A means for securing parallel pieces of twine so that yard debris such as branches and trimmings can be piled for bundling. The parallel pieces of twine are located such that, once the debris is piled perpendicularly between them, they are positioned for convenient tying around the debris to form a bundle for transporting and disposal. Each piece of cut twine is held in place at two points and is retained by an angled grasping mechanism that serves to pinch the twine, thus holding it secure enough to withstand the disturbances of debris being piled, yet not so constraining that the twine can't be easily removed for wrapping and tying. The roughly square frame can be folded into a substantially one-dimensional form for storage. An optional twine cutting blade can be included on the frame for convenient severing of the twine from its packaged source.
YARD WASTE BUNDLE FRAME

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable.

SEQUENCE LISTING

[0002] Not Applicable

BACKGROUND

[0003] 1. Field of Invention

[0004] This invention relates to yard waste collection devices, and specifically to yard waste collection devices that aid in bundling limbs and twigs.

[0005] 2. Description of Prior Art

[0006] Yard waste is an issue for most people. Unless one lives in an apartment or condominium, plant matter in the form of leaves, weeds, twigs, and branches from trimmings must be routinely collected and disposed of. Small-sized waste matter, such as leaves and weeds, can be collected in plastic bags, but this is inconvenient with longer material such as twigs, branches, or shrubbery trimmings. In order to fit into a plastic bag, this lengthy waste must be bent or broken into smaller portions, often a time-consuming and arduous task.

[0007] Instead, twigs, branches, and trimmings are usually bundled together for disposal, using lengths of twine. Since natural-fiber twine is biodegradable, the entire bundle, twine and all, can be delivered directly to reclamation sites. Although small amounts of twigs and branches are relatively easy to tie into a bundle, larger quantities present difficulties. Attempting to slide twine underneath a carefully stacked bundle often results in the pile collapsing and spreading, while leaving unsecured lengths of twine on the ground beforehand presents its own problems since bundled twine tends to curl, resisting lying in a straight line.

[0008] U.S. Pat. Nos. 5,911,463, 6,901,733, and 5,744,212 all teach means that could be used for collecting and carrying twigs, branches, or trimmings, but none include means for applying twine for creating a bundle.

[0009] The problem of tying together a bundle of yard waste was addressed in U.S. Pat. No. 4,495,862. Here is disclosed a frame with cradling arms within which limbs cut to pre-determined sizes can be laid and then tied into a portable bundle with twine. Although effective in limited circumstances, this invention presents several inconveniences for the user. Firstly, although described as a foldable frame, in fact, folding the apparatus is neither trivial nor is the volume substantially reduced once completed, since folding occurs in only one of three dimensions, and even in that one dimension, the final reduction is only perhaps half of the unfolded position. Thus, even in its folded configuration, this device requires considerable storage space, a premium resource in a typical garage or small yard shed. Also, as evidenced by the inclusion of optional castor wheels, the apparatus is large enough to be somewhat cumbersome in use, not readily transported from location to location on a property, particularly over uneven ground where the castor wheels would be nearly useless. Finally, the limbs to be bundled are required to be of a limited range of lengths: too short and they fall out within the cradle, and too long, and one end or the other would tend to tilt out of the cradle.

[0010] Two inventions, U.S. Pat. No. 5,819,642 and U.S. Pat. No. 5,289,765, both disclose means that aid in attaching a single binding loop around a pile of branches or trimmings. Both are used after a pile of yard waste has been collected and stacked in a parallel orientation. As such, as has been already observed, feeding a binding loop beneath a stacked pile is undesirable, as disturbing the stack can easily cause it to collapse and spread apart. Additionally, both means result in a single loop of binding to secure the bundle. A single loop is highly undesirable, since, unless precisely centered, each individual bundled piece will tend to fall to one side or the other. Although U.S. Pat. No. 5,289,765 could be used to hold the bundle together while two additional bindings are applied, both present significant inconvenience. Finally, both inventions describe the use of twine packaged in dimensions that fit into the twine container of the apparatus, thus limiting the selection of purchased twine packages.

[0011] Advantages to homeowners would be an uncomplicated yet effective means to hold secure two pieces of cut twine, positioned so that lengthy yard debris can be piled directly for bundling.

SUMMARY OF THE INVENTION

[0012] Therefore, in accordance with the present invention, a means is provided for configuring and retaining pieces of twine flat relative to the ground, and parallel to each other such that lengthy yard debris such as branches and trimmings can be piled for bundling. The parallel pieces of twine are located at a distance from each other such that, once the debris is piled perpendicularly between them, they are positioned for convenient wrapping and tying around the debris to form a bundle for transporting and disposal. Each piece of cut twine is held in place at two points sufficiently separated to be accessible once the debris is formed into a pile. The twine is temporarily secured in place by an angled grasping mechanism that serves to pinch the twine, thus holding it secure enough to withstand the disturbances of debris being piled, yet not so constraining that the twine can’t be easily removed for wrapping and tying.

