

1	<b>ARTICLE MANIPULATOR MOVES ANALOGOUS WITH HUMAN HAND, FINGER, OR ARM MOVEMENT</b>	22.63	.Vertical rack
2	.Motion of hand, finger, or arm member multiplied or reduced in its transmission to article manipulator means	22.64	..Compensating for support shift (e.g., ship roll, etc.)
3	.Having means to transmit motion through an imperforate barrier	22.65	..Pivotal carriage
4	.Electric or fluid motor drive for manipulator	22.66	...Carousel
5	..Having means to transmit feedback signal from manipulator means to hand, finger, or arm	22.67	...Pivotal derrick
6	..For grip force amplification	22.68	..With laterally guided pipe or rod support
7	.Having flexible motion transmission means	22.69	...On inclined derrick mounted track
8	.Having sealing or radiation shielding means	22.71	...Both upper and lower pipe or rod holding and guiding means
9	<b>HUMAN BODY OPERATED EATING AID</b>	23	<b>POLE OR TREE HANDLERS</b>
10	<b>APPARATUS FOR MOVING MATERIAL TO A POSITION IN THE ERECTION OR REPAIR OF A BUILDING</b>	24	<b>GLASS CYLINDERS</b>
11	.Flat wall or ceiling member manipulating means	24.5	<b>ROUND HAY BALE HANDLING</b>
12	.Boxlike building module manipulating means	24.6	.Unrolling
13	<b>LAUNDRY HANDLING DEVICE</b>	25	<b>HAY DISTRIBUTORS</b>
14	<b>STOCK PULLING OR PUSHING</b>	26	<b>TOBACCO STRINGERS OR UNSTRINGERS</b>
15	.With means ejecting stock remnant	27	<b>APPARATUS FOR STRINGING ARTICLES ON A SUPPORT IN ABUTTING RELATION</b>
16	.With additional diverse motion of stock	788	<b>APPARATUS FOR MOVING INTERSUPPORTING ARTICLES INTO, WITHIN, OR FROM FREESTANDING, ORDERLY LAYERED, OR MUTUALLY STABILIZING ORDERLY GROUP</b>
17	.With fluid pressure actuated pushing or pulling means	788.1	.Stack forming apparatus
18	.Stock end face pushers	788.2	..Stacking tapered or nestable articles
19	..For sheet stock	788.3	...And varying orientation of tapered articles in stack
20	.Sheet stock lead end pullers	788.4	..Takes articles for stack from another group
21	<b>WITH WEIGHING</b>	788.5	...And turns article about horizontal axis
22.51	<b>WELL PIPE OR ROD RACKING MECHANISM</b>	788.6	...And turns plural articles as a unit about vertical axis
22.52	.With slope change	788.7	...And transports articles through working, treating, or inspecting station located therebetween
22.53	..For nonvertical drilling	788.8	..Including separate unstacking means
22.54	..Horizontal to/from vertical	788.9	..With means vertically aligning stack being formed
22.55	...Boom pivoting about horizontal axis	789	...And acting as discharge gate
22.56	....Pivoting derrick	789.1	...Powered means (e.g., jogger, etc.)
22.57	...Guided skate or pusher	789.2	..Forms layered stack or row and then upends it
22.58	...Pipe or rod guide	789.3	...Tiers or layers formed and sequentially added to stack prior to upending
22.59	..Guided skate or pusher		
22.61	..Pipe or rod guide		
22.62	.Horizontal rack		

- 789.4 ....Includes means for crossing articles in layer
- 789.5 ..Inserts separator into stack
- 789.6 ..Plural article sources
- 789.7 ..Includes means on or linked with transporting vehicle for forming and discharging stack
- 789.8 ..Creates single stack by juxtaposing separately formed tiers
- 789.9 ..With means for removing completed stack from stacking location
- 790 ...Interfingers with stack support moving vertically relative to removing means
- 790.1 ....Articles received and stack discharged at interfingering location
- 790.2 ...Includes stack gripping device
- 790.3 ...Pusher
- 790.4 ...Includes carrier having distinct supports each successively receiving a stack thereon
- 790.5 ...Includes gravity unloaded movable support
- 790.6 ....And conveyor for receiving unloaded stack
- 790.7 ...Includes driven conveyor whereon continuously supported stack is formed
- 790.8 ..With temporary support for incoming articles during discharge of stack
- 790.9 ..Stacks articles on different supports
- 791 ...And combines into single stack
- 791.1 ..Includes conveyor for feeding articles to sequentially formed stacks
- 791.2 ..Offsets or crosses adjacent articles in single article wide stack
- 791.3 ..Articles inverted in adjacent levels or layers
- 791.4 ...Layers
- 791.5 ..Formed with sloped or stepped side
- 791.6 ..Sequentially forms or adds completed layers
- 791.7 ...Offsets circular articles within adjacent rows of layer
- 791.8 ...Leaves void between articles in layer
- 791.9 ....To facilitate insertion of handling means
- 792 ...Crosses articles in adjacent layers
- 792.1 ....Includes swingable pusher for turning article shoved to layer
- 792.2 ....With rotating stack support
- 792.3 ....Rotated between addition of completed layers
- 792.4 ....Turns completed layer about vertical axis before stacking
- 792.5 ...Offsets articles within parallel adjacent superposed rows
- 792.6 ...Adds rows of articles to layer
- 792.7 ..Positions lowest article of stack first
- 792.8 ...Includes horizontally shiftable, article elevating device
- 792.9 ....With article gripping means
- 793 ...Includes suction-type article gripping means
- 793.1 ....And endless belt for transporting
- 793.2 ...Includes magnetic-type article gripping means
- 793.3 ....And endless belt for transporting
- 793.4 ...Includes support vertically alignable with stack then shiftable from beneath article
- 793.5 ....Support carried or formed by endless belt conveyor
- 793.6 ....With belt and article moving vertically together above discharge
- 793.7 .....And additional noncoaxial endless belt coaxing therewith to support article above discharge
- 793.8 ....Support adjusts vertically as height of stack increases
- 793.9 ....Support revolves around central axis during shifting and return
- 794 ...Support swings during shifting and return
- 794.1 ...Support travels vertically spaced paths during shifting and return

