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(54) **Travelling Grate Condition Monitoring.**

(57) A system and method for monitoring the condition of a travelling grate machine, in particular a pelletizing or sintering machine, comprising univocally identifying each pallet car; collecting a plurality of condition indicating parameters; attributing the collected condition indicating parameters to an individual pallet car; storing the collected condition indicating parameters for each pallet car in a database; and evaluating the condition of the travelling grate machine. The system and method further comprises comparing the collected condition indicating parameters of each pallet car to reference parameters and/or to previously collected condition indicating parameters of that same pallet car; identifying the faults in each pallet car based on this comparison; classifying each pallet car according to its need of maintenance based on identified faults; and determining the pallet car in most need of maintenance based on this classification.

Travelling Grate Condition Monitoring

FIELD OF THE INVENTION

[0001] The present invention generally relates to a system and method for monitoring the condition of a travelling grate, in particular a travelling grate of a pelletizing or sintering machine. The system and method is of particular interest for predictive maintenance operations.

BACKGROUND OF THE INVENTION

[0002] Travelling grate machines are generally well known in sintering or pelletizing plants, wherein bulk material is subjected to thermal treatment. Travelling grate machines comprise a plurality of pallet cars which receive bulk material from a feed means. The pallet cars travel on a horizontally extending top strand through at least one treatment station wherein process gas, for example air, is vertically fed through the pallet car and through the bulk material. At the end of the upper strand, the thermally treated bulk material is dumped by gravity from the pallet cars, which then travel upside-down back to the front end of the travelling grate machine. One example of such a travelling grate machine may be seen in US 6,523,673.

[0003] Pallet cars have a perforate floor made up of individual grate bars having spaces therebetween to permit the passage of process gas, either in a downward direction or in an upward direction, depending on the type of treatment station. The process gas passes through the perforate floor and through the bulk material. The pallet cars are made up of a car body upon which the grate bars are fitted. Side walls are located at each transversely spaced side of the pallet cars to prevent spillage of the bulk material outwardly from the sides of the pallet cars. Each pallet car further has wheels for riding on guide rails along the travelling grate machine so that the individual pallet cars are in an abutting relationship to form a continuous moving perforate floor for the bulk material.

[0004] Due to the severe environment of the travelling grate machine, routine maintenance is required on the pallet cars. The grate bars, in particular, suffer a lot of damage and thus need replacement in order not to negatively impact on the process of thermally treating bulk material. Damage can however also occur to the side walls or the car body of the pallet car. The wheels of the pallet car are also at risk of being damaged.

OBJECT OF THE INVENTION

[0005] The object of the present invention is to provide a system and method for monitoring the condition of a travelling grate machine, with an improved monitoring of the condition of the travelling grate machine and, in particular, of its individual pallet cars.

[0006] This object is achieved by a system as claimed in claim 1 and by a method as claimed in claim 12.

SUMMARY OF THE INVENTION

[0007] The present invention relates to a system for monitoring the condition of a travelling grate machine, in particular a pelletizing or sintering machine, wherein the travelling grate machine comprises a plurality of pallet cars comprising a car body with wheels, side walls and a perforate floor with a plurality of grate bars. According to the present invention, the system comprises identification means for univocally identifying each pallet car; sensor means for collecting a plurality of condition indicating parameters; processor means for attributing the collected condition indicating parameters to an individual pallet car; storage means for storing the collected condition indicating parameters for each pallet car in a database; and evaluation means for evaluating the condition of the travelling grate machine.

[0008] The evaluation means is configured to compare the collected condition indicating parameters of each pallet car to reference parameters and/or to previously collected condition indicating parameters of that same pallet car; to identify the faults in each pallet car based on this comparison; to

classify each pallet car according to its need of maintenance based on the identified faults; and to determine the pallet car in most need of maintenance based on this classification.

