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(54) **Variable end-of-stroke device for the raising and lowering of a pressing arm in a fixed column and rotating platform winding apparatus**

Vorrichtung mit variabler Endlage zum Heben und Senken eines Druckarms in einer Umhüllungsvorrichtung mit einer festen Säule und einem Drehtisch

Dispositif avec butée variable de fin de course de monté et baisse pour un bras de pression dans un dispositif d'enveloppement à colonne fixe et plateau tournant

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Description

[0001] The present invention refers to a variable end-of-stroke device for the raising and lowering of a pressing arm in a fixed column and rotating platform winding apparatus.

[0002] For winding film or similar tape around an article or group of articles piled on a pallet or other suitable support, winding equipments that are made up of a support base including a motorized rotating platform for the support of the articles and of a fixed column for the support of a reel of windable film that rises and descends along the column are generally used. In addition provision is made for an article pressing arm with an end plate or disk, which a suitable pneumatic cylinder raises to enable the articles to be placed on the rotating platform and then lowers to press on the top of the articles. Such a device is known from US-A-4 300 326.

[0003] In the known equipments of this type there is the problem of adapting the stroke of the pressing arm to the height of the articles to be wound, that can vary to an extent exceeding the stroke of the cylinder.

[0004] Object of the present invention is to produce a device for raising and lowering a pressing arm in a rotating platform and fixed column winding apparatus, that permits a wide variation of the upper and lower limits of the stroke of the pressing arm.

[0005] In accordance with the invention this object is achieved with a device as defined in claim 1.

[0006] In this manner, considering the stroke of the cylinder and with it the extension of the stroke permitted to the pressing arm, it is possible to considerably vary the upper limit and the lower limit of the stroke of the pressing arm, adapting it to the height, also widely variable, of the articles to be wound.

[0007] The characteristics of the present invention will be made evident by the following detailed description of an embodiment thereof illustrated as non-limiting example in the enclosed drawings wherein:

Figure 1 shows an elevation view of a winding apparatus including a device for raising and lowering the pressing arm in accordance with the present invention;

Figure 2 shows an enlarged representation of the zone for hooking the stem of the cylinder to the arm-holder trolley;

Figure 3 shows the above-mentioned hooking zone in transversal section according to the line III-III of Figure 2;

Figure 4 shows the trolley and its points of hooking to the stem of the cylinder in axial section;

Figure 5 shows only the trolley seen from right with respect to Figure 4.

[0008] Figure 1 shows schematically the assembly of a winding apparatus composed of a base 1 incorporating a suitably motorized rotating platform 2 for the support of the articles 21 to be wound, a fixed column 3 for the vertical sliding support of a reel-holder trolley (not shown) and a pressing arm 4 in turn vertically sliding along the column 3.

[0009] The pressing arm 4 is composed of a horizontal arm 5, which at one end carries a pressing plate or disk 6 that freely rotates around its own axis and at the other end is firmly fastened to a trolley 7, which thanks to idle wheels 8 can slide along a vertical guide 9 fastened to a side of the column 3.

[0010] As it is better shown in the Figures 3-5, the trolley 7 is constituted of a C-shaped section bar 10 with right angles, from which four idle wheels 8 extend on the sides.

[0011] The ascent and descent of the trolley 7 along the vertical guide 9 is controlled by a pneumatic cylinder 11 fastened to the above-mentioned side of the trolley, from which a piston stem 12 extends terminating with a bored head 13, which is intended for hooking onto the trolley 7.

[0012] For this purpose the trolley 7 provides for two hooking points 20 at different heights along the axis of the trolley, constituted by eyelets 14 having one part 15 narrower and one part 16 wider (Fig. 5). During the mounting phase the head 17 of a screw 18 can be passed through the widened part 16, which passes through the bored head 13 of the stem 12 and ends in a screw knob 19 (Figures 3-5).

[0013] To move the hooking point from one eyelet to the other it is sufficient to unscrew the knob 19 and to remove it, to slide the screw 18 in the eyelet 14 in which it is inserted, to pass its head 17 through the wide part 16 of the same eyelet, then to slide the stem along the trolley 7 and then to lock it in the new position engaging the head of the screw 18 and the narrow part 15 of the other eyelet 14 and finally repositioning the knob 19.

[0014] In this manner, without altering the stroke of the stem 12, it is possible to modify the extreme limits of the stroke of the pressing arm 4 by attaching the stem to the lower end or to the upper end of the trolley 7, for this purpose using one or the other of the two hooking eyelets 14.

