

[54] **SHREDDER**

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[52] **U.S. Cl.**.....**241/100, 241/36**  
[51] **Int. Cl.**.....**B02c 19/12**  
[58] **Field of Search**.....**241/33, 36, 235, 236, 243, 241/99, 100**

[56] **References Cited**

**UNITED STATES PATENTS**

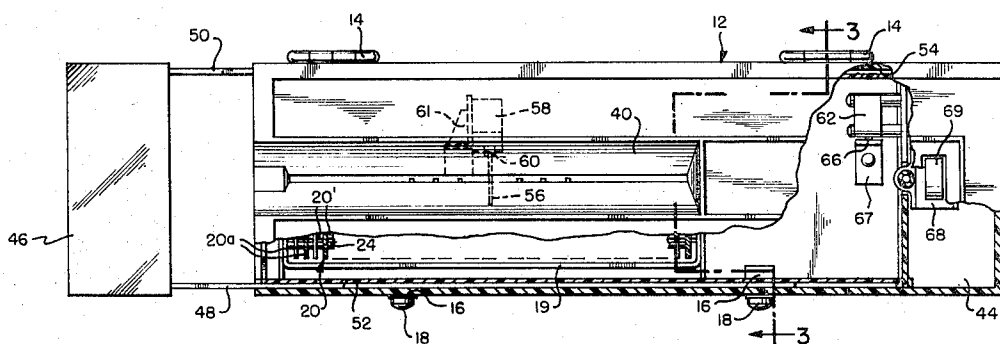
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[57] **ABSTRACT**

A paper shredder comprises a housing containing rotatable shredder blades, a driving motor and suitable reduction gears. A cover member containing a paper chute is hingedly supported on the housing. The cover member includes a retaining portion at one end which is adapted to fit on the top of a wastepaper basket. At the other end of the cover member a second retaining portion is secured to slide rails which are adjustable relative to the cover. By moving the retainer member, the relative distance between the two retaining portions can be adjusted to accommodate different-sized wastepaper baskets. A suitable limit switch operated by a sensing wire is secured within the cover member to actuate the motor which controls the shredder blades.

