

WASTE CAR DISPOSER

BACKGROUND OF THE INVENTION

The present invention relates to waste car
5 disposers, and relates more particularly to such a
waste car disposer which uses a longitudinal series of
tunnel-like furnaces connected in series and separately
controlled to heat waste cars at different temperatures
so as to reclaim different materials separately.

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When to dispose waste cars, the engines, the tires,
the chairs, the window glass, the electric wires, etc.,
are respective dismantled and separately collected, and
then the frame body of each waste car is crushed.
15 However, because a car generally comprises 6% of
plastic and rubber content, 2.4% of glass content,
0.75% of lead content, 1.6% of zinc content, 4% of
nickel content, 0.87% of copper content, and 86% of
iron and steel content. It is complicated to separate
20 these material contents from one another by labor. When
the parts and frame bodies of waste cars are dismantled
and crushed, a big storage space is still required to
hold the dismantled and crushed parts and frame bodies
of waste cars.

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SUMMARY OF THE INVENTION

The present invention has been accomplished under the circumstances in view. It is the prime object of the present invention to provide a waste car disposer
5 which can heat waste cars at different temperatures in different furnaces so as to melt different material contents for reclamation separately.

According to the preferred embodiment of the
10 present invention, the waste car disposer comprises a plurality of tunnel-like furnaces connected in series, a plurality of heat insulative gate members respectively controlled to open/close the passage between each two adjacent furnaces, a conveyer
15 controlled to carry waste cars through the furnaces, said conveyor having a plurality of through holes, each furnace comprising a respective heating element separately controlled to heat waste cars passing through, and a respective side-loading sliding
20 collecting tray disposed below the conveyer for collecting melted parts of waste cars carried by the conveyer through the furnaces.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an elevational view of a waste car disposer according to the present invention;

Fig. 2 is a side view in plain of the waste car disposer shown in Figure 1; and

5 Fig. 3 is a sectional view taken along line III-III of Figure 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 1, 2, and 3, a waste car
10 disposer in accordance with the present invention a longitudinal series of tunnel-like furnaces, namely, the first furnace 1, the second furnace 2, the third furnace 3, the fourth furnace 4, the fifth furnace 5, the six furnace 6, and the seventh furnace
15 longitudinally connected together. The seventh furnace 7 has a closed end. The furnaces have respective independent heating elements 11, 21, 31, 41, 51, 61, 71 (in which, the elements 21, 31, 41, 51, 61, 71 are illustrated as the dashed lines in Fig. 2), and
20 respective side-loading sliding collecting trays 12, 22, 32, 42, 52, 62, 72 at the bottom. A conveyer 8 is mounted in the furnaces 1, 2, 3, 4, 5, 6, 7 and controlled to carry waste cars through each furnace. The conveyer 8 has a plurality of vertical through
25 holes 81. Each of the side-loading sliding collecting

trays 12, 22, 32, 42, 52, 62, 72 is covered with a screen 14, which collects waste parts of heated waste cars dropped through the vertical holes 81 of the conveyer 8. Heat insulative gate members 13, 23, 33, 43, 5 53, 63, 73 are respectively mounted in between each two adjacent furnaces and the front side of the first furnace 1 and driven by a driving mechanism, for example, hydraulic cylinders (not shown), between the close position and the open position.

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The aforesaid furnaces from 1 to 6 are controlled to heat the waste car in the closed space therein by the respective electric heating elements 11, 21, 31, 41, 51, 61. The furnace temperature of the first furnace 1 15 is maintained within 280°C-300°C to melt 6% of plastic and rubber content of the waste car. The furnace temperature of the second furnace 2 is maintained within 320°C-330°C to melt 0.75% of lead content of the waste car. The furnace temperature of the third 20 furnace 3 is maintained within 440°C-450°C to melt 1.6% of zinc content of the waste car. The furnace temperature of the fourth furnace 4 is maintained within 655°C-665°C to melt 4% of nickel content of the waste car. The furnace temperature of the fifth furnace 25 5 is maintained within 900°C-1000°C to melt 2.4% of

glass content of the waste car. The furnace temperature of the six furnace 6 is maintained within 1000°C-1100°C to melt 0.87% of copper content of the waste car. While heating, nitrogen is filled into the furnaces to prevent the occurrence of a chemical reaction.

