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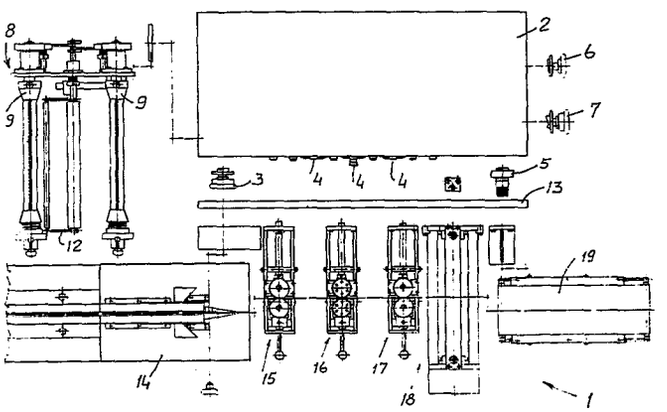
(54) System of reversing the sequential position of the operative units in automatic packaging machinery.

(57) The invention relates to a system adapted to reverse the sequential position of the operative units of a packaging machinery as a function of the orientation of the processing line and the floor space where the plant is located. The system provides for the use of a coupling plate between the work table and the machine housing, said plate being adapted to be mounted in two specularly symmetrical positions turned 180 dregrees in respect of the machine housing.



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"SYSTEM OF REVERSING THE SEQUENTIAL POSITION OF THE OPERATIVE UNITS IN AUTOMATIC PACKAGING MACHINERY"

The present invention relates to a system allowing to reverse the sequential arrangement of the operative groups or units of a packaging machinery so as to fit in with the space available, more particularly for the usability of the machinery as a function of the processing line, loading ease and maintenance.

It is well known that most machinery and equipment for carrying out the packaging operations in food processing lines, are provided with conveyor tables mechanically connected to a control frame in which the driving unit and the electromechanical or electronic automation unit for programming the operative cycle are arranged.

These tables generally have a considerable size and the user has to order the machinery taking into account its floor space having regard to the table position and whether the workpieces are to be fed from the right side or the left side in respect of the control board.

Machinery manufacturers are therefore obliged to make two sets of castings, the one for the right hand machine and the other for the left hand machine, with clear rise in costs and lack of rationalization of series production, and this is indispensable because the base structure and the working heads must be arranged according to the

right or left orientation of the conveyor.

The present invention solves this problem and allows to assemble the conveyor table and the operative groups in both loading directions and moreover to change the orientation even subsequently, by means of some novel technical measures.

This problem is solved by mounting the metal coupling plate between machine frame and conveyor with operative groups at two opposite positions turned 180 degrees, that is reversed, without modifying the driving unit and the electromechanical or electronic control unit.

Said coupling plate is provided with drillings which are all through holes and specularly symmetrical, suitable for its reversal and it is clear that when the plate is turned 180 degrees, the conveyor can be connected in the opposite orientation.

This system may also be embodied in several ways, all falling however within the scope of the invention, and it will be described in some detail as a non limiting illustrative example of the invention, reference being had to the annexed sheets of accompanying drawings, in which:

Fig. 1 is a front view of a packaging machinery;

Fig. 2 is a plan view of the packaging machinery with the conveyor table assembled with the left hand orientation;

Fig. 3 is a similar view of the same packaging machinery, but with the conveyor table assembled with the right hand orientation;

Fig. 4 is an exploded top view of the packaging machinery, provided with left hand conveyor table; and

Fig. 5 is a side view of the packaging machinery.

