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(54) Vegetation shredders

(57) The present invention relates to shredders of the type used for shredding branches and other vegetation, typically garden waste. In particular, we will describe a feed inlet or hopper (10) for a shredder apparatus (30), the hopper (10) having an opening (13) between opposed first and second walls (14, 15), wherein each of said first and second walls (14, 15) includes at least one projection (20) projecting into the opening The hopper is **characterised in that** each projection includes inclined upper (21) and lower (22) surfaces. The present invention also relates to a shredder (30) apparatus including the hopper (10).

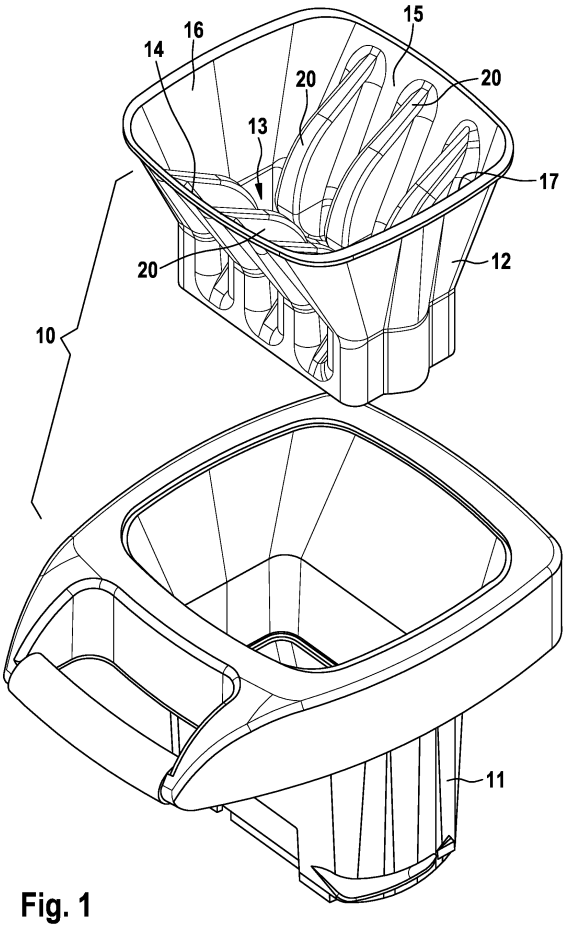

Fig. 1

EP 2 072 137 A1

Description

[0001] The present invention relates to shredders of the type used for shredding branches and other vegetation, typically garden waste.

[0002] In our earlier patent application, EP1393616, we describe a feed inlet or hopper for a vegetation shredder. The hopper has a generally rectangular opening having opposed walls, each of which includes a plurality of fingers projecting into the opening to direct vegetation into the hopper in a more vertical direction towards the cutter.

[0003] It is known also for vegetation shredders to be reversible, to assist in clearing stalls occurring as a result of jammed vegetation in the shredder cutter elements. However, this can cause vegetation which is in the shredder chute, that part of the apparatus between the hopper and the cutter element, to be pushed upwards and become jammed in the chute against the underside of the hopper.

[0004] The present invention seeks to overcome this problem.

[0005] According to the present invention, there is provided a feed inlet or hopper for a shredder apparatus, the hopper having an opening between opposed first and second walls, wherein at least one of said first and second walls includes at least one projection extending substantially into the opening; characterised in that said projection includes inclined upper and lower surfaces.

[0006] Preferably, the inclined upper and lower projection surfaces combine to form a generally continuous arcuate projection surface.

[0007] Preferably, the hopper comprises inner and outer hopper elements. Suitably, the inner hopper element is formed as a unitary element. More suitably, the inner hopper element is formed of a plastics material, suitably polypropylene.

[0008] The present invention also provides a shredder including a hopper as defined above.