[0009] The present system thus continuously monitors the condition of individual pallet cars and records the faults detected therewith. Based on the detected faults and their severity, the system classifies the pallet cars in order of maintenance requirement. If important faults are detected that require immediate attention, the system can initiate an emergency stoppage of the travelling grate machine so that the required repairs can be carried out. For less urgent faults, the system prioritizes the pallet cars requiring maintenance, such that pallet cars most in need of maintenance can be replaced or maintenance carried out thereon during the next scheduled maintenance stoppage.

[0010] As faults to the pallet cars are continuously identified and monitored, it is not only possible to know which pallet cars require maintenance during a stoppage, but also what repairs are required. Thus, even before the maintenance stoppage takes place, it is possible to prepare the required tools and replacement parts. Stoppage time can thus be reduced, thereby increasing the efficiency of the travelling grate machine.

[0011] The continuous monitoring of the faults of individual pallet cars also allows the operator to adapt the operating conditions of the travelling grate machine such that further degradation of the faulty pallet car is reduced or even avoided. This allows prolonging the lifetime of the faulty pallet at least until the next scheduled maintenance stoppage, thereby avoiding an emergency stoppage.

[0012] The sensor means preferably comprise contactless sensors, such as e.g. a camera system based on light or laser beams. Such contactless sensors allow collecting the respective condition indicating parameters without actual physical contact with the pallet car. This is of particular interest because the pallet cars are generally moving, while the sensor means are preferably located in a fixed location.

[0013] The sensor means allow the capturing of images that can be compared to reference images. Any discrepancy between the captures image and the reference image can be used by the evaluation means for evaluating the condition of the captured part of the pallet car. The captured image is stored in the storage means. This allows a newly captured image to be compared to a previously captured image of the same part of a particular pallet car. The comparison by the evaluation means of successive captured imaged of the same part of a pallet car allows the evaluation of the degradation of that part. Thus, a part that is identified as deteriorated can be monitored more closely to identify the rate of deterioration. This allows predicting when the part needs to be replaced.

[0014] According to a preferred embodiment of the invention, the system comprises sensor means for at least collecting parameters indicative of the condition of the wheels of the pallet car. Preferably, these parameters allow determining the presence of a wheel and whether or not the wheel rotates. If the evaluation means identifies that a pallet car wheel is missing, the pallet car is classified as requiring immediate attention. The system may initiate an emergency stoppage such that the missing wheel, or even the whole pallet car, can be replaced. If the evaluation means identifies that a pallet car wheel is not rotating or not rotating correctly, the system may classify this fault as high priority such that the pallet car can undergo maintenance during the next scheduled maintenance stoppage, before complete failure of the wheel occurs. If the evaluation means identifies that a pallet car wheel is deteriorated, the system may classify this fault as lower priority and flag the pallet car as requiring closer monitoring to check the progression of the deterioration.

[0015] According to a preferred embodiment of the invention, the system comprises sensor means for at least collecting parameters representative of the condition of the grate bars of the pallet car. Preferably, these parameters allow determining the presence of grate bars. If grate bars are missing, the system may classify this fault as higher priority depending on how many such grate bars are missing. Missing grate bars have an important impact on the efficiency of the travelling grate machine and thus need urgent attention. Missing grate

bars furthermore contribute to a faster deterioration to neighbouring grate bars. Thus, missing grate bars are allocated a high priority such that the pallet car can undergo maintenance during the next scheduled maintenance stoppage, before the pallet car and the efficiency of the travelling grate machine further deteriorate.

[0016] Preferably, the parameters representative of the condition of the grate bars of the pallet car further allow determining the size of the gaps between neighbouring grate bars. The larger the gaps, the more material may fall through the perforate floor and the more deterioration may occur to neighbouring grate bars. A localised enlargement of the gap between neighbouring grate bars may also indicate a misalignment of the grate bars. Depending on the how many gaps are detected in a pallet car and on how big these gaps are, the system may classify this fault as higher priority in order to carry out maintenance on the pallet car.

