



(22) Date de dépôt/Filing Date: 2001/05/15

(41) Mise à la disp. pub./Open to Public Insp.: 2001/11/16

(45) Date de délivrance/Issue Date: 2004/11/09

(30) Priorité/Priority: 2000/05/16 (2000 0960/00) CH

(51) Cl.Int.⁷/Int.Cl.⁷ B26D 7/18, B26F 1/40, B30B 15/00

(72) Inventeurs/Inventors:

DE DOMPIERRE, JEAN-BERNARD, CH;
TRAN, HA-SIMON, CH;
JAQUET, BERNARD, CH

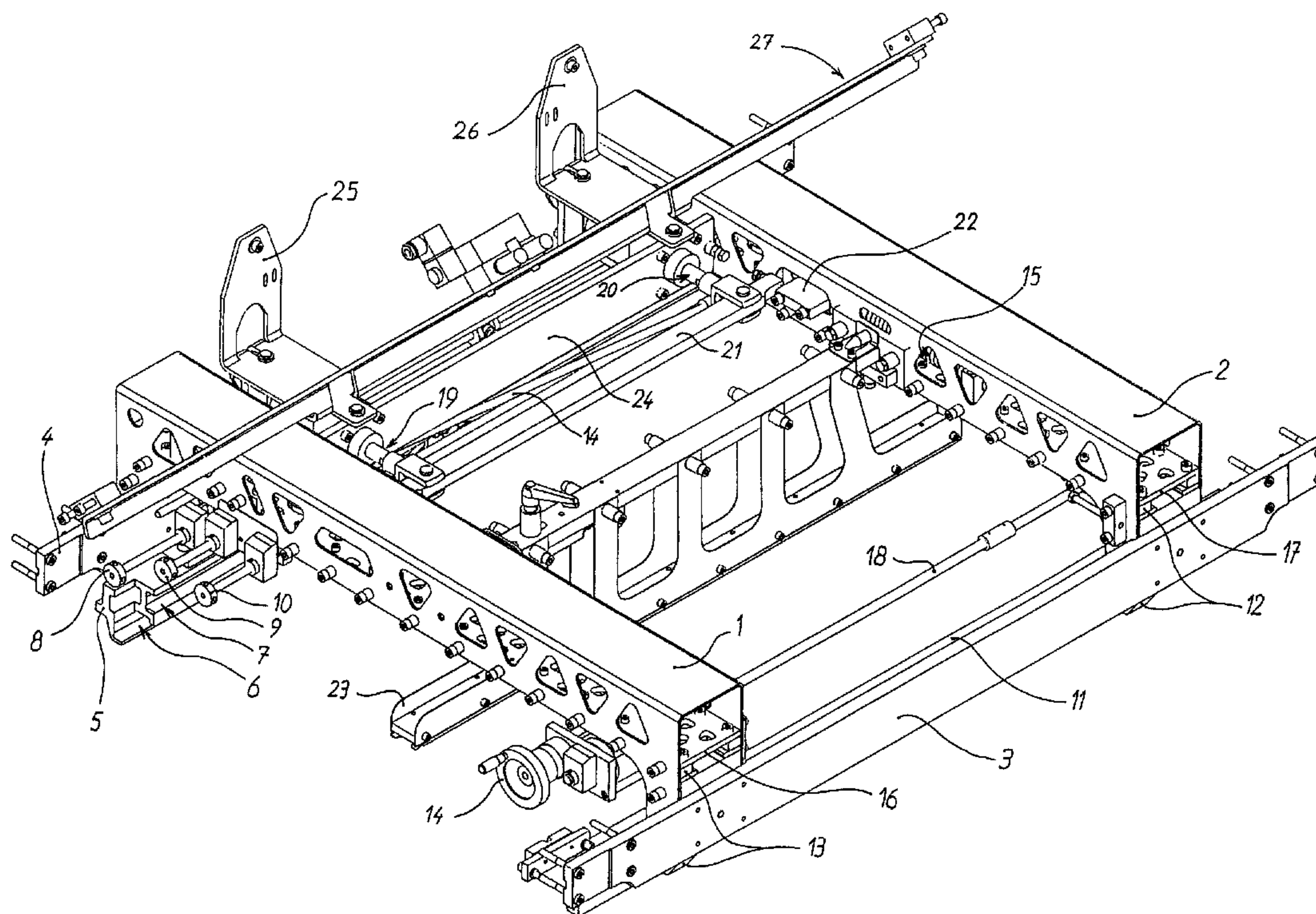
(73) Propriétaire/Owner:

