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(54) RUNNER HOLDER FOR FORMWORK

TRÄGER FÜR EINE SCHALUNG

POUTRELLE POUR UN COFFRAGE

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Description

[0001] The present invention relates to supports for formworks. More particularly, the present invention relates to horizontal formwork beams supported on vertical struts, which are habitually known as runner-holder beams, main beams, primary beams or simply runner holder(s).

[0002] At present, different types of beams are known for the formation of formworks. However, a problem with the standard beams for formwork supports consists in the fact that they have a fixed and determined length. On many occasions, the length of the aforementioned beams does not coincide exactly with the required length between formworks. In view of this possibility, the operators usually cut other beams to join them to said standard beams, and ensure that support beams from wall to wall exist, without the existence of breaks or spaces between the formwork beams and the formwork itself. Another possibility consists of positioning the beams not consecutively, but adjacent to one another, such that their course overlaps. However, this increases the number of struts necessary to support the runner holders, and consequently decreases the space between struts, thus making the passage of the operators difficult or even preventing it.

[0003] Document DE 19720885 discloses an adjustable support for the external space of shuttering according to the preamble of claim 1.

[0004] US 4140414 discloses a scaffold joint for connecting the ties to the rounded uprights of a scaffolding includes a plurality of vertically elongated openings in the uprights, an end projection on a wedge-shaped end plate of the tie which has an enlarged end portion which is introduced into the interior of the upright while the stem of the projection is received in the opening when the enlarged end portion of the projection is received in the interior of the tubular upright, and a wedge element which is permanently mounted on the projection and interposed between the upright and the wedge-shaped end plate of the tie in the assembled position of the tie with the upright.

[0005] An object of the present invention is to disclose a novel runner holder which provides a solution to the aforementioned problems.

[0006] For this purpose, the present invention discloses a runner holder according to claim 1. Preferred embodiments of the invention are contained in the dependent claims.

[0007] The runner holder with a variable length according to the present invention has the advantage that the operator does not have to cut other beams to join them to the standard beam in order thus to obtain the particular length required. According to the present invention, the adjustable runner holder has a pressure means at one end at least, and preferably at both ends. By this means, the runner holder can be adjusted in a fixed manner between two vertical structures, such as walls. The pressure means according to the invention comprises an oblique cut at one or both of the ends of the runner holder which cut co-operates with a wedge of the pressure means in establishing the pressure on the horizontal structure or wall.

[0008] The adjustable runner holder according to the invention which has pressure means is particularly advantageous in monolithic structures. A monolithic structure is a type of structure in which a building or structure is built in a single block. The monolithic system permits a high speed of execution and construction assembly, with reduction of the workforce since the major construction costs are minimised as a result of the short execution times. Monolithic structures are habitually characterised by having small spans, generally up to 3 m. In architecture, engineering and building, the word span is generally used to designate the distance in horizontal projection which exists between the supports of a beam.

[0009] The present invention also has the advantage compared with standard beams that it can be reused in different monolithic designs, i.e. it can be used in different projects which have a different design with variations of the dimensions. The fact of having a range of values of length and not a single fixed and determined length means that it can be used in numerous projects and designs of monolithic structure.

[0010] A strut can be defined as a structural element with a transverse cross section which is very small compared with its adjustable height, which supports a horizontal formwork structure provisionally, habitually by means of the runner-holder beams.

[0011] In addition, the adjustable runner holder according to the present invention is particularly advantageous in monolithic structures since it makes it possible to use two struts in length per beam instead of the three struts used by the standard system, with the third corresponding to the portion of overlapping between runner holders with a fixed length. Thus, the present invention has the capacity to reduce the number of struts used in monolithic structures. The fact of using only two struts is especially advantageous since monolithic structures are habitually small, although it is true that the range of sizes can vary considerably. Typically, the length between walls (the span) is less than 3 m. This means that the space in the interior thereof is small, and consequently the space which the operators have to construct and assemble the building or structure is very limited. In addition, the operators have to carry out their work avoiding obstacles such as the different construction elements used, such as, for example, struts, boards, runner holders, tripods, etc., which make their work difficult. The fact of using the adjustable runner holder according to the present invention allows the operators to carry out their working activity inside a monolithic structure in better conditions.

