

# Beverage Cans Crusher Machine Patents: A review: Part VII

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**Abstract:** A brief summary of different patents for CAN crusher machines are presented in the current study. This work is very useful for researchers and inventors for CAN crusher machines to obtain such work. The study gives a summary of about forty seven patents, however, complete descriptions for every patent is to be presented in a separate study.

**Keywords:** Review; Patents; CAN crusher; Machines; Period 1985–1987.

## I. A BRIEF SUMMARY OF CAN CRUSHERS PATENTS

This brief summary is a part of our review studies to cover different engineering topics, see e.g., [1–48]. The current review aim at a complete review of all patents presented early for CAN crusher machine [49–57]. Such brief summary is highlighted next within the period from 1985 to 1987.

### 1. Apparatus for handling compactible articles, Patent number: 4703611

Strategy and mechanical assembly to handle compactible articles, and especially recyclable articles incorporates a lodging framing a compaction chamber with a base entryway portable between a shut position and a vacant position and having a feed opening through which articles are passed to be gathered in said chamber. A retractable stacking chute into which articles are released coordinates the articles into the feed opening when in the open stretched out position is mobile to a withdrawn position to shape divider bit of said chamber shutting the feed opening. A first drive has a platen that is moved amongst expanded and withdrawn positions in said compaction chamber to pack the gathered articles in the chamber into a unitary square of mechanically interconnected compacted articles and move the square from the chamber. A second drive associated with the base entryway moves said base entryway between a shut position for compaction and a withdrawn position for the release of said obstruct from said chamber [58].

### 2. Process for crushing cans, Patent number: 4700950

A procedure for pressing objects, essentially to squash jars, which is included the means of utilizing manual powers helped by resultant latency a smashing activity affected against the gadget. The procedure includes lifting the smash, bringing down it by constrain against the can, with an ensuing discretionary estimation of the can's last stature in the wake of being so affected. The procedure includes the quantifiable attributes in degrees of balance edge arrangement, and in

addition the amount and quality estimations made on the layers of stratification in the smashed can's sidewalls [59].

### 3. Press for compacting small scale objects, Patent number: 4696227

A press is accommodated compacting little scale protests, for example, drink jars. The press incorporates an empty, tube shaped lodging having a story and sidewalls stretching out significantly oppositely in this manner to characterize a lodging cavity, a compacting plan slidable inside the cavity, the compacting course of action being masterminded to movement inside the hole in closeness to the sidewalls of the lodging, and a game plan for drawing the compacting implies downwards toward the floor of the lodging. The illustration arrangement may incorporate a game plan for creating negative weight inside the lodging cavity or an electromagnet and is fit for drawing the compacting game plan toward the floor of the lodging with adequate power to generously press a question situated between the compacting course of action and the floor of the lodging [60].

### 4. Remotely controlled multishaped container compacting press, Patent number: 4685391

Uncovered is a mechanical assembly to crush distinctively formed and additionally measured holders of waste material without dismantling of the gadget. A form, having an internal pit estimated to oblige a bigger compartment, has a sleeve found in which CAN be bolted to the shape for synchronous task. The sleeve has an inward depression of a shape and size in order to contain the littler holder and furthermore to enable a slam to travel through the sleeve hole and pack the littler compartment. The smash likewise has a structure for locking the sleeve to the slam to allow the sleeve slam blend to pound a bigger compartment which has been situated in the shape pit. The locking and opening of the form/sleeve or sleeve/smash and in addition the form development and slam development are on the whole remotely controlled in order to allow squashing of different estimated and molded holders without dismantling of the press and the resulting presentation of specialists to conceivable dangerous conditions [61].

### 5. CAN crusher, Patent number: 4682539

A physically worked gadget particularly to crush jars, for example, aluminum jars, incorporates a moderately substantial tramping component which is associated with a prolonged handle, whereby when the tramping component is held over a CAN and driven descending, the CAN is pounded. The

tramping component may incorporate either a section or rib for venting air that may wind up compacted in the CAN as the CAN is pressed [62].

