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Meghajtó egység adagolóhoz, amely egy pelletégető égésteréhez szolgáltat

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(54) **A DRIVE UNIT FOR A FEEDER SUPPLYING A COMBUSTION CHAMBER OF A PELLET BURNER**

ANTRIEBSEINHEIT FÜR EINEN ZUFÜHRER ZUR VERSORGUNG EINER BRENNKAMMER EINES
PELLETBRENNERS

UNITÉ D'ENTRAÎNEMENT POUR LE DISPOSITIF D'ALIMENTATION DE LA CHAMBRE DE
COMBUSTION D'UN BRÛLEUR DE GRANULÉS

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Description

[0001] The subject of the invention is a drive unit for a worm conveyor supplying the combustion chamber of a burner designed for burning pellets which can be used both in households and other communal facilities buildings and store or production rooms.

[0002] There are known burners designed for burning pellets which are equipped with a worm feeder supplying the combustion chamber of a burner with a dosed amount of fuel in a form of granular pellets. The feeder is driven by a motor and a reduction gear such that each of these devices is a separate element of the drive. In addition, there is a fan located in the burner housing, or outside it, which blows in into the combustion chamber a flow of air necessary for performing the combustion process. The fan is driven by a separate motor.

[0003] Patent description no. US 2324042 A discloses a drive mechanism of the worm conveyor (71) for feeding a pellet burner combustion chamber, shown in drawings marked as Pos. I and Pos. II. The mechanism comprises an electric motor (41), reduction gear (75, 76), radial fan (57) with an external motor (41) and a mounting plate on the housing (48), whereas the radial fan (57) and the electric motor (41) are permanently attached to the reduction gear (75, 76) via centring sleeve (52). Said document discloses the preamble of claim 1. A drive unit of the feeder supplying a pellet burner relates to a burner comprising a steel body which is a fixed housing with an inlet hole for pellets, and a worm feeder driven by a drive unit, dosing pellets supplied to the combustion chamber, which is provided with a multipoint blow-in of air throughout holes and/or nozzles. The object of the invention is solved by a drive unit according to claim 1. In the solution according to the invention, there is a fan used for driving a worm feeder supplying the combustion chamber of a burner, comprising a housing, a motor situated inside the housing, and a rotor with blades directed outwards, which elements, all together, form one monolith unit. The radial fan is connected with a reduction gear by a special shaft ended with a rack, adapted for transmitting drive from the fan's motor to the reduction gear where from - by the use of the driving shaft - the drive is transmitted to the worm conveyor' shaft delivering pellets to the combustion chamber.

[0004] In accordance with the invention, there is a construction element placed between the radial fan and the reduction gear in a form of a centring sleeve having an outer flange, in addition, the outer flange is fixed to a mounting plate from one side and it is tightly fitting with a seat of the reduction gear from the other side, whereas a cylinder segment of the centring sleeve passes through a hole of the mounting plate and it is slidably and tightly fitted with a centrifugal fan's hole.

[0005] Thanks to the solution according to the invention, a simple design solution has been developed, improving the drive of the feeder supplying the pellets burner, in a form of one compact unit of small dimensions,

which allows the drive's assembling space to be significantly limited at the evident reduction of the installing costs.

[0006] The subject of the invention is shown in an exemplary embodiment in a schematic drawing, Fig. 1 of which shows a perspective view of the drive unit of the feeder supplying the pellet burner; Fig. 2 - shows a perspective view of the reassembled details of the drive unit; Fig. 3 - shows a side view of the drive unit, and Fig. 4 - a rear view of the drive unit.

[0007] The drive unit for the feeder according to the invention, supplying the pellet burner, has been used in a pellet burner comprising a steel body (not shown in the drawing), being a fixed housing with an inlet hole for pellets and a rotary combustion chamber (also not shown in the drawing) equipped with a multipoint blow-in of air throughout holes and/or nozzles, to which doses of pellet are being delivered by a worm feeder (not shown in the drawing).

[0008] To drive the worm feeder supplying the combustion chamber of the pellet burner a centrifugal fan 1 has been used, comprising a housing not shown in the drawing, a motor 2 located inside the housing, an outer rotor 3 of a motor has blades 4 arranged on its outer circumference, and a stator 5 located inside the housing. These elements all together form one monolith unit. A rear wall of the fan's 1 housing is formed by an mounting plate 6, adapted properly to the shape of housing.

[0009] The motor 2 of the centrifugal fan 1 is connected with a reduction gear 7 by a special shaft ended with a rack (not shown in the drawing), adapted for transmitting drive from the fan's 1 motor 2 to the reduction gear 7, where from - by using a driving shaft 8 - a torque is transmitted to the shaft of the worm feeder (not shown in the drawing) supplying pellets to the combustion chamber (also not shown in the drawing).

