June 15, 1965 J. E. O'CONNOR 3,189,286

DOCUMENT DISINTEGRATING MECHANISM

Filed April 5, 1963 4 Sheets-Sheet 1

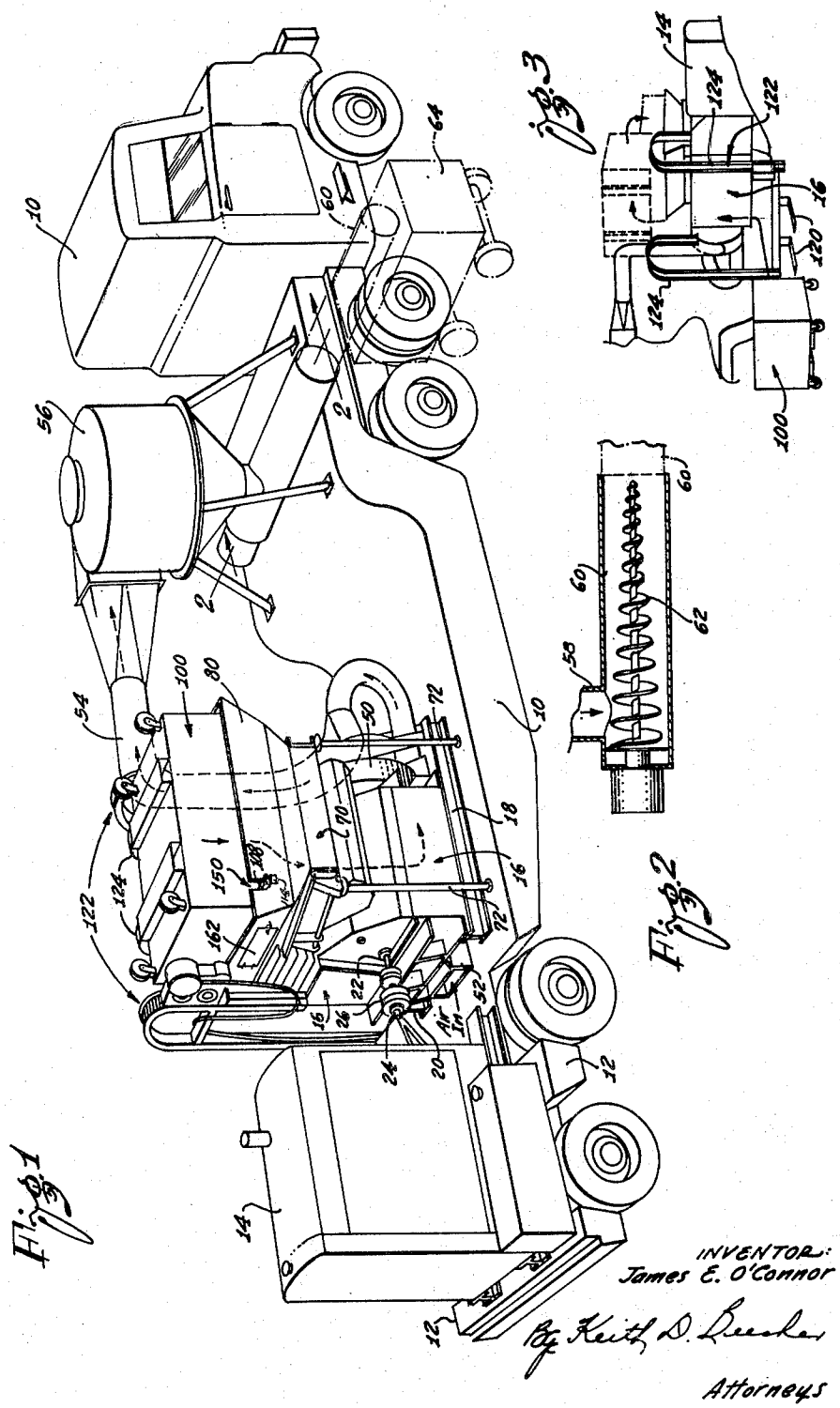


Fig. 1

Fig. 3

Fig. 2

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DOCUMENT DISINTEGRATING MECHANISM

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Fig. 4

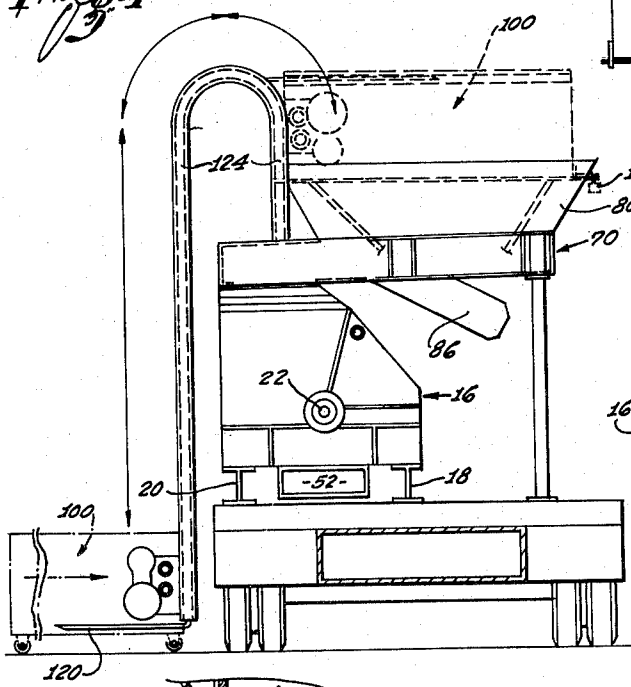


Fig. 5

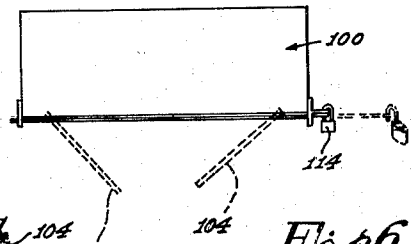
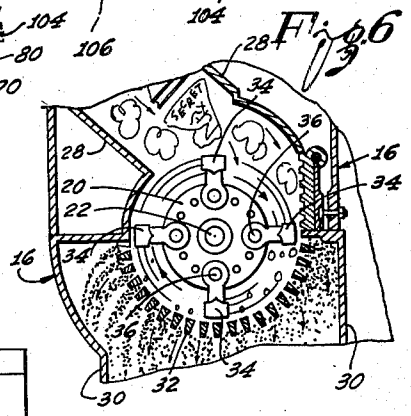


