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2,994,973

AUGER FOR SNOW EXCAVATORS

Filed Nov. 12, 1958

2 Sheets-Sheet 1

FIG. 1

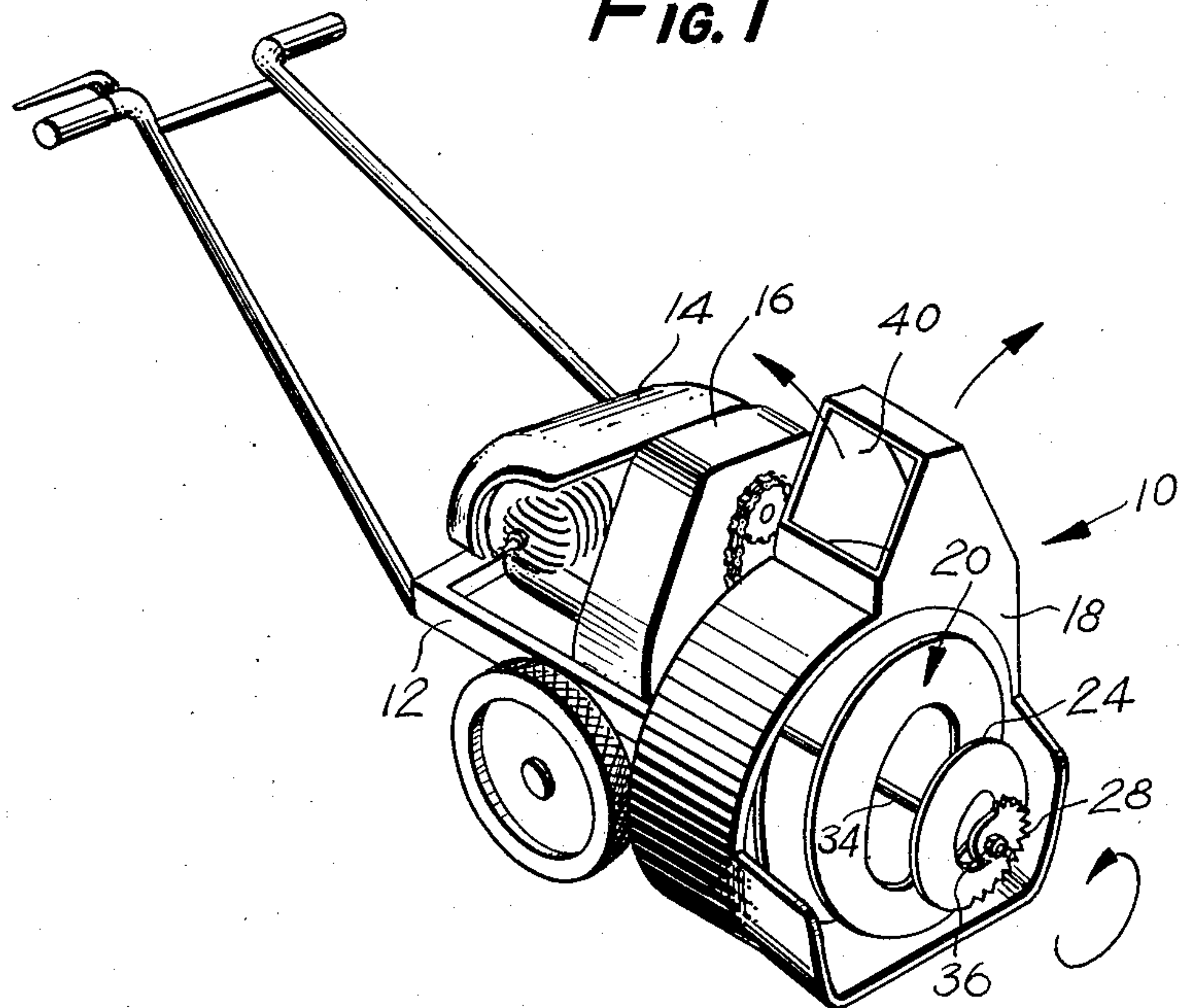


FIG. 2

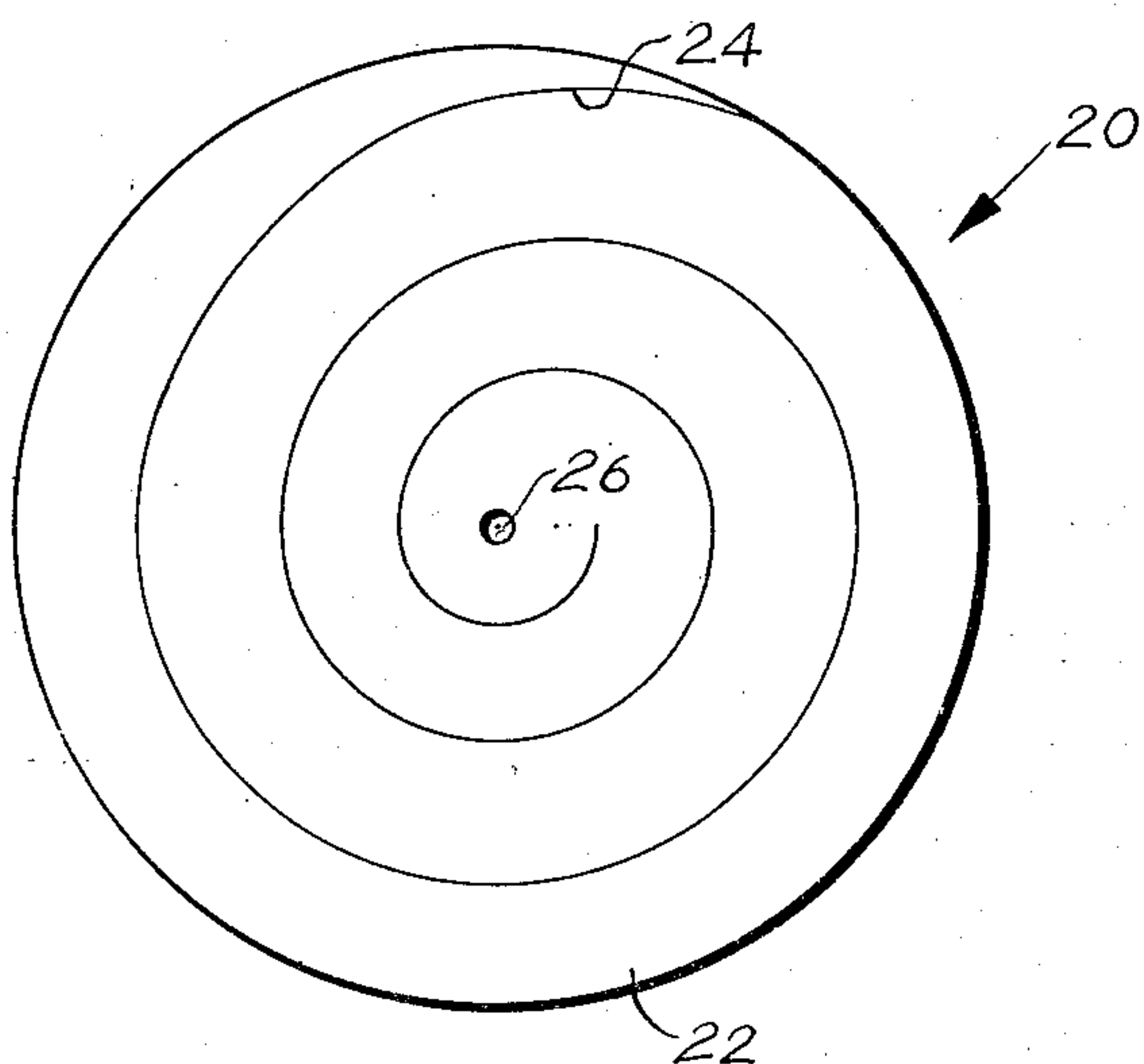
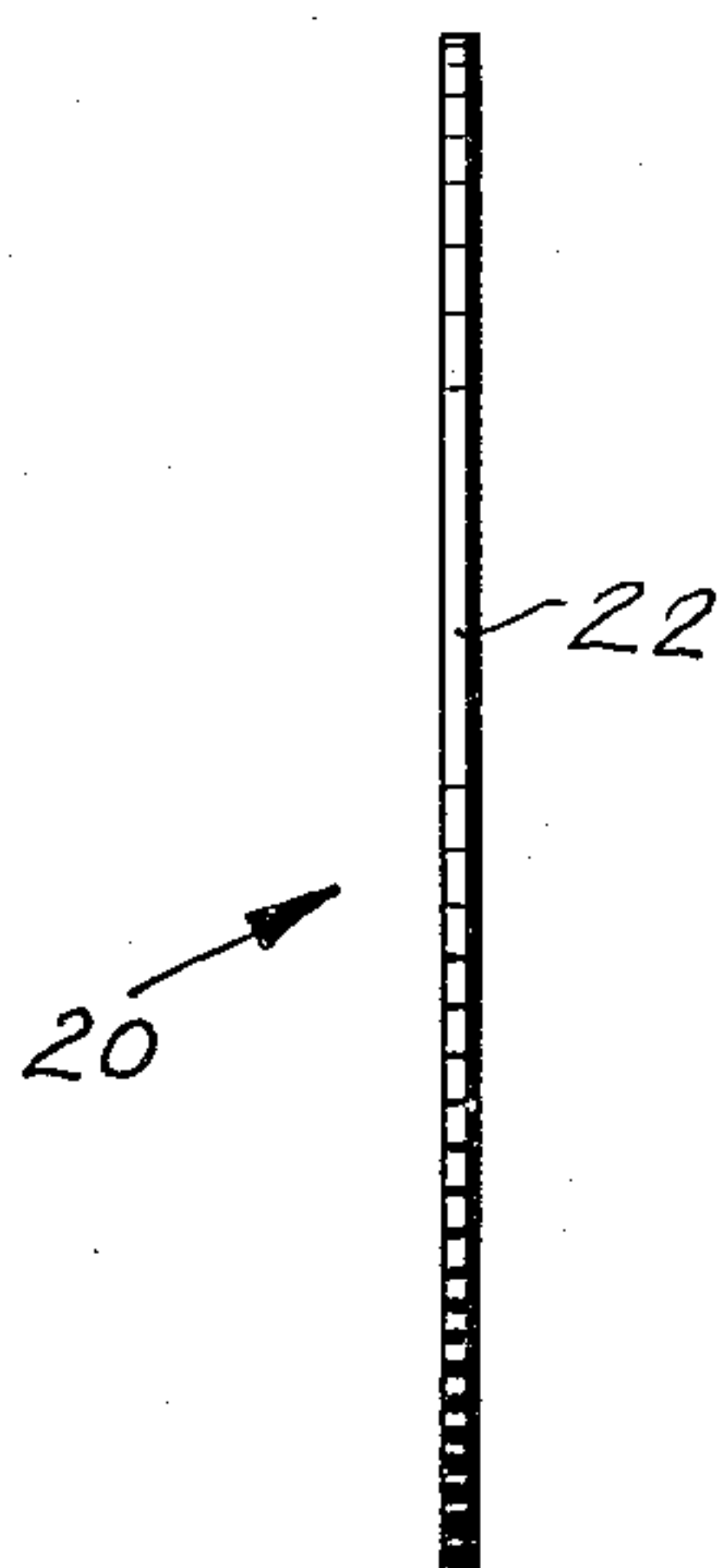


