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(54) **Wrapping device**

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Enrubanneuse

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Description**OBJECT OF THE INVENTION**

[0001] As indicated by its name, the invention consists of a bundling machine of the type defined by a main body with an inverted-L shape and an inner rotating arm, also with an inverted-L shape and smaller in size, the two bodies being joined at the end of their horizontal branches by a shaft engaged to a motor.

[0002] The rotating arm incorporates in its vertical branch a roll-holding carriage that carries the roll of bundling material, normally plastic, fabric or mesh, and generates the tension needed for bundling.

[0003] In this type of machine, the item to be wrapped is placed static inside the turning radius of the rotating arm, and it is wrapped helically by the combined action of said arm and the upward and downward motion of the device that supplies and tenses the wrapping material.

[0004] In the invention proposed, the structure is made from profiles of a lightweight material, such as aluminum, strategically incorporating reinforcement pieces, guard pieces and coating pieces of a slightly deformable material, such as polyethylene.

[0005] The profiles that conform the main structure of the machine are connected to each other by screws, allowing to disassemble the machine entirely as well as simplifying the replacement of parts.

[0006] Certain unions and strategic zones incorporate reinforcement parts.

[0007] The main body of the machine is inserted and attached on its bottom part in a box, which is in turn attached to a C-shaped stand with a flat surface that is bolted to the floor.

[0008] Another of the main improvements of this machine is in the roll-holding carriage, which incorporates a precise adjustable brake engaged to the shaft of a retainer roller.

[0009] The technical field to which this invention relates is bundling machines.

BACKGROUND OF THE INVENTION

[0010] Machines are well known in which the package to bundle is kept still while a moving arm, which incorporates means for supplying the packaging material, revolves about itself while the roll-holding carriage moves vertically, upward and downward, thereby generating a helical bundling.

[0011] References to this type of machines are found, among other places, in patents ES522381 or utility models U8600325, ES1013952 U, U9002880.

[0012] Their manner of operation, which requires depositing the objects to be bundled within their radius of action, often leads to knocks and breakages.

[0013] To provide sturdiness, these machines are generally made with steel structures in which the various parts are welded to each other.

[0014] This construction method implies a high weight and complexity in repairs when it is necessary to replace a damaged element.

[0015] To counter the heavy weight of the structure of these machines and prevent increasing it excessively, motors with limited power and structures with limited strength are mounted, even failing to include additional safety elements.

[0016] Some of these machines are transportable, such as DE10220803, ES2271738 or US4282700, and some are attached to the floor, either with a double support structure such as ES2113244 or with a single support structure such as U8600325, U9001550, U9002880 or attached to the wall, as in ES522381.

[0017] Those attached to the floor require, due to the weight and movement of the elements of the machines, stands with surfaces crossed by ribs or strengthening rods, which can cause trips and falls.

[0018] Another of the issues on which many patents can be found is the roll-holding carriage which in general includes, in addition to the roll of this material, means for generating the tensions needed in the packing material so that it fits snugly on the object to wrap, as shown in EP1300339, ES285252, ES2001227 or ES2000877, one of the solutions found being a brake such as that described in FR2608140, EP1522494, F181539.

Specifically, EP1522494 presents a roll carriage with one or two retainer rollers in which a brake has been included, essentially consisting of spring that acts directly on the retainer roller, allowing to adjust the spring pressure by turning an eccentric piece with three positions fitted on the spring.

[0019] This system has certain limitations, as on one hand it only allows three degrees of pressure, while the brake proposed in the present invention is linear and precise, and on another hand as it is mounted directly on the roller it hinders the roller replacement operation, as the brake must also be disassembled, potentially leading to adjustment problems when it is reassembled.

[0020] The roll carriage provided in the present invention overcomes the aforementioned drawbacks as it allows a linear and accurate adjustment of the braking force, and due to its configuration simplifies the assembly and disassembly operations, not requiring any subsequent adjustments as the brake body remains compact during the replacement operation of the retainer roller.

DESCRIPTION OF THE INVENTION

[0021] To overcome the aforementioned drawbacks, the machine proposed has the following characteristics.

[0022] The machine has a lightweight structure made from different profiles of a light material, such as aluminum.

[0023] The unions are effected by engaging and bolting, so that they can be fully disassembled to simplify the replacement operations of damaged elements.

[0024] At strategic union points reinforcement pieces

are used and guards are incorporated at specific points with higher risk of knocks and breakage, particularly at the union between the main body and the stand, at the end area of the horizontal branches of the structure and in the inside of the stand.

[0025] To further protect the structure and the mechanical and electronic elements, the machine is completely coated with a deformable material that can absorb kinetic energy, such as polyethylene; this coating can be removed by parts.

[0026] This provides a structure that is light yet resistant to both the work of the machine itself and to its loads, as well as to the possible knocks that it may receive in its normal use.

[0027] As foreseen, the structure made of profiles of a light material and assembled by engagement and bolting instead of welding, provides substantial advantages over existing machines, particularly regarding weight, ease of replacement of damaged parts and even adaptation to specific dimensions.

[0028] The low weight of the structure allows, among other things, to reduce the thickness of the stand and for the stand to have a smooth surface, without ribs or rods, facilitating passage and preventing trips and falls.

[0029] On another hand, the reduced weight of the structure provides a margin for including sturdier or more powerful mechanical means that improve the performance of the machine and minimize repairs, such as a more powerful motor, allowing to eliminate gear elements in the transmission of the rotation to the shaft of the rotating arm.

[0030] It also allows including safety elements, such as a torque limiter, so that in case of an obstacle in the path of the rotating arm the motor rotation will be uncoupled from the rotation of the arm, making it a safer machine to operate.

[0031] Another of the substantial improvements relates to the device used to supply the wrapping material.

