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(54) **WATER HEATER FOR CENTRAL HEATING**

WARMWASSERBEREITER FÜR ZENTRALHEIZUNG

CHAUFFE-EAU POUR CHAUFFAGE CENTRAL

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Description

[0001] The subject of the invention is a water heater for central heating, fired by solid, gas or oil fuel and intended for heat supply to small and medium-sized systems, for which DE-A-410532 forms the closest prior art.

[0002] The invention is defined by the claims.

[0003] The application of the upper starting flue shortens the route of flue gas and smoke during the heater fire-up phase to minimum and prevents the smoke from getting outside.

[0004] In turn, once the throttle of the upper starting flue is closed, the route of the flue gas now surrounding the internal water jacket of the heater and flowing to lower flue, located opposite to the ash box, is extended to maximum while its heat is almost completely transferred to this water jacket thus making the water heater highly efficient. This application of very extended route of the flue gas which surrounds a maximally large surface of the inner water jacket causes that, in case of heater firing with solid fuel, especially the sawdust , its combustion time become extended with the resulting reduction in sawdust consumption by about 50%.

[0005] The invention is presented in its execution example in the drawing wherein Fig. 1 illustrates the heater in a perspective view, Fig. 2 shows the same heater in vertical section along the A-A line, and Fig. 3 shows the same heater in vertical section along the B-B.

[0006] The water heater in form of rectangular prism with a slanted upper part of the front wall has the upper starting flue 1 provided with the throttle 2 installed in the upper wall 3 of the outer steel jacket 4 and the lower flue 5 located at the bottom of the rear wall 6 of this jacket opposite the ash box 7. In the combustion chamber 8 there is the inner water jacket 9, separated from the outer steel jacket 4 with flue-gas passes 10, whereas the front wall 11 of the steel jacket 4 above the loading hole 12 is provided with water jacket 13 connected with the water jacket 9, whereas the side wall 14 of the heater is provided with a stub pipe 15 for installing the fuel-gas or oil burner, not shown on the drawing.

[0007] The inner water jacket 9 consists of two water jackets 16 and 17 connected by the rear water jacket 18 and top water jacket 19, whereas in the lower loading chamber 20 the water jackets 16, 17 and 18 are bent inward, so that they surround the fire grate 21 whereas flue-gas flow passes 10 are provided with cleaning devices 22 serving for soot removal from heater walls which form those passes.

[0008] On both sides of the ash box 7, provided with door 23, there are blanking covers 24 which enable cleaning of those side walls which adjoin the ash box 7. During the heater fire-up, especially with wood, sawdust or other solid fuel, the throttle 2 of the starting flue 1 is opened to enable the escape of smoke and flue gas by the shortest route to the chimney to which the flue connected. The flow of flue gas during fire-up phase is marked in Figs. 2 and 3 with broken arrows.

[0009] On the other hand, once the heater fire-up phase is over, the throttle 2 of the flue 1 is closed tightly while turning it by 90° and, as a result, the flue gas flows through passes 10 to the lower flue 5 also connected to the chimney. The route of these flue gases is marked with continuous line arrows.

Claims

1. A central-heating water heater fired by solid, gas or oil fuel which has a rectangular form containing an ash box (7), a loading chamber (20) and a combustion chamber (8) containing water barriers and flue-gas flow passes, wherein an outer jacket (4) is provided having an upper starting flue (1) containing a throttle (2), and a lower flue (5), said combustion chamber (8) contains an inner water jacket (9) separated from said outer jacket (4) by flue-gas flow passes (10), and said inner water jacket (9) consists of two side water jackets (16, 17) connected with a rear water jacket (18) and an upper water jacket (19), said upper starting flue (1) and said lower flue (5) extend from the outer jacket (4) such that said upper starting flue (1) and lower flue (5) are separated one another.

2. The water heater according to Claim 1 **wherein** the water jackets (16, 17, 18) are bent in the lower part of the loading chamber (20) so that they surround the fire grate (21) of the heater.

3. The water heater according to Claim 1 **wherein** the flue-gas flow passes (10) contain cleaning devices (22).

Patentansprüche

1. Zentralheizungwarmwasserbereiter der feste, gasöse oder ölige Brennstoff verbrennt, mit einer rechteckigen Form mit einem Aschkasten (7), einem Füllzimmer (20) und einem Verbrennungsraum (8) mit Wasserbarrieren und Strömungspassagen für Rauchgase, und mit einer ausseren Hülle (4) mit einem oberen Auslösungsauslass (1) mit einer Drossel (2) und einem unteren Auslass (5) wobei der Verbrennungsraum (8) eine innere Wasserhülle (9) hat, separiert von der auseren Hülle (4) von Strömungspassagen (10) für Rauchgase, und die innere Wasserhülle (9) besteht aus zwei seitlichen Wasserhülle (16, 17), verbunden mit einer hinteren Wasserhülle (18) und einer oberen Wasserhülle (19), wobei der obere Auslösungsauslass (1) und der untere Auslass (5) von der Aussenhülle (4) führen, sodass der obere Auslösungsauslass (1) und der untere Auslass (5) separiert sind.

