United States Patent

Frangos

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[45] **Feb. 8, 1972**

[54] PORTABLE SIFTING APPARATUS

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[52] **U.S. Cl.**.....**209/337**, 209/372, 209/405

[51] **Int. Cl.**.....**B07b 1/28**

[58] **Field of Search**.....209/337, 372, 327, 329, 330, 209/338, 412, 413, 415, 373, 420, 319, 342, 315, 341, 405

[56] **References Cited**

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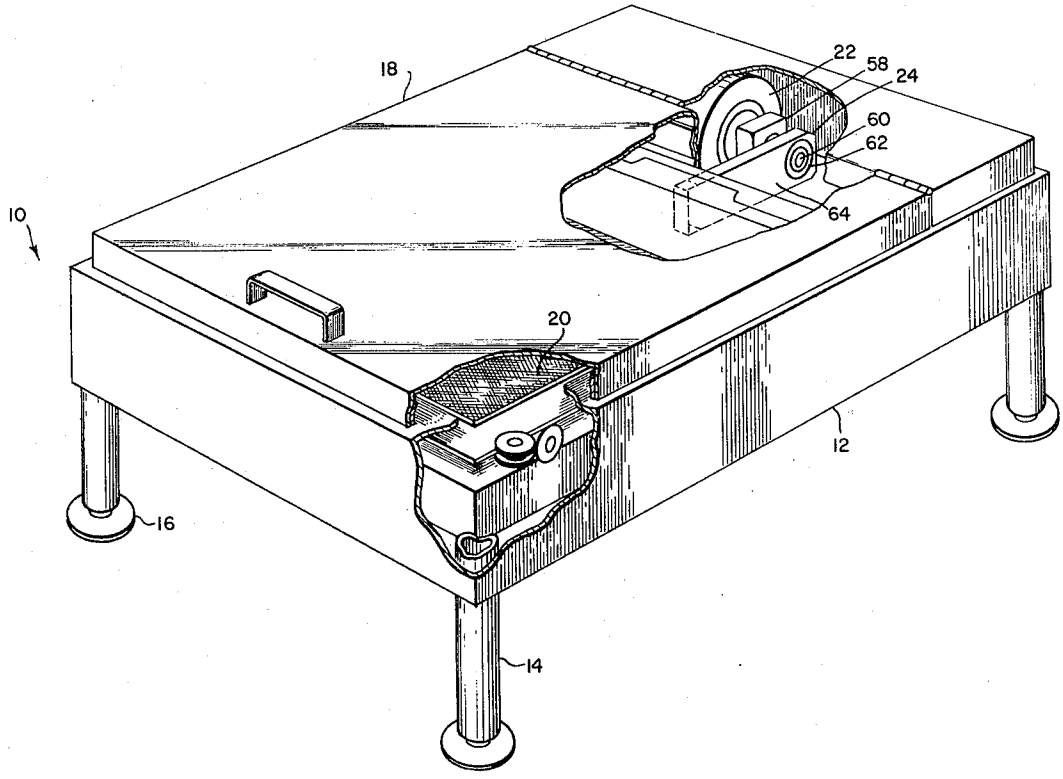
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[57] **ABSTRACT**

A compact, portable, power-driven sifter is provided for use in sifting flour or the like, and is particularly suited for restaurant and institutional use. A basket having replaceable screens is mounted in a housing for horizontal oscillatory movement by means of a motor-driven eccentric linkage, the basket being supported on rollers and guided by sheave rolls against lateral displacement. The housing is supported in a highly raised position by elongated legs to permit pans, trays and the like to be moved in and out from under the unit from any side thereof.

