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(54) Press for textile materials with angularly movable member and offset cases.

(57) A press for making bales of pressed material comprises : a member (5) angularly movable about a vertical axis (A-A) ; two pressing cases (28) able to be lifted and lowered and having rectangular or square cross-section ; a loading and pre-pressing station ; and a pressing and binding station ; the angularly movable member moves each of said cases to the loading station and subsequently to the pressing station. To make the cases accessible from all sides, they are disposed in offset relationship to the axis of rotation of the movable member and with axial symmetry with respect to said axis.

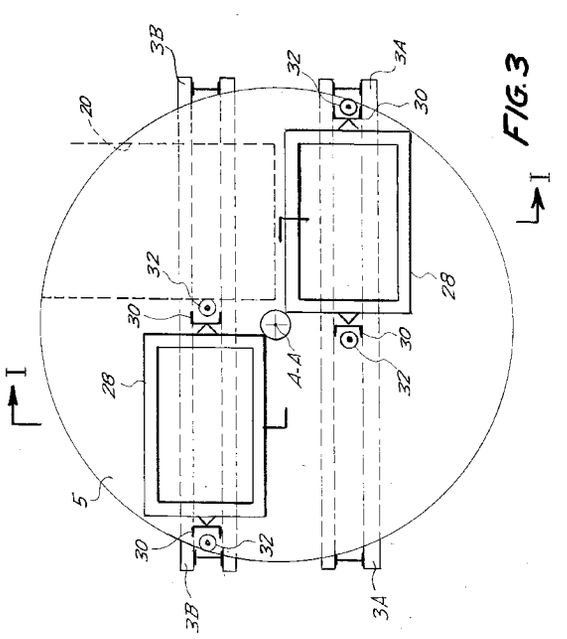

FIG. 3

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The invention refers to a press for making bales of pressed material, especially textile material.

More particularly, the invention refers to a press of a type comprising: a member angularly movable about a vertical axis; two pressing cases able to be lifted and lowered and having rectangular or square cross-section; a loading and pre-pressing station; and a pressing and binding station; said angularly movable member being able to successively move each of said cases to the loading station and to the pressing station.

The object of the invention is to provide a press of the above mentioned type which can be handled more easily and which, in addition, has such a structure able to exploit the space to an optimal degree while reducing the overall dimensions.

These and other objects and advantages, which will appear evident to those skilled in the art from a reading of the following description, are attained by a press characterized in that said cases are disposed in offset relationship to each other with respect to the axis of rotation of the movable member and with axial symmetry with respect to said axis. In particular, the cases may be disposed with the diagonals of both cases substantially aligned with a straight line, said straight line intersecting the axis of rotation of the angularly movable member. By such disposition, each case (and thus the pressed bale) is accessible from all the four sides thereof. This substantially facilitates the binding operations.

Normally a loader is associated to the loading and pre-pressing station. Advantageously, with the above mentioned cases arrangement, this loader may be disposed beside the pressing station.

To further facilitate the access to the bale for the binding, or to further reduce the radial dimension, it is advantageous that the structure of the movable member be without a central column, at least in the lower region in correspondence of the binding region.

The drawing shows a feasible embodiment of the invention and, in particular:

Fig. 1 shows a section taken along a vertical plane through the axis of the rotating member;

Fig. 2 shows a vertical section taken on line II-II of Fig. 1;

Fig. 3 shows a cross-section along a horizontal plane, taken on line III-III of Fig. 1; and

Fig. 4 shows a cross-sectional view of a slightly modified embodiment.

According to what is illustrated in the attached drawing, 1 is a base structure having a frame 3 combined therewith for supporting and rotatively guiding a platform 5 suitably driven by a central pin 7. The frame 3 consists of two fixed portals 3A and 3B for the press and for the pre-pressing means at the loading position, respectively. The press comprises a cylinder 9 and a piston-like movable portion 10 with a pressing plate 10A. Above the plate 10A is a structure 14 having guide means 14A for guiding the pressing case during the lifting thereof from the pressing position to the binding position, as will be described later on in greater details.

