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(54) **EXERCISE MACHINE FOR HANGING EXERCISE**

(57) The present invention relates to an exercise machine comprising a horizontally arranged quasi-ladder comprising handles, the quasi-ladder being adapted to rotate like a treadmill, and four legs (1) on which the quasi-ladder is arranged. One can be hanging in the handles of the ladder and move between the handles of the ladder while hanging. The exercise machine can further comprise a frame supporting the quasi-ladder, the quasi-ladder being adapted to rotate relative to the frame. A basket (2) is suspended in the frame via lines (3), so that one can move between the handles of the ladder while hanging sitting in the basket.

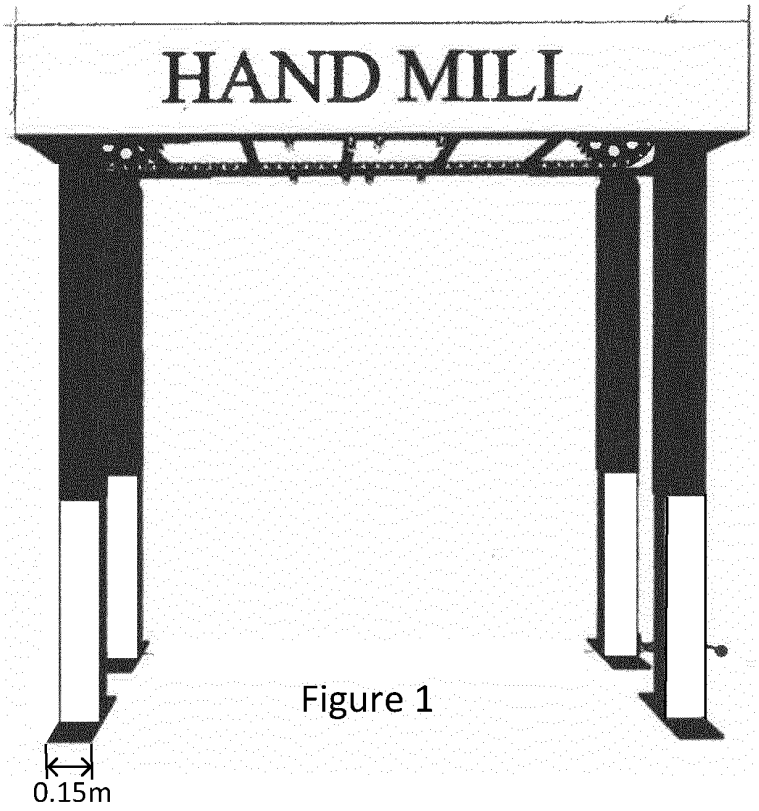

Figure 1

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Description

TECNICAL FIELD

[0001] The present invention relates to an exercise machine with which one can train all his upper muscles.

BACKGROUND

[0002] It is known with exercise machines comprising a horizontally arranged quasi-ladder comprising handles, wherein the quasi-ladder is arranged to rotate like a treadmill, and legs on which the quasi-ladder is arranged, whereby one can be hanging and move between the handles of the ladder.

[0003] TW 201417860 A illustrates an example of such a system.

SUMMARY

[0004] The present invention relates to an exercise machine comprising

a horizontally arranged quasi-ladder comprising handles, the quasi-ladder being adapted to rotate like a treadmill,

legs on which the quasi-ladder is arranged,

whereby one can be hanging in the handles of the ladder and move between the handles of the ladder while hanging,

the exercise machine further comprising a frame supporting the quasi-ladder, the quasi-ladder being adapted to rotate relative to the frame,

wherein a basket (2) is suspended in the frame via lines (3), so that one can move between the handles of the ladder while hanging sitting in the basket.

[0005] The exercise machine may further have one or more of the features specified in the dependent claims.

[0006] In accordance with a preferred option, the lines (3) are an elastic band, for example a rubber band.

[0007] The legs of the exercise machine may have adjustable height, so that you can raise and lower the machine or tilt it, whereby training in different positions is possible.

[0008] The legs may have motorized lifting systems.

[0009] The legs may have hydraulic lifting systems.

[0010] According to an embodiment, the exercise machine further comprises motors such as electric motors arranged to drive the quasi-ladder. The speed of the motors can be adjustable so that one can make the quasi-ladder rotate slower or faster. The electric motors may be arranged to rotate a respective main shaft, where each main shaft forms a gear wheel and where the quasi-ladder comprises a chain which engages in the gearwheels. The electric motors may be arranged to rotate a respective main shaft, the respective main shaft forming a coil where the quasi-ladder comprises a belt driven by the coil.

[0011] In order to understand how the machine works, you should imagine a treadmill. You walk on the treadmill and start by walking or running at different speeds.

[0012] The exercise machine is a horizontally arranged quasi-ladder that you can hang from and just like the treadmill moves when you walk, the step handles move so that you can hanging move step by step. The handmill naturally works with ordinary power. With the help of, for example, two electric motors, the horizontal, potentially tiltable ladder rolls.

[0013] The motors, such as the electric motors, rotate the main shaft of the exercise machine which causes the ladder to roll.

[0014] The exercise machine can also be made to rotate manually. A trainer can then rotate the quasi-ladder during ongoing training. The trainer can then pull around the quasi-ladder via the handles. Alternatively, the quasi-ladder comprises a separate detachable handle for manual rotation of the quasi-ladder, for example by means of a crank removably mountable for rotating one of the main shafts.

[0015] The height of the training machine is variable and you can adjust yourself and create the possibility that all people with different ages and different sizes can train.

[0016] The exercise machine has aids, which means opportunities are given to beginners, seniors or anyone to be able to train from day one without any problems. Aids are lines for example in the form of rubber bands that dampen the weight to 70%.T

[0017] With the exercise machine you can train the following muscles: hand, arm, shoulders, back, stomach etc.

[0018] It is great for the back and also the legs. It is great training for everyone who suffers from herniated discs etc. But the whole body is trained, of course.

SHORT DESCRIPTION OF DRAWING

[0019] 1-6 shows the exercise machine.

Figures 7-8 show a part of the exercise machine comprising a quasi-ladder and a frame which supports the quasi-ladder.