[0017] Preferably, the parameters representative of the condition of the grate bars of the pallet car further allow determining the shape, size or orientation of the grate bars of a pallet car. Pallet cars with misshaped, shrunk or misaligned grate bars may be an indication that a more important fault is to be expected. The system may classify such faults with lower priority, i.e. not requiring immediate attention. The pallet cars with such faults may however be more closely monitored. If no pallet cars with higher ranking priority are identified, these pallet cars can be selected for maintenance during the next scheduled maintenance stoppage in order to prevent further deterioration of the pallet car.

[0018] According to a preferred embodiment of the invention, the system comprises sensor means for at least collecting parameters representative of the condition of the car body and/or the side walls of the pallet car. Preferably, these parameters allow determining the presence of cracks in either the car body or the side walls. Depending on the number, size and location of such cracks, the system may classify such faults as having higher or lower priority. If the condition is such that the pallet car is in danger of complete failure, a higher

priority may be given to that pallet car, thus assigning the pallet car for maintenance during the next scheduled stoppage. If the damage is very important, the system may even initiate an emergency stoppage to replace the pallet car. If, on the other hand, the damage is not significant, the system may classify such faults as having low priority.

[0019] The system may also comprise sensor means for determining loosening or overheating of side walls.

[0020] According to a preferred embodiment of the invention, the system may further comprise sensor means for collecting parameters representative of the condition of the grate bar holders, the bolts, the upper seal and/or the lower seal.

[0021] The present invention also relates to a method for monitoring the condition of a travelling grate machine, in particular a pelletizing or sintering machine, wherein the travelling grate machine comprises a plurality of pallet cars comprising a car body with wheels, side walls and a perforate floor with a plurality of grate bars. According to the present invention, the method comprises univocally identifying each pallet car; collecting a plurality of condition indicating parameters; attributing the collected condition indicating parameters to an individual pallet car; storing the collected condition indicating parameters for each pallet car in a database; and evaluating the condition of the travelling grate machine.

[0022] The evaluation comprises comparing the collected condition indicating parameters of each pallet car to reference parameters and/or to previously collected condition indicating parameters of that same pallet car; identifying the faults in each pallet car based on this comparison; classifying each pallet car according to its need of maintenance based on identified faults; and determining the pallet car in most need of maintenance based on this classification.

[0023] The method advantageously comprises capturing an image of a part of a particular pallet car, preferably with a camera system; storing the captured image in a database; and evaluating the condition of the travelling grate

machine based on the captured image and a reference image or a previously stored image.

[0024] According to a preferred embodiment of the invention, the method comprises collecting parameters indicative of the condition of the wheels of the pallet car. Preferably, these parameters allow determining the presence of a wheel and whether or not the wheel rotates. If the evaluation means identifies that a pallet car wheel is missing, not rotating or otherwise deteriorated, the pallet car is classified according to its maintenance need as indicated above.

[0025] According to a preferred embodiment of the invention, the method comprises collecting parameters representative of the condition of the perforate floor of the pallet car. Preferably, these parameters allow determining the presence of grate bars, their shape, size and orientation, their condition and the size of the gap between neighbouring grate bars. If the evaluation means identifies that grate bars are missing or damaged or that the perforate floor is otherwise deteriorated, the pallet car is classified according to its maintenance need as indicated above.

[0026] According to a preferred embodiment of the invention, the method comprises collecting parameters representative of the condition of the car body and/or the side walls of the pallet car. If the evaluation means identifies that the car body and/or the side walls are damaged, the pallet car is classified according to its maintenance need as indicated above.

[0027] According to a preferred embodiment of the invention, the method may further comprise collecting parameters representative of the condition of the grate bar holders, the bolts, the upper seal and/or the lower seal. If the evaluation means identifies that these elements are damaged, the pallet car is classified according to its maintenance need as indicated above.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0028] A preferred embodiment of the present invention will now be described, by way of example.

[0029] Travelling grate machines are generally well known. They comprise a plurality of successive pallet cars for carrying bulk material. Each pallet car comprises a car body fitted with wheels for travelling on guide rails. The pallet car further comprises a perforate floor for receiving the bulk material thereon. Sidewalls are provided to prevent the bulk material from falling sideways off the pallet car. The front and rear end of each pallet car is in abutment with another pallet car, thereby forming a receiving surface for the bulk material extending over a number of pallet cars.