On the fixed portal 3B, in correspondence of the loading position, is a cylinder-piston system 16 carrying a pre-pressing plate 18. Combined with the portal 3B is a system for feeding material to the case, i.e. a loader known per se, generally indicated with 20 and not described in greater details. As can be seen in particular in Figs. 1 to 3 (in the latter figure, the system 20 is indicated with dashed line), the feeding system is disposed within the portal frame 3A supporting the press 9, 10 and disposed sideways to the latter. In this way, the overall dimensions of the equipment are reduced.

Located on the rotary platform 5 are two pressing plates 26 combined with material-loading cases 28 which are able to be lifted. Each case 28 has rectangular cross-section and both cases are disposed on the platform 5 so as to be aligned with the diagonal, as clearly shown in Fig. 3. As can be seen also in this figure, the axis of rotation A-A of platform 5 intersects the line on which the two diagonals of cases 28 are in alignment. By this disposition, the two cases are close to each other and take up a relatively limited space while, at the same time, each of them is easily accessible from all the four sides, which is particularly important during binding of the pressed bale.

Also provided on the platform 5 are guide means 30, one for each case 28. To each guide means 30 there is associated a pair of cylinder-piston actuators 32 for the lifting and lowering of the respective case 28. The two guide means 30 are vertically developed up to a height sufficient to allow, along with other fixed guide means 31 solid to portal 3A, for a complete lift of the relevant cases 28.

Each case 28 is engaged on top, through brackets 36, to the rods of the respective actuators 32 to allow lifting thereof. In Fig. 2, the left side portion of the drawing shows the case 28 in the lowered pressing position and before the plate 10A has started the pressing, while the right side of Fig. 2 shows the case 28 in the lifted position and the pressing plate 10A in the lowered position, the lowering of plate 10A (and thus the pressing) being carried out prior to the lifting of case 28.

Numeral 38 indicates the stop blades, which are known per se, and which act on the bulk material which has been loaded and pre-pressed within the case 28, said blades being predisposed to be withdrawn during the lifting of the respective case 28.

The operation of the apparatus is as follows.

A pneumatic system or the like (known per se) provides for transferring the material into the loader 20, which includes (known and not shown) means for loading the same material in the relevant case 28, i.e. within the case that is temporarily in front of the loader

20. The vertically movable plate 18 presses the material within the underlying case 28, at a region below the stop blades 38. The movement is repeated until the calibration pressure of the pressure switch provided on the piston of the pre-pressing cylinder 16 is reached. At this point, the pre-pressing plate 18 comes to a stop in the lower part of the loader 20 to allow for the loose textile material to keep on pouring therein without being discharged into the case 28. At the same time, the platform 5 is rotated through 180° about the axis A-A to bring the case, just filled with pre-pressed material, under the press 10, 10A.

By the rotation, the case 28 filled with material is disposed under the pressing plate 10A, while the empty case, which was previously under the press, is brought to the loading and pre-pressing region, i.e. beneath plate 18. Once the rotation is over, a new pre-pressing cycle begins as above described, while the case 28, which is below the pressing plane 10A, is lifted of about 15 cm by the actuators 32, so as to move the stop blades 38 away from the material and radially withdraw them from the same case through means not shown. At the same time, the pressing plate 10A begins the downward run and presses the material in the bottom of the case 28 against the relevant fixed pressing plane 26 until the limit stop or the calibration pressure of the cylinder-piston system 10 is reached. At this point the case 28 is automatically lifted by means of the two side actuators 32 up to the position shown on the right side of Fig. 2 and corresponding to a height of about 2 m. In this position, the bale B of pressed material is completely accessible for the binding and remains pressed between the movable plate 10A and the fixed plate 26, respectively. Upon completion of the binding, the operator will press the control button for lifting the plate 10A again and allow for the removal of the bale. The arrival of plate 10A at the lifting position causes the lowering of the case 28. At the end of the downward run of the case, the apparatus is ready for starting a new cycle by rotating the platform 5 through 180° and subsequently predisposing the other case 28, filled with pre-pressed material, under the pressing plate.

The cases 28 may be made solid to portions of a safety guard (not shown for clarity of the drawing) which prevent the access to the machine during the pressing step, i.e. when th ecases 28 are lowered.