With reference at first to Figs. 1 and 2 of the drawings, the packaging machinery 1 according to the present invention has a housing or case 2 containing the entire

driving unit and the electromechanical units for programming the operations to be effected in the desired sequence. These units indeed comprise a handwheel 3 for adjusting the package length, apparatus 4 for regulating the heating temperature in order to effect the package welding , a knob 5 for calibrating the photoelectric cell controlling the sequential operation of the units and two lateral handwheels 6,7, the first handwheel 6 regulating the cutting and welding step and the second handwheel 7 adjusting the release step. On one side of the housing 2 there is the assembly 8 for feeding the packaging material, comprising two supports 9 for the rolls 10 of packaging web, of which the one is operative and the other is in a stand-by position, several guide rollers 11 and the brake and clutch equalizer 12 to keep a proper tension of the web.

Through a mechanical coupling plate 13, to the housing 2 are applied a table 14 conveying the workpieces to be packaged, a unit 15 picking up and entraining the package lower edges, a heating unit 16 for the longitudinal continuous welding, another set of guide rollers 17, a unit 18 effecting transversal welding and severing the individual packages and finally a conveyor belt for picking up and discharging the finished packages.

As it is clear, the whole assembly of the units and table have considerable dimensions and the presently used technique consists is making, very often casting, all the required supports and working heads having different drilling according to the assembling orientation of the machinery, thus needing two complete sets of members, according to said orientation.

With reference now to Fig. 3, by means of the present invention it is possible to assemble all the above mentioned components in either order, that is in a specularly symmetrical arrangement so as to obtain a right hand fed machinery (Fig. 4) or left

hand fed machinery (Fig. 1).

Referring now to Fig. 4, in order to obtain this result it is sufficient to apply to the housing 2, the coupling plate 13 according to the present invention, which can be turned 180 degrees, as it has all the holes for the attachment of the operative units, arranged in a symmetrical order, so that it is possible to apply the same units in both specularly symmetrical or sequentially reversed positions.

Merely for a control need, on the housing 2 only the handwheel 3 for regulating the package is inserted, as said handwheel 3 must always be coupled with the relevant assembly 8 bear the rolls 10, which is obviously mounted on the same side of the conveyor table 14, and consequently also the cell calibration knob 5.

With reference to Fig. 5, the packaging machinery 1, when seen laterally, has all the units of the processing line mounted overhanging from the coupling plate 13 fixed to the housing 2. It is clear that when said plate 13 is turned 180 degrees, nothing is modified or added and only assembling and disassembling operations are needed to obtain a right-hand or left-hand fed machinery, by means of the symmetrical through holes of the plate 13.

At last it has to be pointed out that the detailed description of this embodiment does not limit to it the scope of the invention, and on the contrary it is to be understood that many modifications, variations, additions or substitutions may be resorted to the system of the present invention, without departing however from its spirit and objects nor falling outside its scope of protection, as it is defined in the appended claims.

CLAIMS

1) System of reversing the sequential position of the operative units in automatic packaging machinery, characterized by the fact that said operative units and the conveyor tables are mounted on a coupling plate fixed on the machinery housing, said coupling plate being adapted to be turned 180 degrees in order to obtain a right-hand or left-hand fed machinery, without replacing or adding mechanical components.

2) System according to Claim 1, characterized by the fact that the coupling plate can be turned 180 degrees as it is provided with through holes made at specularly symmetrical points, so as to allow attachment of said units and tables in both orientations, and the same through holes are used to assemble said units and tables forming the processing line in the reverse sequential order.

3) System according to Claim 1, characterized by the fact that the arrangement of the electromechanical driving and control units, arranged inside the machinery housing, is not modified when a right-hand or left-hand conveyor table is mounted, only the web roll bearing assembly being mounted on the same side where the feeding conveyor for the pieces to be packaged is arranged.

4) System of reversing the sequential position of the operative units in automatic packaging machinery, as hereinbefore described and illustrated in the figures of the accompanying drawings, for the above indicated objects.

