Oct. 31, 1950

A. E. PROBST

2,527,763

ROTATING SEESAW

Filed March 17, 1948

3 Sheets-Sheet 1

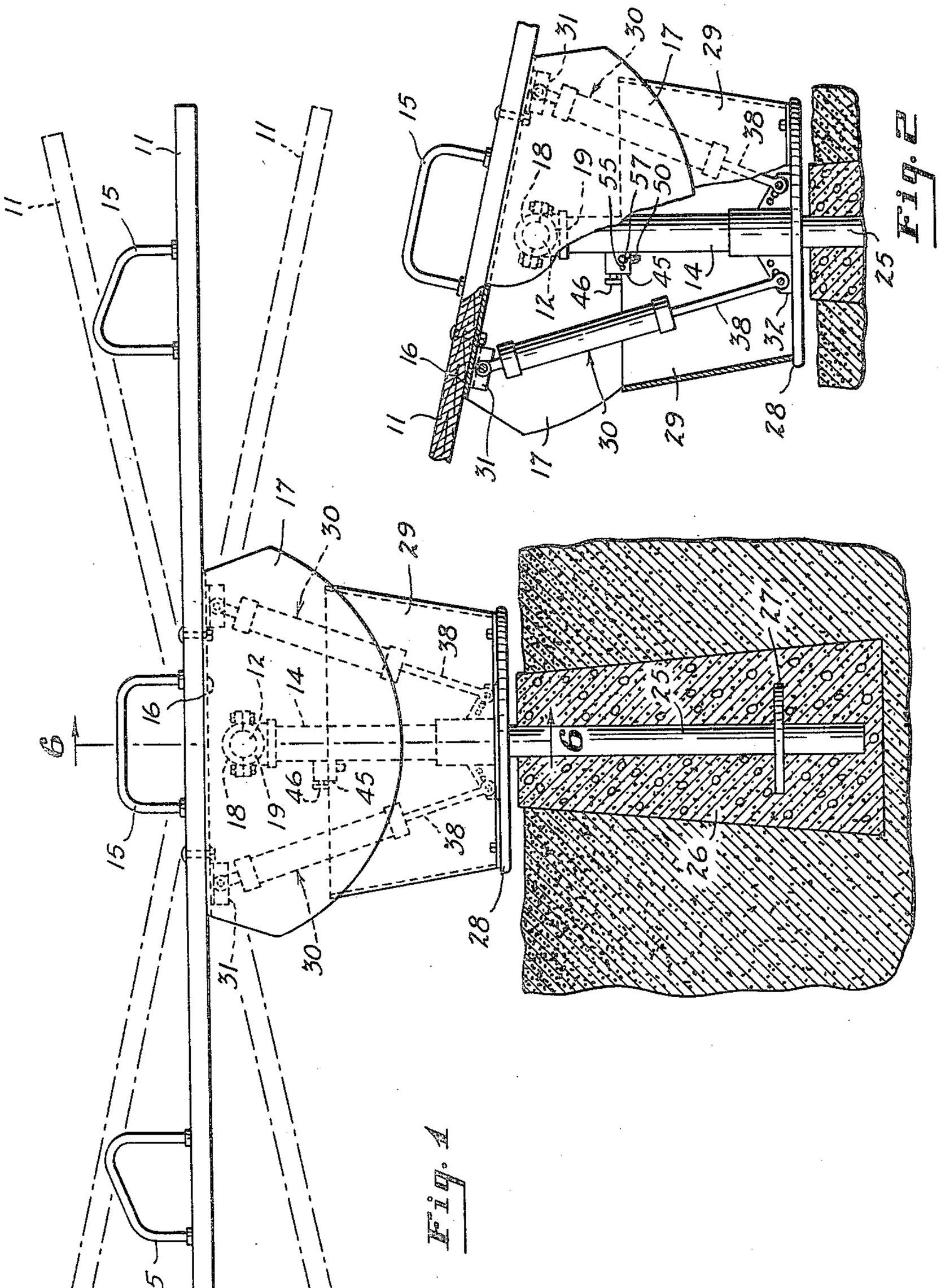