[0013] The grasping mechanisms are mounted on a frame of proper dimensions to hold the cut twine in position just described for easy bundling. The frame lies flat on the ground so that debris can be piled on top of it, and is of sufficient strength to endure compactation of the debris by the user’s foot as the bundle is wrapped and tied. The two-dimensional frame can be folded into a substantially one-dimensional form for storage.

[0014] An optional twine cutting blade can be included on the frame for convenient severing of the twine from its packaged source.

OBJECTS AND ADVANTAGES

[0015] Accordingly, several objects and advantages of the present invention are:

[0016] a) to provide a means to aid in the bundling of yard waste by holding pieces of twine in advantageous positions;

[0017] b) to provide such a yard waste bundling means whereby the retained pieces of twine are easily attached and removed, yet secure enough to allow debris bundling;

[0018] c) to provide such a yard waste bundling means on a durable frame that folds so as to be easy to store;

[0019] d) to provide such a yard waste bundling means that is inexpensive;
[0020] e) to provide such a yard waste bundling means that can be used with twine of any type of acquired packaging.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. 1a is an illustration of the preferred bundle frame embodiment unfolded for operation;
[0022] FIG. 1b is an illustration of the same showing the device folded for storage;
[0023] FIG. 2a illustrates an expanded and exploded view of the twine grasping mechanism;
[0024] FIG. 2b illustrates a close-up view of the assembled twine grasping mechanism;
[0025] FIG. 3a illustrates an expanded and exploded view of the optional twine cutting blade mechanism;
[0026] FIG. 3b illustrates the same twine cutting blade mechanism as in FIG. 3a, but with the blade moved to its operating position on the bundle frame;
[0027] FIG. 3c illustrates the same twine cutting blade mechanism as in FIG. 3b, but with the protective hood moved to its operating position on the bundle frame;
[0028] FIG. 3d illustrates the completely assembled twine cutting blade mechanism, here shown from a side view;
[0029] FIG. 4 shows an example of the preferred bundle frame embodiment as it would be used with the twine placed in position and ready to receive yard waste;
[0030] FIG. 5 shows an example of yard wasted placed on the preferred bundle frame embodiment with the twine now removed from the grasping mechanisms and tied around the waste to create a bundle.

DETAILED DESCRIPTION OF THE INVENTION

[0031] Bundle Frame, FIGS. 1a, 1b
[0032] FIG. 1a shows the preferred embodiment bundle frame tool 10 unfolded for operation. Side bars 20 and 22 include twine grasping tabs 26, and side bar 22 additionally includes twine cutting mechanism 30. Cross bracing members 36 and 38 serve to stabilize side bars 20 and 22, holding them in position when the frame is unfolded for operation. The cross brace members swivel around hinge pins 42, allowing side bars 20 and 22 to move together for storage. Slot 46 allows the upper hinge pin of cross brace member 38 to slide towards the bottom of side bar 22 when the frame is folded, thus allowing side bar 22 to fold in and down for storage. When opened for operation, detent lip 50 (more clearly visible in FIG. 1b) serves to hold cross brace member 38 firmly in place, thus preventing inadvertent folding of the frame.

[0033] Cross brace member 36 swivels within side bar mounting ears 56, while cross brace member 38 swivels on top of side bar mounting tabs 58. This allows the two cross brace members to rotate within separate planes, avoiding interference between them, yet allows the side bars to lie evenly and unobstructed on the ground when in use.

[0034] FIG. 1b shows the preferred embodiment bundle frame tool 10 folded for storage. The upper hinge pin 42 of cross brace member 38 has here been lifted from detent lip 50 and allowed to slide down along slot 46 to enable cross brace member 38 to lift up and in as side bars 20 and 22 move together into their folded positions.

[0035] Twine Grasping Mechanism, FIGS. 2a, 2b
[0036] FIG. 2a illustrates an expanded and exploded view of the twine grasping mechanism. Twine grasping tab 26 is held securely in place by bolt 60 and nut 62. Grasping tab 26 is formed from a material that has pliable strength, such as plastic or thin metal. Grasping tab 26 lies snugly inside indentation 66 of side bar 22, and nut 62 is positioned between the two bent sections of tab 26 so that bolt 60 can access nut 62 from beneath side bar 22. Bolt 60 is of a length such that when firmly screwed into nut 62, the tip does not extend beyond the upper surface of nut 62. Additionally, indentation 66 is of sufficient depth so that the combination of the bottom bent section of tab 26 and nut 62 do not extend above the top surface of side bar 22.

[0037] FIG. 2b shows the twine grasping mechanism assembled with an example section of twine 68 placed in position to be grasped. In operation, the user simply slides the twine in direction 70 along the surface of side bar 22 with a slight tug until it is pinched between the upper bent section of grasping tab 26 and the upper surface of side bar 22. In this position, the pliable tension of tab 26 holds the twine relatively secure while yard waste is piled into the middle of bundle frame tool 10. Once completed, the user can easily pull the twine free by pulling with a slight tug in a direction opposite of 70.

[0038] Here in FIG. 2b can be seen the advantage of having the assembly nut and bolt beneath the surface of side bar 22, since otherwise, they could catch and interfere with the twine.