[0030] The perforate floor of the pallet car is formed by a plurality of grate bars with spaces therebetween to permit the passage of process gas. Such process gas may e.g. be air or any other gas capable of heating or cooling bulk material. The grate bars are positioned such that the gaps therebetween are sufficient to allow process gas to circulate but prevent the bulk material from falling through the gaps. In operation, due to the harsh conditions the travelling grate machines are exposed to, the perforate floor may become damaged. Indeed, individual grate bars can deteriorate. Due to wear and tear, the grate bars may e.g. be misaligned; they may become narrower, break or vanish altogether. Consequently, the gap between neighbouring grate bars is altered. With bigger gaps between grate bars, bulk material is no longer retained on the perforate floor. Also, preferential flow passages for process gas may be formed, leading to uneven thermal treatment of bulk material. Indeed, certain areas of the bulk material and the pallet car may thereby be exposed to excessive heat.

[0031] The present invention concerns a system and method for continuously monitoring the condition of the pallet cars and for identifying the pallet car most in need of maintenance.

[0032] According to a preferred embodiment, a camera system, comprising a number of cameras, is installed preferably just before bulk material is deposited on the pallet cars. This allows the camera to have a clear view of the pallet car and in particular of its perforate floor. Different cameras are preferably provided for monitoring specific areas of the pallet car. As a particular pallet car passes the camera system, the identity of that pallet car is first determined. The

cameras capture various images of various parts of the pallet car. These captured images are associated with the pallet car identity and subsequently stored in a database. The database comprises reference images for the respective parts and preferably previously captured images of these parts.

[0033] Evaluation means are used to compare the newly captured image with the reference image and/or the previously captured image of the respective part to determine the condition of that part. The comparison with the reference image allows determining whether the part is damaged or not; while the comparison with previously captured images allows determining the rate of deterioration.

[0034] The evaluation means thus continuously monitors the condition of each pallet car as it passes the camera system and identifies any part that may be faulty. The evaluation means however not only identifies faults with the pallet car; it also classifies the identified faults according to their importance, thereby allowing identification of the urgency of maintenance for each pallet car. Maintenance of the travelling grate machine can thus be prepared and carried out according to a prepared schedule. If critical faults are identified, an emergency stoppage can occur to prevent further damage. If important faults are identified, maintenance can be scheduled to repair the damage or exchange the pallet car before they develop into critical faults. For minor faults, these can be logged and the deterioration of the identified parts can be monitored and action can be taken, preferably during a routine stoppage, before the fault turns into a more important fault requiring unscheduled stoppage.

[0035] The camera system may e.g. be configured to monitor the number of grate bars, the number of gaps between grate bars, the width of each grate bar, the area of each grate bar, the angle orientation of each grate bar, the width of each grate bar gap, the total area of each gap, the total area of gaps blocked by bulk material. The camera system may further be configured to monitor the area of each wheel, the area of each pressure roller, the area of the sidewall top part, the area of the sidewall bottom part and the area of each head plate.

[0036] With respect to the perforate floor, the latter may be divided into separate sections, e.g. four sections, wherein the condition of the grate bars and gaps are captured individually for each such section.

[0037] The portion of the travelling grate machine most at risk of being damaged from wear and tear is the perforate floor. Thus, the elements most in need of maintenance are generally the grate bars. Misaligned grate bars and missing grate bars create large gaps between neighbouring grate bars. Such gaps allow bulk material falling through the perforate floor. This not only leads to a loss of bulk material, but also to a risk of preferential flow passages for hot process gas, overheating parts of the pallet car and the travelling grate machine, and a loss in efficiency of the thermal treatment of the bulk material.

