(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 December 2017 (14.12.2017)

WIPO | PCT

(10) International Publication Number
WO 2017/210734 A1

(51) International Patent Classification:
B65F 1/14 (2006.01) *B65B 39/00* (2006.01)
B30B 9/30 (2006.01) *B65B 43/46* (2006.01)
B65B 27/12 (2006.01) *B65B 5/04* (2006.01)
B65B 63/02 (2006.01)

(21) International Application Number:
PCT/AU2017/050563

(22) International Filing Date:
07 June 2017 (07.06.2017)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2016902236 08 June 2016 (08.06.2016) AU

(71) Applicant: **ENVIRO BALE PTY LTD** [AU/AU]; Lot 254, Corner Hines and Wingfield Roads, Wingfield, South Australia 5013 (AU).

(72) Inventor: **BORRELLI, Nicola**; Lot 254, Corner Hines and Wingfield Roads, Wingfield, South Australia 5013 (AU).

(74) Agent: **COLLISON & CO**; Level 8, 117 King William Street, Adelaide, South Australia 5000 (AU).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC,

(54) Title: A BAGGING ARRANGEMENT FOR BAGGING BALES OF COMPRESSED MATERIAL AND A METHOD OF BAGGING COMPRESSED MATERIAL WITH SAID BAGGING ARRANGEMENT

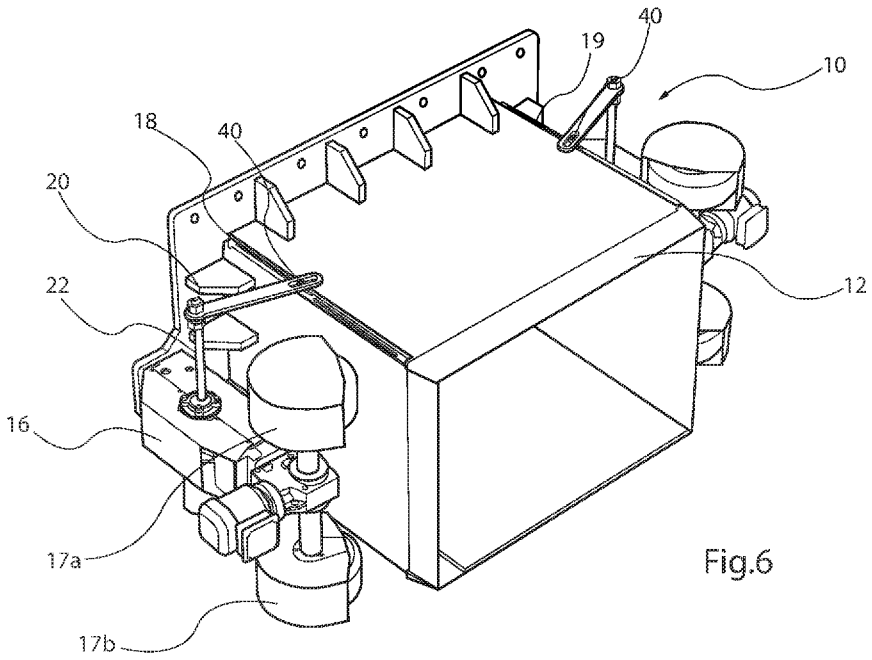

Fig.6

(57) Abstract: A bagging arrangement for bagging bales of compressed material including an exit chute and a pair of exit chute side engaging rotatably driveable wheel arrangements located on opposing sides of the exit chute that have an open position, a closed position and an operational position. A hook arrangement, adapted to hook into position a bag about an opening of the exit chute to which the bale of compressed material is to be ejectable therefrom. The hook arrangement is in communication with the pair of exit chute side engaging rotatably driveable wheel arrangements such that when they are moved from the open position to the closed position, the hook arrangement extends the bag along the respective sides of the exit chute so that the pair of exit chute side engaging rotatably driveable wheel arrangements in the closed position are adapted for contiguous engagement with the bag up against the respective sides of the exit chute and whereby when the pair of exit chute side engaging rotatably driveable wheel arrangements are placed in the operational position, driveable wheel arrangements rotate sliding the bag onto the exit chute such that the end of the bag closes

WO 2017/210734 A1

[Continued on next page]

SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

A BAGGING ARRANGEMENT FOR BAGGING BALES OF COMPRESSED MATERIAL AND A METHOD OF BAGGING COMPRESSED MATERIAL WITH SAID BAGGING ARRANGEMENT

TECHNOLOGICAL FIELD

[001] This invention relates to a method and arrangement for bagging compressed material, notably trash, and more particularly to an improved bagging arrangement and method that will provide a simplified operational handling by an operator responsible for encapsulating the compressed material within the requisite bag when the compressed material is ejected from the plant equipment responsible for compressing the material into the bag

BACKGROUND ART DISCUSSION.

[002] In order to reduce storage required to handle and store trash material it undergoes compression in purposely designed plant equipment into an appropriately baled configuration for it then to be subsequently maintained as much as possible within that compressed state.

[003] Generally once the baled configuration has been established and the trash has been appropriately compressed to reduced the tendency of the compressed baled material to relax and expand to any great extent the compressed material is bagged and/or wired as the bales are ejected from the plant equipment responsible for compressing the trash into the compressed baled configuration.

[004] Conventional arrangements require the use of at least two human operators wherein each human operator will grab an opposing side of the bag into which the baled compressed material will be ejected thereinto.

[005] Each operator will be responsible for positioning the bag over an exiting opening of a chute or duct from which the bale of compressed material is to be ejected therefrom.

[006] The task of positioning the bag that is to accept the ejected bale of compressed material is cumbersome and potentially dangerous or risk adverse, as one operator relies upon the correct handling of the other in order to complete the task appropriately.

[007] Also current bagging arrangements are time consuming and expensive by relying upon at least two human operators to complete the bagging task and finally generally resulting in inconsistent bagging of the compressed material as the bag remains open without any taut structured shape as the baled compressed material is ejected there into the bag.

[008] Notwithstanding all these above referenced shortcomings of current arrangements and methods used in the bagging of the bale of compressed material, it also needs to be recognised that the environment in which operators and machinery are exposed to is very dusty and dirty.

[009] Therefore, when one is dealing in a dusty and dirty environment preference would be to simplify procedures to minimise the task of the operator and notably utilise machinery not necessarily influenced by dirty and dusty environments thereby reducing valuable downtime when machinery would undergo maintenance that necessitates the shutting down of the whole operation.

[010] Accordingly it is an object of this invention to be able to provide an improved bagging arrangement and method thereof that addresses the above short comings.

[011] Further objects and advantages of this invention will become apparent from a complete reading of the following specification.

SUMMARY OF THE INVENTION

[012] In one form of the invention there is provided a bagging arrangement for bagging a bale of compressed material, said arrangement including:

[013] an exit chute from which a bale of compressed material is ejectable therefrom;

[014] a pair of exit chute side engaging rotatably driveable wheel arrangements located on opposing sides of said exit chute;

[015] said pair of exit chute side engaging rotatably driveable wheel arrangements including an open position, a closed position and an operational position;

[016] a hook arrangement, wherein the hook arrangement is adapted to hook into position a bag about an opening of the exit chute to which the bale of compressed material is to be ejectable there from into said bag hooked into position about the opening of the exit chute by the hook arrangement;

[017] said hook arrangement in communication with said pair of exit chute side engaging rotatably driveable wheel arrangements such that when the pair of exit chute side engaging rotatably driveable wheel arrangements are moved from the open position to the closed position, the hook arrangement extends the bag along the respective sides of the exit chute so that the pair of exit chute side engaging rotatably driveable wheel arrangements in the closed position are adapted for contiguous engagement with said bag up against the respective sides of the exit chute; and

[018] whereby when the pair of exit chute side engaging rotatably driveable wheel arrangements are placed in the operational position, driveable wheel arrangements rotate sliding the bag onto the exit chute such that the end of the bag closes off the opening of the exit chute.

[019] Accordingly in its broadest form the invention provides for an improved and unique way in which the bag to which the bale of compressed material is to be ejected thereinto can be safely, conveniently and with reduced handling, be positioned appropriately about the exit chute so that the discharging of the bale of compressed material into the bag can be done so without the compressed bale losing the general shape and becoming unstable during the bagging process.

[020] At first instance, rather than having two operators positioned on opposing sides of the exit chute during the complete discharging of the bale of compressed

material into the bag, in this instance all an operator will need to do is to simply hook the bag upon the hook arrangement and through the unique arrangement between the communication that exists between the pair of exit chute side engaging rotatably driveable wheel arrangements with the hook arrangement as the pair of exit chute side engaging rotatably driveable wheel arrangements are brought from the open position to the closed position, this then activates the hook arrangement so as to extend the bag up along the respective sides of the exit chute so that once the pair of exit chute side engaging rotatably driveable wheel arrangements reach the closed position they are able to make contiguous engagement with the hooked bag up against the respective sides of the exit chute so as once the driveable wheels are placed into operational mode their rotation then pulls the hooked bag completely up over the exit chute so that the end of the bag can be tautly then located about the opening of the exit chute from which the bale of compressed material will be ejected therefrom.

