Oct. 2, 1945. H. A. BIBY 2,385,965

TOY BULLDOZER

Filed March 26, 1945 2 Sheets-Sheet 1

Fig. 1

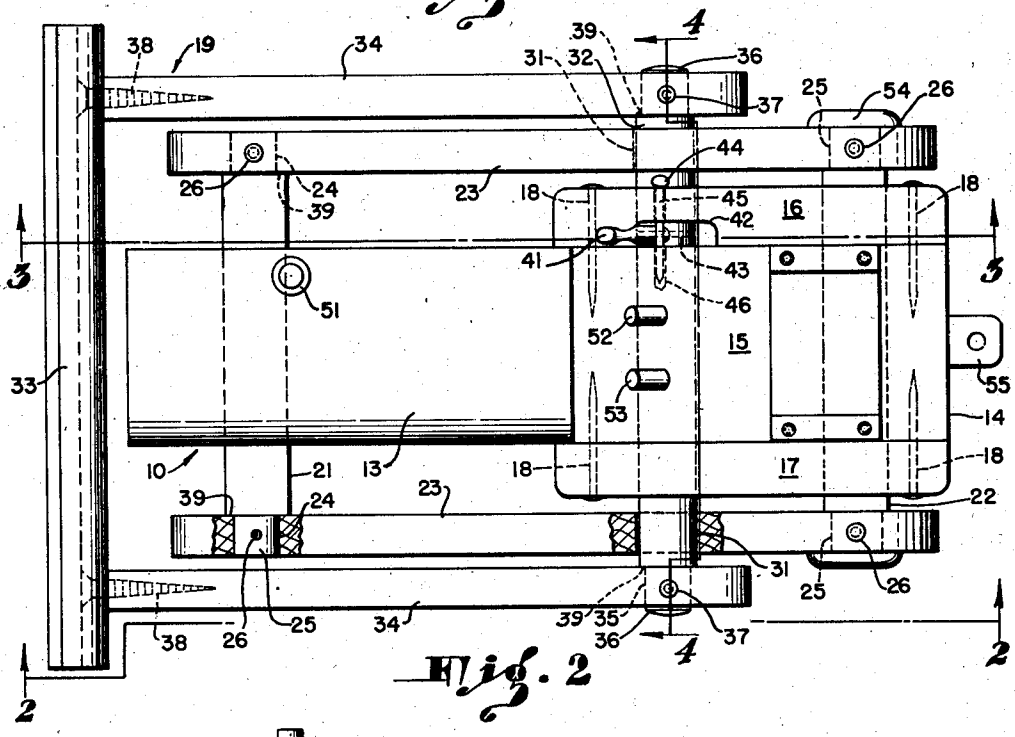
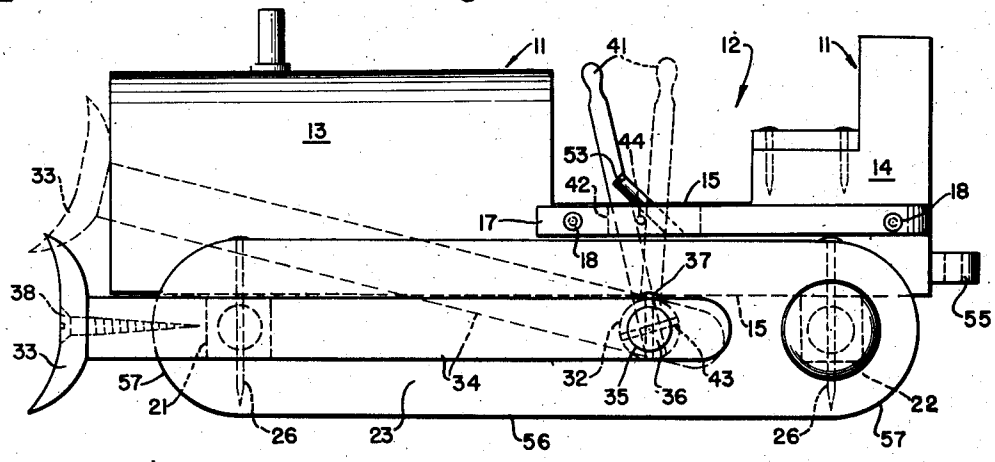