Fig. 6



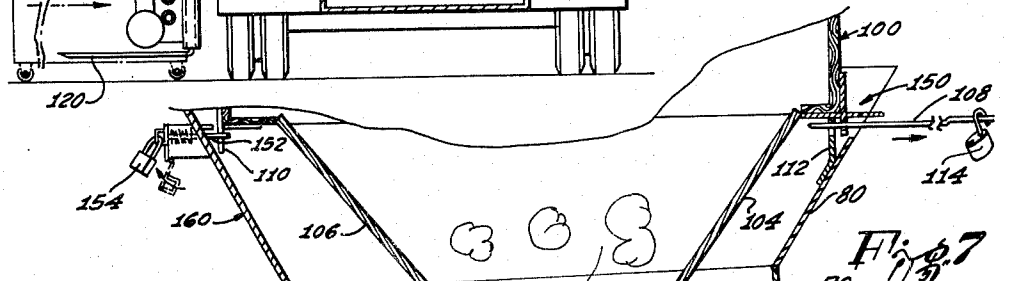


Fig. 7

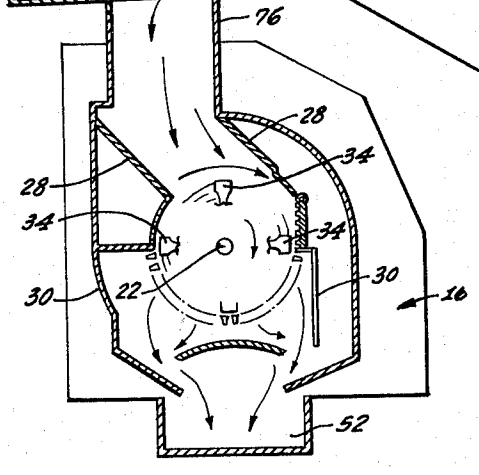
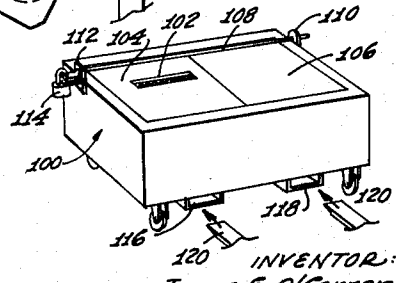


Fig. 8



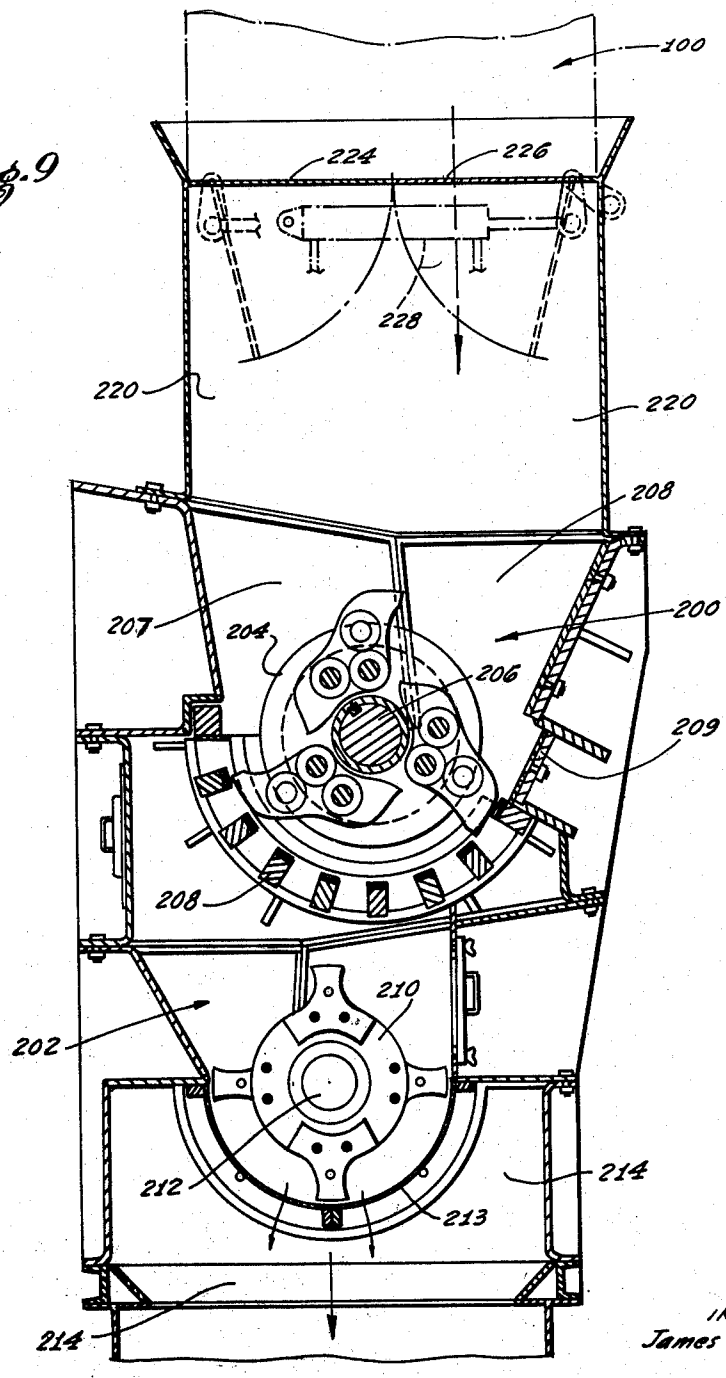
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DOCUMENT DISINTEGRATING MECHANISM