[021] In preference the hook arrangement includes a pair of tracks on opposing upper sides or top edges of the exit chute.

[022] In preference the hook arrangement further includes a pair of hooks wherein each hook is slidably containable within said tracks from a hooking position characterised in being able to initially hook on the bag in which the bale of compressed material is to be ejected therein and a retracted position wherein the pair of hooks are slid back into a retracted position when the pair of exit chute side engaging rotatably driveable wheel arrangements are moved from the open position to the closed position so that the driveable wheel arrangements are configured, in contiguous engagement with the bag that has been hooked by the pair of hooks up against the respective sides of the exit chute so as to pull the bag that has been hooked by the pair of hooks completely up over the exit chute so that the end of the bag that has been hooked by the pair of hooks can be tautly located about the opening of the exit chute from which the bale of compressed material will be ejected out therefrom.

[023] In preference the pair of hooks, wherein each hook is slidably contained within a respective track on the opposing upper sides or top edges of the exit chute include a bag disengagement position, whereby the bag disengagement position is characterised by each hook being slid further along the respective tracks by way of once the pair of exit chute side engaging rotatably driveable wheel arrangements are in the operational position, the hook arrangement communication with the pair of exit chute side engaging rotatably driveable wheel arrangements is such so as to further extend each hook further along the respective track on the opposing upper sides or top edges of the exit chute to disengage each hook of the pair of hooks from the bag located about the opening of the exit chute from which the bale of compressed material will be ejected out therefrom.

[024] In preference each track on the opposing upper sides or top edges of the exit chute includes an open slot wherein each hook of the pair of hooks are adapted to protrude out therefrom between the hooking position and the retracted position.

[025] In preference the hook arrangement is configured to include a spring-biased shouldered section that is adapted to engage a structural peripheral end of the slot in which each hook of the pair of hooks slides between the bag hooking position and the retracted position such that further sliding retraction of each hook of the pair of hooks within the respective track towards the bag disengagement position provides for the spring-biased shouldered section to be pushed down by engagement with the structural peripheral end of the slot in which each hook of the pair of hooks slides between the bag hooking position and the retracted position forcing a hook portion of each hook of the pair of hooks downwards thereby providing a release mechanism for each hook of the pair of hooks to disengage from the bag.

[026] In preference the hook arrangement further includes a pivotally supported levered arm where lateral rotation of the levered arm correlates to slidable movement of each hook of the pair of hooks within the respective track between the hooking position, the retracted position and/or the bag disengagement position.

[027] In preference each exit chute side engaging rotatably driveable wheel arrangement includes a pair of vertically aligned wheels, preferably where the wheels include rubber tyres.

[028] In preference the pair of vertically aligned wheels are laterally pivotally supported upon an arm.

[029] In preference the arm includes a driveable means to place the pair of wheels from the open position to the closed position and vice versa.

[030] In preference the driveable means further communicates with a rotatable rod connected to a lever so as to laterally rotate said lever, wherein rotation of the lever is adapted to side a respective hook of the pair of hooks into the hooking position or retracted position depending upon the open position or closed position of the driveable wheel arrangements positioned on the opposing sides of the exit chute.

[031] In preference the arm includes support for a drive arrangement, preferably a motor to drive the vertically aligned wheels.

[032] In an alternative embodiment the arm includes a single drive means responsible for driving the lever arm, rotating the vertical wheels into closed or open positions, and the rotation of the vertical wheels.

[033] In a further alternative embodiment the arm includes separate drive means or a combination thereof of drive means to operate the lever arm, rotating the vertical wheels into closed or open positions, and the rotation of the vertical wheels.

[034] In order now to describe the invention in greater detail a preferred embodiment will be presented with the assistance of the following drawings and accompanying text.

BRIEF DESCRIPTION OF THE DRAWINGS

[035] Figure 1 is a front right hand side perspective view of the bagging arrangement in a preferred embodiment of the invention, showing the pair of exit chute side engaging rotatably driveable wheel arrangements in the closed position.

[036] Figure 2 is a front left hand side perspective view of Figure 1.

[037] Figure 3 is a top view of the bagging arrangement in a preferred embodiment of the invention with the pair of exit chute side engaging rotatably driveable wheel arrangements in the closed position.

[038] Figure 4 is the same representation of Figure 3 with the pair of exit chute side engaging rotatably driveable wheel arrangements in the open position in a preferred embodiment of the invention.

[039] Figure 5 is the same perspective view as Figure 1 with the pair of exit chute side engaging rotatably driveable wheel arrangements in the open position in a preferred embodiment of the invention.

[040] Figure 6 is the same representation as Figure 2 with the pair of exit chute side engaging rotatably driveable wheel arrangements in the open position.

[041] Figure 7 is a cross-sectional view of the hook arrangement of the bagging arrangement in a preferred embodiment of the invention.

[042] Figure 8 is a schematic representation of the hook of the hook arrangement in a preferred embodiment of the invention.

[043] Figure 9 is a top cross-sectional view in part of one side of the exit chute and the exit chute side engaging rotatably driveable wheel arrangements in a preferred embodiment of the invention.

[044] Figures 10a to 10e are schematic representations showing the method of bagging compressed material using the arrangements shown in figures 1 to 9 in a preferred embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[045] The bagging arrangement (10) shown generally in Figures 1 through to 6 includes the exit chute (12) from which the bale of compressed material (not shown) would be ejected out the exiting opening (13) of the exit chute (12).

[046] On opposing sides (1) and (3) of the exit chute (12) are the pair of exit chute side engaging rotatably driveable wheel arrangements shown generally as (14) and (16).

[047] In the preferred embodiment the pair of exit chute side engaging rotatably driveable wheel arrangements (14) and (16) includes the pair of mountable arms shown in Figure 1 as (101).

[048] While reference in the description is made to the arm (101) in Figure 1 associated with the exit chute side engaging rotatably driveable wheel arrangement (14), the same structure is included as part of the opposite exit chute side engaging rotatably driveable wheel arrangement (16) illustrated throughout the figures.

[049] The arm housing (101) provides the structural support for the housing (15a) and (15b) that enclose the drivable rubber tyre wheels (5a) and (5b) through the motor (104).

[050] The illustrations also show the housing (17a) and (17b) along with the corresponding enclosed rotatable rubber tyres (7a) and (7b) on the opposing arm structure (16) throughout the figures.

[051] Figure 9 assists in illustrating how the mounted arm housing (101) incorporates the motor (104) as well as rotatable and moveable components (102), (106), (103), (105) which when required are driveable, movable and/or rotatable into

position such that the intermediate piece (102) is able to position the supported wheels (5a) in the closed position and then rotatably retract that engaging wheels (5a) and (5b) back to the open position as best seen in Figures 4, 5 and 6.

[052] Importantly also, as the wheel (5a) is moved between the open and closed position, this same rotary movement communicates and/or instigates movement of the vertical support rod shown as (23) and (22) in Figures 1, 2, 5 and 6, wherein the lever arms (20) and (21) are mounted to the rotatable vertical corresponding rods (22) and (23) which are supported within casing (108) within the arm (101).

[053] The relevant movement of the lever arms (21) and (20) will be discussed in greater detail when referencing Figure 7.

[054] In the embodiment shown, the rotatable vertical upright supports (22) and (23) to which the corresponding lever arms (21) and (20) which engage the hook arrangement which will be discussed in greater detail in Figure 7, also include corresponding lever arms (20a) and (21a) that in engage the base of the exit chute.

[055] In the preferred embodiment the engagement of the respective lever arms (20) and (21) with the track arrangement shown generally as (18) and (19) upon the upper side edges of the sides (1) and (3) but for improved stability corresponding lever arms (20a) and (21a) can also engage tracks at the bottom side edges (not shown), albeit these tracks at the bottom (not shown) will not be of necessity to include the hook arrangement as to be discussed in Figure 7.

[056] Figures 3 and 4 provide top views of the bagging arrangement (10) wherein Figure 3 shows the pair of exit chute side engaging rotatably driveable wheel arrangements (14) and (16) in the closed position so that the wheels (5a) and (7a) engage the sides (1) and (3) of the exit chute (12) and whereby arrows (31) and (32) are representative as to the direction in which bales of compressed material (not shown) would be passed and ejected there through the exit chute (12).

[057] In Figure 4 the pair of exit chute side engaging rotatably driveable wheel arrangements (14) and (16) are shown in the open position.