However, in order to prevent an over-pressure, pressure regulators 15, 25, 35, 45, 55, 65 are respectively installed in the furnaces from 1 to 6 to regulate the furnace pressure of each furnace within a respective predetermined value. The molten substance collected in each collecting tray of the furnace from 1 to 6 can be reclaimed.

The heating element 71 of the seventh furnace 7 is a set of fuel injectors (shown as the dashed lines in Fig. 2). Thus, the seventh furnace 7 is filled with fuel by the heating element 71 to burn and heat the residual 86% iron and steel content of the waste car at 1300°C-1600°C. The seventh furnace 7 has an exhaust pipe 74 connected to a waste gas processing unit 9, which comprises a rinsing apparatus 91, a dust collector 92, and a chimney 93.

The aforesaid conveyer 8, heat insulative gate members 13, 23, 33, 43, 53, 63, 73, screens 14, 24, 34, 44, 54, 64, 74, and collecting trays 12, 22, 32, 42, 52, 62, 72 are respectively made from alloy steel which
5 resists heat as high as 1200°C.

When a first waste car is carried by the conveyer 8 to the inside of the first furnace 1, the 6% of plastic and rubber content of the first waste car are
10 melted and flow through the vertical through holes 81 of the conveyer 8 to the collecting tray 12. If any metal parts are carried with molten plastic and rubber to the collecting tray 12, they will be stopped at the respective screen 14. Therefore, when the collecting
15 tray 12 is pulled out of the first furnace 1, the metal parts and the molten plastic and rubber can be reclaimed separately. The plastic parts of regular motor vehicles are commonly made from polypropylene. Because the molecular structure of polypropylene is
20 different from that of polyethylene and nylon, molten polypropylene can be easily separated from the molten matter collected in the collecting tray 12.

When the plastic and rubber content of the first
25 waste car is melted and collected, the heat insulative

gate member 13 is opened, and the conveyer 8 is controlled to deliver the first waste car to the second furnace 2 for heating, permitting the 0.75% of lead content to be melted and guided to the respective
5 collecting tray 22. When the first waste car is moved into the second furnace 2, a second waste car is simultaneously carried by the conveyer 8 to the first furnace 1 for heating.

10 When the lead content of the first waste car is melted and collected, the heat insulative gate member 23 is opened, and the conveyer 8 is controlled to deliver the first waste car to the third furnace 3 for heating, permitting the 1.6% of zinc content of the
15 first waste car to be melted and guided to the respective collecting tray 32. When the first waste car is moved to the seventh furnace 7 and its 86% of iron and steel content is melted and collected in the respective collecting tray 72, the first waste car is
20 completely melted. Furthermore, the staying time of the conveyer 8 in each furnace and its moving speed can be regulated as desired.

While only one embodiment of the present invention
25 has been shown and described, it will be understood

that various modifications and changes could be made without departing from the spirit and scope of the invention disclosed. For example, the seventh furnace can be an electric inductance furnace which melts the
5 iron and steel content of waste cars by induced electric current; the furnaces from 1 to 6 can be controlled to melt different parts of waste cars by burning fuel.



What the invention claimed is:

1. A waste car disposer comprising a plurality of tunnel-like furnaces connected in series, a plurality of heat insulative gate members respectively controlled
5 to open/close the passage between each two adjacent furnaces, a conveyer controlled to carry waste cars through said furnaces, said conveyer having a plurality of through holes, each furnace comprising a respective heating element separately controlled to heat waste
10 cars passing through, and a respective side-loading sliding collecting tray disposed below said conveyer for collecting melted parts of waste cars carried by said conveyer through said furnaces.
- 15 2. The waste car disposer of claim 1 wherein said furnaces include a first furnace, a second furnace, a third furnace, a fourth furnace, a fifth furnace, a six furnace, and a seventh furnace respectively controlled to heat waste cars passing through at temperatures
20 within 280°C-300°C, 320°C-330°C, 440°C-450°C, 655°C-665°C, 900°C-1000°C, 1000°C-1100°C, and 1300°C-1600°C respectively.