[0010] There is a construction element placed between the centrifugal fan 1 and the reduction gear 7 in a form of centring sleeve 9a having an outer flange 9b. The outer flange 9b is removably mounted to the mounting plate 6 using bolts 10 from one side, and it is tightly fitted with a seat 11 of the reduction gear 7 from the other one, whereas a cylinder segment of the centring sleeve 9a passes throughout a hole of the mounting plate 6, and it is slidably and tightly fitted with a hole of the fan 1.

[0011] The shape of the mounting plate 6 is almost a circle-like, however this circle has an irregular contour on the length equal almost ¼ of its circumference. This shape is adapted properly to the one of the fan's housing 1 (not shown in the drawing), which looks like a shell.

List of labels

[0012]

- 1 - centrifugal (radial) fan
- 2 - motor

- 3 - outer rotor of the motor
- 4 - fan's blade
- 5 - motor's stator
- 6 - mounting plate
- 7 - reduction gear (transmission)
- 8 - driving shaft
- 9a - centring sleeve
- 9b - centring sleeve flange
- 10 - bolt
- 11 - reduction gear's seat

Revendications

1. Une unité d'alimentation propulsion vis de la chambre de combustion des pellets de brûleur, comprenant un moteur électrique (2), un engrenage de réduction (7), le ventilateur radial (1), un boîtier et la plaque de montage (6) qui présente une forme adaptée à la forme du boîtier, dans lequel le ventilateur radial (2) et le moteur électrique (1) étant reliée à un engrenage de réduction (7) par l'intermédiaire d'un centrage manchon (9a), **caractérisé en ce que** ledit ventilateur radial (2) comprend un rotor extérieur (3) avec des ailettes (4) disposées sur sa périphérie extérieure, et un stator (5) disposé à l'intérieur du rotor (3) et la douille de centrage (9a) présente une bride (9b) montée de façon amovible sur la plaque de montage (6) sur un côté et étroitement ajustée dans un siège (11) du réducteur (7) d'autre part.

Claims

1. A drive unit for a worm conveyor supplying a combustion chamber of a pellet burner, comprising an electric motor (2), a reduction gear (7), a radial fan (1), a housing and a mounting plate (6) which has a shape adapted to the shape of the housing, wherein the radial fan (1) and the electric motor (2) are connected with the reduction gear (7) via a centring sleeve (9a), **characterised in that** said radial fan (2) comprises an outer rotor (3) with blades (4) arranged on its outer circumference and a stator (5) located inside the rotor (3), and wherein the centring sleeve (9a) has a flange (9b) removably mounted to the mounting plate (6) from one side, and tightly fitted with a seat (11) of the reduction gear (7) from the other side.

Patentansprüche

1. Die Antriebseinheit für den Schneckenförderer zur Versorgung der Brennkammer eines Pelletbrenners, die einen Elektromotor (2), ein Reduktionsgetriebe (7), einen Radiallüfter (1), ein Gehäuse und eine Montageplatte (6) mit einer an die Gehäuseform angepassten Form umfasst, der Radiallüfter (1) und der Elektromotor (2) mit Hilfe einer Zentrierhülse (9a) mit dem Getriebe (7) verbunden sind, **dadurch gekennzeichnet, daß** der Radiallüfter (1) einen externen Rotor (3) mit Paddeln (4) die an seinem äußeren Umfang verteilt sind und einen Stator (5), der sich innerhalb des Rotors (3) befindet, enthält, wobei die Zentrierhülse (9a) mit einem Flansch (9b) versehen ist, der trennbar an der Montageplatte (6) einerseits und fest am Sitz (11) des Reduktionsgetriebes (7) andererseits befestigt ist.

