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(54) **TRASH BIN VACUUM ADAPTER APPARATUS**

(52) **U.S. Cl. 15/347**

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(57) **ABSTRACT**

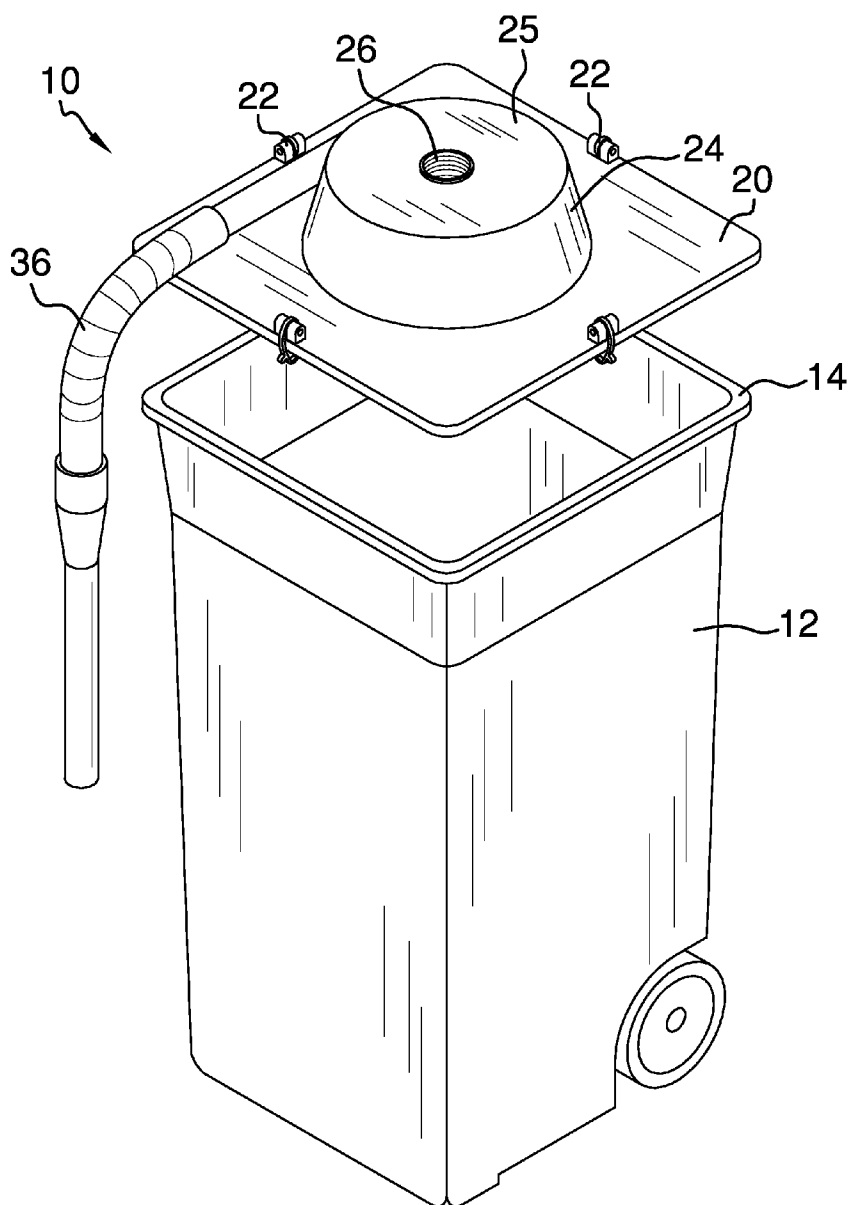
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The trash bin vacuum adapter apparatus provides for converting an existing rolling trash bin into both a vacuum and a blower, selectively. The apparatus also saves labor and time by allowing a user to gather debris and waste and contain the waste in the bin, all in the same step. As powerful existing tools are capable of fit to the apparatus, more vacuum performance can be generated than is customary of typical vacuums.