Figures 9-11 show examples of embodiments for operating the exercise machine.

Figures 12-13 show examples of detailed solutions in the exercise machine.

DETAILED DESCRIPTION

[0020] Figures 1-6 show the exercise machine.

[0021] The exercise machine comprises two main parts; body and legs.

[0022] The exercise machine comprises a horizontally arranged quasi-ladder comprising handles, where the quasi-ladder is arranged to rotate like a treadmill.

[0023] The exercise machine comprises legs 1 on which the quasi-ladder is arranged, whereby one can move hanging between the handles of the ladder. The exercise machine further comprises a frame 9 which supports the quasi-ladder, wherein the quasi-ladder is arranged to rotate relative to the frame 9. A basket 2 is in some of the figures suspended in the frame 9 via lines 3, so that one can move hanging between the handles of the ladder sitting in the basket.

[0024] The frame includes front, rear and side beams. The lines are arranged at the side beams of the frame.

[0025] At least one line is arranged at each side beam. Preferably, there are several lines support the basket. A plurality of lines are then arranged at the respective side beam.

[0026] The figures also illustrate coupling rings 4 in which the lines can be suspended. Preferably, a line is mounted at the respective coupling ring. Of course, there are also other types of mounting devices obvious to those skilled in the art for hanging the lines. The lines 3 are preferably detachably mounted to the frame, for example via the coupling rings 4.

[0027] The lines 3 can be suspended in the frame in such a way that the mounting devices can move along a part of the extent of the respective side beam. Alternatively, the mounting devices are fixedly arranged at the frame. In the illustrated example, each side beam is provided with an elongate recess, wherein the mounting devices are arranged at the frame via the recess. The mounting devices can, for example, be slidably mounted at a rod which runs inside the respective recess in the longitudinal direction of the recess.

[0028] The frame 9 is preferably reinforced with a stabilizer structure 8. The stabilizer structure can comprise front and/or rear stabilizer 8 and/or stabilizer 8 on the sides of the frame. In the illustrated example, the stabilizer structure is a reinforcing frame structure located inside the frame 9. The reinforcing frame structure may be arranged to abut against the frame or be mounted so that there is a distance between the frame 9 and the stabilizer structure.

[0029] The attachment of the lines to the frame as described above can then be formed either in the frame 9 or in the stabilizer structure 8.

[0030] In the illustrated example, the exercise machine further comprises side plates 7a and front and rear plates 7b, which surround the rotating quasi-ladder.

[0031] The legs 1 of the exercise machine are mounted to the frame via leg attachments 5.

[0032] The height of the legs can be adjustable. The legs may, for example, contain two or more telescopic parts. In an embodiment, the height of the legs can be adjusted by manually raising / lowering the legs. In an embodiment, adjustment of the height of the legs can be motorized. The height of the legs can then be adjusted by means of a motor or a hydraulic device. In an example, the motorized raising/lowering is remotely controlled by a user. The motorized raise/lower can also or alternatively be controlled in accordance with a preset training program. Examples of this will be given later.

[0033] The height of the legs can be individually adjustable and/or pairwise adjustable and/or arranged to be adjusted in a coordinated manner for all legs. With the pairwise raising/lowering of the legs, the exercise machine can be moved between different tilting positions. Preferably, the pairwise raising/lowering is performed so that the quasi-ladder have a tilt angle in its longitudinal extent. In this way, uphill and/or downhill slopes are achieved for those who train. You can thus train with the exercise machine in different tilt positions. The pairwise increase of the leg height can be made to tilt the quasi-ladder back and forth while the quasi-ladder rotates. For example, the exercise machine can be set up to tilt back and forth according to a preselected training schedule. The preset training schedule may additionally or alternatively comprise different speeds of rotation of the quasi-ladder.

[0034] A control unit can thus be arranged to control a tilt angle of the quasi-ladder during training in accordance with a predetermined training program. Alternatively or in addition, the control unit may be arranged to control the speed of the quasi-ladder rotation, i.e. to control the motor speed during training in accordance with the predetermined training program. The predetermined training program can in one embodiment be determined by the user via a user interface.

[0035] The pairwise tilting of the quasi-ladder described above can also be achieved in other ways than by raising and lowering the legs in pairs. In one example, the frame is tiltable. In one example, the stabilizing structure in the frame is tiltable, i.e., the stabilizing structure 8 is arranged to tilt relative to the outer frame 9. For example, at least one hydraulic device may be arranged between frame and stabilizer structure and arranged to provide tilting of the stabilizer structure relative to the frame.

[0036] In the example illustrated in Figs. 1-6, the exercise machine stands on a surface. In an alternative embodiment, the legs are attached to the ceiling, with the exercise machine hanging down from the ceiling. Regardless of whether the exercise machine stands on a surface or is suspended from the ceiling, the design of the exercise machine is the same. With the adjustable length of the legs, for example, when the machine suspended from the ceiling is not used, the legs can be moved to their shortest position, whereby the exercise machine hangs close to the ceiling. When the exercise machine is to be used, the machine can be hoisted down from the ceiling by extending the legs.

[0037] Figures 7 and 8 show a part of the exercise machine comprising quasi-ladder and frame supporting the

quasi-ladder. The quasi-ladder described herein functions as a conveyor belt which rotates between two main axes, where the conveyor belt itself is replaced by two chains or belts, and where elongate handles placed at a distance from each other extend between the two chains/belts. The end of each handle is arranged at the respective chain/band.

[0038] In the illustrated example, at least one motor 20 is arranged to rotate at least one of the main shafts 15, the respective main shaft forming a gear wheel 14 and the quasi-ladder comprising a main chain 11 engaging the teeth of the gear wheel 14.

[0039] In the solution illustrated herein, the drive of the main shaft 15 takes place by the motor 20 driving a small shaft 16 via a motor gear wheel 19. The rotation of the small shaft 16 drives a small chain 16, which drives small gearwheels 18 which engage the main shaft 15 to rotate it.