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Fig. 9



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DOCUMENT DISINTEGRATING MECHANISM

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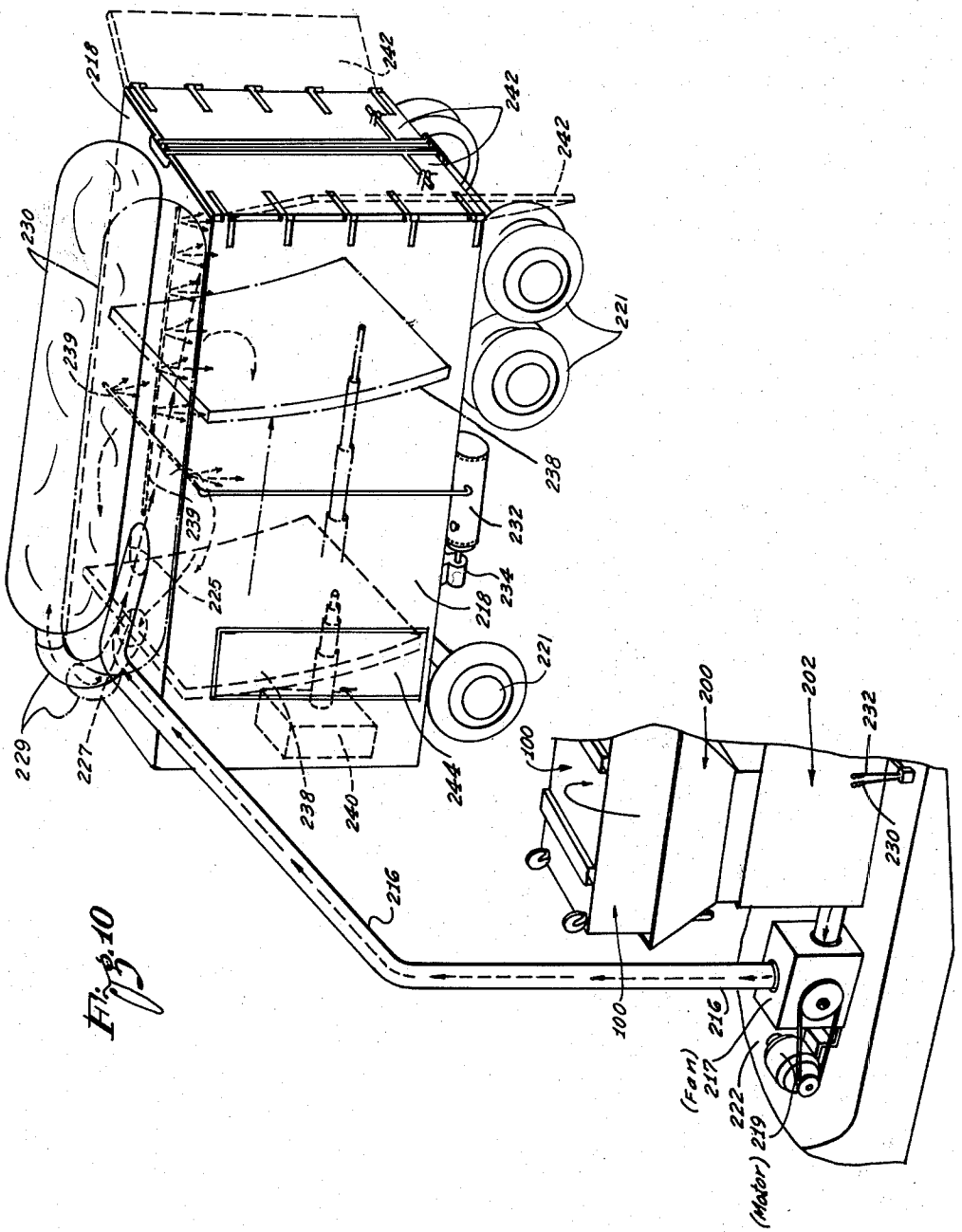


Fig. 10

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United States Patent Office 3,189,286 Patented June 15, 1965

3,189,286

DOCUMENT DISINTEGRATING MECHANISM

James E. O'Connor, Los Angeles, Calif., assignor to Document Disintegration, Inc., Los Angeles, Calif., a corporation of California

Filed Apr. 5, 1963, Ser. No. 285,162
11 Claims. (Cl. 241—186)

The present invention relates to disposal apparatus, and it relates more particularly to disposal apparatus especially suited for destroying, disintegrating and disposing of classified documents and similar material, after the material has served its intended purpose.

This application is a continuation-in-part of copending application 173,931, filed February 19, 1962, entitled "Document Disintegrating Mechanism," the copending application having been allowed to become abandoned.

It is usual in the United States, and in other countries, to classify all documents, books, reports, proposals, drawings, or other material affecting the defense of the country. This material has several degrees of classification ranging, for example, from "confidential" to "top secret."

The destruction of classified material once it has served its purpose has long presented a serious security problem. It is evident that, in each instance, every precaution must be made to assure that the particular document to be destroyed is, in fact destroyed, and that the document does not fall into the hands of unauthorized persons. It is also evident that practical economics presents a serious factor in providing adequate supervision by security officers, especially where large quantities of classified material are to be destroyed on a daily basis, as is the case in many of the larger defense facilities and in the plants of the larger firms with extensive Government contracts.

