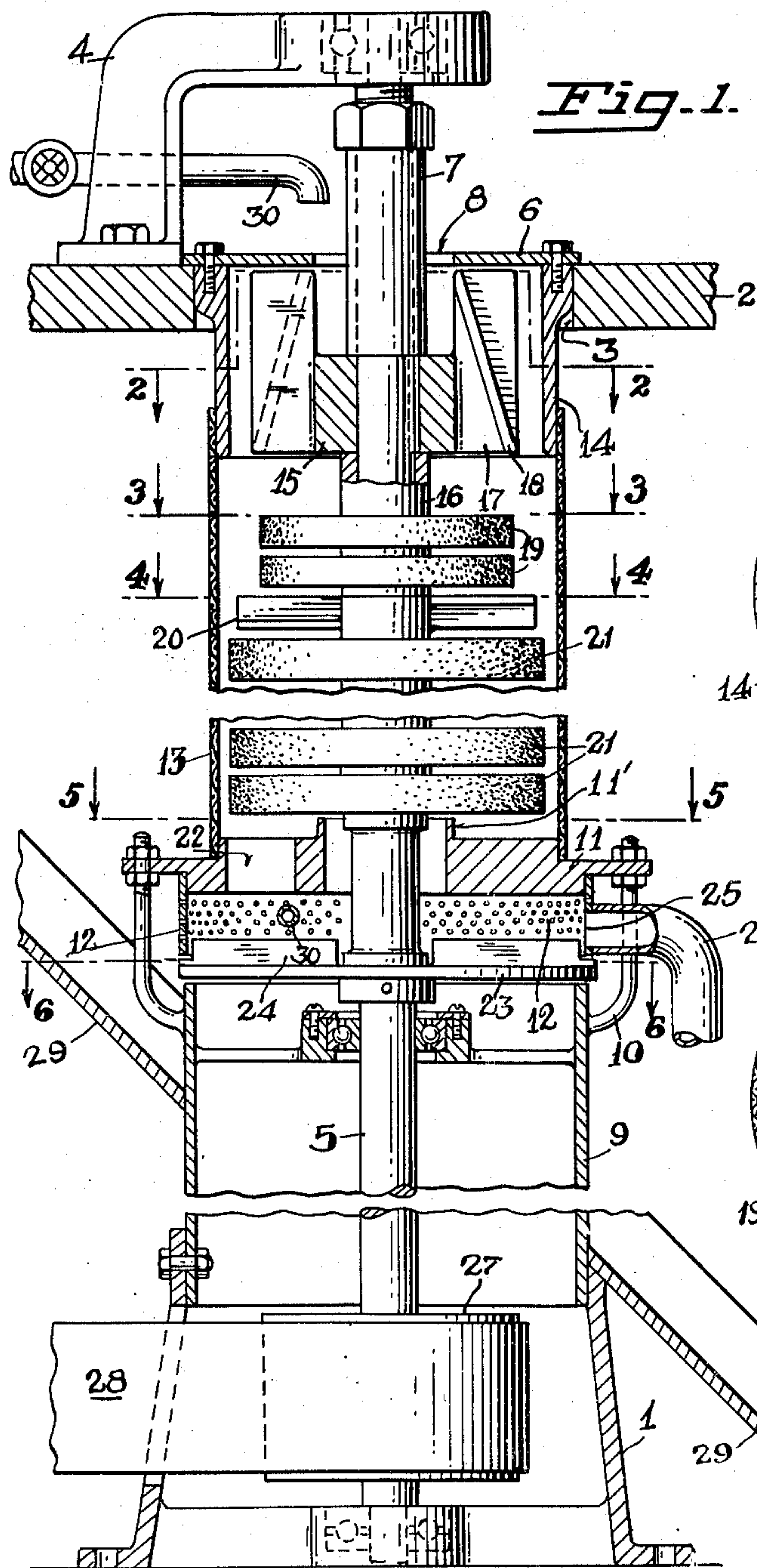


Fig. 1.

Fig. 2.

