March 12, 1957 W. M. BAKULA 2,784,968

SAFETY TEETER-TOTTERS

Filed July 18, 1955

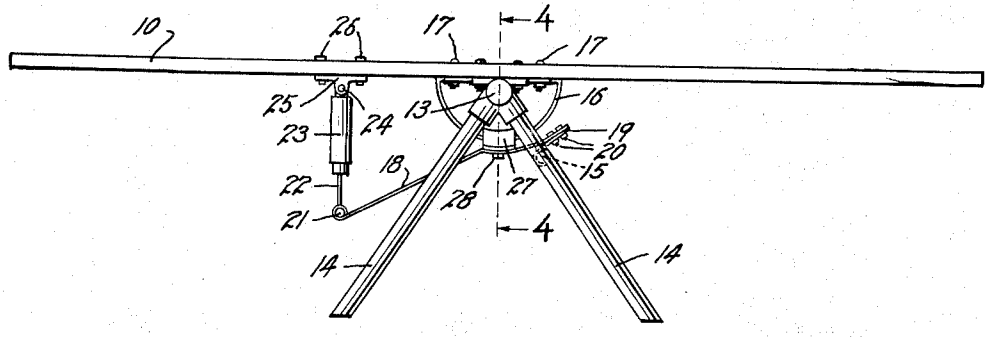


Fig 1

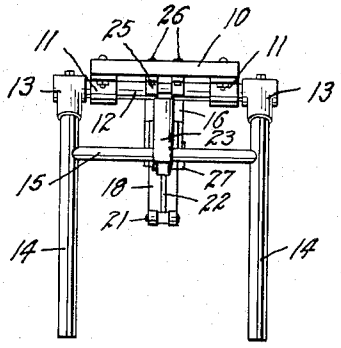


Fig 2

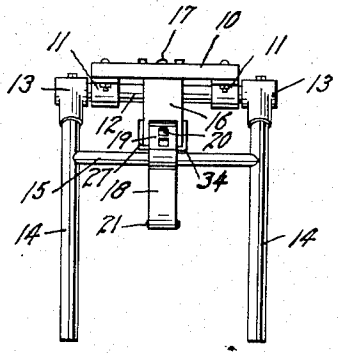


Fig 3

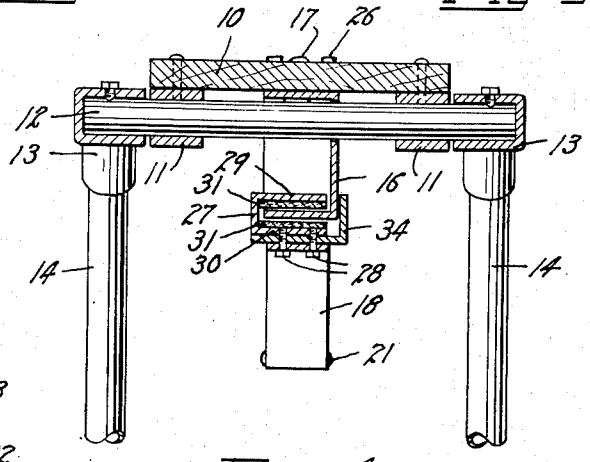


Fig 4

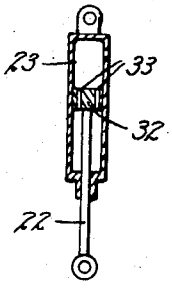


Fig 5

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SAFETY TEETER-TOTTERS

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3 Claims. (Cl. 272—54)

This invention relates to a child's amusement device of the type usually designated as a "teeter-totter" and has for its principal object the provision of a safety device which will prevent the teeter-totter board from moving faster than a pre-set safe speed.

Children are often injured on teeter-totters due to a child at the lower end of the board either jumping or falling from the board so as to allow the child at the higher end of the board to drop with damaging results. This invention is designed to provide a safety control device or governor which, will act, if the lower extremity of the board is released when the higher extremity is loaded, to apply a braking action which will allow the loaded extremity to descend at a safe speed so as to prevent injury to the child thereon.

Another object of the invention is to so construct the improved teeter-totter safety device that it can be quickly and easily applied to any of the conventional teeter-totter boards.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the drawing:

Fig. 1 is a side elevation of a conventional teeter-totter with the invention applied thereto;

Fig. 2 is a left end view of the device of Fig. 1;

Fig. 3 is a right end view thereof;

Fig. 4 is an enlarged, detail, cross-section, taken on the line 4—4, Fig. 1; and

Fig. 5 is a detail, longitudinal section through a shock absorbing device of a type employed in the invention.

In the drawing, a conventional teeter-totter board is illustrated at **10** mounted by means of bearing members **11** upon a horizontal cross bar **12**. The cross bar may be supported in any desired manner such as by means of suitable pipe fittings **13** supported upon tubular, flaring supporting legs **14**. The method of mounting and supporting the teeter-totter board **10** is simply illustrative, as the board may be supported in any conventional manner.