- 794.2 ...Plural coacting supports shifting in opposite directions
- 794.3 ...And movable stop engaging article during shifting of support
- 794.4 ...Includes endless belt for delivering
- 794.5 ...Having discharge vertically shiftable
- 794.6 ...Having discharge vertically shiftable as stack grows
- 794.7 ...Includes pusher conveyor for delivering
- 794.8 ...Includes roller conveyor for delivering
- 794.9 ..Positions highest article of stack first
- 795 ...Includes rotary deliverer
- 795.1 ...Coacting screws
- 795.2 ...Includes means for raising highest article and lowering it upon newly delivered article
- 795.3 ...Includes means raising article up to stack
- 795.4 .Unstacking apparatus
- 795.5 ..Utilizes fluid blast to remove article
- 795.6 ..Unstacking tapered or nestable articles
- 795.7 ..With means vertically aligning stack
- 795.8 ..With means replacing depleted stack
- 795.9 ..Removes complete tier from multitier stack
- 796 ..Separates stack into smaller stacks
- 796.1 ...Removes smaller stack from bottom
- 796.2 ..Removes layer as unit
- 796.3 ...And changes position or orientation of articles within layer
- 796.4 ..With means for reorienting article after unstacking
- 796.5 ..Removes highest article first from stack
- 796.6 ...With means offsetting highest article prior to removal
- 796.7 ...With stack elevating means
- 796.8 ....Pusher separates article from stack after elevation
- 796.9 ...Includes article gripping device
- 797 ....By suction
- 797.1 ....By magnetic force
- 797.2 ...Includes endless belt article separator
- 797.3 ...Includes rotary article separator
- 797.4 ..Removes lowest article first from stack
- 797.5 ...Includes means for elevating remainder of stack therefrom
- 797.6 ...Includes endless belt article separator
- 797.7 ...Includes rotary article separator
- 797.8 ...Includes article separator with gripping device
- 797.9 ...Includes pusher article separator
- 798 ...Includes movable stack support for gravity unloading article
- 798.1 ....And means for temporarily holding remainder of stack
- 798.2 .Positions intersupporting article into row
- 798.3 ..Takes article therefor from another spaced group
- 798.4 ..Tapered or nestable articles positioned
- 798.5 ..Includes revolving or swinging handler
- 798.6 ...And pusher conveyor for delivering
- 798.7 ..Includes pusher conveyor for delivering
- 798.8 ..Includes nonpowered guide for delivering
- 798.9 .Removes intersupporting article from row
- 111 **VEHICLE-CARRIED BALE ACCUMULATOR**
- 132 **HAY STACK SHAPERS**
- 133 **COAL STORAGE TYPE**
- 137.1 **MARINE LOADING OR UNLOADING SYSTEM**
- 137.2 .Loading or unloading aircraft under marine conditions
- 137.3 ..Underwater loading or unloading
- 137.4 .With weather cover
- 137.5 .Marine vessel to/from well
- 137.6 .Marine vessel to/from air vessel
- 137.7 .Marine vessel to/from water
- 137.8 ..Marine vessel to/from lighter to/from water
- 137.9 .Marine vessel to marine vessel

138.1	..With means to effect relative vertical movement of marine vessel	141.4	...Having swinging portion
138.2	..With means to compensate for relative marine vessel movement	141.5	...On marine vessel
138.3	...Including means to sense position of marine vessel	141.6	..By use of swinging crane
138.4	...Line tension control	141.7	..By use of hoist line
138.5	..Marine vessel to/from lighter to/from marine vessel	141.8	..By use of conveyor chute
138.6	...By use of endless belt conveyor	141.9	.By use of screw conveyor on marine vessel
138.7	..Marine vessel to/from lighter to/from shore	142.1	.By use of endless belt conveyor on marine vessel
138.8	...With marine vessel holding or moving device	142.2	..For "bulk" (e.g., granular, etc.) cargo
138.9	...Serial marine vessels supporting conveyor	142.3	...Belt extending parallel to marine vessel beneath cargo hold
139.1	...By use of endless belt conveyor	142.4	....Sequential endless belts
139.2	..One marine vessel towing the other	142.5	...Including orbiting bucket
139.3	..By use of endless belt conveyor	142.6	.By use of laterally moving crane on marine vessel
139.4	.Marine vessel to/from shore	142.7	.By use of swinging crane on marine vessel
139.5	..Personnel loading or unloading	142.8	.By use of hoist line
139.6	..With means to compensate for marine vessel movement	142.9	..Scoop or scraper on marine vessel
139.7	...Including means to sense vertical position of marine vessel (e.g., draft, etc.)	143.1	.By use of conveyor chute
139.8	..With marine vessel holding or moving device	143.2	.Stowage arrangement on marine vessel
139.9	..Marine vessel to/from land or rail vehicle distinct from system	146	<b>CHARGING OR DISCHARGING MEANS ADAPTED FOR USE IN A RADIOACTIVE ENVIRONMENT</b>
140.1	...By use of marine vessel to/from shore gangway for land or rail vessel	147	<b>CHAMBER OF A TYPE UTILIZED FOR A HEATING FUNCTION AND MATERIAL CHARGING OR DISCHARGING MEANS THEREFOR</b>
140.2	...By use of endless belt conveyor	148	.With alarm, indicator, or signal
140.3	...By use of laterally moving crane	149	.Driven, rotatable chamber
140.4	...By use of swinging crane	150	.Including driven device and/or inclined flow path to carry or convey material into, within, and out of chamber
140.5	...By use of conveyor chute	151	..In helical or tortuous path
140.6	..By lifting marine vessel or by changing water level	152	..With means outside of chamber to carry or guide material to, or from, device or path
140.7	..By use of screw conveyor	153	..With driven means within chamber to manipulate or transfer material
140.8	..By use of endless belt conveyor	154	..Including track-guided, wheeled vehicle
140.9	...For "bulk" (e.g., granular, etc.) cargo	155	...Having means to support material suspended therebelow
141.1	....Including orbiting bucket	156	..Including reciprocating or vibratory conveyor
141.2	....With grab bucket	157	..Including endless conveyor (e.g., apron, pusher type, etc.)
141.3	..By use of laterally moving crane		

- 158 ..Including screw, rotary, or rotating pusher, conveyor
- 159 ..Including roller conveyor
- 160 .Charging of chamber
- 161 ..With control system responsive to condition in chamber
- 162 ..Through plural ports in top of chamber
- 163 ...From vehicle-carried hopper located above port
- 164 ...With closures for ports and means on vehicle to manipulate them
- 165 ..By depositing material onto surface of glass melt
- 166 ...With pushing device to move material therealong
- 167 ..By driven device for transporting material to a stationary, at least in part, accumulating means for subsequent release into chamber by gravity
- 168 ...Receptacle moved back and forth along inclined way (e.g., skip, etc.)
- 169 ....Accumulating means includes serially arranged closures
- 170 ....Each comprising bell of bell and hopper type accumulating means
- 171 ...Conveyor
- 172 ..By driven device for transporting material to and/or into, or into and within, chamber
- 173 ...Plural, successive, driven devices
- 174 ....Thrower and at least one feeder conveyor therefor
- 175 ....Including screw conveyor
- 176 ....Including pusher conveyor
- 177 ....Two or more conveyors, one traversing open top, or opening in top of, chamber
- 178 ...Receptacle moved back and forth along inclined way (e.g., skip, etc.)
- 179 ...Movably mounted conveyor traverses open top, or opening in top of, chamber
- 180 ...Including apparatus to advance a material-supporting element to a point within chamber, release material, and retract element
- 181 ...With driven means to eject material from element
- 182 ...Element comprises tiltable, material-underlying support
- 183 ....Receptacle separable from apparatus (e.g., for refilling, etc.)
- 184 ....Receptacle tiltable about axis parallel to direction of apparatus advance
- 185 ...Element comprises receptacle having bottom outlet
- 186 ...Element comprises grab
- 187 ...Material accumulating and holding structure, and driven conveyor therein serving to move (e.g., eject, etc.) material from structure to chamber
- 188 ...Including wheeled carriage for supporting the structure
- 189 ...Driven conveyor comprises rotatable, pocketed gate
- 190 ....Screw conveyor
- 191 ...Traversing hoist having material-underlying support or material attracting or gripping means
- 192 ...Carrier-mounted, tiltable receptacle
- 193 ...Thrower
- 194 ...Reciprocating or oscillating
- 195 ....Rotary
- 196 ...Conveyor
- 197 ....Screw
- 198 ...Reciprocating pusher or reciprocating conveying surface
- 199 ..By material supporting structure movable, or having a movable component, to release material into chamber by gravity
- 200 ...Including serially arranged closures
- 201 ...At least one comprising bell of bell and hopper type supporting structure
- 202 ....With means to improve seal between mating surfaces

