July 14, 1953 R. C. MATTSON 2,645,071

REFUSE PACKAGING RECEPTACLE

Filed April 27, 1951 3 Sheets-Sheet 1

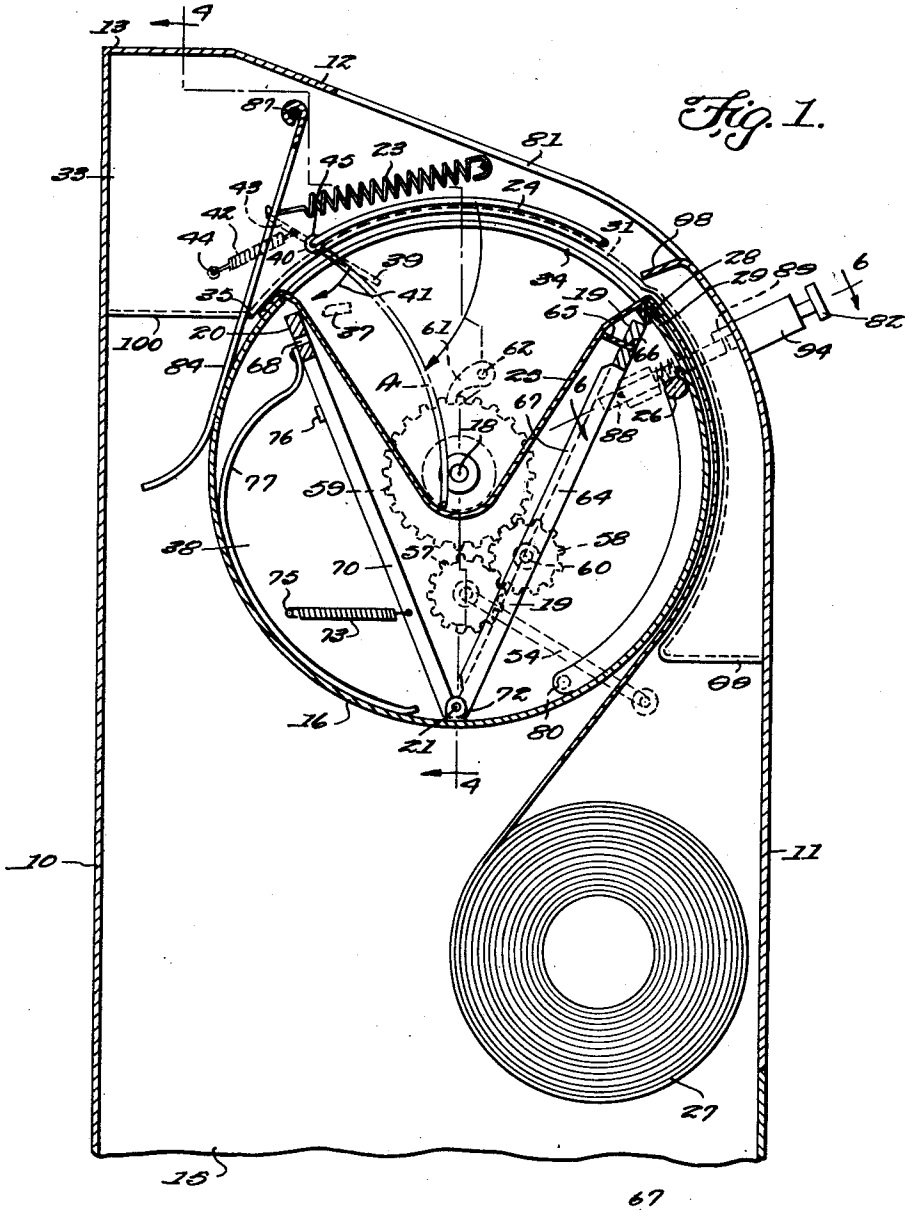


Fig. 1.

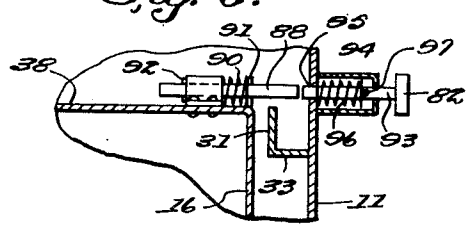


Fig. 6.