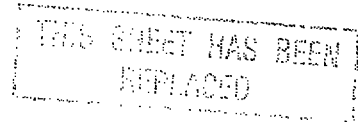
3. The waste car disposer of claim 1 wherein each collecting tray is covered with a screen below said conveyer.

5 4. The waste car disposer of claim 1 further comprising a driving mechanism controlled to move each heat insulative gate member between the close position and the open position.

10 5. The waste car disposer of claim 2 wherein said furnaces from the first to the six are respectively mounted with a pressure regulator to automatically regulate the respective inside pressure and respectively filled up with nitrogen during heating;
15 said seventh furnace is filled with fuel and inflammable mixture during heating.

6. The waste car disposer of claim 2 wherein said seventh furnace has an exhaust pipe connected to a
20 waste gas processing unit, which is comprised of a rinsing apparatus, a dust collector, and a chimney.

7. The waste car disposer of claim 2 wherein said seventh furnace is an electric inductance furnace.



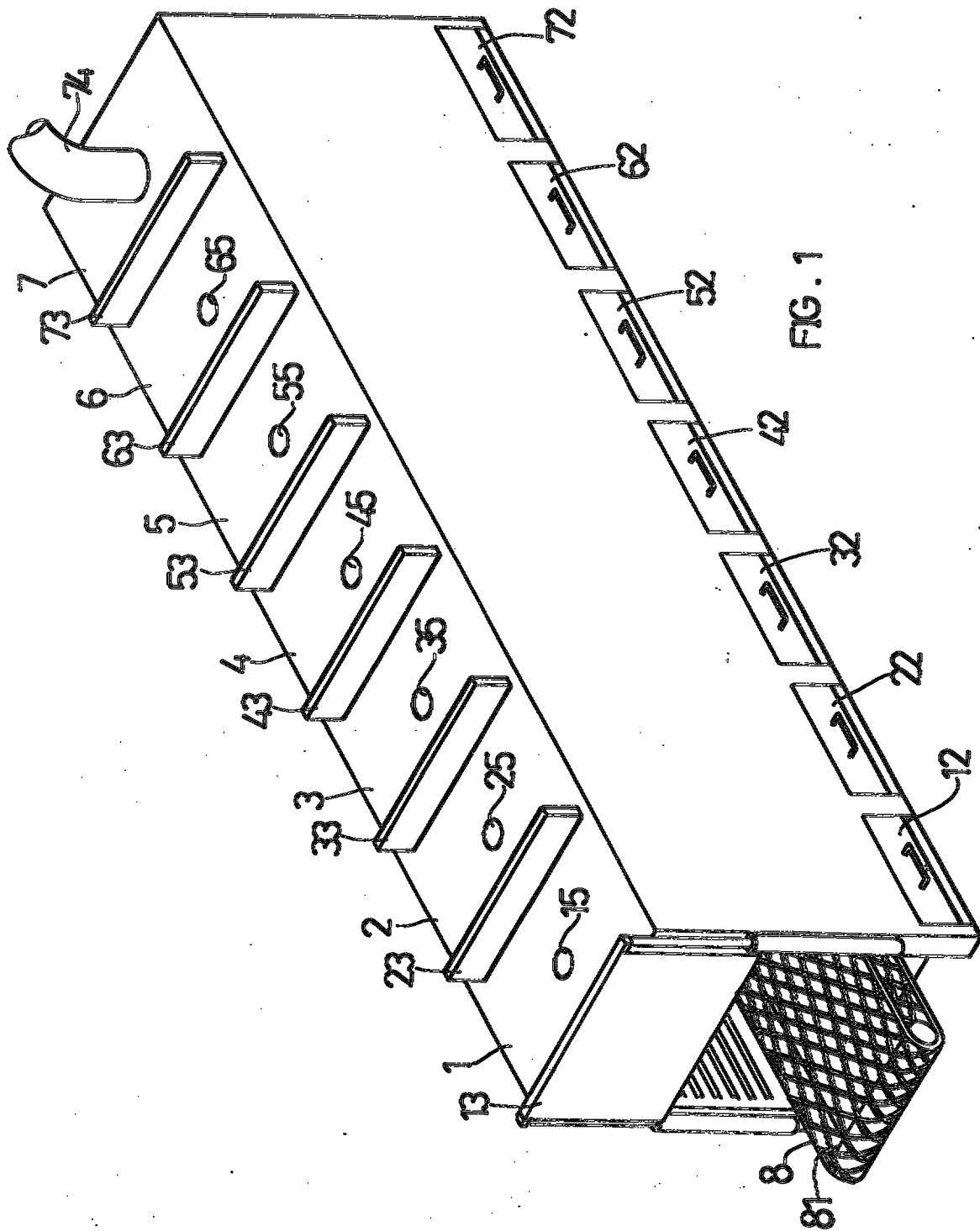
WASTE CAR DISPOSER

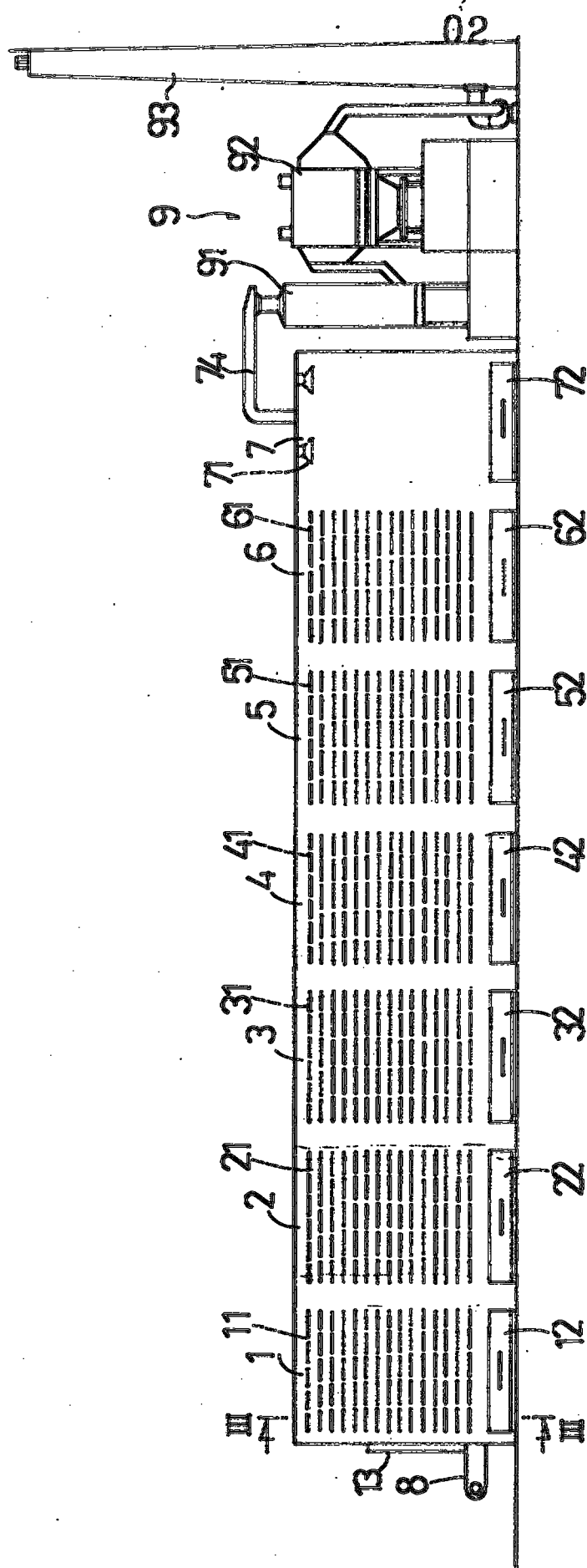
ABSTRACT OF THE DISCLOSURE

A waste car disposer which includes a plurality of
5 tunnel-like furnaces connected in series and separately
controlled to heat waste cars at different temperatures
so that plastic, rubber, glass, lead, zinc, nickel,
copper, iron and steel parts of waste cars are
separately melted and respectively collected for
10 reclamation.