A usual procedure in the past has been to burn the classified material to be destroyed. This has involved, however, elaborate systems for gathering the material, taking the material to a central burning point, and supervising the burning of the material.

The operations involved in providing for the routine burning of classified material have proven to be most expensive in that they require a relatively large number of security officers for relatively long periods of time. Also, difficulties have been encountered in providing suitable central burning plants which are capable of adequately performing their intended function without creating a smoke nuisance in the surrounding neighborhood.

Because of the difficulties encountered in burning classified material which is to be destroyed, the Department of Defense has recently authorized other procedures for the destruction of classified documents. These latter procedures involve either pulping the material, or milling the material by hammer mill mechanisms.

The pulping procedures have proven to be relatively slow and cumbersome. These procedures involve feeding the classified papers into a large vat and mixing them with water until they are formed into an undistinguishable pulp. As noted, the pulping procedures are relatively slow, and require close and lengthy supervision to assure that all the papers fed into the pulping vat are fully and completely destroyed.

The milling procedure appears to be the most feasible. However, this procedure also in the past has created problems in that complicated security measures were previously considered necessary to supervise the feeding of the papers into the milling mechanism, and of assuring that the papers are fully and completely destroyed in the mechanism.

An object of the present invention is to provide apparatus for destroying and disposing of classified material by mechanical means, which apparatus operates on a "closed system" principle so as to require a minimum of security

supervision, and by which the violation of security or the unauthorized removal of the documents from the mechanism is positively prevented.

Another object is to provide such improved apparatus which absolutely assures that all documents fed to the mechanism will be completely destroyed, and which is constructed so that when a document is deposited into the system incorporating the apparatus, the document is confined in closed chambers and conduits until it is ultimately destroyed.

Another object is to provide such improved apparatus which may be constructed as a self-contained unit to be transported from point to point and thereby facilitate the disposal of classified material throughout an entire area without any need of transporting the material to a central point for destruction.

In the practice of the invention, as exemplified in the embodiment to be described, the disposal apparatus of the invention is mounted on a trailer truck to be transported, for example, from plant to plant, and from point to point within a plant.

The apparatus of the invention is constructed to receive, for example, locked wheeled bins which have slots to receive the classified material at originating locations. These bins are normally positioned at different points in the particular plant, and are chain locked, for example, to appropriate posts, or the like, at these areas to prevent their unauthorized removal.

When the bins are so positioned around the plant, all classified documents to be destroyed may be deposited in them through appropriate slots. The mobile unit incorporating the apparatus of the embodiment of the invention to be described then makes scheduled visits to the plant. Prior to such a scheduled visit, a security officer removes all the bins from their normal points and wheels them, still locked, to a chosen area. This chosen area, for example, may be just within the gates of the plant, so that the gate guard may be charged with the duty of supervising the destruction of the classified documents. It will be appreciated as the present description proceeds, that a single security officer is capable of wheeling all the locked bins to the chosen area, and the intermittent attention only of the gate guard is required in the actual destruction of the material.

Upon the arrival of the mobile unit incorporating the apparatus of the invention, each locked bin is moved up (in its locked condition) into an enclosed, locked feeding position in the apparatus. The gate guard then unlocks the cover of the particular bin, without removing the bin from its enclosed locked feeding position. After unlocking the cover of the bin, the gate guard can return to his normal duties. When the cover of the bin is unlocked, it opens and the material in the bin flows down a closed conduit in the apparatus to be completely destroyed. When the destruction process is completed, the gate guard returns to unlock the empty bin from the apparatus, and to supervise the movement of a second locked bin into position on the apparatus, in the manner described above.

As will become more evident as the description proceeds, the entire destruction of the classified material of a large plant may be carried out under the supervision of a first security officer whose duties involve moving the bins to the chosen area, and under the intermittent supervision of the gate guard whose duty involves unlocking the bins on the apparatus, and subsequently unlocking the unloaded bins from the apparatus.

An important feature of the present invention, therefore, is the saving in time and numbers of security officers. This saving is realized by the fact that once a document is inserted into one of the bins referred to above, the document follows a path to its ultimate destruction which

is completely enclosed and which is not susceptible to security violation.

Other features and advantages of the invention will become apparent from a consideration of the following specification in conjunction with the accompanying drawings, in which:

FIGURE 1 shows a mobile unit incorporating apparatus constructed in accordance with one embodiment of the invention;

FIGURE 2 is a fragmentary sectional view, substantially on the line 2—2 of FIGURE 1, and showing the details of a helical outlet feeding mechanism included in the apparatus;

FIGURE 3 is a fragmentary perspective view of the apparatus of FIGURE 1, taken from the rear of the view of FIGURE 1 and showing a portion of the apparatus on a reduced scale;

FIGURE 4 is an end elevational view of the apparatus of FIGURE 1, but with one of the components of the apparatus of FIGURE 1 removed, for purposes of clarity;

FIGURE 5 is a fragmentary view showing the manner in which a bin containing classified material is held in place on top of the apparatus, so that its material may be fed into the apparatus to be destroyed;

FIGURE 6 is a fragmentary sectional view showing the details of the milling component of the apparatus;

FIGURE 7 is also a fragmentary sectional view, showing the manner in which the material is fed through a closed conduit and conveyor to the milling component of the apparatus;

FIGURE 8 is a top perspective view of a bin containing classified material, the bin being illustrated in its locked position, and ready to be elevated to the top of the apparatus of the invention;

FIGURE 9 is a fragmentary sectional view of a modified embodiment of the invention; and

FIGURE 10 is a perspective view of other components of the modified embodiment of FIGURE 9.

As illustrated in FIGURE 1, for example, the embodiment of the invention disclosed herein is mounted on a trailer truck 10. The trailer truck has an additional trailer 12 coupled to it, and the trailer 12 supports a diesel, or other type of engine, 14 of usual construction.