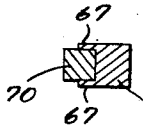


Fig. 7.

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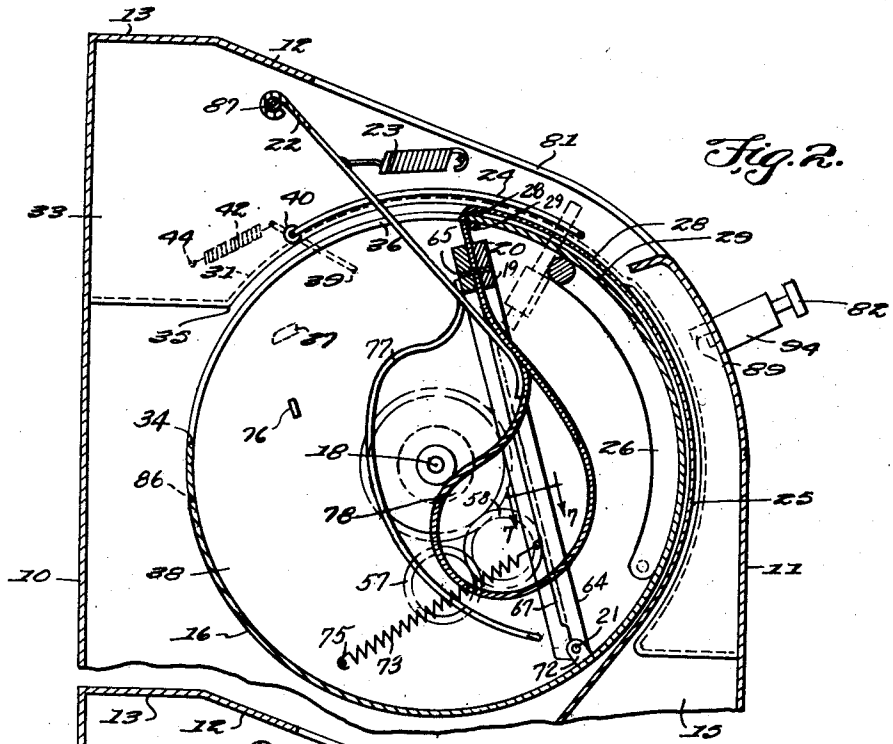


Fig. 2.

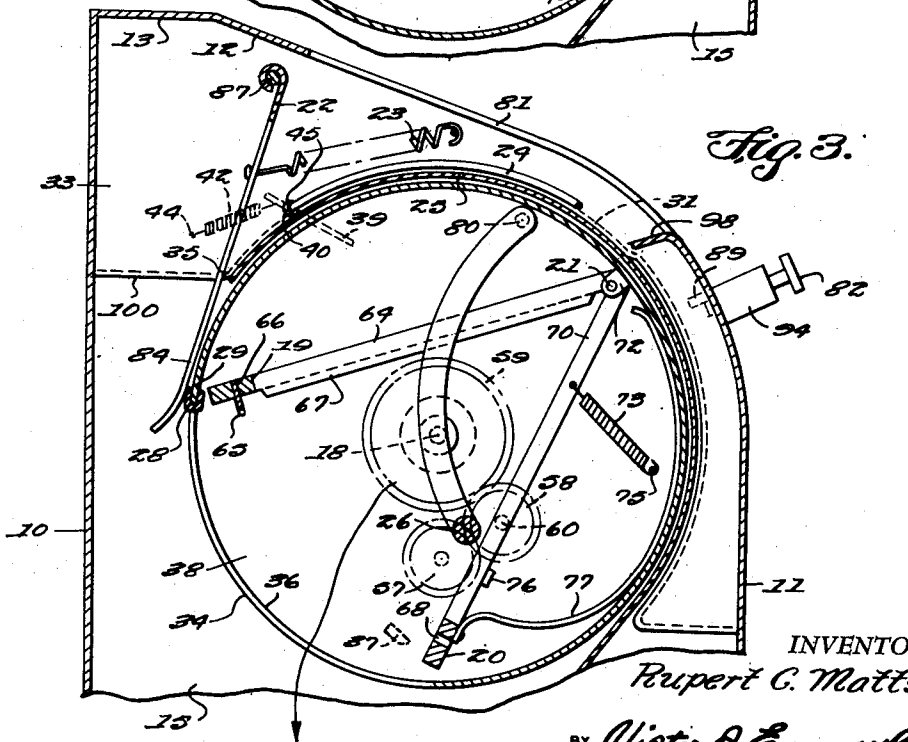


Fig. 3.