*6. Apparatus for compacting low density articles, Patent number: 4669375*

Compactor mechanical assembly involves a transport for providing articles to a container situated close by the upper end of a pressure chamber in which a platen controlled by a water driven barrel is adjusted to be responded. The container is mounted toward one side of a bar adjust, the removal of the opposite end of which estimates the heaviness of a charge in the container. At the point when the nearness of a predetermined charge in the container is detected, the transport is crippled, the container and pressure driven barrel with the platen in the withdrawn position are swung along the side to bring the container over the pressure chamber to dump the contained articles into the chamber. The container and chamber are then come back to their underlying positions, the barrel is activated to make the platen pack the dumped articles, and the transport is again empowered to supply articles to the container [63].

*7. CAN crushing machine, Patent number: 4667593*

A responding ram squashes jars along their longitudinal hub. First and second cams move with the smash and work first and second holding individuals which feed the jars one by one into a slam path for squashing. A valve actuator is mobile with the slam for then again working an exchanging valve for coordinating water powered liquid on the other hand to inverse finishes of the smash to work it in inverse ways amid its cycle of activity [64].

*8. Apparatus for processing and recovery of the metal containers from trash, Patent number: 4667832*

An attractive CAN separator where a supply gadget drops pressed jars onto an instrument that incorporates a non-attractive separator plate situated by a pole for allowing pivot of the circle at a controlled speed, a majority of attractive individuals anchored to the under surface of the plate for drawing in attractive jars and holding them on the plate, and a guide anchored contiguous or more the best surface of the circle to connect any articles consequently and expanding for the most part radially of the plate balance from its inside to draw in jars or articles on the upper surface of the plate and as the circle is turned, the smashed jars are dynamically stripped from the upper surface of the plate by the guide while the non-attractive jars are tossed circumferentially from the plate generously instantly upon store subsequently. The separator plate CAN be situated at an edge of up to around 50 degrees to the even for enhanced task [65].

*9. Reverse vending machine, Patent number: 4653627*

A switch candy machine accommodates the detachment, tallying and smashing of refreshment compartments of a foreordained size range and synthesis. The machine

incorporates an in-feed station for getting various, confused holders, an on-stack station, and an in-feed transport operable to transport different, confused compartments from the in-feed station to the on-stack station. A separator/transport is accommodated isolating, uniquely, a compartment from the confused holders, and for transporting a holder so isolated from the on-stack station to the off-stack station. Components are given to dismiss inadmissible compartments between the on-stack station and the off-stack station. A counter is accommodated checking the quantity of adequate compartments. The compartments go into a crusher which decreases the volume of the holders. A receipt printer is given to print a receipt demonstrating the quantity of satisfactory compartments handled by the machine. A chip organizes machine working cycles [66].

*10. Aluminum CAN compactor and method, Patent number: 4653398*

A CAN compactor in which there is relative development between a cam and a can, toward a path for the most part digressive to the can. Such relative development logically crumples the CAN sides, following which the CAN closes are twisted around more distant than they were bowed as the consequence of the can-side crumbling [67].

*11. Apparatus for crushing cans, Patent number: 4606265*

A device is revealed for squashing aluminum drink jars after the substance have been discharged. The CAN crusher incorporates a casing having an iron block mounted toward one side thereof and a versatile smash situated on the edge and confronting the blacksmith's iron, a devastating chamber is appended to the edge for supporting the CAN between the blacksmith's iron and the slam and a methods is accommodated pushing the smash toward the blacksmith's iron and afterward far from the blacksmith's iron [68].

*12. Combination CAN crushing and exercising means, Patent number: 4606266*

This development is a mix CAN crusher and exercise gadget. A spring stacked jaw implies goes about as an exerciser for the client thereof while in the meantime being versatile for use as a CAN crusher. The present development has the extra component of acting naturally flexible for either short or tall jars, especially jars of the brew and soda pop compose [69].

*13. Can-baling machine, Patent number: 4601238*

A machine for smashing metal jars into four-sided squares or bunches wherein jars are bolstered through a pre-pressing, which smooth and tears open the jars to deplete fluids in this way and leaves jutting torn tabs and folds that encourage holding of the jars into a self-maintaining parcel. The straightened jars are gathered in a charging canister until the point that a foreordained weight is achieved; at that point the jars are discharged into a bundle shaping chamber, which is shut by a pivoted entryway framing an underlying pressure part. A smash at that point packs the CAN longitudinally in

the chamber, the slam having ribs on the pressure face to frame grooves in the parcel for future stack-holding lashes. A sliding entryway opens the finish of the baling chamber for discharge of the framed bundle by proceeded with augmentation of the smash [70].