BOBST S.A., CH

(74) Agent: SMART & BIGGAR

(54) Titre : PRESSE DE TRANSFORMATION

(54) Title: A CONVERTING PRESS



(57) Abrégé/Abstract:

Converting press for paper or cardboard sheets including a waste stripping station and/or a blanking station with a pull-out chase (1,2,3,4) comprising a pair of horizontal transverse rails (5,11) receiving an upper stripping tool, (or a blanking tool). The first rail (5) is fixed compared to aforesaid chase and the second rail is movable in a longitudinal direction, the rails being profiled to receive and maintain in an operational waste stripping position (or blanking position), either a pull-out chase of an upper tool or an upper stripping board (or blanking board).

68200-204

ABSTRACT

Converting press for paper or cardboard sheets including a waste stripping station and/or a blanking station with a pull-out chase (1,2,3,4) comprising a pair of horizontal transverse rails (5,11) receiving an upper stripping tool, (or a blanking tool). The first rail (5) is fixed compared to aforesaid chase and the second rail is movable in a longitudinal direction, the rails being profiled to receive and maintain in an operational waste stripping position (or blanking position), either a pull-out chase of an upper tool or an upper stripping board (or blanking board).

68200-204

CONVERTING PRESS

The present invention relates to a converting press for paper or cardboard sheets including a waste stripping station with a tool supporting chase comprising a pair of horizontal transverse rails to which is secured an upper stripping tool.

The present invention also relates to a converting press for paper or cardboard sheets including a blanking station with a tool supporting chase comprising a pair of horizontal transverse rails, to which is secured an upper blanking tool.

The present invention also relates to a converting press for paper or cardboard sheets, including at the same time a waste stripping station and a blanking station such as described above.

Converting presses for paper, solid board or corrugated board use for each material a whole range of specific converting tools for a specific work. Such range of tools includes specifically:

- a makeready protection plate
- a makeready sheet
- a cutting die
- a cutting plate comprising the cutting counterparts
- a waste upper stripping tool
- a central stripping board
- a lower stripping frame comprising telescopic tools for waste capture
- an upper blanking tool
- a lower blanking tool.

68200-204

The waste upper stripping tool as well as the upper blanking tool can be in a pull-out frame of standard size, having at its front and back sides profiles securing to and sliding on profiled fastened devices, such as secured
5 transverse rails, and independent of the reference stations. The terms "longitudinal" and "transverse" when the direction of a body is concerned, "front", "back" and "lateral" when a side of a station is concerned, are used with reference to the advance direction of the sheets in the machine.

10 The pull-out frame can include several crossbars, on which are secured a range of strippers. The locations of the crossbars and the strippers in the pull-out frame are subject to change and have to be defined by the work to be processed. Their positioning is settled outside the machine, preferably on
15 a presetting table, during the preparation of the tool. This operation is relatively tiresome, but is achieved in "masked time" independently from the machine in production.

For short and repetitive orders, an upper tool is often used, called die or upper stripping board (or die or
20 upper blanking board), made up of a rectangular wooden board, on which are definitely secured strippers of various shapes, corresponding to the specific task. The wooden die itself is assembled inside a pull-out frame which is then settled into the corresponding station. If necessary, the board must be
25 readjusted in position and reinstalled within the frame.

The whole range of the tools mentioned above must be laid out in an extremely precise way in the various stations of the press at the start up of each job. Particularly in the case of short job orders, the productivity of the unit depends
30 in large degree upon the rapidity of the positioning and the setting of the tools.