203	....Having bell and/or hopper mounted for rotation	222.01	<b>APPARATUS FOR CHARGING A LOAD HOLDING OR SUPPORTING ELEMENT FROM A SOURCE, AND MEANS FOR TRANSPORTING AND PRESENTING ELEMENT TO A WORKING, TREATING, OR INSPECTING STATION</b>
204	..Bell and hopper		
205	...With means to distribute material after release from structure		
206	..With means to distribute material after release from structure	222.02	.Condition responsive control of transporting means
207	..Comprising a tiltable material containing member	222.03	.Portion of transporting means is retarded or stopped with load at station without being disconnected from remainder of transporting means
208	..By inclined flow path		
209	.Discharging of chamber by driven device		
210	..With means beyond chamber exit to move or guide material discharged therefrom by the device	222.04	.Device engages load handling or supporting element or load on element to align load at station
211	..Means comprises endless or rotary conveyor	222.05	..Device engages load holding or supporting element to fix element position relative to station
212	...Means comprises portable (e.g., vehicle mounted, etc.) material receiving chute	222.06	...Device engages portion of element which is separable from transporting means to fix position of portion of element
213	..Device comprises screw conveyor		
214	..Device comprises pushing or pulling mechanism	222.07	.Means to convey load back and forth between initial location and station
215	...Mechanism repositionable for serving plural chambers		
216	.Discharging of chamber by gravity, and means beyond exit thereof to guide, move, or stop material	222.08	.Charging transporting means with load at station
217	<b>APPARATUS FOR MOVING MATERIAL BETWEEN ZONES HAVING DIFFERENT PRESSURES AND INHIBITING CHANGE IN PRESSURE GRADIENT THEREBETWEEN</b>	222.09	.With simultaneous charging and discharging of plural load holding or supporting elements
217.1	.For carrying Standardized Mechanical Interface (SMIF) type	222.1	..With pusher
218	.Including screw conveyor	222.11	..With conveyor
219	.Including trap chamber having horizontal axis of rotation	222.12	..With reciprocating arm
220	..With means for changing pressure in trap chamber	222.13	.Transporting means carries load to at least one of a plurality of fixed stations
221	.Including serially arranged valves in path having a vertical component (e.g., airlocks, etc.)	223.01	.Supply source capable of 360 degrees revolution
		223.02	.Supply source capable of reversible 180 degrees revolution
		224.01	.Supply source includes chute
		225.01	.Load holding or supporting element including gripping means
		226.01	..Plural grippers for plural elements
		226.02	..Gripper includes pivoted jaw
		226.03	.Including plurality of supply sources for single element

226.04	.Device engaging transporting means or source to align element relative to source	239	...One or more separate supporting members and means to impart independent, linear or partly linear, movement thereto
226.05	.Transporting means is a horizontally rotated arm		
227	<b>APPARATUS PARTICULARLY ADAPTED FOR CHARGING OR DISCHARGING A FACILITY COMPRISING ONE OR MORE SITES FOR THE PARKING OF WHEELED VEHICLES</b>	240	...Member moving from particular location to discharge and/or receive vehicle, and returning thereto
228	.Facility includes structure (e.g., ramp, angularly related successive locations for a vehicle, etc.) necessitating self-propellability or steerability of vehicle	241	...With means to transfer vehicle to or from supporting member
229	..Upwardly inclined, pivotable parking site for receiving driven vehicle	242	..On driven, plural-site carrier initially receiving vehicle
230	...Caused to pivot by advancing vehicle	243	...With loading means, external to carrier, at facility entrance
231	.With control system responsive to changeable operating instructions	244	...Serving also movable site on subsequent driven carrier, or fixed site
232	.With means to sense condition of site	245	...By moving linearly in a horizontal direction
233	.Including one or more movable sites	246	....And moving vertically (e.g., laterally shiftable elevator, etc.)
234	..Vehicle assigned to particular supporting member (e.g., platform, dolly, cage, etc.) having some degree of independence either as to means, time, or direction of movement	247	...By moving linearly in vertical direction or orbiting in vertical plane
235	...Supporting member separable from endless, member-transporting carrier, or disengageable from endless drive means, and movable away therefrom for receiving, discharging, or storing vehicle	248	....Endless carrier having sites attached thereto (e.g., suspended therefrom, etc.)
236	...Plurality of supporting members moved in recirculating fashion by succession of driving devices	249	..Moving linearly in vertical direction or orbiting in vertical plane
237	....Path of moving member describes generally rectangular loop	250	...Revolving about single, horizontal axis
238	....Successive devices each include endless, member-driving element (e.g., belt, cable, chain, etc.)	251	...Endless carrier having sites attached thereto (e.g., suspended therefrom, etc.)
		252	.With vehicle storage or retrieval system responsive to manual designation of destination
		253	.With means to transfer, or facilitate transfer of, vehicle from carrier to site or vice versa
		254	..Including sets of intermeshing support elements having relative vertical movement
		255	..By exerting upward, in addition to generally horizontal, force
		256	...And forming sole support for vehicle
		257	..Complementary, driven, vehicle-supporting conveyors on carrier and site

258	..Tiltable or inclined means for supporting vehicle on carrier or site	275	...With means to detect obstruction and alter movement of charging or discharging means
259	..By exerting generally horizontal force	276	..Inclined members
260	...Comprising component of carrier having both horizontal and vertical paths of travel	277	..Charging or discharging means includes load sustaining surface and device to transfer load, with horizontal component of movement, from or to surface or member
261	.Carrier-facility-site relationship	278	...Device comprises one or more conveyors of driven roller or endless apron type
262	..Route to site utilizes plural carriers	279	...Device includes self-powered, track-guided car
263	..Sites arranged radially of carrier rotatable in whole or in part	280	...Device includes push-pull mechanism
264	..Sites arranged in superposed, longitudinal rows and in confronting relationship to carrier in intervening aisle	281	..Charging or discharging means includes elevating device, movable in horizontal direction (e.g., portable, etc.), having load-sustaining surface
265	<b>GUIDED, WHEELED DEVICE FOR TRANSPORTING MAIL AND EXTERNAL MEANS COOPERATING THEREWITH FOR LOADING OR UNLOADING THE DEVICE</b>	282	...Including additional means to move surface horizontally relative to device
266	<b>PLURAL, STATIC STRUCTURES FOR SUPPORTING DISCRETE LOADS AND CHARGING OR DISCHARGING MEANS THEREFOR</b>	283	...Pivotably or rotatably
267	.Load-underlying members (e.g., racks, receptacles (or a compartmented receptacle), shelves, troughs, etc.)	284	..With detachably associated auxiliary carrier for transporting device during portion of its horizontal travel
268	..With means for selectively charging a plurality of receptacles from a single source, or selectively discharging a plurality of receptacles to a single destination	285	..Charging or discharging means comprises plural endless conveyors or plural runs of single endless conveyor
269	...Charging a plurality of receptacles	286	..With load-supporting pallet
270	...Condition responsive	287	<b>STATIC RECEPTACLE OF A MATERIAL CONDITIONING TYPE AND MEANS TO MOVE, OR FACILITATE MOVEMENT OF, MATERIAL TO, WITHIN, OR FROM THE RECEPTACLE</b>
271	...By driven conveyor having gated discharging locations spaced therealong	288	<b>STATIC RECEPTACLE AND MEANS FOR CHARGING OR DISCHARGING, OR FACILITATING THE CHARGING OR DISCHARGING OF, THE RECEPTACLE</b>
272	...By conveyor movable (e.g., pivotable, etc.) to reposition outlet thereof	289	.With alarm, indicator, or signal
273	..With control system responsive to changeable operating instructions	290	.Receptacle contains liquid in which charge is submergibly sealed
274	..With means on charging or discharging means to determine status of member	291	.With means to handle (e.g., recirculate, remove, etc.) dust