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Filed April 27, 1951 3 Sheets-Sheet 3

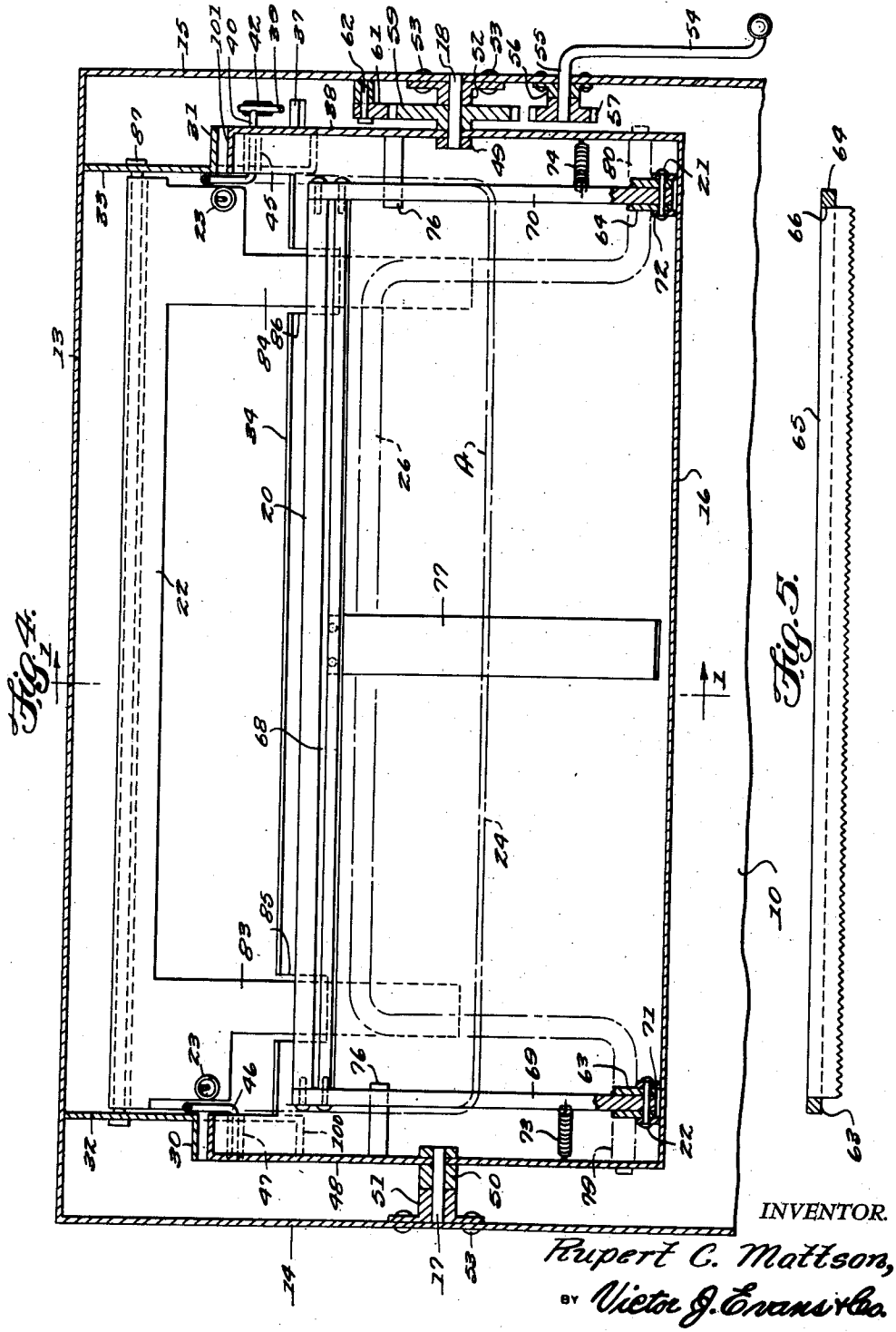


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE

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REFUSE PACKAGING RECEPTACLE

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Application April 27, 1951, Serial No. 223,329

6 Claims. (Cl. 53—98)

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This invention relates to disposal devices particularly of the type for receiving and retaining objectionable refuse such as used sanitary napkins, and in particular this invention relates to a receptacle having an opening in the upper end for receiving objects and in which the objects are packaged, sealed and deposited into a container in the lower part of the receptacle.