[0032] To provide an effective bundling, the wrapping material must be tightly wrapped about the object, which means that while it is applied it must be under a suitable tension, without allowing it to unroll freely from the roll due to the movement of the rotation arm.

[0033] Depending on the type of wrapping material used and the material to be bundled, more or less tension will be required. Thus, different stiffness is required when bundling a load of bricks, for which mesh can be used, as no water tightness is required and the tension applied will be high, since a compact bundle must be obtained and there is no risk of squashing the merchandise, compared to a set of toilet paper boxes, which require water tightness, so that plastic will be used, without too much tension as the merchandise may be damaged otherwise.

[0034] The greater the power of the motor, the greater the pulling force it can generate, so that higher tensions of the wrapping material can be reached.

[0035] To generate this tension while at the same time allowing a simple replacement of the tensioning piece

when it is damaged, the invention proposed includes a vertical roller with an adhesive surface with a shaft that on its lower part turns about means provided on the base of the roll holding carriage, while on its upper part it engages an adjustable brake, both the brake and the roller shaft being inserted in a plate.

[0036] This plate is attached to the carriage by means allowing a simple disassembly.

[0037] The vertical shaft is fitted through an orifice made in the upper part of the carriage, above which orifice the aforementioned plate will be attached.

[0038] The carriage where the aforementioned elements are placed is configured by a lower laminar piece and an upper laminar piece, and means for joining these pieces.

[0039] The lower piece includes a freely rotating shaft in which is placed the roll of wrapping material and the housing for the shaft of the retainer roller.

[0040] The adjustable brake consists of a casing inside which is a series of springs that exert their force on the upper and lower closing pieces of said casing, which can move.

[0041] The upper closing piece is crossed by a screw, the outer end of which is attached to a wheel or knob so that turning this wheel or knob and the screw joined to it causes the upward or downward displacement of this upper closing piece, increasing or decreasing the pressure exerted on the inner springs, which transmit this pressure to the lower closing piece, which will also move, pressing or releasing a rotating part essentially coaxial to the screw.

[0042] The brake and the roller are placed non-coaxially and connected by two toothed wheels, one coaxial to the roller which turns together with it and another engaged to the former which is essentially coaxial to the aforementioned drum-shaped box.

[0043] The action of the brake on the toothed wheel essentially coaxial to it is transmitted through the gears to the roller.

[0044] In this way, the roller assembly and disassembly operations do not require manipulating the brake, thereby preventing potential maladjustment problems thereof.

BRIEF DESCRIPTION OF THE FIGURES

[0045]

FIGURE 1 is a general view, with some parts in exploded view, of the structure of the machine with some of its elements, showing:

. The fixed main arm (1) with an inverted-L shape made from the union of two profiles of a light-weight materials and its reinforcement pieces (2);

. The rotating arm (3) with an inverted-L shape and a smaller size, and its reinforcement pieces

- (4);
- . The C-shaped stand (5) with a guard in its inner part (6) and a raised area (7) in which the scarfed box (8) is attached, where the main arm (1) is housed and attached;
 - . The motor, transmission and torque limiter group (9) meant to be housed in the space (10) provided in the upper horizontal branch of the main piece, the pulley (11) and the shaft joining the two arms (12) being protected by an additional guard (13);
 - . The vertical branch of the rotating arm includes the roll-holding carriage (14).
- The outer angle of the main arm houses a support and stabilization piece (15) that will be attached to the wall or another vertical element.

FIGURE 2 is a detailed view of the roll-holding carriage, showing:

- A lower laminar piece (16) with means (17) that are inserted in the retaining roller (18) allowing it to turn and the shaft (19) on which the roll of wrapping material will be placed;
- An upper laminar piece (20) with an orifice (32) sufficiently large to allow passing the retaining roller through it (18);
- . A plate (21) in which are inserted the shaft of the retaining roller (18), to which a toothed wheel (22) is firmly attached, and the adjustable brake (23);
- . Means (24) for joining the upper and lower pieces of the roll-holding carriage.

FIGURE 3 is a cross-section of the assembly formed by the adjustable brake (23), the plate (21) and the upper part of the shaft of the retainer roller inserted in the plate (25), showing:

- The adjustable brake is essentially constituted by a wheel or knob (26) used to adjust the braking strength, a rotating piece with a different cross-section in each of its segments in which at least its upper part is screwed (27), firmly joined to the wheel and which when it turns displaces either upward or downward a piece (28) that presses or releases a set of springs (29) that in turn transmit the pressure to another lower piece (30) that can be constituted of or incorporate a friction piece which when it moves catches a coaxial rotating piece (31).
- The rotating piece (31) coaxial to the brake engaged to the wheel (22) that turns together with the shaft (25) of the retainer roller.
- A stop (33) to limit the rotation of the screw.

FIGURE 4 shows the protective casing of the machine made of a deformable material that allows ab-

sorbing knocks and made from different pieces, all of them joined to the structure of the machine with screws, simplifying the replacement when necessary of any damaged pieces.

DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

[0046] A non-limiting example of an embodiment of the invention will be described below.

[0047] For sake of clarity, the description will begin with an example of embodiment of the structure, then an example of embodiment of the roll-holding carriage and finally a detailed description of an embodiment of the assembly consisting of the adjustable brake and its relation to the retaining roller.

[0048] The main structure of the machine consists of two inverted-L shaped arms, one of them fixed and larger in size (1) and the other rotating and slightly smaller (3), the two being connected by a shaft (12) placed on the end of their corresponding horizontal branches.

[0049] These arms are made from profiles of a light-weight material, such as aluminum, all the unions being established by screws.

[0050] To provide sturdiness to the fixed arm, each of its straight segments is composed of two identical profiles, parallel to each other and firmly joined, with the unions, particularly the one at an angle of 90°, being reinforced by additional pieces (2) joined to the structure by screws.

