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(54) **Loading station for a cable packet processing machine with manual loading**

(57) The loading station of the present invention is mounted on the frame of a cable packet processing machine, which comprises a number of horizontal and vertical handrails mounted in conjunction with standardised section members as the ones manufactured by Bosch or the like. Said section members are used to fasten the different parts of the station, e.g. the table of the loading station onto which a stand is fastened through appropriate means and it is supporting nearly all the parts of the station. The station further comprises a gripping member that is fastened to an endless belt which longitudinally travels the whole width dimension of the machine where the loading station is coupled. The station includes another gripping member intended to grip the cable once its position has been sensed, and a cable sensor.

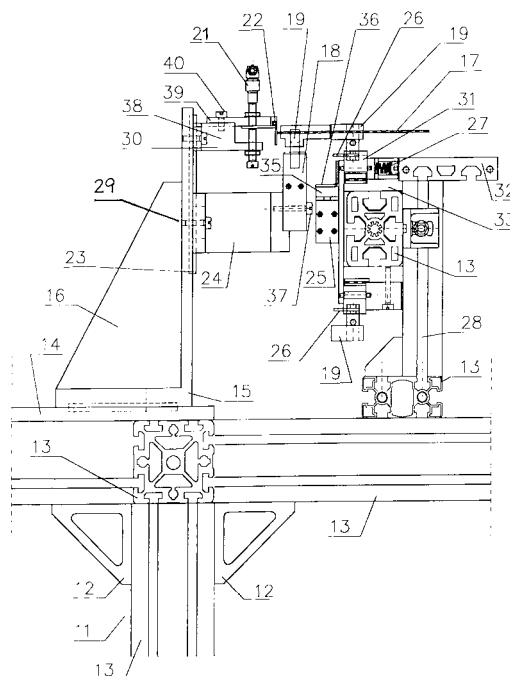


FIG. 1

Description

[0001] The present patent application relates, as stated in its title, to a "LOADING STATION FOR A CABLE PACKET PROCESSING MACHINE WITH MANUAL LOADING", which novel manufacturing, conformation and design features fulfil the purpose to which they have been specifically conceived, with a maximum safety and effectiveness.

[0002] More particularly, the present invention refers to a loading station mounted on the frame of a cable packet processing machine with manual loading. The machine comprises said station which serves the purpose of manually receiving a conventional cable and feeding the packet processing machine. On the one hand, the loading station is provided with sensing means to sense presence of cables and, on the other hand, it is provided with means for holding and sensing the cable whether it has been positioned in the right way.

[0003] Loading stations for cable packet processing machines are commercially available. Such stations are however fitted in machines with automatic loading which obliges to use cables having the same features, i.e. having the same insulation and the same conductive cross-section. In this case, it is not possible to alternate different types of cables in the same type of machine as complexity for sensing the different types of cables would make operation to be impractical. The manually loading station of the present invention overcomes such disadvantages. The loading station of the present invention works in conjunction with a cable selection station which permits the cable that has been chosen by the operator to feed the loading station will be the correct one. The loading station of the present invention is capable to work with any type of cables, as disclosed below.

[0004] The loading station of the present invention is mounted on the frame of a cable packet processing machine, which comprises a number of horizontal and vertical handrails mounted in conjunction with standardised section members as the ones manufactured by Bosch or the like. Said section members are used to fasten the different parts of the station, e.g. the table of the loading station onto which a stand is fastened through appropriate means and it is supporting nearly all the parts of the station. The station further comprises a gripping member that is fastened to an endless belt which longitudinally travels the whole width dimension of the machine where the loading station is coupled. The station includes another gripping member intended to grip the cable once its position has been sensed, and a cable sensor.

[0005] The loading station is provided, as described before, with an endless belt which horizontally runs in front of such station and it is provided by a number of gripping members having corresponding grips to hold the conductor.

[0006] As the cable packet processing machine where the loading station of the present invention is fit-

ted works continuously, said endless belt is provided with a number of said gripping members which are fixed thereto. The gripping members are regularly spaced to one another and they are propelled by the belt itself. The gripping members are the carrying parts of the conductor wires or cables to the different stations in the machine, the features of which are the object of another patent.

[0007] The above mentioned gripping members are caused to close by an actuator which is activated by the corresponding piston causing the grips to close on the cable or conductor wire as appropriate.