- 292 .With means to seal receptacle in vicinity of entrance for charging or discharging means
- 293 .Charging or charge-distributing means
- 294 ..Condition responsive
- 295 ...Position of charging means controlled by level of material in receptacle
- 296 ...Drive means of charging conveyor controlled by level of material in receptacle
- 297 ..With means to ream or cut, or with collapsible means to form, vertical discharge passage in material during charging
- 298 ..Serving also to discharge receptacle
- 299 ..Terminal portion of means comprises gravity flow path (e.g., chute, etc.)
- 300 ..Having charge distributing means of driven type
- 301 ...Rotary type
- 302 ....Having one or more conveyors rotatable about a vertical axis at an end thereof
- 303 ..Charging a static receptacle by gravity flow from a portable load carrier
- 304 .Nongravity discharging means
- 305 ..Including at least one discharge assistant of the compound motion type
- 306 ...Having compound motion assistant located proximate to bottom of receptacle and displaceable generally parallel thereto
- 307 ....Condition responsive
- 308 ....Assistant separable from receptacle
- 309 ....Pivotably displaceable assistant and member for shielding its fixed end
- 310 ....Comprising screw conveyor
- 311 ....Including means for loosening packed material
- 312 ....Having receptacle-reacting element of displaceable-movement drive means located on conveyor
- 313 ...Having compound motion assistant operating on top of material
- 314 ....Including wall cleaning means
- 315 ....Condition responsive
- 316 .....To maintain material surface horizontal
- 317 ...Route of material being discharged includes vertical segment through remainder of charge
- 318 ...With conveyor extending to discharge opening in sidewall of receptacle
- 319 ...Screw-type pickup conveyor
- 320 ....Including plural screw elements
- 321 ....Including means for loosening packed material
- 322 ...Means for displacing assistant involves driven, wheel-like, support member rolling on surface of material
- 323 ..Condition responsive
- 324 ..Including flail
- 325 ..Including one or more driven conveyors located within or partly within receptacle for making initial pickup of material
- 326 ...At least one of screw type
- 327 ...At least one of endless type
- 328 .Gravity discharge of a gated, static receptacle to one or more vehicle-mounted receivers
- 329 ..Located on moving vehicle
- 331.01 **MOVABLE RACK HAVING SUPERPOSED, CHARGE-SUPPORTING ELEMENTS, AND EXTERNAL MEANS FOR CHARGING OR DISCHARGING ELEMENTS**
- 331.02 .Rotating or circulating rack
- 331.03 ..Charge-supporting elements moving horizontally
- 331.04 ..Charge-supporting elements moving vertically
- 331.05 ..Rack as a unit rotating about vertical axis
- 331.06 .Wheeled rack
- 331.07 ..Simultaneous charging or discharging of charge-supporting elements
- 331.08 ..Charging or discharging means is a pusher

331.09	..Charging or discharging means is a conveyor	338	<b>WHEELED, LOAD-TRANSPORTING TYPE VEHICLE UTILIZES ITS UNINTERRUPTED, FORWARD MOTION TO CAUSE AN EXTERNALLY SUPPORTED LOAD TO BE TRANSFERRED TO IT</b>
331.1	..Charging or discharging means is a reciprocating arm		
331.11	..Charging or discharging means having elevating means to present load at a predetermined level	339	<b>WHEELED, LOAD-TRANSPORTING TYPE VEHICLES FORMING A TRAIN, AND LOADING OR UNLOADING MEANS THEREFOR, LOCATED AT LEAST IN PART THEREON</b>
331.12	.Rack formed by rotatable screws		
331.13	.Rack moved by conveyor relative to charging or discharging means	340	<b>WHEELED, LOAD-TRANSPORTING TYPE VEHICLES AND MEANS FOR TRANSFERRING, OR ENABLING TRANSFER OF, LOAD FROM ONE VEHICLE TO ANOTHER</b>
331.14	.Rack moved vertically by elevating means		
331.15	..Having means for detecting presence of article on rack		
331.16	..Charging or discharging means is a pusher	341	.By additional load-supporting vehicle for moving with load from one load-transporting type vehicle to the other
331.17	..Charging or discharging means is a conveyor		
331.18	..Charging or discharging means is a reciprocating arm	342	..Additional vehicle comprises overhead traversing hoist
332	<b>RECEPTACLE HAVING CHARGING OR DISCHARGING MEANS AND ADAPTED FOR RELOCATION FROM ONE TO ANOTHER OF A PLURALITY OF SITES OF INTERIM USE</b>	343	.With means on each vehicle cooperating to effect, or facilitate, transfer of load
333	<b>LOADING OR UNLOADING A RAILWAY CAR BY UTILIZING THE TRACTOR OF A TRACTOR TRAILER, LOAD-TRANSPORTING TYPE VEHICLE TO MANEUVER THE TRAILER, OR A PART THEREOF, ONTO OR OFF THE CAR</b>	344	.With driven load engaging device, supported at least in part externally of the vehicles, for moving load therebetween
334	<b>MOVING, WHEELED, LOAD-TRANSPORTING TYPE VEHICLE AND LOADING OR UNLOADING DEVICE THEREFOR, SUPPORTED AT LEAST IN PART INDEPENDENTLY OF THE VEHICLE AND TRAVELING THEREWITH DURING TRANSFER OF LOAD THEREBETWEEN</b>	345	.Means is confined to one of the vehicles
335	.Loading device having capability for controlling direction of output therefrom	346	..Means comprises tiltable load-supporting portion
336	.Suspendedly supported device	347	..Means comprises elevatable load-supporting portion traveling in path including vertical, rectilinear movement
337	<b>WHEELED, LOAD-TRANSPORTING TYPE VEHICLE UTILIZES ITS UNINTERRUPTED, FORWARD MOTION TO CAUSE AN EXTERNAL, LOAD-ENGAGING STRUCTURE TO REMOVE ITS LOAD</b>	348	...Having portion suspended from vehicle on overhead way
		349	<b>WHEELED, LOAD-TRANSPORTING TYPE VEHICLE HAVING DRIVEN MEANS THEREON FOR REPOSITIONING LOAD SUPPORTING PORTION OF VEHICLE TO CAUSE OR FACILITATE MOVEMENT OF LOAD TO OR FROM AN EXTERNAL COOPERATING MEANS</b>
		350	.Load-supporting portion pivotable about horizontal axis
		351	.Cooperating means comprises or includes a conveyor