[0012] The pressure means comprises an oblique cut provided in the first and/or in the second end of the runner holder, in order to interpose a wedge of the pressure means between said oblique cut in the end of the runner holder and a vertical structure or wall. The wedge makes

it possible to secure the adjustable runner holder easily, and in the same way remove said wedge when the formwork phase is finished and the runner holder is not required.

[0013] More preferably, said oblique cut forms an angle of between 85° and 45° with the longitudinal axis of the runner holder. More preferably, the oblique cut forms an angle of 80° with the longitudinal axis of the runner holder.

[0014] Pressure means not according to the invention could also comprise a resilient part in the form of a resilient stopper which is placed in the first end, in the second end, or in both, in a fixed manner or with a thread system. A threaded foot could also be used, which is however also not part of the present invention. The thread makes it possible to screw the foot so that said foot presses against the vertical structure or wall.

[0015] According to another aspect, the projection of the first portion has alignment of orifices, and the second portion has at least one conjugated orifice, such that it is possible to insert a stud through an orifice of the alignment of orifices of the first portion and through the conjugated orifice, for the purpose of fixing the position of the projection in the recess.

[0016] According to the invention, the first portion and the second portion have a profile with a transverse cross section in the form of a "T".

[0017] Thus, the present invention makes it possible to control the length of the beam within a range of values.

[0018] The securing of the studs through the plurality of orifices is controlled discontinuously, whereas the pressure means makes it possible to regulate the length according to the present invention continuously. The discontinuous advance is controlled according to the location of the stud situated through an orifice of the alignment of orifices of the first and second portion. The continuous advance is controlled by means of the pressure means, which comprises an oblique cut in the first and/or second end of the runner holder and a wedge. More specifically, the continuous advance is controlled by means of the material and geometry thereof, i.e. the modulus of elasticity and the inclination of the wedge and the oblique cutting angle of the second end. The first portion and the second portion are coupled to one another telescopically. This coupling allows the first portion to be displaced in the recess of the second portion. Said displacement allows at least one orifice of the second portion to be aligned with at least one orifice of the plurality of orifices of the first portion. As a result of said alignment, the stud can pass through the aligned orifices, thus permitting securing between the first portion and the second portion, also known as telescopic coupling.

[0019] For better understanding, by way of non-limiting explanation, drawings of an embodiment of the adjustable runner holder which is the subject of the present invention are appended.

Fig. 1 is a view in perspective of a first embodiment of an adjustable runner holder according to the present invention placed between two walls.

Fig. 2 corresponds to another view in perspective different from the embodiment in Fig. 1.

Fig. 3 shows another view in perspective of the embodiment in Fig. 1.

Fig. 4 is a frontal view of the adjustable runner holder embodiment shown in the previous figures.

Fig. 5 is a longitudinal cross section of the embodiment in Fig. 3, in which the interior elements can be seen.

Fig. 6 is a transverse cross section of a similar embodiment as shown in Fig. 3, but not according to the invention.

[0020] Fig. 1 to 5 show a first preferred embodiment of the present invention. Fig. 1 to 3 show schematically an application of the present invention. In Fig. 1 to 3, for reasons of clarity, the struts which would support the runner holder 1 are not shown. Fig. 4 and 5 show in more detail the adjustable runner holder 1 in Fig. 1 to 3.

[0021] The adjustable runner holder 1 has an exterior profile which is divided, such that a first portion 60 and a second portion 20 are defined. Preferably, the length of both the first and the second portion must be sufficient to be able to receive a head of the strut which is designed to support said portion.

[0022] The first portion 60 has a projection 10 which is inserted in a recess in the second portion 20. The projection 10 has a plurality of orifices 40 disposed in an aligned manner. The second portion 20 comprises at least one orifice 50, the location and dimensions of which are conjugated with the plurality of orifices 40 of the projection 10, such that an orifice 50 of the second portion 20 and an orifice of the projection of the first portion 10 can be aligned when the projection 10 is inserted in the second portion 20.

