

CPC**COOPERATIVE PATENT CLASSIFICATION****E01H****STREET CLEANING; CLEANING OF PERMANENT WAYS; CLEANING BEACHES; DISPERSING { or preventing } FOG IN GENERAL {****Cleaning street or railway furniture or tunnel walls } (cleaning in general [B08B](#))****E01H 1/00****Removing undesirable matter from roads or like surfaces, with or without moistening of the surface (for snow or ice [E01H 5/00](#); cleaning tramway rails [E01H 8/00](#); obstruction removers on vehicles [B60R 19/00](#); in combination with application of bitumen or the like [E01C 19/16](#); in combination with application of traffic line [E01C 23/16](#); { Sweeping apparatus, particularly for lawns [A01G 1/12](#); Removing undesirable matter from floors and similar surfaces [A47L 5/00](#) to [A47L 13/00](#))}****E01H 1/001**

- . { Treatment of dispersed oil or similar pollution on roads, for instance devices for applying treating agents (hydraulic loosening or removal of liquids [E01H 1/10](#); from surface of open water [E02B 15/04](#))}

E01H 1/003

- . { Upkeep of road sides along the pavement, for instance cleaning devices particularly for side strips (control of undesirable vegetation [E01H 11/00](#); mowers for embankments [A01D 34/86](#); soil working [E02F](#); trimming pavement edges [E01C 23/09](#))}

E01H 1/005

- . { Mobile installations, particularly for upkeeping in situ road or railway furniture, for instance road barricades, traffic signs; Mobile installations particularly for upkeeping tunnel walls (built-in cleaning devices [E21D 11/003](#))}

E01H 1/006

- . { Specially adapted for removing excrements (hand implements [E01H 1/12](#))}

E01H 1/008

- .. { in situ treatment of excrements }

E01H 1/02

- . Brushing apparatus, { e.g. with auxiliary instruments for mechanically loosening dirt } ({ [E01H 1/003](#), [E01H 1/005](#), [E01H 1/006](#) and } [E01H 1/08](#) to [E01H 1/14](#) take precedence; { loosening by means of gas jets or streams [E01H 1/0818](#), [E01H 1/0872](#); with brushes functioning under vacuum or combined with independent suction nozzles [E01H 1/0827](#); loosening by means of liquid streams [E01H 1/101](#); mechanical loosening instruments other than brushes [E01H 1/105](#); for railway tracks [E01H 8/00](#) }; brushes in general [A46B](#); { for floors or similar surfaces [A47L 11/22](#), [A47L 11/24](#))}

E01H 1/04

- .. taking- up the sweepings, e.g. for collecting, for loading { with dust collector; [E01H 1/0854](#) takes precedence; suction machines with brushes [E01H 1/0845](#), [E01H 1/0872](#); taking- up devices with other mechanical loosening instruments [E01H 1/106](#) }

E01H 1/042

- ... { the loading means being an endless belt or an auger }

E01H 1/045

- ... { the loading means being a rotating brush with horizontal axis ([E01H 1/042](#) takes precedence)}

E01H 1/047

- ... { Collecting apparatus characterised by the hopper or by means for unloading the hopper }

E01H 1/05

- .. with driven brushes ([E01H 1/04](#) takes precedence) { rotary brushes for snow removal [E01H 5/092](#) }

E01H 1/053

- ... { having vertical axes }

E01H 1/056

- ... { having horizontal axes }

E01H 1/08

- . Pneumatically dislodging or taking-up undesirable matter { or small objects } ({ [E01H 1/006](#) and [E01H 1/005](#) take precedence; } suction cleaners in general