2 Claims, 4 Drawing Figures



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SHEET 1 OF 2

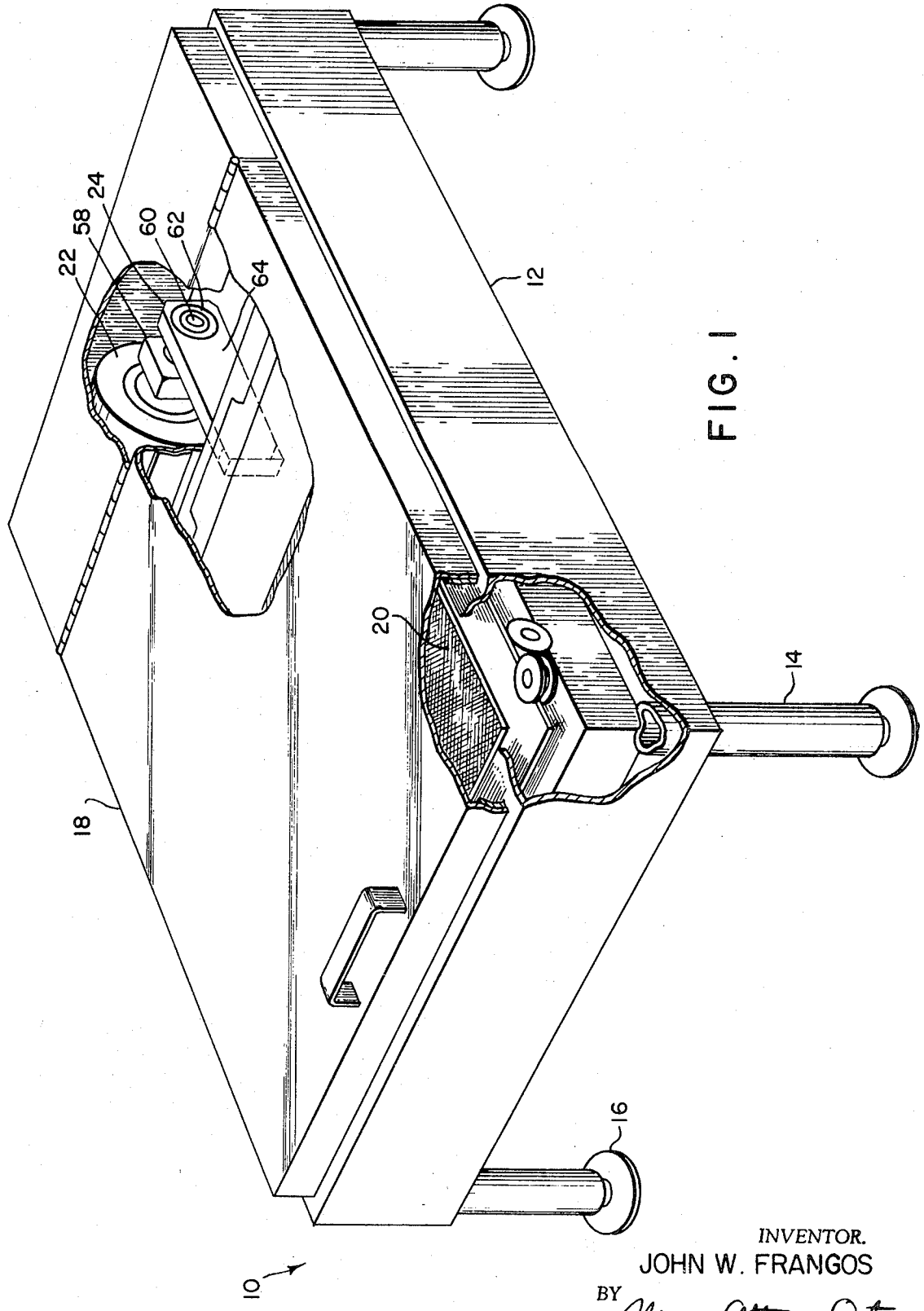