**4 Claims, 3 Drawing Figures**



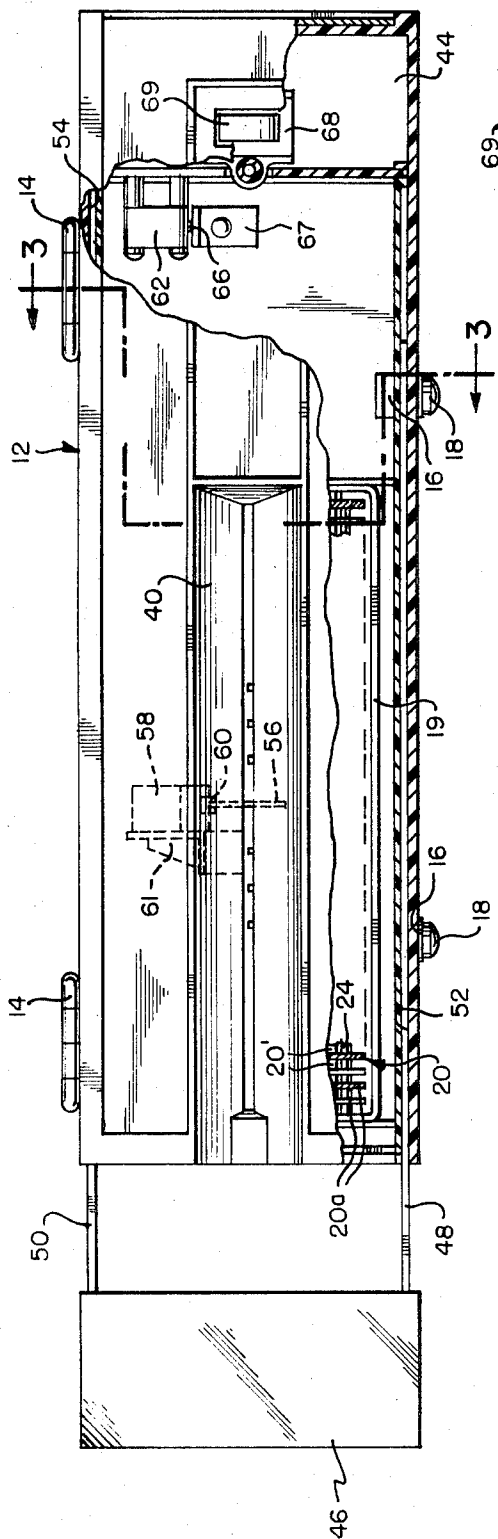


FIG. 1

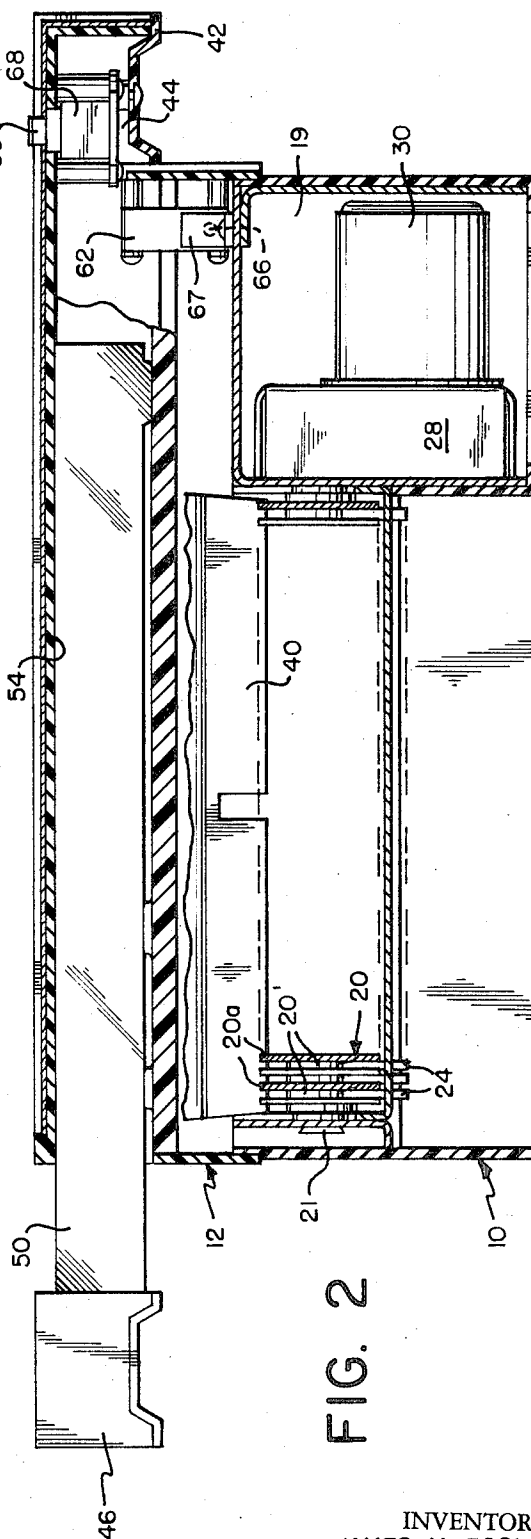


FIG. 2

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**SHREDDER**

The present invention relates to paper shredder devices of the type which may be used in ordinary business establishments for the purpose of destroying documents.

In many, if not most, businesses a substantial amount of discarded documents contains data or information which, if disclosed, could be harmful to the best interests of the company. Despite this, it is common practice for most companies to discard such documents in their original state. Only in extreme cases are important documents destroyed prior to discarding either by burning or by means of paper shredders.

Generally, commercially available paper shredders are relatively expensive devices which are cumbersome and not readily adaptable to the usual business environment, and there exists a need for a relatively inexpensive device which will reliably perform this function. The present invention provides a paper shredder which fulfills this demand. It is safe to operate, easy to clean and capable of providing trouble-free operation for a long time. Operation of the device is automatically controlled by insertion of a document into a paper chute with appropriate interlocking circuits preventing inadvertent operation of the blades. Additionally, the device may be readily supported upon a variety of wastepaper baskets or the like which vary substantially in size and shape.

Briefly, in accordance with the invention, the rotatable shredder blades along with the driving motor and suitable reduction gears are mounted within a housing to which a cover is pivotally secured. The cover contains at one end a fixed retention member adapted to rest on the top of a wastepaper basket. At the other end of the cover a second retention member is mounted on rails which are slidable within tracks in the cover. By appropriate positioning of the second retention member the distance between the two retention members can be adjusted to accommodate wastepaper baskets of different widths.

The invention is described in further detail below with reference to the attached drawings, wherein:

FIG. 1 is a top plan view partially broken away of a shredder according to the invention;

FIG. 2 is a side sectional view of the apparatus shown in FIG. 1; and

FIG. 3 is a sectional view along the line 3—3 of FIG. 1.

Referring to the drawings, a housing for the device is shown at 10. A cover 12 is secured to housing 10 by means of hinges 14. Housing 10 includes spring lock members 16 which can be received within corresponding openings (not numbered) of cover 12 to secure the cover in its closed position. Release button 18 are provided to release the spring lock members 16 when it is desired to open the cover 12. Housing 10 and cover 12 may be made of plastic.

A metal inner casing 19 is secured to the interior of housing 10 by screws or the like (not shown). Two rotatable shredders 20 and 22 are mounted within casing 19. Each of the shredder blades includes a plurality of disk blades (for example, 20a, 22a, etc.) secured to respective axles 21, 23 which are appropriately journaled within opposing surfaces of casing 19. Adjacent blades are separated by annular plastic spacers 20' and 22' suitably secured to axles 21 and 23, respectively.

Corresponding blades of the shredders apply pressure against each other to insure proper cutting or shredding of the paper. In other words, the blades 20a and 22a continuously exert pressure against each other at their point of contact while the two shredders 20 and 22 are rotating.

