

## Beverage Cans Crusher Machine Patents: A Review (Part III)

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**Abstract - One of the compulsory tasks for inventors of can crusher machine is to scan all previous designs/inventions. Such work is very hard as well as time consuming. The study here aims at summarizing the inventions for can crusher machines that introduced in the period from 1996 to 1999, e.g., about half a decade. The study introduces a brief summary of inventions with the design layout, however, a detailed description of inventions might be presented in a separate study. A total of 42 patents were covered in the covered time period. It is planned, in the next papers, to present the inventions for other time intervals.**

**Keywords: Patents, Can Crusher Machines, Review, Periods within 1996–1999**

### I. A BRIEF SUMMARY OF CAN CRUSHERS PATENTS

This study is a part of our review studies, see, e.g., [1-4], for can crusher machine patents. The study here is dedicated for reviewing early work within the period from 1996 to 1999, as presented next.

#### 1. Method and Device for Smashing Aluminum Cans, Patent Number: 6000324

A gadget for crushing void aluminum jars that accommodates holding the jars on a level plane on the ground while a vehicle keeps running over the jars so as to crush the jars into a straightened design for reusing. The gadget is included a long, slender support and an adaptable part that is anchored to a best surface of the sponsorship. The adaptable part is shaped into a progression of parallel bended folds for removably holding the jars over the width of the support and in the way of movement of the vehicle. The adaptable folds are versatile and they come back to their unique arrangement after the vehicle has kept running over the gadget, enabling the crushed jars to be expelled from the gadget and the gadget to be reused [5].

#### 2. Automated System for Handling Returned Drink Containers, Patent Number: 5988054

A robotized holder taking care of and preparing framework incorporates a metal compartment taking care of subsystem and a plastic compartment taking care of subsystem. Every holder subsystem incorporates a roller transport for passing on a majority of expansive canisters conveying squashed compartments got from turn around candy machines. A computerized dumping station gets and transforms the canisters consecutively to dump the pressed holders into a focal container, at that point sends the receptacles to a

washer which cleans the canisters for reuse. A different belt transport gets holders which don't require distinguishing proof or bookkeeping and passes on them to the focal container. A second belt transport which additionally prompts the focal container gets compartments from at least one arranging machines which process non-pressed holders from non-RV machine return focuses [6].

#### 3. Automatic Aluminum Can Crusher, Patent Number: 5967029

Another programmed aluminum can crusher for compacting aluminum jars for transfer incorporates an upper lodging contained a first compartment and a second compartment. The primary compartment has an open upper end with a cover hingedly coupled thereto. The main compartment has an opening through a base thereof. A devastating component is arranged inside the upper lodging. An initiation framework is arranged interiorly of the upper lodging and is in correspondence with the devastating instrument [7].

#### 4. Can Crusher, Patent Number: 5941167

A versatile can compactor of the present creation incorporates lodging, a chamber in the lodging estimated to acknowledge aluminum refreshment jars for compacting. A slam is proportionally determined in the chamber to minimized jars against a front divider or iron block of the chamber. The smash front surface is inclined with respect to the iron block to diminish the measure of power expected to minimized a can. A feed control incorporates a vane which rotates between an opened and a shut position in light of development of the smash to keep a second can from entering the chamber before a first can exits the chamber. The compactor is worked by a passing on push catch switch. The switch is encompassed by a monitor divider which reaches out around a slightest a segment of the push-catch switch. A cut-off switch is shut by a removable feed plate when the feed plate is mounted to the compactor lodging. The compactor accordingly can't be worked without the feed plate mounted to the lodging [8].

#### 5. Container Crusher and Method of Crushing, Patent Number: 5937747

A holder crusher, whereby a compartment is pressed through and through into a minimal flawless frame, to spare additional space in the reject container or to put something

aside to recycle. The crusher has a focal gap or break with cut out sections for compartments with handles. Encompassing the focal gap or break is a sunken region which rests or fits onto the holder just beneath its neck. There is given a different embed to littler estimated holders, which spaces into the focal opening or break. At each finish of the crusher are hand grasps. To pound the holder the crusher is set onto the compartment and the top is expelled. With the two hands, one at each finish of the holds, weight is connected downwards until the point when the compartment is compacted [9].