Publication Classification

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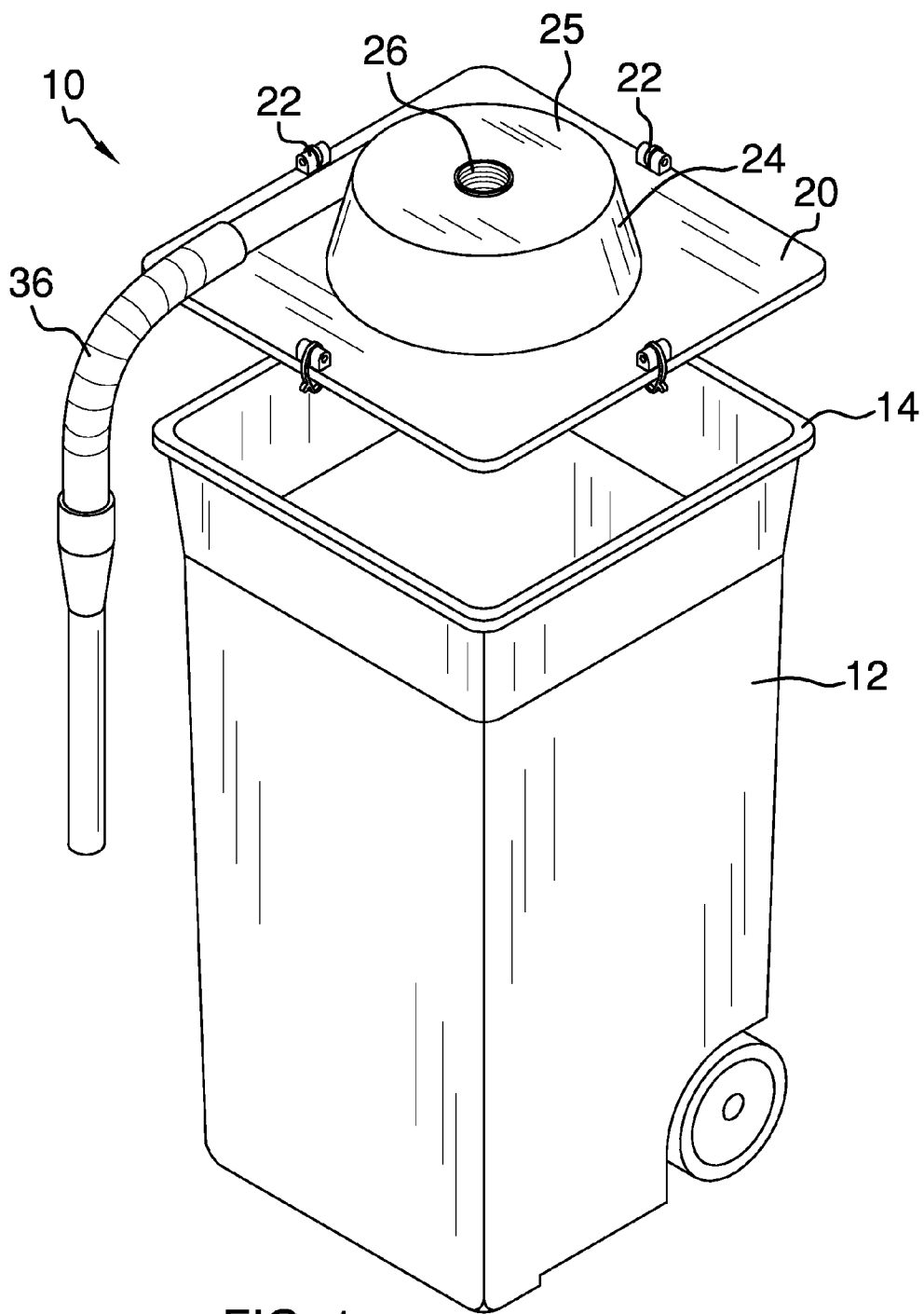


