



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 081 265 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
07.03.2001 Bulletin 2001/10

(51) Int. Cl.⁷: **D06C 11/00**

(21) Application number: **00203014.6**

(22) Date of filing: **29.08.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **06.09.1999 IT MI990542 U**

(71) Applicant: **Comet S.p.A.**
59013 Oste di Montemurlo-Prato (IT)

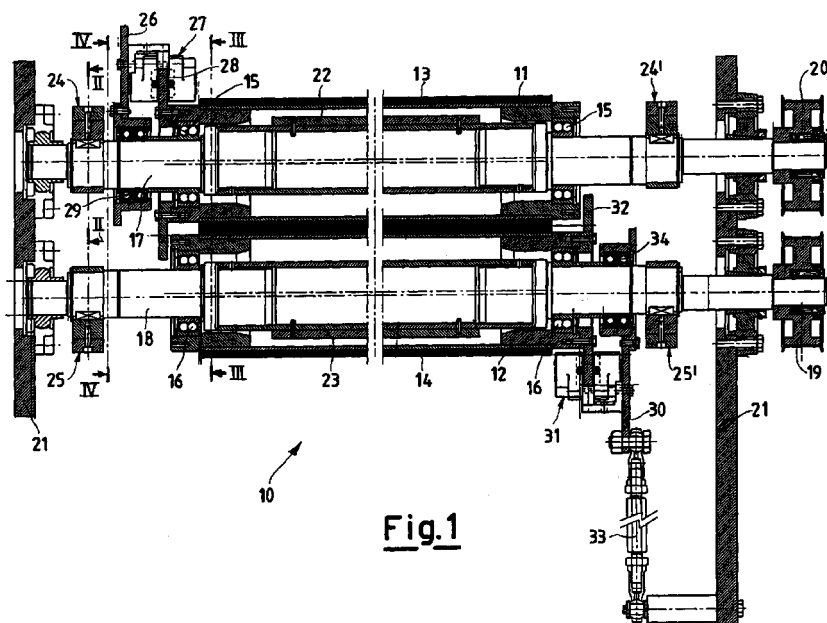
(72) Inventor: **Denti, Alessandro**
59100 Prato - PO (IT)

(74) Representative:
Parisi, Luigi et al
Ing. Barzanò & Zanardo Milano S.p.A.
Via Borgonuovo 10
20121 Milano (IT)

(54) **A raising machine**

(57) A raising machine, comprising at least a pair of raising cylinders (11, 12) each of which is constituted of an internally hollow cylinder fitted with an outer raising coat (13, 14), where both of the raising cylinders (11, 12) are mounted in a freewheeling manner on their rel-

ative shafts (17, 18), which are independently controlled in their rotation, and where each of the raising cylinders (11, 12) is braked by a relative disc brake (27, 31).



EP 1 081 265 A2

Description

[0001] This invention refers to a raising machine.

[0002] Raising is known to be a process which allows conferring a fabric a hairy and velvety appearance, a process which thus affords lending the fabric a greater softness, enhance its color qualities, and eventually hiding its weft and warp.

[0003] In order to perform this operation, the fabric is passed, while resting on appropriate entraining cylinders or moved by similar means, through a series of raising cylinders.

[0004] The raising cylinders are fitted with an outer raising coat, which means they are coated by a ribbon with a multiple number of projecting metallic tips or needles.

[0005] Some raising machines are known to have one or more raising units, each of which is constituted of four raising cylinders.

[0006] The raising cylinders are mounted in a free-wheeling manner on their respective shafts, which are in turn controlled in a rotating motion by a motor and equipped with firmly attached eccentric elements.

[0007] This particular arrangement of the machine allows, precisely because of the presence of the eccentric elements, to induce the raising cylinders to perform an undulating motion in addition to their rotating motion, so as to generate a composite motion of the same.

[0008] Such a composite motion causes the fabric being processed to be engaged and disengaged in an irregular manner, thus leading to an effective raising treatment.