[0039] Twine Cutting Mechanism, FIGS. 3a-3d
[0040] FIG. 3a illustrates an expanded and exploded view of the twine cutting mechanism 30. Cutting blade support block 80 is permanently attached to the top face of side bar 22, and includes threaded hole 82. Cutting blade 84, a commonly available type of blade used in craft knives, mounts snugly between support block 80 and the inside portion (i.e., away from the viewer) of protective cover 86 that extends in towards the top face of side bar 22. Note that the left outer portion (i.e., towards the viewer) of protective cover 86 lies over the top of support block 80, covering it from view when the pieces are assembled. Bolt 88 passes through the hole 90 in the inside portion of protective cover 86, through the hole 92 in cutting blade 84, and screws into the threaded receiving hole 82 in support block 80, thus binding the assembly firmly together.

[0041] FIGS. 3b through 3d illustrate different stages of the assembly of the twine cutting mechanism 30. FIG. 3b shows cutting blade 84 moved into its assembled position against support block 80. FIG. 3c continues the assembly with protective cover 86 also moved into its assembled position above the support block, now hidden below it. Finally, FIG. 3d shows the completely assembled twine cutting mechanism 30, here rotated to reveal a side view where the mounted cutting blade 84 can be seen in position to sever twine that would be pulled down over it in the direction shown with arrow 94.

[0042] Bundle Frame With Example Twine Attached, FIG. 4
[0043] FIG. 4 shows an example of the preferred embodiment bundle frame tool 10 with twine temporarily retained in grasping tabs 26, thus configuring the twine in a favorable orientation in preparation for creating a bundle of yard waste. Note that the frame would be lying flat on the ground. Twine from a packaged ball can be severed by pulling the twine down over cutting mechanism 30 and separating the severed pieces in the directions shown with arrows 96.

[0044] Completed Bundle of Yard Waste, FIG. 5
[0045] FIG. 5 shows an example of a bundle of yard waste created using the preferred embodiment invention. Here the two pieces of twine have been detached from the bundle.
frame and tied around example yard waste consisting of limbs and branches. Although the yard waste is shown spread apart for clarity in this example figure, in actual practice, the twine would be pulled tightly around the collection of yard waste creating a much more compacted bundle.

CONCLUSION, RAMIFICATIONS, AND SCOPE

A yard tool is substantially only as useful as it is convenient to use. Since the present invention can be easily folded into a compact form and hung from a hook or leaned in a corner of a garage or tool shed, it would be readily accessible for a homeowner to retrieve in times when they have trimmings or cuttings to bundle. The inventive bundle tool is unfolded and locked into its open position easily by pulling the side bars apart until the hinge pin falls into the locking detent position of the cross brace member. The user folds the tool again by simply grasping the side bars at the bottom and tilting the unfolded frame up so that the locked cross brace member falls down out of the detent position. Then, with the frame still tilted upwards, the user pulls the side bars together and the previously locked hinge pin slides down the slot in the cross brace member.

Since piles of yard waste about to be bundled can be bulky and cumbersome, a user might find it convenient to place their feet on the side bars to hold the inventive bundle frame tool down while extracting the twine pieces from the grasping mechanisms. This is facilitated by the configuration of the two cross brace members, each having portions or segments that lie under the side bars. If they did, the cross brace members would be vulnerable to bending or breaking from the weight of the user.

Although hereofore described as using twine, the present invention is equally useful when using any sort of string.

I claim:

1. A yard waste bundling aid that temporarily retains string in a favorable configuration while yard waste is positioned in preparation for bundling said yard waste, wherein,
   a) said bundling aid retains at least two pieces of string such that said pieces of string are positioned substantially parallel to each other,
   b) retaining locations of each of said pieces of string are separated by spans of sufficient length to favorably position yard waste between said retaining locations,
   c) said string is retained by a grasping means, wherein said string is confined in said grasping means by substantially applying a single tug in a first direction,
   d) said string is released from said grasping means by substantially applying a single tug in the opposite of said first direction,
   whereby, yard waste is readily bundled by releasing the said string from said grasping means after yard waste has been collected so that the said string can be wrapped and tied around the collected yard waste.

2) A yard waste bundling aid according to claim 1, further including a blade for cutting string into lengths that are advantageous for bundling yard waste;

3) A yard waste bundling aid that configures string in preparation for collecting together and tying yard waste, comprised of,
   a) at least four string attachment means,
   b) at least two side bars upon which are mounted said string attachment means,
   c) bracing members extending between and attached to said side bars via moveable means whereby said side bars can be separated for operation or positioned closer together for storage,
   d) said string attachment means including an angled tab that serves to pinch lengths of said string for temporary retention,
   wherein said string attachment means thus hold said lengths of string in favorable positions while said yard waste is collected in preparation for bundling, yet said string attachment means allow said lengths of string to easily be released to complete said bundling.

4) A yard waste bundling aid according to claim 3, further including a blade for cutting string into lengths that are advantageous for bundling yard waste;

5) A yard waste bundling aid according to claim 3, whereby said moveable means includes a hinge pin around which said side bars and said bracing members can swivel;

6) A yard waste bundling aid according to claim 3, whereby at least one of said bracing members lies substantially in the same plane as the said side bars;

* * * * *