#### *6. Recycling Machine with Container Compacting System, Patent Number: 5927462*

A reusing machine is given which compacts holders utilizing a multi-reason compacting framework which incorporates a roller get together having a roller arranged to draw compartments through a movable holder accepting throat. The compacting framework additionally incorporates a base plate get together with a versatile base plate which in any event somewhat characterizes the throat, the base plate being mounted for development between a first introduction wherein the base plate is a first foreordained separation from the roller in order to characterize an open compartment accepting throat, and a second introduction wherein the base plate is a second lesser foreordained separation from the roller in order to close the holder getting throat. The throat commonly is shut as the compartment goes between the roller and the base plate to reduced the holder there between [10].

#### *7. Method of Crushing an Oil Filter, Patent Number: 5899141*

An oil channel crusher incorporates an edge, a strung drive screw, and a smash get together, however does exclude any actuator for driving the screw. Or maybe, a first end of the drive screw has a drive make a beeline for which a client may couple a traditional torque, for example, a pneumatic effect torque of the sort normally utilized in car benefit focuses. A push bearing get together couples the second end of the drive screw to the smash gathering. A strung part of the drive fasten connects with a strung opening a segment of the casing. The slam gathering in this manner moves in a hub bearing in light of revolution of the drive screw concerning the edge. Pivoting the drive tighten one bearing pushes it toward the channel to be smashed, and turning it the other way moves it far from the channel [11].

#### *8. Method and Apparatus for Recycling a used Fluid Filter, Patent Number: 5890424*

A strategy and contraption for plying utilized liquid channels having an underlying kneader and a last kneader arranged consequent to the initial kneader. The underlying kneader incorporates a first roller and a second roller arranged on the casing neighboring the main roller at a separation not as much as the distance across of the utilized

liquid channel. The first and second rollers incorporate a bar broadening longitudinally along the edge of every one of the first and second rollers for getting the utilized liquid channel. The second roller pivots quicker than the principal roller and incorporates a high bar broadening longitudinally along the edge of the second roller for shearing without end the channel plate from the channel canister. The last kneader incorporates a fifth roller and a 6th roller on the casing adjoining the fifth roller at a separation not as much as the separation between the main roller and the second roller. The fifth and 6th rollers incorporate a majority of focuses [12].

#### *9. Oil Filter Crusher, Patent Number: 5857407*

An oil channel crusher incorporates a prolonged triangular edge, a strung drive screw, and a smash gathering, however does exclude any actuator for driving the screw. Or maybe, a first end of the drive screw has a drive make a beeline for which a client may couple an ordinary torque, for example, a pneumatic effect torque of the sort normally utilized in car benefit focuses. A push bearing gathering couples the second end of the drive screw to the smash get together. A strung bit of the drive tighten draws in a strung opening a bit of the edge. The slam get together in this manner moves a pivotal way in light of turn of the drive screw regarding the casing. Pivoting the drive sink one bearing pushes it toward the channel to be smashed, and turning it the other way moves it far from the channel [13].

#### *10. Crushing Device, Patent Number: 5848569*

A first edge has a first end and a second end, two contradicting first edge side dividers and a first turn stick broadening along the side between the main casing side dividers at the second end of the primary edge. A by and large planar first obstruction is connected to the main turn stick with the end goal that the primary hindrance is vital about the principal rotate stick. A second edge has an essential end and an optional end, the second casing involving two contradicting second casing side dividers, every one of the second edge side dividers being critically connected at the auxiliary second's end edge to one of the primary casing side dividers at the main end of the principal outline. A second rotate stick broadens along the side between the second edge side dividers between the essential end and the optional end. A for the most part planar second obstruction is joined to the second turn stick with the end goal that the second boundary is urgent about the second rotate stick. The principal boundary and the second hindrance are situated in a restricted way to each other [14].