[0040] The exercise machine can alternatively be rotated manually. A trainer can then rotate the quasi-ladder during ongoing training. The trainer can then pull around the quasi-ladder via the handles. Alternatively, the quasi-ladder comprises a separate detachable handle for manual rotation of the quasi-ladder, for example by means of a crank removably mountable for rotating one of the main shafts. The main shaft can thus in an embodiment be driven manually.

[0041] In the figures, 13 indicates a ball bearing.

[0042] In an example, both main axles are driven by a respective motor. In an alternative embodiment, the drive arrangement described herein is replaced at one of the ends with a non-driving roller or the like.

[0043] In the figures, 12 further indicates handles of the quasi-ladder.

[0044] In an alternative embodiment, said at least one motor is arranged to rotate at least one of the main shafts, wherein at least one of the main shafts forms a coil where the quasi-ladder comprises a belt driven by the coil.

[0045] Thus, in accordance with this alternative embodiment, the main chain is replaced with a main belt. The ball bearing 14 may be replaced with a main sponsor. The small chain 17 can be replaced with a small belt. The small gearwheels 18 can be replaced with a small coil. The motor gear 19 can be replaced by a motor coil.

[0046] Figures 9-11 illustrate, in the same way as Figures 7-8, a part of the exercise machine comprising a quasi-ladder and a frame supporting the quasi-ladder. The quasi-ladder described herein functiona as a conveyor belt which rotates between two main axes, where the conveyor belt itself is replaced by two chains or belts, where elongate handles placed at a distance from each other extend between the two chains/belts. The end of each handle is arranged at the respective chain/belt.

[0047] In Figures 9-11, 11 indicates a main chain, 12 indicates a handle, 13 indicates a ball bearing, 14 indicates a gear wheel, 15 indicates a main shaft, 16 indicates a small shaft, 17 indicates a small chain, 22 indicates a small gear wheel, 19 indicates a motor gear and 20 indicates a motor.

[0048] Further illustrated, 31 illustrates a side plate. The side plate 31 may be the side plate mentioned in connection with Figures 1-6.

[0049] A support plate 32 extends in the illustrated example below and along the respective main chain 11. The gear wheels 14 are arranged to roll on the support plate 32. The support plate 32 may form part of the frame 9 or stabilizer structure 8 described in connection with Figures 1-6.

[0050] Furthermore, in the illustrated example, a partition plate 33 is arranged at least along a part of the extent of the exercise machine, wherein the partition plate is arranged between the gear wheel 14 and the small gear wheel 22.

[0051] Figures 12-13 illustrate an example of a mounting of a handle at the main chain. In the figures, 41 indicates the handle, 42 indicates a shaft for mounting to the main chain, 43 indicates a ball bearing, 44 indicates the main chain, 45 indicates a hole (for coupling to the shaft 42). The shaft 42 has a coupling groove 46. Clips 47 are used in the illustrated example for mounting the handle to the main chain.

Claims

1. Exercise machine comprising

   a horizontally arranged quasi-ladder comprising handles, the quasi-ladder being adapted to rotate like a treadmill,
   legs (1) on which the quasi-ladder is arranged, whereby one can be hanging in the handles of the ladder and move between the handles of the ladder while hanging,
   the exercise machine further comprising a frame supporting the quasi-ladder, the quasi-ladder being adapted to rotate relative to the frame,
   wherein a basket (2) is suspended in the frame via lines (3), so that one can move between the handles of the ladder while hanging sitting in the basket.

2. Exercise machine according to claim 1, wherein the lines (3) are an elastic band, for example a rubber band.

3. Exercise machine according to any of the preceding claims, wherein the legs (1) of the exercise machine have adjustable hight, so that you can raise and lower the machine or tilt it, whereby training in different positions is possible.

4. Exercise machine according to claim 3, wherein the legs have motorized lifting systems.

5. Exercise machine according to claim 3, wherein the

legs have hydraulic lifting systems.

6. Exercise machine according to claim 3, wherein the legs are manually adjustable.

7. Exercise machine according to any of the preceding claims, wherein the quasi-ladder is tiltable.

8. Exercise machine according to claim 7, wherein a control unit is arranged to control a tilting angle of the quasi-ladder during exercise in accordance with a predetermined exercise program.

9. Exercise machine according to any of the preceding claims, wherein it is selectable to either place the exercise machine on a support surface or to mount the ends of the legs in a ceiling.

10. Exercise machine according to any of the preceding claims, further comprising at least one motor, such as an electric motor arranged to drive the rotation of the quasi-ladder.

11. Exercise machine according to claim 10, wherein the speed of the motor is adjustable so as to adjust the rotational speed of the quasi-ladder.

12. Exercise machine according to any of the claims 10-11, wherein said at least one motor is arranged to rotate at least one of the main shafts, wherein each main shaft forms a gear wheel and wherein the quasi-steps comprise a chain which engages in the gears wheel.

13. Exercise machine according to any of the claims 10-11, wherein said at least one motor is arranged to rotate at least one of the main shafts, wherein at least one of the main shafts forms a coil and wherein the quasi-ladder comprises a belt driven by the coil.

14. Exercise machine according to any of the preceding claims, wherein the quasi-ladder is arranged to be rotated manually

15. Exercise machine according to claim 14, wherein the quasi-ladder further comprises a separate detachable handle for manual rotation of the quasi-ladder.