*14. Apparatus for crushing containers, Patent number: 4599941*

Smashing mechanical assembly to crush compartments which incorporates a plate on which the holder is gotten and which CAN be situated close by the lodging of a devastating unit. A wiper board is worked to move the compartment off the plate and into the devastating unit and onto a lower squashing platen. An upper pressing platen is then stroked down to squash the holder. Following smashing, the lower platen is slid far from the devastating unit lodging and the squashed compartment tumbles to an accumulation area [71].

*15. Impact crushing device, Patent number: 4597327*

An effect squashing contraption, principally adjusted to press aluminum or steel refreshment jars, which is controlled by manual powers helped by resultant dormancy which accomplishes pivotal pressure of metal compartments between parallel surfaces upheld on a stationary base and moveable smashing get together. The subject gadget has a slam with connected slide member which limb is adjusted to respond through base, and has a slamming head toward one side and a handle for anchoring firm handle of said smashing get together on the inverse, upper end [72].

*16. Returnable container redemption method, Patent number: 4579216*

The strategy for reclaiming returnable holders incorporates a majority of remotely-found machines getting returnable compartments and putting away data about the quantities of such compartments got by various estimations of a recognizing parameter. A focal coordination office gets to the put away data and decides what number of returned compartments the distinctive offices have gathered, and guarantees that all gatherings are appropriately repaid [73].

*17. Method and apparatus for recycling cans, Patent number: 4576289*

A strategy and mechanical assembly to recycle jars is revealed. In the wake of isolating attractive material from the material information and isolating conductive material from the rest of the material information, overweight attractive as well as conductive material is evacuated. The staying metallic bits are then recombined for capacity [74].

*18. CAN crushing machine, Patent number: 4573405*

A CAN pounding mechanical assembly has an external, endless drum lodging, which is tubular and mounted on rollers to be openly rotatable, and a focal inward roller which is mounted on the inside of the tubular drum, is encouraged against one side mass of the drum, and is control driven. Jars

to be pounded are guided on an appropriate guide into a pinch between the roller and the external drum, and are squashed as they go between the roller and drum under spring load. Squashed jars will drop through the open base of the drum into a gathering canister or sack [75].

*19. Electrically actuated CAN crusher, Patent number: 4570536*

An electrically impelled CAN crusher having a lodging, an engine mounted inside the lodging and a pole rotatable by the engine and downwardly determined in this manner having a pound plate subsequently. The lodging additionally incorporates a base press plate permitting a CAN to be squashed to be put in the lodging between the smash plates. The lodging incorporates an entrance entryway which, when in the vacant position, deactivates the engine. In this way, when the entryway is shut, the engine CAN be actuated to bring down the pole pound plate to press a CAN set therebetween. The pole press plate may incorporate a lever mobile in a space in the lodging to adjust the pole smash plate in its development and a turning around switch might be given in the lever and opening to invert the course of development of the pole squash plate in the wake of pounding of a CAN [76].

*20. Apparatus for unscrewing jar lids and crushing aluminum cans, Patent number: 4569281*

A physically operable device is accommodated squashing metal jars and unscrewing tops of jugs. The mechanical assembly is involved a base, a guide rising upwardly from the base, an overhead get together which slidably connects with the guide, and a handle adjusted to cause vertical development of the overhead gathering. A CAN or jug to be followed up on is situated upright upon the base. Mighty descending development of the overhead get together achieves the coveted impact [77].

*21. Implement for flattening cylindrically shaped containers, Patent number: 4561351*

A one-advance, physically worked mechanical assembly for one-gave leveling and collapsing of round and hollow crushable holders, in order to empower them to be put away in a littler space when they are in their ordinary measurements, and to straighten them in a way that the seller ID marks are promptly recognizable subsequent to smoothing [78].

*22. Soft drink CAN crusher, Patent number: 4561350*

A soda pop CAN crusher, incorporating a cylinder slidable in a barrel, and an engine drive for an interfacing bar pushing the cylinder against a metal CAN put in one end of the chamber and squashing the CAN against a blacksmith's iron [79].