[0015] If the stem 12 is attached to the lower end of the trolley 7, as shown in the Figures 1, 2, 4 and 5, the pressing disk 6 can be moved between the two positions indicated with a continuous line in Fig. 1. If instead the stem 12 is attached to the upper end of the trolley 7, position indicated by a dotted line in the Figures 2 and 4, the pressing disk 6 can be moved between the two positions indicated by a dash-dot line in Fig. 1. The range of heights of the articles that the winding apparatus can receive is evidently high.

Claims

1. Device for raising and lowering a pressing arm (4) in a fixed column (3) and rotating platform (2) wind-

ing apparatus, comprising a pneumatic cylinder (11) that extends vertically along the column (3), a pressing arm-holder trolley (7) that can be raised and lowered along said column (3) and connection means (17-19) between said cylinder (11) and said trolley (7), **characterized in that** said connection means (17-19) can be attached to the trolley (7) at different hooking points (20) spaced along the vertical axis of the trolley (7).

2. Device according to claim 1, **characterized in that** said connection means (17-19) are constituted by screws (18) with wide head (17) that pass through a bored head (13) of the stem (12) of the cylinder (11) and terminate in a screw knob (19).

3. Device according to claim 2, **characterized in that** said hooking points (20) are defined by eyelets (14) made in a wall of the trolley (7) and presenting a narrow part (15) in which the screw (18) can be engaged and a widened part (16) through which the head (17) of the screw (18) can pass for engaging and disengaging with the eyelet (14).

Patentansprüche

1. Vorrichtung zum Heben und Senken eines Druckarms (4), welcher in einer Umhüllungseinrichtung mit einer festen Säule (3) und einem Drehtisch (2) vorgesehen ist, und einen Pneumatikzylinder (11) aufweist, welcher sich längs der Säule (3) erstreckt und eine Druckarm-Haltelaufkatze (7), welche längs der Säule (3) angehoben und abgesenkt werden kann, sowie eine Verbindungseinrichtung (17-19) zwischen dem Zylinder (11) und der Laufkatze (7) aufweist, **dadurch gekennzeichnet, dass** die Verbindungseinrichtung (17-19) an der Laufkatze (7) an unterschiedlichen Einhakstellen (20) angebracht werden kann, welche längs der vertikalen Achse der Laufkatze (7) beabstandet sind.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Verbindungseinrichtung (17-19) von Schraubenbolzen (18) mit einem breiten Kopf (17) gebildet wird, welcher durch einen mit einer Bohrung versehenen Kopf (13) des Schafts (12) des Zylinders (11) geht und am Abschlußende einen Schraubknopf (19) aufweist.

3. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die Einhakstellen (20) von Ösen (14) gebildet werden, welche in einer Wand der Laufkatze (7) vorgesehen sind und ein schmales Teil (15) besitzen, in welches die Schraube (18) eingreifen kann, und ein weiteres Teil (16) besitzt, durch welches der Kopf (17) des Schraubenbolzens (18) durchgehen kann, um mit der Öse (14) zusammenzuarbeiten oder von dieser freizukommen.