The apparatus of the invention includes a milling mechanism 16 which is mounted on a pair of I-beams 18 and 20 on the bed of the trailer truck 10. The milling mechanism 18 may be a hammer mill of the type, for example, presently manufactured by the Williams Patent Crusher and Pulverizer Co., Inc. of St. Louis, Missouri.

The milling mechanism includes a rotor 20 which is mounted on a central shaft 22. The central shaft 22 is suitably journalled, and it is driven by the drive shaft 24 of the diesel engine 14. The shaft 24 is coupled to the shaft 22 by suitable couplings 26, as illustrated in FIGURE 1.

The milling mechanism includes a conduit 28 which defines an inlet for the mechanism, through which the material to be destroyed is fed. The mechanism also includes a conduit 30 which defines the outlet from the milling mechanism, and through which the material from the mechanism is fed. A grate 32 (FIGURE 6) is positioned at the entrance of the outlet. This grate has an arcuate configuration, as shown in FIGURE 6, and it is formed of a series of parallel grate bars which are positioned to define predetermined openings between each adjacent bar.

The rotor 20 of the milling mechanism includes a plurality of hammers, or crushers, 34. These hammers are pivotally mounted on the rotor 20 by means of corresponding suspension bolts 36. The action is such that as the rotor 20 is rotated by the shaft 22, the hammers 34 crush the material fed into the mechanism against the grate 32 and cause the resulting pulverized material to pass through the outlet defined by the conduit 30. The resulting material passing through the outlet has a fluffy constituency and any resemblance to the original material is completely removed, and any printed matter is completely obliterated.

The drive shaft 22 also drives a fan 50 (FIGURE 1). The fan 50 may be of any suitable construction, and it is mounted at one end of the milling mechanism 16. The fan serves to draw air in through an inlet formed by a conduit 52 and past the outlet formed by the conduit 30 (FIGURE 7) to an outlet tube 54. The fan serves to draw the material through the conduit 30 from the milling mechanism 16 and to feed the material into a tank 56. The tank 56 is mounted on the forward end of the bed of the truck 10, as illustrated in FIGURE 1.

The lower end of the tank 56 is coupled to an outlet tube 58 which, in turn, is coupled to a tubular conveyor housing 60. The conveyor housing 60 extends across the bed of the truck 10, and it can be moved to an extended position, as shown by the broken lines in FIGURE 1. A helical conveyor 62 is mounted in the housing 60, as shown in FIGURE 2. The conveyor 62 is driven by the drive shaft 22 through a suitable coupling, not shown. As shown in FIGURE 2, the helical conveyor 62 is tapered, and this conveyor serves to compress the fluffy material from the tank 56, and to force the compressed material out through the end of the extended tube 60. The resulting material may be loaded into any appropriate vehicle, such as the cart 64. A suitable clutch mechanism may be included in the coupling between the shaft 22 and the conveyor 62, so that the conveyor 62 is driven only when it is desired to unload the material in the tank 56.

The illustrated embodiment of the invention also utilizes a vibratory feeder 70 which is mounted on posts 72 on the bed of the truck 10. The vibratory feeder 70 includes a trough 74 which has an open top for receiving material, and which discharges the material from its left hand end in FIGURE 7. The left hand end of the trough 74 is coupled by a conduit 76 to the inlet, defined by the conduit 28, of the milling mechanism 16.

A hopper 80 is mounted on the upper end of the trough 74. As best shown in FIGURES 1, 4 and 7, this hopper has a rectangular configuration in cross-section, and it has walls which slope inwardly from the top to the bottom.

The trough 74 may be inclined slightly towards the conduit 76, and the trough is driven by a suitable drive mechanism 86. The drive mechanism 86 produces a vibratory rectilinear movement to the trough 74 in a direction to the left and right in FIGURE 7. The vibratory conveyor or feeder 70 may be of the type manufactured and sold by the General Kinematics Corp. of Barrington, Illinois.

The classified material to be destroyed by the mechanism of the invention is deposited in a bin 100 (FIGURE 8). This bin, and others like it, as described above, are placed in different positions around the particular plant. The classified material to be ultimately destroyed is deposited in the bins through a slot 102. The slot 102, as shown in FIGURE 8, is formed in one of two hinged covers 104 and 106.

The bin 100 is held locked by means of a bar 108 which extends through a pair of brackets 110 and 112 and which is held in place by a padlock 114. The padlock 114 may be a usual security approved padlock, and can be unlocked only by a qualified security officer.

A pair of channels 116 and 118 are mounted on the bottom of the bin 100, and these channels receive the forks 120 of a hydraulic lift 122. The hydraulic lift 122 forms a component of the apparatus and mechanism of the invention. This lift may have any usual and known construction, and it is mounted adjacent one side of the milling mechanism 16.

The hydraulic lift 122 includes a pair of guides 124 which support respective movable chains. The movable chains are driven by controlled hydraulic means to move

the forks 120 from a lower position shown in FIGURE 4 to an upper position shown in FIGURE 1. The guides 124 are shaped to have an upper arcuate configuration, so that the lift 122 is capable of lifting the bin 100 from the position shown in FIGURES 3 and 4 up to the position shown in FIGURE 1.

When the bin 100 is in the position shown in FIGURE 1, it is held in an inverted position over the top of the hopper 80. The hopper 80 includes a notch 150 (FIGURES 1 and 7) which receives the end of the locking bar 108, so that the padlock 114 is positioned outside of the hopper 80.

The security officer may now unlock the padlock 114 and remove the bar 108. When the bar 108 is removed, a spring-loaded plunger 152 on the hopper 80 enters into the bracket 110 of the bin 10, as shown in FIGURE 7. This plunger may be locked in place by a padlock 154. The padlock 154 may also be a security padlock, and it is locked in place by the security officer after he unlocks the padlock 114 and removes the bar 108. The locked plunger 152 serves to lock the bin 100 in its inverted position over the hopper 80.

