

Dec. 21, 1937.

H. C. CARTER

2,103,145

COAL WORM DRIVE

Filed Sept. 17, 1934

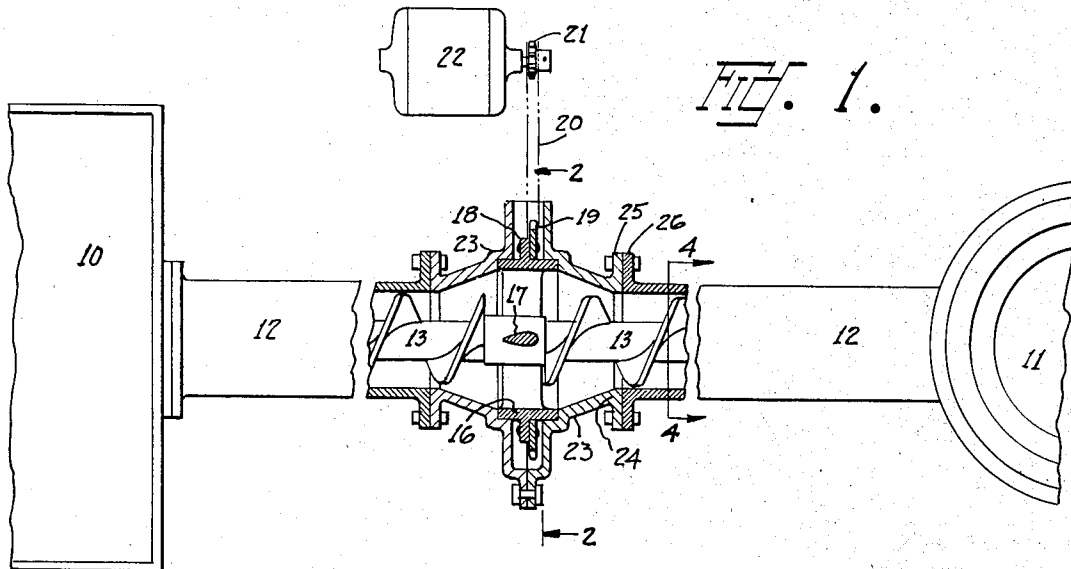


FIG. 3.

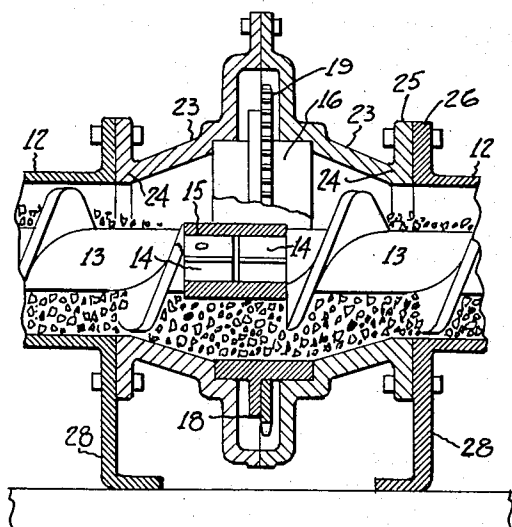


FIG. 2.

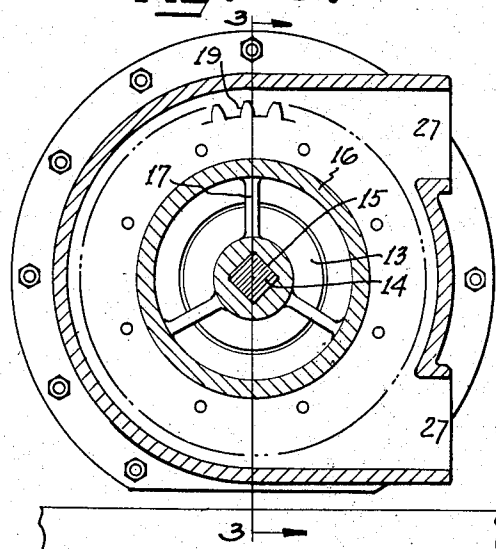
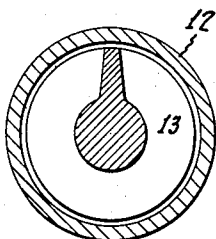


FIG. 4.



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2,103,145

COAL WORM DRIVE

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Application September 17, 1934, Serial No. 744,388

6 Claims. (Cl. 198—213)

This invention relates generally to underfeed stokers, and particularly to a coal worm drive to be used in connection therewith.