68200-204

The aim of the present invention is to facilitate positioning and the setting of the upper stripping tool and/or the upper blanking tool, particularly in the case of short and repetitive job orders.

5 According to the present invention there is provided a converting press for paper or cardboard sheets comprising: a waste stripping station including a tool supporting chase; and a pair of horizontal transverse rails including: a first rail fixed relative to the chase; and a second rail movable in a
10 longitudinal direction relative to the first rail; each of the first and second rails is shaped with a profile to receive and support in an operational waste stripping position, either of a pull-out frame of having an upper stripping tool or an upper stripping tool; and the profile of the rails comprising each of
15 the rails having a facing side facing the other rail, each facing side of a rail having a first shaped part having a first profile which is complementary to an external profile on a transverse side of the pull-out frame or of the upper stripping tool; and each facing side of a rail having a second shaped
20 part located below the first shaped part and having a second profile which is complementary to the external profile of the upper stripping tool.

A waste stripping station according to the invention, allows overcoming the assembly and setting operations of an
25 upper waste stripping board, or of an upper blanking board, in a pull-out frame. The boards are directly assembled in the station. Resulting from this is a time saving during the preparation of the press between two operations. It also results in a saving in the number of the

68200-204

tooling elements to be used. The fact that the second rail is moveable allows spacing adjustment of the pair of rails to various sizes of boards.

5 The rails of the station can comprise an upper part whose profile is complementary to the profile of a pull-out frame and a lower part whose profile is complementary to the profile of an upper board, the shaped parts of the two rails facing each other.

10 The rail located in front of the station preferably has at the level of the shaped part receiving an upper board a centering block intended for centering into the machine this upper stripping or blanking board. To deal with possible errors of manufacture of the board, the centering block is preferentially transversely adjustable by a micrometric setting
15 device.

The station preferably includes means allowing the moveable rail to be pressed longitudinally, towards the fixed rail. Acting so, when the upper tool is settled, it is tightly secured between the fixed rail and the movable rail.

20 The aforesaid means used to push the movable rail towards the fixed rail can include at least one spring acting with constant force on the movable rail in the direction of the fixed rail and at least one cylinder, whose actuation by the operator deletes and overcomes the force of the spring,
25 allowing the loosening and the tool changing.

The movable rail, which is preferably the back one, can be held by at least one support, itself secured on a moving means, to be used by the operator. Thus, the station can accommodate upper boards of variable sizes. Furthermore, the
30 moveable rail can be carried by two holders secured each on a

68200-204

rack that is longitudinal movable.

Other characteristics and advantages of the invention will appear to those familiar with this technical field from the description which follows, with reference to the drawing,
5 in which:

Fig. 1 is a perspective view of a chase part of a stripping station of a converting press with a pair of rails ensuring the use of an upper stripping tool.

Fig. 1 shows an upper tool supporting chase of a
10 waste stripping station of a converting press with two longitudinal beams 1 and 2 and two transverse beams 3 and 4. A transverse and horizontal front rail suspended from the longitudinal beams 1 and 2 by two vertical members (not shown). Rail 5 on its back side has two grooves, a lower groove 6 to
15 receive the front edge of an upper stripping board, and an upper groove 7 into which a rib of a pull-out frame of an universal stripping tool can slide. Rail 5 remains normally fixed relative to the tool supporting chase, both during the operation of the press as during tool changing. However, to
20 overcome slight errors in manufacturing or setting an upper tool, manually controllable devices are provided for the micrometric fitting of the position: the knurled knob 8 allows the adjustment of the transverse position of the centering block intended for centering into the machine of an upper
25 board. The knurled knobs 9 and 10 act by means of a rod 14 and levers, respectively and independently of one other on the two vertical standards on which the rail 5 is hanging, so as to allow correction of the longitudinal position one and/or the angular position of the rail 5. These three micrometric
30 fitting devices are equipped with a display, which allows, for repetitive works, storing the setting values in memory.