[0009] These machines are also fitted with a braking system for the raising cylinders which is, for each pair of upper and lower raising cylinders, constituted of a shoe brake that can be set up or adjusted by loosening or tightening an appropriate nut.

[0010] However, this system is difficult to adjust because of the imprecision of the screw's pulling action, and above all because of the heating which occurs as a result of the constant sliding motion.

[0011] The purpose of this invention is therefore to produce a raising machine equipped with braking devices for the raising cylinders capable of working in an optimal manner under all machine operating conditions.

[0012] A further purpose of this invention is to produce a raising machine whose braking system is simple, safe and reliable.

[0013] These and other purposes are achieved by a raising machine of a type comprising at least a pair of raising cylinders, each of which is constituted of an internally hollow cylinder with an outer raising coat, where said raising cylinders are mounted in a free-wheeling manner on their respective and independently controlled rotating shafts, characterized in that each of the mentioned cylinders is braked by a disc brake.

[0014] Further characteristics of the invention are

outlined in the claims attached to this application.

[0015] Additional purposes and advantages of this invention will become clear from the description and the attached drawings to follow, which are supplied for purely exemplifying and non-limiting purposes, in which:

- Figure 1 shows a pair of raising cylinders, belonging to the raising machine according to this invention,
- Figure 2 shows a cross section along the plane II-II of Figure 1;
- Figure 3 shows a cross section along the plane III-III of Figure 1;
- Figure 4 shows a cross section along the plane IV-IV of Figure 1;
- Figure 5 shows an axonometrically exploded view of a group of four raising cylinders, belonging to the raising machine according to this invention.

[0016] With particular reference to Figure 1, the raising machine according to this invention is indicated in its overall form by the reference number 10.

[0017] In greater detail, Figure 1 shows a pair of raising cylinders 11 and 12, belonging to the raising machine 10.

[0018] Each of the raising cylinders 11 and 12 is constituted of an internally hollow cylinder provided with an outer raising coat, as indicated by the reference numbers 13 and 14, respectively.

[0019] The raising cylinders 11 and 12 are mounted in a freewheeling fashion on their respective shafts 17 and 18, by the interposition of the bearings 15 and 16 which are eccentric with respect to the shafts 17 and 18.

[0020] The shafts 17 and 18 are in turn splined to a support 21 and controlled in their rotation by a motor (not shown) acting over toothed pulleys 19 and 20.

[0021] The shafts 17 and 18 are each fitted with a counterweight 22 and 23 which covers part of their longitudinal dimension, as well as with a number of eccentric counterweights 24, 24', 25 and 25' at their extremities.

[0022] In the raising machine of this invention, each of the raising cylinders 11 and 12 is braked by a disc brake, indicated by the reference numbers 27 and 31, respectively.

[0023] The disc brake 27 is fastened to a support 26 and acts on a disc 28 to brake the raising cylinder 11, while the disc brake 31 is fastened to a support 30 and acts on a disc 32 to brake the raising cylinder 12. A rod 33 is provided for adjusting the angular position of each of the disc brakes 27 and 31.

[0024] A similar braking system is obviously also applied to the cylinders 11b and 12b.

[0025] As it is visible from figure 3, the disc brake 27 presents the mentioned support 26, on which a plurality of pads 35 is mounted that act, by means of friction, on the disc 28.

[0026] The operation of the raising machine of this

invention is briefly illustrated in the following description.

[0027] The fabric to be subjected to a raising process, indicated by the number 50, is passed in the direction of the arrow F and across the raising cylinders 11, 11b, 12 and 12b, so as to allow the raising coats 13 and 14 to act on the same. 5

[0028] Because the raising cylinders 11 and 12 are mounted on their shafts 17 and 18 in a freewheeling fashion, they exhibit an oscillating radial motion in addition to their rotating motion, thus resulting in a composite motion which allows an effective raising process. 10

[0029] In order to brake the raising cylinders 11 and 12, it suffices to actuate the disc brakes 27 and 31, which act on the discs 28 and 32, respectively, thus achieving a uniform and reliable braking action under all operating conditions of the raising machine. 15

[0030] The above description clearly outlines the characteristics, advantages and operating process of the raising machine as an object of this invention.

