A funnel that includes at least four flat sides. The sides form a passage with a first opening and a second opening. The first opening is wider and taller than the second opening. At least one of the four flat sides includes one or more slots for attaching a bag such as a leaf bag. The funnel can be pre-formed or cast. However, the funnel preferably is made from a flat piece of material that includes at least two end sections, at least three middle sections, and creases between the end sections and the middle sections. When the piece of material is folded at the creases such that the end sections at least partially overlap, the piece of material forms the funnel.
Fig. 1
FLAT-SIDED FUNNEL

BACKGROUND OF THE INVENTION

0001 1. Field of the Invention

0002 This invention relates to a funnel that can be used to help rake leaves or other refuse into a bag such as a leaf bag.

0003 2. Description of the Related Art

0004 A perennial autumn ritual in most of the United States is bagging leaves that have fallen from trees. Most home improvement, hardware, and general retail stores sell “leaf bags” for bagging and disposing of leaves. These bags are made from durable paper and are fairly inexpensive.

0005 Because the bags are made of paper, the mouth of an empty bag tends to collapse when the bag is laid on the ground. As a result, a person often has to hold a bag open when starting to fill it. The person has to bend over to keep the bag open while trying to rake or push leaves into the bag. This is an awkward and tiring task, especially when a person has to fill many dozens of leaf bags.

0006 Many solutions have been proposed for this problem. A description of some proposed solutions and their drawbacks can be found in U.S. Patent Publication No. 2004/0195468 A1 (Singleton). That publication proposes a solution that has drawbacks of its own. Most notable of these is that Singleton’s design includes a cylindrical throat formed from rolling corners of a flat sheet toward each other. This design achieves Singleton’s goals of forming the funnel from an easily stored flat sheet and also creating a useful funnel. However, Singleton’s design is not well adapted to be made from inexpensive materials that fail to roll well.

0007 Singleton’s failing highlights a feature that a leaf funnel must have in order to be commercially viable, namely low cost. Leaf bags are very inexpensive. Most people simply are not willing to spend significant money on an accessory for those bags.

SUMMARY OF THE INVENTION

0008 Accordingly, what is needed is a funnel that is effective as a leaf funnel and that is sufficiently inexpensive to be commercially viable. This funnel preferably should be easily stored when not in use.

0009 One embodiment of the invention that addresses this need is a funnel that includes at least four flat sides. The sides form a passage with a first opening and a second opening. The first opening is wider and taller than the second opening. At least one of the four flat sides includes one or more slots for attaching a bag. Preferably, the first opening is wider and taller than an opening of a leaf bag, and the second opening is narrower and shorter than the opening of the leaf bag.

0010 The first opening and the second opening preferably are perpendicular to at least one of the four flat sides. In other words, if a first plane is defined by edges of at least three of the four flat sides at the first opening and a second plane is defined by edges of at least three of the four flat sides at the second opening, then the first plane and the second plane are perpendicular to at least one of the four flat sides.

0011 In a preferred embodiment, at least one of the four flat sides extends past the second opening. In other words, if a first plane is defined by edges of at least three of the four flat sides at the first opening and a second plane is defined by edges of at least three of the four flat sides at the second opening, then at least one of the four flat sides extends past the second plane.

0012 One of the four flat sides preferably is a base on which the funnel can sit, and one or more wings can extend beside the base to help support the funnel.

0013 The funnel can be pre-formed or cast. However, the funnel preferably is made from a flat piece of material that includes at least two end sections, at least two middle sections, and creases between the end sections and the middle sections. When the flat piece of material is folded at the creases such that the end sections can be secured together, the piece of material forms the funnel. If the funnel is made from folding such a piece of material, then the funnel preferably can be unfolded for easy storage.

0014 In one embodiment, the flat piece of material includes three middle sections, and the end sections at least partially overlap when secured together. In this embodiment, the end sections can further include flaps that can be interleaved to secure or to help secure the end sections together.

0015 Preferably, at least one of the sections includes one or more slots positioned for attaching a bag when the flat piece of material is formed into the funnel.