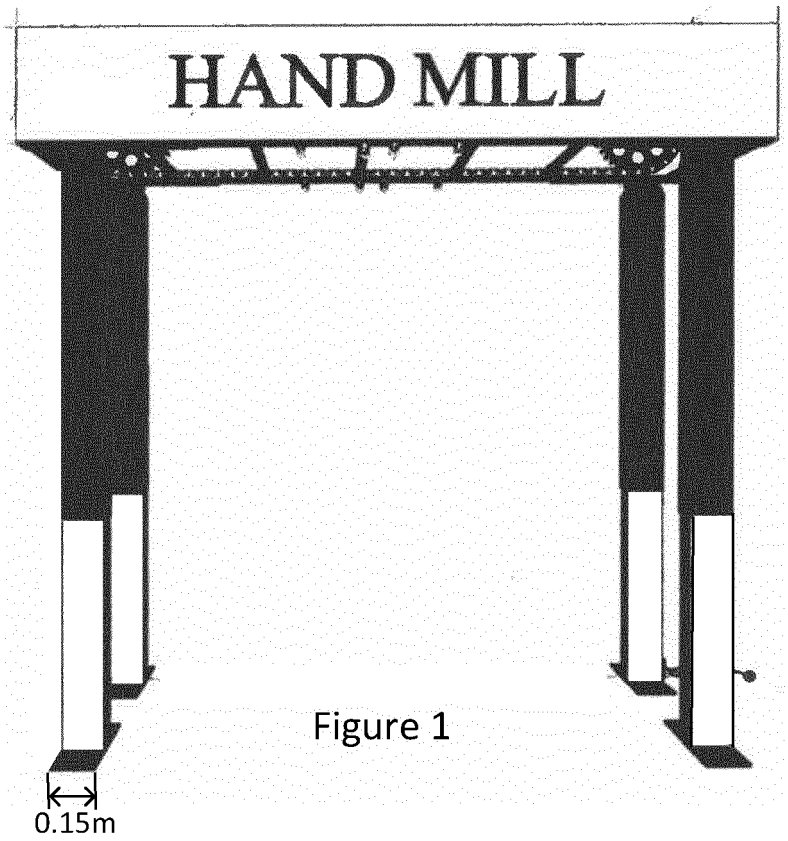

Figure 1

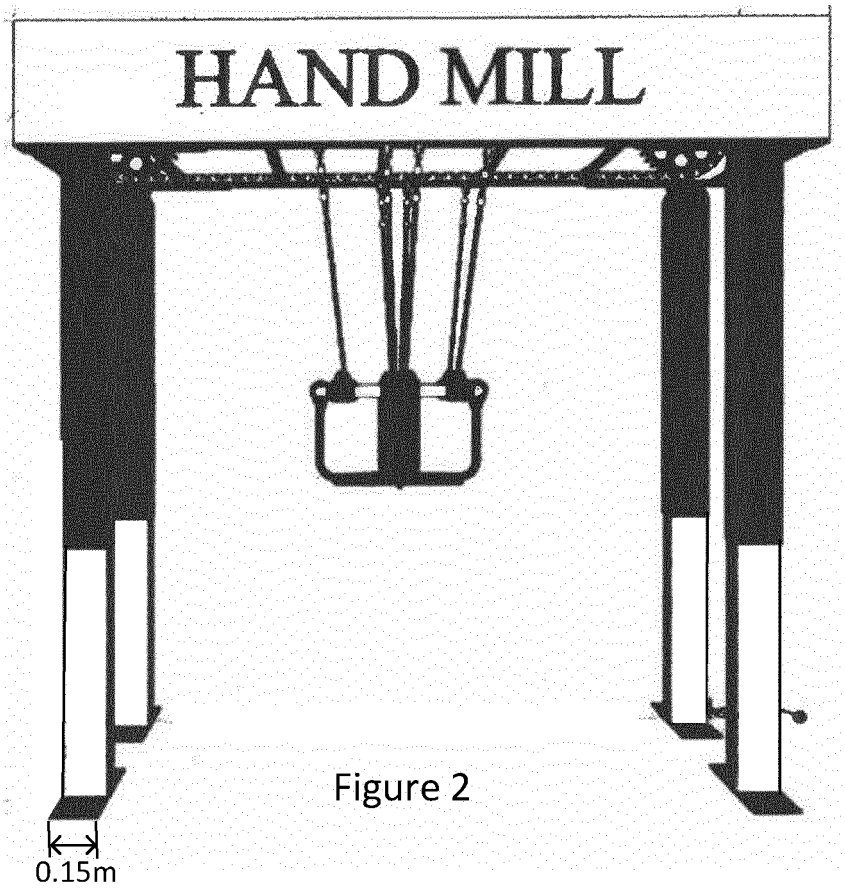

Figure 2

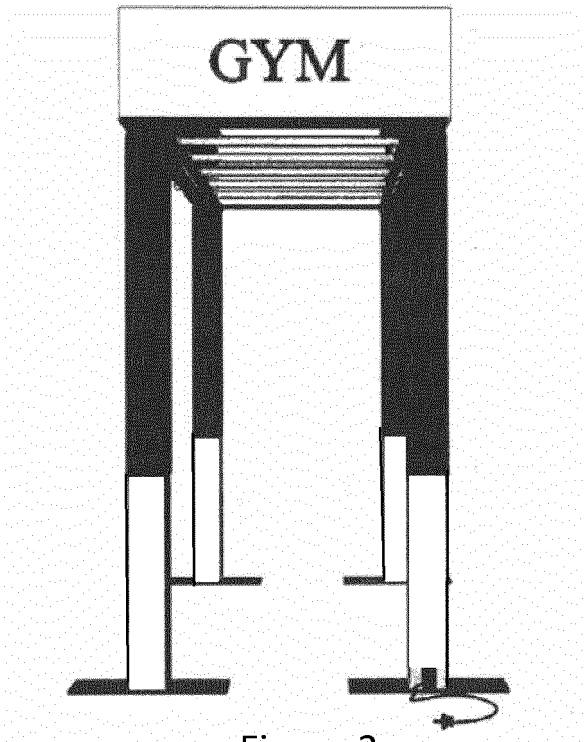

Figure 3

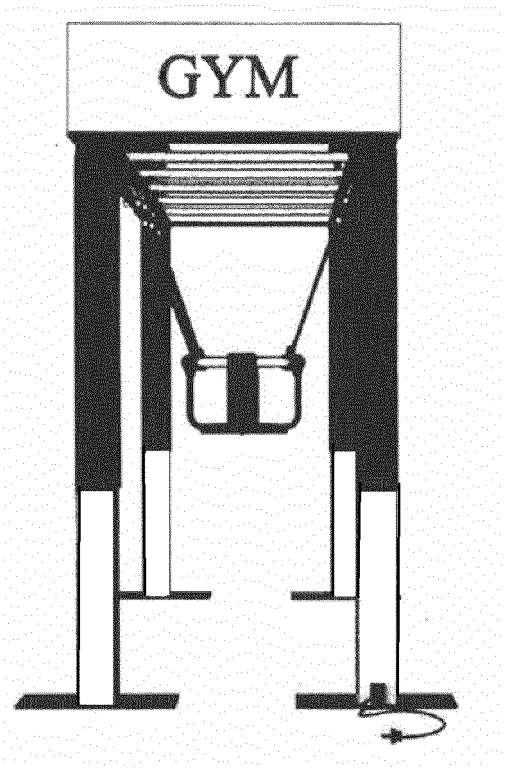