FIG. 1

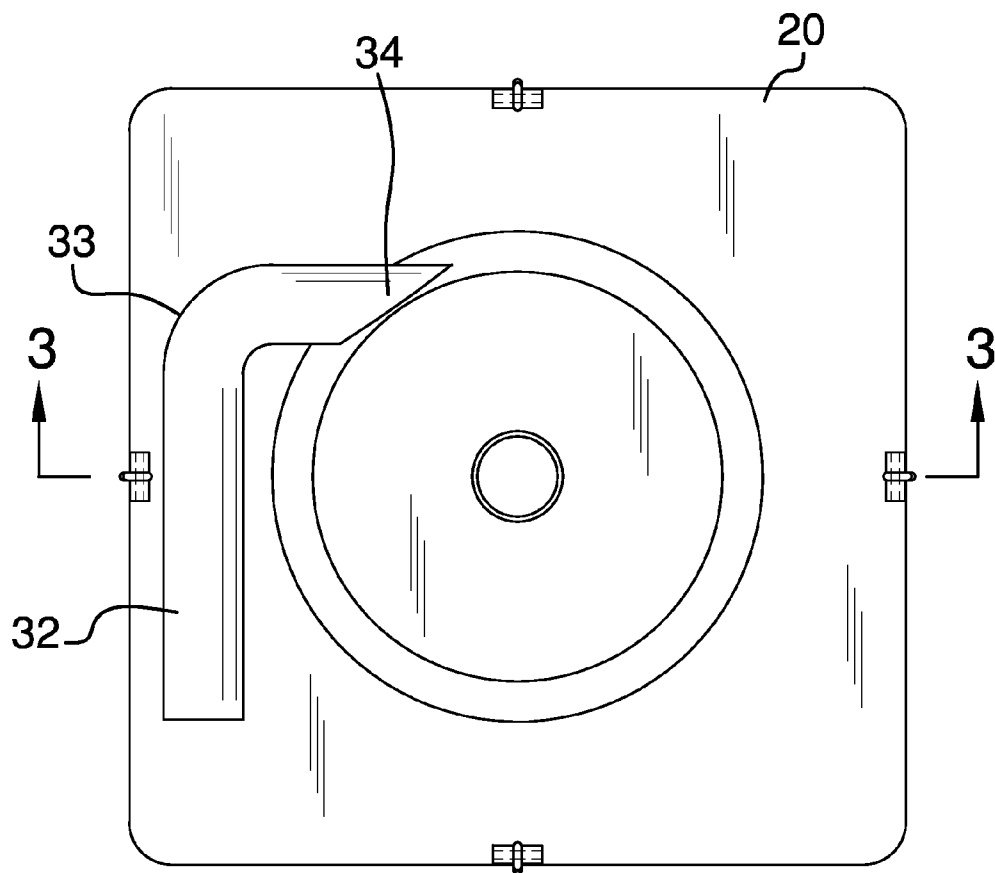


FIG. 2

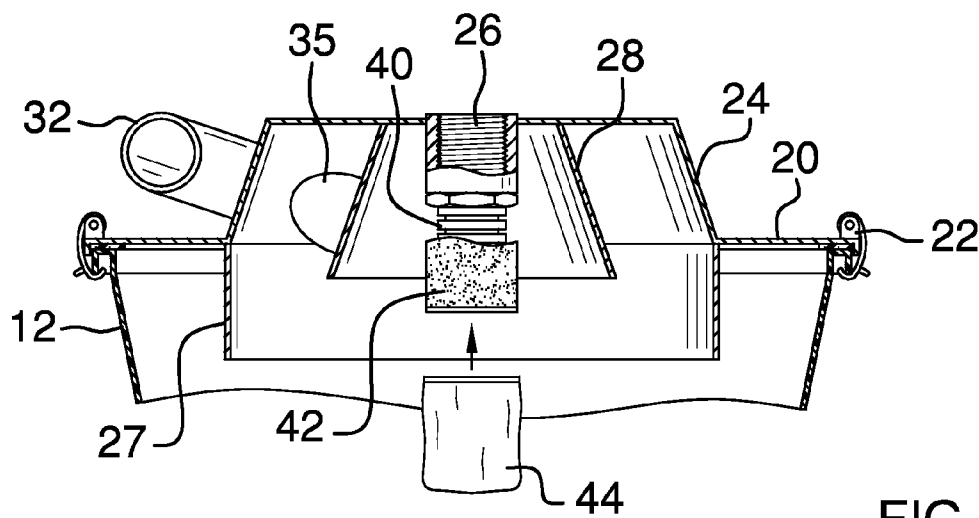


FIG. 3

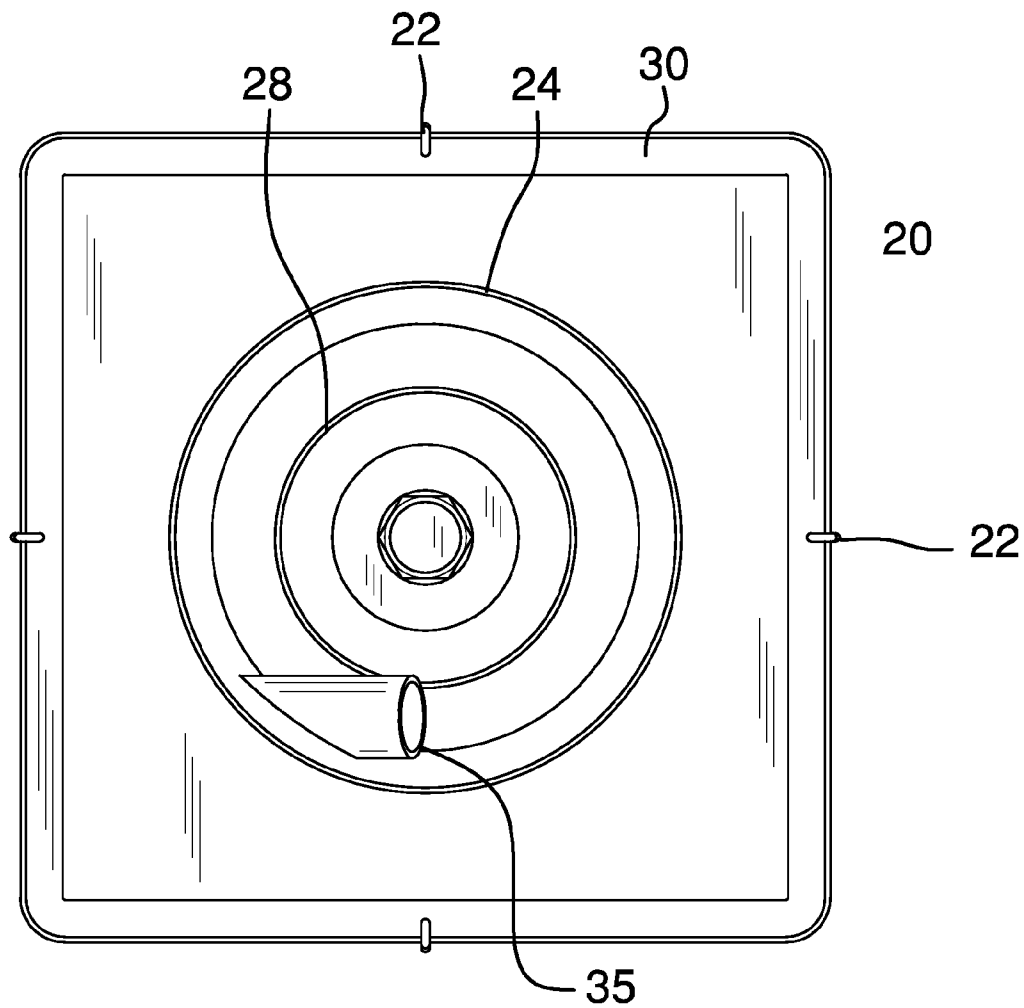


FIG. 4

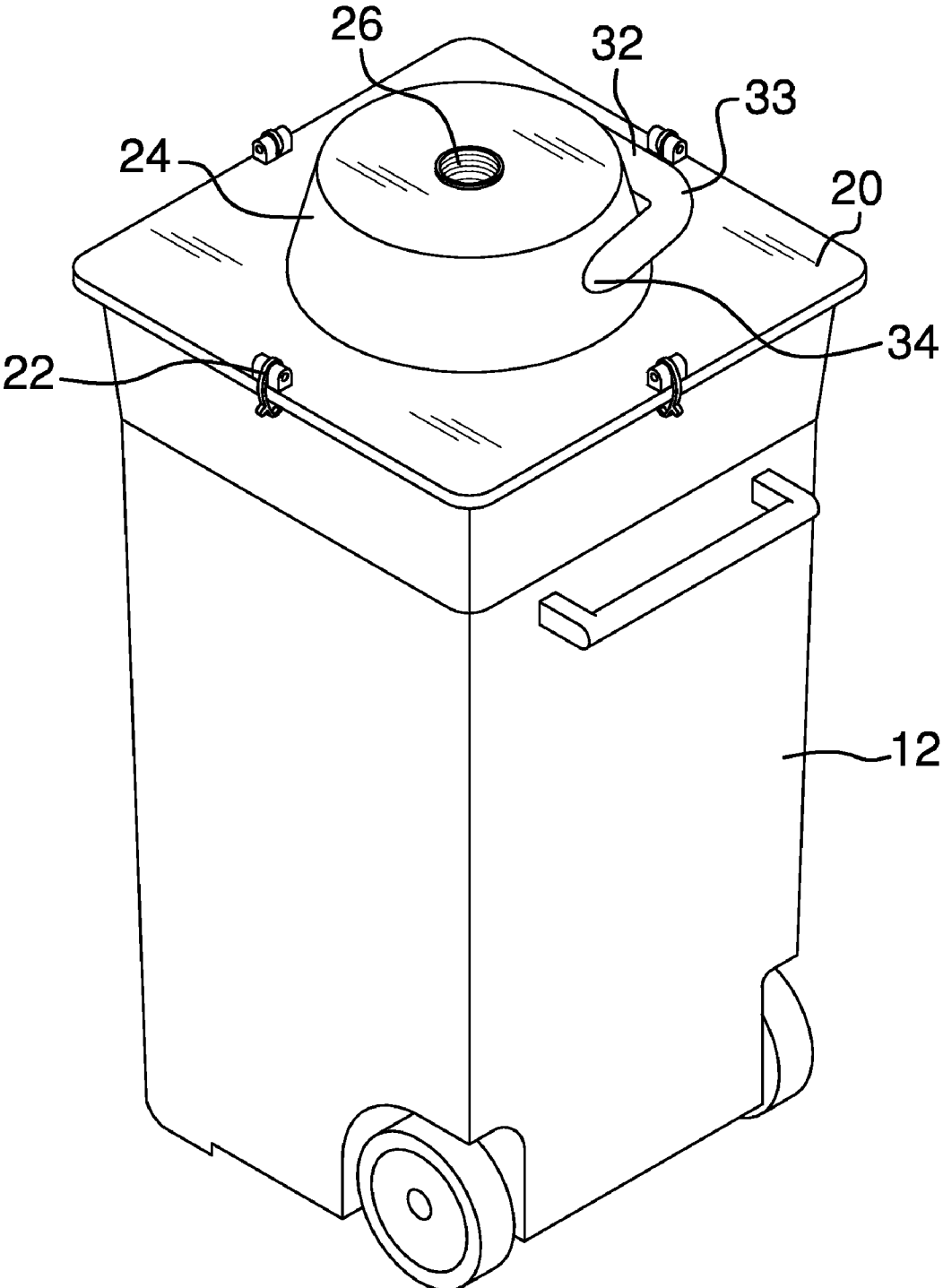


FIG. 5

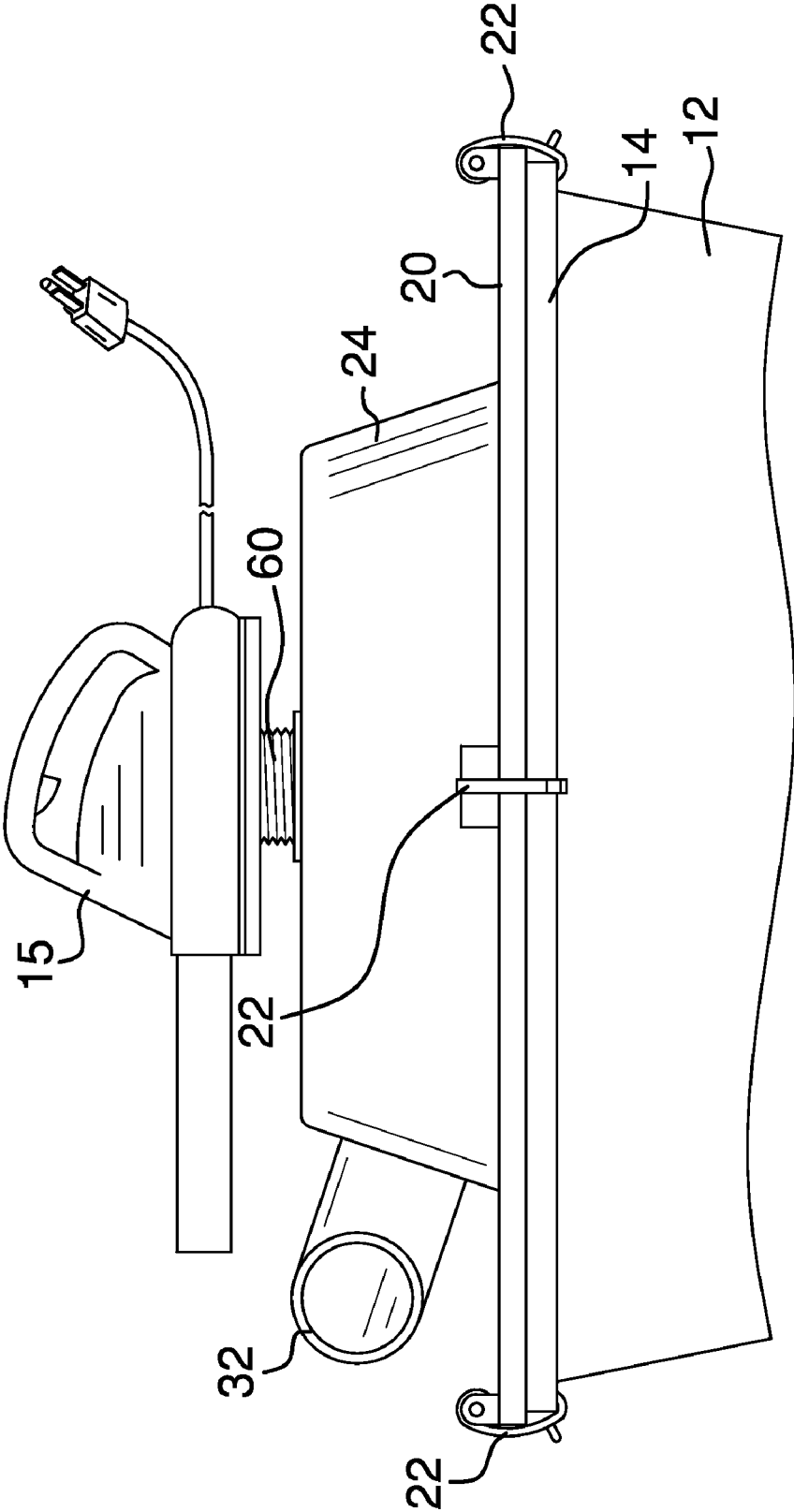


FIG. 6

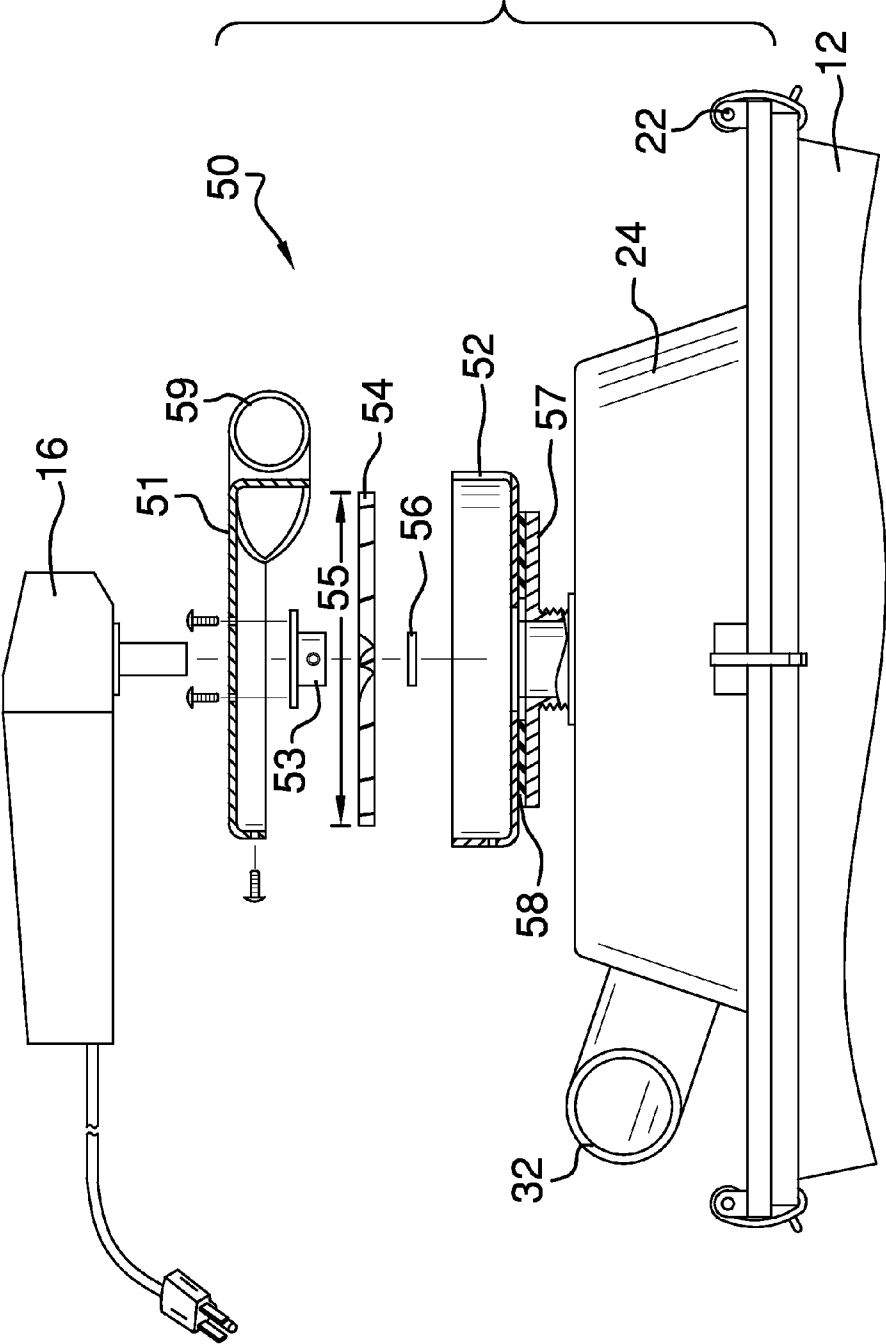


FIG. 7

TRASH BIN VACUUM ADAPTER APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

INCORPORATION BY REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISK

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] Large rolling trash bins now see almost worldwide use. Such bins offer conveniences of holding relatively large amounts of refuse, being easy to move, and providing for automated pickup by trucks designed to handle them. Loading them with debris is not always as easy as it might be though. Typically, leaves and the like must be raked, then transferred into the bin. This holds for various other refuse items also, such as sawdust, dirt, and other imaginable waste. The present apparatus replaces a lid of a rolling trash bin and provides for conversion of the bin into a vacuum and a blower with what may be termed industrial strength, thereby providing a dual use bin that saves time and labor.

FIELD OF THE INVENTION

[0005] The trash bin vacuum adapter apparatus relates to rolling trash bins and more especially to a conversion lid for a trash bin that enables the bin to double as a vacuum and refuse storage.

SUMMARY OF THE INVENTION

[0006] The general purpose of the trash bin vacuum adapter apparatus, described subsequently in greater detail, is to provide a trash bin vacuum adapter apparatus which has many novel features that result in an improved trash bin vacuum adapter apparatus which is not anticipated, rendered obvious, suggested, or even implied by prior art, either alone or in combination thereof.