0016 A very inexpensive embodiment of the funnel can be made from a flat piece of cardboard or corrugated cardboard. A somewhat more expensive but perhaps more durable embodiment of the funnel can be made from a flat piece of plastic or corrugated plastic.

0017 The invention also encompasses flat pieces of material that can be folded to form such funnels and methods of making and using such funnels and flat pieces of material.

0018 This brief summary has been provided so that the nature of the invention may be understood quickly. A more complete understanding of the invention may be obtained by reference to the following description of the preferred embodiments thereof in connection with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

0019 FIG. 1 shows a funnel according to an embodiment of the invention.

0020 FIGS. 2 and 3 show flat pieces of material according to embodiments of the invention that can be folded to form funnels.

0021 FIG. 4 shows a funnel in use as a leaf funnel according to an embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

0022 FIG. 1 shows a funnel according to an embodiment of the invention.

0023 Briefly, a funnel according to an embodiment of the invention includes at least four flat sides that form a passage
with a first opening and a second opening. The first opening is wider and taller than the second opening. At least one of the four flat sides includes one or more slots for attaching a bag such as a leaf bag.

[0024] Thus, FIG. 1 shows funnel 1 with sides 2, 3, 4 and 5 that form passage 6. This passage has first opening 7 and second opening 8. The first opening is wider and taller than the second opening. Sides 3 and 5 include slots 10 and 11 for attaching a bag (not shown) such as a leaf bag. The bag can be attached using any suitable technique or device, including but not limited to tape, clips, pins, and the like.

[0025] In a preferred embodiment, openings 7 and 8 are perpendicular to at least one of the four flat sides. In FIG. 1, this side is side 4. In more exact geometric terms, a first plane is defined by edges of any three of sides 2, 3, 4 and 5 at first opening 7, and a second plane is defined by edges of sides 2, 3 and 5 at second opening 8. In this embodiment, the first plane and the second plane are perpendicular to at least one of the four flat sides, namely side 4.

[0026] Also in a preferred embodiment, at least one of the four flat sides extends past second opening 8. In FIG. 1, this side is side 4. In more exact geometric terms, a first plane is defined by edges of any three of sides 2, 3, 4 and 5 at first opening 7, and a second plane is defined by edges of sides 2, 3 and 5 at second opening 8. In this embodiment, at least one of the sides, namely side 4, extends past the second plane. This extension forms tongue 12 in FIG. 1. The side with the tongue preferably is used as a base for the funnel when the funnel rests on the ground.

[0027] The foregoing preferred geometry makes funnel 1 in FIG. 1 particularly well suited for use as a leaf funnel. The tongue facilitates easy insertion of the funnel into a leaf bag. The perpendicular openings facilitate raking leaves into the funnel and passage of leaves from the funnel into the leaf bag. Furthermore, as the leaf bag fills up, the tongue helps prevent moving leaves from pushing the leaf bag away from the funnel.

[0028] The funnel preferably is made from inexpensive materials such as cardboard or corrugated cardboard. Applicants have found that a funnel made from such materials can tend to tip or slump to one side. If the funnel is secured in a bag, less tipping and slouching occurs.

[0029] In a preferred embodiment, wings 14 and 15 extend beside a side that serves as a base for the funnel. These wings help support the funnel, thereby further reducing any tipping or slouching.

[0030] Applicants believe that a funnel made from suitably strong cardboard could serve as a leaf funnel for an entire season or even longer. However, eventually the cardboard will break down. Alternatively, the funnel can be made from other materials, some of which are much more durable than cardboard. Examples of such materials include, but are not limited to, plastic, corrugated plastic, metal, corrugated metal, alloy, corrugated alloy, wood, or stiffened fabric. A drawback of these materials is that they tend to be much more expensive than cardboard. However, once people become accustomed to using leaf funnels according to the invention, they may be more willing to purchase more expensive and durable funnels.

[0031] FIG. 2 shows a flat piece of material according to an embodiment of the invention that can be folded to form a funnel.

[0032] Briefly, the funnel can be made from a flat piece of material that includes at least two end sections, at least two middle sections, and creases between the end sections and the middle sections. In a preferred embodiment, the flat piece of material includes three middle sections, and the end sections are at least partially overlapped when secured together. In this embodiment, the end sections can further include flaps that can be interleaved to secure or to help secure the end sections together.