#### *11. Means and Method for Preparing a Container for Recycling, Patent Number: 5839350*

A press gathering incorporates a pressure driven barrel get together having first and second chambers and particular cylinder and pole congregations in that. The bar of the second gathering is masterminded to enter the principal

chamber and in this manner raise the weight in that. At first, liquid streams into the principal chamber, driving the primary pole to apply a power on a work question. At the point when a foreordained weight is come to inside the barrel, liquid is acquainted with the second chamber, and makes the second bar move into the main chamber, which raises or lifts the weight in the primary chamber [15].

*12. Can crusher and Storage System, Patent Number: 5829348*

A can crusher and capacity framework is given including a cylinder lodging having a first face, a second face, and a fringe shaped there between characterizing an inside space. The cylinder lodging has a delta shaped in the fringe thereof adjoining the main face. A thin rectangular outlet is framed in the outskirts of the cylinder lodging between the channel and the main face and is additionally arranged inverse of and balance from the gulf. Next gave is a cylinder gathering arranged inside the inside space of the cylinder lodging for squashing jars arranged inside the gulf upon the incitation thereof. A control get together is accommodated specifically impelling the cylinder gathering [16].

*13. Cylinder Rupture Vessel, Patent Number: 5826631*

A waste barrel break vessel for discharge and recontainerization of lethal substance of compacted gas chambers is characterized by an encased chamber which suits a majority of bearing surfaces for supporting and situating an objective chamber consequently. A cut spike arranged inside the chamber is adjusted to cut the objective barrel at its waist, along these lines discharging its substance. Associations are furnished speaking with the encased chamber for clearing and recontainerizing the substance discharged by a punctured barrel without arrival of the substance into the earth. The greater part of the chamber handling activities might be given remotely [17].

*14. Automatic Can Smasher, Patent Number: 5819644*

A programmed can smasher having a casing get together with a couple of parallel divert individuals in a separated relationship for getting a can to be crushed. An engine is joined to the underside of the edge get together. The engine drives a plunger arm get together having a responding plunger that packs and crushes the can. A switch mounted on a switch mounting plate is worked when a can is set inside the casing gathering. The switch actuates the engine and the responding plunger. A gap through the casing gathering before the switch mounting plate permits the crushed can to fall through the edge get together. A would receptacle be able to be set over the edge get together for arrangement of a majority of jars and for sustaining the jars each one in turn into the edge get together. At the point when the plunger is withdrawn, one crushed can drops through the gap in the casing get together, the switch is discharged and opened and the following can is permitted to become alright to be crushed [18].

*15. Apparatus for Crushing Containers, Patent Number: 5802968*

A holder squashing mechanical assembly which is especially helpful with plastic refreshment compartments utilizes a stationary presser part, a standing up to versatile presser part, joins which oblige the portable presser part for development along an arcuate way toward and far from the stationary part, and a lever for affecting development of the mobile presser part along the arcuate way. The standing up to surfaces of the presser individuals convey an elastomeric material for grasping the sidewalls of a compartment to be pounded. As the portable presser part is constrained toward the stationary presser part, the sidewalls of the compartment are uprooted toward each other and longitudinally, and the holder base turns toward a position for the most part lined up with the sidewalls. The lever is associated between the presser individuals for expanded power increase as the devastating activity advances [19].

*16. Converging Passage Can Crusher, Patent Number: 5794527*

A can crusher incorporates two perpetual belt gatherings orchestrated nearby each other with the commonly confronting keeps running of said belt congregations being organized to characterize a merging hole therebetween toward movement of the belt so that a can to be smashed sustained into the uniting space is dynamically squashed as it moves between the belts. One of the belt gatherings is vitally mounted in respect to the next with the end goal that the point of intermingling can differ, the transport development being controlled by, for instance, gas-springs [20].