- [5/00](#) to [A47L 9/00](#); { sucking-off liquids or semi-liquids [E01H 1/108](#) }); Drying by heat only or by streams of gas (permanently-installed heating or blowing devices [E01C 11/26](#); heating or drying for road- building or repairing [E01C 23/14](#); { devices for melting snow or ice in situ [E01H 5/10](#), [E01H 8/08](#); for scorching undesirable vegetation [E01H 11/00](#) }); Cleaning by projecting abrasive particles (sand-blasting in general [B24C](#); { roughening of road surfaces [E01C 23/08](#); cleaning of road joints [E01C 23/0906](#) })
- [E01H 1/0809](#) .. { Loosening or dislodging by blowing (with steam [E01H 1/10](#) combined with suction [E01H 1/0863](#); removing snow by blowing [E01H 5/106](#); removing fog by blowing [E01H 13/00](#); cleaning rails by blowing [E01H 8/105](#), [E01H 8/125](#); cleaning joints in road construction by blowing [E01C 23/0906](#)); Drying by means of gas streams (by heat only [E01H 1/08](#); combined with snow or ice melting [E01H 5/10](#), [E01H 5/106](#), [E01H 5/108](#))}
- [E01H 1/0818](#) ... { in apparatus with mechanical loosening or feeding instruments, e.g. brushes, scrapers (brushing devices per se [E01H 1/02](#), other loosening devices per se [E01H 1/105](#))}
- [E01H 1/0827](#) .. { Dislodging by suction; Mechanical dislodging-cleaning apparatus with independent or dependent exhaust, e.g. dislodging-sweeping machines with independent suction nozzles (combined with blowing [E01H 1/0872](#)); Mechanical loosening devices working under vacuum }
- [E01H 1/0836](#) ... { Apparatus dislodging all of the dirt by suction (liquids or semi-liquids [E01H 1/108](#); combined with loosening by blowing [E01H 1/0863](#); for cleaning rails [E01H 8/105](#), [E01H 8/125](#); removing snow by suction [E01H 5/106](#), [E01H 8/08](#)); Suction nozzles (independent suction nozzles in mechanical dislodging-cleaning devices [E01H 1/0827](#); suction and blowing nozzles [E01H 1/0863](#))}
- [E01H 1/0845](#) { with mechanical loosening or feeding instruments for the dirt to be sucked-up, e.g. brushes, scrapers (brushing installations per se [E01H 1/02](#); other loosening devices per se [E01H 1/105](#))}
- [E01H 1/0854](#) ... { Apparatus in which the mechanically dislodged dirt is partially sucked-off, e.g. dislodging- sweeping apparatus with dirt collector in brush housing or dirt container (mechanical dislodging machines with independent suction nozzles [E01H 1/0827](#); combined with blowing and suction [E01H 1/0872](#))}
- [E01H 1/0863](#) .. { Apparatus loosening or removing the dirt by blowing and subsequently dislodging it at least partially by suction (liquids or semi-liquids [E01H 1/108](#)); Combined suction and blowing nozzles }
- [E01H 1/0872](#) ... { with mechanical loosening or feeding instruments for the dirt to be removed pneumatically, e.g. brushes, scrapers (brushing installations per se [E01H 1/02](#); other loosening devices per se [E01H 1/105](#))}
- [E01H 2001/0881](#) .. Details for pneumatically dislodging or removing not related to the mouth-piece
- [E01H 2001/089](#) ... Suction-effect created through blowing, e.g. using the venturi effect
- [E01H 1/10](#) . Hydraulically loosening or dislodging undesirable matter (stationary flushing devices [E01H 3/04](#)); Raking or scraping apparatus (hand implements [E01H 1/12](#)); { Removing liquids or semi-liquids e.g., absorbing water, sliding-off mud (removing pneumatically [E01H 1/08](#); steam-cleaning [E01H 11/00](#))}
- [E01H 1/101](#) .. { Hydraulic loosening or dislodging, combined or not with mechanical loosening or dislodging, e.g. road washing machines with brushes or wipers ([E01H 1/005](#) takes precedence; cleaning rails [E01H 8/105](#), [E01H 8/125](#); applying liquids in general [E01H 3/00](#); scrubbing machines for floors or similar surfaces [A47L 11/26](#) to [A47L 11/30](#))}
- [E01H 1/103](#) ... { in which the soiled loosening or washing liquid is removed, e.g. by suction (removing liquids in general [E01H 1/108](#))}

