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## (54) Movable bottom spinning can for yarns and/or fibres

(57) The present invention relates to a movable-bottom spinning can for yarns and/or fibres, which comprises a holding body including a movable bottom pushed by resilient means.

The main feature of the invention is that the resilient means comprise a central spring arranged between pantograph elements operating between the movable bottom and the fixed bottom of the holding body.

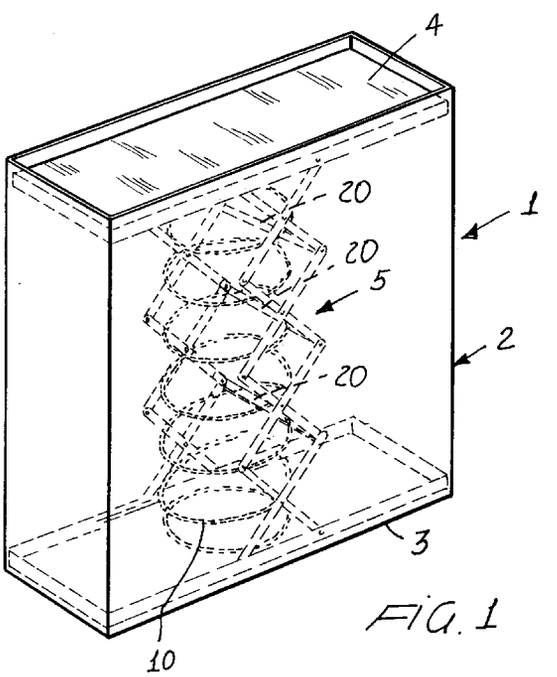


FIG. 1

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## Description

### BACKGROUND OF THE INVENTION

The present invention relates to a movable-bottom spinning can for yarns and/or fibres.

As is known, in spinning textile yarns and/or fibres, are conventionally used cans or vessels into which said yarns and/or fibres are introduced in a roving form, to be used in subsequent processing operations.

The above mentioned can or vats are filled-in by fibres, and are provided with side fixed walls and a movable bottom which is lowered and raised depending on the weight exerted thereon.

This bottom tends to downwardly move under the weight of the textile fibres, introduced into said cans and/or vats.

As the fibres are removed, or taken, the cans are progressively emptied, and since, as it should be apparent, the weight of the fibres tends to decrease, the movable bottom, biassed by urging springs, tends to raise so as to always hold at an upward position the roving and/or textile fibres to be processed.

The upward location of the roving and/or fibres is such as to hold the roving always at an optimum position to be taken up from the can.

Recently have been designed and commercially marketed parallelepipedal shape cans having a substantially rectangular plan, this configuration being a very rational one with respect to the occupied space and storing of the cans.

However, these prior cans are affected by problems related to their movable bottoms, since such a movable bottom is upwardly displaced or urged by a plurality of springs which, frequently, are subjected to unbalancing phenomena if the fibres or yarns are not taken up in an even manner, so as to generate an unbalanced load.

This drawback causes several problems to the feeding of the textile machines, with consequent failures or jams of the processing machines arranged downstream of the mentioned cans.

### SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to overcome the above mentioned problems, by providing a movable-bottom spinning can for yarns and/or fibres, the movable bottom of which can be always displaced with a parallel relationship to itself, thereby overcoming the problem of undesired unbalanced loads.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a parallelepipedal shape spinning can, in which the movable bottom is always prevented from being undesirably slanted, even if the yarn or fibre load is taken up in an unbalanced manner.

Another object of the present invention is to provide such a movable bottom yarn and/or fibre spinning can which, owing to its specific construction features, is very reliable and safe in operation.

Yet another object of the present invention is to provide such a spinning can which can be easily made starting from easily available elements and materials and which, moreover, is very competitive from a mere economic standpoint.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a movable-bottom spinning can for yarns and/or fibres, comprising a holding body, including a movable bottom urged by resilient means, characterized in that said resilient means comprise a central spring arranged between pantograph elements operating between said movable bottom and a fixed bottom of said holding body.

### BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the present invention will become more apparent from the following detailed disclosure of a movable-bottom spinning can for yarns and/or fibres, which is illustrated, by way of an indicative, but not limitative, example, in the figures of the accompanying drawings, where:

Figure 1 is a schematic perspective view illustrating a spinning can according to the invention;
Figure 2 is a partially cross-sectioned view illustrating the configuration of the pantograph elements, and illustrating specifically their end attachment;
Figure 3 is a perspective schematic view illustrating the resilient means;
Figure 4 is a further schematic view illustrating the movable bottom of the can at a lowered position thereof, the resilient means being shown in a pressed condition;
Figure 5 illustrates the resilient means as cross-sectioned along a vertical plane;
Figure 6 illustrates a coupling detail of the pantograph elements;
Figure 7 is a schematic cross-sectional view illustrating a full spinning frame with the movable bottom thereof at a lower position;
and
Figure 8 is a further cross-sectional view illustrating a spinning can with the movable bottom thereof shown at a raised position.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the aforesaid figures, the movable-bottom spinning frame for yarns and/or fibres according to the present invention, which has been generally indicated by the reference number 1, comprises a holding body 2, of substantially parallelepipedal shape and

including a preferably rectangular base, which is provided with a fixed bottom 3.

Inside the body 2 is provided a movable bottom 4 which is coupled to resilient means, generally indicated by the reference number 5.

The main feature of the invention is that the aforesaid resilient means are constituted by a central spring 10, of a coil or helical type, which is connected between the movable bottom 4 and a lower bottom 11, superimposed on the fixed bottom 3 of the body 2.

In order to allow the movable bottom 4 to be displaced with a parallel relationship to itself, there are provided pantograph elements 15, opposite to one another and defining the housing region for the spring 10.

More specifically, said pantograph elements 15 comprise rods 16, mutually articulated pantograph-like, with the end rod being articulated or pivoted at 17, respectively to the movable bottom 4 and the lower bottom 11, whereas, on the other portions thereof, the rods 16 are provided with a sliding roller 18, which can be displaced in a guide seat 19.

As shown, the pantograph elements 15 are coupled to one another by cross-elements 20 which, at their intermediate positions, are rigidly coupled to the turns of the coil spring 10, so as to allow the spring to elongate in an even manner.

With the disclosed arrangement, as a weight is exerted thereon, the movable bottom 4 will be lowered, so as to approach the lower bottom, and the rods 16 of the pantograph will be mutually closed with a consequent sliding movement of the rollers 18 in the guide seats 19.

As the weight in the can decreases, the resilient operation of the spring will cause the pantograph elements 15 to be extended, so as to cause the movable bottom 4 to be displaced parallel to itself, without any jams or unbalanced effects, even in a case in which the load thereon is taken up in an uneven manner.

To the foregoing it should be also added that, at the end portions thereof, the spring 10 is associated with bent wings 30 which are provided at the movable bottom and lower bottom.

From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects.

In particular, the fact is to be pointed out that the use of pantograph elements, which practically define the spring housing region and which interconnect the movable bottom to the fixed bottom, will allow the movable bottom to be always displaced parallel to itself, under all of the use conditions.

In practicing the invention, the used materials, provided that they are compatible to the intended use, as well as the contingent size and shapes, can be any, depending on requirements.

## Claims

1. A movable-bottom spinning can for yarns and/or fibres, comprising a holding body, including a movable bottom urged by resilient means, characterized in that said resilient means comprise a central spring arranged between pantograph elements operating between said movable bottom and a fixed bottom of said holding body.

2. A spinning can, according to Claim 1, characterized in that said holding body has a substantially parallelepipedal shape and that the movable bottom has a substantially rectangular shape.

3. A spinning can, according to Claims 1 and 2, characterized in that said pantograph elements are arranged with a mutually opposite relationship and define a housing region for said spring.

4. A spinning can, according to one or more of the preceding claims, characterized in that said pantograph elements are interconnected between the movable bottom and a lower bottom which is superimposed on the fixed bottom.

5. A spinning can, according to one or more of the preceding claims, characterized in that said pantograph elements comprise a plurality of rods mutually pivoted at their end portions and intermediate portions, the end rods being respectively pivoted with respective ends thereof to said movable bottom and lower bottom and, at the opposite end portions thereof, said end rods being provided with respective sliding rollers sliding in guide seat means respectively formed on said movable bottom and lower bottom.

6. A spinning can, according to one or more of the preceding claims, characterized in that said can further comprises cross members connecting the end pivoted regions of said rods, from the portions thereof pivoted to said movable bottom and said fixed bottom and coupled to the turns of said springs.