*17. Tidy Can Keeper, Patent Number: 5778773*

A can crusher that is appendable to a waste or reuse holder. The crusher has a mobile bad habit between which the can to be squashed is set. An expanding upright handle is physically worked to move the bad habit and smash the can which at that point ways out to the compartment by means of a regularly trap entryway and a defensive chute. Two rigging racks with bring down camming individuals open the trap entryway as the bad habit presses the can. After, the devastating activity is finished the handle might be physically come back to its unique position to reclose the typically shut trap entryway and allow to pounding of extra jars put in the bad habit [21].

*18. Can Crusher, Patent Number: 5775213*

A can crusher for pounding aluminum jars incorporates an edge part to mount to a structure. A lengthen plate part to hold articles to be pounded is coupled to the edge part. A stretch handle part is crucially coupled to the casing part. A sledge part having a can smashing bit and a space is slidably mounted to the casing part. A roller part vitally coupled to the handle is arranged inside the space. A prevent tab

stretches out from the casing part to position a can specifically between the sledge part and the plate part. As the handle part is moved from a first position towards a second position the can smashing segment of the mallet part is moved towards the plate parcel upper surface to squash a thing, for example, a can arranged between them [22].

*19. Foot Operated Can Crusher, Patent Number: 5765473*

A foot worked gadget for squashing refreshment jars [23].

*20. Trash and Recycling Center, Patent Number: 5718168*

A waste and reusing focus having a particular junk container unit and a secluded reusing repository. The waste repository unit has no less than two inside compartments and a portable cover. A waste pack can be put in one compartment and utilized daily papers can be put away in the other compartment. The reusing repository unit has a best with a can crusher, a void can capacity zone, and a space for saving squashed jars into the inside of the reusing container. The inside of the reusing repository can have numerous racks or capacity draws or, can have a solitary stockpiling receptacle. The reusing container can likewise have a removable ledge reusing unit [24].

*21. Refuse Assembly for Reducing the Size of Deformable Objects, Patent Number: 5713269*

A decline gathering is revealed and which is valuable for decreasing the extent of deformable items. The decline get together incorporates an edge characterizing a way, the path having an admission end, and an inverse, fumes end; a couple of nonstop rotatable belts mounted in merging connection, one to the next, in the way, the match of constant belts incompletely blocking the way, every one of the consistent belts having an upstream end, which is versatily mounted close to the admission end of the way, and a downstream end which is significantly steadily mounted close to the fumes end of the way; and a motor mounted in compel transmitting connection in respect to the separate ceaseless belts to pivot every one of the persistent belts a foreordained way [25].

*22. Can Crusher Device, Patent Number: 5692436*

A can crusher gadget that has a base part with an upper surface associated by linkages to a moveable plate part with a lower planar surface wherein the linkages incorporates levers that interconnect the forward segments of the base and plate individuals and additionally the rearward segments of the base and plate individuals in a parallelogram sort of linkage so that on development of the levers the lower surface of the plate part is kept up in a parallel relationship to the upper surface of the base part amid the devastating activity on the can. The power applied on the can is an endwise descending power along the full longitudinal length of the can [26].

*23. Oil Filter Crushing Apparatus and System, Patent Number: 5678478*

A mechanical assembly to crush spent oil channels for recuperation of spent oil there from, which incorporates a casing which conveys an oil channel smashing chamber, and situated there underneath the edge likewise conveys a water powered activation get together, a vertical pressure driven slam gathering, a lock system, and a wellbeing control circuit [27].

*24. Can Recycling Apparatus, Patent Number: 5671666*

A framework for reusing jars incorporates a lodging adjusted for showing limited time publicizing, a store space for getting the jars and a release framework for giving quick installment to the recyclable jars. The framework fuses a turning drum for accepting the jars and propelling the jars into a course where they are then transported to a crusher for pressure and capacity. A magnet related with the drum keeps up ferrous jars on the drum until the point when they have passed the channel opening for isolating ferrous jars from non-ferrous, recyclable jars [28].