[0008] There also exists another gripping member fixed to the stand of the loading station which acts once presence of the cable has been sensed by means of a sensor element. Then, once the cable presence operation has been completed, the corresponding gripping means act holding the cable and subsequently opening to leave the cable to the first gripping members provided in the belt and carrying it to the next station.

[0009] Further details and features of the present patent application will be apparent from the following description, which refers to the accompanying drawings that schematically represent the preferred details. These details are given by way of example, which refer to a possible case of practical embodiment, but it is not limited to the details disclosed herein; therefore this description must be considered from an illustrating point of view and without any type of limitations.

[0010] A detailed list of the various parts cited in the present patent application is given below: (11) frame, (12) sideplates, (13) section members, (14) table, (15) stand, (16) sideplate, (17) cable, (18) gripping member, (19) grip, (20) jaws, (20.1) half-shafts, (21) sensor element, (22) contact, (23) plate, (24) support, (25) piston, (26) stem, (27) spring, (28) handrail, (29) screws, (30) sensor support, (31) gripping members, (32) tray, (33) endless belt, (34) guide (35) push button, (36) actuator, (37) screw, (38) support, (39) plate, (40) screws, (41) grips, (43) spring, (44) piston.

[0011] Figure n° 1 is a part-way section of an end elevation view of the loading station wherein the main parts thereof are shown.

[0012] Figure n° 2 is a plan view of the loading station and the endless belt (33) where the gripping members (31) are fitted regularly spaced apart.

[0013] Figure n° 3 is a part-way end elevation view of the loading station, with the gripping member (18) and the grips (19) thereof rotating around the half-shafts (20.1).

[0014] Figure n° 4 is a diagrammatic end elevation view of the gripping members (31) actuated by a piston (44).

[0015] In one of the preferred embodiments of the object of the present invention and as it can be seen from the enclosed figure n° 1, the loading station comprises a frame (11) having a number of standardised section members (13) reinforced by corresponding sideplates

(12).

[0016] Such frame (11) is supporting the corresponding table (14) which acts as a supporting and carrying member for a stand (15) having a substantially angular configuration and being reinforced by sideplates (16).

[0017] The sensor element (29) is fixed on said stand (15) fitted on a plate (39) by means of screws (40). The plate (39) is secured to a plate (23) by means of screws (29) to the vertical part of said stand (15). Likewise, a support (24) is fixed on said stand (15) by means of screws (29), which supports the gripping member (18) provided with grips (19), by means of screws (37).

[0018] An endless belt (33) runs in front of the loading station (10) on which a series of gripping members (31) is mounted regularly spaced apart, as shown in figure n° 3.

[0019] The gripping member (31), see figure n° 4, is biased by the corresponding spring causing the grips (41) to close by means of an actuator (36) acting on a stem (26). The actuator (36) is formed integrally on a push button (35) of a piston (44) that is secured by appropriate means to one of the section members (13) of the frame (11).

[0020] In the front of the loading station as being part of the cable processing machine, a tray (32) is provided serving the purpose to allow the cables (17) hanging therefrom without interfering the parts which would damage the general operation of the loading station and the cable packet processing machine.

[0021] Likewise and as it can be seen from figure n° 1, the piston (25) is used as an element to bring the cable (17) up or down as appropriate.

[0022] The gripping member (18), as it can be seen from figure n° 3, is provided with grips (19) which rotate around the half-shafts (20.1) in a circular path moving away from the cable (17) by the sensor element (29) which senses pressure of said cable (17) and by means of the contact (22) as shown in figure n° 1, as the operator manually places the cable (17) perpendicular to such contact (22).

[0023] Operation of the loading station is as follows: when the cable (17) has been removed from the corresponding selection grid by the operator, he places it in the station, see figure n° 2, as one of its ends abuts the contact (22) mounted on the inner part of the sensor (29) fixed to the plate (39) by means of screws (40) through tapered jaws (20) configured by the grips (19) when they are closed. In this moment, when presence of the cable (17) has been sensed, the grips (19) of the gripping member (18) are opened, the support is lowered by the piston (25) and the endless belt (33) starts moving, the cable (17) being previously trapped by the grips (41) of the gripping member (31).

[0024] The endless belt (33) is arranged in an horizontal position and it travels the whole width dimension of the machine, as it can be seen from figure n° 1, allowing the program stopping and advancing of the gripping members (31) fixed thereto.

[0025] Once having been sufficiently described what the present patent application consists in accordance to the enclosed drawings, it is understood that any detail modification can be introduced as appropriate, provided that variations may alter the essence of the invention as summarised in the appended claims.

