



Alerta Tecnológica

SECTOR MEDIO AMBIENTE

Recuperación de playas y zonas costeras



Primer trimestre 2018



INTRODUCCIÓN

Junto con los manglares, herbazales de ciénagas y las crestas de arrecifes de coral, las playas arenosas constituyen elementos naturales de protección costera al amortiguar el impacto del oleaje provocado por los huracanes y otros eventos meteorológicos extremos. Las playas morfológicamente están formadas por arenas, por el desgaste abrasivo de la carrera de las olas, sobre las rocas y el arrastre de sedimentos litoral proveniente de diversas fuentes, una de ellas es la desembocadura de ríos.

Los cambios en las zonas costeras a corto y largo plazo se asocian con varios factores, tales como el suministro de sedimentos, transporte litoral, cambios del nivel del mar, la influencia antrópica, la hidrodinámica del entorno cercano a la costa, las tormentas y la naturaleza de los accidentes geográficos costeros. Como consecuencia la línea de costa retrocede a un ritmo vertiginoso, lo que puede provocar la pérdida de superficies útiles para la recreación, dañando la actividad turística, sector clave para la economía del país, si no se aplican acciones legales y de ingeniería en aras de su control.

Con más de seis mil kilómetros de costas, el archipiélago cubano posee cientos de playas arenosas, pero una parte de ellas muestra indicios de erosión, un fenómeno global que daña a la mayoría de los balnearios del orbe.

La erosión costera es un proceso natural en las playas del Caribe que se está viendo agudizada debido al incremento en la intensidad de las tormentas tropicales con su efecto destructivo, la constante elevación del nivel del mar, provocada por el cambio climático y la acción incorrecta del hombre al extraer arena o al edificar obras en zonas no adecuadas favoreciendo el deterioro de estos ecosistemas.

El país desarrolla un proceso de ordenamiento territorial de sus zonas costeras, para protegerlas de los efectos negativos de la actividad humana y de los fenómenos naturales. La Política Ambiental de nuestro país establece que se deben incrementar las acciones de restauración, rehabilitación y mantenimiento



de las playas arenosas de interés turístico, recreativo, o de protección costera para lo cual ha establecido el Programa Nacional de Recuperación de Playas.

DATOS DE LOS DOCUMENTOS DE PATENTES

Título; publicación; país de origen; solicitante, fecha de prioridad y resumen.

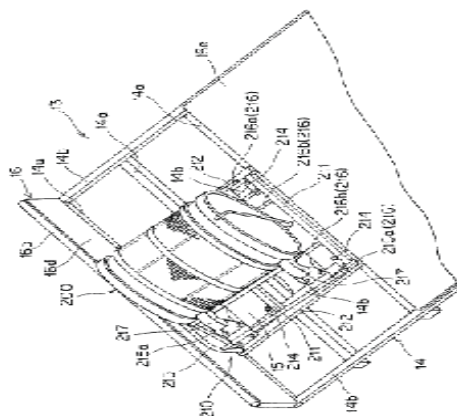
- TRAILER FOR BEACH CLEANER

Publicación JP2010174518	País de origen: Japon	Solicitante: HONDA MOTOR	Fecha de prioridad 2009/01/29
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Abstract:

PROBLEM TO BE SOLVED: To provide a trailer for a beach cleaner capable of easily separating sand and refuse from each other.

SOLUTION: This trailer 13 for a beach cleaner is used for loading the beach cleaner which is towed by a vehicle and collects refuse from a sand place and a refuse collecting station for collecting the refuse collected by the beach cleaner on a deck 16 and collectively carrying the beach cleaner and the refuse collecting station. A pair of right and left wheels 15 are provided to the lower section of the deck 16. A supporter 210 is attached to the frame 14 of the deck 16. A cylindrical drum type sieve body 200 to one end of which a detachable bottom part 202 is provided and the other end of which is opened is rotatably supported by the supporter 210. The outer peripheral part of the drum type sieve body 200 is brought into contact with the wheels 15.



