that is structurally and constructively simple and that is cost-effective.

These purposes according to the present invention are achieved by making a connection arrangement of at least two bodies of components of a movement mechanical automation group, with a removable constraining group, as outlined in claim 1.

Further characteristics are provided in the dependent claims.

The present invention provides connection arrangement including at least two bodies of components of a movement mechanical automation group to be connected each other and a constraining group for constraining said at least two bodies to each other in a removable manner. Each of said two bodies includes

- a face that, when said two bodies are in the connection configuration to each other, faces the corresponding face of the other one of said two bodies and that has two opposite perimeter portions,
- two sides that extend from said opposite perimeter portions and
- a pair of recesses each of which is defined along a respective said side and has a first flank and a second flank that are angled to each other and diverge outwards.

When said two bodies are in the connection configuration with each other, each recess of one of said two bodies defines, with a corresponding recess of the other one of said two bodies, a respective coupling seat with said constraining group. Said constraining group includes:

- at least one pair of locking clamps, each of

which is at least partially insertable into a respective said coupling seat and has a pair of first resting surfaces that, when said two bodies are in the connection configuration with each other, are in contact with said first flanks of the recesses defining said respective coupling seat, and a pair of second resting surfaces that, when said two bodies are in the connection configuration to each other, are in contact with said second flanks of said recesses defining the respective said coupling seat, spacing from each other said mutually facing faces of said two bodies by a non-null distance along a direction orthogonal to the lying plane defined by each of said faces so that said faces do not have portions in mutual contact with each other, and at least one connection member for the removable connection of said locking clamps to each other.

The features and the advantages of a connection arrangement of at least two bodies of components of a movement mechanical automation group, with a removable constraining group, according to the present invention shall become clearer by the following description, given as an example and not for limiting purposes, with reference to the attached schematic drawings, in which:

figure 1 is an axonometric view of a connection arrangement according to the present invention in the assembled configuration;

figure 2 is an axonometric and exploded view of the connection arrangement of figure 1;

figure 3A is a front view of figure 1;

figure 3B shows a detail of figure 3A in an enlarged scale;

figure 4 is a side view of figure 1;

figure 5 is a section view according to the plane V-V of figure 4;

figure 6 is a section view according to the plane VI-VI of figure 4;

figure 7 is a section view according to the plane VII-VII of figure 4;

figure 8 is a section view according to the plane

CLAIMS

1) Connection arrangement ~~(10)~~ comprising at least two bodies ~~(11a, 11b)~~ of components of a movement mechanical automation group to be connected each other and a constraining group ~~(12)~~ for constraining said at least two bodies ~~(11a, 11b)~~ to each other in a removable manner, characterised in that each of said two bodies comprises

- a face ~~(13a, 13b)~~ that, when said two bodies ~~(11a, 11b)~~ are in the connection configuration to each other, faces the corresponding face ~~(13a, 13b)~~ of the other one of said two bodies ~~(11a, 11b)~~ and that has two opposite perimeter portions,

- two sides that extend from said opposite perimeter portions and

- a pair of recesses ~~(14a, 15a; 14b, 15b)~~ each of which is defined along a respective said side and has a first flank ~~(140a, 150a; 140b, 150b)~~ and a second flank ~~(141a, 151a; 141b, 151b)~~ that are angled to each other and diverge outwards,

wherein, when said two bodies ~~(11a, 11b)~~ are in the connection configuration with each other, each recess ~~(14a, 15a; 14b, 15b)~~ of one of said two bodies ~~(11a, 11b)~~ defines, with a corresponding recess ~~(14a, 15a; 14b, 15b)~~ of the other one of said two bodies ~~(11a, 11b)~~, a respective coupling seat with said constraining group ~~(12)~~,

and in that said constraining group ~~(12)~~ comprises:

- at least one pair of locking clamps ~~(18, 19)~~, each of which is at least partially insertable into a respective said coupling seat and has a pair of first resting surfaces ~~(180, 181; 190, 191)~~ that, when said

two bodies ~~(11a, 11b)~~ are in the connection configuration with each other, are in contact with said first flanks ~~(140a, 140b; 150a, 150b)~~ of the recesses ~~(14a, 14b; 15a, 15b)~~ defining said respective coupling seat, and a pair of second resting surfaces ~~(182, 183; 192, 193)~~ that, when said two bodies ~~(11a, 11b)~~ are in the connection configuration to each other, are in contact with said second flanks ~~(141a, 141b; 151a, 151b)~~ of said recesses ~~(14a, 14b; 15a, 15b)~~ defining the respective said coupling seat, spacing from each other said mutually facing faces ~~(13a, 13b)~~ of said two bodies ~~(11a, 11b)~~ by a non-null distance ~~(d)~~ along a direction orthogonal to the lying plane ~~(Pa, Pb)~~ defined by each of said faces ~~(13a, 13b)~~ so that said faces ~~(13a, 13b)~~ do not have portions in mutual contact with each other,

and at least one connection member ~~(20)~~ for the removable connection of said locking clamps ~~(18, 19)~~ to each other.