FIG. 1

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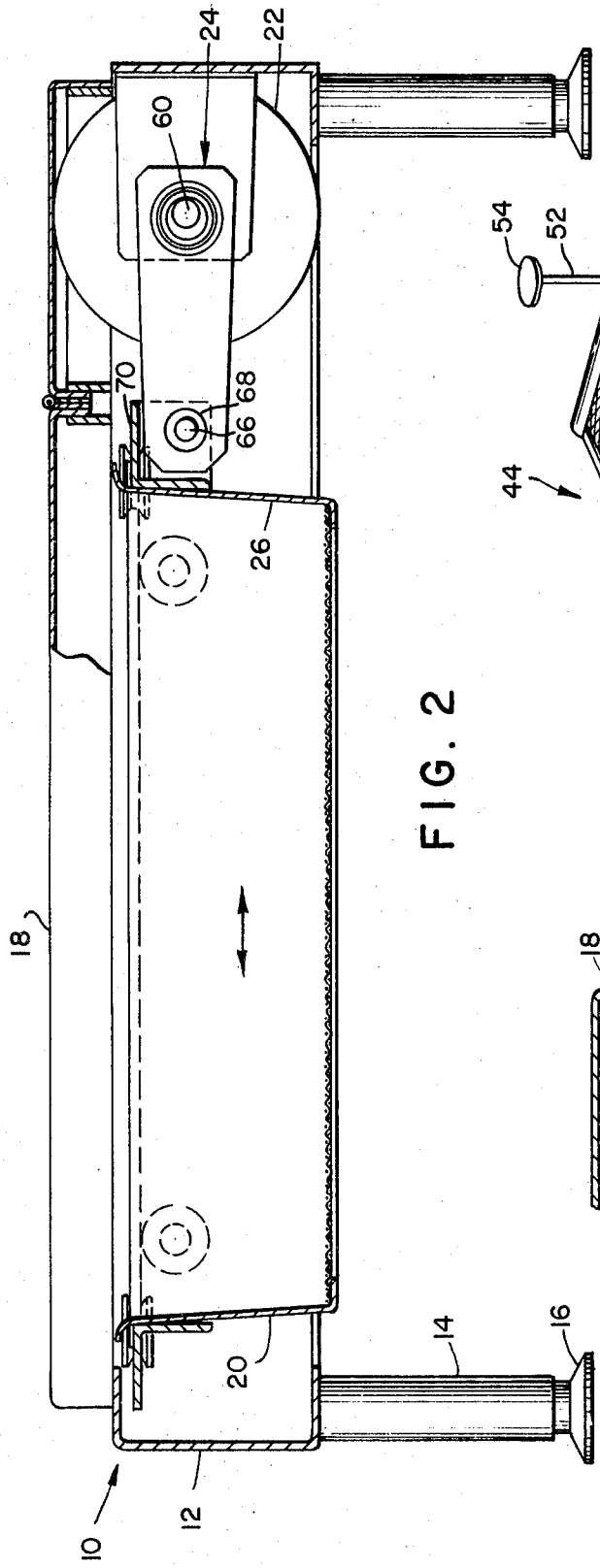