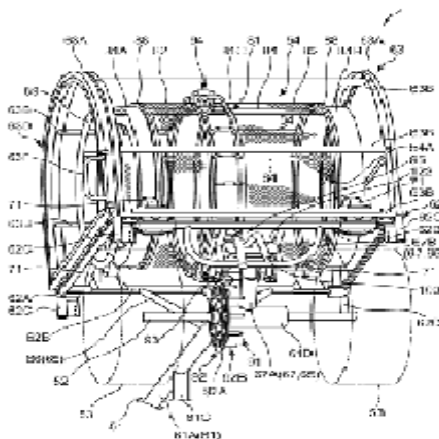
- GARBAJE SEPARATION AND RECOVERY MACHINE FOR BEACH CLEANING

Publicación WO2011158312	País de origen: Japon	Solicitante: HONDA MOTOR	Fecha de prioridad 2010/06/17
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Abstract:

Provided is a garbage separation and recovery machine for beach cleaning, said garbage separation and recovery machine having mobility and being capable of performing garbage separation work according to the circumstances. The garbage separation and recovery machine for beach cleaning comprises a drum type sieve body (54) which is rotatably mounted on a cart body frame (51) towed by a vehicle, a drive gear (92) that is mounted on an axle (52) which is rotatably supported by the cart body frame (51) and whereon left and right wheels are mounted, and a mechanism section (91) which transmits the drive force of the drive gear (92) to the drum type sieve body (54). The mechanism section (91) is provided with a switching mechanism (95) which switches between an automatic rotation mode wherein the drum type sieve body (54) is rotated by the rotational force of wheels (53), and a manual rotational mode wherein the drum type sieve body (54) is disconnected from the rotational force of the wheels (53) and is made manually rotatable.



○ COASTAL RECOVERY UTILIZING REPOSITIONABLE BEACH MODULE

Publicación US20120315090	País de origen: Estados Unidos	Solicitante: FARRELL JR JOSEPH EDWARD	Fecha de prioridad 2011/06/10
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Abstract:

A method of restoring a beach includes positioning a recovery module at a first location in a region of a beach to sea interface. A longitudinal axis of the recovery module is oriented generally perpendicular to a longshore current in the region of the beach to sea interface. The recovery module is removed from the first location upon achieving a desired.

○ COASTAL RECOVERY UTILIZING REPOSITIONABLE BEACH MODULE



Publicación US20120321388	País de origen: Estados Unidos	Solicitante: FARRELL JR JOSEPH EDWARD	Fecha de prioridad 2011/06/20
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Abstract:

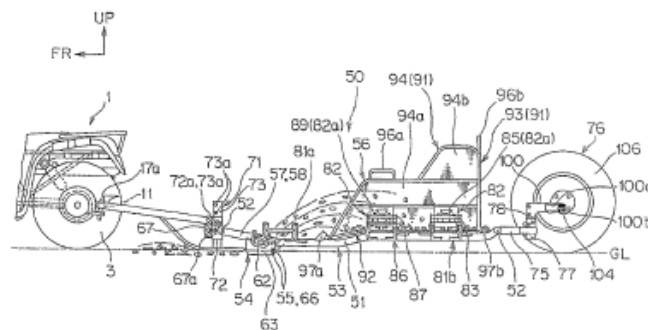
A method of restoring a beach includes positioning a recovery module at a first location in a region offshore of a beach to sea interface. A longitudinal axis of the recovery module is oriented generally parallel to the beach to sea interface. Upon achieving a desired level of accretion in a nearshore region relative to the recovery module, the recovery module is removed from the first location.

- BEACH CLEANING SYSTEM FOR SEPARATING LITTER FROM SAND, TRAILER INCORPORATING SAME, AND METHOD OF USING SAME

Publicación US20100071918	País de origen: Japon	Solicitante: HONDA MOTOR	Fecha de prioridad 2008/09/24
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Abstract:

A box-shaped beach-cleaning trailer is configured to be loaded with, and collectively carry beach-cleaning equipment and a litter collection station. The beach-cleaning equipment are towed by a vehicle to collect litter on the sands. The litter collected by the beach-cleaning equipment is collected in the litter collection station. The trailer includes a pair of rail members disposed on upper edges of the respective opposite side wall portions such that the rail members face each other with an opening therebetween. A sieve unit is detachably mounted on the rail members, and is configured to move a back-and-forth direction along the rail members. The sieve unit is moved in a back-and-forth direction manually; or by using a driving mechanism including a drive wheel, a driven wheel, and a connecting rod arranged between the sieve unit and the driven wheel, for separating collected litter of various sizes from sand.