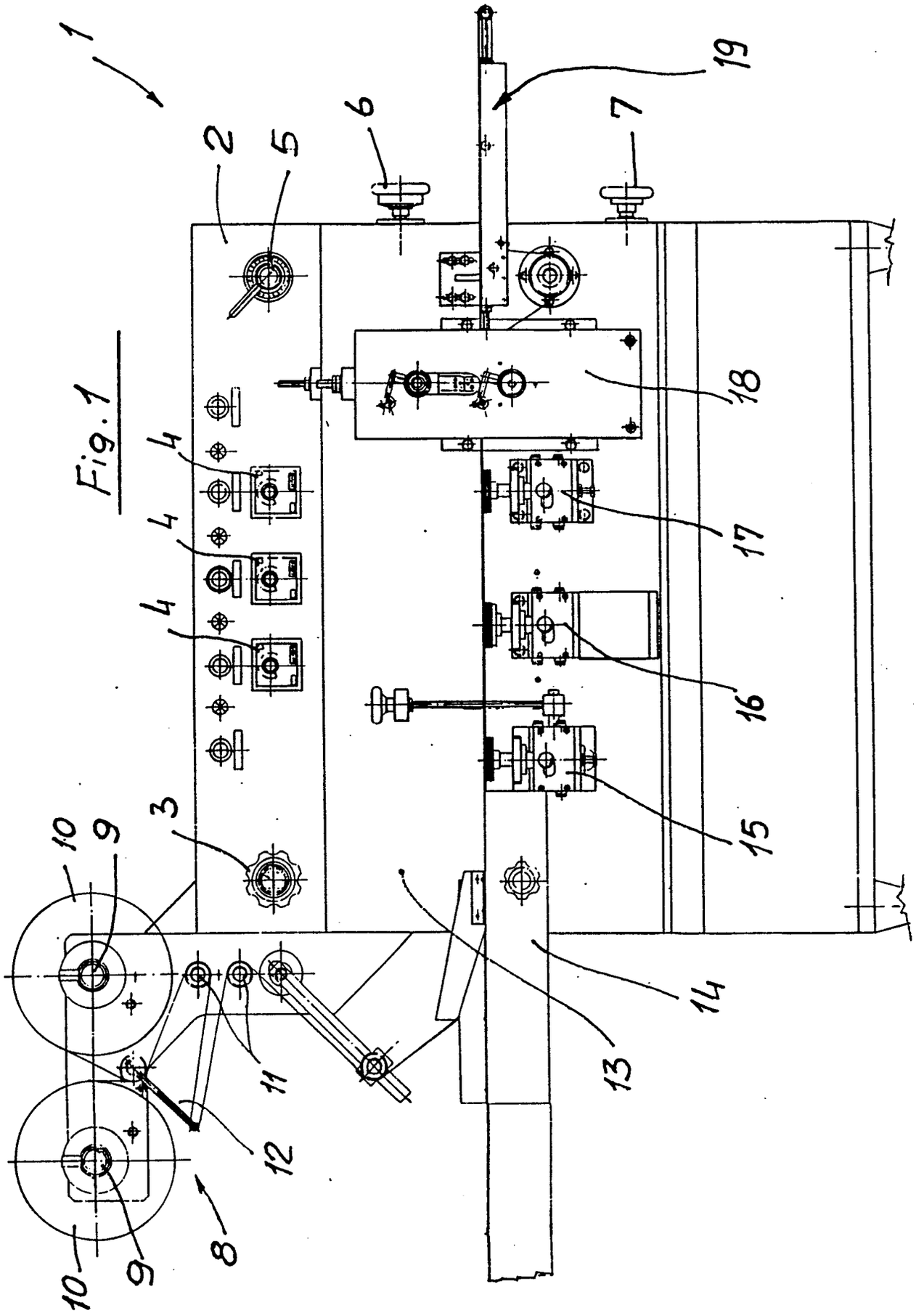