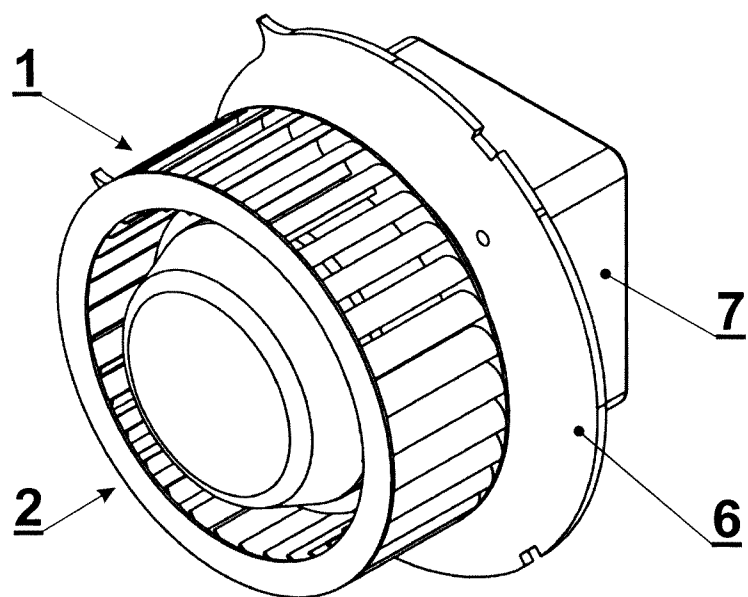


Fig. 1

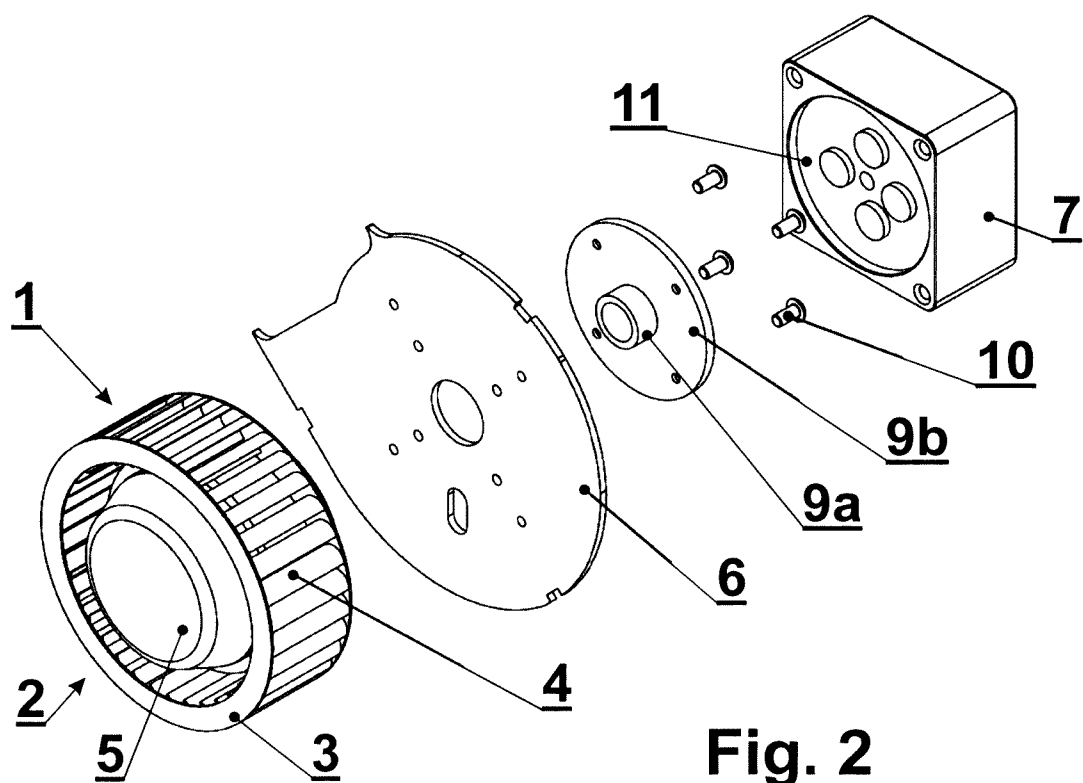
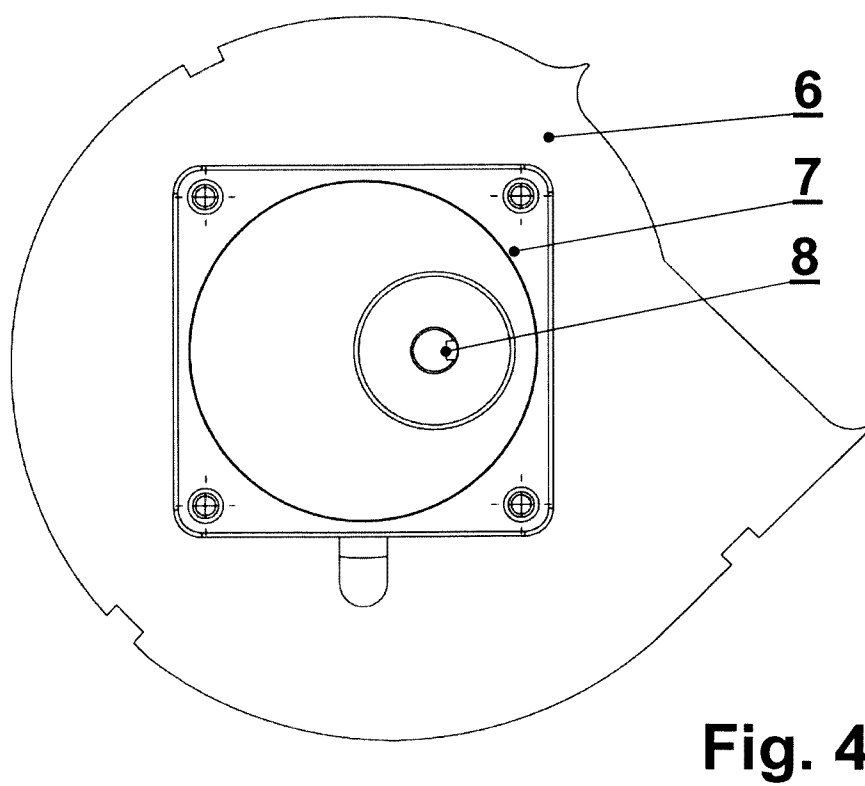
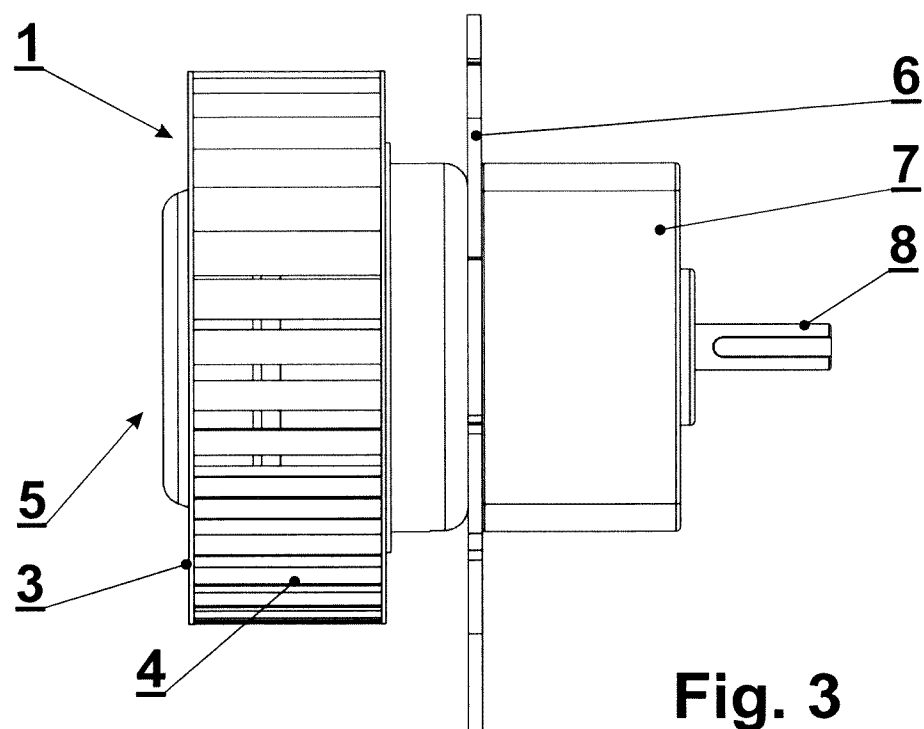