- E01H 1/105
 - .. { Raking, scraping or other mechanical loosening devices, e.g. for caked dirt (loosening ice or hard snow [E01H 5/12](#); working the road surface [E01C 23/08](#)); Apparatus for mechanically moving dirt on road surfaces, e.g. wipers for evacuating mud (wipers as accessories for road washing machines [E01H 1/101](#); of devices for removing liquids or semi-liquids [E01H 1/108](#); of snow scrapers for evacuating wet snow [E01H 5/06](#); wipers for spreading bitumen or the like [E01C 19/16](#), [E01C 19/178](#))}
- E01H 1/106
 - ... { in which the loosened or dislodged dirt is picked up, e.g. shoveling carts ([E01H 1/108](#) takes precedence)}
- E01H 1/108
 - .. { Removing liquids or semi- liquids, e.g. absorbing rain water, sucking-off mud (in road washing machines [E01H 1/103](#); in snow melting [E01H 5/108](#); applying absorbing agents on oil or the like [E01H 1/001](#); constructional measures for draining roads [E01C 11/224](#))}
- E01H 1/12
 - . Hand implements, e.g. litter pickers ({ blowing or suction instruments [E01H 1/08](#); spraying instruments [E01H 1/101](#) }; rakes [A01D 7/00](#); { brushes or brooms [A46B](#), [A46D](#); floor scrapers [A47L 13/02](#); floor squeegees [A47L 13/11](#) })
- E01H 1/1206
 - .. { for picking up excrements (manure or urine pouches for animal husbandry [A01K 23/00](#))}
- E01H 1/1213
 - .. { in situ treatment of excrements }
- E01H 2001/122
 - .. Details
- E01H 2001/1226
 - ... characterised by way of removing material
- E01H 2001/1233
 - by pressing a tool in the material to be removed
- E01H 2001/124
 - Glove-like means
- E01H 2001/1246
 - Double or multiple closing means making horizontal sliding movement ([not applied for grabs](#))
- E01H 2001/1253
 - by using shoes to remove the material
- E01H 2001/126
 - the implement being for single use but not glove-like
- E01H 2001/1266
 - ... having lighting means
- E01H 2001/1273
 - ... having a dog leash
- E01H 2001/128
 - ... having means for storing bags or the like
- E01H 2001/1286
 - storing used bags
- E01H 2001/1293
 - ... Walking cane or the like, i.e. implements allowing handling while in an upright position
- E01H 1/14
 - . Removing by magnetic effect ({ general household magnetic cleaning implements [A47L 13/41](#); as equipment for road vehicles [B60R 19/00](#))}
- E01H 3/00**
 - Applying liquids to roads or like surfaces, e.g. for dust control; Stationary flushing devices** (combined with removal of undesirable matter [E01H 1/00](#); spray heads, other outlets [B05B](#); { applying hot water for melting snow [E01H 5/10](#); applicators for melting liquids [E01H 10/00](#); weed destruction [E01H 11/00](#) })
- E01H 3/02
 - . Mobile apparatus, e.g. watering-vehicles (vehicle features [B60P 3/22](#); { moistening combined with the removal of undesirable matter [E01H 1/00](#); mobile flushing or washing installations [E01H 1/101](#) } applying liquid materials for road paving materials [E01C 19/16](#)) { applying curing agents on concrete roads [E01C 23/03](#); applying marking-out agents [E01C 23/16](#); Road moistening devices in cleaning machines per se } ({ mobile apparatus specially adapted for applying liquid or semi-liquid thawing materials [E01H 10/007](#) })
- E01H 3/04
 - . Fixed devices, e.g. permanently- installed flushing means ({ fixed applicators for

defrosting agents [E01H 10/00](#); fixed flushing installations for tramway rails [E01B 21/02](#); built-in irrigation devices for sports grounds [E01C 13/02](#) }; hydrants [E03B 9/00](#))

- E01H 4/00** Working on surfaces of snow or ice in order to make them suitable for traffic or sporting purposes, e.g. by compacting snow ([production of artificial snow F25C 3/04](#))
- E01H 4/02** . for sporting purposes, e.g. preparation of ski trails; { [Construction of artificial surfacings for snow or ice sports \(construction of ice skating rinks E01C 13/102 \); Trails specially adapted for on-the-snow vehicles](#) }, e.g. devices adapted for ski-trails ([production of snow or ice for winter sports or similar recreational purposes F25C 3/00](#))
- E01H 4/023** . . { [Maintaining surfaces for ice sports, e.g. of skating rinks](#) }
- E01H 2004/026** . . for making half pipes
- E01H 5/00** Removing snow or ice from roads or like surfaces; Grading or roughening snow or ice (by applying de-icing agents [E01H 10/00](#); obstruction removers on vehicles [B60R 19/00](#); sand, gravel or salt spreaders [E01C 19/20](#))
- E01H 5/02** . Hand implements ([E01H 5/04](#), [E01H 5/10](#), [E01H 5/12](#) take precedence) { [shovels or spades in general A01B 1/02](#); [brooms, brushes A46B](#) }
- E01H 5/04** . Apparatus propelled by animal or engine power; Apparatus propelled by hand with driven dislodging or conveying { [levelling](#) } elements, conveying pneumatically { [for the dislodged material](#) } ([E01H 5/10](#), [E01H 5/12](#) take precedence)
- E01H 5/045** . . { [Means per se for conveying or discharging the dislodged material, e.g. rotary impellers, discharge chutes \(dislodging apparatus provided therewith E01H 5/07, E01H 5/08, E01H 5/104, E01H 5/12 \)](#) }
- E01H 5/06** . . dislodging essentially by non-driven elements, e.g. scraper blades, { [snow-plough blades, scoop blades](#) }
- E01H 5/061** . . . { [by scraper blades](#) }
- E01H 5/062** { [by scraper blades displaceable for shock-absorbing purposes](#) }
- E01H 5/063** . . . { [by snow-plough blades tiltable for shock-absorbing purposes](#) }
- E01H 5/065** . . . { [characterised by the form of the snow-plough blade, e.g. flexible, or by snow-plough blade accessories \(E01H 5/061 ,E01H 5/063 take precedence \)](#) }
- E01H 5/066** { [Snow-plough blade accessories, e.g. deflector plates, skid shoes](#) }
- E01H 5/067** . . . { [by side-wing snow-plough blades](#) }
- E01H 5/068** . . . { [by backblades \(scraper blades mounted on the rear of a tractor E02F 3/7622 \)](#) }
- E01H 5/07** . . . and conveying dislodged material by driven or pneumatic means { [removing and melting E01H 5/104](#); [picking-up installations scraping off dirt E01H 1/105](#) }
- E01H 5/073** { [by belt or chain conveyers \(dislodging by means of elements secured to endless belts or chains E01H 5/08 \)](#) }
- E01H 5/076** { [by rotary or pneumatic conveying means, e.g. impeller wheels \(dislodging by rotary means E01H 5/09 \)](#) }
- E01H 5/08** . . dislodging essentially by driven elements, { [e.g. vibrated; removing and melting E01H 5/104](#); [with heated instruments E01H 5/10](#) }
- E01H 5/09** . . . the elements being rotary or moving along a closed circular path, e.g. rotary