FIG. 3



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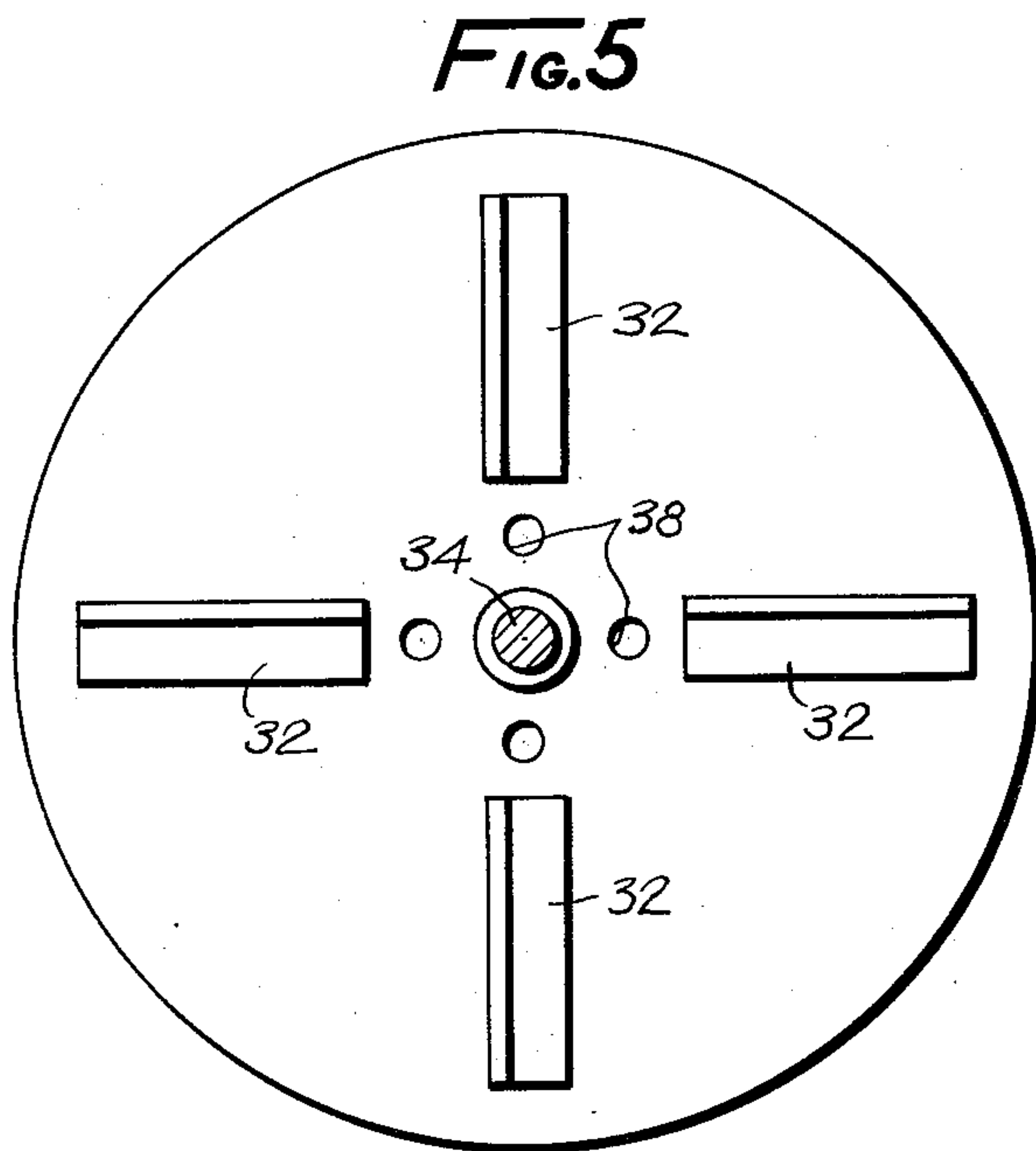
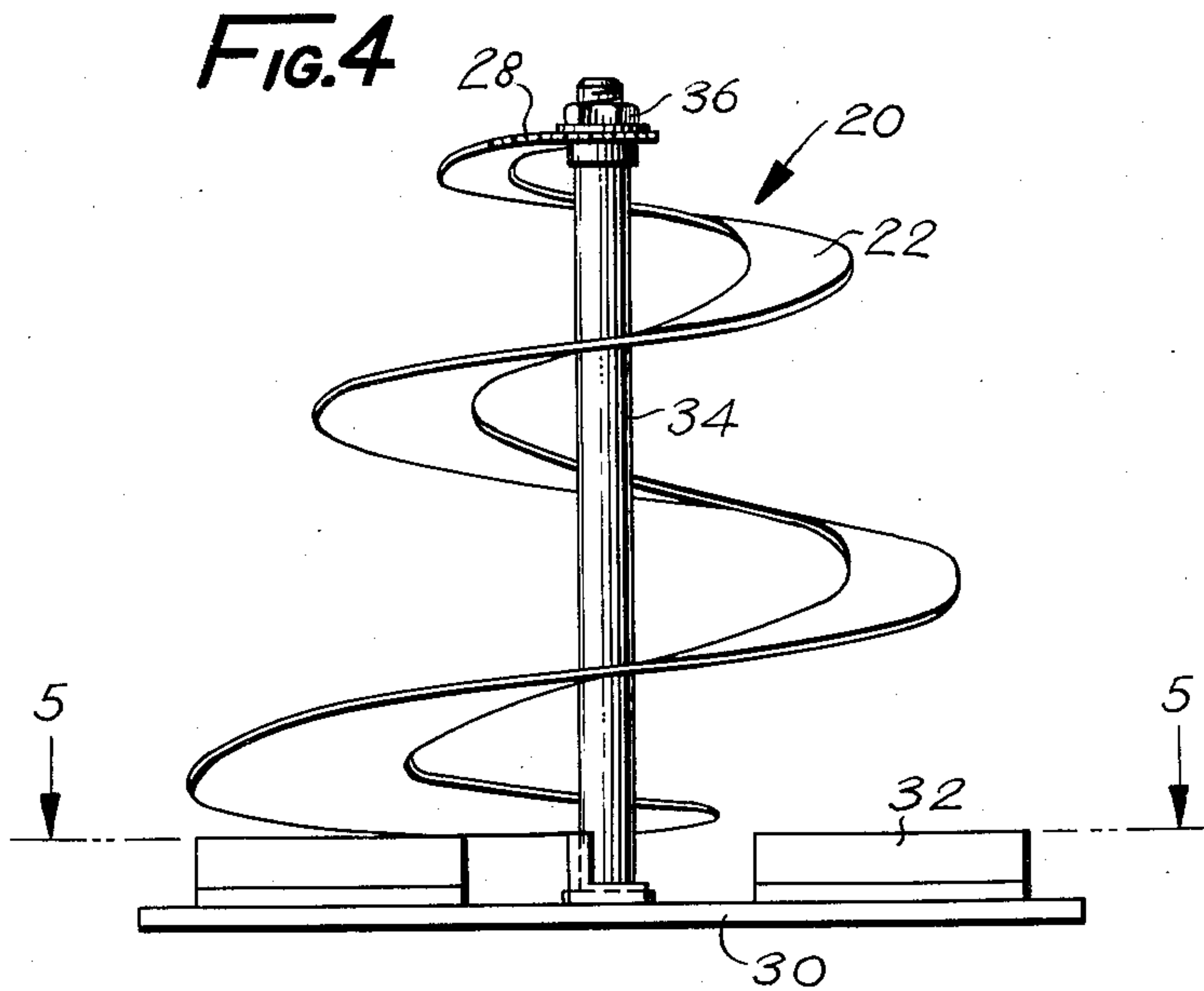
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This invention relates to material handling equipment and more particularly to a snow excavator.