[0023] The orifices 40 and 50 are designed such that they permit the passage of a stud (not shown), for the purpose of fixing the relative position of the first portion 10 and the second portion 20. The stud is inserted simultaneously in an orifice 50 of the second portion 20, and in an orifice of the alignment of orifices 40 of the projection 10, thus determining the total length of the adjustable runner holder 1. In order to vary the total length of the adjustable runner holder 1, the user or operator firstly removes the stud by sliding said stud through a set of orifices of the plurality of orifices 40 and 50, and once the stud has been withdrawn, the first portion 60 is not secured (fixed), with the result that said first portion can slide in the interior of the second portion 20 in order to form a positive or negative extension of the adjustable runner holder 1, i.e. increasing or decreasing the total length of the adjustable runner holder 1. Finally, the user

or operator inserts the stud once more through a new set of orifices of the plurality of orifices 40 and 50, thus obtaining a new securing configuration between the first portion 10 and the second portion 20.

[0024] In addition, the second portion 20 has a second end 30 of the adjustable runner holder 1 with a pressure means , which is in the form of an oblique cut which makes it possible to interpose an element of the pressure means in the form of a wedge.

[0025] In Fig. 1 to 3, the wedge 2 is interposed between the adjustable runner holder 1 and a wall 4. Said wall 4 can be any other vertical structure, or structure with a vertical portion. In particular, the wedge 2 is interposed thanks to the oblique cut 30 of the second end of the adjustable runner holder 1. The pressure element provides a double advantage: firstly, it provides the adjustable runner holder 1 with the capacity to have an increase or decrease of continuous length, i.e. the capacity to have continuous, and not discontinuous, advance, such as that which the securing of the stud with the plurality of orifices 40 and 50 has. Secondly, the pressure means 2 facilitates the dismantling of the adjustable runner holder 1 when its use is not required.

[0026] Fig. 6 shows another embodiment of a runner holder not according to the invention, wherein elements which are the same as, or similar to, those previously indicated are identified with identical reference numerals, and will therefore not be described in depth. A difference of the embodiment in Fig. 6 compared with that in Fig. 1 to 5 is that, in this case, the pressure means consists of a resilient part 70 situated at the free end of the second portion 20. The resilient part 70 is made for example of an elastomer material such as, for example, rubber, and can apply pressure to a wall by compression, sustaining resilient deformation, and thus regulating the length of the runner holder. Also, the combination of the discontinuous control by means of securing of the first portion 10 and the second portion 20, and the continuous control by means of the resilient part 70, makes it possible to regulate the length of the runner holder.

[0027] Although the invention has been described with respect to preferred embodiments, these should not be considered to limit the invention, which will be defined by the following claims.

Claims

1. Runner holder (1) for formwork, said runner holder divided into a first portion (60) and a second portion (20), the first portion (60) having a first end of the runner holder and the second portion (20) having a second end of the runner holder (1), opposite the first end, **characterised in that** the first portion (60) has a projection (10) which is inserted in a recess of the second portion (20), the projection being able to slide inside the recess, such that the length of the runner holder is adjustable, and **in that** it also comprises at least one pressure means which is situated at the first and/or the second end, the pressure means comprising an oblique cut provided in the first and/or second end of the runner holder and a wedge for being placed between said oblique cut in the end of the runner holder and a vertical structure or wall, establishing pressure thereof and **in that** the first portion and the second portion have a profile with a transverse cross section in the form of a "T".

2. Runner holder according to claim 1, **characterised in that** the oblique cut forms an angle of between 85° and 45° with the longitudinal axis of the runner holder.

3. Runner holder according to any one of the preceding claims, **characterised in that** the oblique cut forms an angle of 80° with the longitudinal axis of the runner holder.

4. Runner holder according to any one of the preceding claims, **characterised in that** the projection (10) of the first portion (60) has an alignment of orifices (40), and the second portion has at least one conjugated orifice (50), such that it is possible to insert a stud through an orifice of the alignment of orifices of the first portion and through the conjugated orifice, for the purpose of fixing the position of the projection in the recess.

5. Runner holder according to any of the preceding claims, **characterised in that** the exterior profile is made of a metal material.

6. Runner holder according to any one of the preceding claims, **characterised in that** both the first and the second end comprise the pressure means.

7. Formwork system comprising two walls of a monolithic structure, a runner holder according to any one of the preceding claims and two struts for the per runner holder, wherein the runner holder is adjusted in a fixed manner between the two walls.