Fig. 2

Fig. 1

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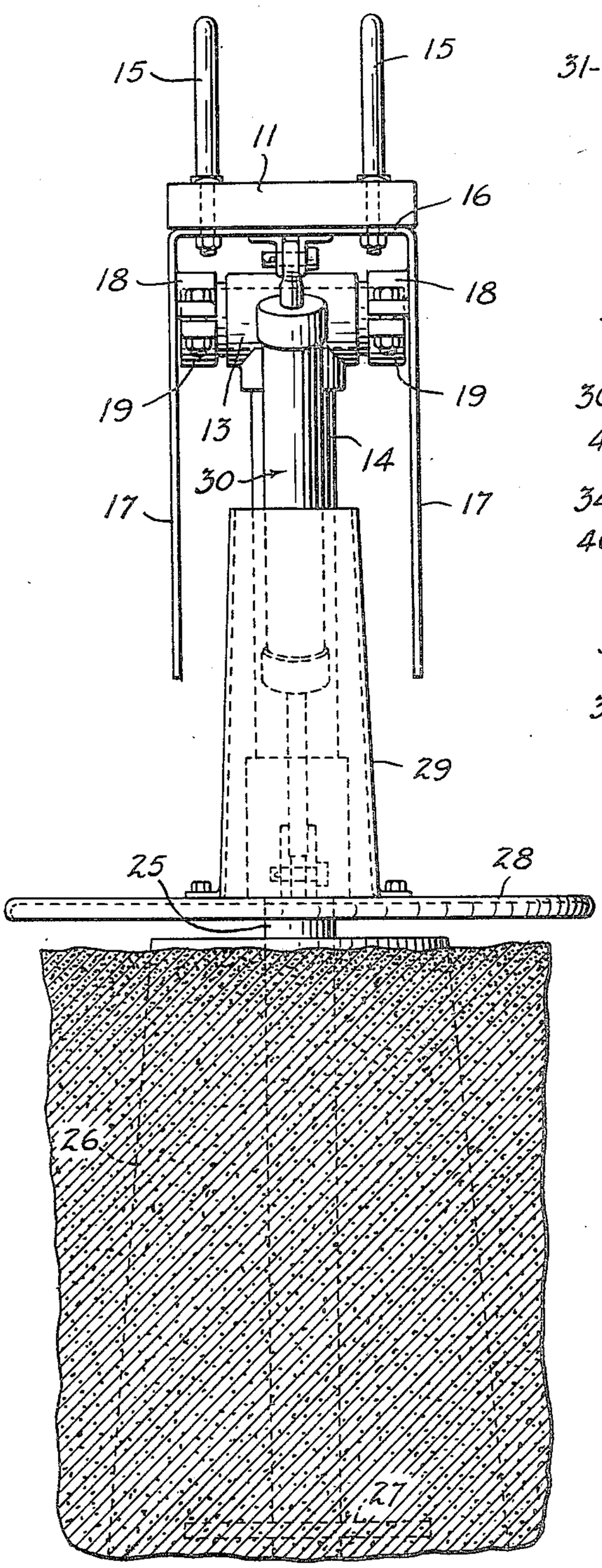