When the bin is in its inverted position, and after the bar 108 has been removed, the cover members 104 and 106 open downwardly, as shown in FIGURE 7. This permits the material in the bin 100 to drop down into the trough 74 of the vibratory feeder 70. It will be appreciated that the system is entirely closed and locked. That is, the bin 100 remains locked by the padlock 114 and locking bar 108 until it is in position over the top of the feeder 80. Then, the unlocking of the padlock 114 and removal of the bar 108 permits the bin 100 to open into an enclosed housing which is inaccessible from the exterior. Also, the locking of the padlock 154 causes the bin 100 to be securely locked on the hopper 80.

A glass covered inspection window 160 (FIGURE 7) may be provided in the side of the hopper 80 to enable the security officer to determine whether or not the material in the mechanism has been in fact completely destroyed. This inspection window may be normally covered by a door 162 (FIGURE 1), which is normally locked closed by a security padlock. The door 162 may be opened only by a security officer, to permit the desired visual inspection. Other similar windows may be provided at other parts of the apparatus, such as in the side of the actual milling mechanism 16 itself.

As described above, in the practice of the invention, the mobile unit of FIGURE 1 makes a scheduled stop at a particular plant. Prior to this scheduled stop, a plurality of bins, such as the bin 100 of FIGURE 8 are gathered by a security officer and brought to a designated area. As noted, this designated area may be just inside the main gate of the plant, and under the observation of the gate guard. The mobile unit then enters the gate, and the bins 100 are successively lifted into position so that their contents may be loaded into the apparatus.

As each bin is lifted into the position of FIGURE 1, the gate guard unlocks the padlock 114 and removes the locking bar 108. He then locks the padlock 154 to assure that the bin 100 is locked in place on top of the hopper 80. The mechanism is then started, and the material in the bin 100 is completely pulverized and fed to the tank 56. At the completion of the operation, the gate guard is signalled, and he makes a visual inspection through the window 160. He then unlocks the padlock 154, and the empty bin 100 is removed. The procedure is then repeated for each successive bin.

At the completion of the operation, the mobile unit 10 may depart for the next plant. Whenever the tank 56 becomes full, it may be unloaded in the described manner into any suitable conveyor, such as the vehicle 64.

The embodiment of the invention shown in FIGURES 9 and 10 also utilizes many of the components described above, and such components are not, for the most part, repeated in FIGURES 9 and 10. As will be described, the latter embodiment may be loaded in the manner described above in conjunction with the embodiment of FIGURES 1–8.

The embodiment of the invention shown in FIGURES 9 and 10 includes a pair of milling mechanisms 200 and 202 which are mounted on top of one another, as shown in FIGURE 9. The milling mechanism 200 is relatively large and it may be designated as the "primary" mill; whereas the milling mechanism 202 is relatively small, and it may be designated as the "secondary" mill. These milling mechanisms may be of the above-described hammer mill type manufactured by the above-mentioned Williams Company.

The purpose of the provision of two milling mechanisms in the embodiment of FIGURES 9 and 10 is to enable the apparatus to handle material of all shapes and sizes, and which normally would have a tendency to plug the secondary mill. The primary mill 200 acts on the incoming material and reduces it to a size which can be conveniently handled by the secondary mill 202. The secondary mill then acts on the material from the primary mill and reduces it to the final desired fluffy constituency.

The primary mill 200 includes a rotor 204 which is mounted on a control shaft 206. The control shaft 206 is suitably journaled, and it is driven by an appropriate drive engine, like the diesel engine 14 of FIGURE 1. The control shaft 206 serves to drive the rotor 204 in a clockwise direction insofar as the view of FIGURE 9 is concerned.

A conduit 207 defines the inlet mouth to the primary milling mechanism 200. An inspection door 209 may be mounted in the conduit 207. A grating 208 is interposed between the outlet of the primary mill 200 and the inlet of the secondary mill 202, and this grating determines the size of the material to be fed from the primary mill into the secondary mill.

The secondary milling mechanism 202 includes a rotor 210 which is mounted on a drive shaft 212. The drive shaft 212 is driven, together with the drive shaft 206, from a suitable drive engine, such as the diesel engine 14 referred to above. The rotor 210 is also driven in a clockwise direction as seen in the view in FIGURE 9.

The outlet of the secondary milling mechanism 202 is coupled to an outlet conduit 214 which, in turn, is coupled to a feed-line 216 (FIGURE 10). A screen 213 is positioned across the outlet of the secondary mill to determine the constituency of the fluffy material fed to the outlet conduit 214.

The feed-line 216 extends to a separate unit 218 (FIGURE 10) which is in the form of a large housing mounted on a wheeled trailer, for example, and which will be described in detail subsequently. In the practice of the second embodiment of the invention, the mechanism of FIGURE 9 and the drive engine are both mounted on a truck, such as shown in FIGURE 1, and the trailer of FIGURE 10 is coupled behind the truck so as to provide mobility for the equipment.

The mechanism of FIGURES 9 and 10 also includes a fan 217 which is interposed in the feed-line 216, and which may be similar to the fan described above in conjunction with the previous embodiment. This fan serves to draw the material through the primary and secondary mills 200 and 202, and to discharge the resulting fluffy material through the feed-line 216 into the housing 218. The fan 217 is driven by a separate motor 219. This motor may, for example, be a four cylinder gasoline engine of about 42 horsepower. A clutch, not shown, may also be provided so as to control the flow of fluff through the line 116. The motor 219 drives the fan 217 at, for example, 2100 r.p.m., and the mills are driven at, for example, 1950 r.p.m., so as to assure ample flow of air. This separate and independent drive of the fan is advantageous in that when the main diesel is caused to

lose speed in the presence of large loads dumped into the mechanism, the air flow through the mills does not drop also but continues at a relatively high rate.