- 352 **WHEELED, LOAD-TRANSPORTING TYPE VEHICLE HAVING DRIVEN MEANS THEREON FOR ENGAGING AND MOVING LOAD HORIZONTALLY, OR WITH HORIZONTAL COMPONENT, TO OR FROM AN EXTERNAL COOPERATING MEANS**
- 353 .Cooperating means comprises or includes a conveyor
- 354 **WHEELED, LOAD-TRANSPORTING TYPE VEHICLE AND EXTERNAL MEANS FOR SUPPORTING VEHICLE IN TOTO AND REORIENTING IT INTO LOAD-RELEASING ATTITUDE**
- 355 .With driven carrier for receiving released load
- 356 ..Endless-type conveyor
- 357 .Vehicle of rail-guided type and track section having rails configured to tilt or invert vehicle as result of moving thereonto or progressing therealong
- 358 .Vehicle-holding member rollable along underlying support (i.e., axis of pivot of vehicle travels laterally)
- 359 .Vehicle-holding framework rotatable about fixed axis passing through framework and parallel to longitudinal axis of vehicle
- 360 ..Including movable element to clamp vehicle to framework
- 361 ..With rotation responsive moving means
- 362 .Pivotably movable structure, at least initially in underlying relation to vehicle
- 363 ..With means to agitate vehicle or its load
- 364 ..With means for shifting axis of pivot or tilt of structure in vertical direction
- 365 ..With means to affect exit of load from vehicle
- 366 ...Axis of pivot parallels longitudinal axis of vehicle
- 367 ..With means to retard or stop vehicle approaching structure
- 368 ..With means to guide departing load toward vehicle exit
- 369 ..With means to operate vehicle-mounted closure member
- 370 ..With nonaligned paths for approach and departure of vehicle
- 371 ..Axis of pivot or tilt of structure parallels longitudinal axis of vehicle thereon
- 372 ...With movable element to clamp vehicle to structure
- 373 **LOAD-TRANSPORTING TYPE VEHICLE AND EXTERNAL MEANS COOPERATING IN THE LOADING OR UNLOADING THEREOF**
- 374 .Means decelerates moving, wheeled vehicle, load continues to move and leaves vehicle
- 375 .Means agitates, shakes, or vibrates wheeled vehicle or load therein to loosen load for departure from vehicle
- 376 .Involving movement of load by gravity from wheeled vehicle
- 377 ..Means initiates unloading of vehicle of type having load body, or other load holding means, suspended therefrom
- 378 ...Bottom unloading body
- 379 ...Bucketlike body having horizontal, reciprocable movement, and flexible strand means for driving it in at least one direction
- 380 ....Flexible strand means serves also as initiating means
- 381 ...Tilting body
- 382 ...About axis parallel to direction of vehicle travel
- 383 ..Means cooperates with motion of vehicle to reorient load body, relative to wheels, into load releasing attitude
- 384 ..By pivoting body about axis parallel to longitudinal axis of vehicle to unload from side
- 385 ..Means comprises driven device for raising one end of vehicle upwardly relative to other end thereof
- 386 ..Means comprises driven device for engaging and moving pivotable load body relative to remainder of vehicle

387	..Means comprises device or structure for cooperating with motion of vehicle to initiate relocation of body component (e.g., floor or floor section, gate, etc.) thereof	404	.For emptying contents thereof into portable receiving means
388	...Component comprises oppositely swinging, operatively interconnected gates	405	..By inverting both receptacle and receiving means in order to transfer contents from one to other
389	.Means comprises structure for cooperating with a maneuvering, wheeled vehicle to engage and acquire a load therefrom or to give up a load thereto	406	..Having receiving means mounted on wheeled vehicle
390	.Of driven type, for unloading a wheeled vehicle	407	...With closure for receiving means and receptacle-responsive operating means for closure
391	..Including load raising or lowering device	408	...Device includes vertically swinging arm and receptacle support pivotably attached thereto
392	...Having means for also moving load laterally	409	...Device includes track-guided, receptacle-supporting carrier
393	...With flexible, load-underlying element or surface	410	...Device includes haulage cable
394	...With bucket or scoop-type holder	411	.With container opening means
395	..Including load pushing or pulling device	412	..Rupturing or cutting type
396	..With additional means for aligning vehicle and an external load support	413	.Successive dumping from conveyed stack
397	.Means comprises repositionable supporting and/or guiding structure (e.g., chute, etc.) for conducting load moving by gravity to a wheeled vehicle	414	.With gate or closure-type discharge control means
398	.Power-driven conveyor for loading a wheeled vehicle	415	.With jarring means
399	.Raising or lowering device of driven type for loading a wheeled vehicle	416.01	.Nongravity type
400	.Pushing or pulling device for loading a wheeled vehicle by exerting a generally horizontal force on load	416.02	..Changes spacing between articles
401	.Means serves to align wheeled vehicle and load receiving or relinquishing structure	416.03	..Horizontal movement of receptacle contents
402	.Means comprises stationary guide or fixed anchor for cooperating with loading or unloading means located, at least in part, on wheeled vehicle	416.04	...Ejector
403	<b>DEVICE FOR EMPTYING PORTABLE RECEPTACLE</b>	416.05	..Receptacle moved on conveyor past emptying device
		416.06	...Receptacle unloaded while in motion
		416.07	..Articles removed in layers
		416.08	..Receptacle has spaced article supports
		416.09	..Ejector
		416.1	...Article support deformed during load ejection
		416.11	...Article lifted from receptacle and subsequently pushed horizontally
		416.12	...Receptacle lowered onto support to eject article therefrom
		418	.Orienting endless, roller, or gravity conveyor
		419	.Rotary cradle
		420	..Nonfixed pivot
		421	..Oscillated
		422	.Elevator type
		423	..Differentially operated cables

424	..Coacting catch or support	462	<b>VEHICLE ATTACHED AUXILIARY CARRIERS</b>
425	.Upending (e.g., rocking or tilting about end, etc.)	463	.For rim, tire, or wheel
799	<b>APPARATUS FOR POSITIONING PLURAL ORDERLY ARTICLES ONTO PALLET</b>	464	..Plural
426	<b>WHEEL AND WHEEL-TYPE ARTICLE HANDLER AND TRANSPORTER</b>	465	..Movement about spaced pivot axes
427	.Elevator-type engaging means	466	..Simple arcuate or rectilinear movement
428	.Vertically swinging article engager	467	<b>SELF-LOADING OR UNLOADING VEHICLES</b>
429	.Opposed horizontally reciprocable engaging elements	468	.With load-receiving portion comprising horizontally disposed, rotatable cylinder
430	.Ramp-type truck	469	.With load-receiving portion, or significant section thereof, pivotable relative to horizontal
431	<b>ARTICLE ENGAGED BETWEEN ENDS FOR ROTATION AND ADVANCEMENT</b>	470	..Having axis of pivot parallel to longitudinal axis of vehicle for side loading or unloading
432	.Driven, canted roll or ring	471	..Elevatable type
433	<b>ARTICLE ROTATOR, ROLLER TYPE</b>	472	..Discharge gate-carried loading means
434	<b>MOTION OR DRAFT RESPONSIVE LOAD HANDLER AND TRANSPORTER</b>	473	..Interrelated movements or drives for load body and loading means
435	.Movably connected vehicle sections (e.g., articulated, etc.)	474	..By adjustably attaching element of running gear (e.g., wheel, axle, etc.) to load-receiving portion, or support member (e.g., chassis, frame, etc.) therefor, to enable relative movement therebetween
436	..Vertically swinging	475	...Element shiftable linearly toward front or rear of vehicle
437	.Ground engageable means	476	...Pivotably
438	..Lifting leg type	477	..Load-receiving portion also shiftable longitudinally
439	..Wheel operated	478	...With driven means to move load relative to portion
440	...Locked to wheel	479	...Means serves also to shift portion in at least one direction
441	...Elevator type	480	..Load-receiving portion includes means which extends longitudinally therefrom to form ramp when portion pivots
442	...Vertically swinging support	481	..Trailer-type vehicle and adjustable or removable tow-engaging structure associated therewith enabling lowering of forward end of vehicle for loading
443	...Cable and drum actuated		
444	<b>TILTING VEHICLE-TYPE HANDLER (I.E., PORTABLE GRAPPLE)</b>		
445	.Article actuated engaging means		
446	.Separable load rack		
447	.Successive engaging means		
448	.With band-type engager		
449	.Flexible strand attached load gripper		
450	.Opposed movable jaw grippers		
451	..Slidable		
452	..Toggle-type operator		
453	.Single movable jaw gripper		
454	..With operating means		
455	..Adjustable		
456	...Slidable		
457	.Rigid-type grapple engaging means (e.g., hooks, etc.)		
458	<b>OPPOSED SHELF-TYPE ELEVATOR AND TRANSPORTER</b>		
459	.Load bridging vehicle		
460	<b>LOAD BRIDGING VEHICLE</b>		
461	.Removable transverse load support		