The disposal receptacle is an improvement over the dispos-it of my co-pending application filed November 22, 1950, with the Serial No. 197,109 in that means is provided for crimping the ends of the package.

Various methods have been used for disposing of sanitary napkins to prevent the napkins being placed in toilet bowls and the like, and particularly for use in public rest rooms it is desirable to provide a device that wraps the articles in sealed containers. With this thought in mind this invention contemplates a casing having an opening in the upper end with a cylindrical cradle journaled in the casing and actuated by a crank extended from one end of the casing and in which the cradle is provided with means for holding a sheet of paper or aluminum foil in position for reeciving an object and wherein the foil is wrapped and sealed around the object as the cradle is rotated.

The object of this invention is, therefore, to provide means in a receptacle for waste materials whereby objects deposited in the receptacle are enclosed in sealed packages and dropped into a storage container.

Another object of the invention is to provide a packaging mechanism in a waste receptacle whereby packaging material is fed to a receiving position in a dumping operation of the retaining elements.

Another object of the invention is to provide operating instrumentalities in a packaging receptacle whereby a packaging sheet, fed from a roll, is cut as the sheet is folded and the edges crimped.

A further object of the invention is to provide a waste receptacle having means for packaging and sealing objects deposited therein which is of a comparatively simple and economical construction.

With these and other objects and advantages in view the invention embodies a cylindrical cradle having an opening in one side with a U-shaped frame pivotally mounted therein and positioned to coact with a stationary frame whereby objects deposited into a sheet of material extended across an opening of the cradle are

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wrapped and sealed as the folding material is cut and in which an additional sheet of material is positioned to receive another object as the package formed in the cradle is dropped therefrom. The invention also includes means for releasing and operating a packaging element and a storage container into which the packages are dropped and which may readily be removed for disposing of the said packages.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings wherein:

Figure 1 is a vertical section through the receptacle taken on line 1—1 of Figure 4 and illustrating the parts in the open or object receiving positions.

Figure 2 is a similar section on an enlarged scale showing a package formed in the cradle in which the lower part of the receptacle is broken away.

Figure 3 is a similar section showing the package forming elements in the position of receiving the package.

Figure 4 is a vertical section taken on line 4—4 of Figure 1 also on an enlarged scale and showing a longitudinal section through the cradle.

Figure 5 is a detail illustrating a material cutting blade.

Figure 6 is a detail taken on line 6—6 of Figure 1 and showing a latch for stopping the cradle in the object receiving position.

Figure 7 is a cross section through the bars of the stationary and movable frames with one end of the cradle taken on line 7—7 of Figure 2, showing the means for crimping the edges of the package.

Referring now to the drawings wherein like reference characters denote corresponding parts the packaging and sealing receptacle of this invention includes a casing having a rear wall 10, a front wall 11 with a sloping upper section 12 that extends to a top plate 13, and end walls 14 and 15, a cylindrical cradle 16 journaled in the ends of the casing by pins 17 and 18, a stationary frame 19 positioned in the cradle, a movable frame 20 pivotally mounted in the cradle by pins 21, an arm 22 which is actuated by springs 23 for moving the frame 20 against the frame 19 to cut the wrapping material and seal the edges thereof, a yoke 24 that depresses the wrapping material or sheet 25 into receiving position between the frames 19 and 20, and an ejecting bar 26 that drops downwardly by gravity for positively removing packages from the cradle.

The wrapping material, which is preferably

aluminium foil or other suitable material such as plastic, wax paper and the like is, as illustrated in Figure 1, provided in a roll 27 that is freely supported in the lower part of the casing.

