Dec. 31, 1968 J. J. KOZAR 3,418,764

DRUM SANDER WITH SHEET SANDPAPER ANCHORING MEANS

Filed March 3, 1966

Fig. 1

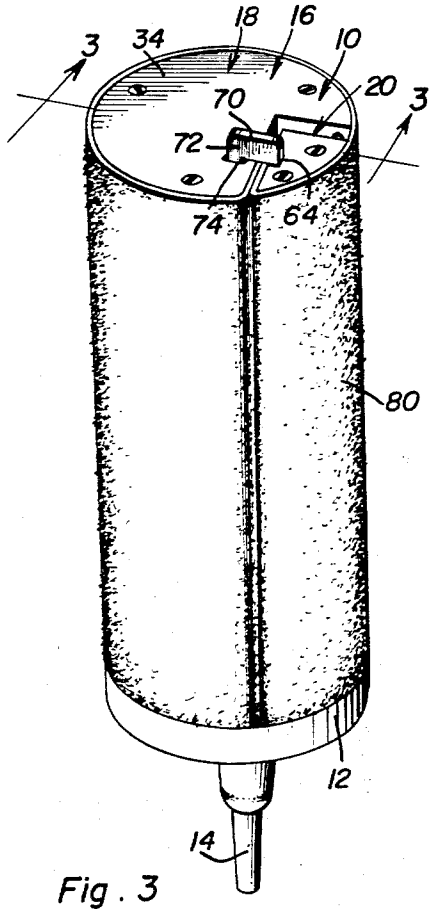


Fig. 2

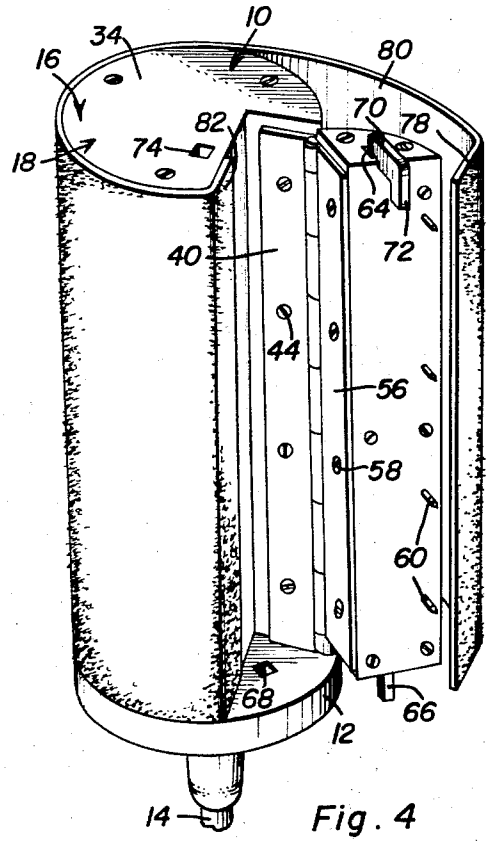


Fig. 3

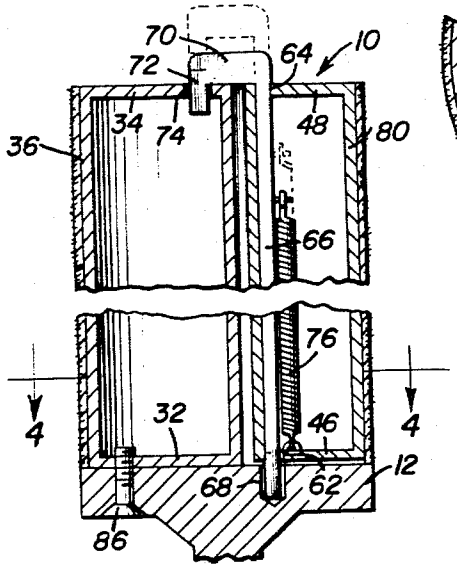
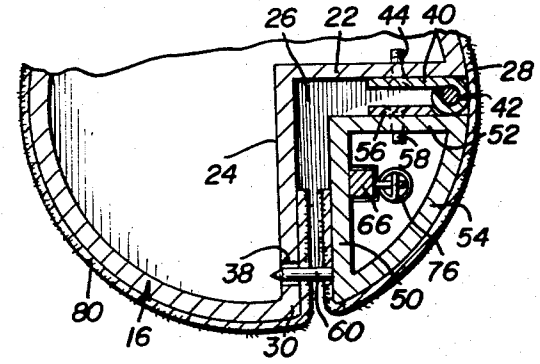