[0038] Bulk material may become stuck in the gaps between neighbouring grate bars. Generally, such stuck bulk material is liberated when the material is discharged from the pallet car. If, however, the bulk material is not liberated, a build-up of stuck bulk material can occur, which may have a negative impact on the process gas flow through the perforate flow and thus on the efficiency of the thermal treatment of the bulk material.

[0039] The system and method of the present continuously monitors the condition of the perforate floors, such as e.g. the number of grate bars, the number of gaps, the width of the grate bars, the area of the grate bars, the angle of orientation of the grate bars, the width of the gap between grate bars, the total area of each gap, the total area of gaps blocked by bulk material. These parameters allow an evaluation of the condition of the perforate floor.

[0040] The system can, based on these parameters, identify various faults. It can amongst others identify the number of missing grate bars, the average grate bar width, the number of grate bars with a width below a predefined threshold, the number of gaps with a width above a predetermined width, the degree of gaps blocked, the number of grate bars with a degradation.

[0041] Based thereon, the importance of the fault is identified and stored against the particular pallet car. Thus, the system continuously updates the condition of each pallet car and can classify the pallet cars *by order of*

maintenance requirement necessity. Obviously, some faults are more critical than others and therefore have a different weighing in the decision making. Missing grate bars for example are more important a fault than a number of misaligned grate bars.

[0042] While most faults are related to the perforate floor of the pallet car, other parts of the pallet car may require maintenance. To this effect, the camera system preferably also monitors the area of the wheels; the area of the pressure rollers, the area of the sidewall top and bottom parts and/or the area of the head plate. Indeed, these parts may also become damaged and potentially require rapid maintenance. Based on these parameters, the system can identify faults such as missing or damaged wheels, missing or damaged pressure rollers, missing or damaged side walls (top and/or bottom parts) and missing or damaged head plates. Some of these faults, such as missing side walls or missing wheels are particularly important and are assigned a higher weighing in the decision making. Such faults may require stoppage of the installation, even before the next scheduled maintenance stoppage, in order to repair or replace the pallet car displaying such faults.

[0043] The exact weighing of the different faults may depend on the specific travelling grate machine monitored by the system. They are therefore variables that can be set by the operator.

[0044] It should be noted that the system aims to identify faults at an early stage and to monitor the rate of deterioration based on historical images captured each time the pallet car passes the camera system. The monitoring of the rate of deterioration allows predicting when the damaged part must be replaced before the fault becomes critical. Maintenance work can then be scheduled accordingly. Carrying out maintenance work on the pallet cars most in need of repair during a scheduled maintenance stoppage reduces the number of unscheduled emergency stoppages of the travelling grate machine.

Claims

1. A system for monitoring the condition of a travelling grate machine, in particular a pelletizing or sintering machine, said travelling grate machine comprising a plurality of pallet cars comprising a car body with wheels, side walls and a perforate floor with a plurality of grate bars, the system comprising:

identification means for univocally identifying each pallet car;

sensor means for collecting a plurality of condition indicating parameters;

processor means for attributing the collected condition indicating parameters to an individual pallet car;

storage means for storing the collected condition indicating parameters for each pallet car in a database;

evaluation means for evaluating the condition of the travelling grate machine, wherein said evaluation means

compares the collected condition indicating parameters of each pallet car to reference parameters and/or to previously collected condition indicating parameters of that same pallet car;

identifies the faults in each pallet car based on this comparison;

classifies each pallet car according to its need of maintenance based on identified faults; and

determines the pallet car in most need of maintenance based on this classification.

2. The system according to claim 1, wherein the sensor means comprises contactless sensors.

3. The system according to claim 1, wherein the sensor means is configured to capture images of a part of the pallet car, wherein the storage means is configured to store the captured image and wherein the evaluation means is

configured to compare the captured image with a reference image and or previously stored images.

4. The system according to claim 1 to 3, wherein the system comprises sensor means for collecting parameters indicative of the condition of the wheels of the pallet car.

5. The system according to claim 4, wherein the system is configured to monitor the presence and/or the rotation of the wheels of the pallet car.