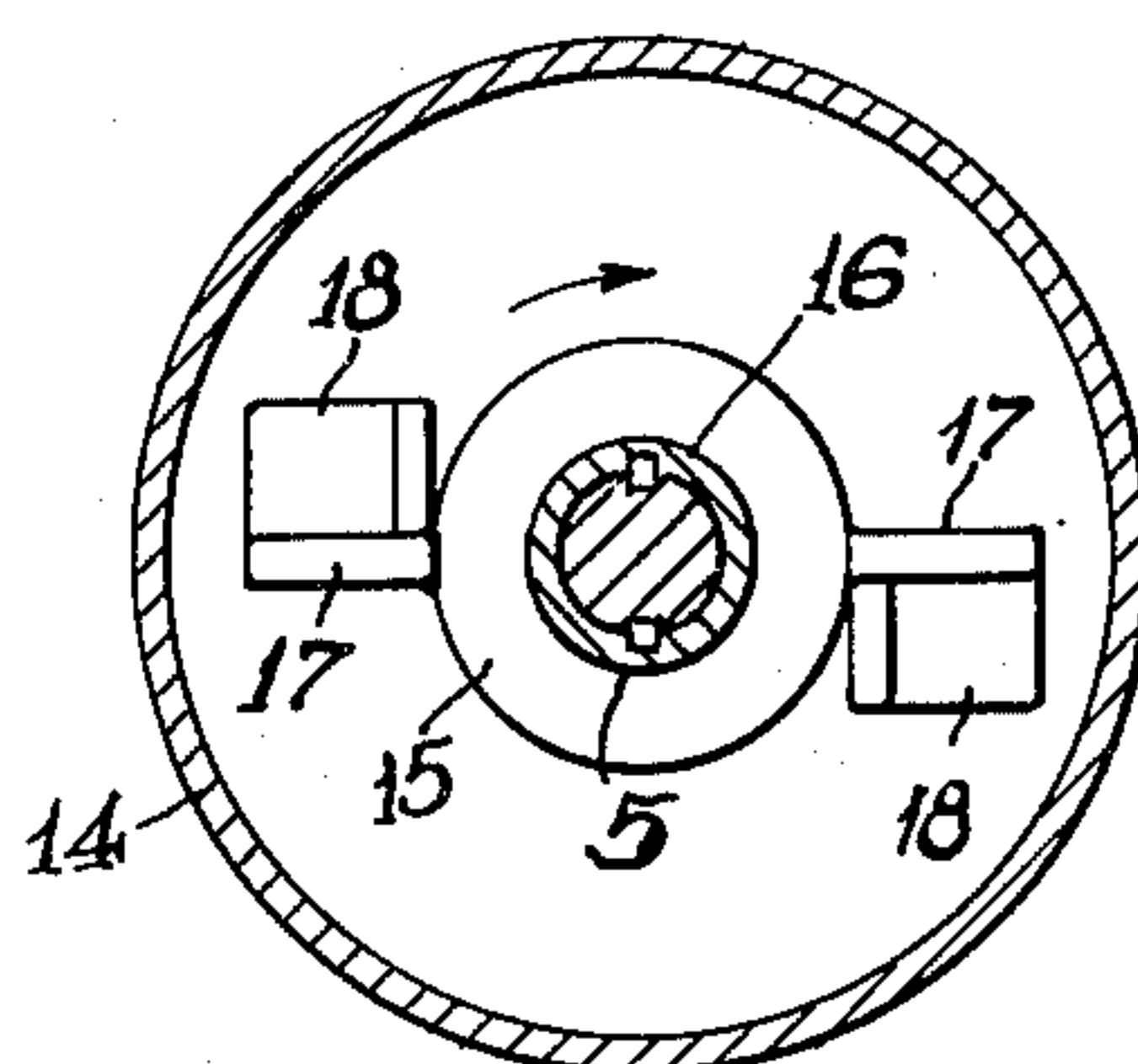