An open-ended chute, or hopper, 220 is mounted on top of the primary milling mechanism 200 and over the inlet conduit 207 of that mechanism. The upper end of the chute 220 has a pair of doors 224 and 226. These doors are hinged to the sides of the chute and, when closed, extend across the top of the chute to close the chute. The doors are hinged so that they may open downwardly, as shown in FIGURE 9.

The doors 224 and 226 are hydraulically controlled by suitable hydraulic mechanisms, such as the mechanisms 228 shown in FIGURE 9. Each door may be individually opened or closed by the actuation of its hydraulic mechanism. This actuation may be controlled, for example, by a pair of hand levers 230, 232 (FIGURE 10).

A bin, such as the bin 100, may be placed, top down, over the top of the chute 220. This placement of the bin in position over the top of the chute 220 may be carried out by a mechanism similar to the elevator mechanism illustrated in the previous embodiment and described in conjunction therewith.

However, in the embodiment of FIGURES 9 and 10, when the doors of the bin are unlocked by the security officer, they are not free to open, as in the previous embodiment. Instead, the doors of the bin are held closed by the doors 224 and 226. The actuation of the doors 224 and 226 provides a control for the feed of the material from the bin into the apparatus.

The embodiment of FIGURES 9 and 10 is advantageous in that it is capable of handling loads from the bins 100 quickly and efficiently, and without any likelihood of jamming the mills due to sudden excessive loads. During the operation of the apparatus, whenever the speed of the mills drops below a particular threshold, thereby indicating an excessive load of material in the mills, the hand levers 230 and 232 can be operated to close the doors 224 and 226 and thereby close the doors of the bins. This serves to reduce, or cut off, the loading of the apparatus until the work in process has been passed to the outlet, as indicated by the restoration of the normal speed of the mills.

It is evident that the control described in the preceding paragraph can be made automatic. In such an event, the levers 230 and 232 would be controlled by a mechanism which responds to decreases in speed of the mills to close the doors 224 and 226, and which then causes the doors to open as the speed returns to normal.

As mentioned above, the provision of the large primary milling mechanism 200 and of the smaller secondary milling mechanism 202 enables the embodiment shown in FIGURES 9 and 10 to handle a wide variety of loads from the bin 200 without clogging or jamming. These loads may include, for example, thick books, stapled stacks of paper or blueprints, and so on. This flexibility in the handling capabilities of the latter embodiment are most desirable because security reasons prohibit the operator from examining the contents of any particular bin before such contents are fed into the apparatus.

The large area direct channel openings through the chute 220 directly into the mouth of the primary mill 200 assure that large pieces of material will be fed to the mill without clogging the entrance. Then, and as mentioned above, the primary mill grinds the material fed to it into smaller pieces which are fed to the secondary mill which, in turn, reduces them to the desired fluffy constituency.

The illustrated apparatus of FIGURES 9 and 10 is capable, therefore, of handling material of a large range of shapes and sizes. As mentioned, the primary milling mechanism 200 mills all the material down to a size which will pass through the grating 208. This reduces the material to the capabilities of the secondary mill 202. The secondary mill then mills the pieces from the primary mill down to a fluffy constituency which may be drawn by the fan down through the screen 213 and into the conduit 214.

As mentioned, the fluffy material from the secondary mill 202 is then blown through the feed-line 216 into the interior of the housing 218. As also mentioned, the housing 218 is mounted on wheels 221, so as to constitute a trailer which may be coupled onto the back of the truck supporting the apparatus of FIGURE 9. A fragmentary portion 222 of the truck is shown, for example, in FIGURE 10.

As illustrated, the housing 218 has a large rectangular configuration. The fluffy material from the feed-line 216 is blown into the housing through aperture 225 in the roof of the housing. The fluffy material so blown into the housing has a tendency to drift back towards the rear. The air stream passes through an outlet port 227 and through a pair of feed-lines 229 into a pair of porous collapsible filter dust bags 230. The dust bags 230 may be removed from time to time for cleaning purposes. These dust bags serve to prevent fine dust from settling around the adjacent territory during the operation of the apparatus.

The trailer also includes a water tank 232 which is mounted under the housing 218. An associated pump 234 pumps water from the tank 232 up through an exterior water line 236 and into an interior sprinkling system 239. The interior sprinkling system causes water to be sprayed in the interior of the housing 218 to settle the dust, and this serves to eliminate any danger of explosion.

A hydraulically operated blade 238 is mounted within the housing 208, and it extends across the interior of the housing. The blade 238 is movable from the left-hand end of the housing to the right-hand end by an appropriate hydraulic ram 240. The ram is operated by suitable controls.

From time to time during the operation of the apparatus, and after a predetermined number of loads, for example, the loading of the fluffy material into the housing 218 is discontinued for a time, and the blade 238 is operated by the ram 240 to compress the fluffy material already in the housing. During this operation, the blade 238 is moved by the ram 240 from the left-hand end of the housing 218 to the right-hand end and the material is compressed against the back of the housing. The blade is then returned to the left-hand end of the housing, and the next load of fluffy material is blown into the housing. This operation is continued until the housing 218 is filled with compressed fluffy material.

A pair of hinged doors 242 are provided on the back of the housing 218. To unload the housing, it is merely necessary to open the doors 242, and then to cause the ram 240 to move the blade 238 towards the open back of the housing. This action causes the compressed material to be discharged out the open back.

An inspection door 244 may be provided in the side of the housing. This inspection door is positioned, for example, towards the left-hand end of the housing.

The invention provides, therefore, an improved apparatus for destroying classified material. As described above, the apparatus of the invention operates on the basis of an entirely closed system, so that the requirement for security personnel is reduced to a miminum, and the entire operation may be supervised, for example, by a single security officer. Moreover, the presence of the security officer is not required continuously, but only when a new bin is to be fed into the mechanism.