482	..Trailer-type vehicle having load-receiving portion pivotable relative to at least one other component of vehicle	505 506	....Pivotally .Winch and idler-pulley-traversing haulage cable for ejecting load from vehicle
483	...About joint or other connection in structure (e.g., drawbar, frame, etc.) normally extending linearly, or planarly, from tow-engaging end of vehicle to axis of wheels of vehicle, and relative to said end	507 508 509	.Conveyor ..With worker support ..Comprising load-engaging element reciprocally movable parallel to generally horizontal load-supporting component of vehicle for ejecting load therefrom
484	..About axis located between or adjacent to wheel sets of vehicle having plural, tandemly arranged sets of rear wheels, and relative to tow-engaging end of vehicle	510	...Three-dimensional load-receiving portion includes movable load-underlying surface, and element comprises upright member attached to surface
485	...About axis of wheels of vehicle having two wheels, and relative to tow-engaging end of vehicle	511	...Pusher moved by ram movable to different positions along load-supporting platform
486	..With means to raise load above load-receiving portion for deposit thereon or therein	512 513 514 515	...Plural pushers on same vehicle ...Pusher guide means ...Pusher moved by flexible means ...Connected to winch
487	...Including receptaclelike (e.g., bucket, scoop, etc.) holder for load	516	...Connected to ram actuated by fluid pressure
488	...Comprising driven conveyor	517	...Pusher moved by ram actuated by fluid pressure
489	..With driven conveyor to receive load departing from pivoted load-receiving portion	518	..Power-driven with cooperating handling means
490	..Two wheel, manually propelled vehicle pivotable about axis of wheels (e.g., hand truck, etc.) and provided with attendant-operated, load-handling means	519 520 521 522	..With gate means ...Multiple gates ..With movable upright plate ..Laterally movable rigid platform type
491	..With driven means to move load relative to load-receiving portion	523 525.1 525.2	..Shiftable or removable conveyor unit ..Reciprocating type ...Compactor vehicle including compacting plate
492	...Including pusher element	525.3	....Reverse-flow ejection
493	....Pivotably mounted element	525.4	.....Sequentially acting compacting plates or with closure over compacting plate
494	...Including haulage cable		.....Compacting plate movable along controlled arc
495	.Having elevating load body	525.5	.....Including moving compacting plate pivot
496	..With traversing hoist		.....Plate pivot moves rectilinearly
497	..With reciprocating conveyor (e.g., ejector type, etc.)	525.51 525.52 525.53	.....With pivot-effecting hydraulic cylinder carried on pivot
498	.Separable load rack		
499	..Conveyor operated		
500	..Cable operated		
501	.Successive handling means		
502	..Power-driven conveyors		
503	...Movably mounted		
504	....Universally		

525.54	.....Pivot carried by arm turning about fixed second pivot	545	...Carrier comprises movable component of load-receiving portion (e.g., tailgate, section of floor, etc.)
525.55	....Sequentially acting compacting plates or with closure over compacting plate	546	..Raising or lowering of load or load holder includes curvilinear movement
525.6	....Rectilinearly reciprocating compacting plate	547	...Pivotable, telescopic arm imparts path of plural radii
525.7	...Vibratory	548	...Unloader actuated by gravity-influenced load
525.8	....Detachable vibrator	549	...Carrier or mover includes means enabling additional movement of a rectilinear nature in a direction other than vertical
525.9	..Walking beam	550	...Carrier or mover includes means enabling additional movement about a vertical axis
526	..Screw type	551	...Load holder located relative to vehicle in such manner as to accrue load during travel of vehicle
527	..Flexible conveyor type	552	...Carrier or mover pivots about axis parallel to longitudinal axis of vehicle
528	...Endless	553	...Load holder or portion thereof has additional axis of pivot relative to swinging arm-type carrier or mover
529	..Load-engaging roller or rollerway	554	...Load holder pivotable about lower edge of opening in end of load-receiving portion
530	...With means for locking roller against rotation	555	...With means to grasp load
531	...With separate means movable vertically between load supporting and retracted positions	556	...Carrier comprises movable component of load-receiving portion
532	...Shiftably or removably supported on vehicle	557	....Tailgate
533	....Roller connected to support pivotally mounted on vehicle base	558	...Carrier movable to storage position beneath vehicle
534	.....Support pivotal about horizontal axis	559	..Loading by haulage cable imparting principally horizontal movement to load or load holder
535	....Vertically shiftable	560	<b>TRAVERSING HOIST TYPE</b>
536	..With means for preventing movement of load relative thereto	561	.Traveling crane
537	..Skidway	562	..Switch system
538	..With haulage means (e.g., cable, etc.)	563	.Tow truck type
539	..Loading or unloading by other carrier or mover means, and the load movement thereof	564	<b>HOIST OR ELEVATOR AND ENDLESS OR ROTARY CARRIER</b>
540	..Raising or lowering of load or load holder includes vertical, rectilinear movement	565	<b>VERTICALLY SWINGING SHOVEL AND AUXILIARY CARRIER</b>
541	...And carrier or mover includes means enabling additional movement having horizontal component	566	.Vertically swinging shovel having an orbital path
542	....Hoist having traversing (i.e., horizontal) movement		
543	....Having boom pivotable about a vertical axis		
544	....Elevator with laterally shiftable guides		

567	<b>VERTICALLY SWINGING LOAD SUPPORT AND ENDLESS OR ROTARY CARRIER</b>	585	.Means includes a load-engaging surface or element for pushing load from vehicle
568	.For handling bottles		
569	<b>VERTICALLY SWINGING LOAD SUPPORT AND HOIST OR DRAG LINE</b>	586	<b>DEVICE OR ELEMENT ASSOCIATED WITH THE HANDLING OR MOVING OF A CHARGE FOR A HEATING-TYPE CHAMBER</b>
570	<b>ENDLESS OR ROTARY CARRIER AND DRAG LINE SCOOP</b>		
571	<b>SKIDWAY WITH HOISTING ROPE</b>	587	.Charge leveler
572	<b>LOAD-TRANSPORTING TYPE VEHICLE TO BE LOADED OR UNLOADED, OR EXTERNAL MEANS FOR THE LOADING OR UNLOADING, OR FOR COOPERATING THEREWITH, OF SUCH A VEHICLE</b>	588	..Of rotary type
		589	<b>LOAD SUPPORT HAS LINEAR VERTICAL MOVEMENT AND ADDITIONAL MOVEMENT FOR ALIGNING AND MOUNTING LOAD AT A SPECIFIC LOCATION</b>
573	.Means includes driven carrier for receiving a load from a vehicle at an unloading station	590	.Additional movement is rotational
574	..Endless apron-type conveyor	591	<b>GUIDED HOIST WITH LOAD-SUPPORTING GRAB MEANS MOVABLE HORIZONTALLY BY MEANS WHICH SWINGS HORIZONTALLY OR MOVES LINEARLY</b>
575	.Means comprises device for changing the attitude of a vehicle, or its load body, relative to the horizontal for unloading by gravity	592	<b>ELEVATOR OR HOIST AND LOADING OR UNLOADING MEANS THEREFOR</b>
576	..Framework for holding a vehicle, pivotable about fixed axis through framework parallel to longitudinal axis of vehicle	593	.Mail
577	..Pivotably movable structure for supporting a vehicle in toto, positioned, at least initially, in underlying relation thereto	594	.Load lowering, automatic return
578	..With means for adapting structure to accomodate more than one length of vehicle	595	.Inclined track
579	...With fluid or mechanical friction brake to regulate movement of structure	596	..Ditching type
580	...With means for limiting longitudinal movement of vehicle on structure	597	...Pivoted track
581	...Having axis of pivot parallel to longitudinal axis of vehicle	598	..Tilting carrier
582	..By raising one end of a vehicle relative to other end thereof	599	...Tilting track section
583	...Including a vertically swinging, lifting member	600	...Running out from base
584	.Means comprises device or member for moving or causing movement of either a vehicle or a load receiving or relinquishing structure for an alignment purpose	601	...Return, buffer, or counterweight feature
		602	...Return, buffer, or counterweight feature
		603	...Skeleton or fork
		604	..Outhaul feature
		605	..Carrier running out from base
		606	.Magnet and grab
		607	.Convertible attachment
		608	.Separable rack
		609	.With external cooperating movable feeding or discharging means
		610	..Elevator carrier movement responsive
		611	...Vehicle handling
		612	...Loading means
		613	...Flow control mechanism (i.e., volume)
		614	....Trap chamber type
		615	...Movable to feeding position over carrier
		616	...Valved carrier