7. A spinning frame, according to one or more of the preceding claims, characterized in that at the axial end portions thereof, said spring abuts on bent wings defined on said movable bottom and fixed bottom.

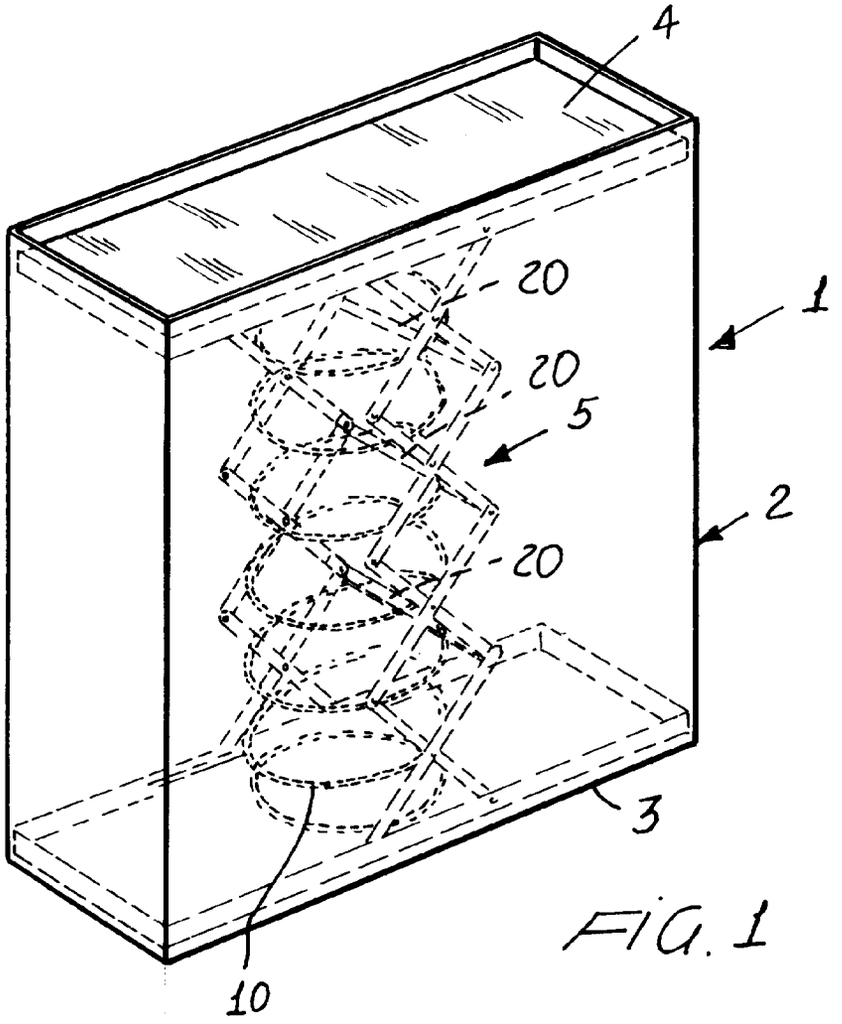



FIG. 1

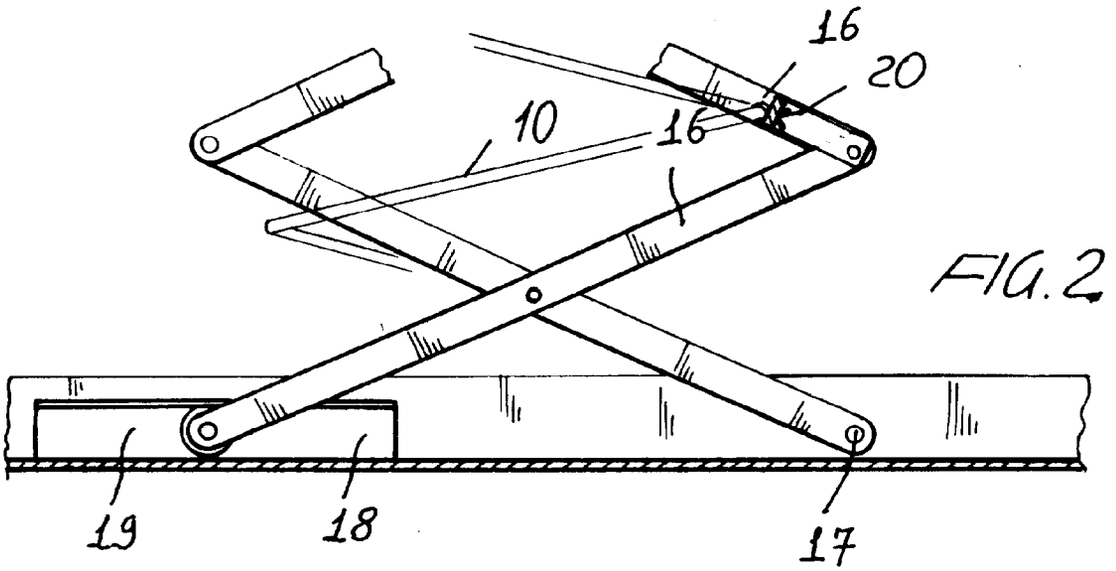



FIG. 2

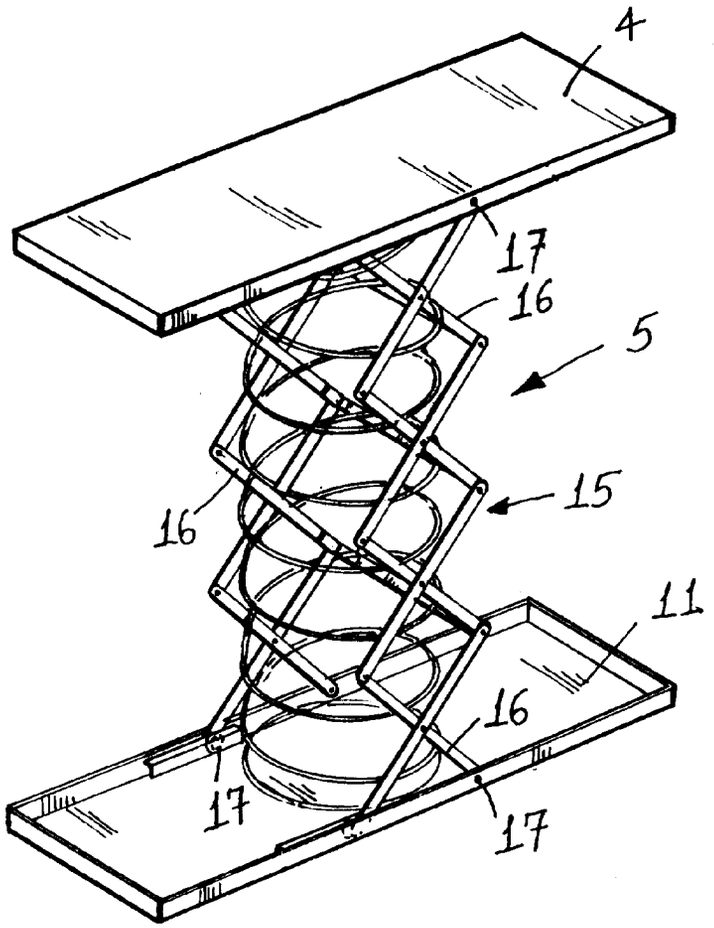
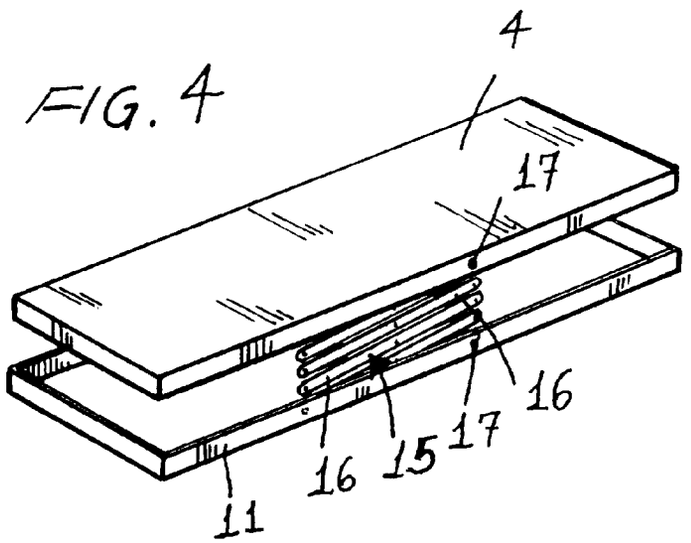