Fig. 4



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DRUM SANDER WITH SHEET SANDPAPER ANCHORING MEANS

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ABSTRACT OF THE DISCLOSURE

A rotary device for supporting a cover of abrading material including a body defining an axis of intended rotation and consisting of first and second partial cylindrical sections with the first section defining a generally radially outwardly opening recess extending longitudinally of the body and the second section being oscillatably supported from the first section for swinging movement about an axis generally paralleling the first axis between first and second positions snugly seated within the recess and displaced outwardly of the recess, respectively. The second section includes a one-piece latch member shiftable longitudinally of the body between locked and unlocked positions for releasably retaining the second section in the recess and includes portions thereof disposed at opposite ends of the body operative to releasably key the opposite ends of the second section to adjacent portions of the first section when in the locked position in order to retain the second section seated within the recess defined by the first section.

This invention relates to a novel and useful drum sander and more specifically to a drum sander adapted to utilize sheets of sandpaper which may be readily encircled about the drum sander and have their opposite ends secured to the drum sander in a manner preventing rotation of the drum sander relative to the sheet of sandpaper secured thereto.

The drum sander of the instant invention includes a small axially extending segment thereof which is removably positionable in a complementary axially extending recess therefor formed in the remainder of the drum sander and the segment is secured to the drum sander for rotation about an axis closely adjacent and paralleling one longitudinal edge portion of the segment and the corresponding end portion of the recess formed in the remainder of the drum sander.

The cross-sectional shape of the recess in the drum sander and the complementary pivotally supported segment may be any shape which is desirable and yet still operable in the manner of the drum sander hereinafter specifically illustrated and described in detail, but it is to be noted that the drum sander of the instant invention is preferably constructed with its pivotable segment comprising appreciably less than one-quarter of the cross-sectional shape of the entire sander. By limiting the size of the pivotable segment of the drum sander to a size which is minimal but sufficient to obtain the desired result, the possibility of such a generally radially movable segment being varied slightly in radial position when in the operative or closed position would not have as great effect on the balance of the total drum sander during rotation of the latter at high speeds. Accordingly, inasmuch as a larger segment such as a semicylindrical segment would render the drum sander more out of balance if it was slightly out of radial position during operation of the sander, a segment having a cross-sectional shape appreciably less than one-quarter of the cross sectional shape of the entire sander is desirable.

The swingable segment of the sander of the instant invention includes sandpaper impaling pins which project

generally in the direction in which the free edge of the segment is swung when it is moved to the closed position and the recess in the remainder of the drum sander in which the segment is received includes a face disposed in juxtaposition with the surface of the segment from which the pins project and which includes openings therein in which to receive the sandpaper impaling pins carried by the segment as the latter is swung to its closed position.

The main object of this invention is to provide a drum sander constructed in a manner whereby it is adapted to utilize sheets of flexible sandpaper in lieu of hollow cylinders of sandpaper.

Another object of this invention is to provide a drum sander in accordance with the immediately preceding object and including releasable latch means for securing the pivotable segment of the drum sander in its closed position.

Yet another object of this invention, in accordance with the immediately preceding object, is to provide latch means for the swingable segment of the drum sander including means by which both end portions of the segment are secured against swinging movement relative to the remainder of the sander when the latch means is in its operative position.

A further object of this invention, in accordance with the two preceding objects, is to provide latch means for the drum sander including a single reciprocable latch member operable to simultaneously lock both end portions of the segment in its closed position.

A final object of this invention to be specifically enumerated herein is to provide a drum sander in accordance with the preceding objects which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively troublefree in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the drum sander of the instant invention shown with a sheet of sandpaper secured thereto;

FIGURE 2 is a perspective view similar to that of FIGURE 2 but with the swingable segment of the drum sander in its open position and the corresponding end of the sheet of sandpaper disengaged therefrom;

FIGURE 3 is an enlarged fragmentary section view taken substantially upon the plane indicated by the section line 3—3 of FIGURE 1; and

FIGURE 4 is an enlarged fragmentary sectional view taken substantially upon the plane indicated by the section line 4—4 of FIGURE 3.

With reference now more specifically to the drawings the numeral **10** generally designates the drum sander of the instant invention. The sander **10** includes a generally cylindrical base plate **12** at one end thereof which includes a centrally disposed and outwardly projecting shank portion **14** adapted to be gripped in the chuck of a drill or the like.

The drum sander further includes a generally cylindrical complete body portion referred to in general by the reference numeral **16** and comprising a main body portion or section referred to in general by the reference numeral **18** and a second smaller body portion or section, generally referred to by the reference numeral **20** and which comprises but a small segment of the complete body portion **16**.