[058] Referring more specifically to Figures 7 and 8, albeit general understanding can also be achieved by reviewing Figure 1 through to Figure 6, as introduced above, there are two tracks (18) and (19) configured onto the top side edges of the sides (1) and (3) of the exit chute (12).

[059] As best seen in Figure 8 the hook (40) includes a hook portion (41) and a shouldered portion (44) wherein the shouldered portion is spring-biased (47).

[060] The hook (40) is slidable along the track (19) which is shown in Figure 7. The same mechanism applies to operation of the hook (40) along track (18) however referencing in Figure 7 is made in the context of track (19).

[061] The levered arm (21) which is rotatably supported upon the rotating column or rod (23) engages a length (52) on which the hook (40) is mounted there upon.

[062] As the levered arm (21) moves it is able to slidably move the hook along the open slot (51) of the track (19).

[063] In Figure 7 the hook is in the retracted position.

[064] In Figures 5 and 6 it is illustrative that the levered arms (20) and (21) have been laterally rotated so that it extends the segment (52) which is engaging the mounted hook (40) to position the hook (40) generally in a forward position so that the hook (40) can be in the hooking position to allow an operator easy convenience with which to hook the bag (not shown) to which the bale of compressible material will be ejected thereinto.

[065] Although not necessarily clearly observable from the illustrations, a person skilled in the art will appreciate that due to the shouldered arrangement (44) of the hook (40), as the hook (40) is slightly further retracted at the end of the slot (51), the shoulder (44) of the hook (40) can engage the peripheral structural distal end rim (50)

of the slot (51), this engagement forces the shoulder (44) down thereby then forcing the hook portion (41) of the hook (40) which will allow for disengagement of the bag (not shown) that was previously hooked upon the hook (40).

[066] Hence the ability to place the hook (40) from a hooking position to be slid back through to a retracting position and then ultimately a bag disengagement position for the hook (40), can all be achieved through a mechanical action rather than introducing any electronic componentry such as a solenoid and the like which would find it more difficult to operate in dusty and dirty environments thereby exposing the equipment to the potential ongoing requirements of more rigorous maintenance which would see downtime for such a less operational efficient bagging arrangement.

[067] Figures 10a, 10b, 10c, 10d and 10e provide for a schematic representation as to how the bagging arrangement in a preferred embodiment of the invention works.

[068] In Figure 10a the exit chute (12) is positioned against a conveyor type structure (61) which will allow the baled compressed material (60) (shown by way of broken lines) to be ejected from the opening (13) of the exit chute (12) there onto the conveyor type structure (61).

[069] Importantly however there is the requirement to effectively bag the baled compressed material (60) in order to maintain the appropriate configuration so as to minimise the potential of the compressed material from a relaxing and expanding thereout, thereby diminishing the structure of the compressed bale making it more cumbersome to handle and difficult to store post ejection.

[070] Notably the pair of exit chute side engaging rotatably driveable wheel arrangements (14) and (16) are in the open position and that correlates that the hook (40) is slidably positioned in the respective track arrangements (18) and (19) in the forward hooking position wherein as best seen in Figure 10b the open end (63) of the bag (64) is able to be hooked on to the hooks (40).

[071] As the pair of exit chute side engaging rotatably driveable wheel arrangements (14) and (16) are brought into their closed position, as best seen in figure 10c, this sees the movement of the lever arms (20) and (21) which allows the hooks (40) to be slid as best seen in Figure 7 along the slot (51) into the retracted position which enables the side of the bag (64), again as best seen in figure 10c, to extend along the sides of the exit chute (12) to allow the wheels (5a), (5b) and (7a), (7b) to engage the side of the bag (64).

[072] In Figure 10d rotation of the wheels, shown by way of arrow (69) is indicative as to how the wheels (5a), (5b) and (7a), (7b) with their contiguous engagement with the bag (64) up against the sides (1) and (3) of the exit chute (12) allow the bag (64) to be almost cantilevered into the configuration referenced as (66) in Figure 10d, whereby then ultimately the end of the bag (67) is then appropriately housed over the opening (13) of the exit chute (12) in a taut configuration ready for the bale of compressed material (60) to be ejected from the exit chute (12) into the appropriately positioned bag (64).

[073] Again as to be envisaged when also viewing Figure 7, as the pair of exit chute side engaging rotatably driveable wheel arrangements (14) and (16) once in the closed position, move to the operational mode wherein the wheels (5a), (5b) and (7a), (7b) commence rotation, this can then also correlate with the further retracted back movement of the hook (40) so that the upper shoulder (44) is pushed down thereby correspondingly pushing down the hook portion (41) so that the bag (64) can be completely disengaged from the hook arrangement, so that when the compressed material (60) is being ejected into the bag (64), the bag does not stay connected to the exit chute (12).

[074] The bale of compressed material (60) is ejected from the exit chute (12) into the appropriately positioned bag (64) as best seen in Figure 10e. Arrow (71) represents the direction of movement of the compressed material (60) wherein arrow (72) represents the reverse rotation of the wheels (5a), (5b) and (7a), (7b) as the bag pushes out of it's configuration shown as (66) in figure 10d.

CLAIMS

1. A bagging arrangement for bagging a bale of compressed material, said arrangement including:

an exit chute from which a bale of compressed material is ejectable therefrom;

a pair of exit chute side engaging rotatably driveable wheel arrangements located on opposing sides of said exit chute;

said pair of exit chute side engaging rotatably driveable wheel arrangements including an open position, a closed position and an operational position;

a hook arrangement, wherein the hook arrangement is adapted to hook into position a bag about an opening of the exit chute to which the bale of compressed material is to be ejectable there from into said bag hooked into position about the opening of the exit chute by the hook arrangement;

said hook arrangement in communication with said pair of exit chute side engaging rotatably driveable wheel arrangements such that when the pair of exit chute side engaging rotatably driveable wheel arrangements are moved from the open position to the closed position, the hook arrangement extends the bag along the respective sides of the exit chute so that the pair of exit chute side engaging rotatably driveable wheel arrangements in the closed position are adapted for contiguous engagement with said bag up against the respective sides of the exit chute; and

whereby when the pair of exit chute side engaging rotatably driveable wheel arrangements are placed in the operational position, each engaging rotatably driveable wheel arrangements rotate sliding the bag onto the exit chute such that the end of the bag closes off the opening of the exit chute.

2. The bagging arrangement of claim 1 wherein the hook arrangement includes a pair of tracks on opposing upper sides or top edges of the exit chute.

3. The bagging arrangement of claim 2 wherein the hook arrangement further includes a pair of hooks wherein each hook is slidably containable within said tracks from a hooking position characterised in being able to initially hook on the bag in which the bale of compressed material is to be ejected therein and a retracted position wherein the pair of hooks are slid back into a retracted position when the pair of exit chute side engaging rotatably driveable wheel arrangements are moved from the open position to the closed position so that the driveable wheel arrangements are configured, in contiguous engagement with the bag that has been hooked by the pair of hooks up against the respective sides of the exit chute so as to pull the bag that has been hooked by the pair of hooks completely up over the exit chute so that the end of the bag that has been hooked by the pair of hooks can be tautly located about the opening of the exit chute from which the bale of compressed material will be ejected out therefrom.

4. The bagging arrangement of claim 3 wherein the pair of hooks, wherein each hook is slidably contained within a respective track on the opposing upper sides or top edges of the exit chute include a bag disengagement position, whereby the bag disengagement position is characterised by each hook being slid further along the respective tracks by way of once the pair of exit chute side engaging rotatably driveable wheel arrangements are in the operational position, the hook arrangement communication with the pair of exit chute side engaging rotatably driveable wheel arrangements is such so as to further extend each hook further along the respective track on the opposing upper sides or top edges of the exit chute to disengage each hook of the pair of hooks from the bag located about the opening of the exit chute from which the bale of compressed material will be ejected out therefrom.

5. The bagging arrangement of claim 2, 3 or 4 wherein each track on the opposing upper sides or top edges of the exit chute includes an open slot wherein each hook of the pair of hooks are adapted to protrude out therefrom between the hooking position and the retracted position.

6. The bagging arrangement of claim 5 wherein the hook arrangement is configured to include a spring-biased shouldered section that is adapted to engage a

structural peripheral end of the slot in which each hook of the pair of hooks slides between the bag hooking position and the retracted position such that further sliding retraction of each hook of the pair of hooks within the respective track towards the bag disengagement position provides for the spring-biased shouldered section to be pushed down by engagement with the structural peripheral end of the slot in which each hook of the pair of hooks slides between the bag hooking position and the retracted position forcing a hook portion of each hook of the pair of hooks downwards thereby providing a release mechanism for each hook of the pair of hooks to disengage from the bag.

7. The bagging arrangement of claim 1 wherein the hook arrangement further includes a pivotally supported levered arm where lateral rotation of the levered arm correlates to slidable movement of each hook of the pair of hooks within the respective track between the hooking position, the retracted position and/or the bag disengagement position.