FIG. 3

FIG. 4



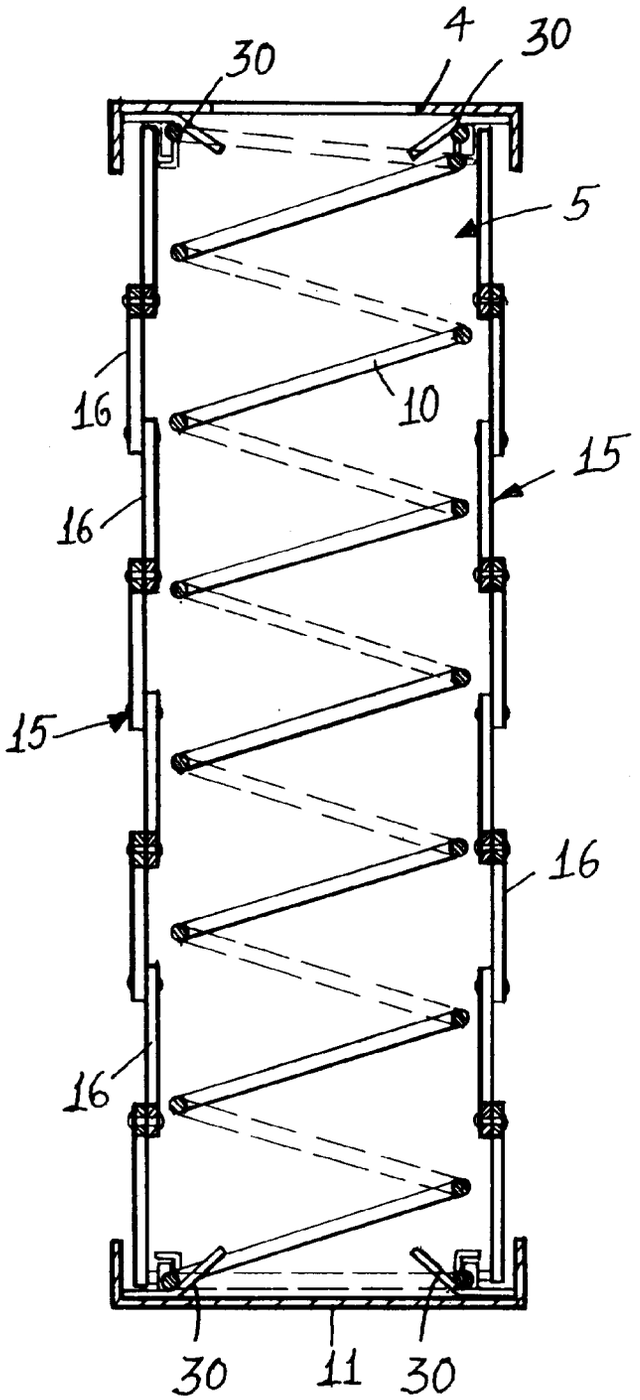



FIG. 5

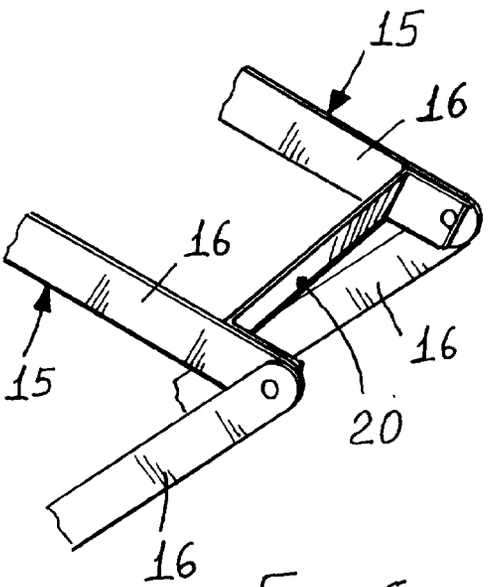