[0051] The structure of the rotating arm (3) consists on its upper part by a central profile and two lateral profiles with a smaller cross-section, one of which is shorter in length than the piece, and the vertical arm constituted by two profiles, one having a greater cross-section and length than the other.

[0052] The unions are established by screws and incorporate reinforcement pieces (4) at certain unions.

[0053] In the horizontal branch of the main arm is a recess (10) in which is housed the motor, which transmits the rotation to the shaft (12) and the rotating arm by means of a belt and a pulley.

[0054] A torque limiter acts on the transmission in such a way that the motor rotation is disengaged from the arm rotation if it encounters a certain resistance to its motion.

[0055] A guard piece (13) is provided to protect the pulley and the end of the main arm.

[0056] The main arm (1) is inserted and fixed in a scarfed box (8) which is in turn fixed to the C-shaped stand (5) at a part in which it is slightly raised (7).

[0057] The inner part of this C-shaped stand (5) has a flange (6) by way of a guard.

[0058] The upper part of the stand has a smooth surface, free of ribs or rods.

[0059] The roll-holding carriage (14) is anchored to the vertical branch of the rotation arm, and moves upward and downward, combining this movement to that of the rotation of the arm to define a helical wrapping.

[0060] The roll-holding carriage (14) is made of a lower laminar piece (16) and an upper laminar piece (20) joined to each other by conventional means (24).

[0061] In the lower laminar piece are established means (17) for coupling to the shaft of the retainer roller (18) as well as the shaft (19) in which the roll or wrapping material is inserted, the latter shaft being free to turn.

[0062] The retainer roller (18) has a surface that adheres to the wrapping material, either by an adhesive, magnetization, friction or any other method.

[0063] The upper laminar piece (20), smaller in size, has a sufficiently large orifice (32) to allow the retaining roller to pass.

[0064] Attached to this upper piece (20) is a plate (21), in which are inserted the end of the shaft of the retainer roller (25) and the circular piece (22) that turns together with it, as well as a brake (23) of adjustable strength, the plate (21) and the brake (23) constituting, together with the piece (22) attached to the shaft of the retainer roller and the retainer roller itself, the group that allows a controlled tension of the wrapping material so that it is tightly wrapped on the bundle.

[0065] The brake (23) is composed of a case in which is housed a series of springs (29), the upper piece (28) and lower piece (30) of this casing being free to move.

[0066] The upper piece (28) moves by the action of a screw (27) that crosses it, this screw being firmly attached to a wheel or knob that can be manipulated to turn the screw (27) and therefore move the upper piece (28).

[0067] The cross-section of this screw changes along its path, in its lower end part having a shape which, when turning, meets against the piece (33) to prevent an excessive tightening of the springs.

[0068] When the upper piece (28) moves to press the springs (29), these move the lower piece (30), which can consist in full or in part by a brake pad, which hinders the rotation of a coaxial turning piece (31) engaged to the rotating piece (22) that is firmly joined to the shaft of the retainer roller.

Claims

1. A packing machine of the type having a main fixed body arm (1) in the shape of an inverted L and a smaller inner rotating arm (3) in the shape of an inverted L, both bodies being joined by a shaft (12) on the end of their respective horizontal branches, which constitutes the rotating shaft of the smaller inner part in the shape of an inverted L, where such rotating part incorporates on its vertical arm a spool carriage (14) where the spool of packing material and the tension element (23) or the packing material are placed, wherein the main arm (1) of the machine is formed by profiles in a lightweight material, such as aluminium, having reinforcement parts (2), guard parts (13) and coating elements that absorb kinetic energy, wherein the packing machine has a C-

shaped laminar stand (5) with a smooth surface that also comprises guard parts (6) and is pierced by several through orifices, a box (8) being fixed to said laminar stand into which the main arm (1) of the machine is inserted, **characterised in that** the spool carriage (14) holding the rotating arm (3) is formed by two laminar parts, an upper part (20) and a lower part (16) and joining components (24), the upper part (20) having an orifice (32) that is big enough to allow passage of a retaining roller (18), said retaining roller being engaged in a non-coaxial manner with a linear and continuous regulation brake (23) and the support for the brake and the spool being a plate (21) that is fixed to the spool carriage (14) by means that allow it to be easily detached.

2. A packing machine according to claim 1, **characterised in that** the structure of the main fixed arm (1) in the shape of an inverted L comprises at least two elongated parts made in a profile of light material that are joined with screws, where the joining of these two profiles is reinforced by reinforcement parts (2) in a resistant material and incorporate on the end of the horizontal branch of said part a guard (13) made in resistant material.

3. A packing machine according to the previous claim, **characterised in that** the end of the upper horizontal branch there is a recess (10) that houses a motor that moves the rotating arm.

4. A packing machine according to claim 1, **characterised in that** the structure of the rotating arm (3) in the shape of an inverted L comprises the junction point of at least two elongated parts in a profile of a lightweight material, where said junction point is reinforced by additional reinforcement parts (4) made of resistant materials.

5. A packing machine according to claim 1, **characterised in that** the stand (5) has a smooth surface and has a raised area (7), said stand (5) having a number of through orifices that house the bolts that anchor it to the floor.

6. A packing machine according to claim 5, **characterised in that** the laminar pedestal (5) has inside it a guard (6) located on the inner perimeter of the laminar pedestal (5).

7. A packing machine according to claim 1, **characterised in that** a box (8) is fixed next to the laminar pedestal (5), in a raised area (7), into which the vertical branch of the main arm (1) of the machine is inserted.

8. A packing machine according to claims 3 and 4, **characterised in that** it comprises a torque limiter

and the motor located on the horizontal branch of the fixed main arm (1) which, is joined to the shaft (12) by transmission means.