*23. Apparatus used for analysis to determine acceptability recycling of containers, Patent number: 4558775*

A device for the receipt of a recyclable holder is uncovered. The mechanical assembly incorporates a physically rotatable

transporter having a holder accepting station. The recyclable compartment is embedded into the accepting station where the nearness or nonappearance of a holder having a metallic sidewall is resolved preceding any development evident to the client. In the event that the question embedded into the accepting station is resolved to be a holder having a metallic sidewall, turn of the transporter for additionally preparing of the recyclable compartment is allowed. The underlying latent screening may incorporate identifying the introduction of the holder, recognition for the sort of metal sidewall, and may likewise incorporate optical filtering of the compartment for perusing an item code consequently [80].

*24. Apparatus for compacting refuse with stabilizers, Patent number: 4554868*

A mechanical assembly to compact decline giving a capacity to conservative reject in a drum or in a sack or accommodating the compaction of drums themselves which are undesirable. The device gives a strong edge having a stage on the casing whereupon a drum or sack CAN be bolstered at its base. A gave coat get together CAN be opened for position about the drum or pack, the coat after conclusion supporting the drum or sack about its sides amid compaction. A water powered smash having an appended compacting circle is upheld vertically over the help stage and amid task compacts deny inside the coat and in the drum or sack as wanted augmenting the amount of junk contained inside a specific drum or pack for later transfer. Amid the compacting activity, a drum or pack is upheld on its base by the stage on its side by the coat and the junk is compacted from above by the compaction plate. At the point when a sack is utilized, the coat get together backings compaction. By leaving the top on a drum [81].

*25. A sorting device for compressing beverage cans in many steps, Patent number: 4550658*

A gadget for arranging packaging, for example, jars having generally measurements inside a pre-decided range as respects length and width, involving a first arranging stage, including a turned supporting part to carry the packaging and a casing with an opening within the supporting part is versatile to the second step. The second step incorporates squeezing individuals coordinating with the supporting part to impact pivotal pressure of the packaging conveyed by the supporting part. The opening of the edge is of a size which constrains the measurement in no less than one heading of the packaging going through the opening. The second stage is furnished with a second opening through which compacted packaging pass whereby the second opening expands the pivotal length of the packed packaging which go during that time opening and are in this manner dealt with [82].

*26. Apparatus for sorting packaging such as CANS based on the material thereof, Patent number: 4542689*

Mechanical assembly to sort packaging, for example, jars of a specific kind of material from packaging of different kinds of

materials including a help part transporting the packaging one by one to a pressure station at which are arranged first and second squeezing individuals masterminded to move in respect to each other to pack the packaging transported by the supporting part. The relative development of the squeezing individuals and exchange of the packaging when relative development of the squeezing chambers has stopped is controlled by a directing instrument to such an extent that when compressive powers of a size inside a foreordained range required for packaging of the sort of material being referred to enable the squeezing individuals to move towards each other to finish the squeezing tasks whereby the packaging are compacted to a size before exchange to a gathering gadget. On account of compressive powers of an extent outside the foreordained range, the packaging are kept from being exchanged to the gathering gadget [83].

*27. Container disposal apparatus, Patent number: 4542688*

A compartment transfer contraption raises holders to a hoisted position from which they navigate a downwardly slanted chute. Rotatable interrupter plates related with the chute irregularly adjust gaps of constrained degree to the chute in order to go along the chute compartments landing at the interrupter plates when the gaps are lined up with the chute and to clear them from the chute generally. Holders effectively navigating two progressive interrupter plates trigger prize-administering instrument [84].

*28. Forming method for compressed biscuit with beveled edge/groove, Patent number: 4541332*

A strategy for changing over low-thickness objects into a parcel that is appropriate for transportation and capacity. A bunch made as per the strategy for the development includes a first compacted roll having a recessed depression; a second packed scone contiguous the primary bread and a lashing means embedded into the furrow and broadening circumferentially around the first and second scones. The innovation is especially valuable for making parcels of packed rolls from reused aluminum compartments [85].