Fig. 1

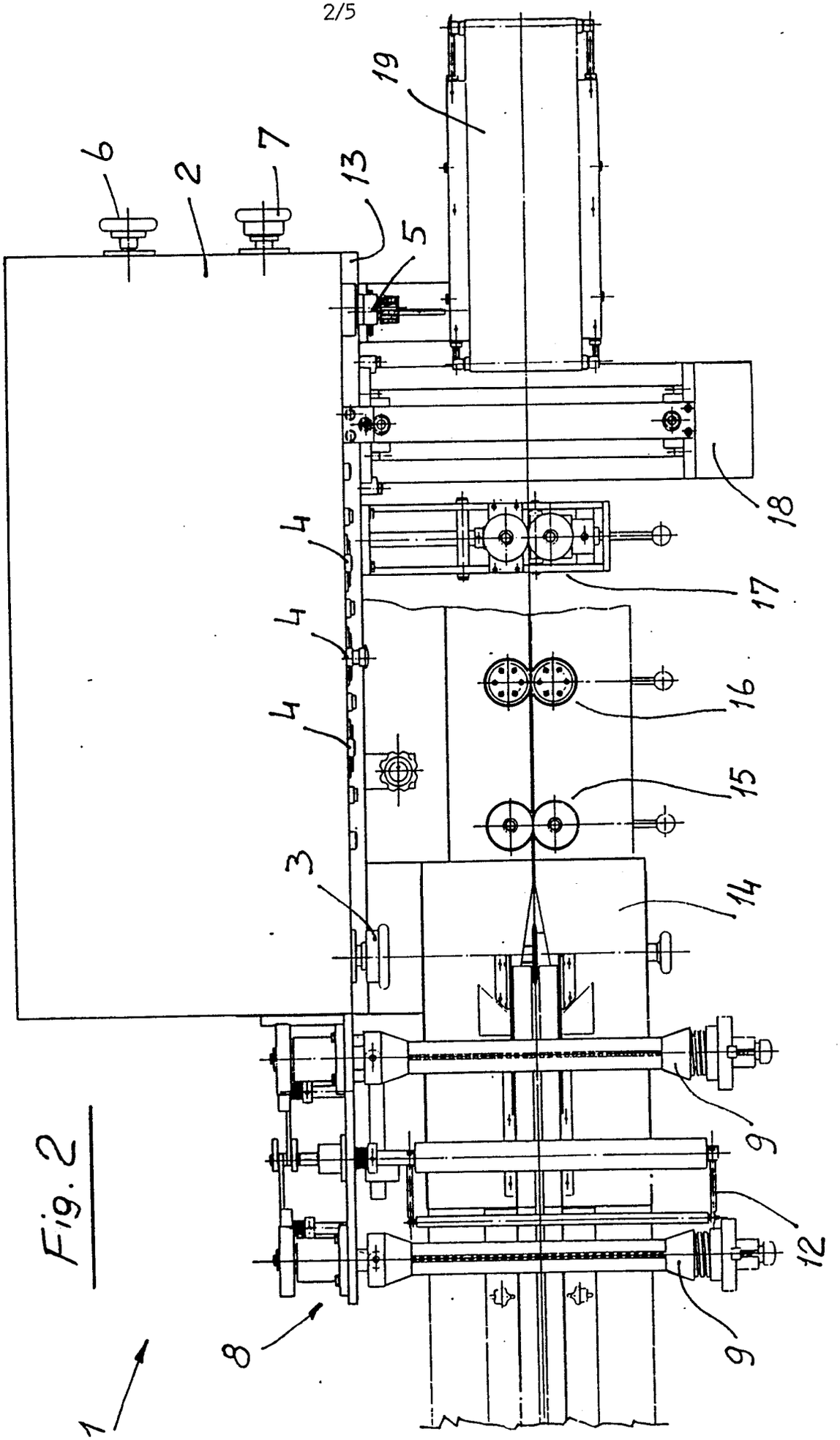