FIG. 2

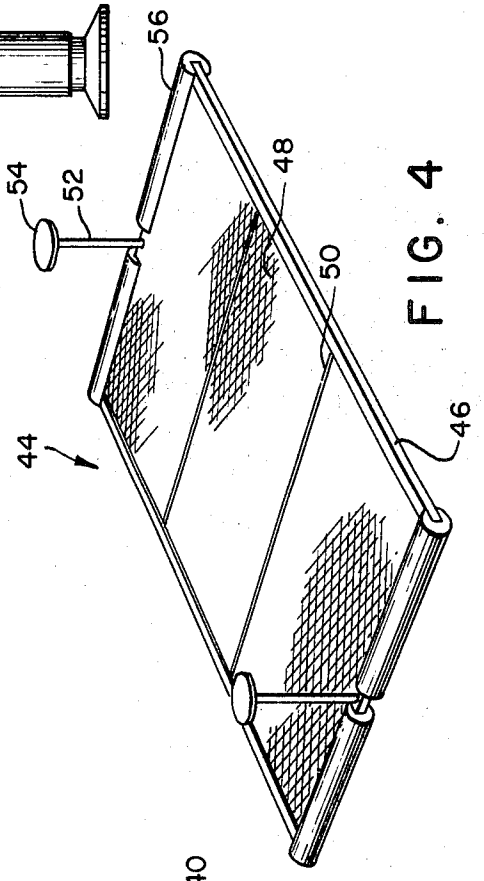


FIG. 4

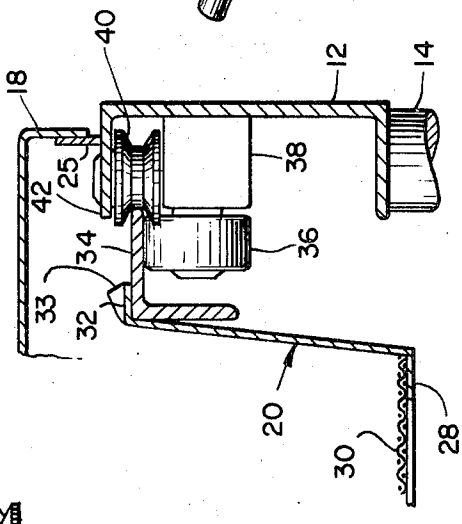


FIG. 3

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PORTABLE SIFTING APPARATUS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to power sifting equipment and more particularly is directed towards a compact, low-cost, portable sifter for use in restaurants and the like.

2. History of the Prior Art

Various types of commercial sifters for restaurant and institutional use have been available for many years. However, sifters of this type heretofore have been rather large, heavy and expensive machines usually requiring considerable floor space and permanently installed. It is, therefore, an object of the present invention or provide a low cost, portable, compact and power-driven sifter suitable for commercial use and which may be located and used with convenience on any suitable flat supporting surface such as a table top counter top or the like.

SUMMARY OF THE INVENTION

This invention features a power-driven portable sifting apparatus comprising a housing supported above a table surface or the like on elongated legs to provide access from four sides thereof for pans and the like to the discharge under the housing. The housing encloses a basket with interchangeable screens and is horizontally oscillated by means of a motor-driven eccentric coupling, the basket being supported by cooperating rollers for smooth, friction free operation.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view in perspective, partially broken away, showing a sifter made according to the invention,

FIG. 2 is a view in side elevation, partly in section, of the FIG. 1 apparatus,

FIG. 3 is a detailed view in front elevation showing the roller support assembly, and,

FIG. 4 is a view in perspective of a replaceable screen employed in the sifter.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings the reference character **10** generally indicates a sifting apparatus comprising a boxed housing **12** set on elongated legs **14** which support the housing **12** at a substantial height above a supporting surface such as a table or counter top, for example. Typically, the legs **14** maintain the housing **12** perhaps 5 or 6 inches or so above the supporting surface. A leg is mounted at each corner of the housing and preferably is of a relatively narrow cross section to permit a maximum amount of access space between adjacent legs. Each leg preferably is provided with a suction cup foot **16** for stabilizing the unit of its supporting surface.

The top of the housing **12** is provided by a hinged cover **18** the larger portion of which encloses a sifting basket **20** while the smaller portion encloses a motor **22** and drive assembly **24**. Typically, the cover is provided with a surrounding gasket **25**.

The sifting basket **20**, as shown best in FIGS. **2** and **3**, is in the form of an open rectangular receptacle having generally upright sidewalls **26**, preferably of sheet material such as stainless steel or the like. The walls **26** are formed at the bottom with an inwardly facing lip **28** which supports the outer margin of an open mesh screen **30** spanning the otherwise open bottom of the basket **20**. The upper portion of the wall **26** is formed with an outwardly extending lip **32** by which the basket rests on a rectangular frame member **34** extending about the basket **20**. Tabs **33** are provided for use in lifting the basket from the frame. In the preferred embodiment the frame **34** is formed from right-angle stock which serves as a holder for the removable basket and also serves as a track and support for the basket **20** which undergoes vigorous oscillatory movement when in operation. The horizontal portion of the frame **34** extends out from the side of the basket **20** and rests

on spaced rollers **36** located along opposite sides of the basket and mounted to the housing **12** by means of a block **38**. The rollers **36** preferably are of a durable plastic material such as Teflon which provides low frictional support, are quiet and enjoy a relatively long and trouble-free life. Obviously, other materials may also be used. The axes of the rollers **36** lie in a horizontal plane perpendicular to the path of travel of the basket **20**.

