July 25, 1939. A. GUEYDAN 2,167,068

TOY APPARATUS

Filed Feb. 26, 1938

Fig. 1

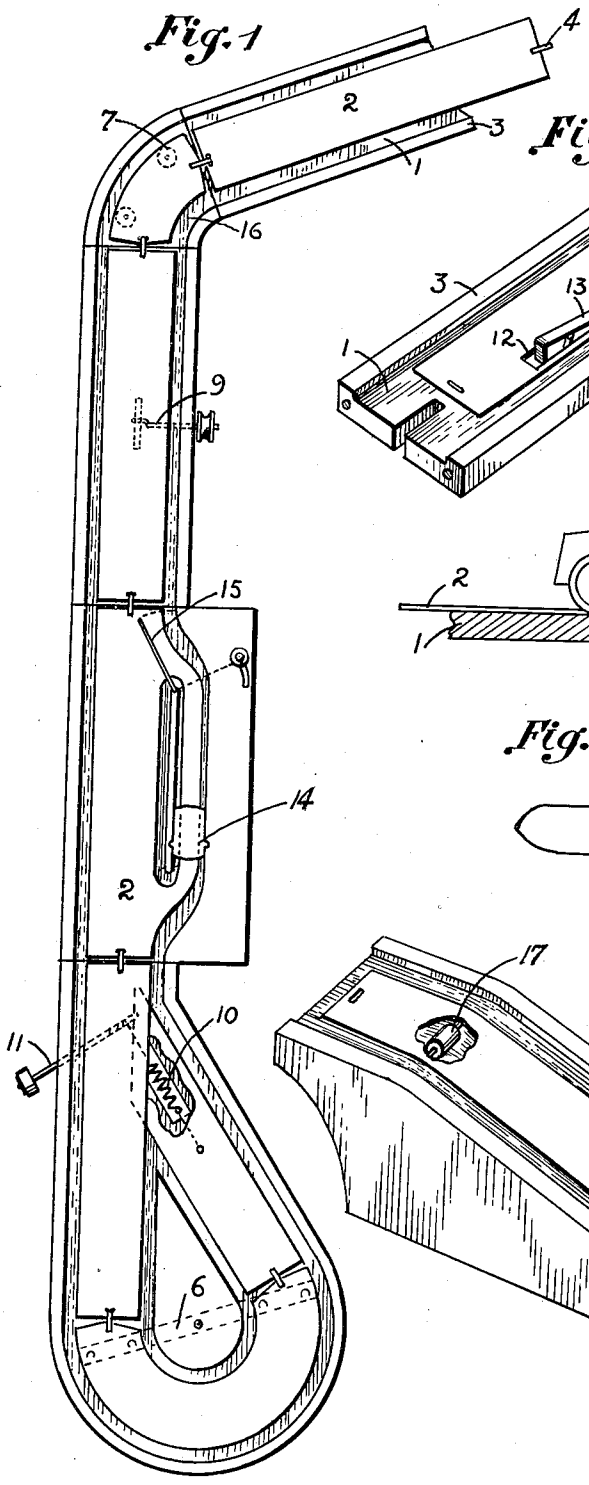


Fig. 2

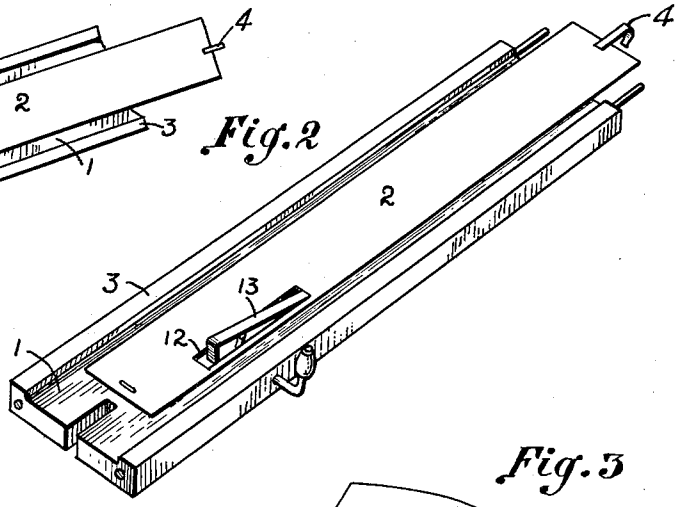


Fig. 3

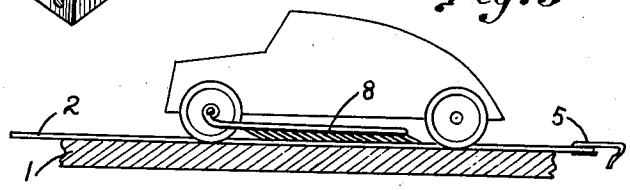


Fig. 4

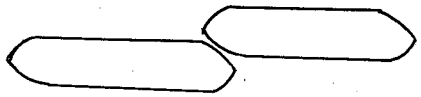


Fig. 5

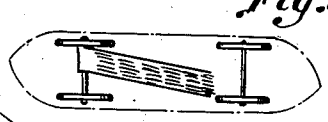


Fig. 6

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Patented July 25, 1939 2,167,068

UNITED STATES PATENT OFFICE

2,167,068

TOY APPARATUS

Arthur Gueydan, Lausanne, Vaud, Switzerland

Application February 26, 1938, Serial No. 192,758
In Switzerland March 7, 1937

7 Claims. (Cl. 46—201)

My invention relates to a toy railway, autoroad or the like in which vehicles are propelled by the action of unidirectional clutching means, i. e., a brush having inclined hairs, stems or the equivalent, engaging with a vibratable member stretched on the path of the vehicles.

It enables the construction of roads or railway lines of various lengths and configurations. Other important improvements or modifications are described in the following specification and in the accompanying drawing given by way of example.

Fig. 1 is a partial view of the toy device applied to an autoroad.

Fig. 2 shows a straight part of the autoroad.

Fig. 3 illustrates a vehicle fitted with a hinged brush.

Fig. 4 is a plan view of vehicles having angled nose parts.

Fig. 5 shows the under part of a vehicle fitted with a diagonal brush.

Fig. 6 is a view of an inclined part of the road.

Fig. 1 shows partially an autoroad comprising a plurality of straight and curved interconnected parts. Said parts comprise each, a base plate 1, a vibratable member 2, preferably made of cloth, paper or other light material and a border 3 which in some cases may be made to overlap the vibratable member's edges. The bases and the vibratable band parts are connected to one another by means of hooks, clamps or any suitable attachment, 4, 5. In the curved parts, the vibratable band is pivoted by means of a rigid element or arm 6, said arm upon which is fixed the curved band part, is mounted on the base so as to pivot about its centre, thereby imparting a concentrical to and fro motion to the band when same is vibrated, or it may also be made of stiff material engaging with rollers 7, said rollers being preferably mounted on the base under the vibratable band and said