2) Connection arrangement ~~(10)~~ according to claim 1, characterised in that said connection member ~~(20)~~ is housed with clearance in a corresponding containing seat ~~(21)~~ defined by at least one groove ~~(22a, 22b)~~ obtained in at least one of said two bodies ~~(11a, 11b)~~ and that passes between the respective said two opposite perimeter portions.

3) Connection arrangement ~~(10)~~ according to claim 1 or 2, characterised in that said second resting surfaces ~~(182, 183; 192, 193)~~ of each of said locking clamps ~~(18, 19)~~ each define a resting plane that is angled with respect to the resting plane defined by the respective said first resting surfaces ~~(180, 181; 190,~~

~~191)~~ of said locking clamp ~~(18, 19)~~, with an angling substantially corresponding to that between said first flank ~~(140a, 140b; 150a, 150b)~~ and said second flank ~~(141a, 141b; 151a, 151b)~~ of the corresponding said recesses ~~(14a, 14b; 15a, 15b)~~ defining said respective coupling seat.

4) Connection arrangement ~~(10)~~ according to one or more of the previous claims, characterised in that said first flank ~~(140a, 150a; 140b, 150b)~~ of each of said recesses ~~(14a, 15a; 14b, 15b)~~ is flat and substantially parallel to the lying plane ~~(Pa, Pb)~~ of said face ~~(13a, 13b)~~ of the corresponding said body ~~(11a, 11b)~~ and in that said first resting surfaces ~~(180, 181; 190, 191)~~ of each of said clamps ~~(18, 19)~~ are flat, opposite and parallel to each other, wherein, when said bodies ~~(11a, 11b)~~ are in the connection configuration, the lying planes ~~(Pa, Pb)~~ of said faces ~~(13a, 13b)~~ are substantially parallel to each other.

5) Connection arrangement ~~(10)~~ according to one or more of the previous claims, characterised in that said second flank ~~(141a, 151a; 141b, 151b)~~ of each of said recesses ~~(14a, 15a; 15b, 15b)~~ forms an acute angle with the corresponding said first flank ~~(140a, 150a; 140b, 150b)~~.

6) Connection arrangement ~~(10)~~ according to one or more of the previous claims, characterised in that said second resting surfaces ~~(182, 183; 192, 193)~~ of each of said locking clamps ~~(18, 19)~~ are U or V joined each other and extend between said corresponding first resting surfaces ~~(180, 181; 190, 191)~~.

7) Connection arrangement ~~(10)~~ according to one or more of the previous claims, characterised in that the

maximum distance ~~(H)~~ between said first resting surfaces ~~(180, 181; 190, 191)~~ of each of said locking clamps ~~(18, 19)~~ is greater than the sum of the maximum distance ~~(ha, hb)~~ that said face ~~(13a, 13b)~~ of each of said two bodies ~~(11a, 11b)~~ has with respect to the respective first flanks ~~(140a, 150a; 140b, 150b)~~ of the corresponding said recesses ~~(14a, 15a; 14b, 15b)~~.

8) Connection arrangement ~~(10)~~ according to one or more of the previous claims, characterised in that said at least one groove ~~(22a, 22b)~~ is open at said face of the corresponding body ~~(11a, 11b)~~.

9) Connection arrangement ~~(10)~~ according to claim 8, characterised in that each of said two bodies ~~(11a, 11b)~~ comprises at least one said groove ~~(22a, 22b)~~, wherein, when said two bodies are in the connection configuration to each other, said at least one groove ~~(22a, 22b)~~ of one of said two bodies ~~(11a, 11b)~~ faces the at least one groove ~~(22a, 22b)~~ of the other one of said two bodies ~~(11a, 11b)~~ so as to define said containment seat ~~(21)~~.

10) Connection arrangement ~~(10)~~ according to claim 9, characterised in that each of said two bodies ~~(11a, 11b)~~ comprises a plurality of said grooves ~~(22a, 22b)~~ arranged parallel to each other and at a defined distance from each other, wherein, when said two bodies are in the connection configuration to each other, at least a part of the grooves ~~(22a, 22b)~~ of one of said two bodies ~~(11a, 11b)~~ faces at least one corresponding part of the grooves ~~(22a, 22b)~~ of the other one of said two bodies ~~(11a, 11b)~~ so as to define a plurality of said containment seats ~~(21)~~.

11) Connection arrangement ~~(10)~~ according to one or

more of the previous claims, characterised in that said constraint group ~~(12)~~ also comprises at least one tongue ~~(27, 27')~~ removably insertable into said at least one groove ~~(22a, 22b)~~ of each of said at least two bodies ~~(11a, 11b)~~.

12) Connection arrangement ~~(10)~~ according to claim 11, characterised in that said at least one tongue ~~(27)~~ comprises an axial through hole ~~(28)~~ for the passage in it of said at least one connection member ~~(20)~~.

13) Connection arrangement ~~(10)~~ according to one or more of the previous claims, characterised in that said at least one connection member ~~(20)~~ consists of a threaded stem ~~(23)~~ the opposite ends of which are associated with the clamps ~~(18, 19)~~ of said at least one pair of clamps.