Claims

1. "LOADING STATION FOR A CABLE PACKET PROCESSING MACHINE WITH MANUAL LOADING", said processing machine being provided with a loading station with manual feeding and selection, characterised in that such loading station comprises a frame (11) provided with horizontal and vertical handrails fixed to section members (13) reinforced by sideplates (12) on which a horizontal working table (14) is located provided by a stand (15) having a substantially angular configuration reinforced by a sideplate (16), the main parts of the loading station such as a sensor element (21) and gripping members (18) being provided on said stand (15), said gripping members (18) being fixed to a support (24) which, in turn, is fixed to the stand (15) by screws (29), and an endless belt (33) running in front of the loading station horizontally travelling the whole width dimension of the machine and provided with gripping members (31) regularly spaced apart.
2. "LOADING STATION FOR A CABLE PACKET PROCESSING MACHINE WITH MANUAL LOADING" as claimed in claim 1, characterised in that the sensor element (21) is fixed on a plate (39), said plate (39) being secured to a support (38) which is fixed on a plate (23) by screws (29) and (40), a control contact (22) being provided at the lower part of said plate (39), said control contact (22) having a substantially angular configuration and being connected to the sensor element (21), said cables (17) resting on a moving support by a piston (25).
3. "LOADING STATION FOR A CABLE PACKET PROCESSING MACHINE WITH MANUAL LOADING" as claimed in any of the preceding claims, characterised in that the grips (19) are closed on the cable (17) defining tapered jaws (20) undergoing a rotary movement around half-shafts (20.1) opening outwardly by the contact (22) of the sensor element (21), transmitting the corresponding command to said gripping member (18) to open the grip (19) as a cable (17) has been placed by the operator inside the tapered jaws (20), said grip (19) closing again as the cable (17) has been properly sensed by the sensor element (21) in the contact (22), and the cable (17) being finally collected by the gripping member (31).

4. "LOADING STATION FOR A CABLE PACKET PROCESSING MACHINE WITH MANUAL LOADING" as claimed in claim 1, characterised in that the gripping members (31) provided in the endless belt (33) are biased by the corresponding spring (43), the grips (41) opening and closing by an actuator (36) on a stem (26) by means of a piston (25) and said cable (17) being conveyed to the next station by such gripping members (31).

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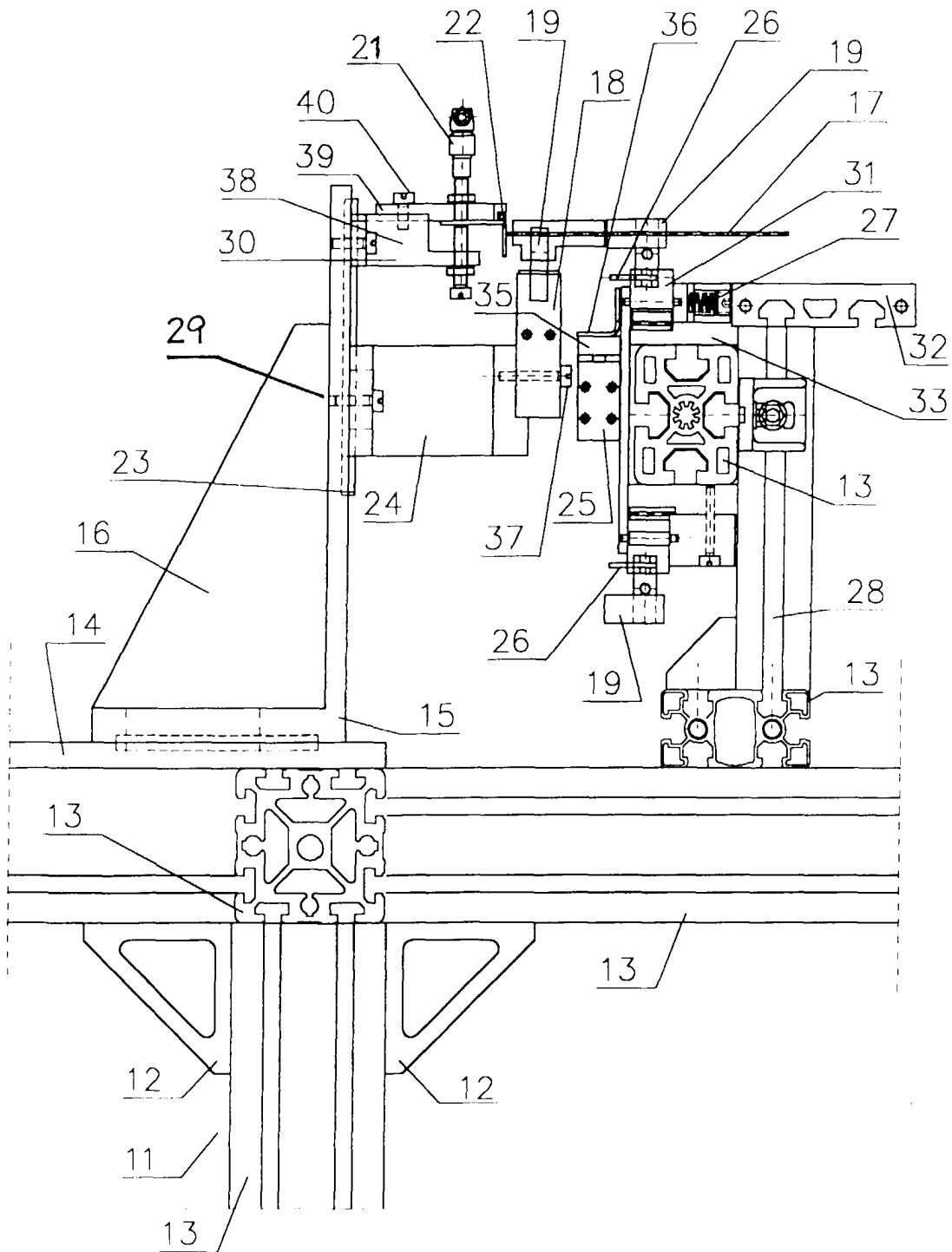