9. A packing machine according to claim 1, **characterised in that** the spool carriage (14) comprises two laminar parts, upper (20) and lower (16), that are joined by a series of junction parts (24), where the lower part comprises a freely-rotating shaft (19) onto which the spool of packing material is placed and means (17) for housing the shaft of the retaining roller (18) that is engaged in a non-coaxial manner by its upper portion to an adjustable brake (23) so that both the roller and the brake are inserted into a plate (21), the upper laminar part having an orifice (32) the retaining roller passes through.
10. A packing machine according to claim 9, **characterised in that** the plate (21), brake (23) and retaining roller (18) make an integral and removable assembly and **in that** said assembly is fixed to the upper laminar part (20) of the spool carriage (14) via the plate (21) by means that allow it to be easily removed, the retaining roller (18) being inserted into the orifice (32) existing in the upper laminar part.
11. A packing machine according to claim 10, **characterised in that** the means that allow controlling the rotation of the retaining roller (18) are:
- an adjustable brake (23) formed by a box or casing inside of which are housed a series of springs (29) that are in constant contact with an upper closing part (28) and a lower closing part (30), both movable, where a screw (27) that is integrally joined on one end to a flywheel or knob (26) runs through and interacts with the upper closing part (28), a circular part (22) that is coaxial with the retaining roller (18) and rotates together with the retaining roller, said part being engaged with the rotating circular part (31) that is coaxial to the brake, and a plate (21), which houses the shaft of the circular part (22) and the shaft of the rotating circular part (31).
12. A packing machine according to claim 1, **characterised in that** it can incorporate means for its fastening to a vertical or horizontal plane, said means being formed by laminar parts (15) through which run a series of captive screws and a series of orifices intended to house the fastening screws.
13. A packing machine according to the previous claims, **characterised in that** its body is coated by a series of pieces made of a deformable material, such as polyethylene.

Patentansprüche

1. Packmaschine mit einem fest angebrachten Hauptarm (1) und einem kleineren inneren drehbaren Arm (3), beide in der Form eines umgekehrten L und verbunden durch eine Welle (12), die jeweils an den Enden der horizontalen Zweige angebracht ist und die Drehachse des kleineren inneren Teils der Form eines umgekehrten L bildet, wobei der senkrechte Arm dieses drehbaren Teils einen Spulenträger (14) umfasst, an dem die Spule mit Verpackungsmaterial und das Spannelement (23) dieses Materials angebracht sind, wobei außerdem der Hauptarm (1) der Maschine aus Profilen eines leichtgewichtigen Materials wie Aluminium besteht und Verstärkungsteile (2) sowie Schutzteile (13) und Überzugselemente besitzt, die kinetische Energie aufnehmen, und an der Packmaschine darüber hinaus ein C-förmiges geschichtetes Gestell (5) mit einer glatten Oberfläche angebracht ist, das darüber hinaus zwei Schutzteile (6) umfasst und an mehreren Stellen durchgehende Öffnungen besitzt, wobei des Weiteren am besagten geschichteten Gestell (5) ein Kasten (8) befestigt ist, in den der Hauptarm (1) der Maschine eingefügt ist, **dadurch gekennzeichnet, dass** der Spulenträger (14), der den Dreharm (3) hält, aus zwei geschichteten Teilen besteht, einem oberen (20) und einem unteren Teil (16), samt Verbindungskomponenten (24), wobei ins obere Teil (20) eine Öffnung (32) eingelassen ist, die hinreichend groß ist, um den Durchgang einer Rückhalterolle (18) zu gestatten, die auf nicht koaxiale Weise mit einer linear und kontinuierlich regulierbaren Bremse (23) verkuppelt ist, und wobei eine am Spulenträger (14) befestigte Scheibe (21) die Bremse und die Spule trägt und letztere Befestigung derart erfolgt, dass sich die Teile einfach abnehmen lassen.
2. Packmaschine nach Anspruch 1, **dadurch gekennzeichnet, dass** die Struktur des fest angebrachten Hauptarms (1) der Form eines umgekehrten L mindestens zwei verlängerte Abschnitte umfasst, die aus einem Profil leichtgewichtigen Materials bestehen und mit zwei Schrauben angebracht sind, wobei die Verbindung dieser beiden Profile durch zwei Verstärkungsteile (2) verstärkt ist, die aus einem widerstandsfähigen Material bestehen, und am Ende des horizontalen Zweigs dieses besagten Teils ein Schutzteil (13) aus einem widerstandsfähigen Material angebracht ist.
3. Packmaschine nach dem vorangehenden Anspruch, **dadurch gekennzeichnet, dass** am Ende des horizontalen Zweigs eine Aussparung (10) eingelassen ist, die den Motor beherbergt, welcher den Dreharm antreibt.
4. Packmaschine nach Anspruch 1, **dadurch gekenn-**