8. The bagging arrangement of any one of claims 1 to 7 wherein each exit chute side engaging rotatably driveable wheel arrangement includes a pair of vertically aligned wheels.

9. The bagging arrangement of claim 8 wherein the pair of vertically aligned wheels are laterally pivotally supported upon an arm.

10. The bagging arrangement of claim 9 wherein the arm includes a driveable means to place the pair of wheels from the open position to the closed position and vice versa.

11. The bagging arrangement of claim 10 wherein the driveable means further communicates with a rotatable rod connected to a lever so as to laterally rotate said lever, wherein rotation of the lever is adapted to side a respective hook of the pair of hooks into the hooking position or retracted position depending upon the open position or closed position of the driveable wheel arrangements positioned on the opposing sides of the exit chute.

12. The bagging arrangement of claim 11 wherein the arm includes support for a drive arrangement.

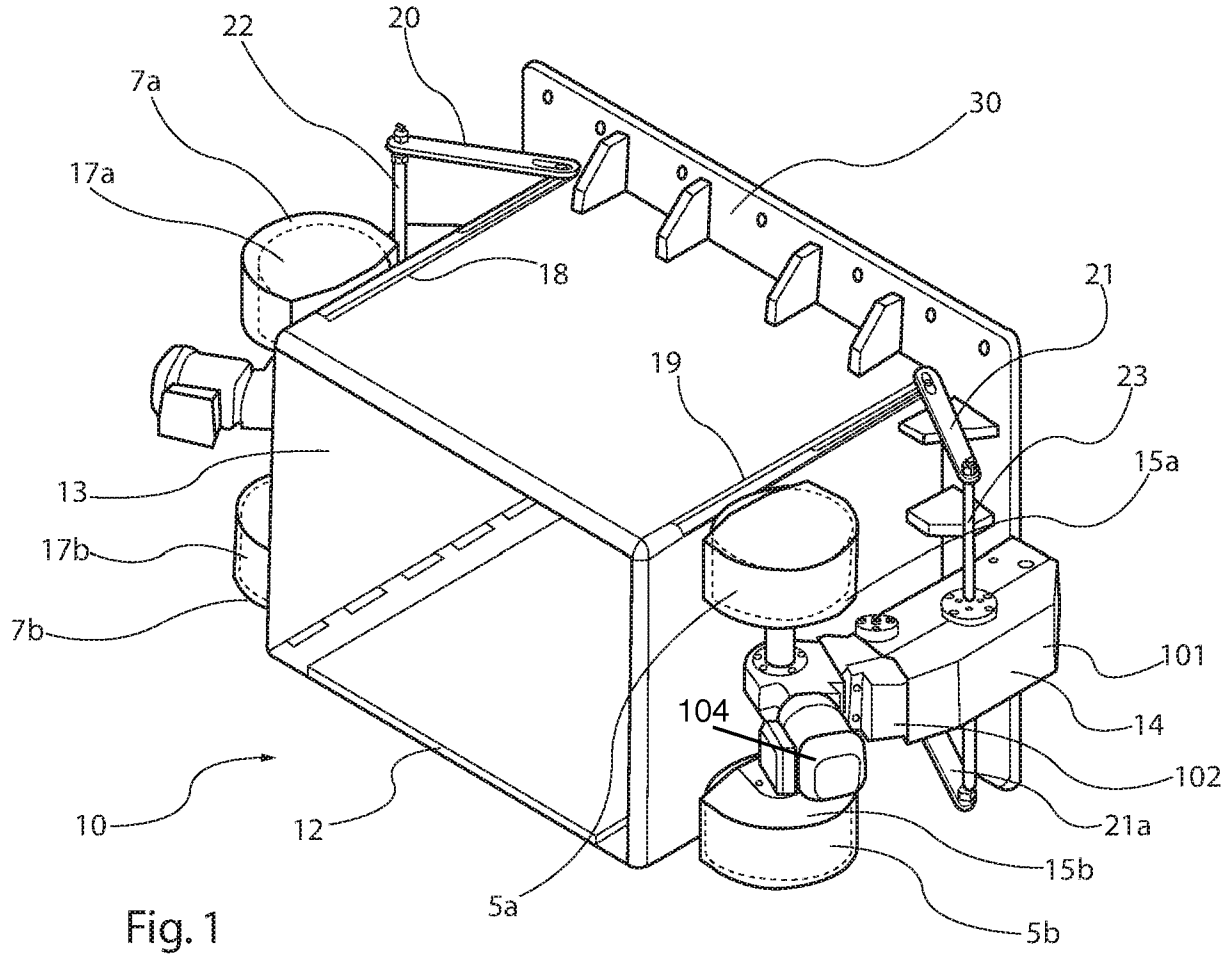
22
20
7a
30
17a
18
21
19
23
15a
13
17b
7b
101
104
14
102
10
12
21a
15b
5a
5b

Fig. 1

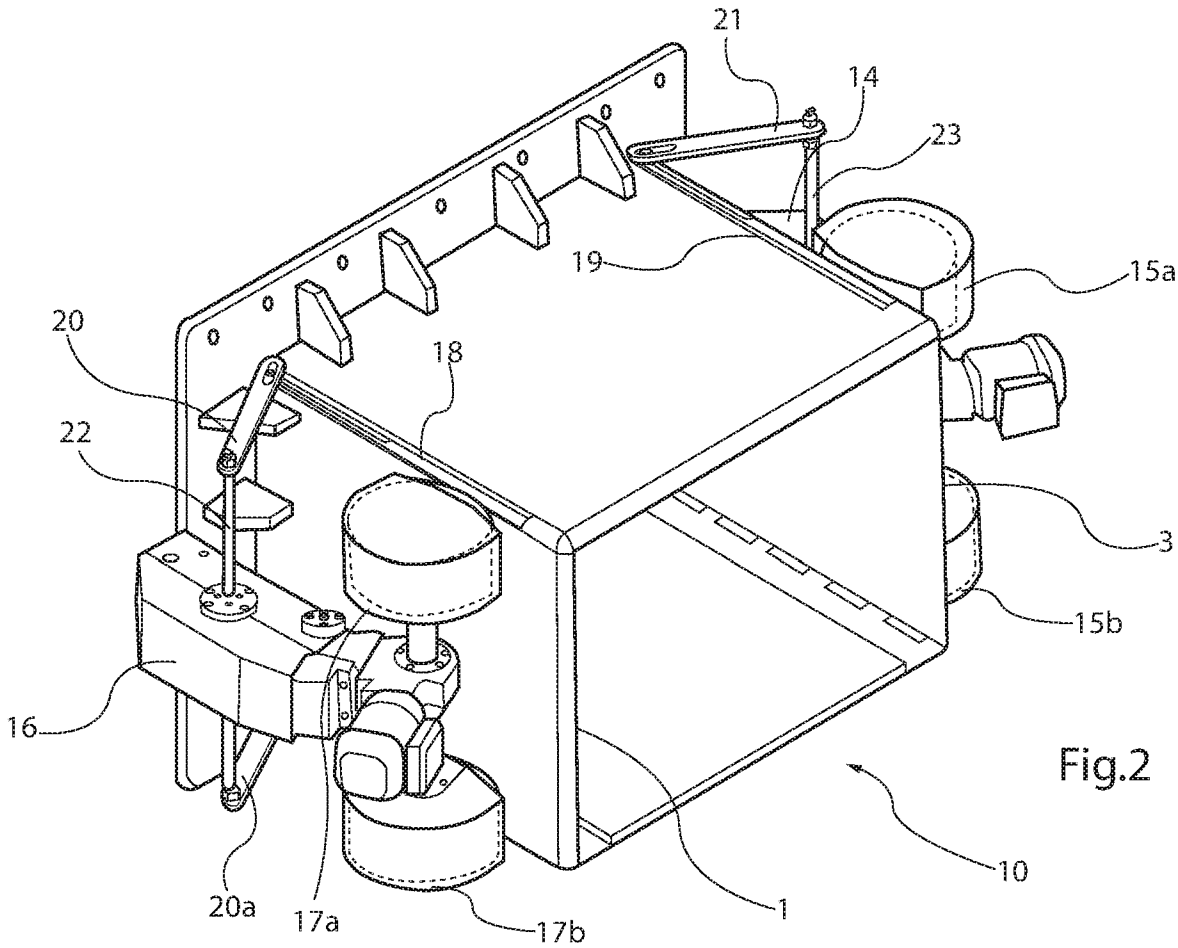
21
14
23
19
15a
20
18
22
3
15b
16
10
20a
17a
17b
1