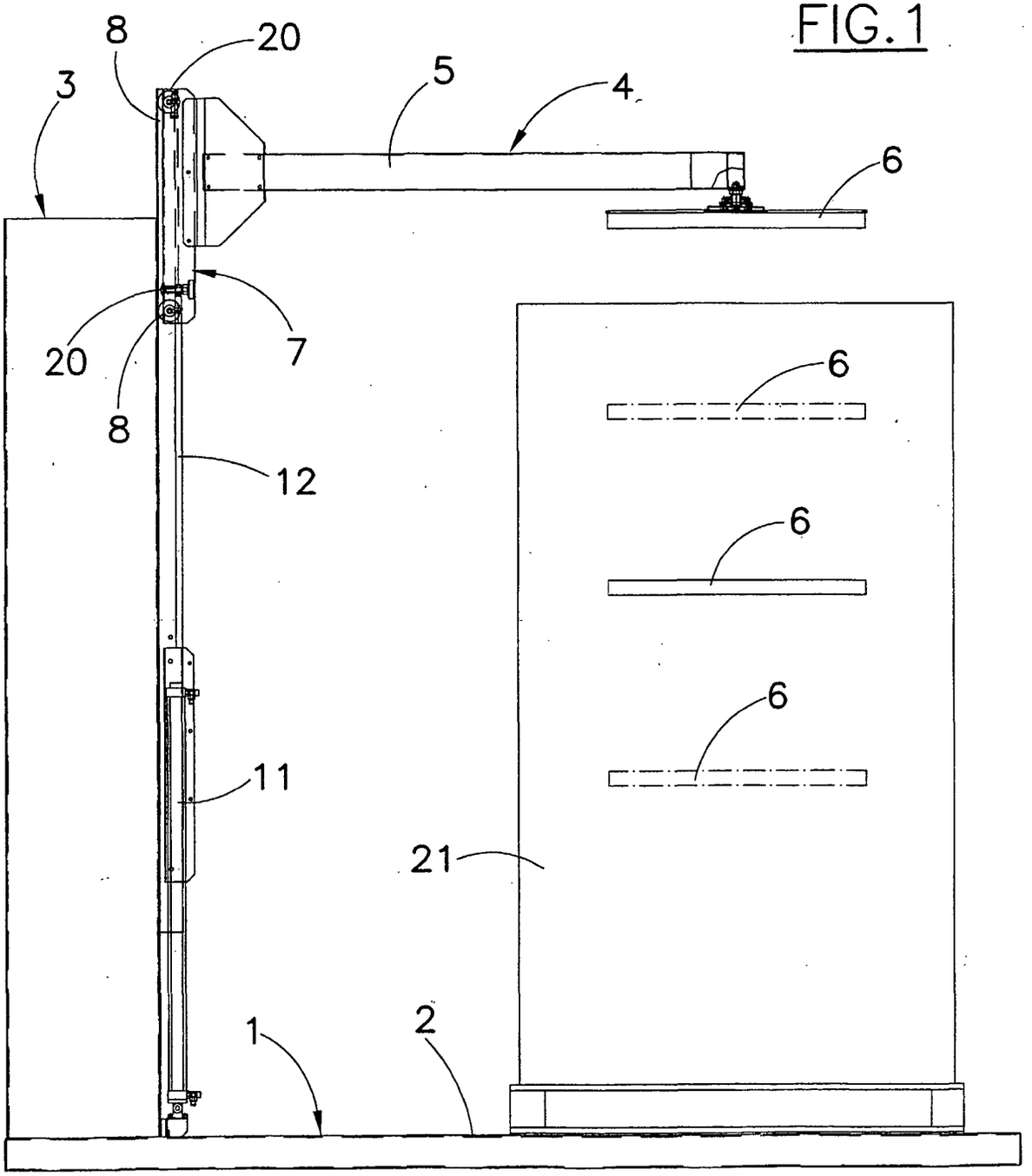
Revendications

1. Dispositif pour soulever et abaisser un bras de pression (4) dans un appareil d'enveloppement à colonne fixe (3) et plateau tournant (2), comprenant un vérin pneumatique (11) qui s'étend verticalement le long de la colonne (3), un chariot de support de bras de pression (7) qui peut être soulevé et abaissé le long de ladite colonne (3), et des moyens de connexion (17-19) entre ledit vérin (11) et ledit chariot (7), **caractérisé en ce que** lesdits moyens de connexion (17-19) peuvent être fixés sur le chariot (7) en différents points d'accrochage (20) espacés le long de l'axe vertical du chariot (7).

2. Dispositif selon la revendication 1, **caractérisé en ce que** lesdits moyens de connexion (17-19) sont constitués de vis (18) avec une tête large (17) qui passent à travers une tête alésée (13) de la tige (12) du vérin (11) et se termine dans un bouton vissé (19).

3. Dispositif selon la revendication 2, **caractérisé en ce que** lesdits points d'accrochage (20) sont définis par des oeillets (14) pratiqués dans une paroi du chariot (7) et présentant une partie étroite (15) dans laquelle la vis (18) peut venir en prise et une partie élargie (16) à travers laquelle la tête (17) de la vis (18) peut passer pour venir en prise et hors de prise avec l'oeillet (14).