2. Warmwasserbereiter gemäss Anspruch 1, wobei die Wasserhülle (16, 17, 18) in dem unteren Teil des Füllraumes (20) gebogen sind, um der Verbrennungsrost (21) der Anlage zu umgeben.

3. Warmwasserbereiter gemäss Anspruch 1, wobei die Strömungspassagen (10) Reinigungsvorrichtungen haben.

Revendications

1. Chauffe-eau pour chauffage central pour 1a combustion de fuel solide, gasöse ou oléagineuse avec un modèle rectiligne avec un tiroir à produits incinérer (7), une chambre de remplir (20) et une chambre de combustion (8) avec barrières de l'eau et passages de circulation de gaz de fumée; un manchon externe (4) avec un évacuation d'initialisation des gaz de fumée haute (1) avec un vanne (2) et un évacuation des gaz de fumée basse (5), la chambre de combustion (8) a un manchon interne d'eau (9), séparer du manchon externe (4) par passages de circulation de gaz fumée (10); le manchon interne (9) est déterminé par deux manchons d'eau à flanc (16, 17), connecté avec un manchon d'eau arrière (18) et un manchon d'eau haute (19); le évacuation d'initialisation des gaz de fumée haute (1) et le évacuation des gaz de fumée basse (5) s'étendre depuis le manchon externe (4) de manière à le évacuation d'initialisation des gaz de fumée haute (1) et le évacuation des gaz de fumée basse (5) sont séparé.

2. Chauffe-eau selon la revendication 1, les manchons d'eau (16, 17, 18) sont courbé dans la partie basse de la chambre de remplir (20) de maniére à circuler la grille de combustion (21) du chauffe-eau.

3. Chauffe-eau selon la revendication 1, les passages de circulation de gaz fumée (10) comprendre dispositifs de nettoyage (22).