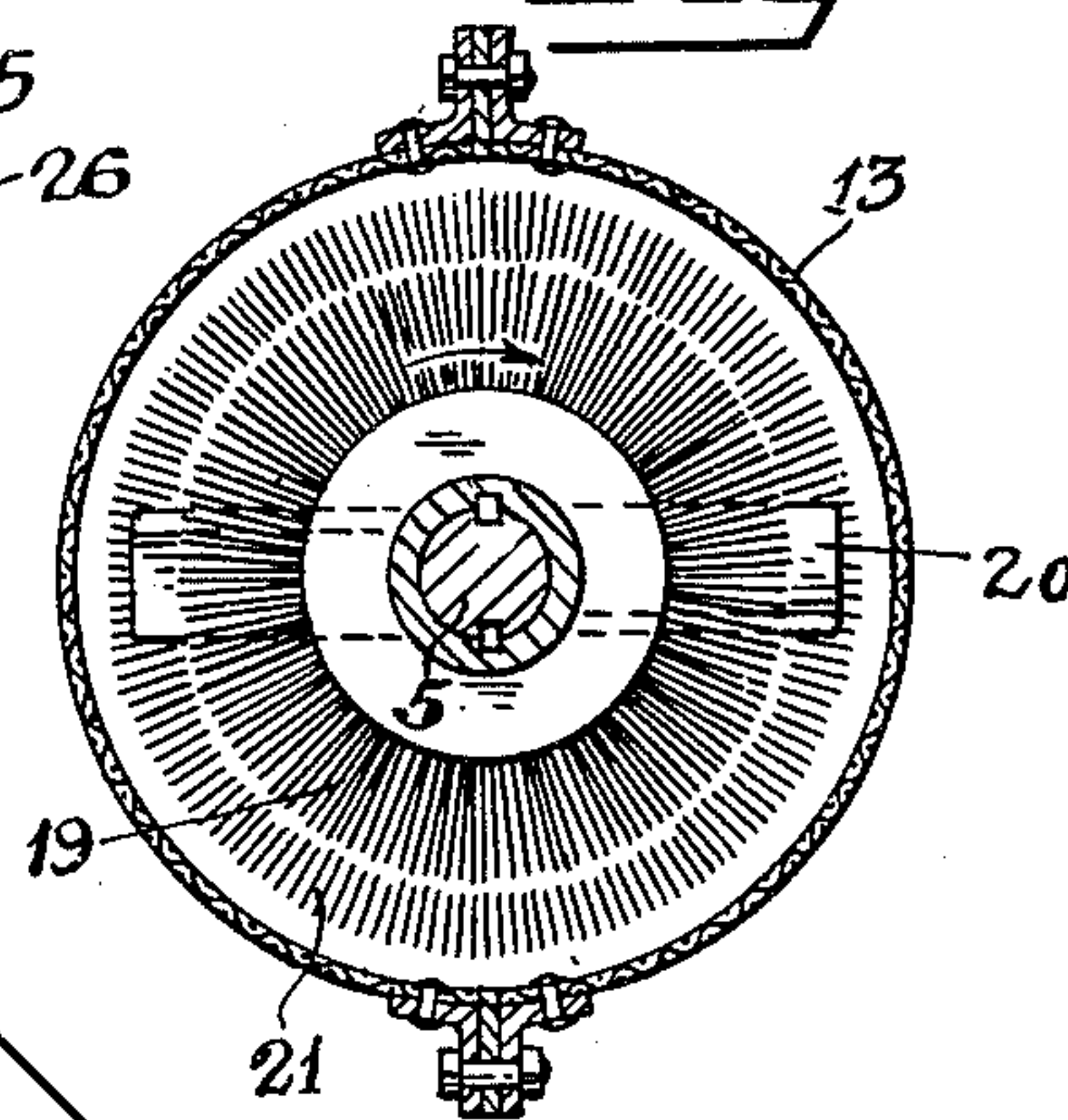