Patentansprüche

1. Träger (1) für eine Schalung, wobei der Träger in einen ersten Teil (60) und einen zweiten Teil (20) unterteilt ist, wobei der erste Teil (60) ein erstes Ende des Trägers aufweist und der zweite Teil (20) ein zweites Ende des Trägers (1) aufweist, das dem ersten Ende gegenüberliegt, **dadurch gekennzeichnet, dass** der erste Teil (60) einen Vorsprung (10) aufweist, der in eine Aussparung des zweiten Teils (20) eingesetzt ist, wobei der Vorsprung so in der Aussparung gleiten kann, dass die Länge des Trägers einstellbar ist, und dass er zumindest ein Druck-

mittel aufweist, das an dem ersten und/oder dem zweiten Ende angeordnet ist, wobei das Druckmittel einen schrägen Einschnitt aufweist, der in dem ersten und/oder dem zweiten Ende des Trägers vorgesehen ist, und einen Keil, der dazu bestimmt ist, zwischen dem schrägen Einschnitt in dem Ende des Trägers und einer vertikalen Struktur oder Wand angeordnet zu werden und einen Druck darauf auszuüben, und dass der erste Teil und der zweite Teil ein Profil mit einem Querschnitt in Form eines "T" aufweisen.

2. Träger nach Anspruch 1, **dadurch gekennzeichnet, dass** der schräge Einschnitt einen Winkel zwischen 85° und 45° mit der Längsachse des Trägers bildet.

3. Träger nach einem der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** der schräge Einschnitt einen Winkel von 80° mit der Längsachse des Trägers bildet.

4. Träger nach einem der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** der Vorsprung (10) des ersten Teils (60) eine Lochreihe (40) aufweist und der zweite Teil zumindest ein zugeordnetes Loch (50) aufweist, so dass es möglich ist, einen Bolzen durch ein Loch der Lochreihe des ersten Teils und durch das zugeordnete Loch einzuführen, um die Position des Vorsprungs in der Aussparung zu fixieren.

5. Träger nach einem der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** das Außenprofil aus einem metallischen Werkstoff besteht.

6. Träger nach einem der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** sowohl das erste als auch das zweite Ende das Druckmittel umfasst.

7. Schalungssystem umfassend zwei Wände aus einer monolithischen Struktur, einen Träger nach einem der vorangegangenen Ansprüche und zwei Streben für den Träger, wobei der Träger fest zwischen den beiden Wänden eingestellt ist.

Revendications

1. Poutrelle primaire (1) pour coffrage, ladite poutrelle primaire étant divisée en une première partie (60) et une seconde partie (20), la première partie (60) ayant une première extrémité de la poutrelle primaire et la seconde partie (20) ayant une seconde extrémité de la poutrelle primaire (1), opposée à la première extrémité, **caractérisée en ce que** la première partie (60) a une saillie (10) qui est insérée dans un évidement de la seconde partie (20), la saillie étant capable de glisser à l'intérieur de l'évidement, de telle sorte que la longueur de la poutrelle primaire est ajustable, et **en ce qu'**elle comprend également au moins un moyen de pression qui est situé au niveau de la première et/ou de la seconde extrémité, le moyen de pression comprenant une découpe oblique prévue dans la première et/ou dans la seconde extrémité de la poutrelle primaire et un coin pour être interposé entre ladite découpe oblique dans l'extrémité de la poutrelle primaire et une structure ou paroi verticale, établissant sa pression et **en ce que** la première partie et la deuxième partie présentent un profil dont la section transversale a la forme d'un "T".

2. Poutrelle primaire selon la revendication 1, **caractérisée en ce que** la découpe oblique forme un angle compris entre 85° et 45° avec l'axe longitudinal de la poutrelle primaire.

3. Poutrelle primaire selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la découpe oblique forme un angle de 80° avec l'axe longitudinal de la poutrelle primaire.

4. Poutrelle primaire selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la saillie (10) de la première partie (60) présente un alignement d'orifices (40), et la deuxième partie présente au moins un orifice conjugué (50), de telle sorte qu'il est possible d'insérer un goujon à travers un orifice de l'alignement d'orifices de la première partie et à travers l'orifice conjugué, dans le but de fixer la position de la saillie dans le logement.

5. Poutrelle primaire selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le profil extérieur est réalisé dans un matériau métallique.