The main object of this invention is the provision of an exceedingly simple and efficient form of drive whereby rotation may be imparted to a coal feeding worm at a point intermediate its opposite ends.

I accomplish this object in the manner set forth in the following specification as illustrated in the accompanying drawing, in which:

Fig. 1 is a plan of the device showing the drive unit portion broken away in a horizontal section.

Fig. 2 is a section taken along the line 2—2 in Fig. 1.

Fig. 3 is a section taken along the line 3—3 in Fig. 2.

Fig. 4 is a section taken along the line 4—4 in Fig. 1.

Similar numbers of reference refer to similar parts throughout the several views.

Referring in detail to the drawing, there is shown a portion of a hopper 10 from which fuel is to be delivered to the retort 11 through the coal tube sections 12 within which are disposed the sections 13 of the fuel feeding worm. Each section 13 is provided with a squared end 14 which occupies a square hole 15 in the center of the wheel 16, whose spokes 17 are so shaped as to offer the minimum amount of resistance to the passing of fuel between same.

The wheel 16 is provided with a central flange 18 to which is attached a sprocket wheel 19, or other means for imparting motion to the wheel 16. The sprocket wheel 19 is driven through a chain 20 from the sprocket pinion 21 on the shaft of the motor 22. Obviously, any other arrangement for driving the wheel 16 could be employed without departing from the spirit of this invention.

The rim of the wheel 16 journals in the split housings 23, whose outer ends 24 converge toward the inner-diameter of the fuel tube sections 12. The flanges 25 on the ends 24 are bolted to the flanges 26 of the sections 12. The housings 23 are provided with the chain inlet and outlet openings 27.

The operation of the device is as follows:

Assuming that motion is imparted to the wheel 16 by means of the motor 22 in a direction which will cause it to move from the hopper 10 toward the retort 11, it is clear that the worm section 13 which is nearest the hopper 10 has only to convey the fuel from the hopper 10 and dis-

charge it into the housing 23 around the spokes 17, after which it is picked up by the second worm section 13 and carried on to the retort 11 in the usual manner.

This form of drive is especially useful in cases where it is impractical to drive the worm from either end, as in the case where coal is delivered to a retort from a storage bin remote from the retort.

It is desirable to provide the flanges 26 with feet 28 to properly support the tube sections 12.

I claim:

1. A device of the class described, comprising a housing having a bearing formed therein, a wheel having its rim portion occupying said bearing, said housing having portions converging toward each end, worm sections projecting from each end of said housing and drivably connected to said wheel and means for rotating said wheel.

2. In a device of the class described, the combination of a housing having a bearing formed therein, a wheel having a flanged rim occupying said bearing, a pair of worms having their adjacent ends squared and occupying a square hole within the hub of said wheel, the diameter of the worms being substantially less than the diameter of the interior of the wheel, said wheel having spokes connecting said rim to the hub and said spokes being streamlined in parallelism with the axes of the worms.

3. A device of the class described, consisting of a housing including a pair of opposed conical sections having their enlarged ends adjacent to each other and flanged for the purpose of uniting the sections, said flanged portions having a recess formed therein for the reception of a sprocket wheel, a sprocket wheel having its teeth within said recess and having its hub in the form of a cylindrical rim, the ends of which journal within the housing, the interior of said rim being larger than the small outer ends of the housing, said wheel having a central hub provided with a square opening along its axis, spokes for connecting said hub to said rim, worm conveyor sections connected to opposite sides of said housing, each section having a worm therein, the adjacent end of said worms having square shafts adapted to engage said wheel hubs, and a chain drive for said sprocket wheel extending through the sides of said housing.

4. In combination, a worm, a worm housing having an enlarged portion, a ring journaled in said housing with its inside surface forming a continuation of the inner wall of the enlarged portion, means on the inside of the ring for caus-

ing the worm to rotate with the ring, and means on the outside of the ring for rotating the ring.

5 In combination, a screw conveyor comprising a housing, a worm in said housing for causing material to flow through the housing, a ring gear within the housing, a second worm, means connecting said worms to the ring gear, one of said worms passing through the central plane of the wheel thereby having its junction with the
10 connecting means displaced from said central plane.

6. A device of the class described, comprising a housing having a worm receiving main opening surrounded by a substantially annular recess, a wheel having a rim rotatable in said recess, said main opening having surfaces diverging toward the central plane of the wheel to form an enlargement of the main opening, worm sections operatively connected to said wheel and projecting from each end of the housing and means for rotating the wheel. 5 10

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