FIG. 1

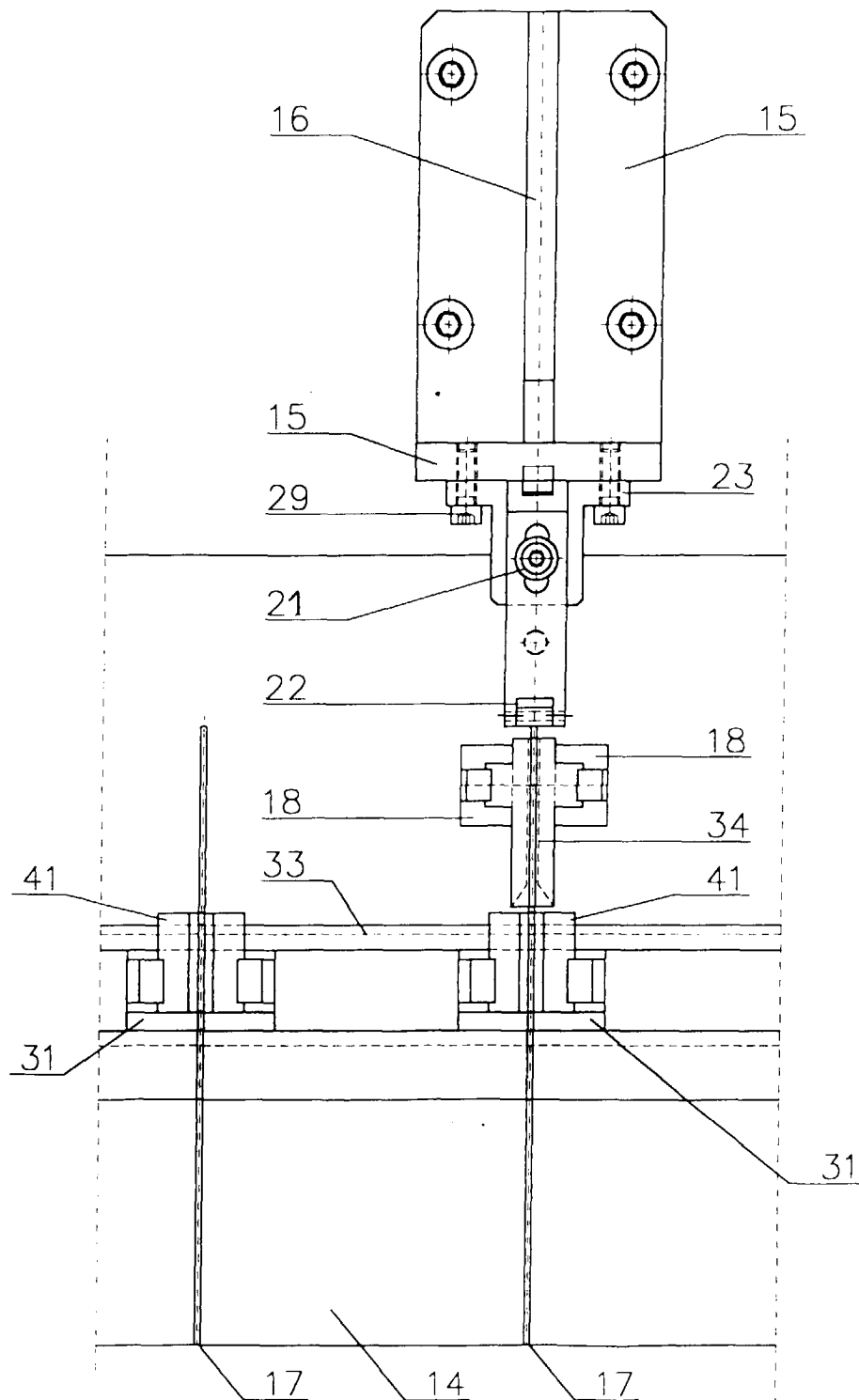