6. Poutrelle primaire selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la première et la seconde extrémité comprennent l'une et l'autre les moyens de pression.

7. Système de coffrage comprenant deux parois d'une structure monolithique, une poutrelle primaire selon l'une quelconque des revendications précédentes et deux étais pour la poutrelle primaire, dans lequel la poutrelle primaire est ajustée de manière fixe entre les deux parois.

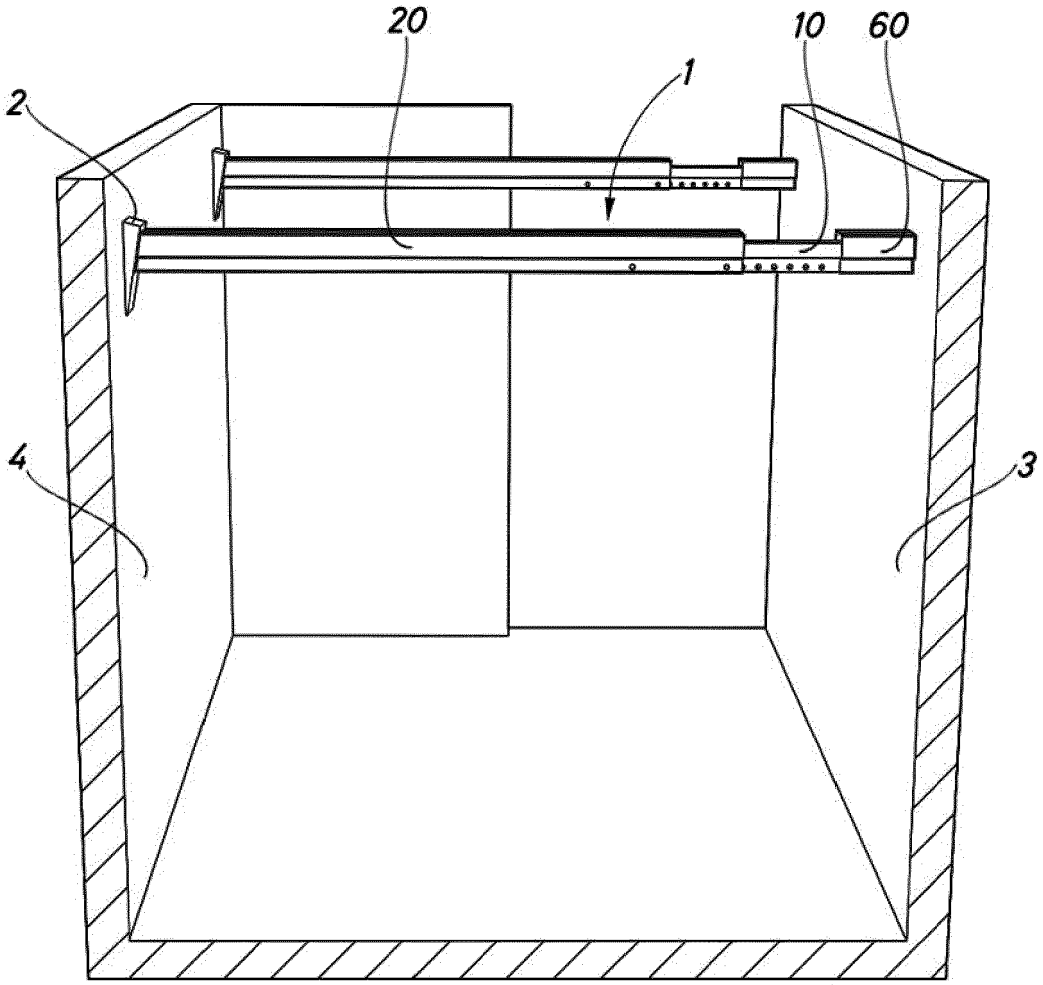

Fig.1

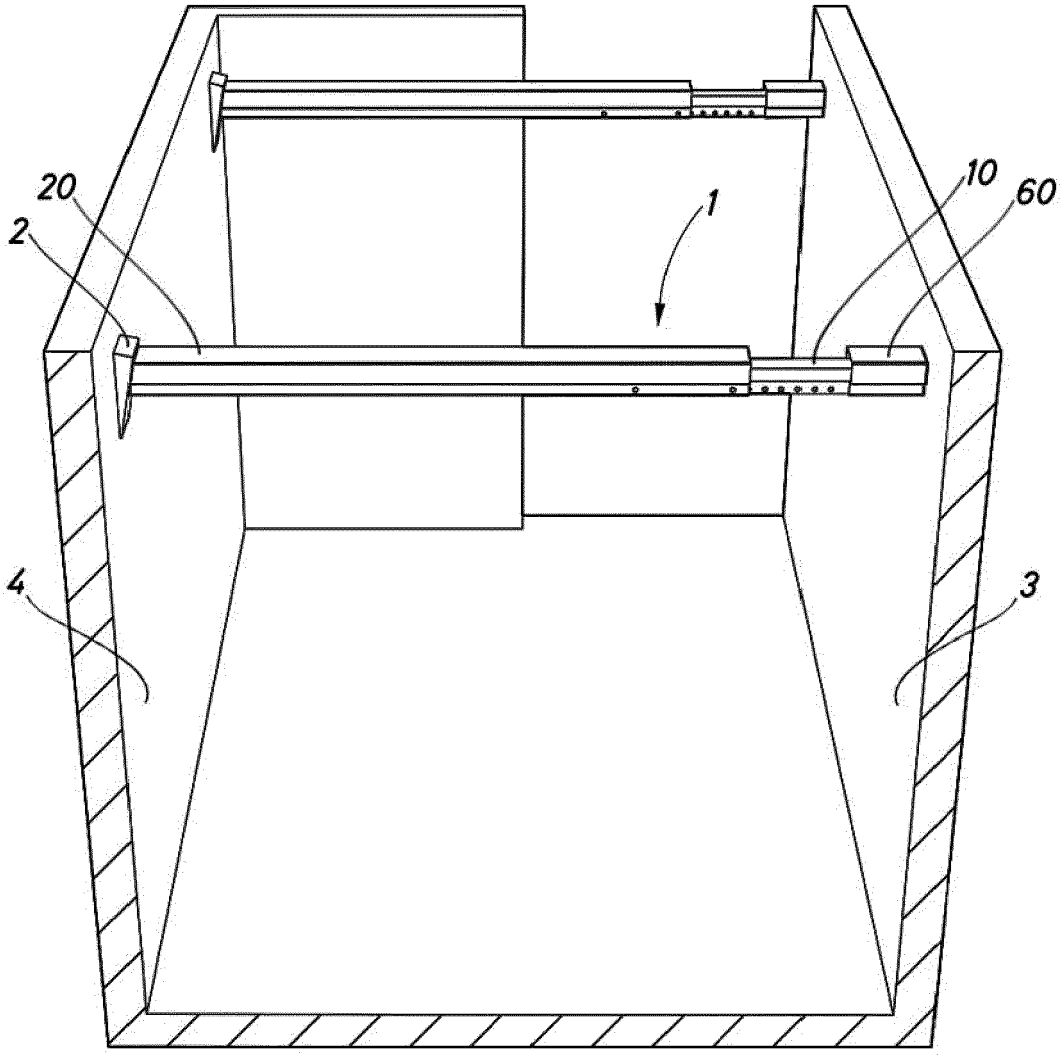

Fig.2

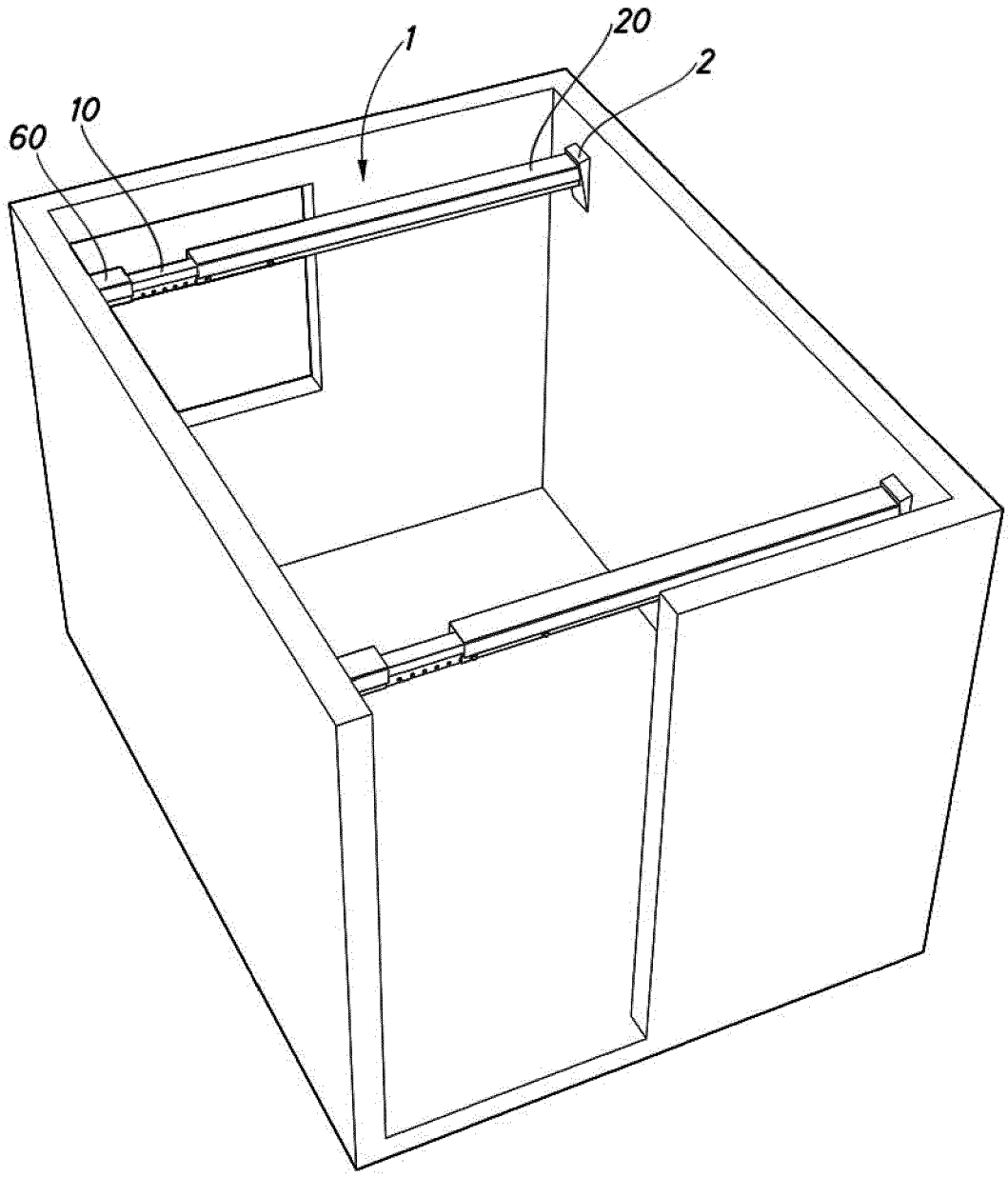

Fig.3

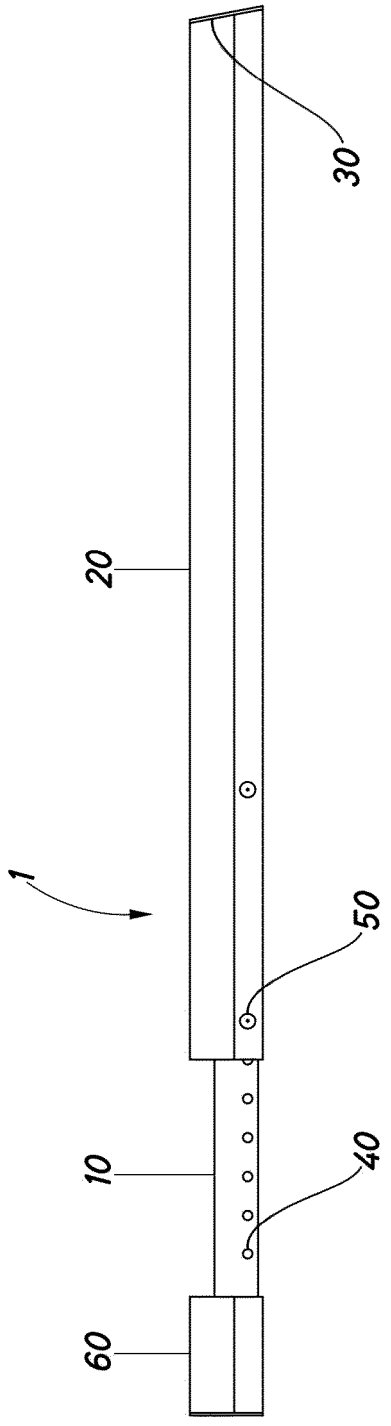

Fig.4