*25. Slot Machine Shaped Can Crushers, Patent Number: 5657688*

A space machine molded can crusher involving: an external case framed as an empty rectangular formed box with an open rooftop, the top of the case including a substantial gap and one sidewall including a roundabout gap, the lower part of the front divider broadening frontwardly there from, the lower parcel including a rectangular molded gap with a by and large rectangular molded removable plate situated in that; and an inward edge contained an on a level plane situated planar floor and two vertically situated planar side sections, a majority of rollers being coupled between the sections, one of the rollers including a majority of image wheels situated there around, a majority of elastic belts being situated around no less than two of the rollers, a majority of drive links being situated around no less than two of the rollers, a handle being operatively coupled to no less than one of the rollers and adjusted to cause rotational development of the rollers when pulled by a client, the moving rollers causing an embedded can [29].

*26. Universal Oil Filter Crusher Adaptor, Patent Number: 5651307*

A pressure gadget connector for compacting disposed of oil channels having a compacting part, which is associated with different sorts of pressure gadgets, for example, a water driven press, by method for a compactor connector. Shaped inside compacting part is an inside deplete channel giving departure of waste oil held inside an oil channel upon weight being connected by activity of a pressure gadget. An oil channel stage obliges oil channel and additionally containing abundance oil and giving waste of same through a deplete port [30].

27. *Recycling/Crushing Apparatus for Cans, Patent Number: 5642661*

A reusing/squashing contraption for jars incorporates an edge lodging having a gulf characterized in an upper end thereof. An encouraging gadget is mounted in the edge lodging and incorporates a discontinuously rotatable pivot, a ratchet wheel mounted on the hub to turn therewith, and a tube shaped wheel mounted on the hub to turn therewith and having a majority of annular breaks characterized in an external fringe thereof to receive jars. A devastating gadget is mounted in the casing lodging and beneath the nourishing gadget and incorporates a settled plate, a portable plate, and a water powered barrel for activating the versatile plate to move in respect to the settled plate between a first, shut position for pressing a can there between and a second, vacant position at which a smashed can will fall. A connecting gadget is interconnected between the versatile plate and the ratchet wheel of the nourishing gadget for asking the ratchet wheel to discontinuously pivot, consequently encouraging a can into the devastating gadget [31].

28. *Automatic Citrus Fruit Juicer, Patent Number: 5628247*

The programmed citrus natural product juicer has a settled casing with an upper stage and a lower stage. A first drum with a vertical pivot is rotatably mounted and activated between the stages and is crossed by gaps for the entry of organic product juice. A second drum with a vertical hub is rotatable whimsically outside the main drum and is given parallel squeezing implies for squeezing its internal surface toward the external surface of the primary drum at a citrus natural product squashing locale. A unit for cutting organic products into two parts is mounted over the drums at an opening of the upper stage gave to permit the natural product parts to drop between the drums with the goal that the cut surfaces of the citrus organic products lean against the surface of the main drum. The lower stage is given a gap for the exit of the natural product juice and with a chute for evacuating the peels of the squashed organic product parts [32].

29. *Device for the Preparation of Used Metal Barrels with a View to Facilitating Handling and Recycling Thereof, Patent Number: 5626042*

A gadget for the preparing of a barrel of which the upper side involves a filling opening arranged in an institutionalized position, this gadget including a handling walled in area fitted with a supporting structure bearing a turning annular part on which the barrel can be arranged, focused and turned about its vertical pivot of symmetry, and with a cleansing gadget containing a cleansing bar that is vertically translatable, this bar being arranged to come into line with the hub of the gap consequent to a revolution of the barrel and to then be embedded inside the barrel by translational movement [33].