68200-204

In front of the fixed rail 5 stands a movable back rail 11, parallel to the fixed rail 5. Rail 11 also has a lower groove to receive the back edge of the upper stripping board and an upper groove into which a complementary rib of an upper pull-out frame of an universal stripping tool can be sliding.

The movable back rail 11 is carried by the vertical legs of two transverse bearings 12 and 13, that have horizontal legs supporting rotatable toothed wheels, which mesh with two longitudinal racks (not shown). These racks are assembled slightly below two horizontal plates 16 and 17 independent of beams 1 and 2, and can longitudinally slide a few millimeters under those plates. A manual control 14, which acts on the toothed wheels, simultaneously on the two sides of the station via a rod 18, enables the movable rail 11 to be moved longitudinally, so as to match its location to the length of the upper stripping board.

A pair of springs under constant pressure, one (15), of which, is shown in Fig. 1, are longitudinally secured respectively on the plates 16 and 17. Each spring, one end of which is interdependent of the associated plate, presses at its other end on a block 22, interdependently of the associated rack, pushes this latter forwards and thus grips the upper tool between the rails 5 and 11.

Two jacks 19 and 20, secured on a fixed transverse beam 24, interdependent of the machine frame by two fastening tabs 25 and 26 and by a transverse beam 27, can be activated by the machine operator when the frame which supports the upper stripping tool is in high position. Jacks 19 and 20 carry a transverse bar 21. When the tool supporting chase is in high position, the blocks 22 come to the same level as the

68200-204

ends of the transverse bar 21, so that under pressure of the jacks 19, 20 the transverse bar 21 pushes onto blocks 22 extending from beams 1 and 2, relieving the pressure of the springs 15 and releasing the upper tool, which can then be
5 easily removed by the operator.

One can note that bearings 12 and 13 of the movable rail, racks, springs 15 and jacks 19, 20 are symmetrically arranged about a vertical plane through a longitudinal central axis, so called "axis-machine".

10 One can also note on Fig. 1 a support beam 23. This beam 23 is movable and is intended to lead on the top of an upper stripping board so as to maintain flatness of the latter during the rising and the lowering of the tool supporting chase.

15 The blanking station is intended to be equipped with the same tool supporting chase.

68200-204

CLAIMS:

1. A converting press for paper or cardboard sheets comprising:

5 a waste stripping station including a tool supporting chase; and

a pair of horizontal transverse rails including:

a first rail fixed relative to the chase; and

a second rail movable in a longitudinal direction relative to the first rail;

10 each of the first and second rails is shaped with a profile to receive and support in an operational waste stripping position, either of a pull-out frame of having an upper stripping tool or an upper stripping tool; and

15 the profile of the rails comprising each of the rails having a facing side facing the other rail, each facing side of a rail having a first shaped part having a first profile which is complementary to an external profile on a transverse side of the pull-out frame or of the upper stripping tool; and

20 each facing side of a rail having a second shaped part located below the first shaped part and having a second profile which is complementary to the external profile of the upper stripping tool.

2. A converting press according to claim 1, wherein the second shaped part of the first rail comprises a centering
25 block, that centers an upper stripping tool in the second shaped part.

68200-204

3. A converting press according to claim 2, wherein the tool supporting chase includes a micrometric adjuster for transversely positioning the centering block.

4. A converting press according to claim 3, wherein the
5 micrometric adjuster includes a storable position display.

5. A converting press according to claim 1, wherein the tool supporting chase includes a micrometric adjuster for at least one of longitudinally and angularly positioning the first rail.

10 6. A converting press according to claim 5, wherein the micrometric adjuster includes a storable position display.

7. A converting press according to claim 1, wherein the chase includes a micrometric adjuster for at least one of longitudinally and angularly positioning the first rail.

15 8. A converting press according to claim 1, further including a tightening mechanism that maintains the upper stripping tool in an operational position,

the tightening mechanism being comprised of at least one spring that biases the second rail in a longitudinal
20 direction towards the first rail and at least one jack operable to counteract the bias imposed by the spring.