FIG. 2

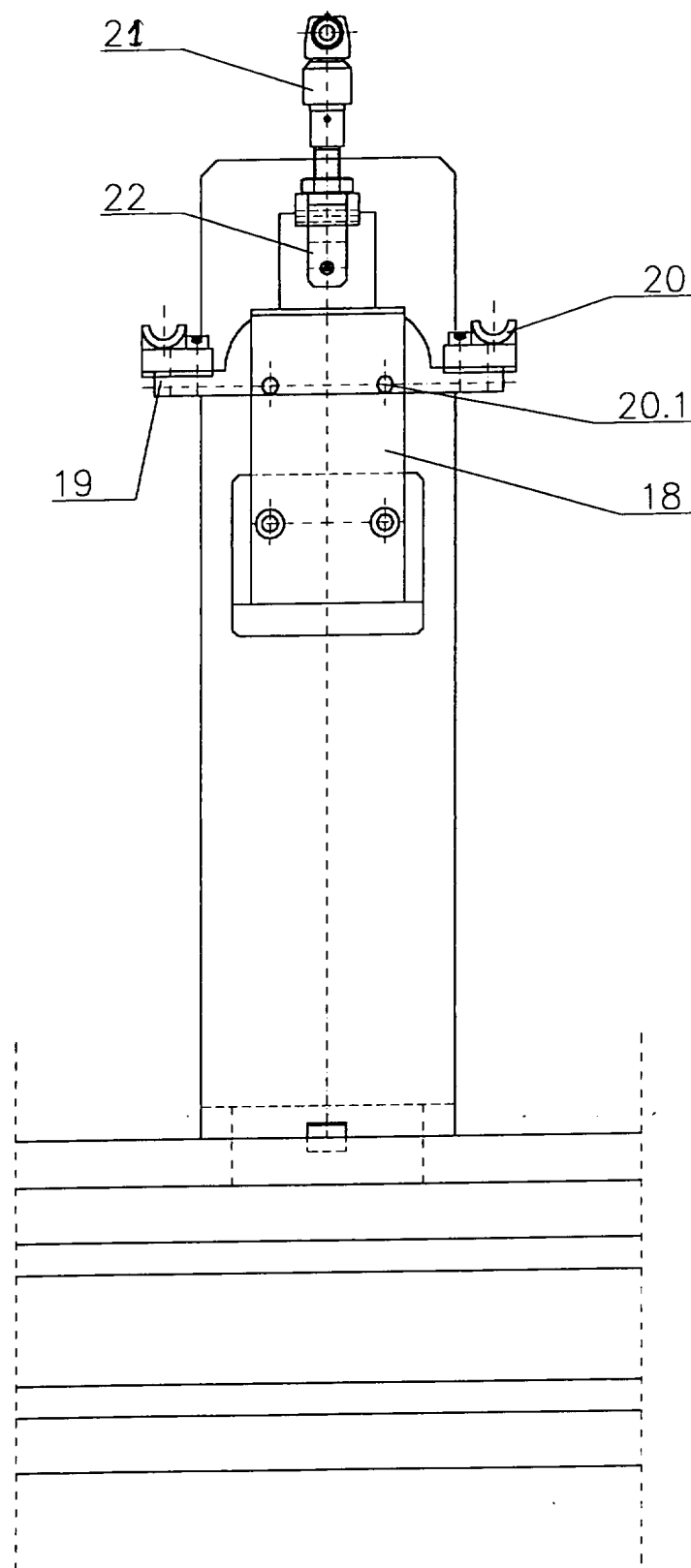