30. *Aluminum Can Recycling and Coupon Dispenser Apparatus, Patent Number: 5624018*

Aluminum can reusing and coupon distributor device incorporates a lodging having a front entryway and a can accepting opening on the front of the entryway. Jars fall onto a transport line which transmits or transports the jars to a channel through which aluminum jars tumble to a crusher. Ferrous jars stay on the transport held by attractive components and are pushed off the transport and are disposed of. In the wake of being squashed for reusing, the jars are transported upwardly by a moving air stream to the upper segment of the lodging and the jars fall rearwardly and downwardly to a capacity receptacle where they stay until the point when the canister is transported out of the mechanical assembly. The capacity receptacle might be evacuated flawless and supplanted by another capacity container. The greater part of the dynamic components is anchored to the entryway. The entryway is rotated to evacuate the capacity container containing the pounded jars. Data is shown while the can smashing is being refined and coupons are apportioned in light of client contribution on a keypad [34].

31. *Compacting Method and Apparatus, Particularly Adapted to Compacting Hazardous Materials, Patent Number: 5613433*

A compacting technique and mechanical assembly especially adjusted to compacting perilous materials, and specifically radioactive waste, in which a holder is compacted inside a compacting skirt by participation between a help surface on which the compacting skirt with the compartment is put and a compactor arranged faing the help surface and displaceable along a vertical pivot inside the compacting skirt. As indicated by the compacting technique the compacting skirt containing the holder is moved in interpretation, specifically between a stacking station (I) for stacking the compartment, a compacting station (II) where the holder is compacted, and an unmolding station (III) for unmolding the compacted compartment and for emptying the compacted holder downwards [35].

32. *Recycling Center with Portable Table Top Recycling Receptacle, Patent Number: 5611270*

A junk and reusing focus having a measured waste repository unit and a particular reusing container. The junk container unit has no less than two inside compartments and a versatile cover. A waste pack can be put in one compartment and utilized daily papers can be put away in the other compartment. The reusing container unit has a best with a can crusher, a void can capacity region, and an opening for storing pressed jars into the inside of the reusing repository. The inside of the reusing repository can have numerous racks or capacity draws or, can have a solitary stockpiling canister. The reusing container can likewise have a removable ledge reusing unit [36].

*33. Apparatus for the Decontamination of Containers Containing Radioactive Liquid, Patent Number: 5605094*

A unit for the quick and solid purification of holders containing debase fluids. The mechanical assembly consequently gets, opens, purges, washes and dries the compartments exclusively. The compartments might be arranged as an element of their lingering tainting. The compartments may alternatively be pounded at a temperature at which they are rendered delicate. The holders, regardless of whether uncrushed or pounded, are then put into capacity or waste canisters. The dirty or defiled fluids are gotten by isolated gatherers [37].

*34. Crusher for Metal Cans, Patent Number: 5584239*

A can crusher has a handle that turns about a first pivot. A first plate is settled to the handle. A base plate is mobile along the handle. A pole turns about a second hub in light of rotating of the handle to move the second plate, guided by a bearer, at the primary plate and in this way squash a can between the plates. In a changed epitome, the second plate tilts with respect to the primary plate in two stages as the base plate approaches the best plate [38].

*35. Aluminum Beverage Can Crusher, Patent Number: 5553535*

A non-annoying, stick safe aluminum drink can crusher is unveiled [39].

*36. Apparatus for Crushing and Releasing Articles, Patent Number: 5524533*

A mechanical assembly to crush and discharging articles, for example, metal jars. A settled iron block is mounted on the casing and a smash is mounted for development toward a path toward and far from the blacksmith's iron to pound an article found there between. The articles are encouraged successively to the devastating zone between the blacksmith's iron and smash through a vertical chute. A spring stacked wedge plate expands ostensibly from the smash towards the blacksmith's iron and at first contacts the article middle of the road its length to twist or twist the article to accordingly protect uniform pounding of the article by the slam. A loop spring is mounted on the edge and has a movable finger which extends downwardly into the devastating zone to direct approaching jars encouraged from the chute into the devastating zone, and to encourage arrival of the pressed can in the devastating zone [40].