FIG.1



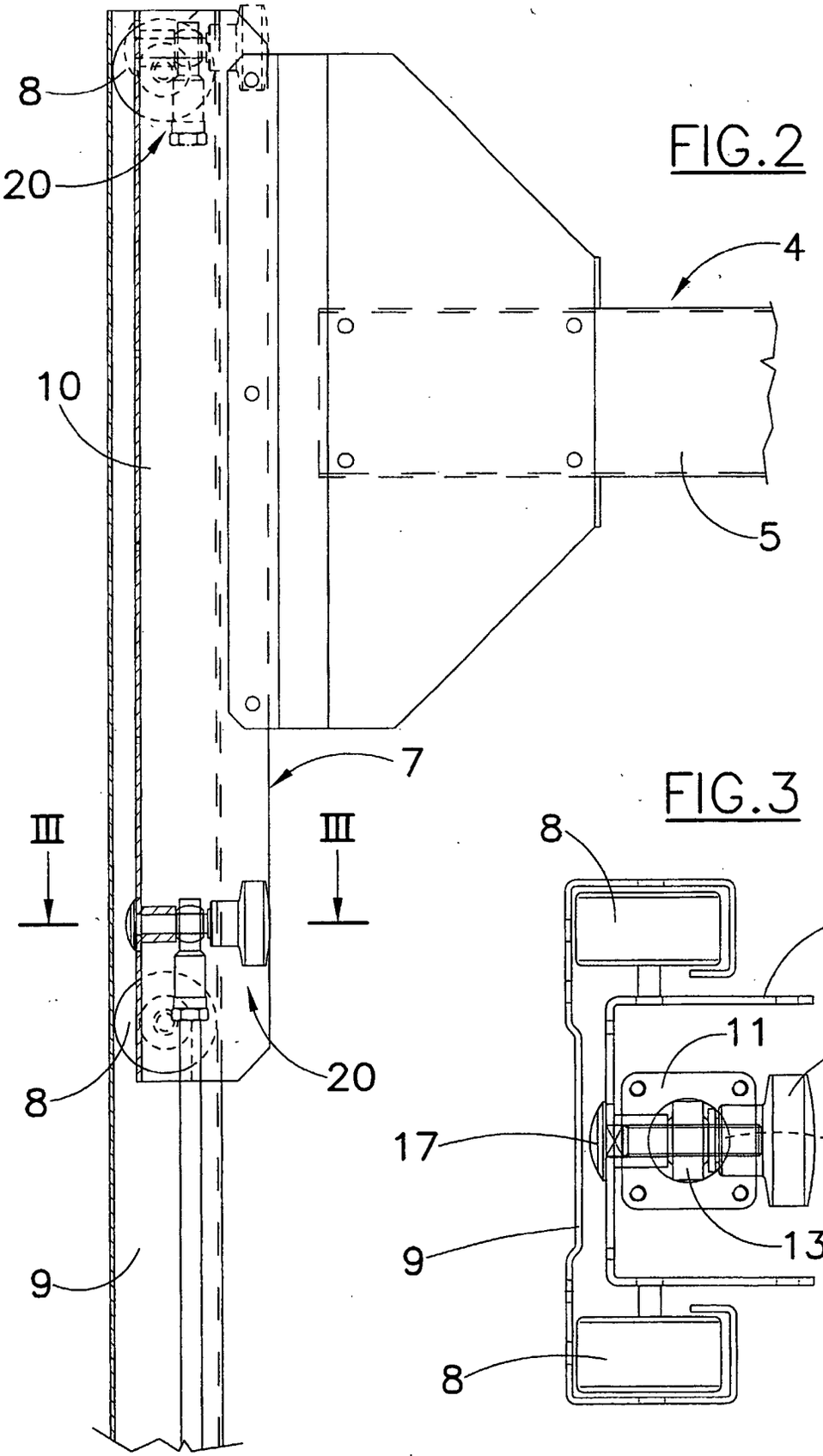


FIG.2

FIG.3

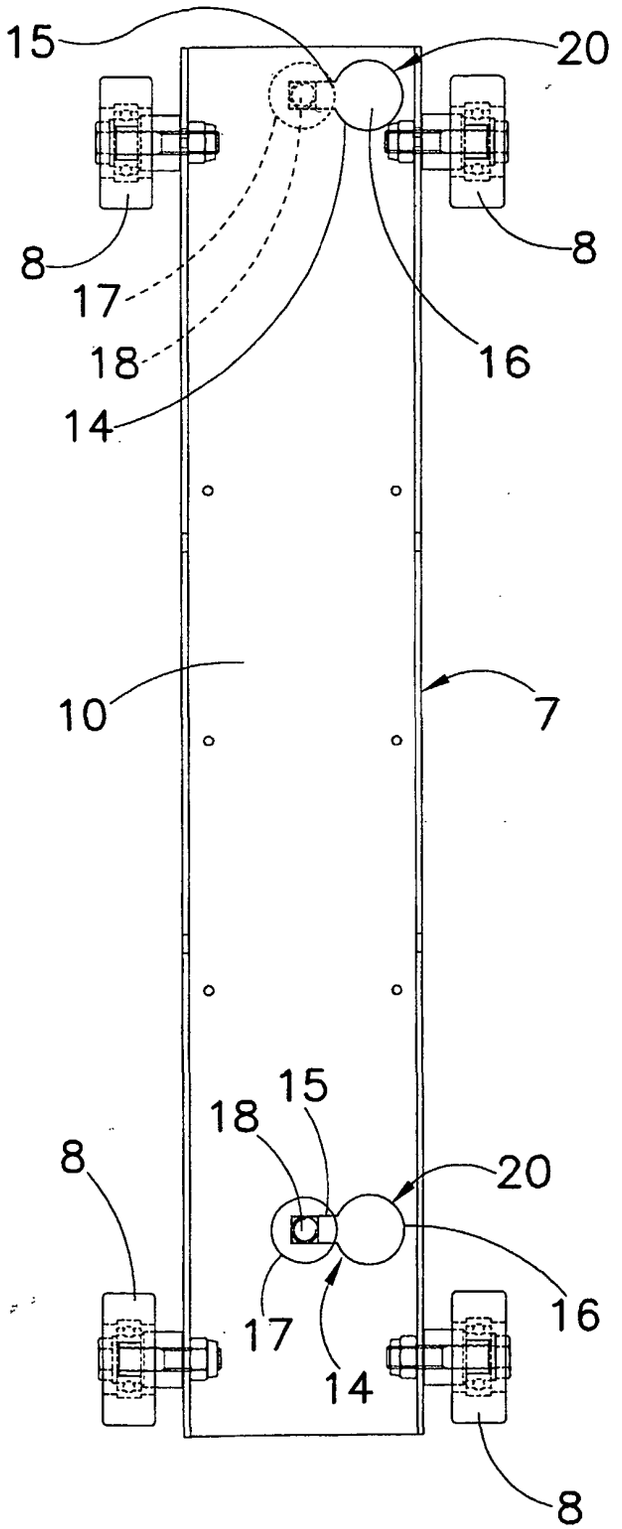