Fig. 3

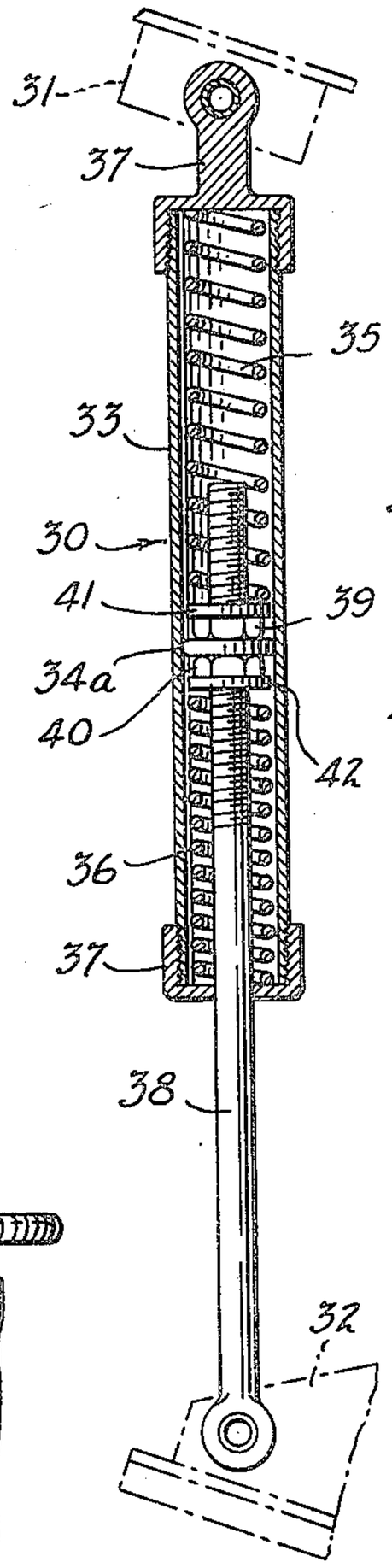

Fig. 4

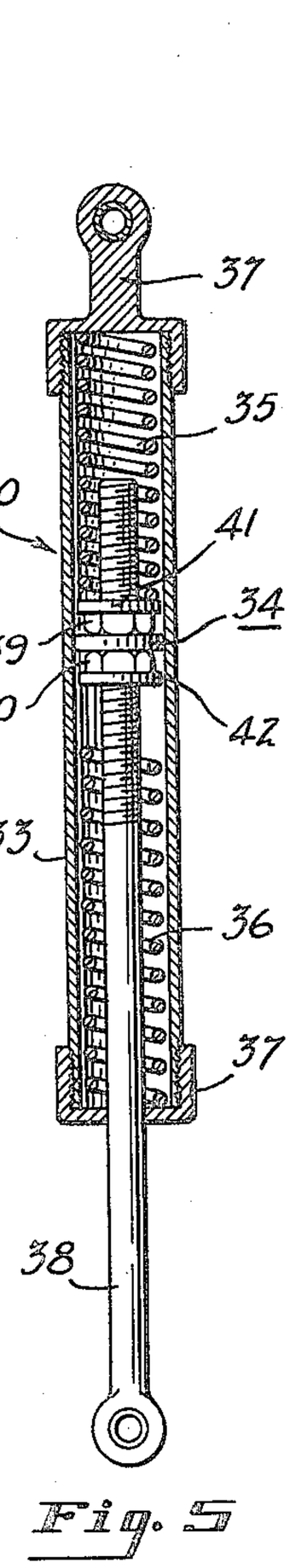

Fig. 5

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3 Sheets-Sheet 3

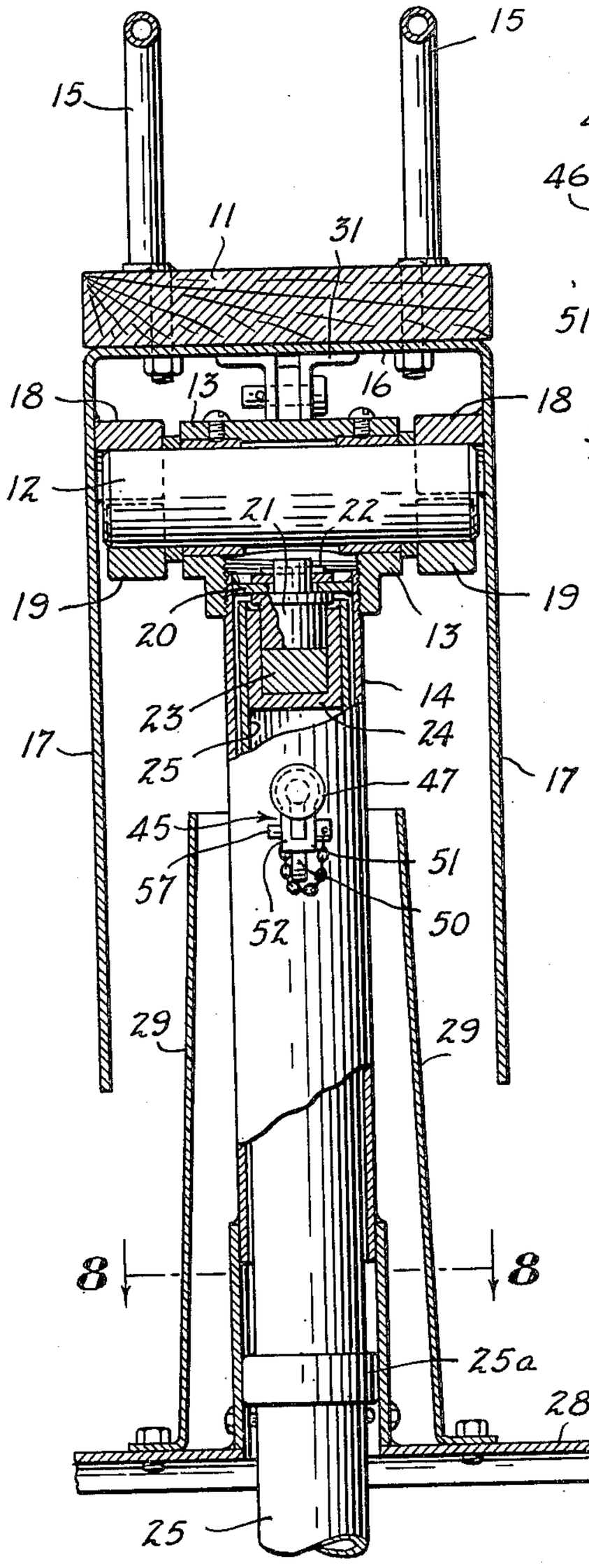

Fig. 6

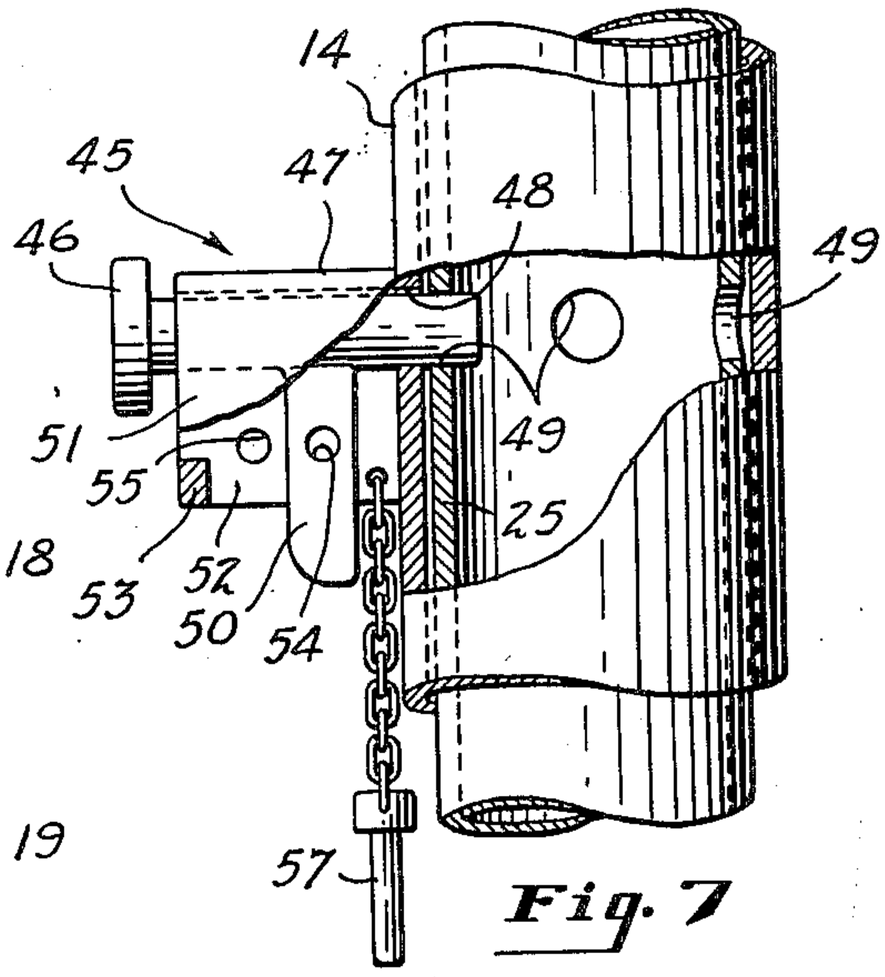

Fig. 7

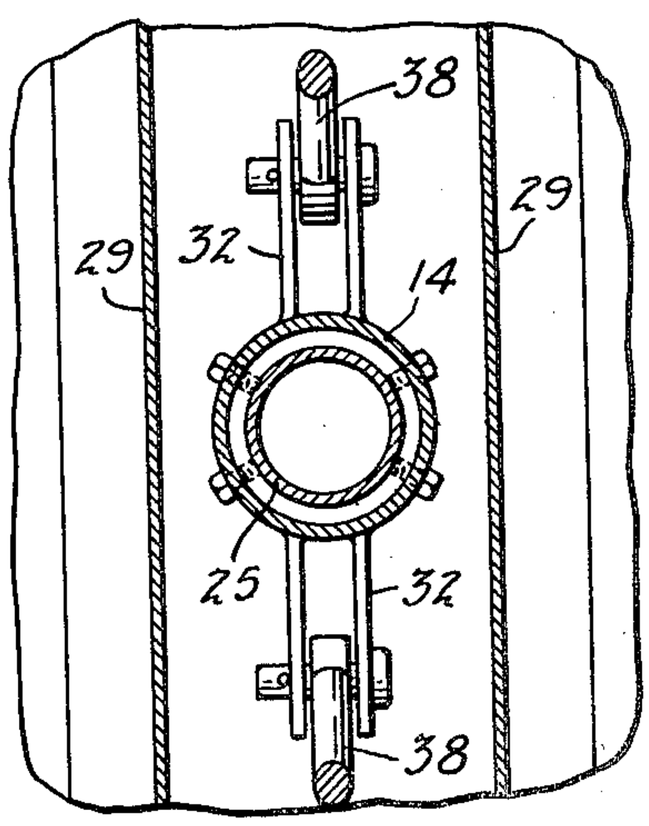

Fig. 8

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ROTATING SEESAW

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Application March 17, 1948, Serial No. 15,299

4 Claims. (Cl. 272—30)

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The present invention relates to teeter-totters which can be used outdoors in gardens or playgrounds or in other places of amusement, and more particularly to teeter-totters which can be used as merry-go-rounds.

Amusement devices of this general character, especially teeter-totters, have had one serious disadvantage in that it has been necessary for the persons to be of similar weight, for otherwise the exertion required for movement of the teeter-totter must me made almost entirely by the heavier of the two persons.