[0031] It is also clear that numerous variants may be applied to the raising machine as an object of this invention, without thereby abandoning the innovative principles inherent in the inventive idea. 20

[0032] Finally, in the practical implementation of the invention, the materials, shapes and dimensions of the details described above may be of any type depending on the requirements, and the same may be substituted by others of a technically equivalent kind. 25

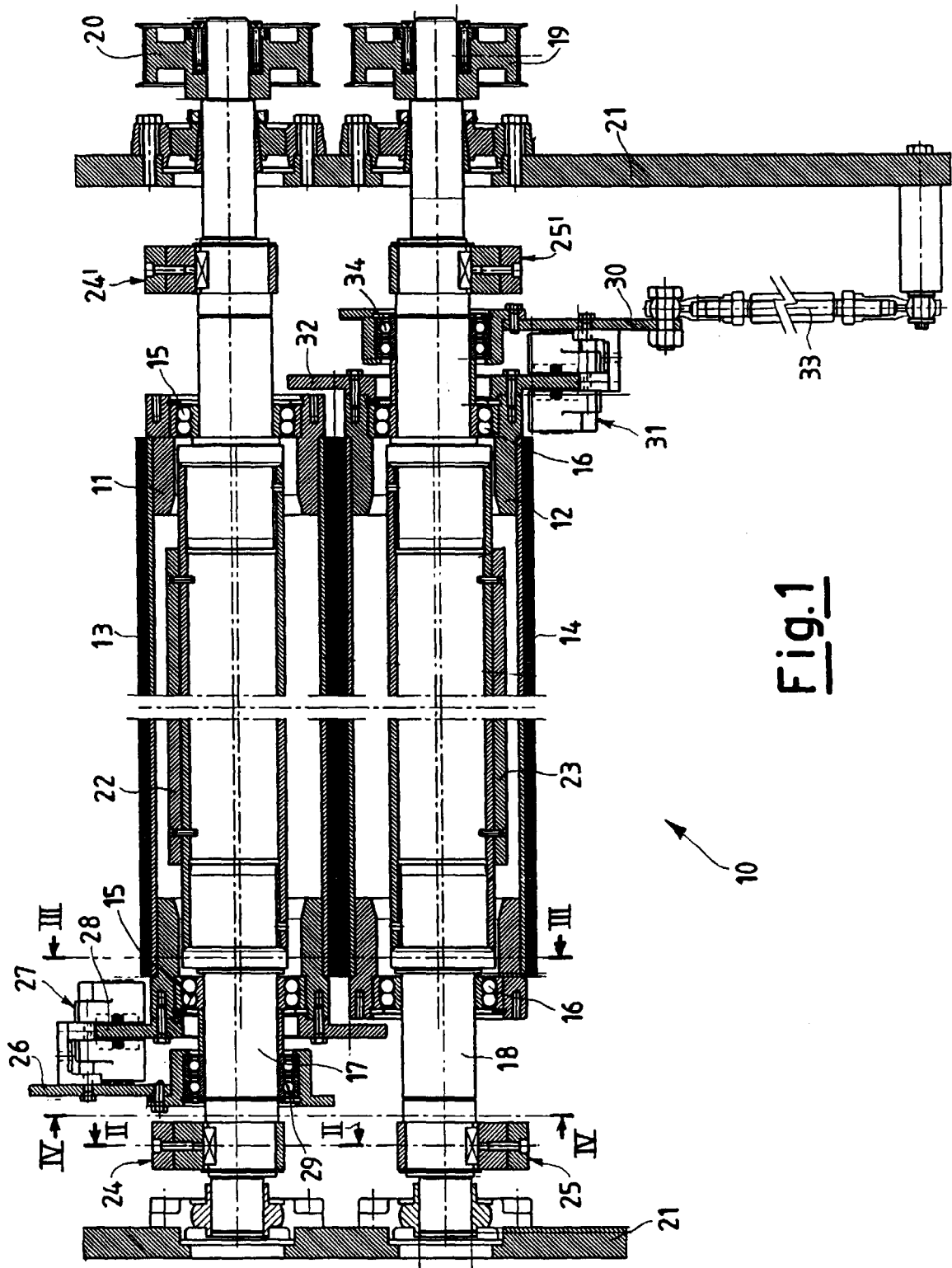
Claims

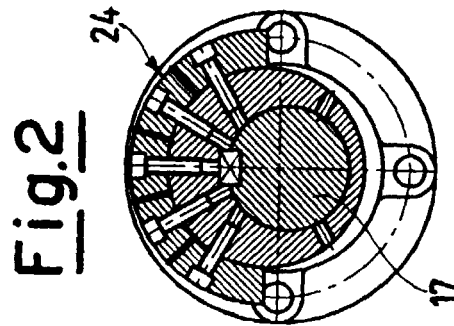
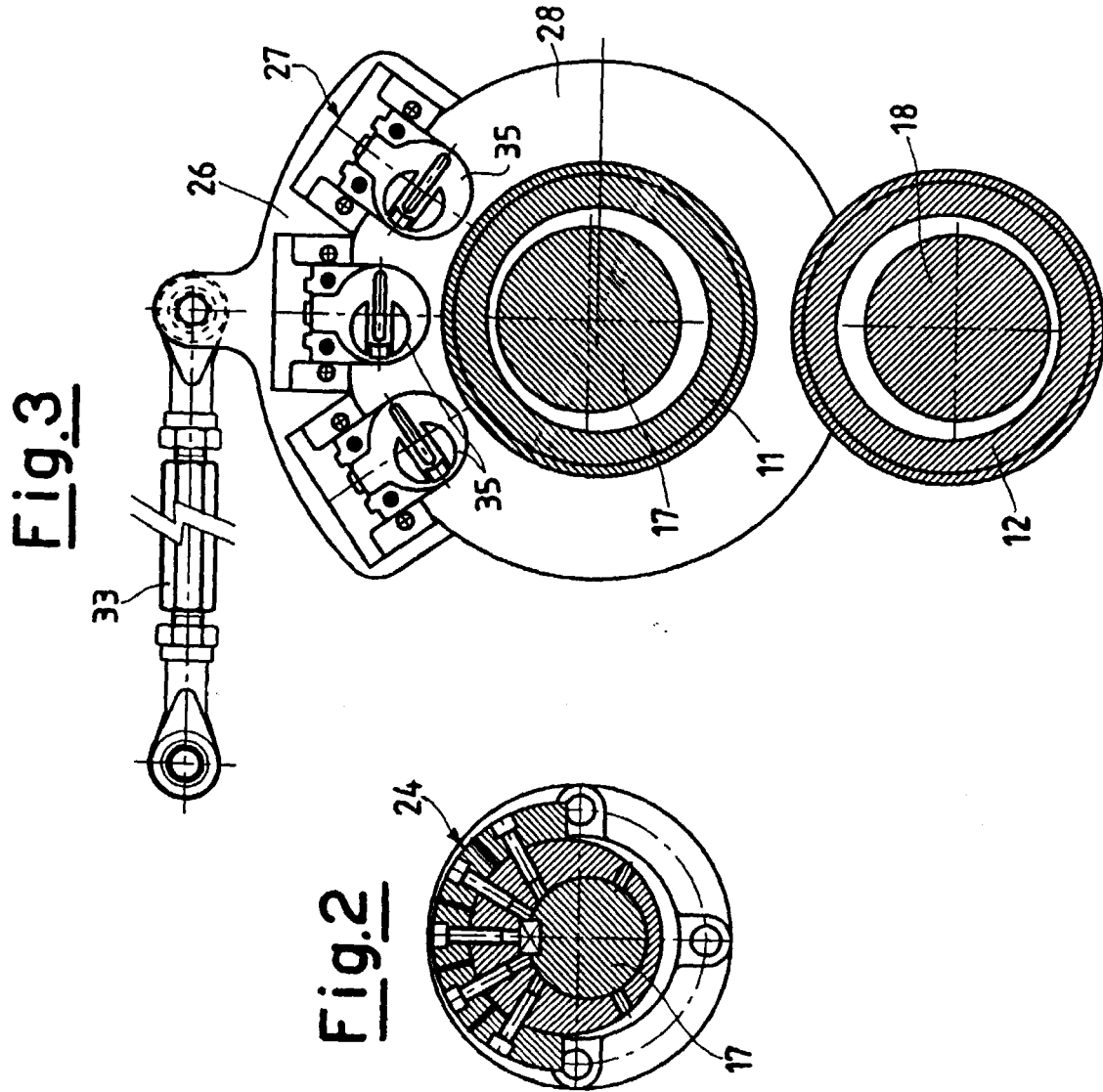
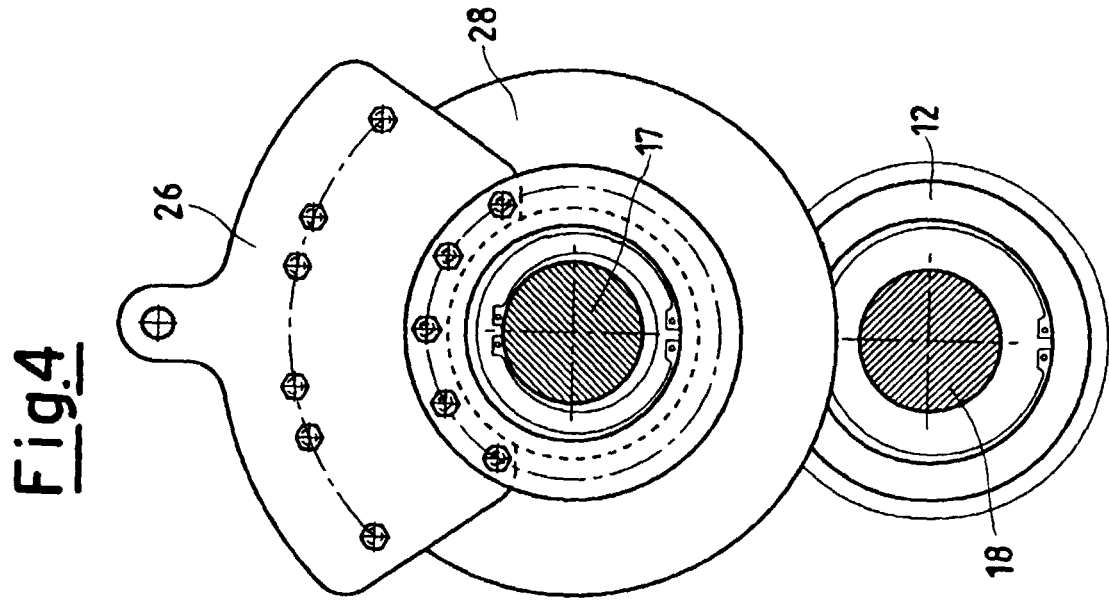
30