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FIG.5

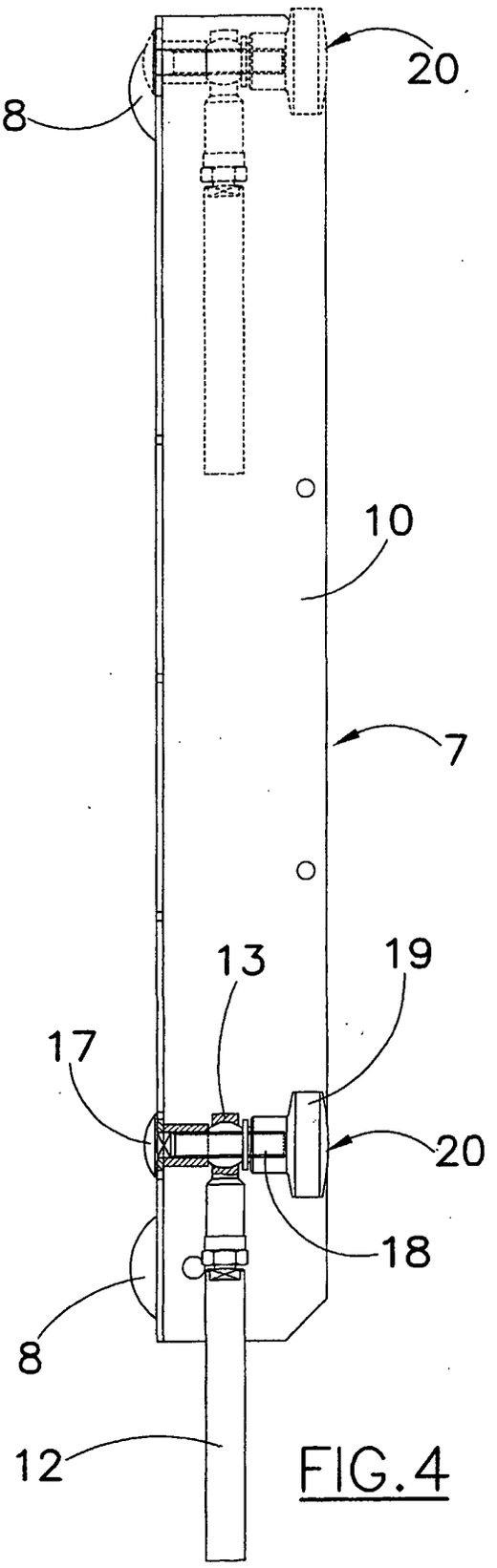
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FIG.4