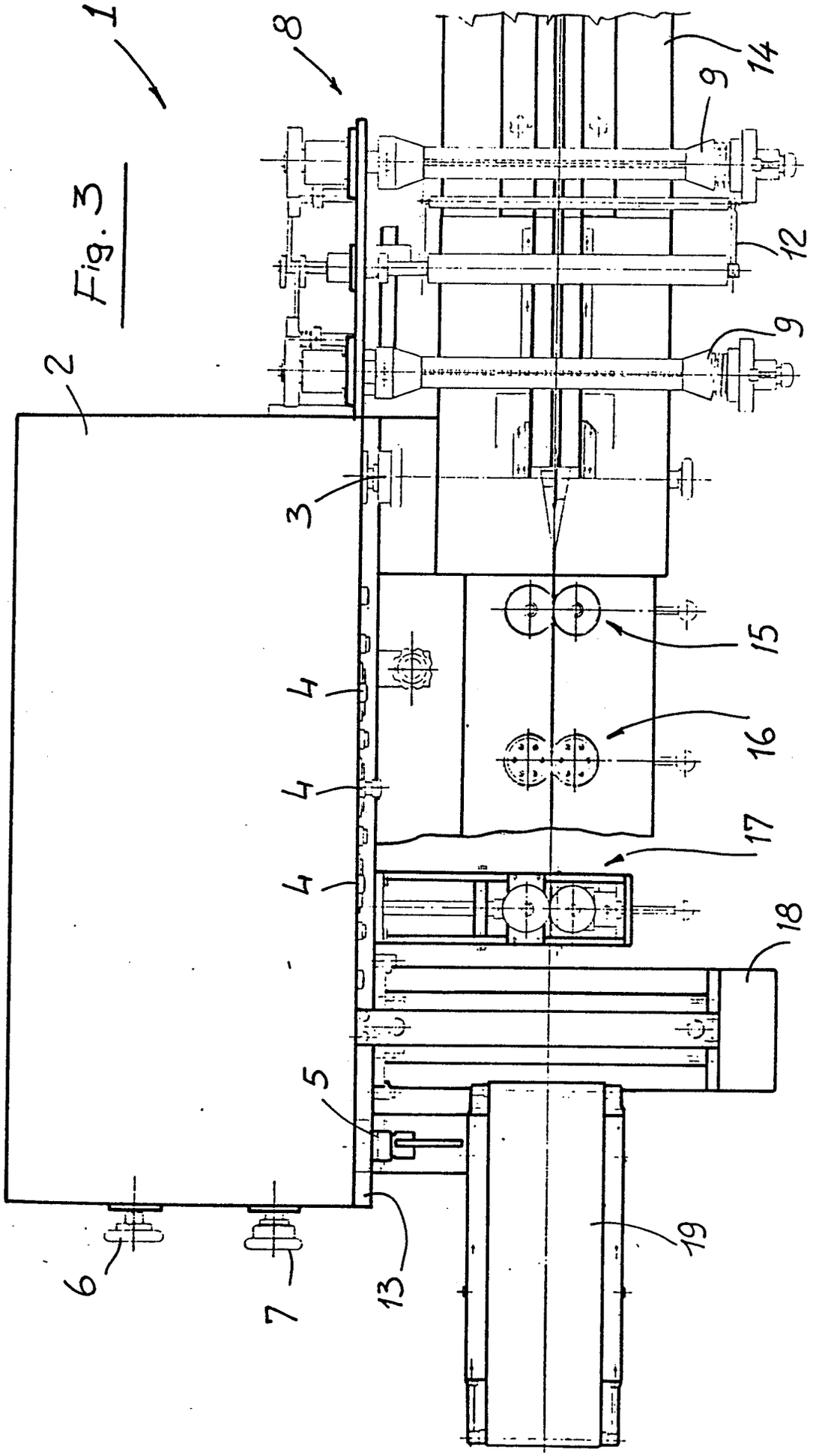