The main and small body portions or sections **18** and **20** together form the complete body portion **16** and it may be seen from FIGURES 1, 2 and 4 of the drawings that the main body portion **18** includes joined and inwardly directed wall segments **22** and **24** defining an outwardly opening pie segment-shaped recess **26** separating two circumferentially spaced portions **28** and **30** of the complete body portion **16**. The smaller body portion is receivable within the recess in snug fashion and forms a continuation of the outer cylindrical surface portions of the main body portion **18** to complete the complete body portion **16**.

The main body portion **18** includes a pair of opposite end portions defined by end wall portions or sections **32** and **34** which are similarly formed and joined by a partial cylindrical wall section **36** extending between points **28** and **30**. The wall sections **22** and **24** also extend between the end wall sections **32** and **34** and wall section **24** has a plurality of longitudinally spaced openings **38** formed therethrough adjacent the partial cylindrical wall section **36** while the wall section **22** has one leaf **40** of a hinge assembly generally refered to by the reference numeral **42** secured thereto in any convenient manner such as by threaded fasteners **44**.

The small body portion **20** includes a pair of opposite end portions defined by end wall portions of sections **46** and **48** which are similarly shaped and interconnected by means of a pair of angularly disposed and joined wall sections **50** and **52**. In addition, the small body portion **20** also includes a partial cylindrical wall section **54** extending between the end wall sections **46** and **48** and connecting the remote edge portions of the wall sections **50** and **52**.

The leaf **56** of the hinge assembly **42** is secured to the wall section **52** in any convenient manner such as by threaded fasteners **58** and it may therefore be seen that the smaller body portion **20** is swingable from the open position illustrated in FIGURE 2 of the drawings to the closed position snugly received within the recess **26** illustrated in FIGURES 1 and 4 of the drawings.

The longitudinal edge portion of the wall section **50** adjacent the partial cylindrical wall section **54** is provided with a plurality of sandpaper impaling pins **60** which are spaced longitudinally of the wall section **50** and which are registrable with and receivable in the openings **38** when the small body portion **20** is swung to the closed position illustrated in FIGURES 1 and 4.

With attention now invited more specifically to FIGURE 3 of the drawings it may be seen that the end wall sections **46** and **48** are provided with aligned guide means defined by non-circular openings **62** and **64**, respectively, formed therein through which opposite end portions of an elongated complementary non-circular latch rod **66** are reciprocal, the openings **62** and **64** being defined by the edge portions of said end wall sections forming guide surfaces. The latch rod **66** includes a first end portion which is sungly and guidingly receivable in a blind non-circular bore or recess **68** formed in the base **12** and opening toward the remote end of the complete body portion **16** when the small body portion **20** is in the closed position. Further, the opposite end of the latch rod **66** includes a laterally directed portion **70** whose free end terminates in a backturned portion **72** receivable in an opening or recess **74** formed in the end wall section **34** when the small body portion **20** is in the closed position.

An expansion spring **76** is secured between the end wall section **46** and the latch rod **66** at a point adjacent the end wall section **48** and yieldingly urges the latch rod **66** to the position illustrated in solid lines in FIGURE 3 of the drawings. When the latch rod **66** is thus positioned, the small body portion **20** may not be swung from the full open position illustrated in FIGURE 2 to the closed position illustrated in FIGURE 3 because the end portion of the latch rod **66** adjacent the base **12** will strike the latter and prevent the small body portion **20** from swinging further toward the closed position.

By abutting against the base **12** and preventing the small body portion **20** from swinging to the full closed position, the latch rod **66** defines an intermediate position of the small body portion **20** in which one free edge portion **78** of a sheet of sandpaper **80** is adapted to be pressed down upon the pins **60** in order to force the latter through the edge portion **78** after the opposite edge portion **82** of the sheet **80** has been positioned in the recess **26** over the openings **38** in the manner illustrated in FIGURE 2 of the drawings. From this intermediate position of the small body portion **20**, as the latter is swung to its fully closed position, after the latch bar **66** has been shifted to the dotted line position illustrated in FIGURE 3 of the drawings, the engagement of the pins **60** with the edge portion **78** and the frictional engagement of the remainder of the sheet **80** with the partial cylindrical wall section **36** of the main body portion **18** will enable the swinging action of the small body portion **20** from the intermediate position to its fully closed position to tension the sheet **80** of sandpaper. After the small body portion **20** has been swung to its full closed position, the end portions **62** and **72** will be registered with the openings **68** and **74** and the expansion spring **76** will pull the latch rod **66** to the solid line position illustrated in FIGURE 3 of the drawings, thereby locking both ends of the small body portion **20** within the recess **26**.