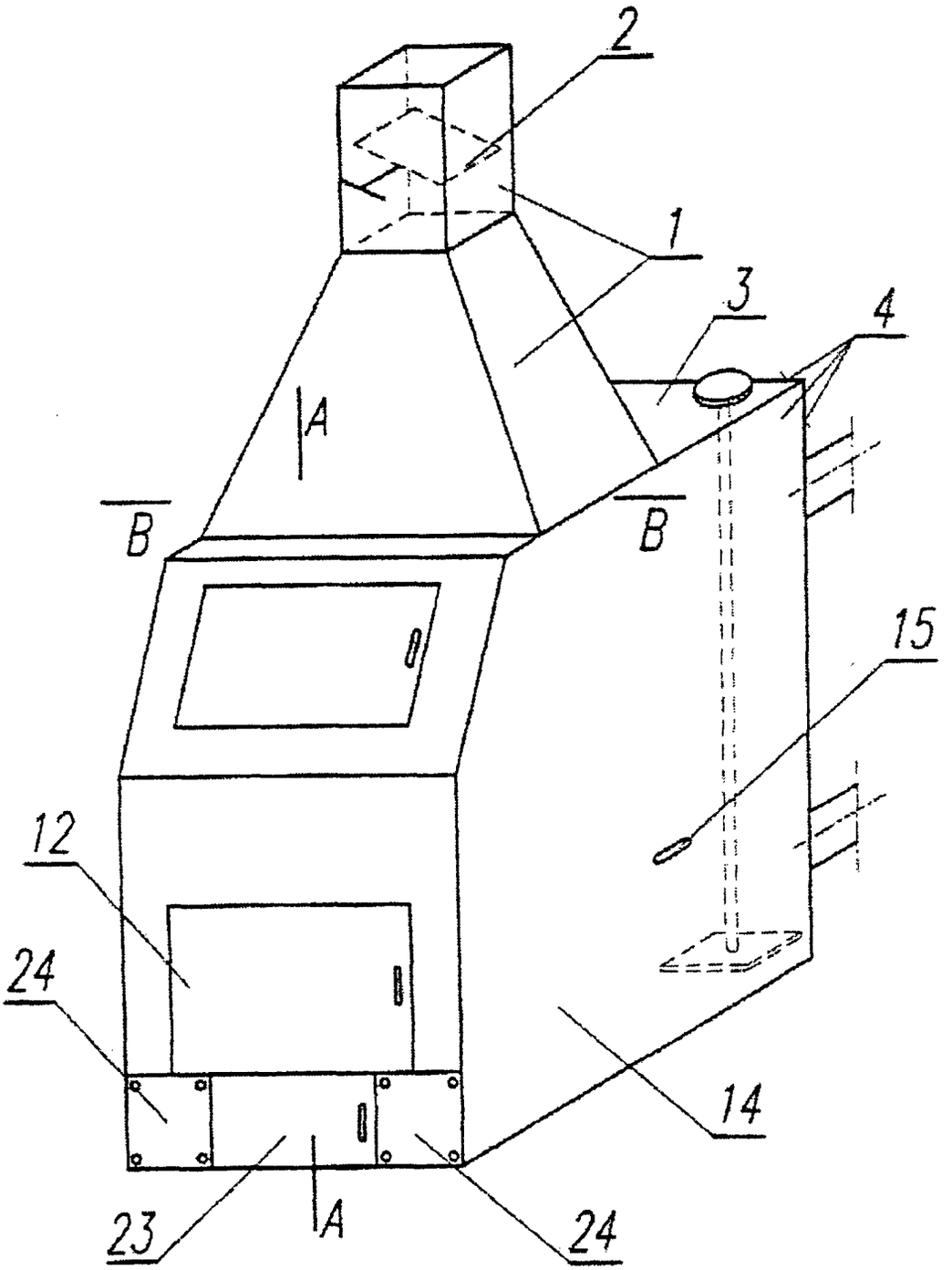


Fig. 1

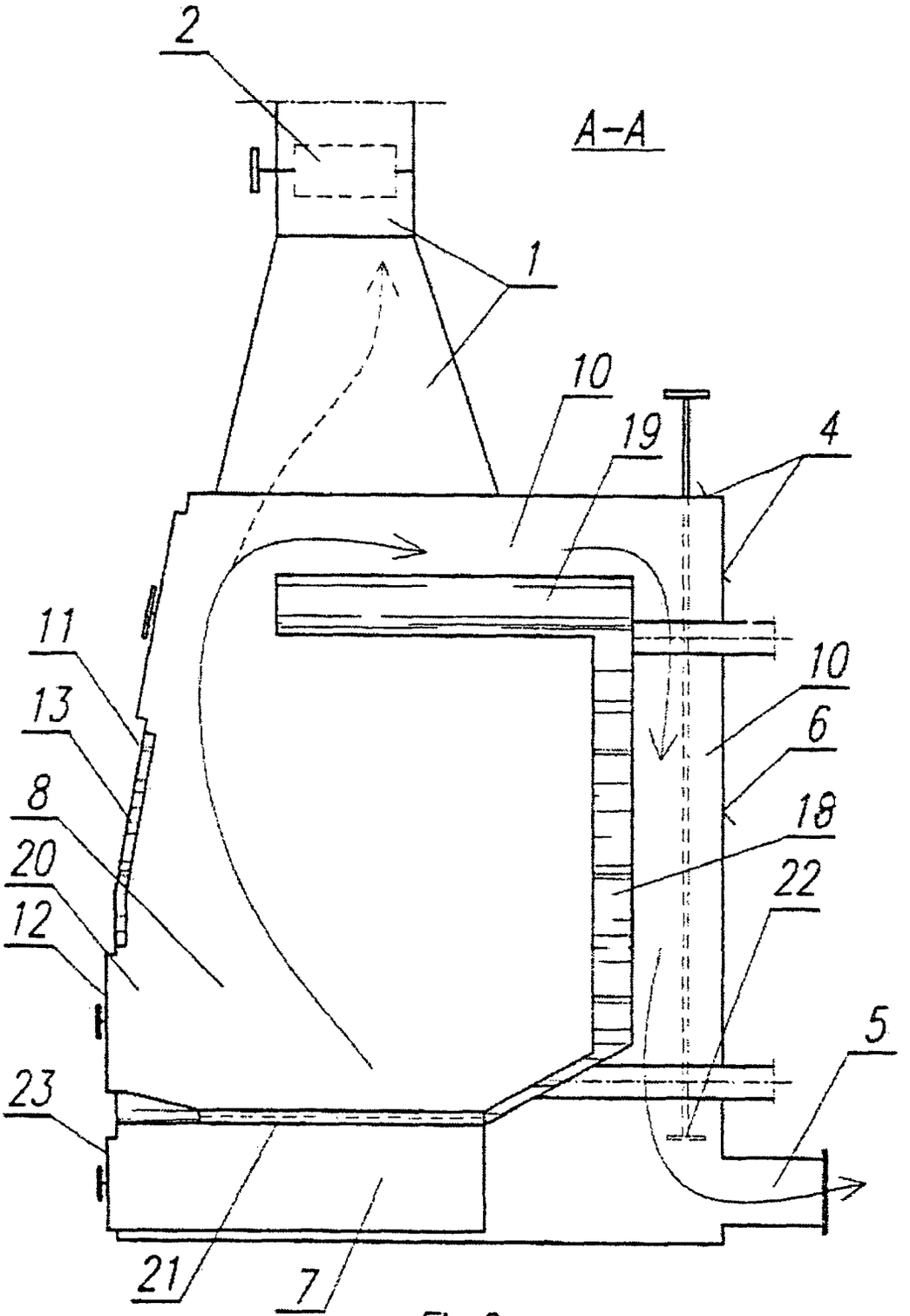