It is an object of the present invention to provide an auger feed device for facilitating the use of power equipment for clearing a path through heavy snow in a simple and efficient manner.

Another object of the present invention is to provide an auger for snow excavators that will effectively remove the snow from highly packed and compressed areas without causing the motive power means to stall or be overloaded.

A further object of the present invention is to provide an auger for handling all types of fluent materials, such as coal, snow, grain, and the like in an extremely simple and efficient operation.

Other objects of the invention are to provide an auger for material handling apparatus bearing the above objects in mind which is of simple construction, has a minimum number of parts, is inexpensive to manufacture and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a perspective view of a snow excavator embodying an auger made in accordance with the present invention;

FIGURE 2 is a plan view of a blank from which an auger made in accordance with the present invention is constructed;

FIGURE 3 is an end elevational view of the blank shown in FIGURE 2;

FIGURE 4 is an enlarged side elevational view of an auger assembly made in accordance with the present invention; and

FIGURE 5 is a transverse cross sectional view taken along line 5-5 of FIGURE 4.

Referring now more in detail to the drawing, a snow excavator 10 embodying an auger 20 made in accordance with the present invention is shown to include a main frame 12 rollably supported upon a wheel and axle assembly and carrying a gasoline engine 14 and reduction gearing 16. The front end of the frame 12 supports a housing 18 with substantially cylindrical wall, a back wall and a circular open front defined by said cylindrical wall within which the auger 20, made in accordance with the present invention, is rotatably supported. A substantially U-shaped skid type scoop integrally secured to the forward and lowermost concave edge portion of said housing extends a short distance in front of said housing.