[0033] Thus, FIG. 2 shows flat piece of material 20 that includes end section 21, end section 22, and middle sections 23 to 25. Solid lines between the sections represent creases. When the piece of material is folded at the creases such that end sections 21 and 22 at least partially overlap, the piece of material forms funnel 1 shown in FIG. 1. In particular, end sections 21 and 22 overlap to form side 2, middle section 23 forms side 3, middle section 24 forms side (base) 4, and middle section 25 forms side 5.

[0034] At least one of the sections preferably includes one or more slots positioned for attaching a bag when the flat piece of material is formed into the funnel. Thus, middle sections 23 and 25 include slots 30 and 31 that correspond to slots 10 and 11 in FIG. 1. In an alternative embodiment of the sheet, these slots might be omitted.

[0035] The end sections preferably include flaps 33 to 35 and 36 to 38. These flaps are separated by cuts through the piece of material (as opposed to creases). Thus, the flaps can be interleaved when end sections 21 and 22 overlap, thereby securing or helping to secure the end sections together. For example, flap 33 can be placed over flap 36, flap 34 can be placed under flap 37, and flap 35 can be placed over flap 38. The end sections could then be slid together until the sections are stopped by the ends of the cuts. The cuts preferably are proper lengths so that the end sections overlap to form the proper sized side.

[0036] Other numbers and arrangements of flaps as well as other techniques and devices can be used to secure the end sections together. In one of these techniques, end section 21 is omitted from the flat piece of material, and end section 22 is directly secured to section 23 (which becomes an end section), for example with tape. A flat piece of material with this structure is shown in FIG. 3.

[0037] The flat piece of material preferably includes flaps 40 and 41 adjacent to middle sections 23 and 25. When the flat piece of material is formed into the funnel, these flaps form wings 14 and 15, and the wings extend beside base 4 formed by middle section 24 to help support the funnel.

[0038] Materials that can be used to form the flat piece include, but are not limited to, cardboard, corrugated cardboard, plastic, corrugated plastic, plastic, corrugated plastic, metal, corrugated metal, alloy, corrugated alloy, wood, or stiffened fabric. Various benefits and drawbacks of these materials are similar to those discussed above with respect to the funnel shown in FIG. 1.

[0039] FIG. 4 shows a funnel in use as a leaf funnel according to an embodiment of the invention. In this figure, funnel 50 preferably is made from a flat piece of material as described above with respect to FIGS. 2 and 3. Alternatively, funnel 50 could be pre-formed, cast, or made using some other manufacturing or construction technique. The funnel has been placed in bag 51 such as a leaf bag. The
funnel preferably is secured, for example using clips (not shown) to attach the bag to the funnel at slots 52 and 53. As indicated by arrow 54, leaves or other materials can be inserted into bag 51 through funnel 50, for example by raking.

In the arrangement shown in FIG. 4, a funnel 59 and bag 51 lay on the ground. Alternatively, the bag could be stood on its closed end with the funnel inserted in its open end. In this arrangement, the funnel would still help hold the bag open. Furthermore, if the funnel includes a tongue as shown, this tongue would help keep the bag from collapsing or falling over.

After use, a preferred embodiment of the funnel can be unfolded and returned to its flat form. The unfolded funnel could be easily stored in this form for later use.

Alternative Embodiments

Applicants note that while the funnel according to the invention has been discussed in terms of a leaf funnel, the funnel is not limited to use with leaves and leaf bags. For example, and without limitation, the funnel could be used to help hand grass clippings, small branches and twigs, and other refuse into leaf bags or other types of bags.

Furthermore, the invention is in no way limited to the specifics of any particular embodiments and examples disclosed herein. For example, the terms “preferably,” “preferred embodiment,” “one embodiment,” “alternative embodiment,” “embodiment” and the like denote features that are preferable but not essential to include in embodiments of the invention. Many other variations are possible which remain within the content, scope and spirit of the invention, and these variations would become clear to those skilled in the art after perusal of this application.

What is claimed is:

1. A funnel, comprising at least four flat sides that form a passage with a first opening and a second opening, the first opening being wider and taller than the second opening, wherein at least one of the four flat sides includes one or more slots for attaching a bag.