FIG. 3

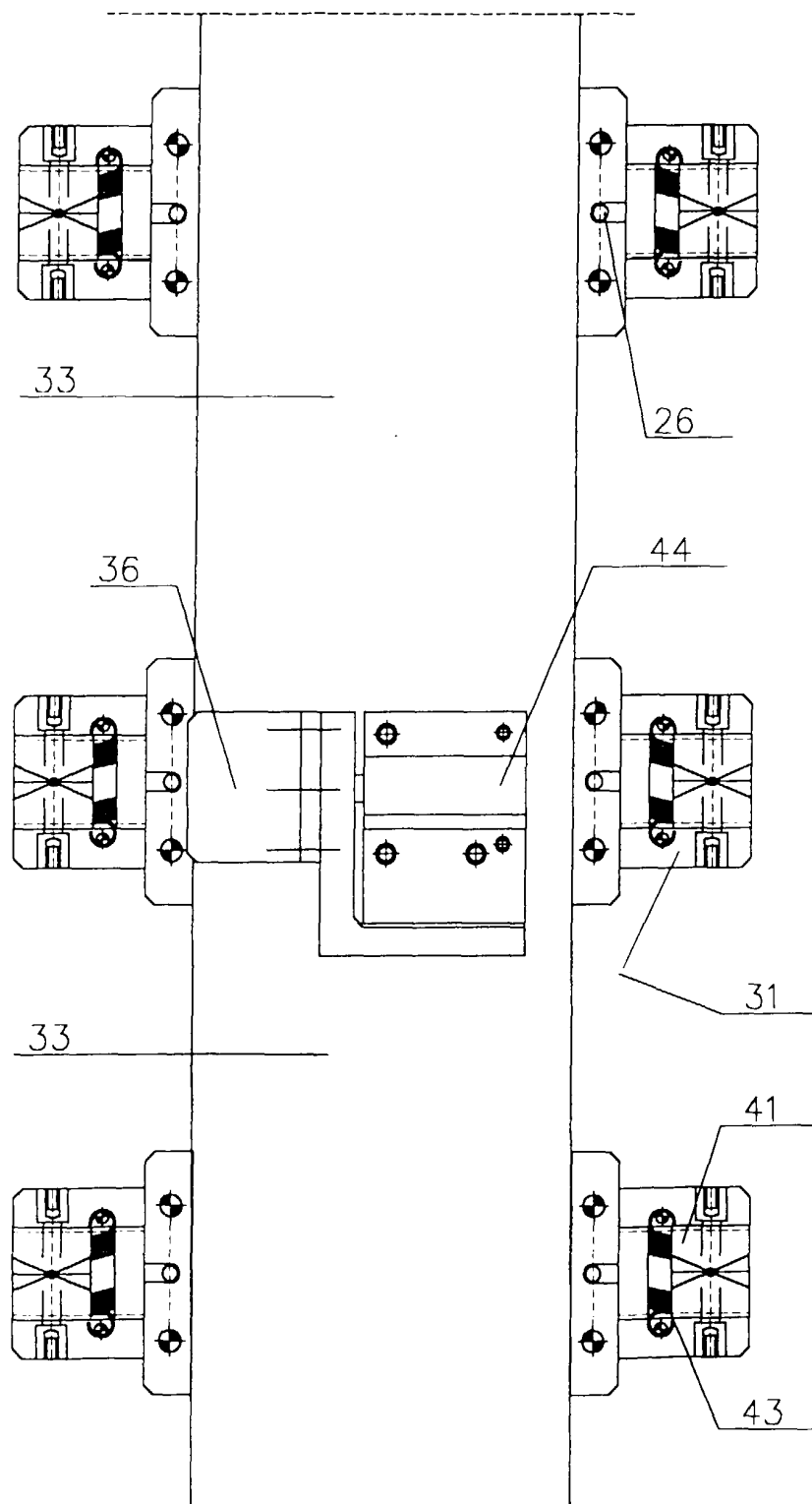


FIG. 4