Figure 4

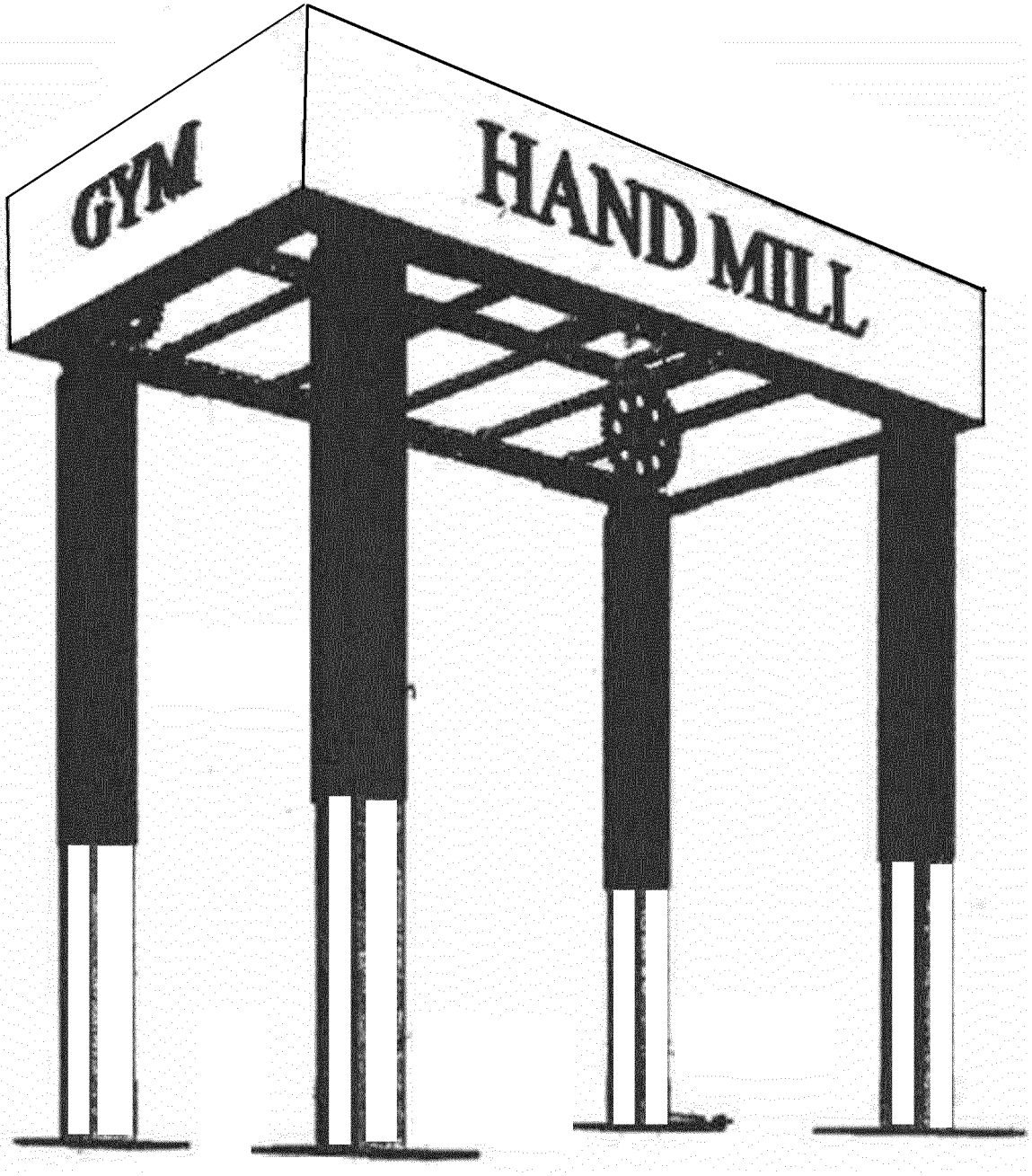

Figure 5

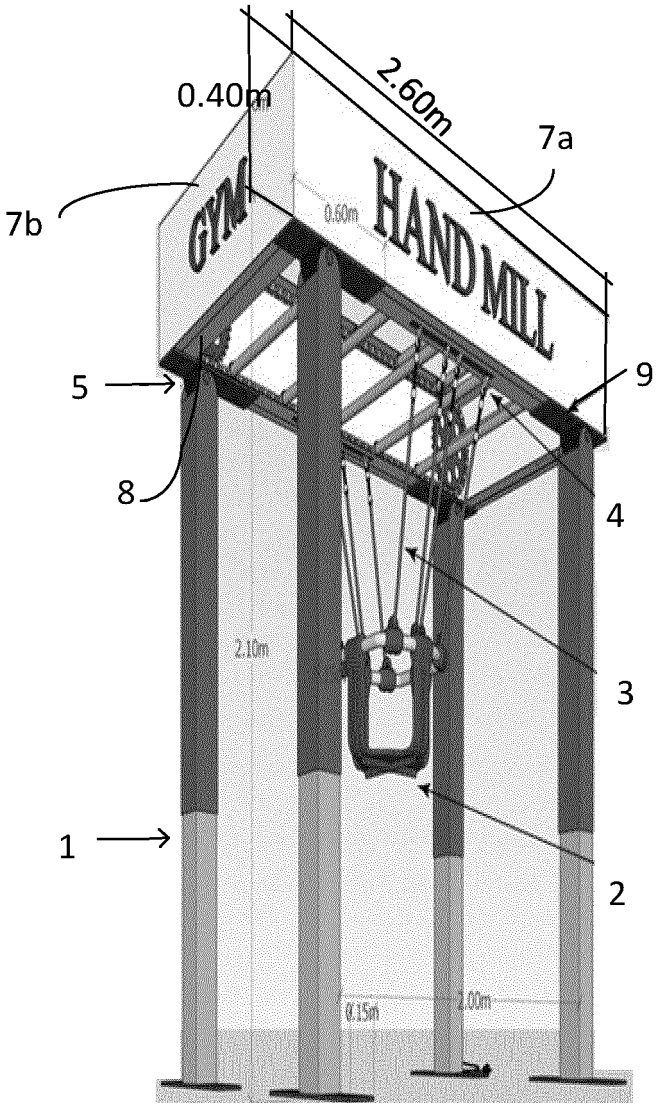

Figure 6

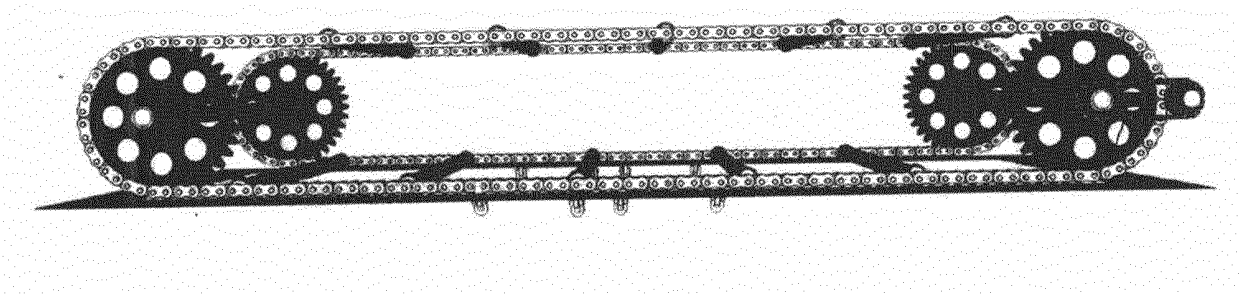

Figure 7

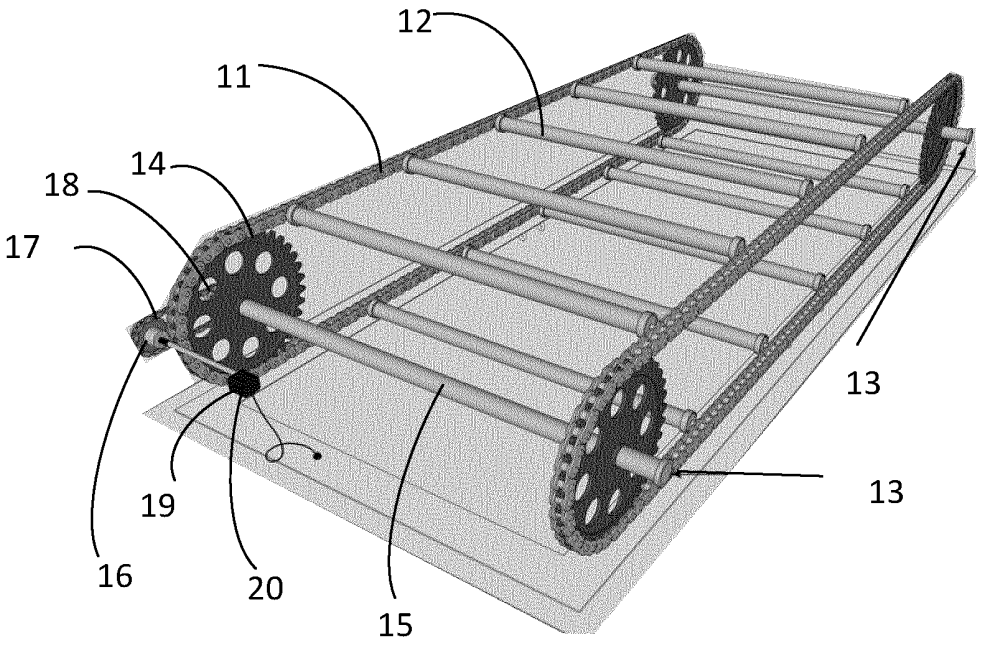