According to the present invention, a teeter-totter device is provided which can be used as a conventional teeter-totter or see-saw or as a merry-go-round and, if desired, the two movements can be combined. One of the principal features of the present invention is a control mechanism which enables the device to be enjoyed by persons whose weights are quite different. Another feature of the invention is that the device is so constructed that there is substantially no danger of accidental injury to small children.

Other features of the invention will become apparent from the following detailed description of the device, having particular reference to the drawings which form a part of this description.

In the drawings:

Fig. 1 is a side elevation of the device,

Fig. 2 is a side elevation of a portion of the device with certain areas broken away to disclose various features of the invention,

Fig. 3 is an end elevation of the teeter-totter,

Figs. 4 and 5 are cross-sectional views of details of a mechanism for controlling the operation of the device,

Fig. 6 is an enlarged end view of the device partly in elevation and partly in vertical cross-section,

Fig. 7 is an elevation, partly in vertical cross-section, of a detail for optionally preventing the device from being used as a merry-go-round, and

Fig. 8 is a horizontal cross-sectional view taken along line 8—8 of Fig. 6, showing a portion of the support for the teeter-totter.

As shown in Figs. 1, 3 and 6, a board 11 is secured to an axle 12 which is rotatably supported in a bearing 13 (see Fig. 6) secured to the upper end of a vertical hollow shaft 14. This enables the board to be rocked or tilted in a vertical plane about the horizontal axis of the axle 12 to give the desired see-saw motion. The vertical shaft 14, as described more fully hereinafter, is rotatable about its vertical axis, thus permitting the desired merry-go-round motion.

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The board 11 is provided with conventional hand grabs 15, as shown, for example, in Fig. 1. A plate 16, (Fig. 6) is secured beneath the central portion of the board 11 and has depending arcuate flanges 17 which extend downwardly from the edges of the board 11 to enclose the upper portion of the supporting and rotating mechanism so as to prevent accidental injury by the moving parts of the teeter-totter. Each of the flanges 17 is provided with a semi-cylindrical portion 18 of a clamp adapted to cooperate with a second semi-cylindrical portion 19 for securing the flanges 17 and hence the board 11 to the axle 12. The portions 19 are removably bolted to the portions 18, as shown in Fig. 3, to facilitate mounting the board on the axle 12.