Fig. 4 shows an embodiment of the press with square cases. Like numbers indicate parts corresponding to the embodiment of Figs. 1 to 3. In this embodiment, the bearing structure on which the loading and pre-pressing means, as well as the pressing means, are supported, has a shape that in plan view appears as an asymmetric T and is substantially formed by a portal-like frame 3C with two posts 3D. Branching out from the cross-piece of the portal-frame 3C is a horizontal beam 3E which is connected to a third post 3F. On the beam 3E there are supported the pre-pressing means, while the portal-frame 3C supports the pressing means. In this figure, the details of the loader and of the cases-handling means are omitted. The embodiment of Fig. 4 is particularly compact. The compactness is further improved in that the central column has been omitted altogether, thus making it possible to dispose the cases closer to one another.

Claims

1. A press for making bales of pressed material comprising: a member angulalry movable about a vertical axis; two pressing cases able to be lifted and lowered and having rectangular or square cross-section; a loading and pre-pressing station; and a pressing and binding station; said angularly movable member being able to successively move each of said cases to the loading station and to the pressing station; characterized in that said cases are disposed in offset relationship to each other with respect to the axis of rotation of the movable member and with axial symmetry with respect to said axis.

2. A press according to claim 1, characterized in that said cases are disposed in such a way that the diagonals of both cases are substantially ligned up on a straight line, said straight line intersecting the axis of rotation of the angularly movable member.

3. A press according to claim 1 or 2, characterized in that it comprises a feeding system, i.e. a loader, associated to the loading station for filling the case which is at the loading station, and that said loader is located beside the pressing station.

4. A press according to claim 1, 2 or 3, characterized in that the movable member has a structure without a central column at least in the lower area, in correspondence of the binding area.

5. A press according to one or more preceding claims, characterized in that each case can be lifted to such a height as to allow free access therearound for the binding operation.

6. A press according to one or more preceding claims, characterized in that it comprises a two-portal frame for supporting the loading and pre-pressing means as well as the pressing means, respectively.

7. A press according to any one of claims 1 to 5, characterized in that it comprises a structure consisting of three posts and two cross-pieces, the latter being disposed in the form of an asymmetric

T, for supporting the loading and pre-pressing means as well as the pressing means, respectively.

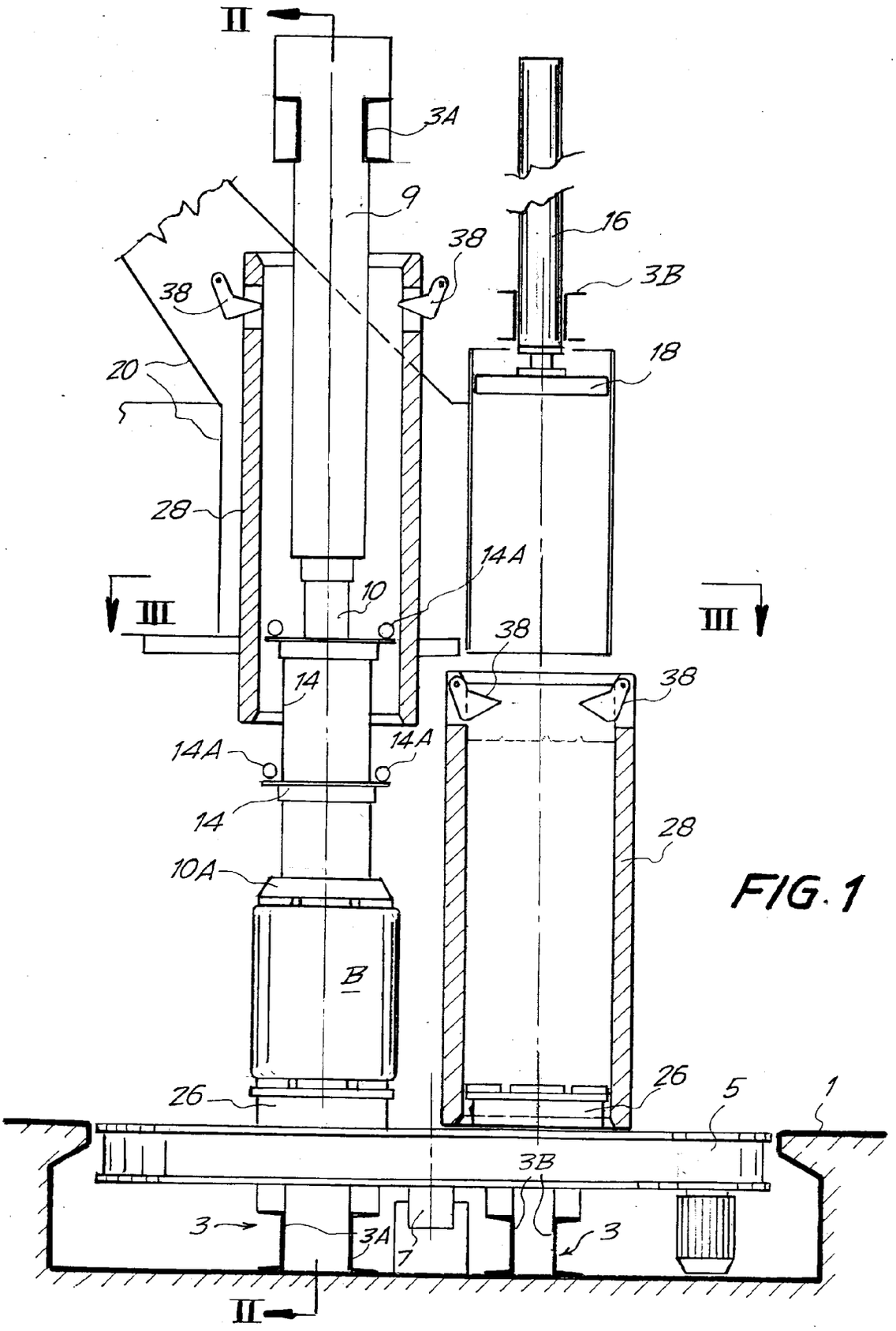
II
3A
9
16
38
38
3B
18
20
28
14A
10
III
III
38
38
14
14A
14A
14
28
10A
B
26
26
5
1
3B
3
3A
7
3
II