Figure 8

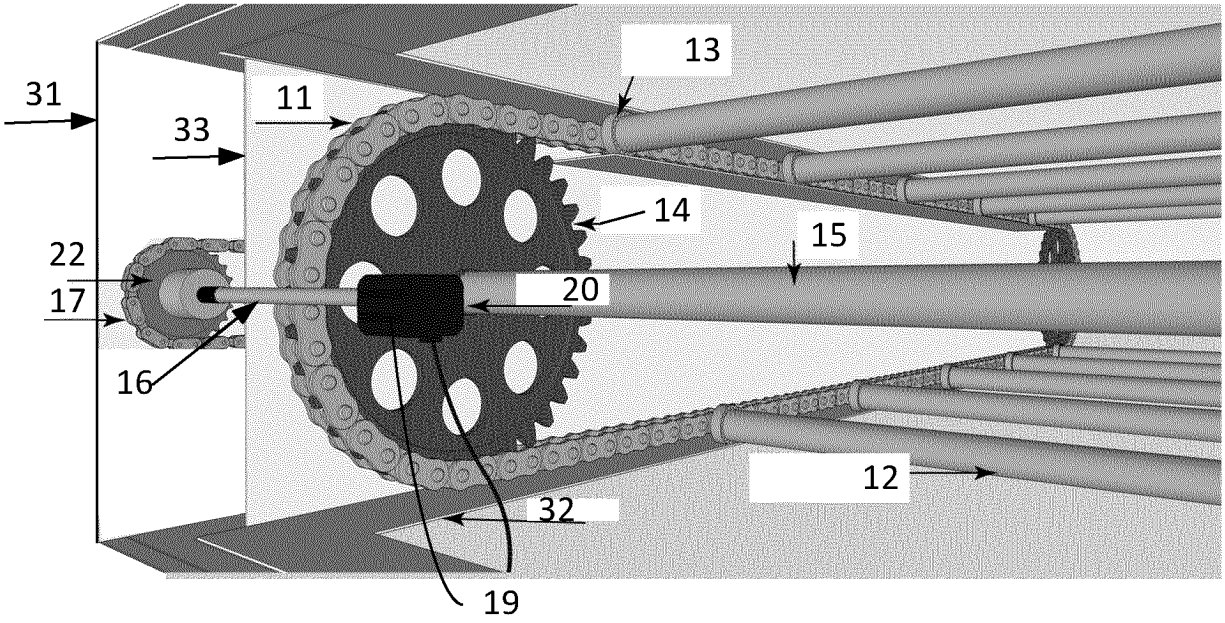

Figure 9

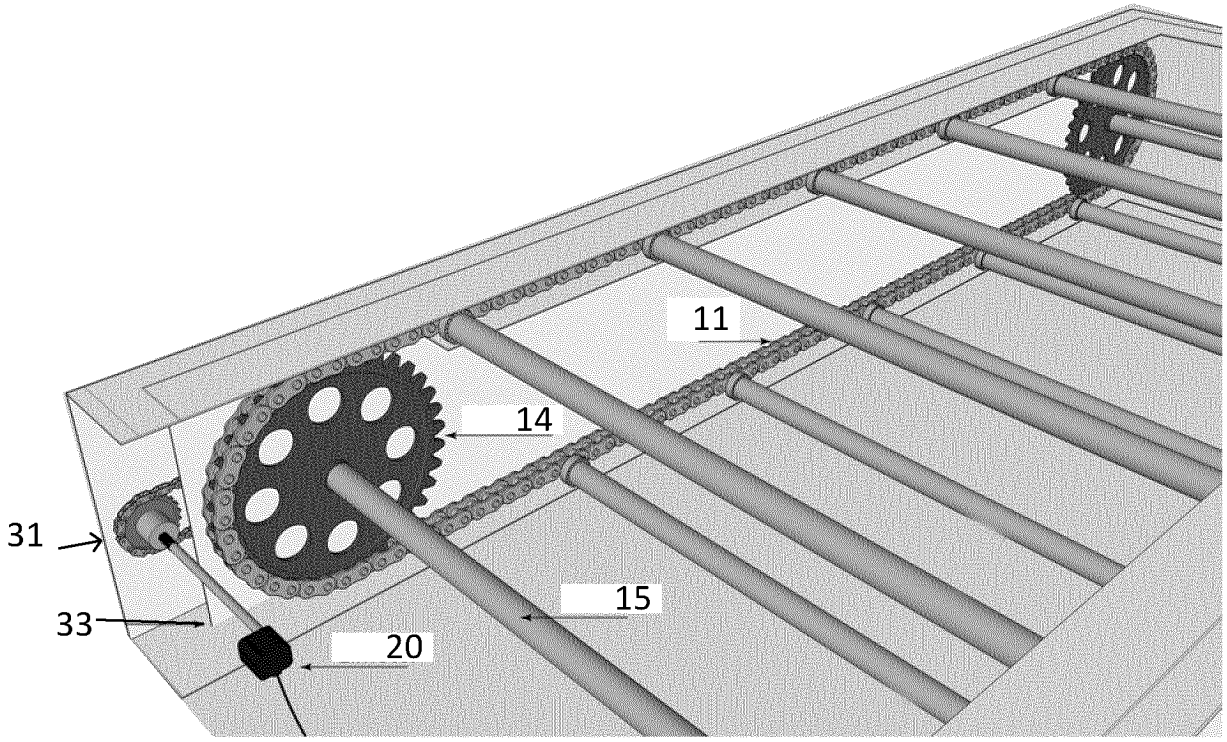

Figure 10

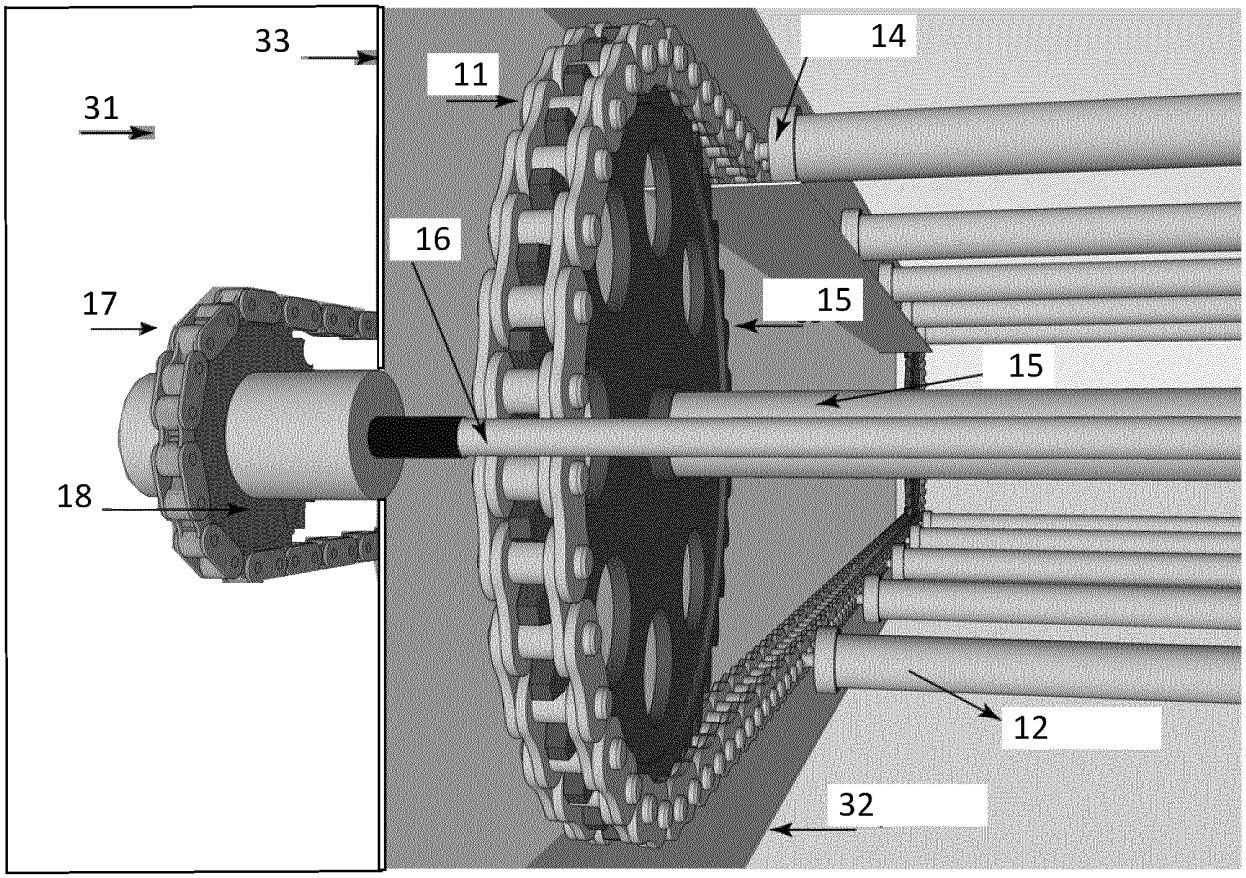

Figure 11

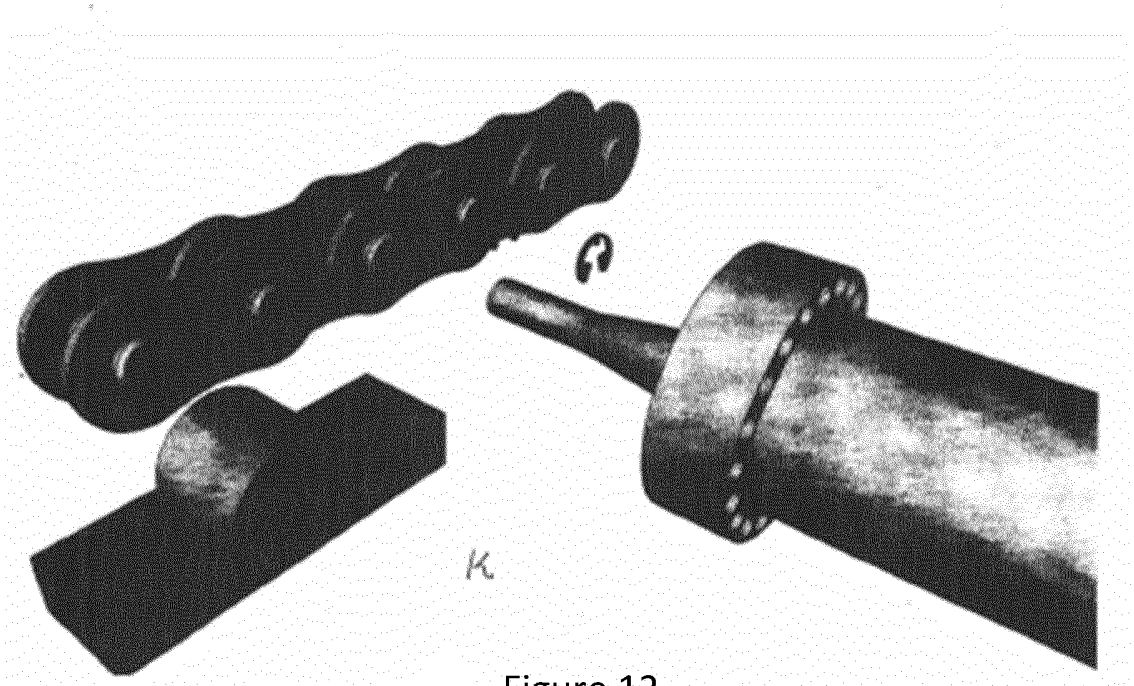