With particular reference to Fig. 6, the axle 12 is rotatably mounted in the bearing 13 which, in turn, is secured to the top of shaft 14, for example by a threaded connection. An annular plate 20 is secured, as by welding, to the inside of shaft 14. A bearing stud 21 is mounted in the aprture of plate 20 and loosely secured thereto, for example, by means of a cotter pin 22. The bearing stud 21 rests on a bushing 23 disposed within a housing 24 which is secured to the inside of a fixed hollow shaft 25. The shaft 25 is concentrically arranged within hollow shaft 14 and extends down into the ground for supporting the teeter-totter. The bushing 23 and bearing stud 21 permit rotation of the board in a horizontal plane when used as a merry-go-round. A side thrust bearing 25*a*, comprising an enlargemnt of or a ring disposed around the shaft 25, is provided to minimize side play btween shaft 14 and shaft 25.

The shaft 25, as seen in Fig. 1, is set into the ground in a cement filling 26. An annular flange 27 secured to the shaft 25 is embedded in the cement 26 to hold the shaft 25 firmly in place.

The lower end of shaft 14 is provided with a circular platform 28 which is positioned just above the level of the ground and will rotate when the teeter-totter is used as a merry-go-round. Guard plates 29, as shown in Figs. 1, 3 and 6, are secured to the platform 28 and extend upwardly beyond the curved edge of flanges 17 so as to enclose the moving parts of the device. These guard plates 29 include end pieces (see Fig. 3) which completely enclose the lower portion of the shaft 14 and the lower portions of two spring control mechanisms 30, as seen in Figs. 1, 2 and 3.

The control mechanisms 30 are movably secured at their upper ends to brackets 31 on the underside of the board 11, as shown in Figs. 1 and 6 and are adjustably secured to a bracket 32

fixed to the platform 28 and the shaft 14, as shown in Fig. 1. When the board 11 is tilted, for example clockwise as shown in Fig. 2, the control mechanisms 30 will be contracted and expanded respectively, as shown in Fig. 2.

With reference to Figures 4 and 5, wherein the details of the control mechanisms 30 are shown, it will be seen that each mechanism comprises a cylinder 33, a piston 34 slidable therein and a pair of oppositely acting compression coil springs 35 and 36. The top of each cylinder 33 is provided with a cap 37 which is adapted to be pivotally connected to one of the brackets 31 secured to the board 11, and which also serves as a retaining cup for the upper compression spring 35. A retaining cup 37 for spring 36 is secured to the lower end of the cylinder 33, said cup 37 being provided with a hole to receive a connecting rod 38 attached to the piston 34. The lower end of rod 38 is affixed to the bracket 32.

The piston 34 comprises an annular disc 34a of some resilient material such as felt, which is supported on the threaded end of rod 38 by means of double lock nuts 39 and 40. Washers 41 and 42 are disposed between the bolts 39 and 40 and the ends of springs 35 and 36 respectively as shown in Figures 4 and 5.

When the teeter-totter is not in use, the board will assume a position substantially horizontal, as shown in Figure 1, since in this position the springs 35 of both control mechanisms exert equal pressure on their respective pistons and springs 36 are under no compression. This position of rest is shown in Figure 4. When the board 11 is rocked to the position shown in Figure 2, the right-hand control mechanism 30 will be compressed in the manner shown in Figure 5. In this position the cylinder 33 has been pushed downward, thus causing the piston 34 to move against spring 35 compressing the same. On the other hand, the left hand control mechanism 30 is extended, as seen in Figure 2. The cylinder 33 is raised upward so that the piston 34 moves against and compresses the lower spring 36. Thus, it will be seen that when the board is in the position shown in Figure 2, the lower spring 36 of the left-hand control mechanism and the upper spring 35 of the right-hand control mechanism 30, both tend to urge the board 11 back to the normal position.

According to the present invention, the lower springs 36 have greater strength than the upper springs 35. For example, the lower springs 36 may have a compression of 145 pounds per inch while the upper springs 35 may have a compression of 45 pounds per inch.

When the amusement device is to be used by persons having substantially the same weight, the adjustable lock nuts 39 and 40 on rods 38 of the control mechanisms 30 will be at that position where the springs 35 and 36 will not be compressed when the board 11 is in the normal substantially horizontal position. When the teeter device is being used, substantially the same force will be applied by the springs 35 or 36 whether the board has been tilted to the right or the left.