The main body portion **18** is secured to the base **12** by means of suitable fasteners **86** secured through the base and threadedly engaged with the end wall section **32**. Therefore, the fasteners **86** also serve to secure the small body portion **20** to the base **12** inasmuch as the small body portion **20** is pivotally supported from the main body portion **18** of which the end will section **32** comprises a part.

If it is desired to vary the weight of the complete body portion **16**, the main and small body portions **18** and **20** may be filled, or at least partially filled with any suitable material acting as additional weight thereby lessening the tendency of the drum sander **10** to bounce or hop away from and into engagement with a workpiece when being rotated by a hand-held drill or the like.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention 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 invention as claimed.

What is claimed as new is as follows:

1. A drum sander comprising a complete generally cylindrical body including a first partial cylindrical body section defining a generally radially outwardly opening recess extending longitudinally thereof and a second partial cylindrical body snugly receivable in said recess and supported from said first body section for movement between a first position seated in said recess and a second position displaced at least partially outwardly of said recess, said first and second sections, when said second section is in said first position, including opposing surfaces extending generally radially of said complete body and including means adapted to frictionally grip and anchor opposite end tab portions of a sheet of sandpaper disposed about said complete body in overlying relation to said opposing surface, said first and second sections including a second pair of generally radially extending and opposing surfaces, means pivotally securing said second section to said first section for rotation about an axis extending generally along the radial outermost marginal edge portions of said second pair of surfaces, said body including means on one end thereof defining a corresponding end wall portion for said recess, said second section including an elongated latch

member extending longitudinally thereof and supported from said second section for longitudinal reciprocation between two positions, one end of said latch member, when the latter is in a first of said positions, projecting outwardly of the corresponding end of said second section, said end wall including an opening formed therein registered with and receiving therein said one end of said latch member when said second section is in its first position and said latch member is in its first position, said first section including an end wall portion remote from said one end of said body and said latch member including a second end projecting outwardly of the corresponding end of said second section and terminating in a laterally directed end portion at its free end which in turn terminates in a terminal end portion projecting toward said one end of said body, said end wall portion of said first section including an opening therein in which said terminal end portion is receivable when said second section and said latch member are in their first positions.

2. The combination of claim 1 including means operatively connected between said latch member and said second section yieldingly urging said latch member toward said first position thereof.

3. The combination of claim 2 wherein said second section is swingable to a second position thereof disposed at least substantially entirely outwardly of said recess, said one end of said latch member, when said second section is disposed in its second position, being disposed outwardly of said end wall and abuttingly engageable with the latter upon swinging movement of said second section toward its first position to a third intermediate position partially disposed in said recess.

4. A rotary device for supporting a cover of abrading material, said rotary device comprising a body defining an axis of intended rotation, said body having first and second sections, said first section defining a recess opening outwardly and away from said axis, said second section being movable into and out of seated position in said recess and retained from shifting along said axis when in said seated position, said first and second sections including first and second pairs of corresponding opposite end portions spaced longitudinally of said axis, an elongated latch member supported from one of said sections generally paralleling said axis and longitudinally shiftable relative to said sections between locked and unlocked positions, the opposite end portions of said one section including guide means through which the opposite ends of said latch member are guidingly and slidingly received, said opposite end portions of said other section defining recess

means opening outwardly in directions generally paralleling said axis, said latch member including opposite end segments shiftable into and out of said recess means in response to shifting of said latch member between said locked and unlocked positions, respectively.

5. The combination of claim 4 wherein said one section comprises said second section, the opposite end portions of said second section comprising end wall portions, said guide means of said one section comprising edge portions of the corresponding end wall portions defining openings formed therethrough and through which the opposite ends of said latch member are reciprocal.

6. The combination of claim 5 wherein one of the opposite end portions of said first section includes a portion disposed outwardly of the corresponding end wall portion of said second section, said recess means including a recess formed in the last mentioned portion of said first section in registry with and opening toward the opening in the corresponding end wall portion of said second section and into which and from which the adjacent end of said latch member is shifted when the latch member is shifted between said locked and unlocked positions, respectively.

7. The combination of claim 6 wherein the other end portion of said first section includes an end wall portion, said recess means also including a recess formed in the last mentioned end wall portion opening outwardly of said other end portion, the corresponding end of said latch member including a backturned portion movable into and out of the last-mentioned recess when said latch member is shifted between said locked and unlocked positions, respectively.

8. The combination of claim 4 wherein said second section is hingedly supported from said first section for oscillation relative thereto about an axis generally paralleling the first-mentioned axis.

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