Figure 12

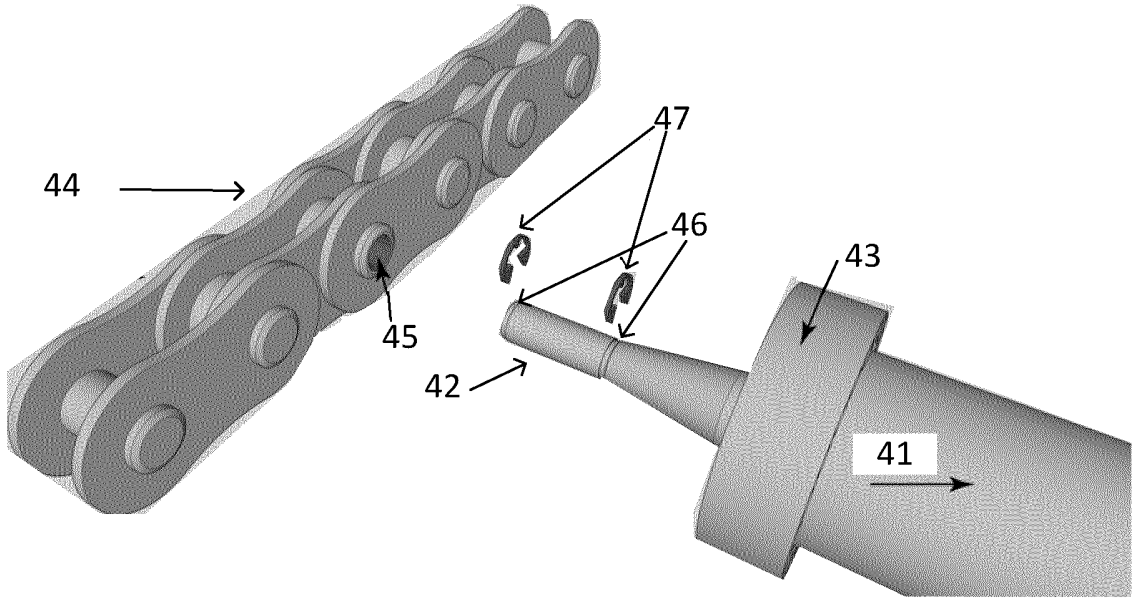

Figure 13

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EUROPEAN SEARCH REPORT

Application Number
EP 21 20 8510

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

A63B
A61H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	18 May 2022	Borrás González, E

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