*29. Drink CAN measuring and CAN crushing device, Patent number: 4538459*

This innovation is a quality estimating gadget using changes in pneumatic stress. The cries bit of the gadget is a standard soda pop or brew can. The reasons for the present innovation are two-overlap; first, to gauge the quality of the client thereof and also, to press the CAN for more reduced stockpiling before transfer [86].

*30. Apparatus/Identification method for carrying out of CANS, Patent number: 4532859*

A strategy and a contraption for distinguishing proof and detachment of metal boxes or jars, said CAN being put in an engine controlled support, and said support with the CAN being pivoted in a first bearing (a) to a first position with a first, ideally low venturing recurrence, and afterward being

turned or impacted for revolution (b) in a second and inverse heading (beginning stage position) with a second, ideally high venturing recurrence, the season of said return development at the same time being estimated as a component existing apart from everything else of idleness caused by said CAN and wherein said CAN as an element of the estimation of time and perhaps of extra estimation of the CAN length and metal compose is tossed out (A;B) of the support either in light of the fact that said support is pivoted facilitate in said second course (c) or in light of the fact that said support is turned back (d) in the principal bearing first position. Beforehand the CAN is put, it might be filtered inductively and additionally capacitively [87].

### 31. CAN crusher, Patent number: 4532861

A CAN crusher is made out of two essential parts. A base part is fixed to a standing surface and a bar is fixed to the base. The base incorporates a stationary iron block surface for getting the side mass of a can. A slanted stationary projection surface is appended to the base surface to get and adjoin one end of a can. The projection surface is slanted at an intense edge to the blacksmith's iron surface. A prolonged lever is rotated to the base end inverse the slanted projection surface. The lever incorporates a level crusher surface subsequently to engage a CAN end inverse the end by and by drawing in the slanted projection surface. The lever CAN be physically worked to squash the CAN by at first moving the CAN pivotally against the slanted projection surface. This overlaps drew in the end over. The rest of the end is collapsed over by the crusher surface. The collapsing activity may proceed until the point that the two CAN closes are smashed level against the beforehand circularly CAN side divider [88].

### 32. Processing apparatus used for containers with advanced crusher mechanism, Patent number: 4526096

Mechanical assembly is accommodated accepting and handling utilized holders incorporating a nook with a rotatable bearer having at least one compartment getting stations in that. Means are accommodated distinguishing the nearness of a compartment embedded into the accepting station. Means are likewise accommodated squashing a compartment acknowledged for handling by the mechanical assembly involving a settled pressing jaw and a versatile pounding jaw adjusted for double commitment with a holder to give two phases of smashing [89].

### 33. Feed mechanism for apparatus for evacuating and compacting aerosol cans, Patent number: 4526097

An enhanced nourishing system is accommodated mechanical assembly utilized for clearing and compacting filled airborne jars. The nourishing system is comprised of a help plate adjusted to be fitted into a slanted feed chute of a compaction and departure mechanical assembly. Associated with the help plate is a rocker stop which by responding amongst first and second positions serves to sustain one CAN at once into the devastating instrument. By utilization of a flip component

associated with both the rocker stop and a chamber entryway and worked by a pneumatic barrel, the chamber in which the compaction and clearing of the holders happens is isolated from the feed instrument. The sustaining component and rocker stop are held by snappy detach gadgets with the goal that a whole bolstering system might be immediately substituted to adjust to encouraging jars of various sizes [90].

### 34. Apparatus for compacting bioinjurious wastes, Patent number: 4524048

Plants are utilized for the decrease in volume of strong, bioinjurious squanders, particularly radioactive squanders, in shut sheet metal holders, which comprise of a shut control nook having roller transports and other transportation components, a compartment getting lock, a high weight press and a holder release bolt; a compacting device is portrayed by a holder charging lock rotatable around the vertical pivot and having a water powered barrel for transporting the sheet metal compartment into the high weight press and having a pressure driven for launching the molded sheet metal compartment whereby a versatile grasping component assumes responsibility of transportation of the framed sheet metal holder to the compartment release point [91].