Fig.2

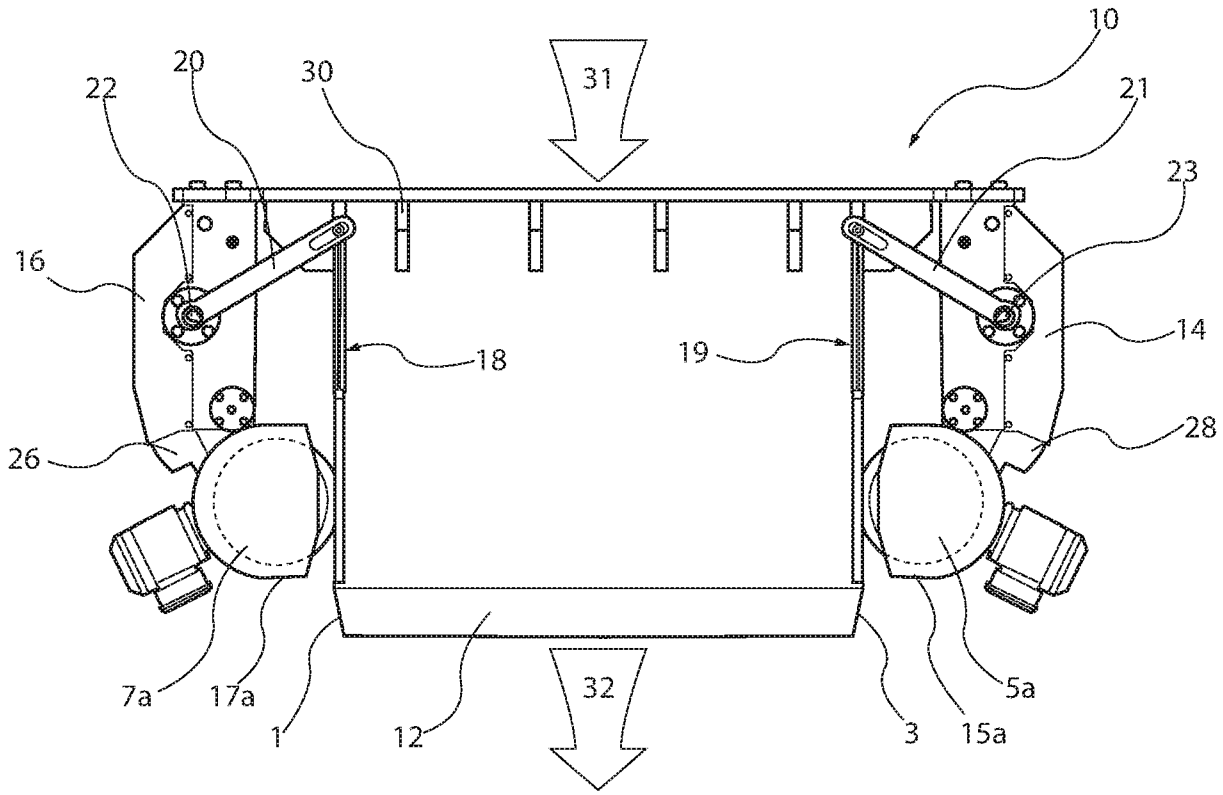
10
31
22
20
30
21
23
16
18
19
14
26
28
7a
17a
1
12
32
3
15a
5a

Fig. 3

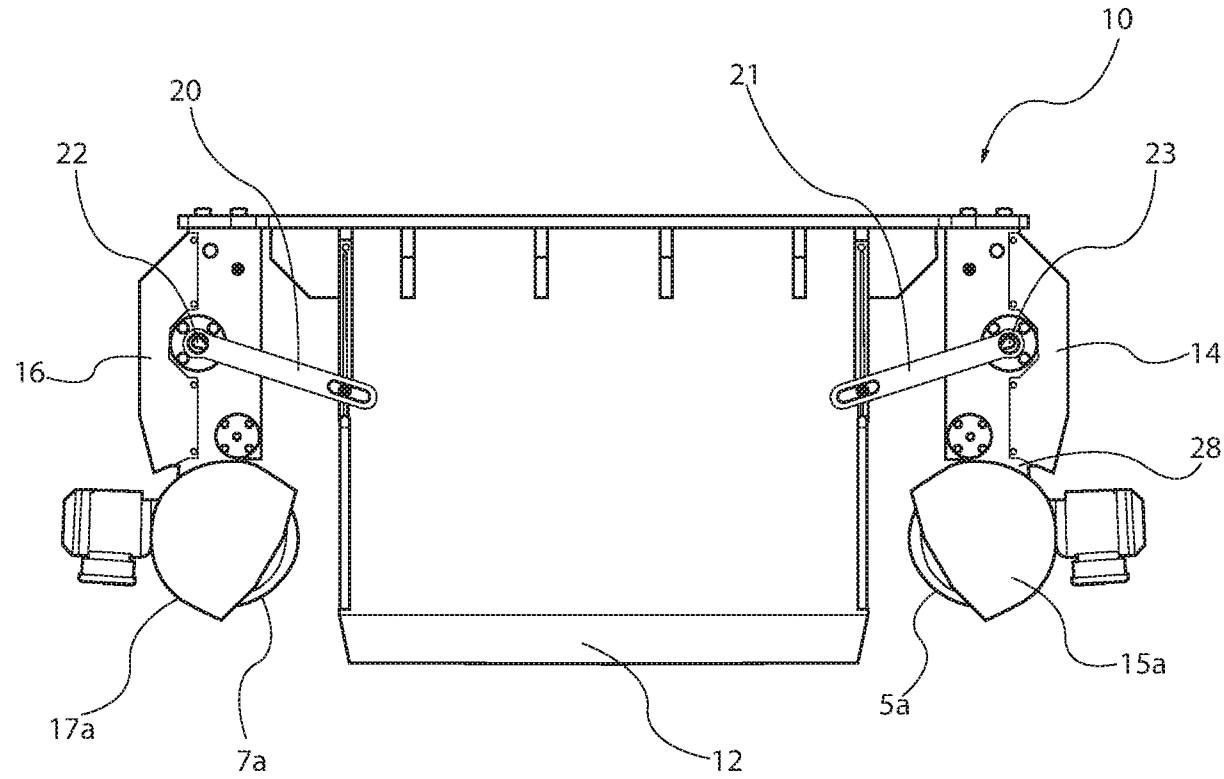
10
21
20
22
23
16
14
28
17a
7a
12
5a
15a