Fig. 3.



INVENTORS
CHARLES V. BUTTERFIELD
EUGENE L. GONELLA
BY

J E Trabucco

ATTORNEY

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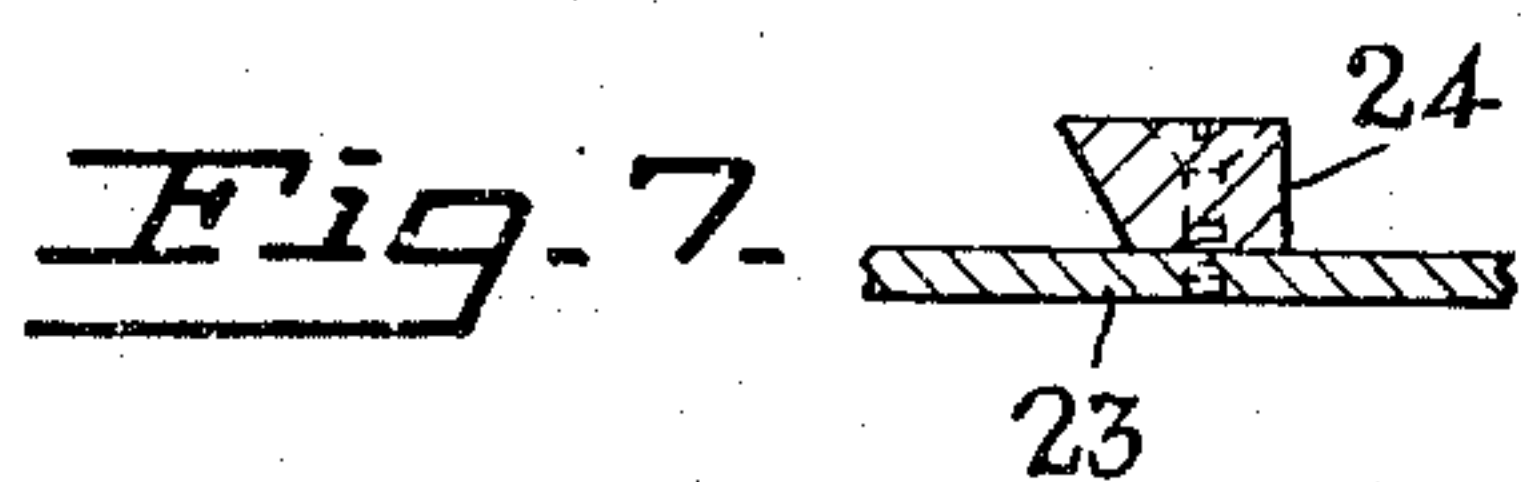
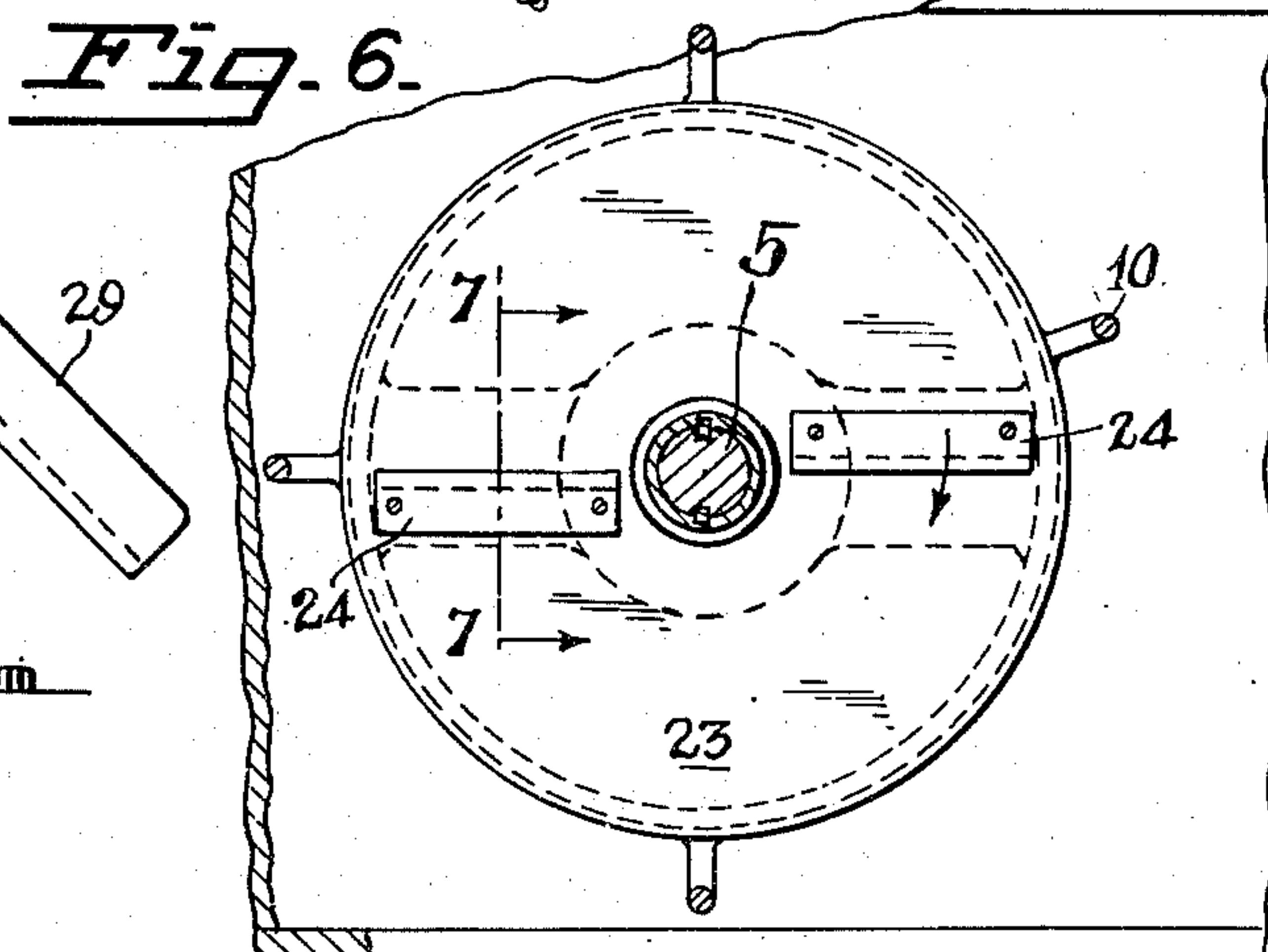
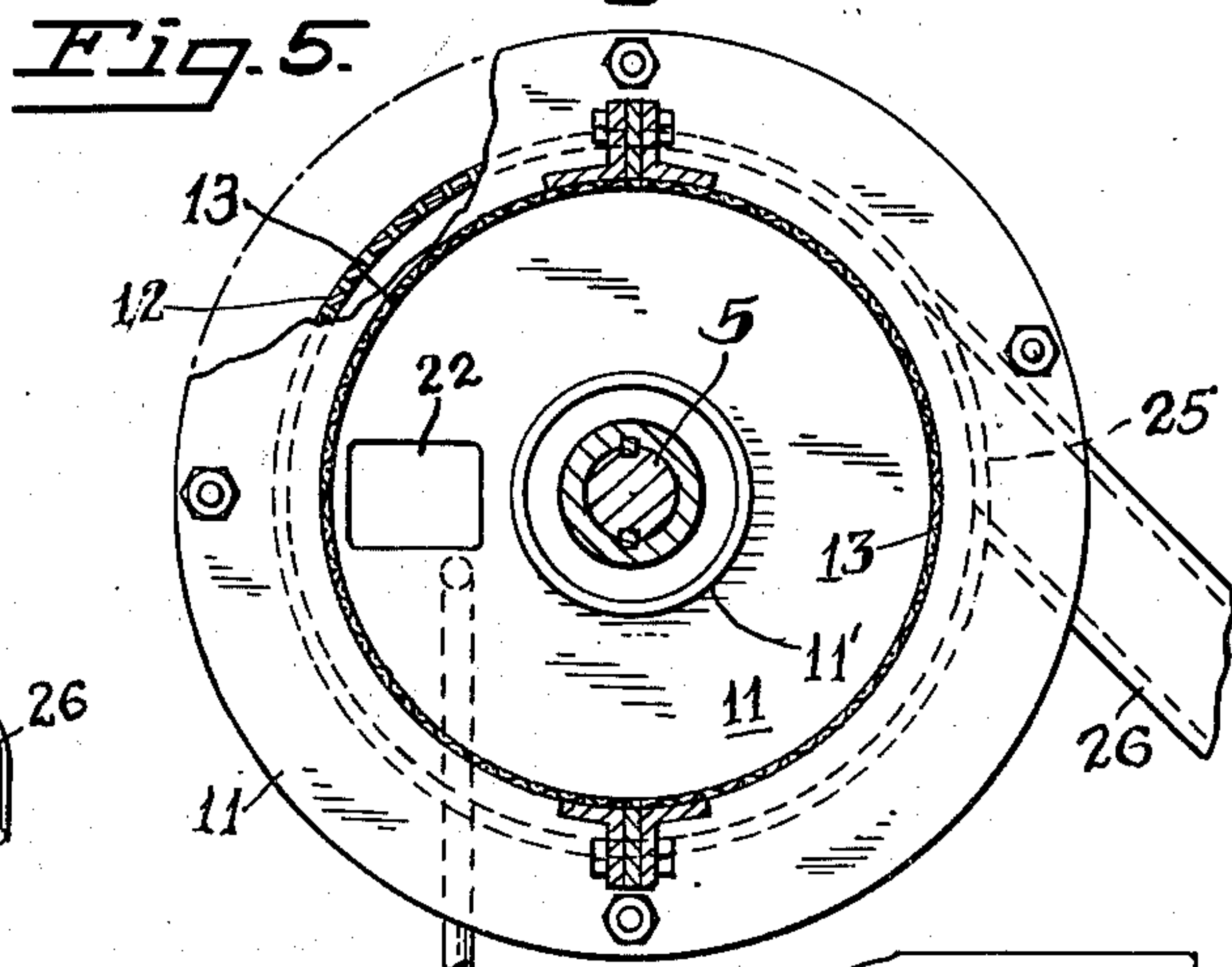