As is more clearly shown in FIGURES 2 and 3 of the drawing, the auger 20 includes a single, substantially circular disc 22 having a spiral score line 24 dividing it into a single blade with a plurality of substantially flat convoluted blade portions which when longitudinally expanded defines a blade of uniform width and of substantially conical shape. A central opening 26 at the center of the disc 22 receives the outer free end of an elongated shaft 34 having a hub portion adjacent the free end thereof and that is mounted at its opposite end upon a circular mounting plate 30 having a plurality of radially extending angle plates 32 which act as impellers for throwing the snow outwardly through the opening 40 of the housing 18. A nut 36 secures the apex end of

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the convoluted auger blade to the shaft 34 that further acts as a stiffener for maintaining the conical shape of the auger. The base convolution of said blade is secured to and supported upon the circular mounting plate 30, said blade being of uniform width throughout its length thereby leaving its intermediate portion unattached to and spaced from the shaft 34 leaving an open passageway adjacent said shaft 34 through which the snow can pass rearwardly to said mounting plate 30 from which the angle plates 32 will throw the snow outwardly away from said shaft and out the opening 40 in the housing 18.

In actual use, the mounting plate 30 is secured to the drive member of the prime mover, such as by bolts extending through bolt receiving openings 38 adjacent to each one of the impeller angle plates 32. A plurality of teeth 28 formed in the periphery end of the auger plate serves to bite into tightly packed snow or other material so as to assure the proper feeding of this material rearwardly toward the base of the auger blade and the mounting plate 30 so as to be driven by centrifugal force and the impeller blades 32 outwardly through the discharge opening 40. The stiffener shaft 34 maintains the proper shape of the auger blade even when driven at substantially great force into the material being handled, while the serrations 28 at the lead end of the blade assure the proper feed of the material at all times.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. A snow excavator type machine of the character described comprising in combination, a portable main frame structure rollably supported upon a wheel and axle assembly consisting of an axle and a pair of wheels and carrying a gasoline engine arranged above and in contact with the rear end of said frame structure, power reduction gearing carried and arranged above and in contact with the forward end of said frame structure, a substantially circular auger housing rigidly secured to and supported upon the forward end portion of said frame structure, said auger housing having a substantially cylindrical wall, a back wall and a circular front opening defined by said cylindrical wall, a substantially U-shaped skid type scoop integrally secured to the forward and lowermost concave edge portion of said housing and extending a short distance in front thereof forming a concave chute through which snow and slush is gathered and conveyed rearwardly therein, a circular mounting plate, means connecting said power unit with said circular mounting plate to rotate the same within said housing, a cylindrical shaft carried by said mounting plate and extending forwardly therefrom and extending outwardly from said housing a short distance and above said U-shaped scoop, a single helical blade of general conical exterior configuration having a plurality of convolutions of uniform width and thickness forming a hollow auger, said helical blade including a substantially flat blade portion at its outer end defining an apex portion and a substantially flat blade portion at its rear end defining a base portion, a circular opening at the center of said apex portion, said cylindrical shaft having its rear end secured to the central portion of said circular mounting plate and forming a cylindrical stiffening means for said hollow auger, the forward end of said shaft having a hub portion adjacent its outer end and the outer end of said shaft extending through said opening in said apex portion, bolt means securing said apex portion in contact with said hub portion of said shaft,



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means securing said base portion of said blade to said circular mounting plate, the intermediate portion of said blade being spaced from said shaft leaving a substantially cylindrical passageway through which solid portions of snow may pass direct to said circular mounting plate, said auger housing having an opening in its top portion and equipped thereover with a discharge spout through which snow that enters the said housing can be discharged, said circular mounting plate comprising a plurality of radially outwardly extending angle plate impellers mounted thereon whereby said impellers throw the snow coming in contact therewith out the opening in said housing and through said discharge spout thereabove and to one side of said snow excavator type machine.

2. The combination according to claim 1, further comprising a plurality of radially outwardly extending impeller angle plates integral with said circular mounting

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plate and the outwardly extending portion of said angle plates facing said apex end of said blade.

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