6. The system according to any of claims 1 to 5, wherein the system comprises sensor means for collecting parameters indicative of the condition of the grate bars of a pallet car.

7. The system according to claim 6, wherein the system is configured to monitor the presence of grate bars and/or the size of the gap between neighbouring grate bars.

8. The system according to claim 6 or 7, wherein the system is configured to monitor the shape and/or size and/or orientation of the grate bars of a pallet car.

9. The system according to any of claims 1 to 8, wherein the system comprises sensor means for collecting parameters indicative of the condition of the car body and/or the side walls of the pallet car.

10. The system according to claim 10, wherein the system is configured to monitor the presence of cracks in the car body and/or the side walls of the pallet car.

11. The system according to any of claims 1 to 10, wherein the system comprises sensor means for collecting parameters indicative of the condition of the grate bar holders and/or the bolts and/or the upper seal and/or the lower seal.

12. A method for monitoring the condition of a travelling grate machine, in particular a pelletizing or sintering machine, said travelling grate machine comprising a plurality of pallet cars comprising a car body with wheels, side

walls and a perforate floor with a plurality of grate bars, the method comprising:

univocally identifying each pallet car;

collecting a plurality of condition indicating parameters;

attributing the collected condition indicating parameters to an individual pallet car;

storing the collected condition indicating parameters for each pallet car in a database;

evaluating the condition of the travelling grate machine, wherein said evaluation comprises

comparing the collected condition indicating parameters of each pallet car to reference parameters and/or to previously collected condition indicating parameters of that same pallet car;

identifying the faults in each pallet car based on this comparison;

classifying each pallet car according to its need of maintenance based on identified faults; and

determining the pallet car in most need of maintenance based on this classification.

13. The method according to claim 12, comprising the steps of

capturing an image of a pallet car;

assigning a pallet car reference to the captured image;

storing the captured image in a database; and

comparing the captured image with a reference image or a previously stored image.

14. The method according to claim 12 or 13, wherein the method comprises collecting parameters indicative of the condition of the wheels of the pallet car.

15. The method according to any of claims 12 to 14, wherein the method comprises collecting parameters representative of the condition of the perforate floor of the pallet car.

16. The method according to any of claims 12 to 15, wherein the method comprises collecting parameters representative of the condition of the car body and/or the side walls of the pallet car.

17. The method according to any of claims 12 to 16, wherein the method comprises collecting parameters representative of the condition of the grate bar holders, the bolts, the upper seal, the lower seal.

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REVENDICATIONS

1. Système pour surveiller l'état d'une machine à grille mobile, en particulier une machine de pelletisation ou de frittage, ladite machine à grille mobile comprenant une pluralité de chariots à palette comprenant une carrosserie de chariot avec des roues, des parois latérales et un sol perforé avec une pluralité de barreaux à grille, le système comprenant :

un moyen d'identification pour identifier de manière univoque chaque chariot à palette ;

un moyen de capteur pour recueillir une pluralité de paramètres indiquant un état ;

un moyen de processeur pour attribuer les paramètres indiquant un état recueillis à un chariot à palette individuel ;

un moyen de stockage pour stocker les paramètres indiquant un état recueillis pour chaque chariot à palette dans une base de données ;

un moyen d'évaluation pour évaluer l'état de la machine à grille mobile, dans lequel ledit moyen d'évaluation

compare les paramètres indiquant un état recueillis de chaque chariot à palette à des paramètres de référence et/ou à des paramètres indiquant un état précédemment recueillis de ce même chariot à palette ;

identifie les défauts dans chaque chariot à palette sur la base de cette comparaison ;

classe chaque chariot à palette en fonction de son besoin de maintenance sur la base des défauts identifiés ; et

détermine le chariot à palette nécessitant le plus une maintenance sur la base de ce classement.

2. Système selon la revendication 1, dans lequel le moyen de capteur comprend des capteurs sans contact.

3. Système selon la revendication 1, dans lequel le moyen de capteur est configuré pour capturer des images d'une partie du chariot à palette, dans lequel le moyen de stockage est configuré pour stocker l'image capturée et dans lequel le moyen d'évaluation est configuré pour comparer l'image capturée avec une image de référence *et/*ou des images précédemment stockées.