[0007] To attain this, the trash bin vacuum adapter apparatus provides for converting an existing rolling trash bin into both a vacuum and a blower, selectively. The apparatus also saves labor and time by allowing a user to gather debris and waste and contain the waste in the bin, all in the same step. As powerful existing tools are capable of fit to the apparatus, more vacuum performance can be generated than is customary of typical vacuums.

[0008] Experimentation determined several important features of the apparatus. The suction tube's tube angle was determined through experimentation to ideally feature the tube angle of about 85 degrees. Equally important are the angled attachment to the conical riser and the slight downward angle of the abbreviated inlet tube. The fan was determined to ideally operate with a diameter of about 9 inches, with 32 millimeter blade width.

[0009] Thus has been broadly outlined the more important features of the improved trash bin vacuum adapter apparatus so that the detailed description thereof that follows may be

better understood and in order that the present contribution to the art may be better appreciated.

[0010] An object of the trash bin vacuum adapter apparatus is to convert a rolling trash bin into both a bin and a vacuum.

[0011] Another object of the trash bin vacuum adapter apparatus is to provide for superior vacuum performance.

[0012] A further object of the trash bin vacuum adapter apparatus is to provide for superior vacuum performance by using existing power tools that generate more power than a typical vacuum.

[0013] An added object of the trash bin vacuum adapter apparatus is to optimize air flow within the trash bin that encourages the settling of waste within the bin.

[0014] And, an object of the trash bin vacuum adapter apparatus is to convert an existing trash bin into a vacuum with minimal parts and tools.

[0015] Yet another object of the trash bin vacuum adapter apparatus is to also provide for blower function.

[0016] These together with additional objects, features and advantages of the improved trash bin vacuum adapter apparatus will be readily apparent to those of ordinary skill in the art upon reading the following detailed description of presently preferred, but nonetheless illustrative, embodiments of the improved trash bin vacuum adapter apparatus when taken in conjunction with the accompanying drawings.

[0017] In this respect, before explaining the current embodiments of the improved trash bin vacuum adapter apparatus in detail, it is to be understood that the trash bin vacuum adapter apparatus is not limited in its application to the details of construction and arrangements of the components set forth in the following description or illustration. Those skilled in the art will appreciate that the concept of this disclosure may be readily utilized as a basis for the design of other structures, methods, and systems for carrying out the several purposes of the improved trash bin vacuum adapter apparatus. It is therefore important that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the trash bin vacuum adapter apparatus. It is also to be understood that the phraseology and terminology employed herein are for purposes of description and should not be regarded as limiting.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] FIG. 1 is a perspective view of the apparatus in preparation of removable fit to a trash bin.

[0019] FIG. 2 is a top plan view.

[0020] FIG. 3 is a cross sectional view of FIG. 2, taken along the line 3-3.

[0021] FIG. 4 is a bottom plan view.

[0022] FIG. 5 is a perspective view of the apparatus fitted to a rolling trash bin.

[0023] FIG. 6 is a lateral elevation view of the apparatus fitted to a trash bin, with leaf blower mounted to the threaded aperture of the conical riser.

[0024] FIG. 7 is a lateral partial cross sectional view of the apparatus fitted atop a trans bin, with exploded view of the fan kit in use with a die grinder.

DETAILED DESCRIPTION OF THE DRAWINGS

[0025] With reference now to the drawings, and in particular FIGS. 1 through 7 thereof, the principles and concepts of the trash bin vacuum adapter apparatus generally designated by the reference number 10 will be described.

[0026] Referring to FIG. 1, the apparatus 10 partially comprises the platform 20 that removably fits atop an existing trash bin 12.

[0027] Referring to FIG. 4, the rubberized seal 30 seals the platform 20 to the trash bin 12.

[0028] Referring to FIG. 5, the plurality of quick clips 22 removably fastens the platform 20 to the lip 14 of the trash bin 12. The conical riser 24 is disposed centrally and upwardly on the platform 20.

[0029] Referring to FIG. 3, the extended circular wall 27 is disposed downwardly from the conical riser 24 and from below the platform 20. A flat top 25 is disposed on the conical riser 24 and provides clearance for the attachment of various existing devices used with the apparatus 10. The threaded aperture 26 is centrally disposed within the conical riser 24. The outwardly flared interior cone 28 is disposed downwardly within the conical riser 24.

[0030] Referring to FIG. 2, the suction tube 32 is attached to the conical riser 24 at an angled attachment 34. The suction tube 32 further importantly comprises a tube angle 33 of about 85 degrees.

[0031] Referring again to FIG. 1, optional flex hose 36 and the like are provided.

[0032] Referring to FIG. 4, the abbreviated inlet tube 35 is extended from the angled attachment 34 and is within the conical riser 24. The inlet tube 35 is at a tangent to the interior cone 28. The inlet tube 35 is importantly at a slightly downward angle.