Fig. 4

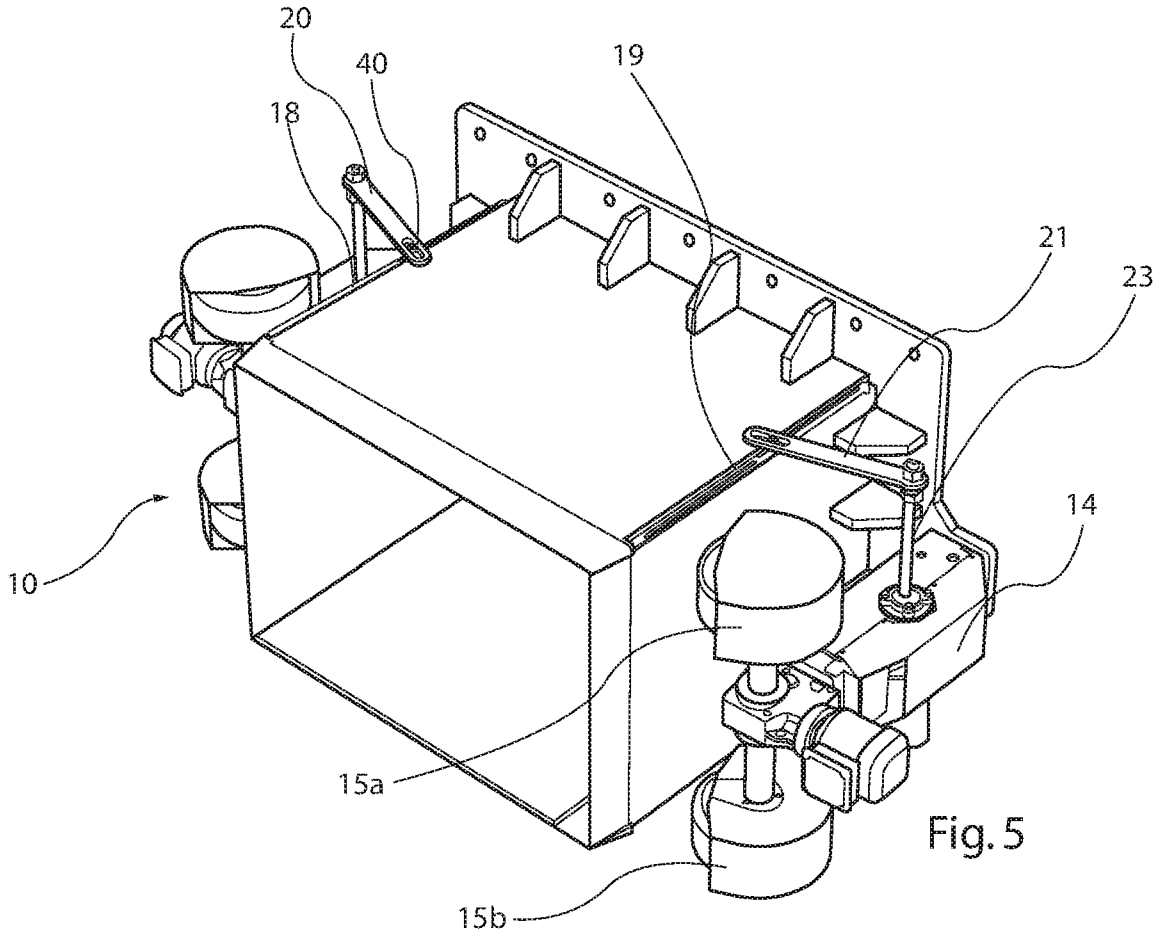

Fig. 5

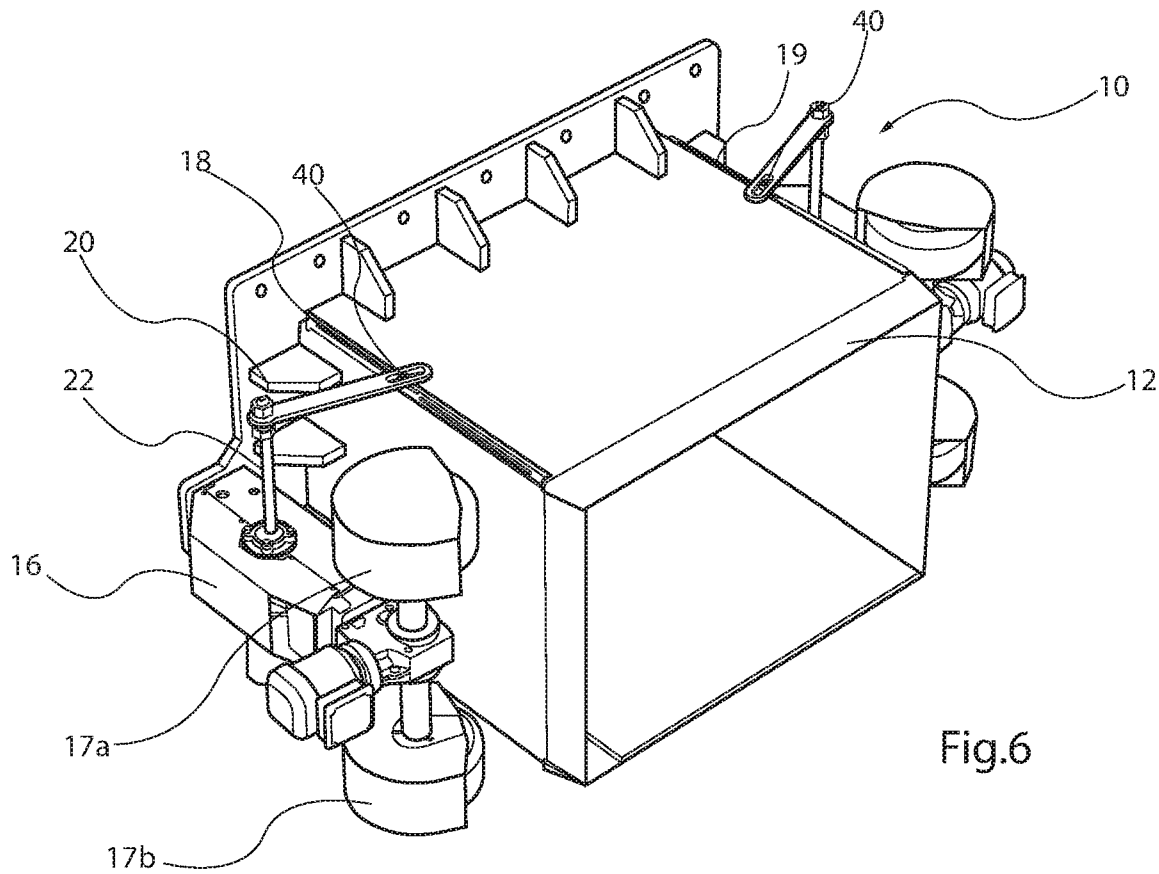

Fig.6

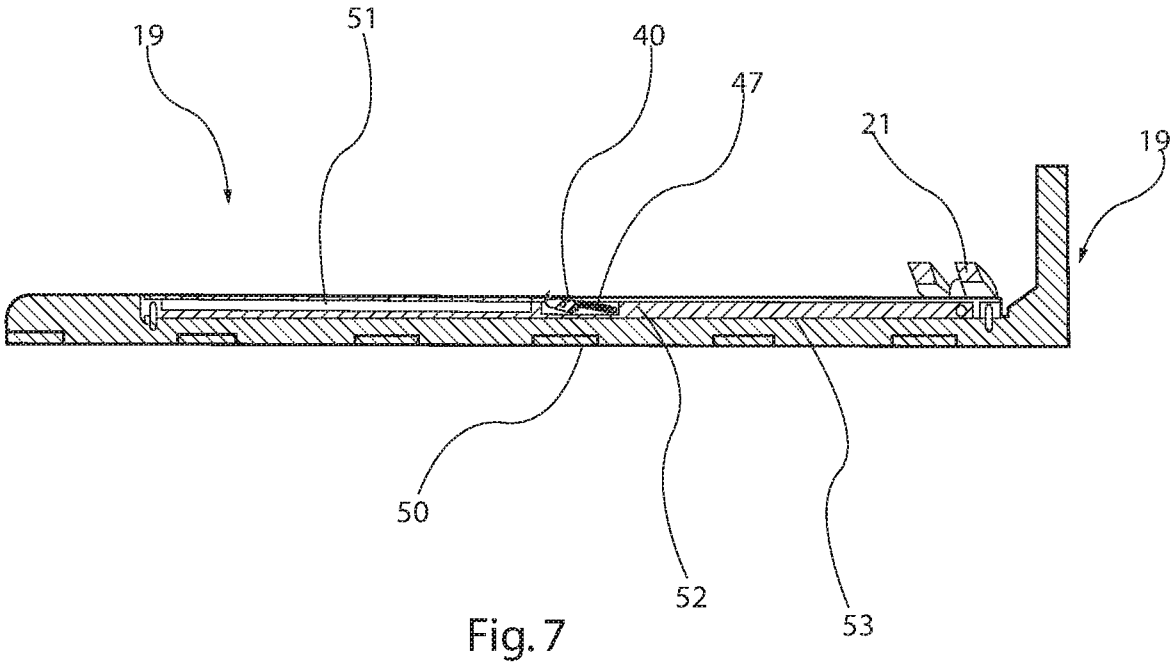

Fig. 7

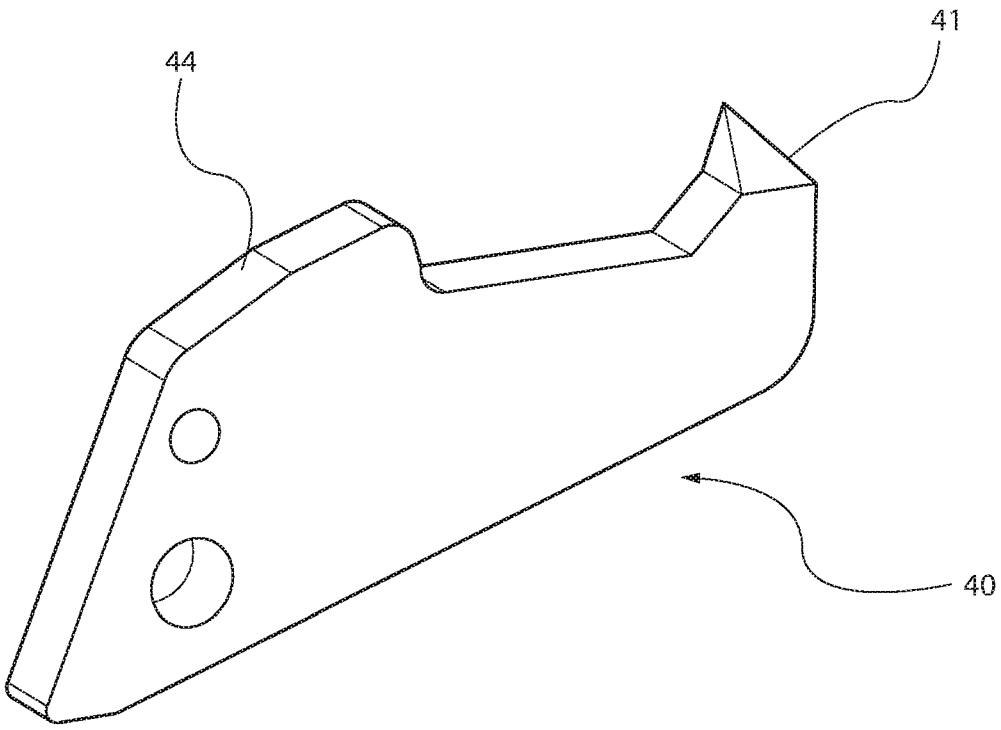

Fig. 8

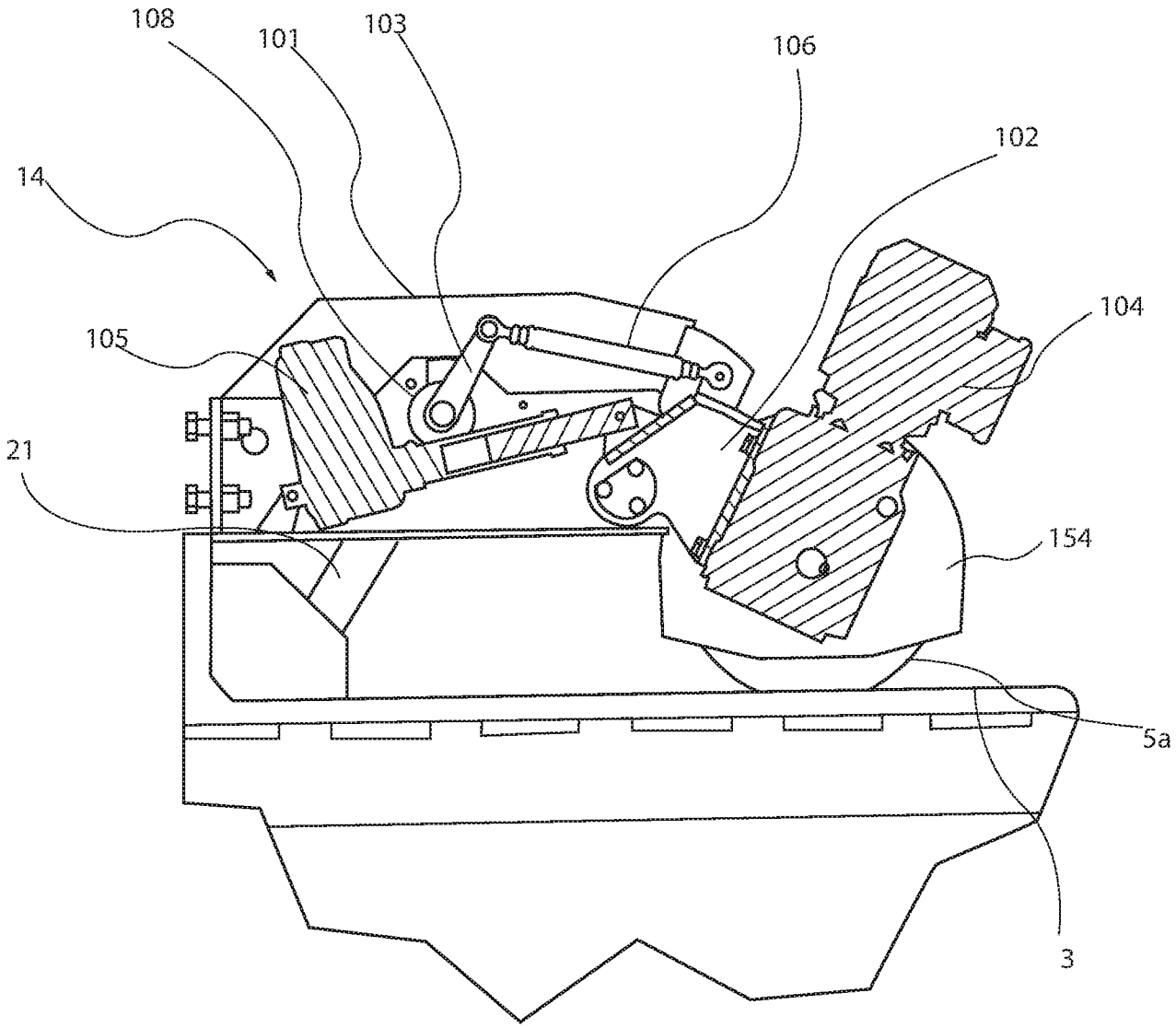

Fig. 9

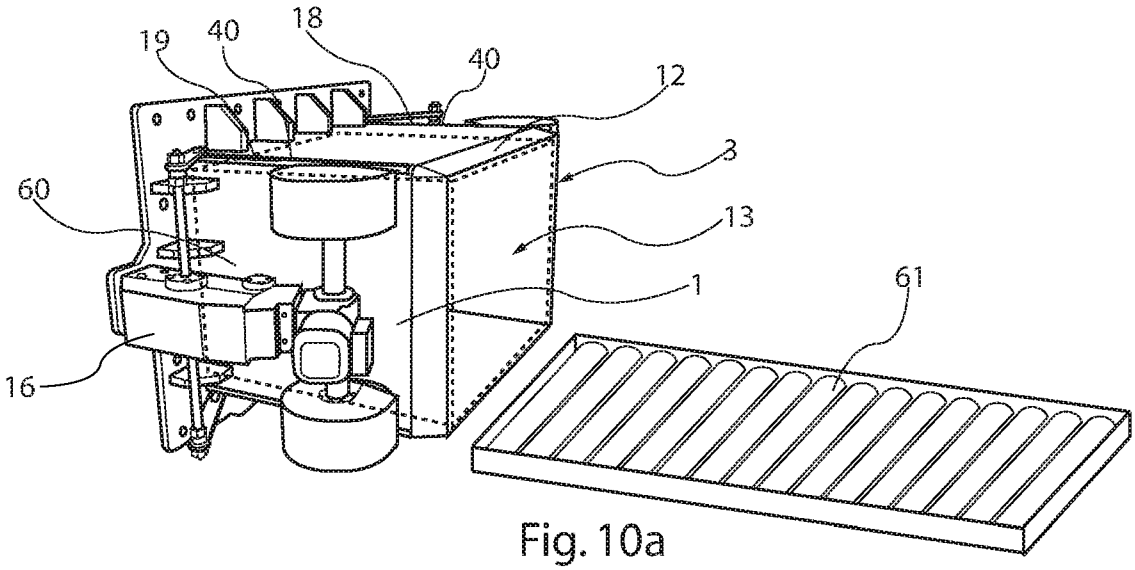

Fig. 10a

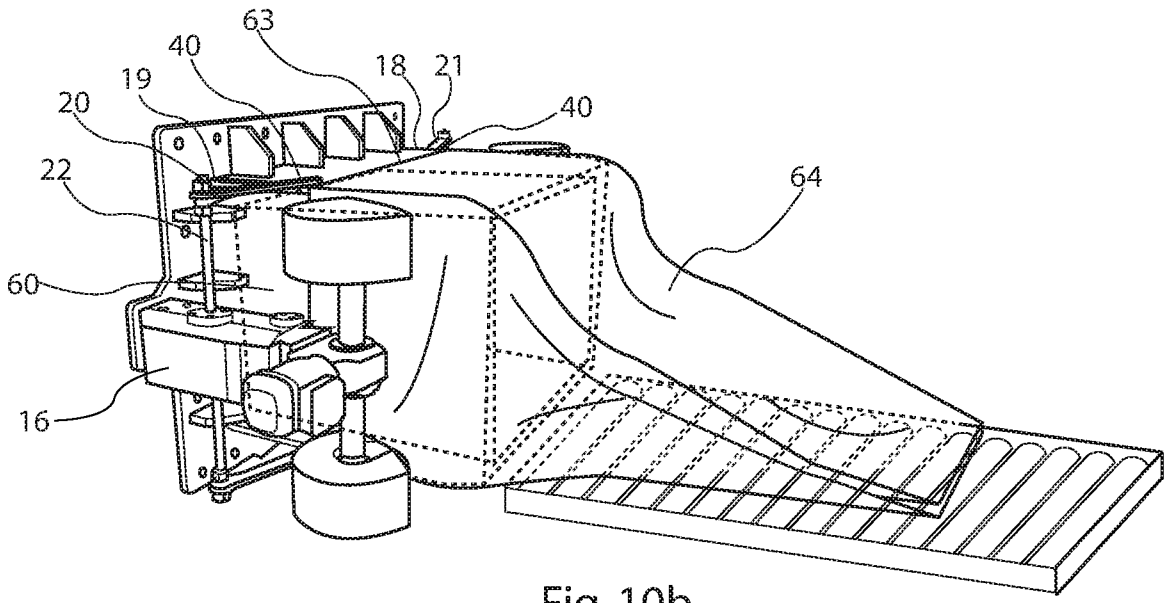

Fig. 10b

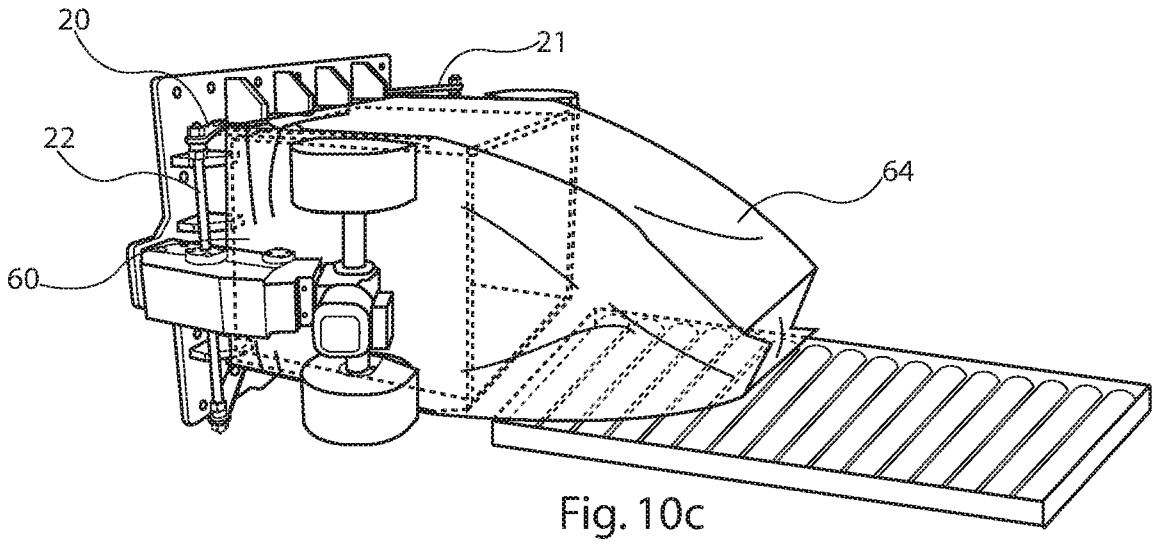

Fig. 10c

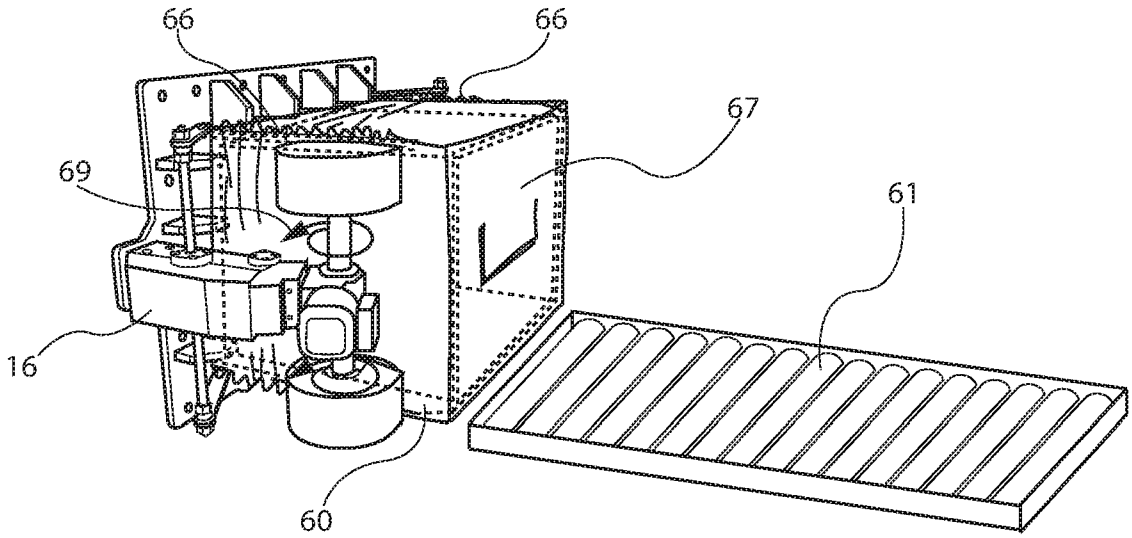

Fig. 10d

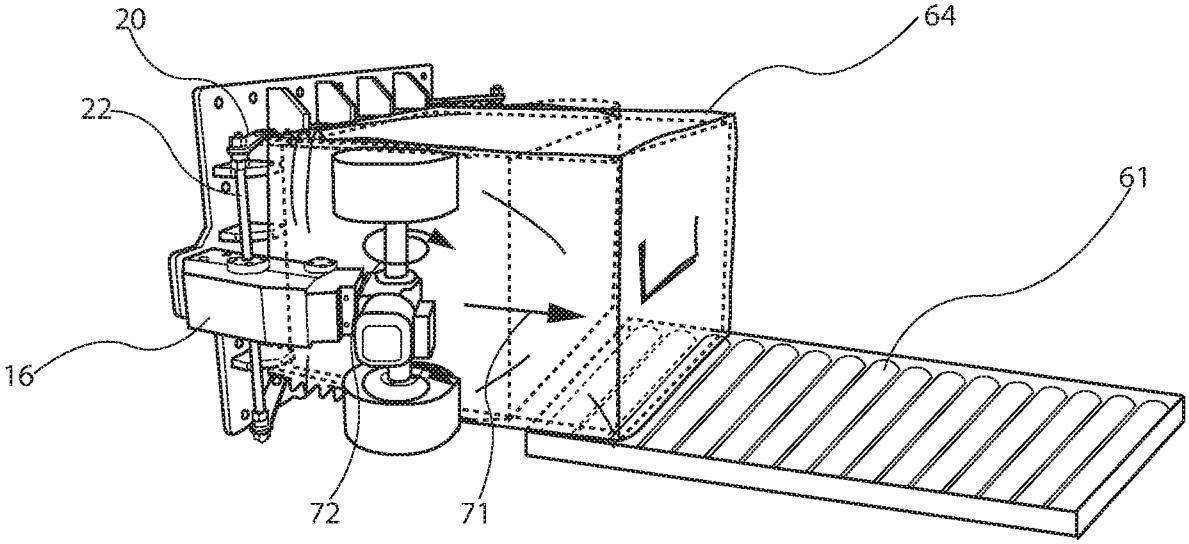

Fig. 10e

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2017/050563

A. CLASSIFICATION OF SUBJECT MATTER

B65F 1/14 (2006.01) ***B30B 9/30 (2006.01)*** ***B65B 27/12 (2006.01)*** ***B65B 63/02 (2006.01)*** ***B65B 39/00 (2006.01)*** ***B65B 43/46 (2006.01)*** ***B65B 5/04 (2006.01)***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Databases: PATENTW; B65F1/1405, B30B9/30, B65B27/125, B65B63/02, B65B39/007, B65B43/465, B65B5/045 & Keywords (bag, wrap, sack, roll, wheel, conveyor, hook) and similar terms.
Applicant (ENVIRO BALE) and Inventor (BORRELLI) name searched in AusPat and INTESS.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 September 2017	11 September 2017
Name and mailing address of the ISA/AU	**Authorised officer**
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaustralia.gov.au	Ronish Chaudhary AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. +61262832722

INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. **PCT/AU2017/050563**
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2008/040090 A1 (ENVIRO BALE PTY LTD) 10 April 2008	
A	WO 2007/000024 A1 (ACQUISTA INVESTMENTS PTY LTD) 04 January 2007	
A	WO 2003/093114 A1 (DEUTSCHE ROCKWOOL MINERALWOLL GMBH & CO OHG et al) 13 November 2003	
A	JP 2000272614 A (KAMACHO SCALE CO LTD) 03 October 2000	

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/AU2017/050563**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
WO 2008/040090 A1	10 April 2008	WO 2008040090 A1	10 Apr 2008
WO 2007/000024 A1	04 January 2007	WO 2007000024 A1	04 Jan 2007
		AU 2006264216 A1	04 Jan 2007
		AU 2006264216 B2	20 Jan 2011
		CA 2605584 A1	04 Jan 2007
		EP 1899230 A1	19 Mar 2008
		EP 1899230 B1	24 Sep 2014
		NZ 564945 A	30 Sep 2010
		US 2011094396 A1	28 Apr 2011
WO 2003/093114 A1	13 November 2003	WO 03093114 A1	13 Nov 2003
		AU 2003233071 A1	17 Nov 2003
		EP 1501732 A1	02 Feb 2005
		EP 1501732 B1	07 Jun 2006
		EP 1501732 B2	28 Jul 2010
JP 2000272614 A	03 October 2000	JP 2000272614 A	03 Oct 2000
		JP 3162041 B2	25 Apr 2001

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.