In order to guide the basket against lateral or vertical displacement sheaves or pulley guide rollers **40** are provided, preferably in proximity to the rollers **36**, and mounted to the housing **12** so as to engage the outer edge of the horizontal portion of the frame **34**. This is best shown in FIG. **3** where it will be seen that the guide roller **40** is mounted to an upper flange **42** of the housing **12** for rotation about a vertical axis and it will be understood that there is at least one guide roller **40** on each side of the basket and preferably two, one near each corner thereof and serving to guide the basket during oscillation and to prevent spurious movements thereof. Again it is desirable that the guide roller **40** be fabricated from a low-friction material such as Teflon or the like.

The basket **20**, as indicated previously, is provided with a screen **30** across the bottom thereof and in practice the screen **30** is of a relatively wide mesh with finer sifting being available by the use of accessory screen inserts **44** such as shown in FIG. **4**. The screen **44** may be of any desired mesh according to the material being sifted. The accessory screen **44** preferably is formed with a rectangular frame **46** to which is mounted mesh screen material **48** reinforced by cross ribs **50**. Upwardly extending posts **52** are provided at each end to facilitate insertion and removal of the accessory screen from the basket. Each post may be provided with a gripping head **54**. Mounted across each end of the frame **46** are bumpers **56**, preferably of rubber or other resilient material, which may be readily formed from split tubing or the like. The bumpers **56** serve to hold the screen insert squeezed in position at the bottom of the basket and prevent the screen inserts from banging about as the gasket is oscillated. In practice, each sifting unit would be provided with a set of screen inserts of various mesh sizes.

The basket **20** is oscillated by means of the motor **22** and drive linkage **24**. The motor, as previously indicated, is mounted in the rear position of the housing and typically is provided with a reduction gear assembly **58** to provide an output of approximately 300 r.p.m., for example. The reduction gear assembly is provided with a drive shaft **60** eccentrically keyed to the inner race of a bearing **62** mounted in one end of a connecting rod **64**. Typically the eccentric is three sixteenths inches off center to provide a ⅜-inch stroke of the rod **64**. The opposite end of the connecting rod is drivingly connected to the basket frame **34** by means of a shaft **66** passing through a ball bearing assembly **68** with the ends thereof supported in spaced blocks **70** and **72** secured to the basket frame **34**. It will be understood that when the motor is energized the rotation of the shaft will cause, through the eccentric connection, the basket to be oscillated back and forth in the direction of the connecting rod. The material to be sifted is placed in the basket and discharges from the bottom. By raising the housing in the manner shown, pans or other receptacles may be placed in under the housing to collect the sifted material as it drops from the sifting basket. Since the shifting unit is raised entirely by means of the elongated legs the unit may be placed on almost any supporting surface and be used conveniently since pans or the like may be slipped under the housing between any of the legs three-sixteenths side thereof.

Having thus described the invention what I claim and desire to obtain by Letters Patent of the United States is:

1. Sifting apparatus, comprising
   a. a housing, having a discharge opening formed in the bottom thereof,
   b. spaced elongated legs mounted to said housing for elevating said housing above a supporting surface at a height sufficient to permit access under said housing and from any side thereof,
   c. an open frame mounted for oscillation in said housing,

d. spaced juxtaposed rollers mounted to said housing and engaging opposite sides of said frame for horizontal movement thereof,

e. a foraminous basket removably mounted in said frame,

f. a motor mounted at one end of said housing, and

g. an eccentric coupling connecting said motor to one end of said frame whereby operation of said motor will oscillate said frame and said basket,

h. said frame being formed with a horizontal flange extending at least along the sides thereof,

i. said rollers including spaced rollers mounted for rotation about horizontal axes and engaging the underside of said flange and spaced annularly grooved rollers mounted for rotation about vertical axes and engaging the edges of said flange.

2. Sifting apparatus according to claim 1 including a removable screen mounted in said basket, said screen being coextensive with said basket, resilient bumpers mounted along the edges of said screen and upright posts mounted at the ends thereof.

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