Fig. 2



REFERENCES CITED IN THE DESCRIPTION

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MEGHAJTÓ EGYSÉG ADAGOLÓHOZ, AMELY EGY PELLETEGETŐ ÉGÉSTERÉHEZ SZOLGÁLTAT
SZABADALMI IGÉNYPONTOK

1. Meghajtó egység (drive unit) egy szállítócsigához (worm conveyor), ahol ez egy pelletégető (pellet burner) égésteréhez (combustion chamber) szolgál, amely egység tartalmaz egy elektromos motort (2), egy lassító fogaskereket (reduction gear) (7), egy centrifugál-ventilátort (radial fan) (1), egy burkolatot (housing) és egy szerelvénylapot (mounting plate) (8), ahol ennek olyan alakja van, amely a burkolat alakjához van adaptálva, ahol a centrifugál-ventilátor (1) és az elektromos motor (2) össze van kapcsolva a lassító fogaskerékkel (7) egy központosító persely (centring sleeve) (9a) útján, azzal jelezve, hogy az említett centrifugál-ventilátor (1) tartalmaz egy külső rotort (3) lapátokkal (blade) (4) annak külső kerületén elrendezve, és tartalmaz egy állórészt (stator) (5) a rotoron (3) belül, és ahol a központosító perselynek (9a) van egy pereme (flange) (9b) eltávolíthatóan felszerelve a szerelvénylaphoz (6) az egyik oldalról, és szorosan van illesztve (fit) a lassító fogaskerék (7) fészkeivel (seat) (11) a másik oldalról.



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