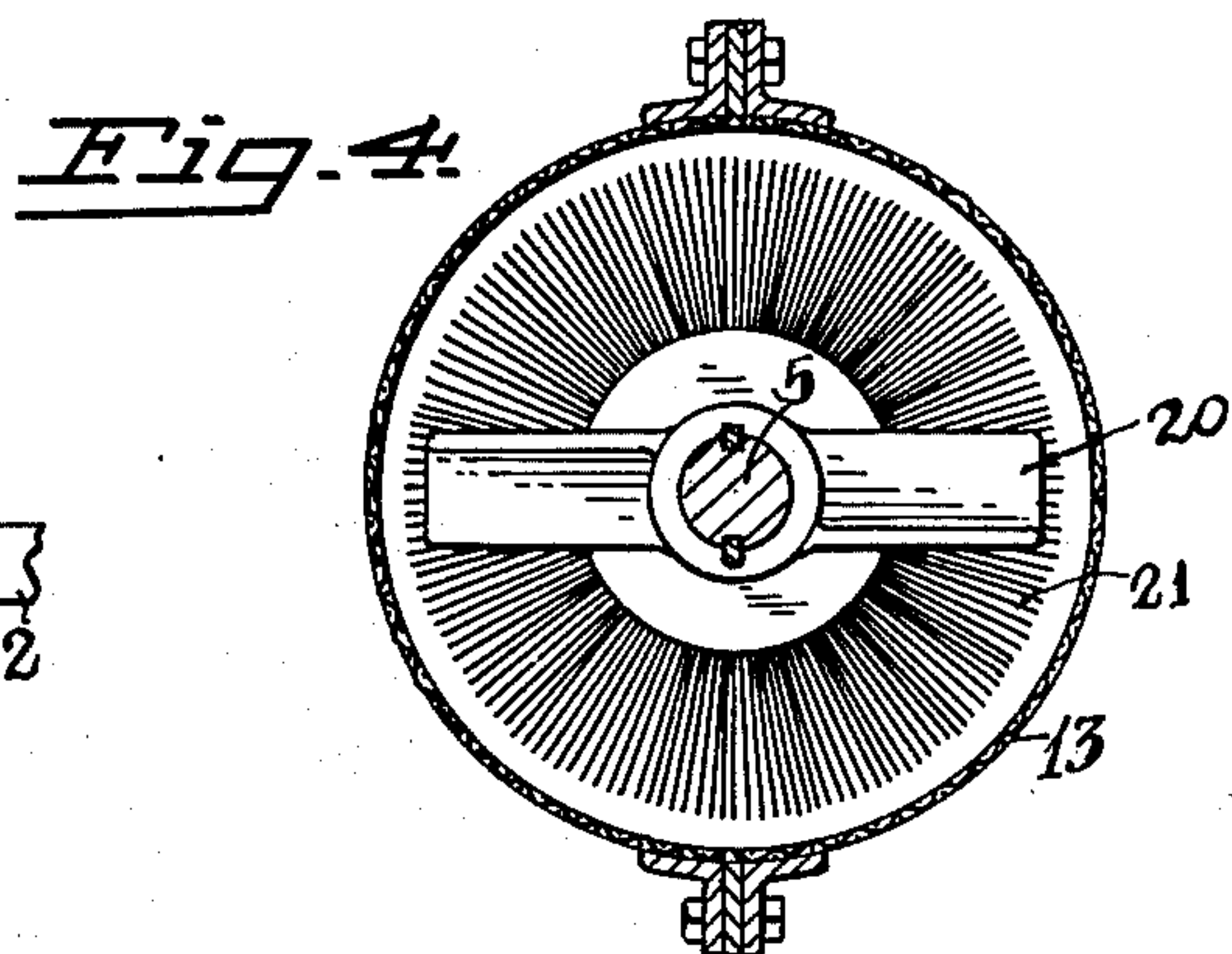
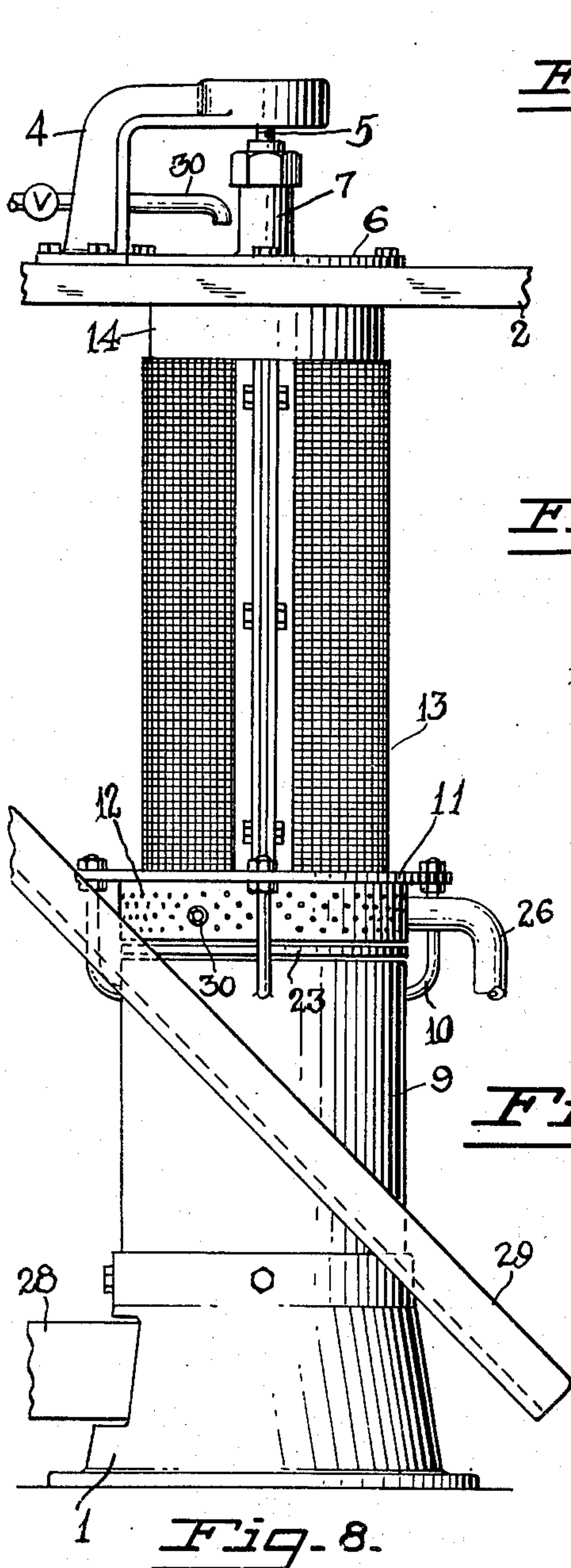
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OLIVE PITTING MACHINE