[0009] The above and other aspects of the present invention will now be described in further detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is an exploded perspective view of an embodiment of a hopper in accordance with the present invention;

Figure 2 is a plan view of the inner hopper element of the hopper of Figure 1;

Figure 3 is a sectional view along line III-III of Figure 2; and

Figure 4 is a perspective view of a shredder incorporating the hopper of Figure 1.

[0010] With reference to Figures 1 and 2, there is shown a hopper 10 for a vegetation shredder. In the embodiment shown, the hopper is formed from two components, an outer hopper element 11, which may form part of, or be integral with, a shredder chute assembly or may attach to a shredder chute assembly, and an inner hopper element 12. Other constructions are equally suitable.

[0011] The hopper 10 includes an outlet or lower aperture 13 (Figure 3) in communication with a chute of a shredder, which chute leads to the cutting chamber. The hopper has opposing major hopper walls 14, 15 and opposing minor hopper walls 16, 17. Suitably, as shown in Figure 1, major hopper walls include inclined upper surfaces such that the upper portion of hopper 10 has a greater area than that of aperture 13.

[0012] Projecting from each of major walls 14, 15 are plurality of spaced projections or fingers 20. Each projection has an inclined upper surface 21 and a oppositely inclined lower surface 22, such that the projections 20 act to direct vegetation, such as branches, through the space between the opposed projections 20 in either direction.

[0013] As is most clearly seen in Figure 3, in the preferred embodiment shown, the inclined upper surface 21 and inclined lower surface 22 are formed together as a generally arcuate member providing a continuous surface.

[0014] Figure 4 shows a shredder 30 including the hopper 10 of Figure 1 mounted, in the embodiment shown, within an outer shredder inlet assembly 34. The shredder comprises a shredder housing 31 housing a cutter chamber 32 having a cutter assembly. The cutter assembly may be of any conventional construction. In the embodiment shown, the hopper 10 is detachable from the shredder housing 31 such that it can be moved away from the cutter chamber for storage and clearance purposes. The shredder is supported above the ground by means of a frame 33. The shredder inlet assembly 34 also provides a chute which spaces the hopper 10 and thus the user's fingers, from the cutter assembly.

[0015] Advantageously, the components of the hopper are manufactured by injection moulding of plastics materials. The two-part construction of inner and outer hopper elements allows the manufacture of the inner element as a unitary element, for example, from polypropylene.

Claims

1. A feed inlet or hopper (10) for a shredder apparatus (30), the hopper (10) having an opening (13) between opposed first and second walls (14, 15), wherein at least one of said first and second walls (14, 15) includes at least one projection (20) extending substantially into the opening; **characterised in that** said projection (20) includes inclined upper and lower surfaces (21, 22).

2. A feed inlet or hopper as claimed in claim 1, wherein the inclined upper and lower projection surfaces (21, 22) combine to form a substantially continuous generally arcuate projection surface.

3. A feed inlet or hopper as claimed in claim 1 or claim 2 wherein the hopper comprises inner and outer hopper elements (11, 12).

4. A feed inlet or hopper as claimed in claim 3, wherein the inner hopper element (12) is formed as a unitary element.

5. A shredder apparatus (30) comprising a shredder cutter assembly; a shredder housing (31) for said cutter assembly, the housing having an inlet (32) and an outlet; a shredder inlet assembly (34) in operative communication with the cutter housing inlet; wherein the shredder inlet assembly comprises a feed chute and a feed inlet or hopper (10) as claimed in any preceding claim.