- cutter, digging wheels
- E01H 5/092 { Brushing elements }
 - E01H 5/094 { about vertical or substantially vertical axes }
 - E01H 5/096 { about axes parallel or substantially parallel to the direction of clearing }
 - E01H 5/098 { about horizontal or substantially horizontal axes perpendicular or substantially perpendicular to the direction of clearing }
- E01H 5/10 . by application of heat { for melting snow or ice, whether cleared or not, combined or not with clearing or removing mud or water, e.g. burners for melting in situ, heated clearing instruments } ({ drying by heat [E01H 1/0809](#); melting by application of defrosting agents [E01H 10/00](#); weed scorching devices which can also melt snow [E01H 11/00](#); } stationary blowing or paving heating means [E01C 11/26](#)); { Cleaning snow by blowing or suction only }
- E01H 5/102 . . { Self-contained devices for melting dislodged snow or ice, e.g. built-in melting chambers, movable melting tanks (combined with removing devices [E01H 5/104](#)) }
- E01H 5/104 . . { Removing devices for dislodging snow or ice; followed by melting the removed material (removing by suction only and subsequent melting [E01H 5/106](#)) }
- E01H 5/106 . . { Clearing snow or ice exclusively by means of rays or streams of gas or steam, or by suction with or without melting ([E01H 5/108](#) takes precedence; drying by means of gas streams, blowing- off dirt [E01H 1/0809](#); sucking-off dirt [E01H 1/0827](#)) }
- E01H 5/108 . . { Devices for melting snow or ice in situ and removing subsequently for the mud or melting water (melting in situ [E01H 5/10](#); by means of hot gases or steam [E01H 5/106](#); removing water or mud [E01H 1/108](#)) }
- E01H 5/12 . Apparatus or implements specially adapted for breaking, disintegrating, or loosening layers of ice or hard snow { with or without clearing or removing ([E01H 5/10](#) takes precedence); Roughening ice or hard snow by means of tools (by means of gritting materials [E01H 10/00](#) ; roughening or breaking-up pavements [E01C 23/08](#) , [E01C 23/12](#)) }
- E01H 6/00 Apparatus equipped with, or having provisions for equipping with, both elements { for especially } removal of refuse or the like and elements for removal of snow or ice ([E01H 8/10](#) takes precedence)**
- E01H 8/00 Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails ([E01H 1/00](#) to [E01H 6/00](#) take precedence; { controlling vegetation [E01H 11/00](#); removing ballast from rails or sleepers [E01B 27/023](#); removing, cleaning the ballast itself [E01B 27/04](#), [E01B 27/06](#)) }**
- E01H 8/02 . Methods or apparatus for removing ice or snow from railway tracks, e.g. using snow-ploughs { Devices for dislodging snow or ice which are carried or propelled by tramway vehicles } (operating only on rails or flange grooves [E01H 8/10](#)); { Moving or removing ballast; ([E01B 27/02](#), [E01B 27/04](#) take precedence; removing snow or ice in general [E01H 5/00](#)) }
- E01H 8/04 . . essentially by non-driven elements { Clearing instruments, e.g. scraping blades, scoop plates (with oscillating or vibrating tools [E01H 8/06](#); with heated instruments or combined with melting [E01H 8/10](#); ballast ploughs [E01B 27/025](#); track clearing devices [B61F 19/06](#)) }
- E01H 8/06 . . essentially by driven tools { clearing instruments, e.g. rotary cutting tools or brushes (with heated instruments or combined with melting [E01H 8/08](#); for spreading or redistributing ballast [E01B 27/026](#)) }