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2 Sheets-Sheet 2



INVENTORS
CHARLES V. BUTTERFIELD
EUGENE L. GONELLA
BY

J. E. Trabucco
ATTORNEY

UNITED STATES PATENT OFFICE

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OLIVE PITTING MACHINE

Charles V. Butterfield, San Francisco, and
Eugene L. Gonella, Merced, Calif.

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4 Claims. (Cl. 146—17)

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The present invention relates to an improved fruit-pitting machine, and one which is particularly suitable for separating the pulp from the pits of olives.

The present invention provides a novel machine for separating the pits or stones from the pulp of olives or other fruit. To this end we have provided a novel machine having rotatable brushes arranged in such a manner with respect to an annular screen that the olives or other fruits are crushed so that the pulp may be separated from the pits and forced through the screen for subsequent recovery while the pits are expelled from the machine at a different point. The construction of the machine is such that all of the operating elements such as the circular brushes and the agitators are carried on a single rotating vertical shaft and are so arranged that the olives or other fruit being treated are subjected to successive operations designed to effectively crush the pulp and separate it from the pits.

The primary object of the present invention is to provide a novel machine of the kind characterized which is simple in construction, durable, and efficient in operation.

For the purposes of this application we have shown herein certain forms and details of a fruit pitting machine which is representative of our invention; it is to be understood, however, that the embodiment of our invention herein shown and described is for the purpose of illustration only, and that therefore it is not to be regarded as exhaustive of the variations of the invention.

In the accompanying drawings:

Fig. 1 is a longitudinal vertical sectional view of an olive pitting machine embodying our invention, showing certain parts broken away;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 1;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 1;

Fig. 7 is an enlarged section taken on the line 7—7 of Fig. 6; and

Fig. 8 is a side elevation on a slightly reduced scale, of the machine shown in Fig. 1.

Referring to the drawings the numeral 1 designates a supporting base and 2 an elevated platform which is supported independently of the base. The platform is provided with a large cir-

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cular opening as at 3 which is arranged in a vertically superimposed position above the base. Mounted on the platform is a bracket 4 which extends above the opening 3 and supports a bearing within which the upper end of a vertical drive shaft 5 is journaled. The shaft 5 rotates in a clockwise direction (Fig. 2), and the said shaft is axially arranged with respect to the opening 3 in the platform 2 and its lower end is rotatably supported in a suitable thrust bearing mounted on the base 1.

Supported on the platform 2 is a ring shaped member 6 having its inner circular edge suitably spaced from a spacing collar 7 on the shaft 5, thereby providing an annular inlet opening 8 for admitting olives or other fruit to the machine for subsequent processing.

Secured as by bolts and nuts to the upper end of the base 1 is a cylinder 9 having a plurality of upwardly extending brackets 10 secured thereto, the said brackets having a stationary ring shaped member 11 supported thereon. Secured to the ring shaped member 11 is a short depending cylindrical screen 12 which is arranged with its lower end spaced above the upper end of the cylinder 9. Arranged with its lower end resting on the stationary ring shaped member 11 is a long cylindrical screen 13 which is made preferably from coarsely woven wire. The screen 13 is preferably made in two semi-circular sections as shown in Fig. 8. The two sections comprising the screen 13 are secured together by bolts and nuts, and whenever the screen requires cleaning it may be conveniently removed from its support by unscrewing the nuts from their associated bolts. The upper end of the screen is held against displacement by a depending cylindrical member 14 secured as by screws to the ring shaped member 6. It is to be noted that the shaft 5 is arranged in axial relation to the base 1, the cylinder 9, the short screen 12, the long screen 13 and the cylindrical member 14.

Keyed to the upper end portion of the shaft 5 and arranged with its hub portion 15 interposed between the collar 7 and a similar spacing collar 16 is an impeller which is provided with two outwardly extending vertical blades 17 and two inwardly inclined blades 18. When olives or other fruits are admitted to the machine through the opening 3 in the member 6 the blades of the rotating impeller strike them with considerable force and cause the partial release of their pulp portions from their pits. The pitch of the blades 18 of the impeller together with the centrifugal force imparted through the rotation of

the shaft and the said impeller causes the olives to be directed outwardly.

Keyed to the shaft 5 and held in suitably spaced relation by collars or other suitable means are a plurality of circular stiff wire brushes 19 which are arranged with their peripheral outer edges in fairly wide spaced relation to the screen 13 (about one and one-half inches when olives are being processed). Some of the olives or other fruit fall onto the uppermost of the brushes 19 and are directed outwardly by centrifugal force toward and into engagement with the screen 13, and these and others which are directed outwardly by the impeller blades 18, fall downwardly through the annular opening between the screen and the outer edges of the brushes 19. The rotating brushes 19 break the pulp portions of the olives into fairly small pieces and some of the said pulp particles are forced through the screen at this point.

Keyed to the shaft 5 is a two bladed propeller 20 which is mounted in spaced relation directly below the brushes 19. The propeller is arranged above the uppermost of a number of stiff wire brushes 21 which are spaced one from another and from the propeller by suitable spacing collars. The length of the propeller 20 is preferably somewhat greater than the diameter of the brushes 19 but slightly less than the diameter of the brushes 21. The annular space between the peripheral edges of the brushes 21 and the screen 13 is fairly narrow (about one-half inch when olives are being processed), thereby making it possible for these brushes in association with the screen to grind the pieces of olive pulp into small particles and to thereby further separate the pulp from the pits. The fastly rotating propeller 20 upon striking the partially released pulp and pits causes them to be further detached one from another, and by the action of centrifugal force the broken-up olives and their pits are directed outwardly against the screen 13. Some of the finer olive particles are passed through the screen at this point, while larger pieces and the pits drop downwardly through the annular space between the peripheral edges of the brushes 21 and the screen 13. As the pieces of olives and the pits fall downwardly through the space between the brushes 21 and the screen 13 the said brushes further break up the olive pieces into small particles and throw them onto and through the screen. While only two brushes 21 are shown on the drawings because of the lack of space, it is to be understood that in actual practice eight or ten or any other suitable number of said brushes may be used.