band being provided on its under face with a concentrical ridge or rail engaging on the said rollers in order to move or slide concentrically upon same during the band's vibration. The vehicles, Fig. 3, are fitted with a brush 8, preferably hingedly mounted under its base and engaging with the band 2. Said brush may consist of hairy material, such as plush, resilient stems or thin wires, bent rearwardly, so as to propel the vehicle during the band's reciprocation. The borders 3 are used to prevent the vehicles from running outside their track and in some cases to protect the band's edges. The vehicles, being capable of running both ways on the same road, are kept on their own side, (*a*) by giving the wheels a slight outward direction, (*b*) by disposing the brushes or stems diagonally to the vehicle's axis, Fig. 5, or on one side thereof, (*c*) by displacing the vehicle's centre of gravity, (*d*) by providing the base plate with a small ridge or with a groove, (*e*) by leaving some space between the vibratable band's edge and the base's border whereby the band's action will only be exerted on the inner part of the brush.

By giving the front wheels of the vehicle a slight outward direction, the vehicle will be directed and maintained against the border and the opposite side of the road will be kept free. By disposing the brushes 8 diagonally to the vehicle's axis, such as illustrated, Fig. 5, the vibrating band will cause the vehicle to be drifted sideways and kept running in contact with the border. By displacing the vehicle's centre of gravity on one side, i. e., with a small weight, the vehicle will be given, during its motion, a constant tendency to pivot around its heaviest side until it comes against the border which will lead it straight. The same result of keeping the vehicles on their correct side may be obtained by causing the wheels of same to follow a small groove or depression provided on the road's base; or, some space may be left between the border and the vibratable band's edge, providing thereby a sort of furrow which the outer wheels are made to follow; it will be seen moreover that only the inner portion of the brush will engage with the vibratable band and that the vehicle will thereby receive from the inner side a greater impulse or thrust against the border which will cause it to keep off the middle of the road.