The improved safety device or governor comprises a semi-circular, flanged brake drum **16** which is secured to the mid-portion of the board **10** about the cross bar **12** in any desired manner, such as by means of suitable attachment bolts **17**, so as to extend downwardly from and below the board **10** with its flange positioned concentrically about the axis of the cross bar **12**.

A cross brace bar **15**, carrying an attachment bracket **19**, is welded or otherwise secured between two opposite legs **14**. An elongated leaf spring **18** is secured at its one extremity to the attachment bracket **19** in any desired manner, such as by means of bolts **20**. The leaf spring **18** extends beneath the brake drum **16** and terminates at its other extremity in a hinge pin **21** to which the plunger **22** of a shock absorbing cylinder **23** is secured. The shock absorbing cylinder may be a conventional

vehicle shock absorber of a type to allow the plunger to move freely at speeds below a pre-set speed and to resist movement of higher speeds. A shock absorber of this type is illustrated in Fig. 5 in which the cylinder **23** contains a piston **32** to which the plunger **22** is secured. The piston is provided with by-pass passages **33** through which hydraulic fluid may flow as the cylinder moves upwardly and downwardly relative to the piston **32**. Since the fluid can only pass at a predetermined rate, determined by the size of the by-pass passages, additional force applied will tend to cause the piston **32** to move with the cylinder **23**.

The shock absorbing cylinder **23** is suspended at its upper extremity from a hinge pin **24** mounted in suitable attachment brackets **25** bolted beneath the board **10** by means of suitable attachment bolts **26**.

A channel-shaped brake shoe member **27** is secured on the leaf spring **18**, at the point where the latter passes beneath the brake drum **16**, by means of suitable cap screws **28**, or in any other desired manner. The channel-shape of the brake shoe provides an upper braking portion **29** above the flange of the drum **16** and a lower braking portion **30** below the flange of the drum **16**. Each braking portion is provided with a suitable brake lining **31**.

The linings **31** are normally spaced apart sufficiently so as not to engage the flange of the brake drum **16**. However, if the extremity of the leaf spring **18** is forced upwardly, the lining on the lower brake portion **30** will frictionally engage the flange of the brake drum and retard movement. If the extremity of the leaf spring **18** is forced downwardly, the lining on the upper brake portion **29** will frictionally engage the flange of the brake drum **16** and retard movement.

The upward and downward movements of the leaf spring **18** are instigated in consequence of the relative movement of the shock absorbing cylinder **23** about the piston **32**. Let us assume that there are two children on the board **10** and that the left extremity is elevated. Now let us assume that the child on the right extremity leaves the board. The other child will start to descend, causing the absorbing cylinder **23** to tend to descend over the piston **32** at a faster rate than the fluid can flow through the by-pass passages **33** so that the piston **32** will be forced downwardly. This causes the plunger **22** to force the leaf spring **18** downwardly so as to bring the upper braking portion **29** of the brake shoe **27** into frictional engagement with the flange of the brake drum **16** so as to retard the descending motion to a safe speed.

It can be seen that a similar action takes place should the right extremity of the board be in the elevated position and suddenly released. In the latter case, the shock-absorbing cylinder **23** will be urged upwardly to lift the extremity of the leaf spring **18** so as to bring the lower braking portion **30** of the shoe **27** into frictional engagement with the flange of the drum **16** so as to retard the descending speed.

For all normal teetering speeds, the piston **32** will remain stationary and the hydraulic fluid will simply flow back and forth through the piston. While the device has been described as using hydraulic fluid in the cylinder **23**, it is conceivable that the same results could be obtained with the use of air as the fluid medium.

An L-shaped clip **34** is attached to the leaf spring **18** by means of the bolts **28**. The clip **34** extends upwardly and engages the drum **16** to prevent the brake shoe member **27** from being forced sidewardly therefrom.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of

the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A safety device for a teeter-totter board having a medially positioned supporting structure comprising: an arcuate brake drum secured to said board at its tilting axis; a horizontally projecting peripheral flange on said brake drum; a channel-shaped brake shoe arranged to extend above and below said flange; a lever member affixed to and supported at its one extremity from said supporting structure and being secured intermediate its extremities to said brake shoe; and a shock absorbing device secured between said board and the other extremity of said lever member and adapted to impart movement to said lever member in consequence of rapid movement of said board.

2. A safety device for teeter-totter boards as described in claim 1 in which the shock absorbing device comprises: a fluid cylinder; means securing said cylinder to said board; a piston in said cylinder; a plunger securing said piston to the said other extremity of said lever member; and means for allowing fluid to by-pass said piston at a predetermined rate of speed.

3. A safety device for a teeter-totter board as described in claim 1 in which the lever member comprises a flexible leaf spring, said spring having a shape to normally maintain said channel-shaped brake shoe out of contact with said flange.

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