[0033] Referring again to FIG. 3, the course filter 40 is removably fitted downwardly from the threaded aperture 26. The foam filter 42 is removably fitted to the course filter 40. The sock filter 44 is removably fitted to the foam filter 42.

[0034] Referring to FIG. 6, the blower fitting 60 removably couples an existing blower 15 to the threaded aperture 26.

[0035] Referring to FIG. 7, the apparatus 10 further comprises a fan kit 50 removably fitted to the conical riser 24 threaded aperture 26. The fan kit 50 comprises the transfer coupling 57 that is removably fitted to the threaded aperture 26. A gasket 58 is disposed atop the transfer coupling 57. The lower fan housing 52 is fitted atop the gasket 58. The upper fan housing 51 with outlet 59 is removably fitted atop the lower fan housing 52. The fan 54 with fan diameter 55 of about 9 inches, is disposed within the housings. A backing flange 53 with lock nut 56 removably secures the fan 54 to an existing die grinder 16.

[0036] With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the trash bin vacuum adapter apparatus, to include variations in size, materials, shape, form, function and the manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the trash bin vacuum adapter apparatus.

[0037] Directional terms such as "front", "back", "in", "out", "downward", "upper", "lower", and the like may have been used in the description. These terms are applicable to the embodiments shown and described in conjunction with the drawings. These terms are merely used for the purpose of description in connection with the drawings and do not necessarily apply to the position in which the trash bin vacuum adapter apparatus may be used.

[0038] Therefore, the foregoing is considered as illustrative only of the principles of the trash bin vacuum adapter appa-

ratus. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the trash bin vacuum adapter apparatus to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the trash bin vacuum adapter apparatus.

What is claimed is:

1. A trash bin vacuum adapter apparatus comprising, in combination:

- a platform removably fitted atop an existing trash bin;
- a rubberized seal sealing the platform to the trash bin;
- a plurality of quick clips removably fastening the platform to a lip of the trash bin;
- a conical riser disposed centrally and upwardly on the platform;
- an extended circular wall disposed downwardly from the conical riser and from below the platform;
- a flat top on the conical riser;
- a threaded aperture centrally disposed within the conical riser;
- an outwardly flared interior cone disposed downwardly within the conical riser;
- a suction tube attached to the conical riser at an angled attachment;
- an abbreviated inlet tube extended from the angled attachment and within the conical riser, the inlet tube at a tangent to the interior cone, the inlet tube at a slightly downward angle;
- a course filter removably fitted downwardly from the threaded aperture;
- a foam filter removably fitted to the course filter;
- a sock filter removably fitted to the foam filter;
- a blower fitting removably coupling an existing blower to the threaded aperture.

2. The apparatus according to claim 1 wherein the extended wall further extends about 125 millimeters into the existing trash bin.

3. The apparatus according to claim 1 wherein a tube angle of about 85 degrees is further disposed in the suction tube.

4. The apparatus according to claim 2 wherein a tube angle of about 85 degrees is further disposed in the suction tube.

5. A trash bin vacuum adapter apparatus comprising, in combination:

- a platform removably fitted atop an existing trash bin;
- a rubberized seal sealing the platform to the trash bin;
- a plurality of quick clips removably fastening the platform to a lip of the trash bin;
- a conical riser disposed centrally and upwardly on the platform;
- a flat top on the conical riser;
- an extended circular wall disposed downwardly from the conical riser and from below the platform;
- a threaded aperture centrally disposed within the conical riser;
- an outwardly flared interior cone disposed downwardly within the conical riser;
- a suction tube attached to the conical riser at an angled attachment;
- a bend of about 85 degrees disposed in the suction tube;
- an abbreviated inlet tube extended from the angled attachment and within the conical riser, the inlet tube at a tangent to the interior cone, the inlet tube at a slightly downward angle;

- a coarse filter removably fitted downwardly from the threaded aperture;
- a foam filter removably fitted to the coarse filter;
- a sock filter removably fitted to the foam filter;
- a fan kit removably fitted to the conical riser threaded aperture, the fan kit comprising:
 - a transfer coupling removably fitted to the threaded aperture;
 - a gasket disposed atop the transfer coupling;
 - a lower fan housing fitted atop the gasket;
 - an upper fan housing removably fitted atop the lower fan housing;
 - a fan disposed within the housings;

- a backing flange with lock nut removably securing the fan to an existing die grinder.
- 6. The apparatus according to claim 5 wherein the extended wall further extends about 125 millimeters into the existing trash bin.
- 7. The apparatus according to claim 5 wherein a tube angle of about 85 degrees is further disposed in the suction tube.
- 8. The apparatus according to claim 6 wherein a tube angle of about 85 degrees is further disposed in the suction tube.
- 9. The apparatus according to claim 8 wherein the fan further comprising a fan diameter of about 9 inches.

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