617	..Adjustably mounted discharge guide	648	..Camming trackway
618	.Grab	649	...Adjustable
619	..Cantilevered type (e.g., industrial truck, etc.)	650	...Yoke suspended carrier
620	...Movable about horizontal axis	651	..Tethered type
621	...Movable rigid jaw clamping type	652	..Abutment or limit stop
622	....Horizontal support with coacting element or holddown	653	...Swinging
623	...Multiple article or rack type	654	...Engageable upon reversal or lowering of carrier
624	..Clamshell	655	....Cantilevered carrier
625	..Guided	656	...Carrier and guide supported cooperating elements
626	..Suspended	657	.Valved
627	..Suction gripper type	658	..Cam or abutment operated
628	.Elevator wherein means comprises guide mounted for relative movement, and tiltable carrier thereon	659	.Comprising device on carrier to move or carry load laterally thereto or therefrom
629	..Portable (e.g., vehicle-mounted, etc.) elevator	660	..Device raises load relative to carrier prior to moving it laterally
630	.Elevator wherein means comprises guide mounted for relative movement	661	..Push-pull device
631	..Portable (e.g., vehicle-mounted, etc.) elevator	662	.Comprising means enabling additional movement of carrier or portion thereof relative to its support
632	..Having one or more axes of pivotable movement	663	..On portable (e.g., vehicle-mounted, etc.) elevator
633	....Including vertical axis	664	...Carrier comprises spaced, elongated, horizontally coplanar, load-supporting members, at least one being movable
634	....Single axis, horizontal and fixed	665	....Pivotable in horizontal plane
635	....With fluid drive for movement thereabout	666	....And otherwise movable therein
636	.....And means for limiting the movement	667	....Shiftable in horizontal plane perpendicularly to axis of elongation
637	..Having one or more axes of pivotable movement	668	..Carrier comprises spaced, elongated, horizontally coplanar, load-supporting members, at least one being movable
638	...Single axis, horizontal and fixed	669	...Pivotable in horizontal plane
639	.Tilting carrier	670	....And otherwise movable therein
640	..With operator-controlled tilting means	671	...Shiftable in horizontal plane perpendicularly to axis of elongation
641	...Portable (e.g., vehicle-mounted, etc.) elevator	672	..Carrier comprises swingable or rotatable, load-underlying surface
642	....Tiltable about axis perpendicular to direction of travel of portable elevator (e.g., forwardly tiltable, etc.)	673	.Return, buffer, or counterweight feature
643	..Sectional platform type	674	.Automatic stop
644	..Valved	675	<b>COUNTING AIDS</b>
645	..Latch release		
646	...With carrier engaging cam means		
647	...Cantilevered carrier		

676	<b>ARTICLE SUPPORTED BY AIR AND MOVED BY MECHANICAL OR MANUAL MEANS</b>	708	....By hydraulic compensation
		709	....By tensioned flexible connector
677	<b>FEED TABLES FOR SHEARING MACHINES</b>	710	....By linkage pivoting on base support
678	<b>LAND VEHICLE OR BOAT TILTING AND LIFTING DEVICES</b>	711	.....Yoke mounted shovel or fork
679	<b>VEHICLE WITH LOAD-RECEIVING PORTION AND MEANS FOR RELOCATING A LOAD THEREALONG OR THEREWITHIN</b>	712	.....Linkage extensible for other tilting
		713	.....Swinging support mounted linkage
680	<b>VERTICALLY SWINGING LOAD SUPPORT</b>	714	...Induced by swing of swinging support
681	.Track-supported rocker	715	...By extensible link between load engager and swinging support
682	..Horizontally swinging	716	...Holdable in different pitch positions during loading
683	.Cement mixer loader	717	...On unlatching from swinging support
684	.Coil handler	718	..Extensible support
684.3	.Door remover	719	..Return, buffer, or counterweight feature
685	.Shovel or fork type	720	...Spring
686	..With means to facilitate attachment of boom to vehicle	721	..Hay retainers
687	..Horizontally swinging	722	..Shovel, rake, handle, or boom structure
688	...Vertically adjustable	723	...With means to facilitate attachment of shovel or rake to handle or boom
689	...Trolley supported pivoted handle	724	...Handling device releasably attached to bucket or rake
690	...Reciprocating handle	725	...Means for ejecting load from shovel
691	....Link supported	726	...Shovel forming members pivoted relative to each other to dump load
692	....Tilting	727	...Handle body structure
693	....Single cable for crowding and hauling	728	.With rectilinear translation
694	...Handle pivoted to boom	729	.Grab
695	....Adjustable horizontal swing axis	730	..Programmable or condition responsive means controls grab operation
695.5	....Linear cylinder	731	..With auxiliary support for load
695.6	....Flexible connector	732	..Grab movable relative to its supporting arm
695.7	....Rack and pinion	733	...Grab orientation maintained during supporting arm manipulation
695.8	....Rotary motor	734	....Grab suspended to swing freely
696	..Guided	735	...Grab has swinging movement in plural planes
697	..Tilting	736	..Movable grab support has plurality of grabs attached thereto
698	...Including indicator		
699	...Control means responsive to sensed condition		
700	....To maintain pitch during swinging		
701	....To stop tilting at selected angle		
702	...Overshot type		
703	...Swinging member attached to rear mounted draft member		
704	...Including load ejector, striker, or retainer		
705	...Laterally tiltable or shiftable shovel or fork		
706	...During swinging to stabilize pitch		
707	....On link mounted swinging support		