When the teeter device is to be used by persons having unequal weights, the weight of the heavier person may be compensated for by adjusting the double lock nuts 39 and 40 so that the position of the board at rest will be at an angle to the horizontal. In this way two persons of unequal weight will offset the angle of the board at rest so that the two persons when seated on the ends of the board will bring the board into a substantially horizontal position. If desired, similar adjustments may be made on one or both of the controlling mechanisms or the adjustments can be made in opposite directions on each of the controlling mechanisms. Referring specifically to Figure 4, which shows the control mechanism assembly in its normal position of rest, it will be seen that if the lock nuts 39 and 40 are raised, this will compress spring 35 which will in turn push cylinder 33 upwardly, thus tilting the board 11 in a clockwise direction, as shown in Figure 2. When the board is tilted in this direction, the cylinder 33 of the other control mechanism will be pressed downwardly thereby compressing spring 35 of this control mechanism. The ultimate position of the body 11 will be determined when the force exerted by each of the springs 35 balance one another. Conversely, the double lock nuts 39 and 40 may be lowered on the rod 38, thereby normally tending to compress spring 36. This in turn will cause the cylinder 33 to be lowered, thus tilting the board 11 in a counterclockwise direction. This action on the right-hand control mechanism will, in turn, tend to compress lower spring 36 so that the ultimate position of the board will be determined when the springs 36 of each control mechanism balance each other.

As shown in Figures 1, 2 and 6, and in detail in Figure 7, a locking mechanism 45 is provided to prevent rotation of the board 11 in the horizontal plane, thus restricting the use of the device to a teeter-totter or see-saw. The mechanism 45 comprises a slidable bolt 46 disposed within a housing 47 secured to the outside of shaft 14. The bolt is adapted to slide into hole 48 provided in a rotatable shaft 14 and one of the holes 49 provided in fixed shaft 25 when the hole 48 registers with one of them.

The bolt 46 is provided with a depending lug 50 which is slidable between flanges 51 and 52 of the housing member 47. A stop 53 for the lug 50 is provided to prevent the bolt 46 from being entirely withdrawn from the housing 47. The lug 50 is provided with a hole 54 which will register with either of holes 55 provided in the flanges 51 and 52 depending on the position of the bolt 46. When the hole 54 is registered with one of the holes 55, a tethered locking pin 57 can be inserted to secure the bolt 46 in the desired position. When the bolt is partially withdrawn so as not to engage the hole 49, the teeter can be used as a merry-go-round; whereas when fully inserted the bolt 46 will engage one of the holes 49, as shown in Figure 7, and will prevent the mery-go-round movement so the device can be used only as a teeter-totter.

While the present invention has been described with particular reference to the modification illustrated in the attached drawings, it will be understood that the invention is not limited thereby and that various modifications which would be obvious to a man skilled in the art, are to be included within the scope of this invention. For example, suitable lubrication fittings and various mechanical equivalents may be used without departing from the spirit and scope of the present invention, which is defined by the appended claims.

What is claimed is:

1. In an amusement device having a teeter board mounted on a support adjacent its longitudinal center so as to rotate in a vertical plane, a pair of spring controlled mechanisms for resisting rotation of the board located one on each side of the center of rotation thereof, each of

said mechanisms being connected to the teeter board and to the support and comprising a light compression spring and a heavy compression spring in mutually opposed relation and means therebetween for compressing said springs one at a time when the board is rotated in alternate directions, said compressing means being adjustable to vary the compression of one of said springs, the compressing means of both mechanisms being adjusted so that the light spring of one mechanism will be compressed during initial rotation of the board and the heavy spring of the other mechanism will be compressed during further rotation of the board in the same direction.

2. A device as claimed in claim 1 wherein each of said mechanisms also comprises a cylinder within which said springs are disposed, and wherein the compressing means of each mechanism comprises a piston slidably within the cylinder and between the springs.

3. A device as claimed in claim 2 wherein each cylinder is connected to the teeter board at a point removed from the axis of rotation thereof and each piston is connected to the support.

4. A device as claimed in claim 1 wherein the compressing means of each mechanism maintains the light spring thereof under compression when said board is at rest.

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