FIG. 6

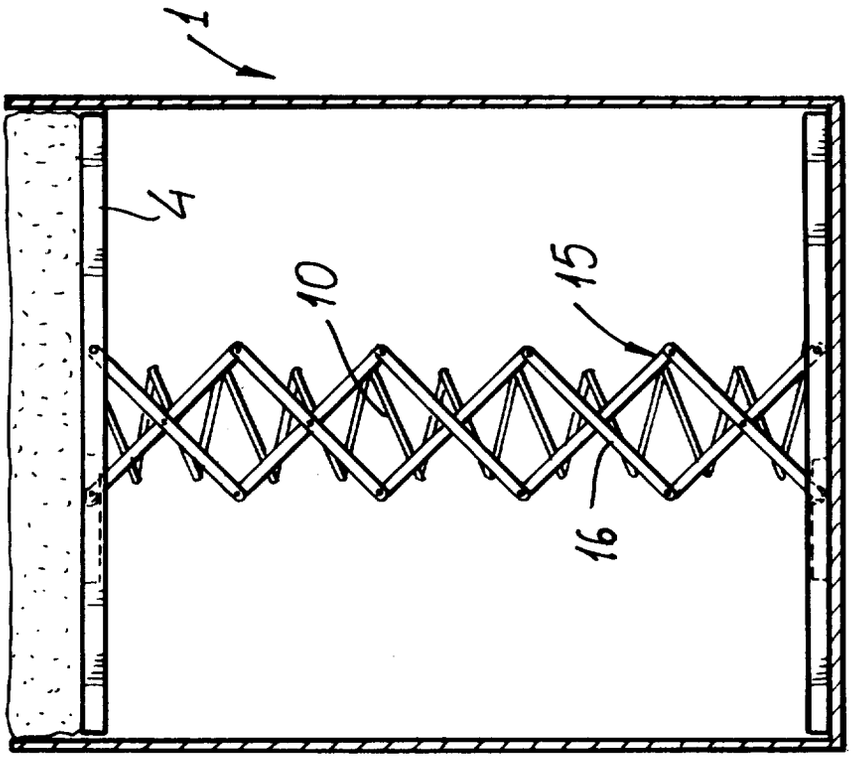



FIG. 8

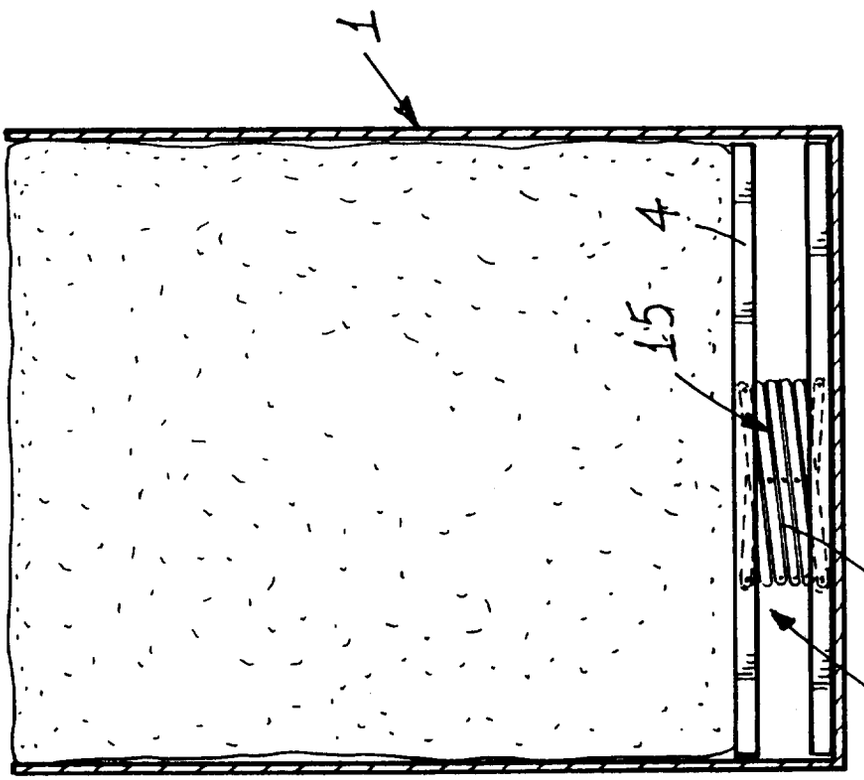



FIG. 7