- zeichnet, dass** die Struktur des Dreharms (3) der Form eines umgekehrten L den Verbindungspunkt mindestens zweier verlängerter Abschnitte umfasst, die aus Profilen leichtgewichtiger Materialien bestehen, wobei dieser Verbindungspunkt mit zusätzlichen, aus widerstandsfähigen Materialien gefertigten Verstärkungsteilen (4) versehen ist.
5. Packmaschine nach Anspruch 1, **dadurch gekennzeichnet, dass** in das Gestell (5), das eine glatte Oberfläche besitzt und einen hervorstehenden Bereich (7) umfasst, mehrere durchgehende Öffnungen eingelassen sind, um die Schrauben aufzunehmen, die zur Befestigung am Boden dienen.
6. Packmaschine nach Anspruch 5, **dadurch gekennzeichnet, dass** das geschichtete Gestell (5) ein an seiner Innenseite angebrachtes Schutzteil (6) umfasst.
7. Packmaschine nach Anspruch 1, **dadurch gekennzeichnet, dass** neben dem geschichteten Gestell (5) am hervorstehenden Bereich (7) ein Kasten (8) befestigt ist, in den der senkrechte Zweig des Hauptarms (1) der Maschine eingefügt ist.
8. Packmaschine nach den Ansprüchen 3 und 4, **dadurch gekennzeichnet, dass** sie einen Drehmomentbegrenzer umfasst und dass der am waagerechten Zweig des fest angebrachten Hauptarms (1) positionierte Motor über Kraftübertragungsmittel mit der Welle (12) verbunden ist.
9. Packmaschine nach Anspruch 1, **dadurch gekennzeichnet, dass** der Spulenträger (14) zwei geschichtete Teile umfasst, einen oberen (20) und einen unteren Teil (16), die durch eine Reihe von Verbindungskomponenten (24) verbunden sind, wobei der untere Teil eine frei drehbare Welle (19) umfasst, auf der die Spule mit Verpackungsmaterial angebracht ist, wobei außerdem Mittel (17) zur Unterbringung der Welle der Rückhalterolle (18) den oberen Teil dieser Rolle auf nicht koaxiale Weise mit einer regulierbaren Bremse (23) derart verkuppeln, dass sowohl die Rolle als auch die Bremse in eine Scheibe (21) eingefügt sind und der obere Teil eine Öffnung (32) besitzt, durch die sich die Rückhalterolle hindurch bewegt.
10. Packmaschine nach Anspruch 9, **dadurch gekennzeichnet, dass** die Scheibe (21), die Bremse (23) und die Rückhalterolle (18) zusammen eine gesamte abnehmbare Baugruppe bilden, die über die Scheibe (21) mit derartigen Mitteln am oberen geschichteten Teil (20) des Spulenträgers (14) befestigt ist, dass sich diese Baugruppe einfach abnehmen lässt, wobei die Rückhalterolle (18) in die Öffnung (32) eingefügt ist, die sich am oberen geschichteten Teil befindet.
11. Packmaschine nach Anspruch 10, **dadurch gekennzeichnet, dass** folgende Mittel die Drehung der Rückhalterolle (18) steuern:
- eine regulierbare Bremse (23), bestehend aus einem Kasten oder Gehäuse, in dem sich eine Reihe von Federn (29) befindet, die in ständigem Kontakt mit einem oberen (28) und einem unteren Verschlusssteil (30) stehen, wobei beide Teile beweglich sind und eine Schraube (27), die über ein Schwungrad oder einen Knopf (26) vollständig mit einem Ende verbunden ist, diese Elemente durchläuft und mit dem oberen Verschlusssteil (28) wechselwirkt, wobei außerdem ein rundes Teil (22) bezüglich der Rückhalterolle (18) koaxial angebracht ist und gemeinsam mit Letzterer rotiert, das genannte Teil mit dem rotierenden runden und koaxial zur Bremse montierten Teil (31) verkuppelt ist und eine Scheibe (21) die Welle des runden Teils sowie die Welle des rotierenden runden Teils (31) beherbergt.
12. Packmaschine nach Anspruch 1, **dadurch gekennzeichnet, dass** sie Mittel zu ihrer Befestigung an einer senkrechten oder waagerechten Ebene umfasst, wobei diese Mittel aus geschichteten Teilen (15) bestehen, durch die eine Reihe unverlierbarer Schrauben verläuft und in die eine Reihe von Öffnungen eingelassen ist, durch welche die Befestigungsschrauben verlaufen sollen.
13. Packmaschine nach den vorherigen Ansprüchen, **dadurch gekennzeichnet, dass** ihr Gehäuse mit einer Reihe von Teilen überzogen ist, die aus einem verformbaren Material wie Polyethylen bestehen.

40 Revendications

1. Machine d'emballage du type ayant un bras de corps fixe principal (1) sous forme de L renversé et un bras pivotant intérieur (3) plus petit sous forme de L renversé, les deux corps étant unis par un arbre (12) à l'extrémité de leurs branches horizontales respectives, qui constitue l'arbre pivotant de la partie intérieure plus petite sous forme de L renversé, où une telle partie pivotante incorpore sur son bras vertical un chariot porte-bobine (14) où sont disposés la bobine de matière d'emballage et l'élément de tension (23) pour la matière d'emballage, dans lequel le bras principal (1) de la machine est formé par des profilés en une matière légère, telle que de l'aluminium, ayant des parties de renfort (2), des parties de protection (13) et des éléments de revêtement qui absorbent l'énergie cinétique, dans lequel la machine d'emballage possède un socle lamellaire (5) sous