The lower brush 21 is arranged in suitably spaced relation above the stationary ring shaped member 11, and most of the olive pits and the remaining pulp particles which fall thereon are moved by the said brush around the raised inner circular flange 11' of said member until they finally reach the opening 22 in the latter.

Keyed to the shaft 5 and positioned beneath the ring shaped member 11 is a rotating plate 23 which is arranged with its periphery extending through the annular opening located between the lower end of the short screen 12 and the upper end of the cylinder 9. The plate 23 is spaced sufficiently from the lower end of the screen 12 to allow only small pulp particles to pass and not the fruit pits. The plate is provided with two diametrically disposed radial blades 24 which extend upwardly therefrom. The screen 12 is provided with an outlet opening as at 25, and a

chute 26 is associated therewith. The olive pits and whatever small amount of pulp particles that fall through the opening 22 in the ring shaped member 11 are intercepted by the rotating plate 23. The pits are discharged by the blades 24 through the opening 25 in the short screen 12 while the pulp particles are expelled through the said screen or through the annular space between its lower end and the plate 23.

A pulley 27 keyed to the shaft 5 is connected by a belt 28 to a suitable source of power. The shaft 5 is rotated at about 1300 R. P. M. An overall inclined chute 29 is arranged to intercept the particles of olive pulp passing through the screens. Water pipes 30 are suitably arranged to admit water to the interior of the machine when required. It is to be noted that the present invention embodies a structure having a substantially cylindrical casing, portions of which are perforated.

What we claim is:

1. In a fruit pitting machine, an upright cylindrical casing having a substantial perforated portion, the said casing having an inlet at its upper end for receiving fruit to be processed, an axial drive shaft extending through the casing, an impeller keyed to the shaft and arranged to intercept the fruit passed into the casing through the inlet, a plurality of stiff substantially circular brushes keyed to the shaft and arranged below the impeller with their peripheries in closely spaced relation to the perforated portion of the casing, a plate keyed to the shaft and arranged to receive fruit pits and some fruit pulp particles falling between the brushes and the screen portion of the cylindrical casing, the said plate having a plurality of upwardly extending radial blades, and an outlet opening located in the cylindrical casing opposite the path traversed by the outer ends of the blades.

2. In a fruit pitting machine, an upright cylindrical casing having a substantial perforated portion and an inlet at its upper end for receiving fruit to be processed, an axial drive shaft extending through the casing, a plurality of superimposed substantially circular stiff brushes secured to the shaft and arranged with their peripheries in slightly spaced relation to the perforated portion of the casing, a stationary member secured in the casing beneath the brushes for intercepting fruit pits and particles of fruit pulp falling downwardly through the annular space between the brushes and the casing, the said stationary member having an outlet extending vertically therethrough, a rotatable plate secured to the shaft and arranged beneath the stationary member, the said plate having upstanding blade members thereon, and outlet means arranged in the casing for receiving the fruit pits discharged outwardly from the plate.

3. In a fruit pitting machine, an upright cylindrical casing having a substantial perforated portion and an inlet at its upper end, a bladed impeller keyed to the upper part of the shaft and arranged to intercept fruit as it passes downwardly through the inlet, a plurality of superimposed spaced circular stiff brushes secured to the shaft at points below the impeller, the said brushes being arranged with their peripheries in spaced relation to the perforated portion of the casing and the spacing of some of the brushes with respect to the casing being less than the diameter of the fruit being processed but greater than the diameter of the pits thereof, a stationary member secured in the casing beneath the

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brushes for intercepting fruit pits and particles of fruit pulp falling downwardly through the annular space between the brushes and the casing, the said stationary member having an outlet extending vertically therethrough and the said stationary member being mounted in slightly spaced relation to the lower brush, a rotatable plate secured to the shaft and arranged beneath the stationary member, the said plate having upstanding radial blade members thereon, and outlet means arranged in the casing for receiving the fruit pits discharged outwardly from the plate.

4. In a fruit pitting machine, an upright cylindrical casing having a substantial perforated portion and an inlet at its upper end, a bladed impeller keyed to the upper part of the shaft and arranged to intercept fruit as it passes downwardly through the inlet, a plurality of superimposed spaced substantially circular stiff brushes secured to the shaft at points below the impeller, the said brushes being arranged with their peripheries in spaced relation to the perforated portion of the casing and the spacing of some of the brushes with respect to the casing being less than the diameter of the fruit being

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processed but greater than the diameter of the pits thereof, a rotatable plate secured to the shaft and arranged to receive fruit pits and some fruit pulp particles falling downwardly, the said plate having upstanding radial blades thereon, and outlet means arranged in the casing for receiving the fruit pits discharged outwardly from the plate.

CHARLES V. BUTTERFIELD.
EUGENE L. GONELLA.

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