FIG. 1

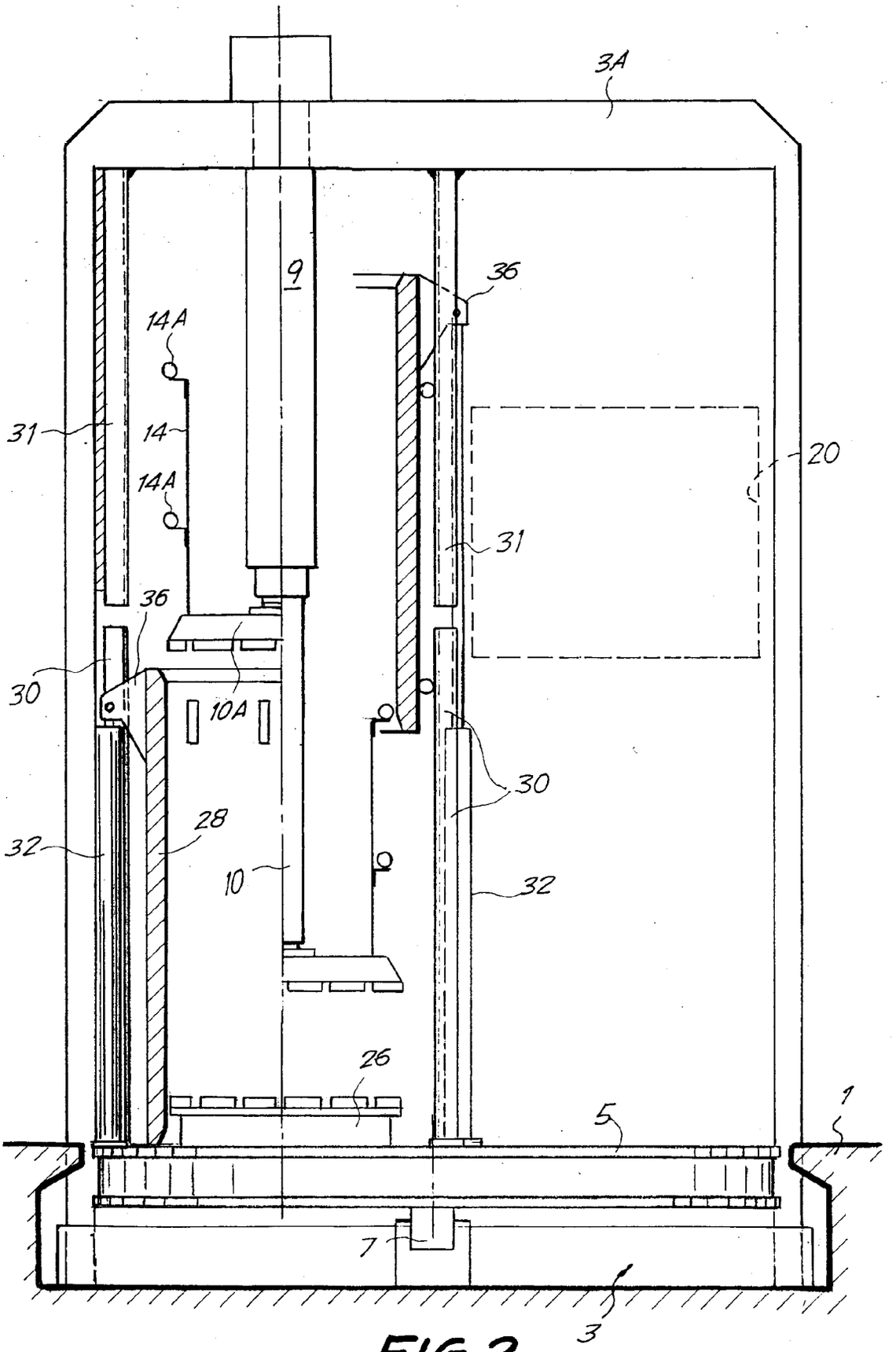