- forme de C avec une surface lisse qui comprend, également, des parties de protection (6) et qui est ajourée de plusieurs orifices traversants, un boîtier (8) étant fixé audit socle lamellaire dans lequel est inséré le bras principal (1) de la machine, **caractérisée en ce que** le chariot porte-bobine (14) qui maintient le bras pivotant (3) est formé par deux parties lamellaires, une partie supérieure (20) et une partie inférieure (16) et des composants d'union (24), la partie supérieure (20) ayant un orifice (32) qui est suffisamment grand pour permettre le passage d'un cylindre de retenue (18), ledit cylindre de retenue étant en prise d'une manière non coaxiale avec un frein de réglage linéaire et continu (23) et the support pour le frein et la bobine étant une plaque (21) qui est fixée au chariot porte-bobine (14) par des moyens qui lui permettent de se détacher facilement.
2. Machine d'emballage selon la revendication 1, **caractérisée en ce que** la structure du bras fixe principal (1) sous la forme d'un L renversé, comprend au moins deux parties allongées réalisées en un profilé en matière légère qui sont unies par des vis, où l'union de ces deux profilés est renforcée par des parties de renfort (2) en une matière résistante et incorporent à l'extrémité de la branche horizontale de ladite partie une protection (13) réalisée en une matière résistante.
3. Machine d'emballage selon la revendication précédente, **caractérisée en ce qu'**à l'extrémité de la branche horizontale supérieure il y a un évidement (10) qui loge un moteur qui déplace le bras pivotant.
4. Machine d'emballage selon la revendication 1, **caractérisée en ce que** la structure du bras pivotant (3) sous forme de L renversé comprends le point d'union d'au moins deux parties allongées dans un profilé d'une matière légère, où ledit point d'union est renforcé par des parties de renfort supplémentaires (4) réalisées en matières résistantes.
5. Machine d'emballage selon la revendication 1, **caractérisée en ce que** le socle (5) a une surface lisse et possède une zone surélevée (7), ledit socle (5) ayant un nombre d'orifices traversants qui logent les boulons qui l'ancrent au sol.
6. Machine d'emballage selon la revendication 5, **caractérisée en ce que** le socle lamellaire (5) a en son sein une protection (6) située sur le périmètre intérieur du socle lamellaire (5).
7. Machine d'emballage selon la revendication 1, **caractérisée en ce qu'**un boîtier (8) est fixé au socle lamellaire (5), dans une zone surélevée (7), dans laquelle est insérée la branche verticale du bras principal (1) de la machine.
8. Machine d'emballage selon les revendications 3 et 4, **caractérisée en ce qu'**elle comprend un limiteur de couple et le moteur situé sur la branche horizontale du bras principal fixe (1) qui est uni à l'arbre (12) par des moyens de transmission.
9. Machine d'emballage selon la revendication 1, **caractérisée en ce que** le chariot porte-bobine (14) comprend deux parties lamellaires, une supérieure (20) et une inférieure (16), qui sont unies par une série de parties d'union (24), où la partie inférieure comprend un arbre en rotation libre (19) sur lequel est disposée la bobine de matière d'emballage et des moyens (17) pour loger l'arbre du cylindre de retenue (18) qui est en prise d'une manière non coaxiale par sa partie supérieure avec un frein ajustable (23) de manière qu'aussi le cylindre que le frein sont insérés dans une plaque (21), la partie lamellaire supérieure ayant un orifice (32) à travers lequel passe le cylindre de retenue.
10. Machine d'emballage selon la revendication 9, **caractérisée en ce que** la plaque (21), le frein (23) et le cylindre de retenue (18) constituent un ensemble intégral et amovible et **en ce que** ledit ensemble est fixé à la partie lamellaire supérieure (20) du chariot porte-bobine (14) par la plaque (21) par des moyens qui lui permettent d'être retiré facilement, le cylindre de retenue (18) étant inséré dans l'orifice (32) existant dans la partie lamellaire supérieure.
11. Machine d'emballage selon la revendication 10, **caractérisée en ce que** les moyens qui permettent de contrôler la rotation du cylindre de retenue (18) sont:
- un frein ajustable (23) formé par un boîtier ou carcasse à l'intérieure de laquelle est logée une série de ressorts (29) qui sont en contact continu avec une partie de fermeture supérieure (28) et une partie de fermeture inférieure (30), les deux étant mobiles, où une vis (27) qui est unie solidairement par une extrémité à un volant ou une poignée (26) traverse et interagit avec la partie de fermeture supérieure (28), une partie circulaire (22) qui est coaxiale avec le cylindre de retenue (18) et tourne conjointement avec le cylindre de retenue, ladite partie étant en prise avec la partie rotative circulaire (31) qui est coaxiale au frein, et une plaque (21), qui loge l'arbre de la partie circulaire (22) et l'arbre de la partie rotative circulaire (31).
12. Machine d'emballage selon la revendication 1, **caractérisée en ce qu'**elle peut incorporer des moyens pour sa fixation à un plan vertical ou horizontal, lesdits moyens étant constitués de parties lamellaires (15) à travers lesquelles passent une série de vis captives et une série d'orifices destinés à

loger les vis de fixation.

13. Machine d'emballage selon les revendications précédentes, **caractérisée en ce que** son corps est revêtu d'une série de pièces réalisées en une matière déformable tel que du polyéthylène. 5