4. Système selon la revendication 1 à 3, dans lequel le système comprend un moyen de capteur pour recueillir des paramètres indicateurs de l'état des roues du chariot à palette.

5. Système selon la revendication 4, dans lequel le système est configuré pour surveiller la présence *et/*ou la rotation des roues du chariot à palette.

6. Système selon l'une quelconque des revendications 1 à 5, dans lequel le système comprend un moyen de capteur pour recueillir des paramètres indicateurs de l'état des barreaux à grille d'un chariot à palette.

7. Système selon la revendication 6, dans lequel le système est configuré pour surveiller la présence de barreaux à grille et/ou la taille de l'espace entre barreaux à grille voisins.

8. Système selon la revendication 6 ou 7, dans lequel le système est configuré pour surveiller la forme *et/*ou la taille *et/*ou l'orientation des barreaux à grille d'un chariot à palette.

9. Système selon l'une quelconque des revendications 1 à 8, dans lequel le système comprend un moyen de capteur pour recueillir des paramètres indicateurs de l'état de la carrosserie de chariot et/ou des parois latérales du chariot à palette.

10. Système selon la revendication 10, dans lequel le système est configuré pour surveiller la présence de fêlures dans la carrosserie de chariot et/ou les parois latérales du chariot à palette.

11. Système selon l'une quelconque des revendications 1 à 10, dans lequel le système comprend un moyen de capteur pour recueillir des paramètres indicateurs de l'état des reteneurs de barreaux à grille et/ou des boulons et/ou du joint supérieur et/ou du joint inférieur.

12. Procédé pour surveiller l'état d'une machine à grille mobile, en particulier une machine de pelletisation ou de frittage, ladite machine à grille mobile comprenant une pluralité de chariots à palette comprenant une carrosserie de chariot avec des roues, des parois latérales et un sol perforé avec une pluralité de barreaux à grille, le procédé comprenant :

l'identification de manière univoque de chaque chariot à palette ;

le recueil d'une pluralité de paramètres indiquant un état ;

l'attribution des paramètres indiquant un état recueillis à un chariot à palette individuel ;

le stockage des paramètres indiquant un état recueillis pour chaque chariot à palette dans une base de données ;

l'évaluation de l'état de la machine à grille mobile, dans lequel ladite évaluation comprend

la comparaison des paramètres indiquant un état recueillis de chaque chariot à palette à des paramètres de référence et/ou à des paramètres indiquant un état précédemment recueillis de ce même chariot à palette;

l'identification des défauts dans chaque chariot à palette sur la base de cette comparaison ;

le classement de chaque chariot à palette en fonction de son besoin de maintenance sur la base des défauts identifiés ; et

la détermination du chariot à palette nécessitant le plus une maintenance sur la base de ce classement.

13. Procédé selon la revendication 12, comprenant les étapes de capture d'une image d'un chariot à palette;
affectation d'une référence de chariot à palette à l'image capturée ;
stockage de l'image capturée dans une base de données ; et
comparaison de l'image capturée avec une image de référence ou une image précédemment stockée.

14. Procédé selon la revendication 12 ou 13, dans lequel le procédé comprend le recueil de paramètres indicateurs de l'état des roues du chariot à palette.

15. Procédé selon l'une quelconque des revendications 12 à 14, dans lequel le procédé comprend le recueil de paramètres représentatifs de l'état du sol perforé du chariot à palette.

16. Procédé selon l'une quelconque des revendications 12 à 15, dans lequel le procédé comprend le recueil de paramètres représentatifs de l'état de la carrosserie de chariot et/ou des parois latérales du chariot à palette.

17. Procédé selon l'une quelconque des revendications 12 à 16, dans lequel le procédé comprend le recueil de paramètres représentatifs de l'état des reteneurs de barreaux à grille, des boulons, du joint supérieur, du joint inférieur.