The sheet or web 25 is fed from the roll 27 over the outer surface of the cylinder 16 by a U-shaped rubber strip or friction element 28 carried by the edge 29 of the wall of the cylindrical cradle and with the outer surface of the member 28 gripping the edges of the web between the resilient element and flanges 30 and 31 of end partitions 32 and 33, at the edges of the web, the web is carried over to cover an opening 34 in one side of the cradle. As the end of the web reaches the point 35 the flanges 30 and 31 terminate and the friction element 28 continues with the edge of the web secured with a slight friction action against projections 36 on the faces of the flanges 30 and 31.

The web remains in this position until a lug 37 on the end 38 of the cradle engages an arm 39, as shown in Figures 1 and 4, on the shaft 40 of the yoke 24 and as the arm 39 is moved in the direction of the arrow 41 by the lug 37 the yoke 24 is moved downwardly to the position shown in dot and dash lines, as indicated by the letter A, in which movement the yoke moves the web 25 downwardly to the position shown in full lines in Figure 1. As the lug 37 moves over the end of the arm 39 the spring 42 attached to a projection 43 extended from the upper part of the arm 39 snaps the yoke 24 back to the position shown in full lines in Figure 1. The opposite end of the spring is attached to the end partition 33 by a pin 44.

The shaft 40 of the yoke 24 is pivotally mounted in a sleeve 45 on the outer surface of the flange 31 and a similar shaft 46 on the opposite side of the yoke is pivotally mounted in a sleeve 47 that is positioned on the outer surface of the flange 30.

The cylinder 16 is also provided with an end wall 48 on the end opposite to the wall 38 and the ends 38 and 48 are provided with hubs 49 and 50, respectively, which are mounted on the pins 17 and 18. The pins are journaled in bearings 51 and 52 that are attached to the end walls 14 and 15 by rivets 53.

The cradle 16 is actuated by a crank 54, a shaft 55 of which is journaled in a bearing 56 and a gear 57 on the inner end of the shaft meshes with a gear 58 which meshes with a gear 59 on the pin 18 on which one end of the cradle is mounted. The gear 58 is journaled in the end wall 15, on which the bearing 56 of the shaft 55 is mounted, by a shaft 60, and with the gears positioned as shown in Figure 1 the cradle 16 is rotated in a counter-clockwise direction from the position shown in Figure 1 as the crank is turned in the same direction. A ratchet 61 is also mounted on the end wall 15 by a pin 62 that prevents rotation of the cradle in the opposite direction.

The frame 19 which is stationary in the cradle is in the form of a U with the cross bar, to which the numeral 19 refers supported by end bars 63 and 64, the lower ends of which are bifurcated, as shown in Figure 4 and the cutting blade 65 is fixedly mounted in a slot 66 as shown in Figure 5. The side members 63 and 64 are provided with extended flanges, as indicated by the numeral 67 and these flanges, as illustrated in Figure 7, receive corresponding side bars of the movable U-shape frame 20. The frame 20 is also provided with a cross member, to which the numeral 20 refers and this member is provided with a slot 68 that is positioned to receive the knife blade 65, as shown in Figure 2. The cross member 20 is supported by side bars 69 and 70, the lower ends of which are positioned in the bifurcated ends of the side bars 63 and 64 of the frame 19 and the ends of the side bars of both frames are pivotally mounted by the pins 21 and brackets 71 and 72 on the inner surface of the cradle 16.

The frame 20 is retained in the position shown in Figure 1 by springs 73 and 74 which are attached to the side bars 69 and 70, respectively and which are also attached to the ends 48 and 38 of the cradle by pins 75. The ends 48 and 38 are also provided with stops 76 that engage the bars 69 and 70 to limit opening movement of the frame 20.

The frame 20 is also provided with a spring 77 which, as illustrated in Figure 2, retains a package, as indicated by the numeral 78 is position until the cradle swings over, to the position shown in Figure 3 wherein the ejecting bar 26 moves downwardly to force the package away from the stationary frame 19.

The ejecting bar 26 is substantially U-shaped, as indicated by the dot and dash lines in Figure 4 and ends 79 and 80 thereof are pivotally mounted in the ends 48 and 38, respectively of the cradle.