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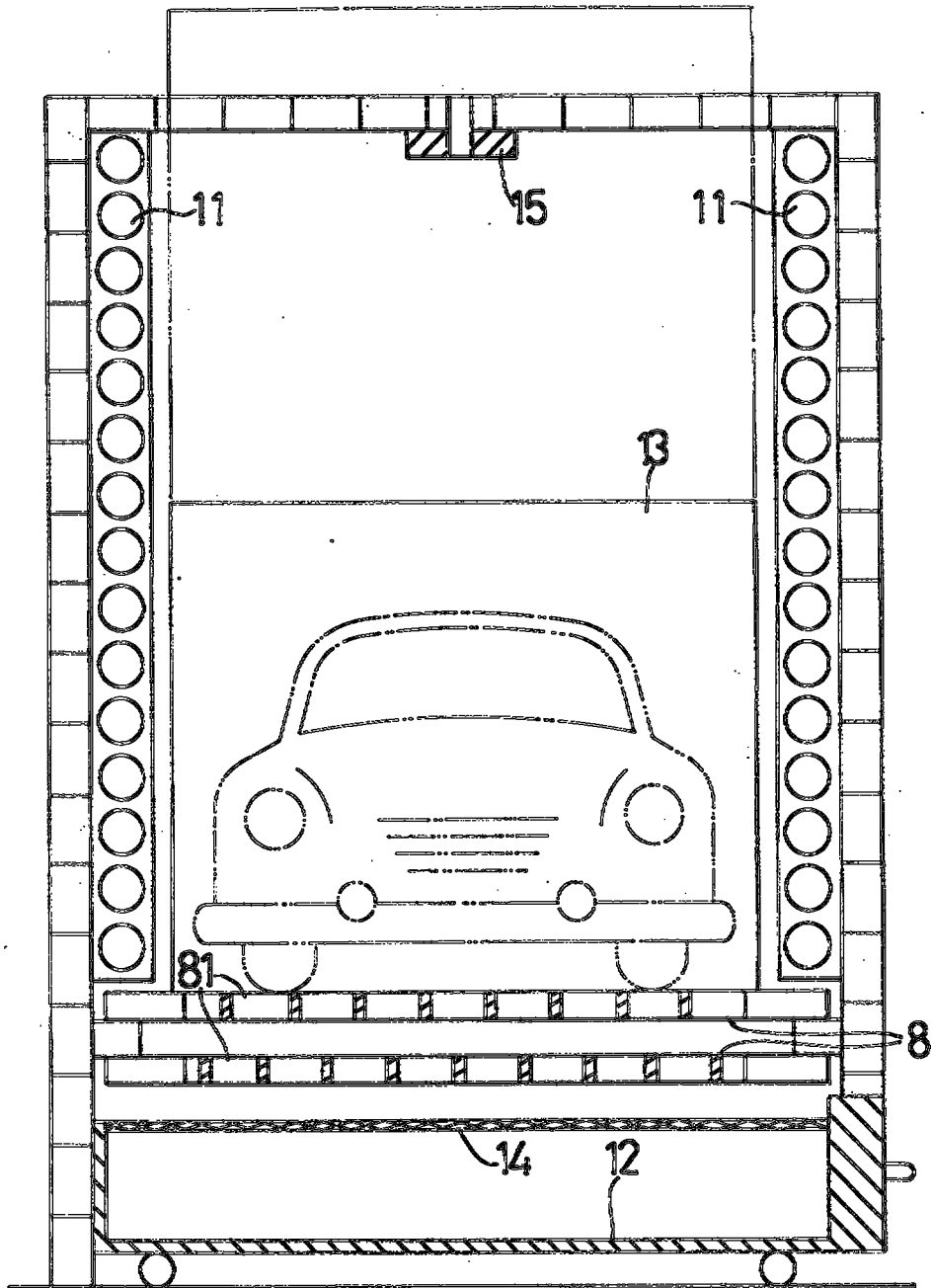


FIG. 3

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FIGURE 1