### 35. Container/Apparatus using scanning method to read containers' code markings, Patent number: 4519307

Device is accommodated the inclusion of a recyclable compartment into a holder getting station in a physically worked rotatable transporter regularly kept up in a non-rotatable condition; and for examination and beginning acknowledgment or dismissal of the compartment for reusing without mechanical development evident to the client. The contraption incorporates identifying implies contiguous the getting station to decide the nearness of a holder included material worthy for reusing and checking implies for perusing code markings on the compartment. The data read from the code markings on the holder might be recorded for resulting use in deciding measures of stores to be paid and also wellsprings of compartments. Discharging implies are accommodated along these lines allowing development of said rotatable bearer if said holder includes a material worthy for reusing [92].

### 36. Process for recycling containers, Patent number: 4519306

A procedure for reusing holders, for example, utilized aluminum refreshment jars includes detecting the nearness of an adequate compartment embedded into a getting station in a rotatable transporter and unlatching a hooking component to allow the bearer to be pivoted if the nearness of a satisfactory holder is detected. Turn of the transporter passes on the compartment to a station where the holder is smashed. A receipt is then issued for the smashed compartment. The procedure is controlled by a focal control unit which may incorporate a PC having a program to screen and control the procedure steps [93].

37. *Universal CAN crusher, Patent number: 4517892*

A convenient CAN squashing gadget especially appropriate for pounding aluminum jars. The CAN pressing gadget is involved a lodging having a carriage with a projection versatile towards a settled projection bolstered by the lodging. The carriage is mounted for level development in openings in the lodging and is pushed toward the projection by methods for a capricious cam, which has an ebb and flow with the end goal that most extreme power is connected to the CAN amid the initial couple of crawls of movement, at that point a lesser power at higher speed is connected to finish the devastating of the can. The cam is given by the edge of a rotably mounted plate drawing in a roller on the carriage with the plate having a handle or lever for pivoting the cam and applying the power. Aluminum jars put between the carriage and end divider are pounded by pivoting the handle up to apply a power through the cam to the carriage to smash the jars down to around short of what one-fifth (1/5) their full size [94].

38. *Apparatus for crushing articles, Patent number: 4516489*

A mechanical assembly to crush articles, for example, aluminum drink jars. The devastating mechanical assembly incorporates an essential crusher taken after by an optional crusher. The essential crusher is made out of a rotatable, polygonal-formed drum having a cutting edge mounted on every level surface which extends ostensibly past the surface. The articles or jars to be squashed are brought into the region between the drum and a spring stacked weight plate, and on revolution of the drum, the sharp edges draw in the articles and move them into the touch between the drum and the weight plate to give an essential phase of straightening of the jars. The jars are then conveyed to the auxiliary crusher which includes a couple of collaborating moves, which all the more completely pound or level the jars and convey them to a pneumatic release transport. The mechanical assembly likewise incorporates a feed transport having an arrangement for dismissing steel jars, and also substantial items, for example, jars loaded up with fluid or outside materials [95].

39. *Apparatus for processing recyclable containers, Patent number: 4512253*

Mechanical assembly is accommodated getting and pressing holders comprising basically of recyclable material involving a nook having a physically worked rotatable transporter with a first station including a pocket in the bearer to get a compartment. Means are accommodated identifying the nearness of a holder in the pocket and for recognizing the sort of material involving the mass of the compartment. The contraption likewise contains locking intends to forestall pivot of the rotatable transporter until the point when a holder embedded in that has breezed through all tests performed in the primary station. Means are likewise accommodated estimating the heaviness of the compartment and for pressing metallic holders having a foreordained worthy weight [96].

40. *Apparatus/Container with shock carrier, Patent number: 4510857*

Mechanical assembly is accommodated accepting and pressing holders comprising basically of recyclable material including a fenced in area having a physically worked rotatable bearer with at least one stations involving pockets in the transporter to allow addition of a compartment. Means are likewise given to identify the nearness of a holder embedded into the pocket. Stun engrossing means are related with the rotatable bearer to repress harm to the mechanical assembly by fast or yanking movements amid revolution of the transporter to transport an embedded compartment to at least one consequent stations for testing and possible smashing of a holder acknowledged for reusing [97].