1. A raising machine of a type comprising at least a pair of raising cylinders (11, 12), each constituted of an internally hollow cylinder fitted with an outer raising coat (13, 14), where the mentioned raising cylinders (11, 12) are mounted in a freewheeling fashion on their respective, independently controlled rotating shafts (17, 18), characterized in that each of the above raising cylinders (11, 12) is braked by a disc brake (27, 31). 35 40
2. A raising machine according to claim 1, characterized in that the mentioned shafts (17, 18) are each fitted with a counterweight (22, 23) covering at least part of their longitudinal dimension. 45
3. A raising machine according to claim 2, characterized in that the above shafts (17, 18) are each fitted with eccentric counterweights (24, 24', 25 and 25') at their extremities. 50
4. A raising machine according to claim 3, characterized in that the mentioned shafts (17, 18) are splined to a support (21) and controlled in their rotating motion by a motor acting through toothed pulleys (19, 20). 55
5. A raising machine according to claim 1, character-

ized in that both of the above raising cylinders (11, 12) are mounted in a freewheeling fashion on their respective shafts (17, 18) by the interposition of the relative bearings (15, 16).

6. A raising machine according to claim 1, characterized in that a rod (33) is provided for adjusting the angular position of each of the disc brakes (27, 31).





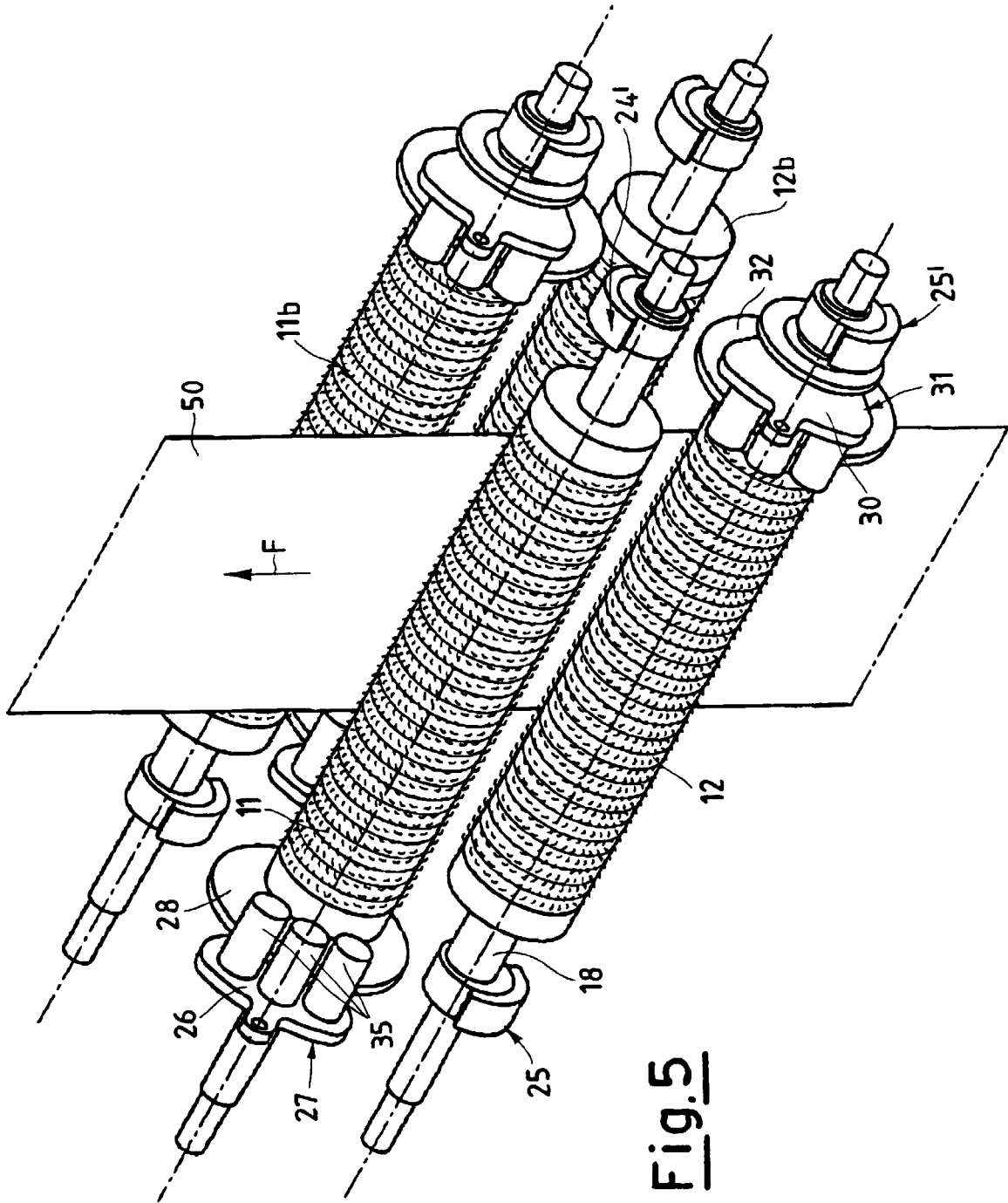


Fig. 5