2. A funnel as in claim 1, wherein the bag is a leaf bag, the first opening is wider and taller than an opening of the leaf bag, and the second opening is narrower and shorter than the opening of the leaf bag.

3. A funnel as in claim 1, wherein the first opening and the second opening are perpendicular to at least one of the four flat sides.

4. A funnel as in claim 1, wherein a first plane is defined by edges of at least three of the four flat sides at the first opening, a second plane is defined by edges of at least three of the four flat sides at the second opening, and the first plane and the second plane are perpendicular to at least one of the four flat sides.

5. A funnel as in claim 1, wherein at least one of the four flat sides extends past the second opening.

6. A funnel as in claim 1, wherein a first plane is defined by edges of at least three of the four flat sides at the first opening, a second plane is defined by edges of at least three of the four flat sides at the second opening, and at least one of the four flat sides extends past the second plane.

7. A funnel as in claim 1, wherein one of the four flat sides is a base on which the funnel sits, and wherein one or more wings extend beside the base to help support the funnel.

8. A funnel as in claim 1,

wherein the funnel is made from a flat piece of material that includes at least two end sections, at least two middle sections, and creases between the end sections and the middle sections; and

wherein when the flat piece of material is folded at the creases such that the end sections can be secured together, the piece of material forms the funnel.

9. A funnel as in claim 8, wherein the flat piece of material includes three middle sections, and wherein the end sections at least partially overlap when secured together.

10. A flat piece of material, comprising

at least two end sections;

at least two middle sections; and

creases between the end sections and the middle sections;

wherein when the flat piece of material is folded at the creases such that the end sections can be secured together, the piece of material forms a funnel including at least four flat sides that form a passage with a first opening and a second opening, the first opening being wider and taller than the second opening.

11. A flat piece of material as in claim 10, wherein the flat piece of material includes three middle sections, and wherein the end sections at least partially overlap when secured together.

12. A flat piece of material as in claim 11, wherein the end sections further comprise flaps that can be interleaved to secure or to help secure the end sections together.

13. A flat piece of material as in claim 10, wherein at least one of the sections includes one or more slots, and wherein when the flat piece of material is formed into the funnel, the slots are positioned for attaching a bag.

14. A flat piece of material as in claim 10, wherein when the flat piece of material is formed into the funnel, the first opening is wider and taller than an opening of a leaf bag and the second opening is narrower and shorter than the opening of the leaf bag.

15. A flat piece of material as in claim 10, wherein when the flat piece of material is formed into the funnel, the first opening and the second opening are perpendicular to at least one of the four flat sides.

16. A flat piece of material as in claim 10, wherein when the flat piece of material is formed into the funnel, a first plane is defined by edges of at least three of the four flat sides at the first opening, a second plane is defined by edges of at least three of the four flat sides at the second opening, and the first plane and the second plane are perpendicular to at least one of the four flat sides.

17. A flat piece of material as in claim 10, wherein when the flat piece of material is formed into the funnel, at least one of the four flat sides extends past the second opening.

18. A flat piece of material as in claim 10, wherein when the flat piece of material is formed into the funnel, a first plane is defined by edges of at least three of the four flat sides at the first opening, a second plane is defined by edges of at least three of the four flat sides at the second opening, and at least one of the four flat sides extends past the second plane.
19. A flat piece of material as in claim 10, further comprising flaps adjacent to two of the middle sections, wherein when the flat piece of material is formed into the funnel, one of the four flat sides is a base on which the funnel sits, and wherein the flaps form wings that extend beside the base to help support the funnel.

20. A flat piece of material as in claim 10, wherein the material is cardboard, corrugated cardboard, plastic, or corrugated plastic.

21. A method of making and using a leaf funnel, comprising:

- making the leaf funnel from a flat piece of material that includes at least two end sections, at least two middle sections, and creases between the end sections and the middle sections, the funnel made by folding the flat piece of material at the creases and securing the end sections together;
- placing the leaf funnel in an opening of a leaf bag; and
- inserting leaves or other materials into the leaf bag through the leaf funnel.