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FIGURE 1

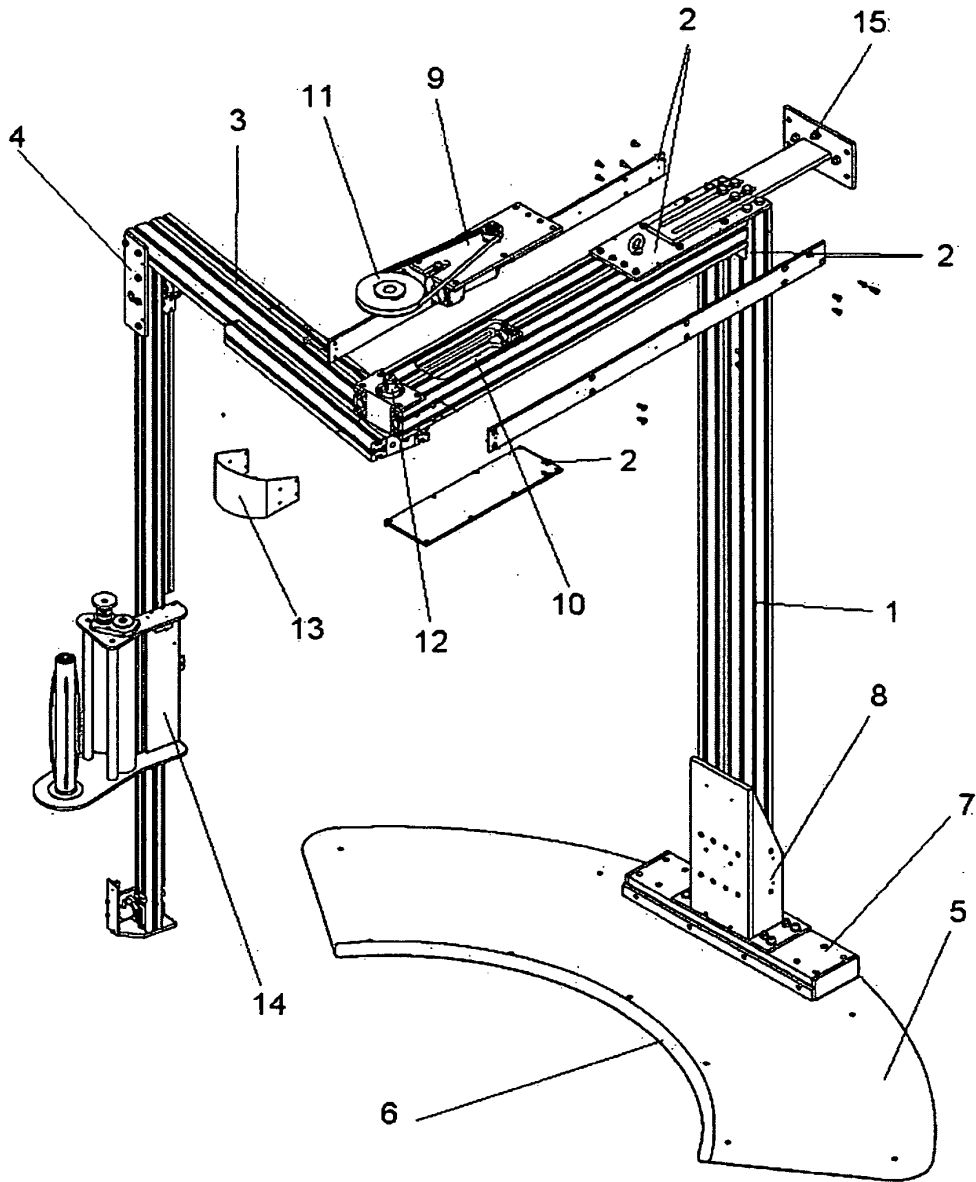


FIGURE 2

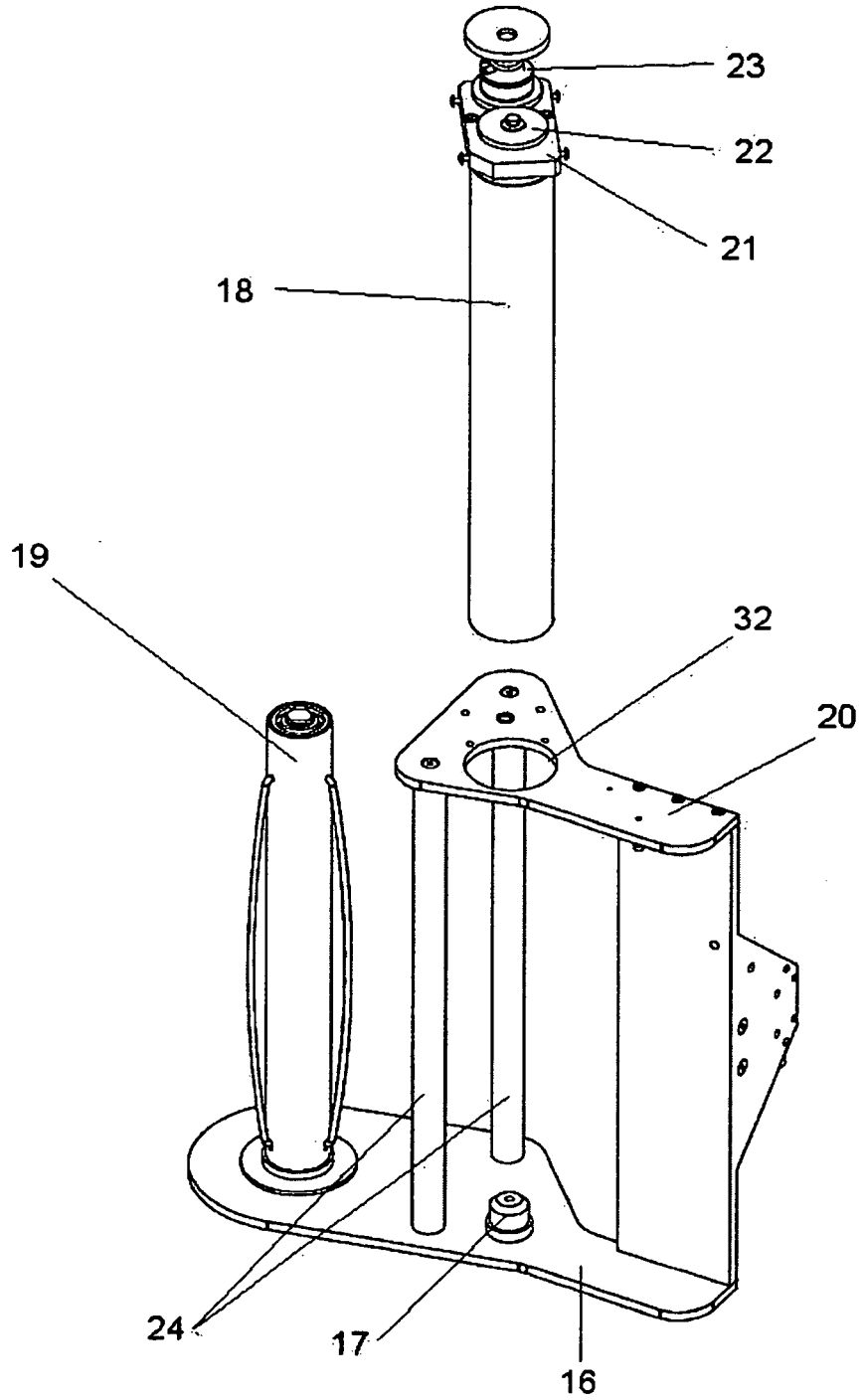


FIGURE 3