41. *Apparatus/mechanism for processing recyclable containers, Patent number: 4510860*

Reusing mechanical assembly to receive and squashing recyclable compartments is given containing an edge and a nook. A physically worked rotatable transporter is related with the fenced in area and has no less than one open pocket in that to get a recyclable holder. The mechanical assembly likewise is furnished with indicator intends to decide the nearness of a compartment in the pocket. Means are given to bolt the rotatable transporter to considerably avoid revolution of the bearer except if a compartment has been embedded into the pocket. Discharging implies are likewise given to allow turn because of incitation by the locator implies when a holder has been embedded into the pocket. The compartment is in the long run smashed after pivot of the transporter to convey a holder embedded into the pocket to a devastating station [98].

42. *Method for recycling cans, Patent number: 4505370*

A technique and mechanical assembly to recycle jars is uncovered. Attractive material containing for the most part steel jars is isolated from a material information. Conductive material, containing for the most part aluminum jars, is then isolated from the adjusting of the material info. The conductive material is weighed and paid for and the attractive material and conductive material are recombined for capacity [99].

43. *Device for compressing in particular aluminum cans, Patent number: 4501198*

A pressure gadget especially for aluminum jars contains an edge and an unending driven belt mounted in that and furnished with contact implies on its external side. A hold-down part as a plate of a low-rubbing versatile plastic material is so arranged along and inverse one keep running of the belt that this run and the hold-down part toward one side (bay end) of the belt will be divided from each other a separation which surpasses the greatest distance across of the CAN to be subjected to pressure, and logically approach each other with the end goal that they will be found near each other at the contrary end (release end) of the belt [100].

44. *Selective scrap metal collection apparatus, Patent number: 4499984*

An unmanned mechanical assembly to collect piece aluminum jars and for repaying contributors in view of the heaviness of such jars stored incorporates a smaller scale processor control implies which produces control signals for working the contraption and administering remuneration, aligning a measuring means, observing and showing the presence of alert conditions and de-invigorating the device until the conditions which caused the caution are rectified. Further, a correspondence port is given to transmit and get remote data as from a focal dispatch. The remuneration and the rate thereof is controlled by a perpetual non-unpredictable memory implies and the heaviness of the jars whereupon pay is based is shown to the contributor [101].

45. *Crushing machine for cylindrical aluminum CANS of the soft drinks, Patent number: 4499824*

Machine for squashing tube shaped aluminum jars for lager, sodas and so forth. The machine contains a CAN admission. A cradle for accepting the CAN in a significantly level position is displaceable between a getting position in the CAN admission and a devastating position in a press gadget for crushing the jars pivotally between the end dividers thereof. The relocation of the cradle between said position is affected by dislodging of a conclusion part for the CAN allow amongst opened and shut positions. A punctured inclining plane is masterminded beneath the press gadget for accepting the squashed CAN tumbling down from the press gadget at the arrival development thereof in the wake of pounding, and redirecting the pressed CAN to a gathering compartment [102].

46. *CAN crusher, Patent number: 4498385*

A CAN crusher incorporates a base, a handle turned to the base, crusher plates rotated to the base and handle, and guide intends to keep up the plates parallel. The crusher is made of somewhat adaptable plastics material, is gathered by snapping it together without particular latches, and is burrowed out for softness and fortified and rigidified with deliberately put ribs [103].

47. *Automated redemption center for metal containers, Patent number: 4492295*

Mechanical assembly for gathering of metal holders and for coordinate installment of discount stores for compartments bearing a distinctive indicia, including an outside lodging having an entrance port in that, a compartment get to territory estimated to oblige both pressed and non-squashed compartments, a metal locator for deciding if a compartment offered by a client is generously aluminum or steel, an optical detecting gadget for recognizing the nearness of the distinctive indicia, a versatile rack receptive to the metal finder and the optical examining gadget for tolerating a holder distinguished as being significantly aluminum or steel and bearing the distinctive indicia, an allocator for administering

discounts for compartments acknowledged, a crusher for pounding the holders, and a sack for putting away the smashed holders [104].

## II. SUMMARY AND CONCLUSIONS

The study presented a review work for early patents of crusher/press machines. This review work is thinking to be useful for inventors/designers worked on patents for press/crusher machines since one of the necessity for any inventor is to study all previous inventions. The review work presented here covered the patents between the restricted yours from 1985 to 1987, e.g., forty-seven patents. This study offers a title of each patent, patent issued date, name of the creator and patent overview. However, detailed descriptions for each patent is to be given at a separate study.

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