9. A converting press according to claim 8, wherein the second rail is movably carried by at least one support, and further including a gearing device linked to the tool
25 supporting chase by an elastic device operable to longitudinally translate the second rail.

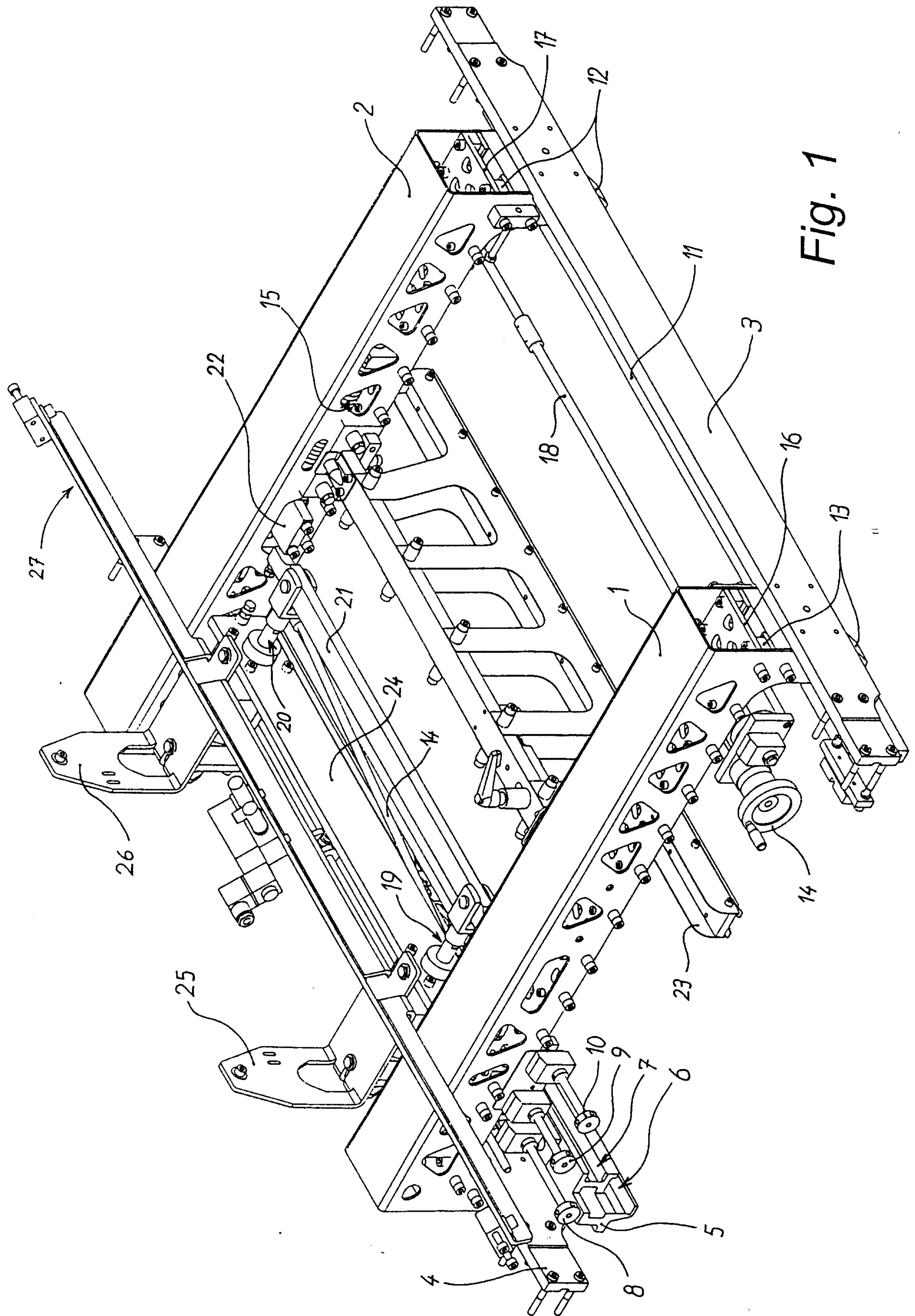


Fig. 1