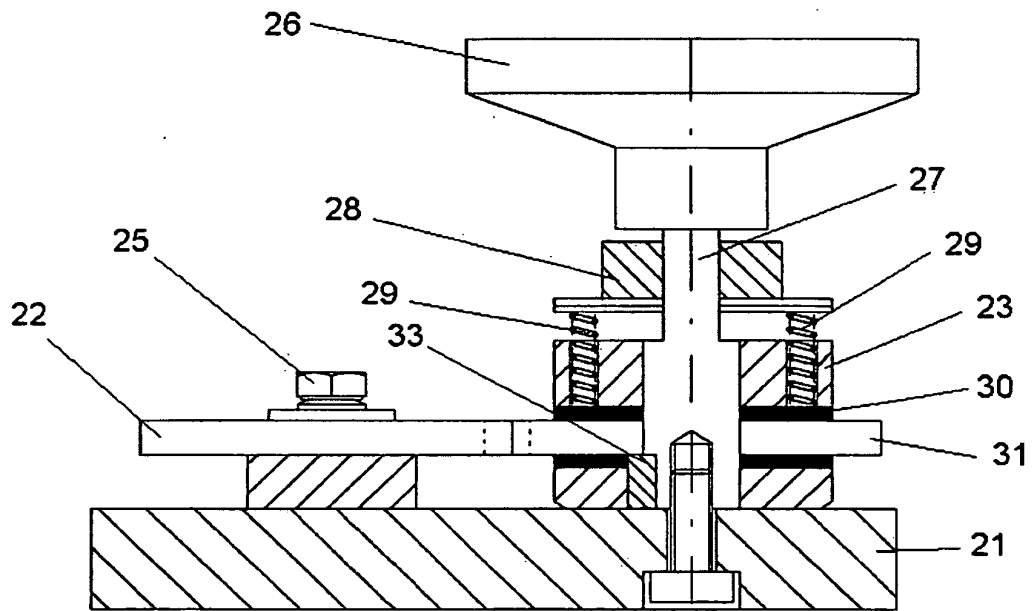
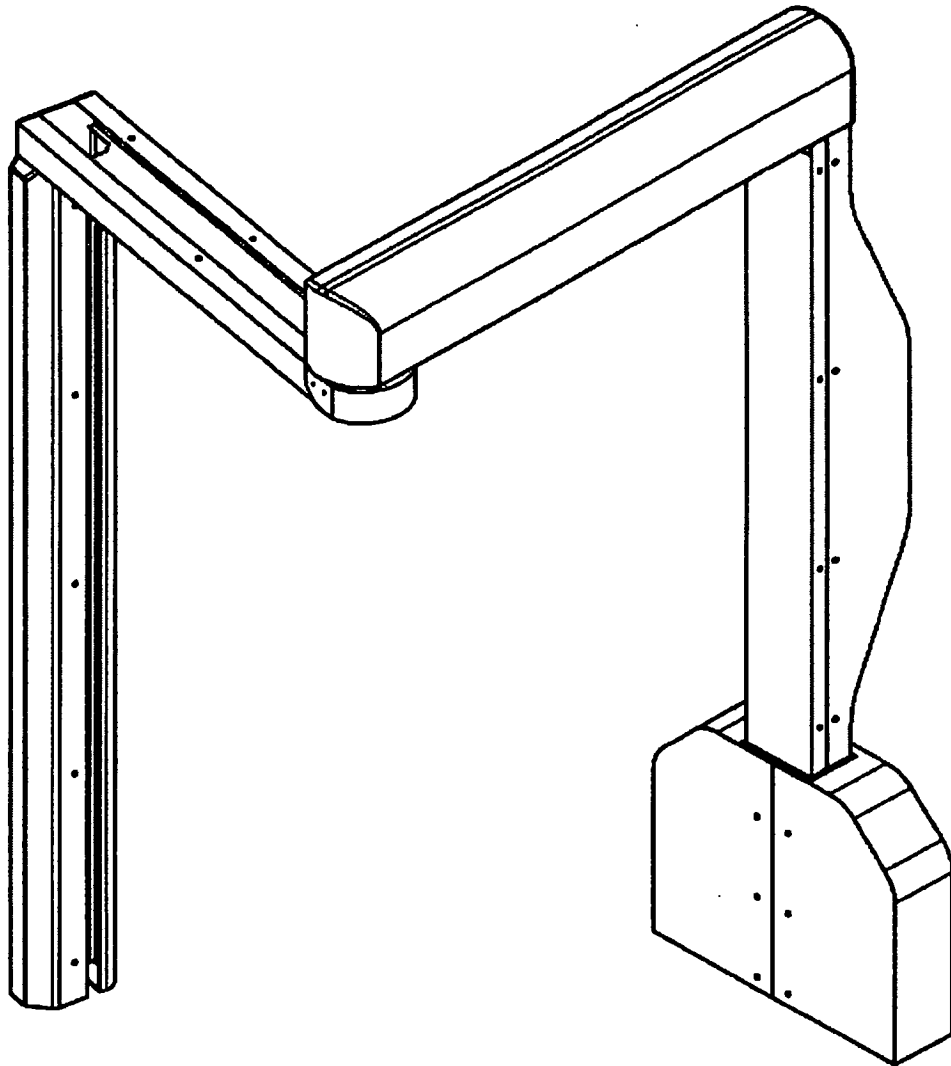


FIGURE 4



REFERENCES CITED IN THE DESCRIPTION

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