The actuating means comprise mainly a rotatable crank 9, acting upon the vibratable member, the end or ends of said member being connected to the base plate by means of a spring 10, the tension of which may be regulated at will by means of a screw 11. It will be seen that the use of two springs, one on each end of the band 2, acting by compensation on the band makes the crank's rotation easier and thus allows the construction a long road. The crank may be rotated by hand or motor, the reciprocating motion being preferably very swift and short in order to make the road's vibrations imperceptible.

To arrest the vehicles, the road may be provided with longitudinal slots 12 for the projection of wires or blades 13 capable of being raised or lowered to momentarily disengage the vehicle's brushes. A thin blade may also be placed over

the track **14**, for the same purpose. It will be seen that when a vehicle has stopped on such a blade, i. e., in front of a tank station, it will be pushed forward by another vehicle coming behind same and which will take its place. In order to allow the vehicles to pass by or outrun one another, their rear and front parts may be shaped, as illustrated, Fig. 4. They are in such case provided with an angled nose **3***a* and **3***b* situated outside the vehicle's middle line, so that, one of the vehicles moving slower or being arrested, the following vehicle coming against its rear part will be pushed aside and made to slide by.

Fixed or movable guides **15**, are used to lead the vehicles in a determined direction, i. e., a siding. In order to maintain the vehicles on their path when following an outside curve, the space **16** between the band's edge and the border may be made wider so that, the band's action being exerted only on the innermost portion of the brush engaging with same, the vehicle will receive a greater thrust which will keep it running against the bent border. The road may comprise inclined parts, Fig. 6, and the band maintained flat on the base by means of small rollers **17** and **18** which allow its easy sliding.

A small toy railway made according to the present invention comprises merely the above described features, the borders being in such case replaced by rails. The engine may be fitted with opposite brushes capable of being raised or lowered separately, in order to control the train's forward or backward motion.

Crossings, sidings, signals may be combined with the described toy apparatus which may also be used for advertising or display purposes. The vehicles may be in some cases replaced by ships or other articles.

Having thus described my invention, I declare that what I claim is:

1. Toy apparatus comprising a vibratable band stretched between borders provided on a supporting base and vehicles fitted with brushes or the equivalent engaging said band, to be moved thereon.

2. Toy apparatus comprising in combination: a road formed by a number of base plates fitted with borders or rails, a band stretched and actuated to and fro between said borders and vehicles mounted on wheels capable of rolling on the rails or on the motionless part of the road and fitted with non-return brushes or the equivalent engaging with the movable band.

3. Toy apparatus according to claim 1, characterized in that the space between the borders is of such breadth as to allow the passing by and running of vehicles in both directions.

4. Toy apparatus comprising a vibratable band stretched between borders provided on a supporting base and vehicles to be moved thereon provided with brushes or the equivalent engaging with the band, said brushes being disposed so as to thrust the vehicles sideways against the border.

5. Toy apparatus comprising in combination, a number of interconnectable straight and curved base plates provided with borders, an equivalent number of interconnectable band parts stretched upon the base plates and between the borders, a regulatable spring adapted at each end of the band, a vibration producing element acting upon the band, vehicles mounted on wheels and fitted with brushes or the equivalent engaging with the vibratable band and diagonally disposed, whereby the vehicles are made to run on one side of the road and movable plates to momentarily keep the brushes out of contact with the band.

6. Toy apparatus according to claim 5 characterized in that the front and rear part of the vehicles present a diagonal surface whereby they will be deviated sideways when encountering one another.

7. Toy apparatus comprising in combination: a road formed by a number of base plates fitted with borders or rails, some of said base plates presenting an inclined surface and being provided with rollers, a vibratable band stretched and actuated to and fro between said borders and kept flat upon the inclined base surface by means of said rollers, and vehicles fitted with non-return brushes or the equivalent engaging with the band, to be moved along the level and inclined parts of the road.

ARTHUR GUEYDAN.