- E01H 8/08 . . by application of heat, { e.g. by means of heated clearing instruments, melting in situ } ({ weed scorching devices which may also melt snow [E01H 11/00](#); } heated track [E01B 19/00](#)); { Clearing devices which melt the dislodged snow; Clearing exclusively by means of rays or streams or gas or stream, or by suction }
- E01H 8/10 . Removing undesirable matter from rails, flange grooves, or the like { railway parts }, e.g. removing ice from contact rails, removing mud from flange grooves (heating, blowing, or fluid-applying devices installed in the track [E01B 19/00](#); built-in draining devices for rails [E01B 21/02](#); removing ballast from rails [E01B 27/04](#))
- E01H 8/105 . . { Pneumatically or hydraulically loosening, removing or dislodging undesirable matter, e.g. removing by blowing, flushing, suction; Application of melting liquids; Loosening or removing by means of heat, e.g. cleaning by plasma torches, drying by burners ([E01H 8/125](#) takes precedence; drying, blowing or liquid-applying devices incorporated in the permanent way [E01B 19/00](#); heating or cooling rails during construction or maintenance [E01B 31/18](#); wetting or lubricating rails [B61K 3/00](#); plasma torches [H05H 1/26](#)) }
- E01H 8/12 . . specially adapted to grooved rails, flange-ways, or like { parts of the permanent way, e.g. level crossings or switches }
- E01H 8/125 . . . { Pneumatically or hydraulically loosening, removing or dislodging undesirable matter, e.g. removing by blowing, suction or flushing (flushing devices incorporated in tramway tracks [E01B 21/02](#)); Loosening or removing by means of heat (built-in heating, blowing or liquid applying devices for switches [E01B 7/24](#)) }
- E01H 10/00 Improving gripping of ice-bound or other slippery traffic surfaces, e.g. using gritting or thawing materials** { Roadside storage of gritting or solid thawing materials; Permanently installed devices for applying gritting or thawing materials; Mobile apparatus specially adapted for treating wintry roads by applying liquid, semi-liquid or granular materials } (roughening ice by means of tools [E01H 5/12](#); applying de-icing agents to rails [E01H 8/10](#); thawing materials [C09K 3/18](#); by constructional features [E01C 11/24](#); { apparatus for distributing granular materials for road building purposes [E01C 19/20](#); treatment of dispersed oil or similar pollution on roads [E01H 1/001](#)) }
- E01H 10/002 . { Roadside storage of gritting or solid thawing materials, e.g. grit or salt bins }
- E01H 10/005 . { Permanently-installed devices for applying gritting or thawing materials, e.g. for preading grit, for spraying de-icing liquids }
- E01H 10/007 . { Mobile apparatus specially adapted for preparing or applying liquid or semi-liquid thawing material or spreading granular material on wintry roads }
- E01H 11/00 Control of undesirable vegetation on roads { or similar surfaces } or permanent ways of railays**, { e.g. devices for scorching weeds or for applying herbicides } ({ destruction of undesirable vegetation in general [A01M 7/00](#) to [A01M 15/00](#), [A01M 21/00](#); weeding involving working the ballast [E01B 27/00](#); mowers for embankments [A01D 34/86](#); hedge shearing machines [A01G 3/04](#)); **Applying liquids, e.g. water, weed-killer bitumen, to permanent ways** (specially to rails [E01H 8/10](#) { [E01H 8/105](#), [E01H 8/125](#) }; for preserving sleepers [E01B 31/20](#)) }
- E01H 12/00 Cleaning beaches { or sandboxes }**
- E01H 12/002 . { Treatment in situ ([E01H 12/006](#) takes precedence) }
- E01H 12/004 . { using floating devices }

E01H 12/006 . { Oil removal }

E01H 12/008 . { cleaning sandboxes }

E01H 13/00 **Dispersing { or preventing } fog in general, e.g. on roads, on airfields** { ([condensing atmospheric humidity in general A01G 15/00](#); obtaining drinking water from atmospheric humidity [E03B 3/28](#); heating or blowing devices for keeping roads or the like free from snow or ice [E01C 11/26](#)) }

E01H 15/00 **Removing undesirable matter, e.g. rubbish, from the land, not otherwise provided for** ([gatherers for removing stones, roots or the like from the soil A01B 43/00](#))