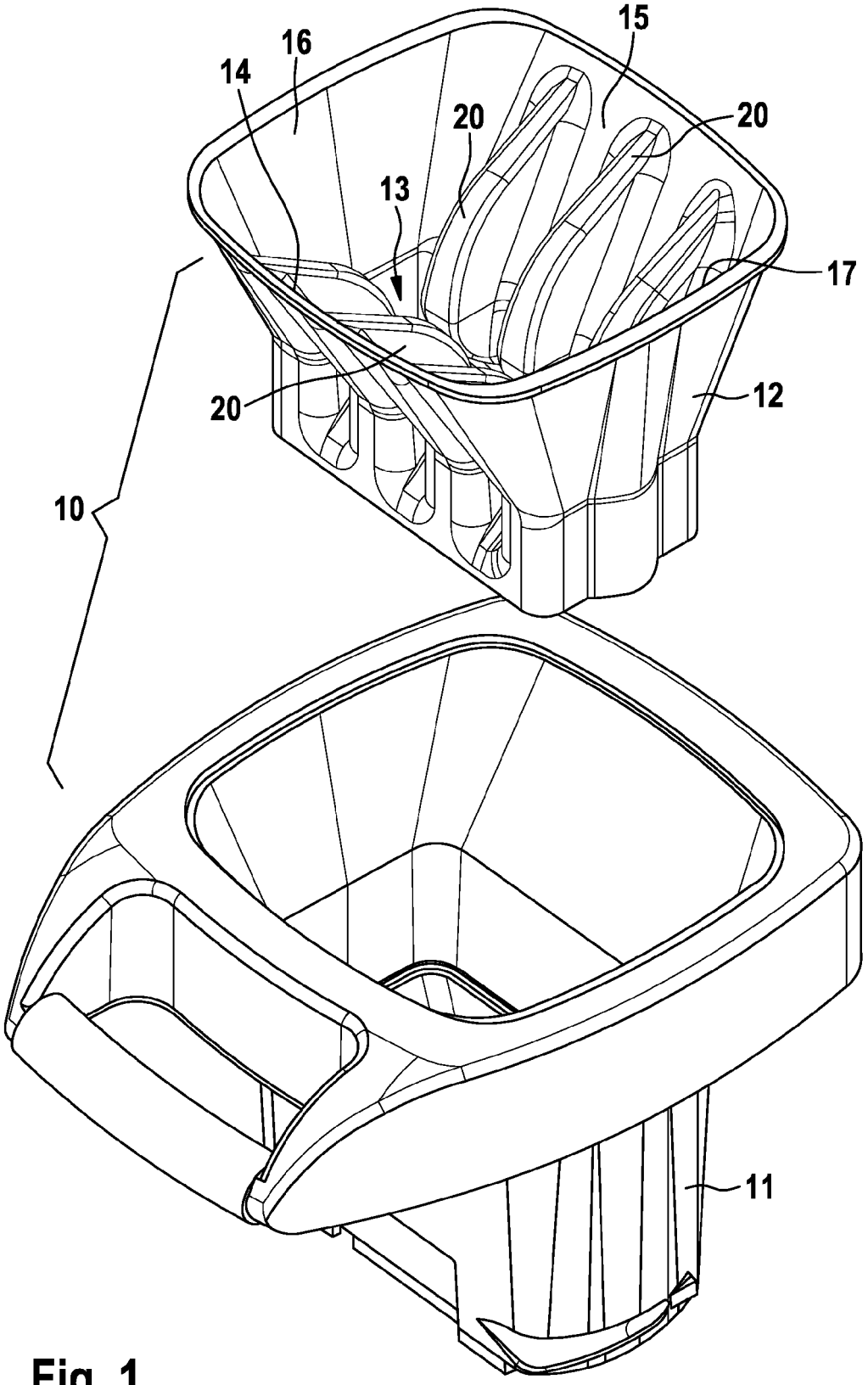

Fig. 1

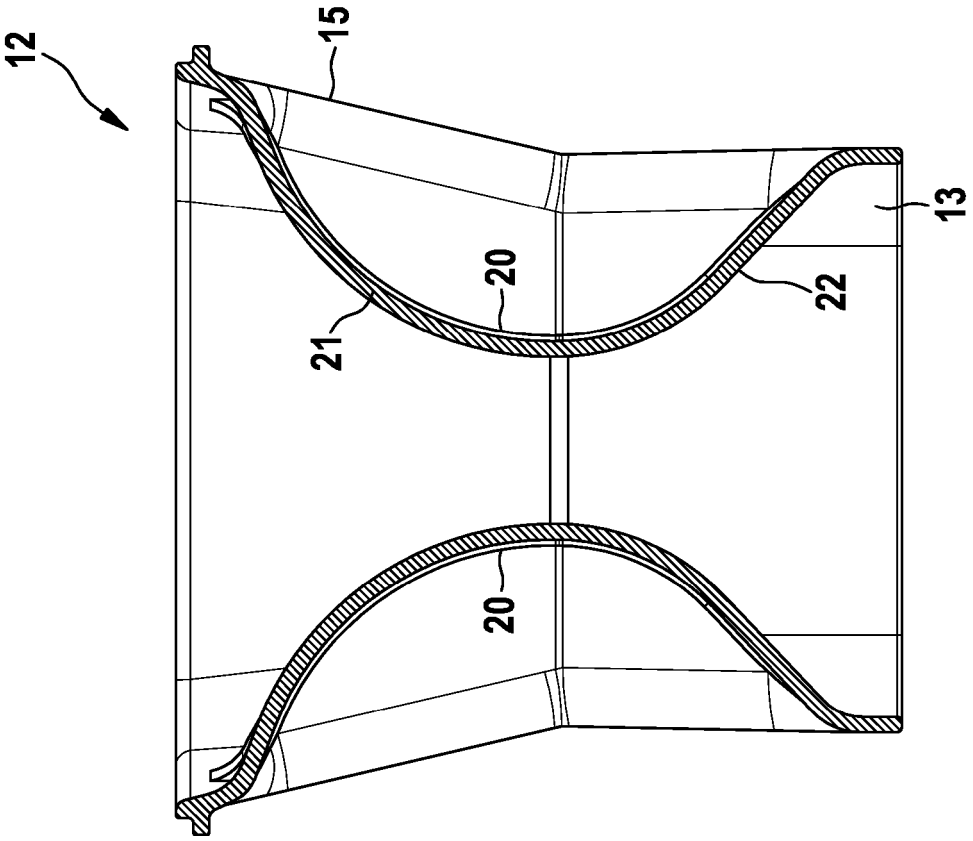

Fig. 3

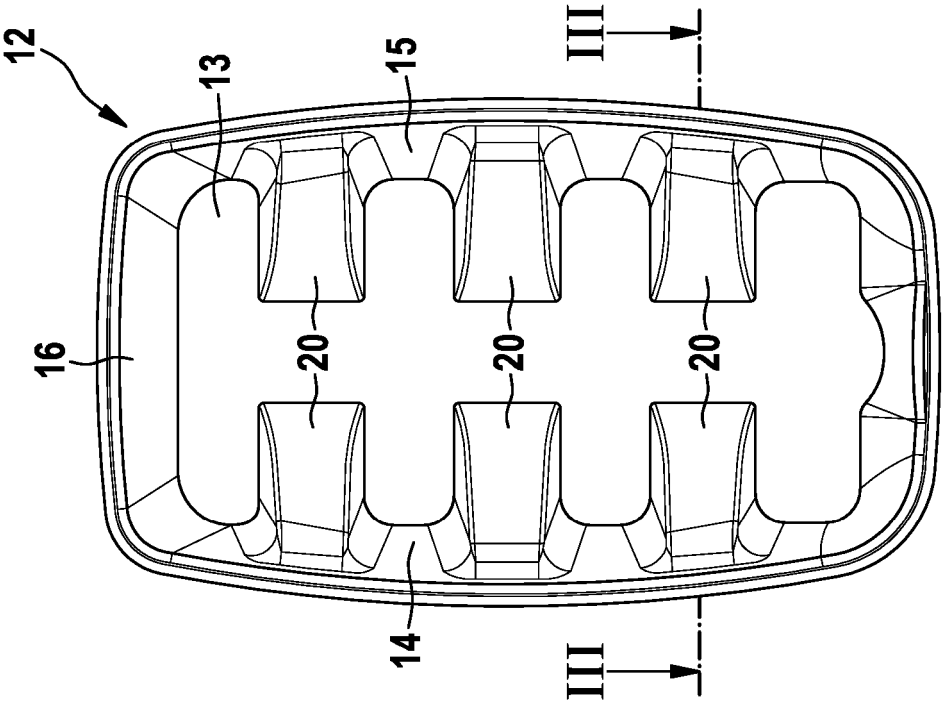

Fig. 2

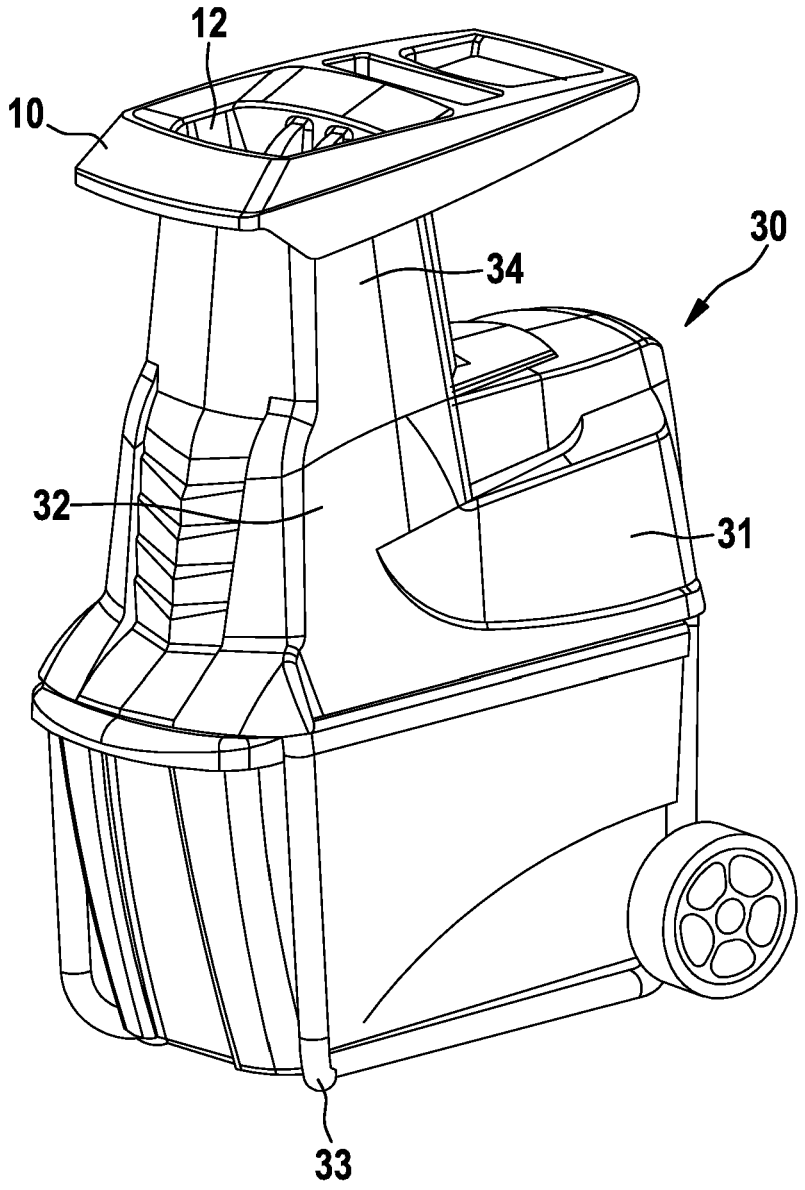

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 07 12 3892

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 86 18 942 U1 (ALOIS KOBER KG, 8871 KOETZ, DE) 2 October 1986 (1986-10-02) * figure 3 * -----	1-5	INV. B02C18/12 B02C18/22
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TECHNICAL FIELDS SEARCHED (IPC)

B02C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	19 June 2008	Kopacz, Ireneusz

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 07 12 3892

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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