FIG. 2

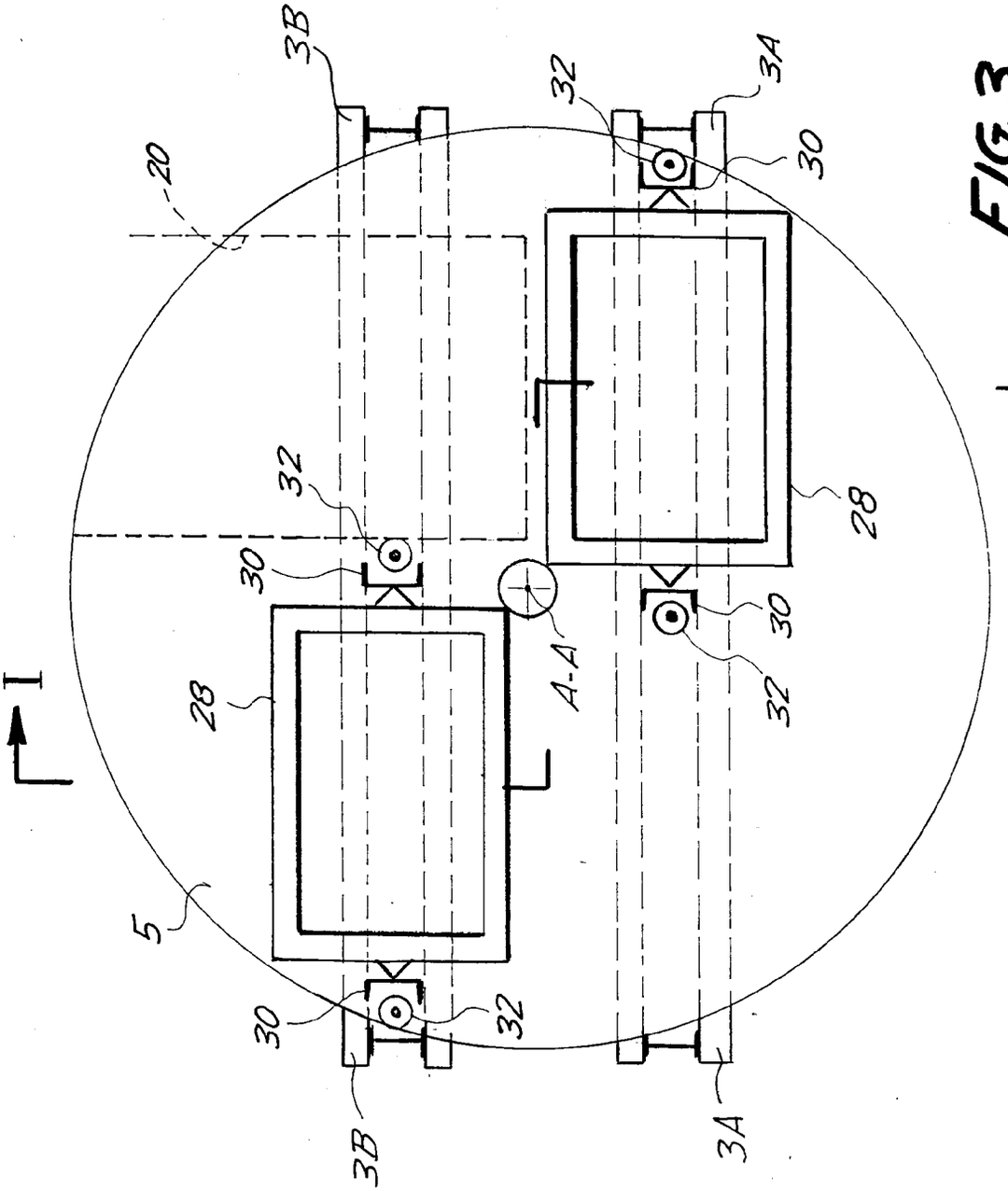