While particular embodiments of the invention have been shown and described, modifications may be made. It is intended in the following claims to cover all the modifications which fall within the spirt and scope of the invention.

What is claimed is:

1. Disposal apparatus for material such as papers, documents and the like, including: a milling mechanism, a housing for enclosing said milling mechanism and hav-

ing an outlet for discharging milled material from said mechanism and having an inlet at the top thereof for receiving material to be fed to said milling mechanism, a receptacle having a lockable hinged cover means for containing such material, said housing defining a supporting means around said inlet for receiving and supporting said receptacle, means mounted on said housing for raising said receptacle to the top of said housing and for positioning said receptacle on said supporting means over said inlet, locking means for retaining said receptacle on said supporting means until released by the unlocking of said locking means, said supporting means being shaped to permit the hinged cover means to be unlocked and opened while the receptacle is in the position on said supporting means, and means enclosed in said housing and inaccessible from the exterior thereof for feeding the material from the so opened receptacle on said supporting means to said milling mechanism.

2. The disposal apparatus of claim 1 and which includes fan means for drawing the milled material through said outlet.

3. The apparatus defined in claim 1 and which includes a further housing for receiving the material from said milling mechanism, a feed-line coupling said outlet to said further housing, and a movable member positioned in said further housing for compressing the material in said further housing.

4. Disposal apparatus for material such as papers, documents and the like, including: a milling mechanism, a motor including a drive shaft coupled to said milling mechanism for driving the same, a housing enclosing said milling mechanism and having an outlet for discharging milled material from said mechanism, a fan means mounted on said drive shaft for drawing the milled material through said outlet, a receptacle having a lockable hinged cover means for containing papers to be fed to the milling mechanism, a locking cross-bar extending across the cover means of said receptacle, locking means for said cross-bar, said housing defining an inlet at the top thereof for receiving papers from said receptacle to be fed to said milling mechanism and defining supporting means around said inlet for receiving and supporting said receptacle in an inverted position, said supporting means having a rim extending around said inlet and shaped to permit the locking means to be unlocked and said locking cross-bar to be removed so that the cover means may open when said receptacle is in the inverted position on said supporting means, elevator means mounted on said housing for raising the receptacle to the top of said housing and for inverting the receptacle into said supporting means within said rim and over said inlet, and means included in said housing and inaccessible from the exterior thereof for feeding the papers from the inverted opened receptacle on said supporting means to said paper milling mechanism.

5. Disposal apparatus for material, such as paper, documents, and the like, including: a first relatively large material-destroying mechanism and a second relatively small material-destroying mechanism mounted on top of one another, said first mechanism reducing the material to a particular size and feeding the reduced material to the second mechanism for further reduction; a housing enclosing said first and second mechanisms having an outlet for discharging destroyed material from said second mechanism and having an inlet for receiving material to be fed to said first mechanism; a receptacle for containing such material having a lockable cover, a chute mounted over the inlet of said housing for receiving said receptacle and for permitting the receptacle to be unlocked and opened so as to discharge material therefrom through said chute to said first mechanism, at least one door mounted in said chute, and a control mechanism coupled to said door to control the feed of materials through said chute from said receptacle to said first mechanism.

6. Disposal apparatus for material, such as papers, documents and the like, including: material destroying means, a housing enclosing said desrtoying means, said housing having an inlet for receiving material to be fed to said destroying means and an outlet for discharging material from said destroying means, a receptacle for containing such material, means mounted adajcent said inlet for receiving said receptacle containing such material in position to permit its contents to be unloaded into said inlet, and means for locking such receptacle in a position on said receiving means such that its contents are inaccessible from the exterior thereof.

7. Disposal apparatus for material such as papers, documents and the like, including: material destroying means, a housing enclosing said destroying means, said housing having an inlet for receiving material to be fed to said destroying means and having an outlet for discharging material from said destroying means, a receptacle for containing such material, means mounted adjacent said inlet for receiving said receptacle containing such material in position to permit its contents to be unloaded into said inlet, means for moving such receptacle into position on said receiving means such that its contents are inaccessible from the exterior thereof, and means for locking the receptacle in said position on said receiving means in which its contents are inaccessible from the exterior thereof.

8. Disposal apparatus for material such as papers, documents and the like, including: mechanical milling means, a housing enclosing said milling means, said housing having an inlet for receiving material to be fed to said milling means and an outlet for discharging material from said milling means, a receptacle for containing such material, means mounted adjacent said inlet for receiving said receptacle containing such material in position to permit its contents to be unloaded into said inlet, means for moving such receptacle into position on said receiving means such that its contents are inaccessible from the exterior thereof, and means for locking such receptacle in said position on said receiving means in which its contents are inaccessible from the exterior thereof.

9. Apparatus for destroying classified papers with a minimum of security supervision, comprising, in combination, a locked paper receptacle having means for controllably discharging its contents, a paper destroying element having a paper receiving inlet neck whose inlet end is arranged to receive and to be closed by said receptacle, means for locking said receptacle in closing relationship to said inlet end of said neck, and means for operating said paper-destroying element to destroy the papers discharged therein from said receptacle.

10. Disposal apparatus for material such as papers, documents and the like, including: a milling mechanism, a housing enclosing said milling mechanism and having an outlet for discharging milled material from said mechanism, said housing defining an inlet at the top thereof for receiving papers from a receptacle to be fed to said milling mechanism and defining a support bracket and rim for holding said receptacle over said inlet, and a locking mechanism including a plunger positioned to extend through a portion of the receptacle mounted on said housing for locking the receptacle on said support bracket.

11. The disposal apparatus defined in claim 10 and which includes an elevator mounted on said housing for moving the receptacle to the top of said housing and onto said support bracket.

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