Fig.2

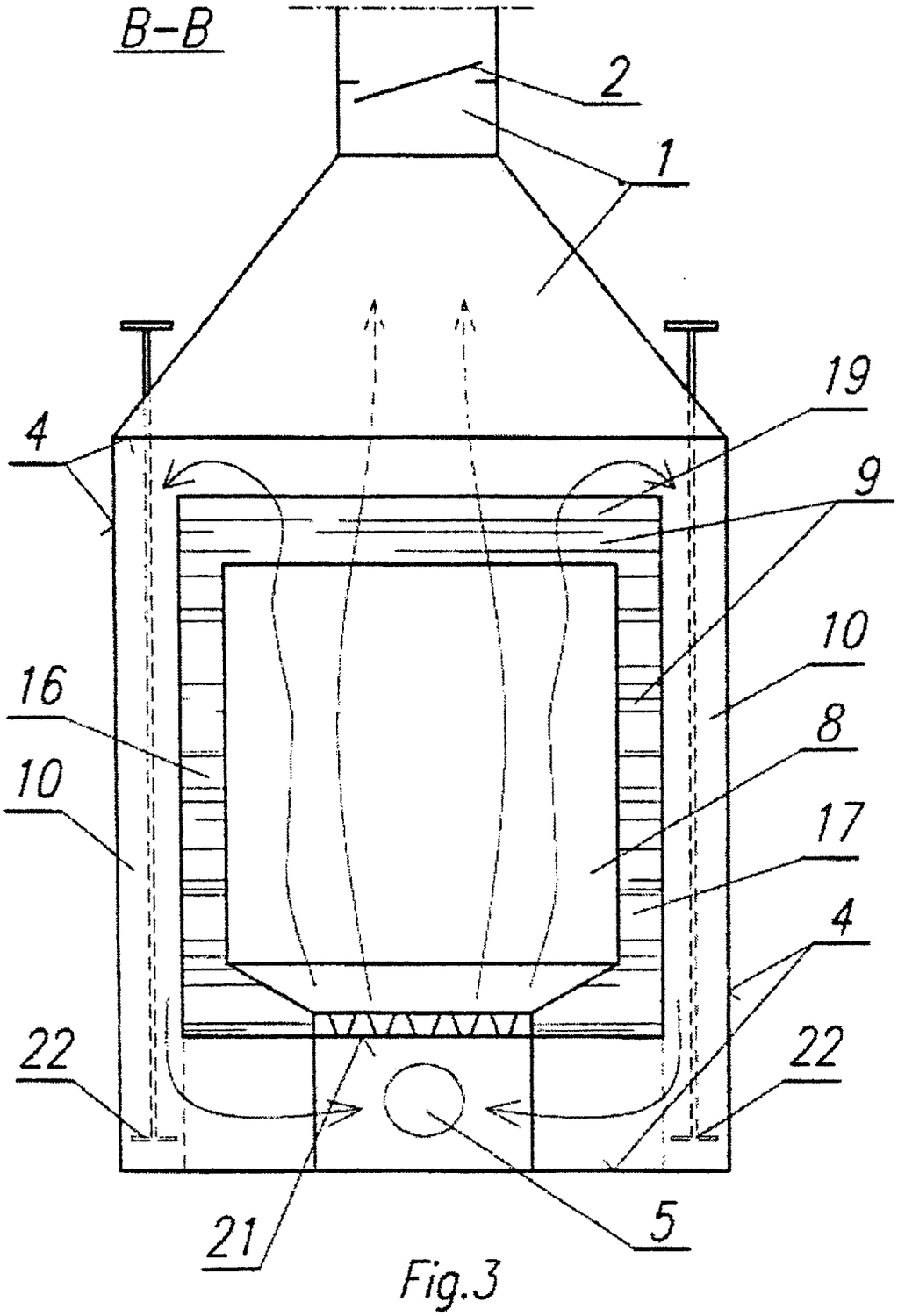


Fig.3