FIG. 3

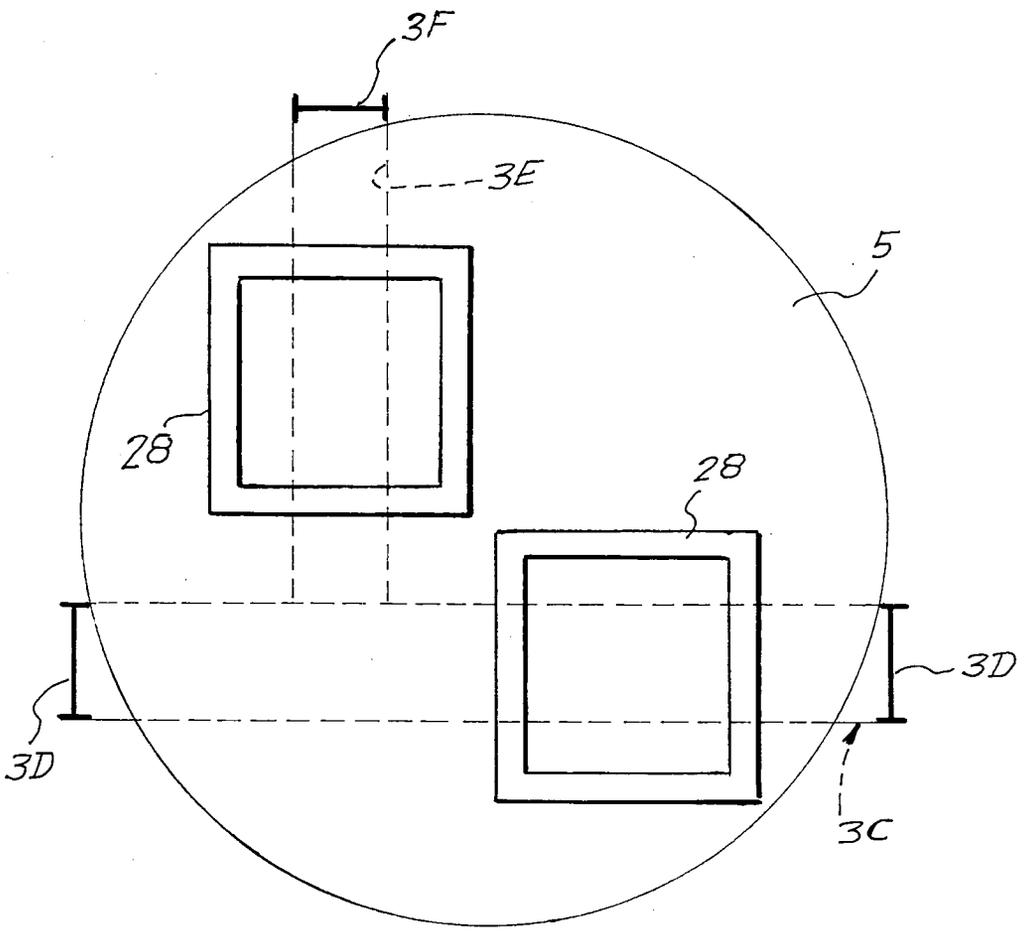

FIG. 4