With the parts in the positions as illustrated in Figure 1 a used sanitary napkin or other object is dropped through the opening 81 into the section of the web 25 suspended between the friction member 28 and the points 36 and with the cradle released by the button 82 the crank 54 is rotated whereby the cradle 16 rotates in a counter-clockwise direction from the position shown in Figure 1. The friction strip 28 draws the web from the roll 27 and with the free edge 35 traveling downwardly until downwardly extended ends 83 and 84 pass through notches 85 and 86 in the wall of the cradle and engage the cross member 20 of the movable frame at which time the springs 23 snap the ends of the arms from the position shown in Figure 1 to that shown in Figure 2 whereby the frame 20 is forced against the face of the frame 19 with the cutting blade 65 passing itno the slot 68, cutting the web and with the edges of the web crimped by the side bars 69 and 70 which force the web into the flanges 67 of the side bars 63 and 64, as shown in Figure 7. The arm 22 is pivotally mounted on a rod 87 which is held in the partitions 32 and 33 and as the cradle continues to rotate the friction strip 28 engages the ends 83 and 84 forcing the arms back to the position shown in Figure 1.

When the cradle 16 arrives in this position a pin 88 engages a lug 89 extended inwardly from the front wall 11 of the casing and the cradle remains in this position until another object is deposited through the openings 81 and 34.

The pin 88 is slidably mounted in a bearing on the end 38 of the cradle and a spring 90, acting against a pin 91, extended through the pin 88, urges the pin outwardly to the position shown in Figure 6 with a pin 92, which also extends through the pin 88, limiting outward movement thereof.

The pin 88 is actuated by the button 82, the stem 93 of which extends through a spring housing 94 and also through an opening 95 in the front wall 11 of the casing and the button is resiliently urged outwardly by a spring 96 which is positioned between the outer surface of the front wall 11 and a pin 97 that extends through

the stem 93. By pressing the button 82 inwardly the pin 88 is moved beyond the end of the projection 89 whereby the cradle is released.

The front wall 11 of the casing is provided with a flange 98 that provides a guide at the lower edge of the opening 81, and, as illustrated in Figure 1 the partitions 32 and 33 extend downwardly to the point 99 at the front and to the point 100 at the rear.

The edges of the ends 38 and 48, in the opening 34 of the cradle are provided with flanges 101 and 102 upon which the edges of the web are positioned as the end of the web is fed across the upper part of the cradle.

With the parts arranged in this manner a web of aluminum foil or other suitable material is fed from a roll 27 over the surface of the cradle 16 with the edges passing between the cradle 16 and inner surfaces of the flanges 30 and 31, and with the end of the web secured between the projections 36 and the outer surface of the cradle the part of the web positioned between the longitudinal edges of the opening 34 of the cradle is forced downwardly to the receiving position shown in Figure 1. Upon dropping an article into the casing the button 82 is pressed inwardly to release the cradle and the cradle is rotated by the crank 54 whereby the frame 20 is snapped against the frame 19 by the ends of the arm 22 so that the web is cut and the edges crimped. Upon continuous rotation of the cradle the upper edge of the cylindrical wall thereof upon which the friction member 28 is positioned engages the ends of the arm 22 whereby the arm is forced back to the position shown in Figure 1. The springs 73 and 74 withdraw the frame 20, thereby opening the packaging elements and dropping the sealed package therefrom.

In this movement the severed edge of the web 25 has been carried across the upper part of the cradle where the end is gripped by the projections 36 so that the web is held until a complete revolution has been completed by the cradle. As the cradle arrives at the position shown in Figure 1 the lug 37 engages the arm 39 which forces the yoke 24 downwardly to the position shown in dot and dash lines whereby the packaging elements are in position for receiving other objects or material. Upon the pin 88 engaging the lug 89 the travel of the cradle is arrested so that the parts are correctly positioned.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A material packaging receptacle comprising a casing having an opening in the upper surface, a cylindrical cradle journaled in the casing and having an opening therein positioned to register with the opening in the upper surface of the casing, stationary and movable frames operatively connected to the cradle and positioned in the form of a V with the open end of the V positioned to receive objects dropped through the openings of the cradle and casing, means positioning a web of packaging material across the opening of the cradle, means for rotating the cradle, and means actuating the said movable frame in the cradle for cutting and crimping the side edges of the web over an object into the cradle upon rotation of the cradle.