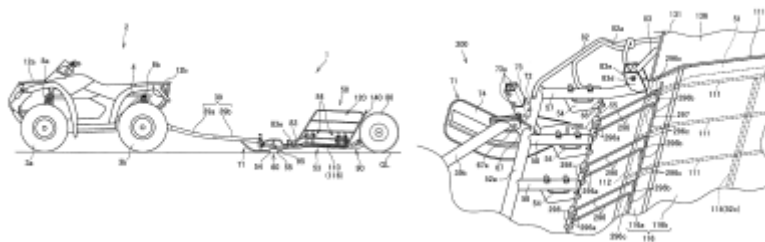


○ BEACH CLEANER

Publicación WO201277167	País de origen: Japon	Solicitante: HONDA MOTOR	Fecha de prioridad 2010/12/09
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Abstract:

Provided is a beach cleaner capable of recovering relatively heavy garbage or stones, such as large stones or plastic bottles containing liquid, while minimizing the amount of sand entering a garbage recovery unit. The beach cleaner has: a frame formed by a lengthwise member and a widthwise member; a towed section towed by a tractor being provided on the front of the frame; a separator for separating and raking up garbage from sandy ground being provided on a lower front part of the frame; and a recovery unit for gathering the garbage raked up by the separator onto a netting member, the recovery unit being provided on the frame behind the separator, wherein the beach cleaner is provided with separator rod units having a plurality of lengthwise members and a widthwise member connecting the rear end of each of the lengthwise members, and is configured such that the front end of at least one of the separator rod units is mounted onto the separator so as to be able to turn in the vertical direction, and is provided so as to bridge the space between the separator and the upper surface of the netting member of the recovery unit.



○ METHOD FOR RAPID GREENING OF EXPOSED BEACH LAND OF LAND-AND-WATER ECOTONE

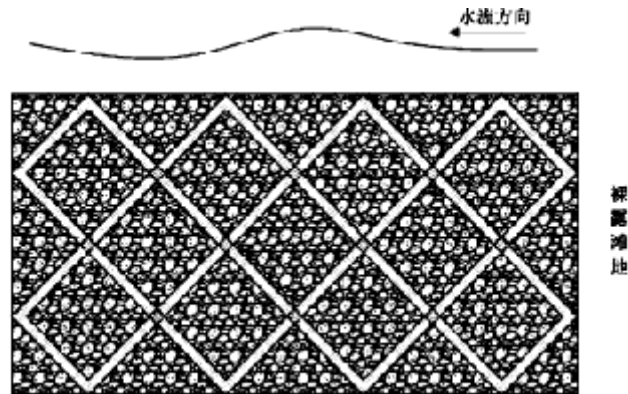
Publicación CN105519332	País de origen: China	Solicitante: BEIJING FORESTRY UNIVERSITY	Fecha de prioridad 2015/12/10
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Abstract:

The invention discloses a method for rapid greening of exposed beach land of land-and-water ecotone. The method comprises the steps: selecting a herbaceous plant capable of breeding through creeping stems; selecting a period, when the atmospheric temperature is appropriate, the beach land is exposed and the germinating and rooting of the creeping stems are facilitated, as planting time; collecting the creeping stems of the plant in the field, chopping the creeping stems into segments according to length of internode, carrying out cultivation by using seeding nursery soil, and realizing rapid large-scale propagation by using a creeping stem breeding manner, so as to obtain plants for later use; selecting exposed boulder beaches, which are far away from the low-water-season mean water level of a river by at least 10m, of the land-andwater ecotone as quick recovery areas; and carrying out land preparation,



planting and plant maintenance so as to form stable biocenosis, and then, cultivating part of plants in seeding nurseries, so as to carry out complementary planting on planting furrows and herb grid areas with silted river sand in spring next year. According to the method, the rapid greening of the exposed beach land of the land-and-water ecotone can be realized, the vegetation coverage is improved, both moisture and soil are conserved, the stable biocenosis is gradually constructed, and ecological restoration is promoted.

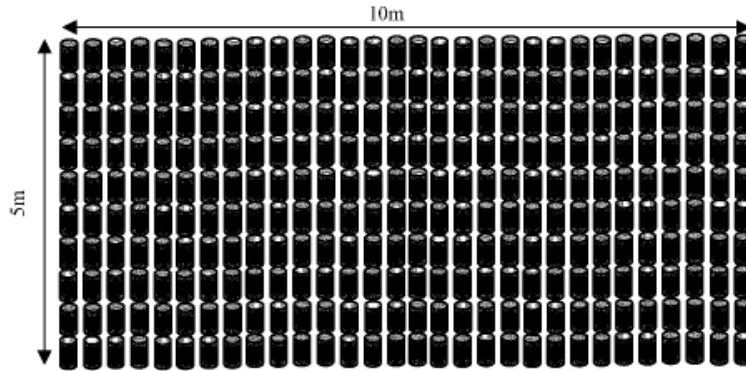


○ ARTIFICIAL REEF CONSTRUCTION METHOD FOR RECOVERING OYSTER REEF BIOLOGICAL RESOURCES OF OYSTER APHID MOUNTAIN

Publicación CN104663545	País de origen: China	Solicitante: CHINESE ACADEMY OF FISHERY SCIENCES	Fecha de prioridad 2015/02/09
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Abstract:

The invention relates to an artificial reef construction method for recovering oyster reef biological resources of the Oyster Aphid Mountain. The artificial reef construction method comprises the following steps: setting the geographic position, the substrate type and the construction area of each construction place; manufacturing reef bags; distributing the manufactured reef bags on a beach, and constructing a reef on the preset construction place, wherein the constructed reef comprises a side-by-side reef used for recovery, a spacing type reef used for reducing sediment deposition and a double-layer reef used for preventing quick sediment deposition. The artificial reef is formed by placing a certain number of reef bags, so that an oyster body is assisted to resist coverage of ocean current sediment, the corrosion and wave erosion processes are reduced, and the aim of repairing oyster reefs of the Oyster Aphid Mountain and an environment ecological system is achieved.

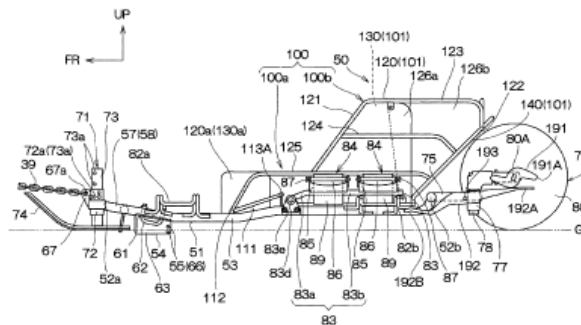


○ BEACH CLEANER

Publicación US20120285711	País de origen: Estados Unidos	Solicitante: HONDA MOTOR	Fecha de prioridad 2010/06/26
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Abstract:

A beach cleaner has a frame formed by a longitudinal member and a lateral member, a ski member that is secured to a front portion of the frame and grounded to a sand surface GL, a trailing target portion that is trailed by a trailing vehicle, a separator that is provided at a front lower portion of the frame and scrapes up trash from a sand area while separating the trash from sand, a trash withdrawing member that is provided to the frame at a rear side of the separator to collect the trash scraped up by the separator onto a mesh member, and a wheel at a rear side of the frame. The trash withdrawing member has a fixed withdrawing body that is located at a front end portion and fixed to the frame, and a swing withdrawing body.



○ COASTAL RECOVERY UTILIZING REPOSITIONABLE BEACH MODULE

Publicación US20120315090	País de origen: Estados Unidos	Solicitante: FARRELL JR JOSEPH EDWARD	Fecha de prioridad 2011/06/10
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Abstract:

A method of restoring a beach includes positioning a recovery module at a first location in a region of a beach to sea interface. A longitudinal axis of the recovery module is oriented generally perpendicular to a longshore current in the region of the beach to sea interface. The recovery module is removed from the first location upon achieving a desired level of accretion adjacent to the recovery module.

○ COASTAL RECOVERY UTILIZING REPOSITIONABLE SHOAL MODULE

Publicación US20120321388	País de origen: Estados Unidos	Solicitante: FARRELL JR JOSEPH EDWARD	Fecha de prioridad 2011/06/20
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Abstract:

A method of restoring a beach includes positioning a recovery module at a first location in a region offshore of a beach to sea interface. A longitudinal axis of the recovery module is oriented generally parallel to the beach to sea interface. Upon achieving a desired level of accretion in a near-shore region relative to the recovery module, the recovery module is removed from the first location.

○ NANOSTRUCTURED SAND AND PROCESS FOR PRODUCING NANOSTRUCTURED SAND

Publicación CA2940629	País de origen: Alemania	Solicitante: SCHNEIDER UTE MARGITTA	Fecha de prioridad 2014/02/25
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Abstract:

The present invention relates to nanostructured sand, to a process for producing the nanostructured sand, to a process for separating a pollutant-water mixture and to uses of the nanostructured sand, wherein the nanostructured sand is characterized in that at least a portion of the sand grains have a surface structured at least partly by one or more silicon-based nanoparticles. The process for producing the nanostructured sand is characterized in that it comprises or consists of the following steps: providing sand comprising one or more sand grains, providing one or more silicon-based nanoparticles in a carrier liquid, mixing the sand from step a) with the nanoparticle(s) in carrier liquid from step and then heating the sand-nanoparticle carrier liquid mixture from step until at least some of the sand from step a) has a surface at least partly structured with the silicon-based nanoparticle(s) from step.



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