*37. Beverage Container Compacting Device Having Endless Belts with Puncturing Members, Patent Number: 5522311*

A gadget for compacting void drink holders of metal or plastics is given a significantly wedge framed compartment accepting space. Compactor components subject the compartment to continuously expanding compacting powers

as it travels through the holder accepting space. The compartment is then connected with and punctured by puncturing components as the holder travels through the compartment accepting space. The compactor components incorporate a couple of commonly slanted, helpful unlimited belts of an adaptable material having a compartment engageable front surface and a back side. The connecting with and puncturing components incorporate a majority of metal studs gave in the front surface of every one of the belts along the length thereof [41].

*38. Combination Can Crusher, Juicer and Slicer, Patent Number: 5520105*

A mix can crusher, juicer and slicer having a principle lodging with a vertically flexible cutting sharp edge holder or can holder and a tightened lever adjusted to raise and lower a weight plate into contact with either a can arranged in the holder or a cutting edge held in the holder. Moving the weight plate, which will change contingent upon the task wanted, downwardly against a can arranged in the holder squashes the same. Moving the weight plate downwardly against a mating cutting edge cuts an organic product or vegetable there between. Moving the weight plate downwardly against a mating juicer get together squeezes a vegetable or organic product arranged there between and juices the same [42].

*39. Can Crusher, Patent Number: 5507222*

A can crusher has a removable arm part hingedly associated with a base part, and the arm part has a devastating segment which is gotten in settled design by a can accepting bit on the base part. The devastating segment has an orientation divider with a lip and a majority of swaggers opposite to the bearing divider. The lip reaches out over the swaggers. The base part has a stage cushion so that the can crusher might be either divider mounted or compact. The lip connects with the edge on a holder to be pressed to attentively anchor the compartment between the lip and the base part. This maintains a strategic distance from unplanned launch of the compartment from the can crusher. At the point when the arm part is in the vacant position, the lip is divided from the base part an adequate separation to suit aluminum refreshment jars, steel jars and plastic jugs of basic family unit sizes. The swaggers may likewise be furnished with defensive components to avert undue wear on the devastating segment [43].

*40. Device for Collecting Paper Containers, Patent Number: 5493960*

A gadget for gathering utilized paper compartments is shaped of lodging, and a volume decrease component arranged in the lodging. The volume decrease system squashes the paper holders in a falling section stretching out from a delta port of the lodging to in this way lessen the volume of the paper compartment for proficient gathering. The squashed paper compartment is released to a gathering box [44].

41. *Apparatus for Preparation of Cans for Recycling, Patent Number: 5488899*

A mechanical assembly to prepare jars for reusing which naturally bolsters jars each one in turn into a cleaning station for cleaning and emptying any outstanding deposit out of the jars. Toward the finishing of the cleaning cycle, the cleaned can is encouraged to a devastating station where the can is pressed to a foreordained thickness and after that dropped into a container for capacity for reusing. As per the creation, at least three aluminum or tinned steel jars might be cleaned and smashed every moment without administrator intercession [45].

42. *Process for Producing a Case for Receiving a Watch Work, Patent Number: 5479686*

The present development identifies with a procedure for delivering housings for time pieces and, all the more especially, a procedure for creating housings from expendable metal holders for accepting watch developments and the subsequent time pieces [46].

## II. SUMMARY AND CONCLUSION

It is compulsory for any inventor to scan early inventions around the world before making any new invention(s). This study is a summary of previous inventions for can crusher machines; the study introduced such inventions within the period from 1996 to 1999 (half a decade). This study aims at helping other inventors by providing early inventions and, in turn, save their effort and time; the study presents a summary of 42 inventions for the time limited time period, however, early publication presented the inventions within different periods [3,4]; while the author invention (patent No. 4610 [47]) is presented in the early publication.

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