A plurality of strippers 24, shaped as shown in FIG. 3, are positioned between the blades of shredder 20 and a similar plurality of strippers 26 are positioned between the individual blades of shredder 22. Strippers 24 and 26 may be made of nylon and function to prevent paper which is being fed through the blades from being wound around the axles of the shredders. The strippers are retained by engagement with lips 32 and 34 extending inwardly from casing 19, with each stripper enveloping a portion of a corresponding spacer 20' or 22'.

The shredders 20 and 22 are driven by a motor 30 and suitable reduction gears 28 mounted in a conventional way within metal casing 19.

The cover 12 includes a downwardly extending paper chute 40 integrally formed with the cover and adapted to pass the paper to be shredded into the nip of the shredders. An overhang 42 at one end of the cover includes a fixed retainer portion 44 which is adapted to rest on an upper edge of a wastepaper basket or the like. A second retainer portion 46 is mounted on metal slides 48 and 50 which are received within tracks 52 and 54, respectively, within the cover 12. This arrangement permits the second retainer portion 46 to be moved relative to the fixed retainer portion 44 to accommodate wastepaper baskets of varying widths.

Approximately at the center of the paper chute 40, a sensing wire 56 is mounted so that it will be moved by a piece of paper inserted through the chute. The sensing wire, when depressed, actuates a miniature snap-action switch 58, suitably secured within cover 12, by means of the switch actuator 60. The contacts (not shown) of switch 58 are connected in the electric circuit of the motor 30 so that when the sensing wire 56 causes the switch 58 to be actuated, the motor operates, thus providing automatic operation in response to insertion of a document into paper chute 40. Wire 56 may be pinned at 59 to a bracket 61 in which switch 58 is mounted.

The invention also provides special means for preventing operation of the shredders when cover 12 is opened. The purpose of this is to prevent inadvertent operation which possibly could result in injury to the user. This protection circuit includes an interlock switch 62 also mounted on the interior surface of cover 12 and including an actuator 66. An L-shaped strip 67 is secured to housing 10 and contacts actuator 66 when the cover 12 is closed. The switch 62 may include normally open contacts connected in series with the motor so that the motor cannot be operated until the actuator 66 has been depressed.

An override switch 68 may be mounted on the overhang 42 of cover 12, with the switch actuator 69 accessible to the user. The override switch 68 overrides the automatic switch 58 when it is in the "off" position to prevent operation of the shredder. In the "automatic" switch position, operation of the device is as described above.

The construction as described is economical and simple to construct. The hinged cover is advantageous in that it facilitates cleaning, while the arrangement of the retainer portions materially increases the versatility of the device.

What is claimed is:

1. A paper shredder comprising  
a housing,  
rotatable shredder blades mounted in said housing,  
an upper cover member hingedly connected to said  
housing, said cover including a paper chute for  
feeding paper to said shredder blades, one end of  
said cover member including a retaining portion  
adapted to rest on a refuse basket or the like, the  
other end of said cover member including a slide  
having a second retaining portion thereon, and  
means cooperating with said housing and cover  
member for securing said cover member to said  
housing.
2. A paper shredder comprising  
a housing,  
rotatable shredder blades mounted in said housing,  
an upper cover member hingedly connected to said  
housing, said cover including a paper chute for  
feeding paper to said shredder blades, one end of  
said cover member including a retaining portion  
adapted to rest on a refuse basket or the like, the  
other end of said cover member including a slide  
having a second retaining portion thereon, means  
cooperating with said housing and cover member  
for securing said cover member to said housing, a  
motor for driving said shredder blades,  
a switch for enabling said motor and a sensing wire  
for actuating said switch, said sensing wire being

positioned across said chute.

3. A paper shredder comprising  
a housing,  
rotatable shredder blades mounted in said housing,  
an upper cover member hingedly connected to said  
housing, said cover including a paper chute for  
feeding paper to said shredder blades, one end of  
said cover member including a retaining portion  
adapted to rest on a refuse basket or the like, the  
other end of said cover member including a slide  
having a second retaining portion thereon, means  
cooperating with said housing and cover member  
for securing said cover member to said housing, a  
motor for driving said shredder blades, a first  
switch for enabling said motor, a sensing wire for  
actuating said first switch, said sensing wire being  
positioned across said chute and a safety switch for  
enabling said motor only when the cover member  
is closed.
4. A paper shredder comprising  
a housing,  
rotatable shredder blades mounted in said housing,  
an upper cover member hingedly connected to said  
housing, said cover including a paper chute for  
feeding paper to said shredder blades, one end of  
said cover member including a retaining portion  
adapted to rest on a refuse basket or the like, the  
other end of said cover member including a slide  
having a second retaining portion thereon, means  
cooperating with said housing and cover member  
for securing said member to said housing, said  
shredder blades including a plurality of disks and  
paper strippers positioned between adjacent disks  
for stripping the paper from the disks.

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