2. A material packaging receptacle comprising a casing having an opening in the upper surface, a cylindrical cradle journaled in the casing and having an opening therein positioned to register with the opening in the upper surface of the casing, stationary and movable frames operatively connected to the cradle and positioned in the form of a V with the open end of the V positioned to receive objects dropped through the openings of the cradle and casing, means positioning a web of packaging material across the opening of the cradle, means for rotating the cradle, means actuating the said movable frame in the cradle for cutting and crimping the side edges of the web over an object dropped into the cradle upon rotation of the cradle, and resilient means for returning the said frame operated to cut the web and seal the edges thereof to form the package to its original position.

3. A material packaging receptacle comprising a casing having an opening in the upper surface, a cylindrical cradle journaled in the casing and having an opening therein positioned to register with the opening in the upper surface of the casing, stationary and movable frames operatively connected to the cradle and positioned in the form of a V with the open end of the V positioned to receive objects dropped through the openings of the cradle and casing, means positioning a web of packaging material across the opening of the cradle, means for rotating the cradle, means actuating the movable frame in the cradle for cutting and crimping the side edges of the web over an object dropped into the cradle upon rotation of the cradle, resilient means for returning the said frame operated to cut and seal the edges thereof to form the package to its original position, and an arcuate spring carried by the movable frame and positioned to retain objects in the frames until the frames are opened to dumping positions.

4. A material packaging receptacle comprising a casing having an opening in the upper surface, a cylindrical cradle journaled in the casing and having an opening therein positioned to register with the opening in the upper surface of the casing, stationary and movable V-shape frames having side bars connected by cross bars operatively connected to the cradle and positioned in the form of a V with the open end of the V positioned to receive objects dropped through the openings of the cradle and casing, the side bars of the stationary frame having flanges on the edges, means for rotating the cradle, means actuating the movable frame in the cradle for cutting and crimping the side edge of the web over an object dropped into the cradle upon rotation of the cradle, the side bars of the movable frame dove-tailing into the flanges of the side bars of the stationary frame for crimping the edges of the web, resilient means for returning the said frame operated to cut and seal the edges thereof to form the package to its original position, means feeding the web across the opening in the cradle as the cradle is rotated, means stopping the cradle in the position with the opening therein in registering relation with the opening of the casing, and means releasing the said stopping means.

5. A material packaging receptacle comprising a casing having an opening in the upper surface, a cylindrical cradle journaled in the casing and having an opening therein positioned to register with the opening in the upper surface of the casing, stationary and movable frames operatively connected to the cradle and positioned in the form of a V with the open end of the V positioned to receive objects dropped through the

openings of the cradle and casing, means for rotating the cradle, means actuating the said movable frame in the cradle for cutting and crimping the side edges of the web over an object dropped into the cradle upon rotation of the cradle, resilient means for returning the said frame operated to cut and crimp the edges thereof to form the package to its original position, means feeding the web across the opening in the cradle as the cradle is rotated, a yoke pivotally mounted in the casing, means actuating the yoke into the cradle for forcing the web extended across the opening of the cradle into an area between the said frames in the cradle, means stopping the cradle in the position with the opening therein in registering relation with the opening of the casing, and means releasing the said stopping means.

6. In a material packaging receptacle, the combination which comprises a casing having an opening in the upper surface, a cylindrical cradle journaled in the casing and having an opening therein positioned to register with the opening in the upper surface of the casing, a frame having a cutter blade extended from the face thereof

fixedly mounted on one side of the cradle, a movable frame pivotally mounted in the opposite side of the cradle and positioned to coact with the former frame for shearing the web with the cutter blade and crimping the edges thereof together, spring actuated arms positioned to move the movable frame against the fixedly mounted frame, a crank extended from one end of the casing for rotating the cradle, means for separating the free end of the movable frame from the fixedly mounted frame when the movable frame is released by the spring actuated arms, means for feeding the web across the opening in the cradle, means for depressing the web downwardly into the said opening of the cradle, a latch for stopping the cradle with the opening thereof in registering relation with the opening of the casing, and a button extended from the casing for manually releasing the said latch, there being a pin selectively engaged by said button for releasing said cradle.

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No references cited.