- 737 ..Grab is a suction or magnetic article engaging means
- 738 ..Grab supported and moved by a pivotably mounted member
- 739 ...Grab has pivoted jaw member
- 740 ...With fixed jaw member
- 741 ...Grab has reciprocating jaw member
- 742 .Nonfixed pivot
- 743 .Tilting carrier
- 744.1 **HORIZONTALLY SWINGING LOAD SUPPORT**
- 744.2 ..Swinging about pivot
- 744.3 ..And moving vertically
- 744.4 ..Moving pivot
- 744.5 ...Pivot swinging about second pivot
- 744.6 ..And moving load support radially with respect to pivot
- 744.7 ..And vertically reorienting load support
- 744.8 ..With means to actuate load gripper
- 745.1 **CYLINDRICAL BAR HANDLING DEVICE**
- 745.2 .Vertical cylindrical bar
- 745.3 .Heat exchanger tube bundle handling device
- 745.4 .Pipe laying
- 745.5 ..Vehicle having supporting wheel or wheel substitute
- 745.6 ...Side boom supported hoist line
- 745.7 .Sequentially acting, diverse handling devices
- 745.8 ..Changing orientation of cylindrical bar
- 745.9 ..Including ramp and elevator means
- 746.1 ...Oscillating or reciprocating elevator
- 746.2 ....Oscillating
- 746.3 ..Including means to rotate or allow rotation of bar about its axis
- 746.4 .Including ramp and retractable stop or ejector
- 746.5 .Engaging interior surface of pipe
- 746.6 .Comprising walking beam
- 746.7 .Comprising roller or endless belt
- 746.8 .Comprising carriage
- 749.1 **LOAD CARRIED ALONG A HORIZONTAL LINEAR PATH (E.G., PICK AND PLACE TYPE)**
- 749.2 .Carried via magnetic floating
- 749.3 .Including a detector for altering load path (e.g., stop, redirect)
- 749.4 .Multiple loads, rotatable into various positions (e.g., indexing)
- 749.5 .Multiple loads, having means spacing one load from another load
- 751.1 .Having gripper means
- 752.1 ..Using suction
- 753.1 ..Pivoted jaw type
- 749.6 .Including aligning structure (e.g., rollers and rails, dovetail joint, rod and channel)
- 754 **ARTICLE REORIENTING DEVICE**
- 755 .Article reoriented by contact with fluid means
- 756 .Article reoriented by flexible sling means
- 757 .Article frictionally engaged and rotated by relatively movable means (e.g., disc, endless belt, etc.)
- 758 .Article inverting means (i.e., 180 degree turnover)
- 759 ..Plural, driven turning means coact sequentially to invert single article
- 760 ...Article slidably traverses sloping surfaces on a plurality of pivotally mounted turning means
- 761 ..Inverter has plural means for receiving articles
- 762 ...Having article inserting or discharging means
- 763 ...Having article gripping means
- 764 ..Encircling means inverts article
- 765 ...Having article inserting or discharging means
- 766 ...Having securing means movable into engagement with the article
- 767 ...Encircling means moves about its transverse axis
- 768 ..Article turned about one end supported by a fixed or rotatable abutment or by a surface frictionally retarding movement of the supported end
- 769 ...Article turned about a rotatable abutment

770	...Article turned about a fixed abutment means	804	.Of material charging or discharging of a chamber of a type utilized for a heating function
771	..Including coacting opposed movable arms		
772	..Article moved about perpendicular axes	805	.Of moving material between zones having different pressures and inhibiting change in pressure gradient therebetween
773	..Article received at one point and discharged at a different point	806	.Of charging load-holding or -supporting element from source and transporting element to working, treating, or inspecting station
774	.Plural article turning members coact sequentially to reorient single article		
775	..Article deposited on stationary supporting surface intermediate sequential turning members	807	.Of charging or discharging plural static structures for supporting discrete loads and utilizing charging or discharging means therefor
776	.Arm for orienting article is swingable about its transverse axis and is rotatable about its longitudinal axis	808	.Of charging or discharging, or facilitating charging or discharging of static receptacle
777	.Roller means circumferentially engages and supports orienter for rotation thereon	809	.Of loading or unloading load-transporting type vehicle and external means cooperating in loading or unloading thereof
778	.Article support means rockable on fixed surface	810	.Of emptying portable receptacle
779	.Article support means rotates about a shiftable pivot point	811	..Nongravity type
780	.Fixed member provides support for article reoriented while in contact therewith	812	.Of charging or discharging self-loading or unloading vehicle
781	.Article reoriented while fully supported by stationary supporting surface	813	..With conveyor
782	.Article supporting carriage moved over fixed guideway to reorient article	814	.Of loading or unloading elevator or hoist and including loading or unloading means therefor
783	.Orienter has article gripping means	815	.Including vertically swinging load support
784	.Orienter having article-supporting surface movable relative to article	816	.Of reorienting article
785	<b>LOAD ENGAGING STRUCTURE OF ELEVATOR OR HOIST DEVICE WITH LOAD HANDLING FEATURE</b>	787	<b>MISCELLANEOUS</b>
800	<b>PROCESS</b>		
801	.Of moving intersupporting articles into, within, or from freestanding, orderly layered, or mutually stabilizing orderly group	922	<b>ASSOCIATED WITH FORMING OR DISPERSING GROUPS OF INTERSUPPORTING ARTICLES (E.G., STACKING PATTERNS, ETC.)</b>
802	..Of stacking	903	.With article-supporting fluid cushion
803	.Of loading or unloading marine system	923	.Including support for group
		924	..Vertically shiftable
		925	...Shifted by change in weight thereon
			<b><u>CROSS-REFERENCE ART COLLECTIONS</u></b>

926 ...Shifted by article responsive means

927 .Including means for supplying pallet or separator to group

928 ..Recirculates emptied pallet or separator

929 .Including means for collecting emptied pallet or separator

930 .Manual step utilized

931 .Bricks

932 .Audio or video cassettes

933 .Group formed or dispensed by reversible apparatus

934 .Nonconforming article diverted

900 .Adjust to handle articles or groups of different sizes

901 .Including article counter

902 .Including control for pattern of group

904 .With means to apply adhesive to article

905 .Having Geneva drive for apparatus

906 .With article flap deflector

907 .Including means pressing against top or end of group

908 **PERFORATED ARTICLE HANDLING**

909 **REMOTE CONTROL HANDLERS**

910 **HOLLOW CYLINDER HANDLERS**

911 **ROLL HANDLERS**

912 **COMBINED OR CONVERTIBLE IMPLEMENTS**

913 **HANDLERS WITH SPRING DEVICES**

914 **HANDLING VEHICLES WITH OVERHEAD GUARD FOR OPERATOR**

915 **HANDLER-TYPE TOYS**

916 **SHAFT MUCKING MACHINES**

917 **HANDLERS UTILIZING PARALLEL LINKS**

918 **TRANSMISSION-LINE GUIDE FOR A SHIFTABLE HANDLER**

919 **VEHICLE-CARRIED STORAGE MEMBER (E.G., PORTABLE SILO, ETC.) AND MEANS FOR ERECTING MEMBER FROM ATTITUDE DURING TRANSPORT TO POSITION OF INTENDED USE**

920 **HANDLING DEVICE ON TRACTOR UNIT**

921 **HANDICAPPED PERSON HANDLING**

935 **ASSOCIATED WITH SEMICONDUCTOR WAFER HANDLING**

936 .Including wafer orienting means

937 .Including means for charging or discharging wafer cassette

938 ..Wafers positioned vertically within cassette

939 .Including wafer charging or discharging means for vacuum chamber

940 .Wafer cassette transporting

941 .Includes means for gripping wafer

**FOREIGN ART COLLECTIONS****FOR 000 CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

**FOR 100 PROCESSES (414/786)****FOR 101 APPARATUS FOR CHARGING A LOAD HOLDING OR SUPPORTING ELEMENT FROM A SOURCE, AND MEANS FOR TRANSPORTING THE ELEMENT TO A WORKING, TREATING, OR INSPECTING STATION (414/222)**

FOR 102 .Supply source includes member capable of 360 degree revolution (414/223)

FOR 103 .Supply source includes a chute (414/224)

FOR 104 .Load holding or supporting element includes gripping means (414/225)

FOR 105 ..Including pivoted jaw (414/226)

**FOR 106 MOVABLE RACK HAVING SUPERPOSED; CHARGE SUPPORTING ELEMENTS, AND EXTERNAL MEANS FOR CHARGING OR DISCHARGING THE ELEMENTS (414/331)**

FOR 107 .Nongravity type (414/416)

FOR 108 ..Ejector (414/417)