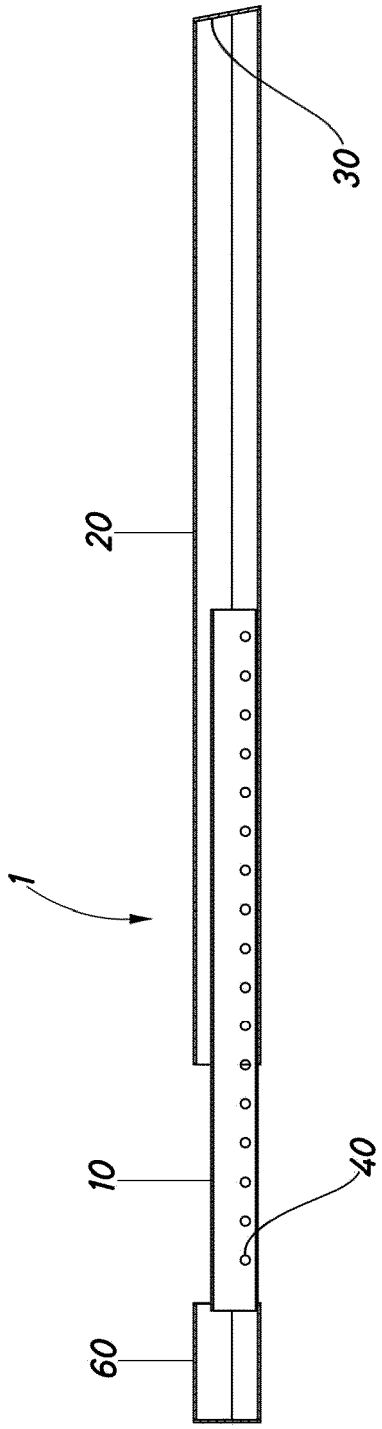

Fig.5

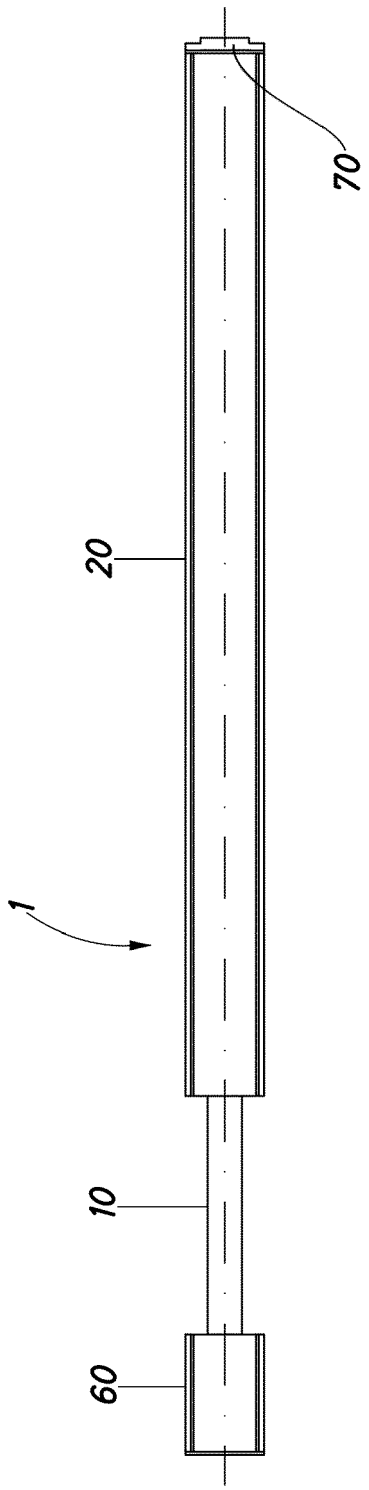

Fig.6

REFERENCES CITED IN THE DESCRIPTION

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- US 4140414 A **[0004]**