Fig. 2

Fig. 3



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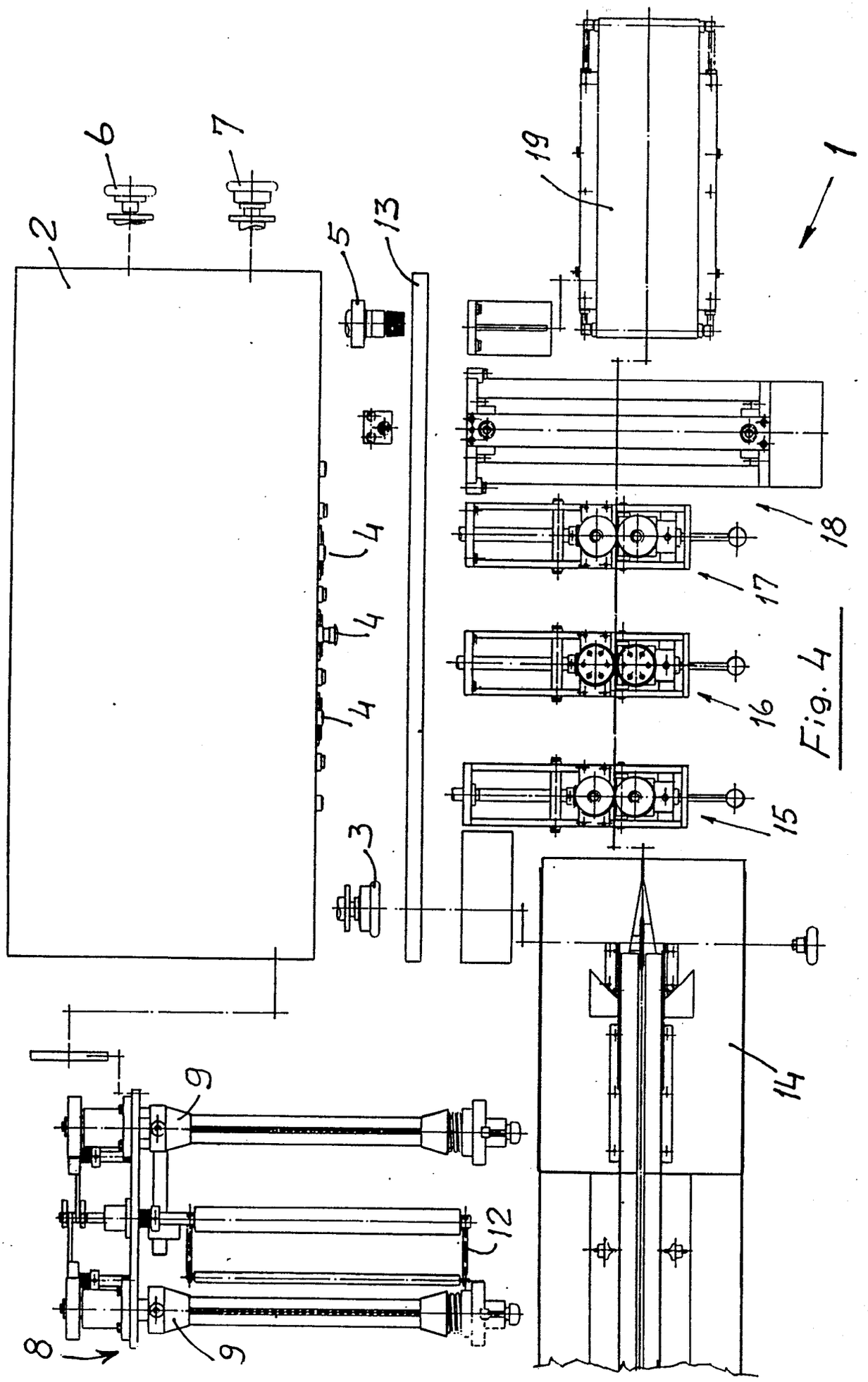

Fig. 4

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Fig.5