Fig. 2



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Fig. 3

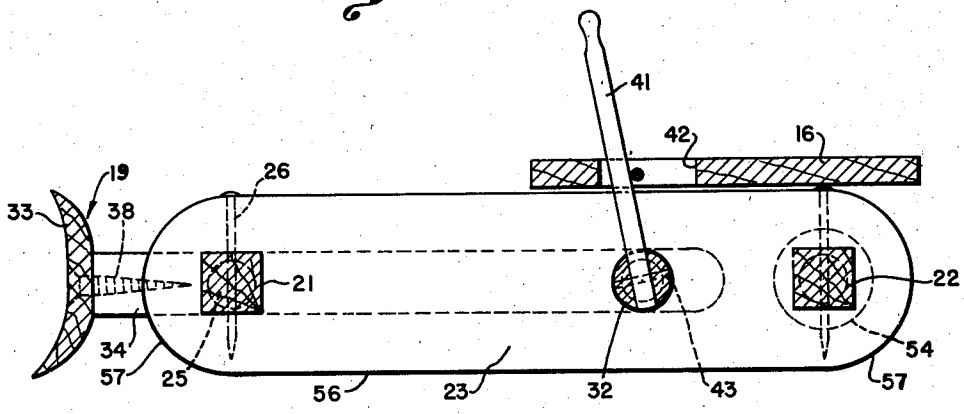
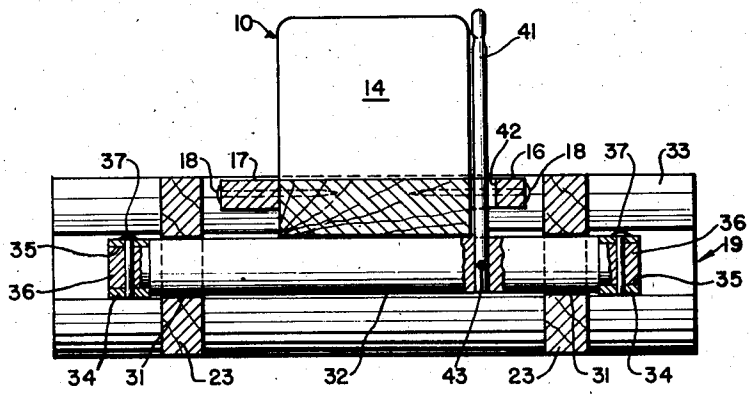


Fig. 4



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TOY BULLDOZER

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Application March 26, 1945, Serial No. 584,771

7 Claims. (Cl. 46—40)

This invention relates to children's toys, and has as its object to provide a toy simulating a bulldozer.

A more specific object of the invention is to provide a toy bulldozer having a blade which may be raised and lowered while the toy is being pushed by the child.

A further object is to provide a toy bulldozer including a blade which may be manipulated by a relatively simple control mechanism including a lever positioned adjacent an operator's seat.

A further object is to provide a bulldozer which may be used by a child to excavate and pile up sand or loose earth in a manner closely simulating the action of a real bulldozer. The invention further aims to provide a toy bulldozer capable of being used in this manner and which includes a blade and raising mechanism therefor, by means of which the blade may be manipulated from the rear of the toy as the child pushes it ahead of him.

A further object of the invention is to provide a toy bulldozer including a body portion simulating a track-tractor including simulated endless track portions that are very simply and durably constructed.

Another object is to provide a toy bulldozer including a tractor body having track portions as aforesaid, which track portions provide simple bearing means for mounting a rock shaft on which the blade elevating mechanism is carried for vertical swinging movement, and which track portions also are adapted to give lateral support to the blade mechanism in the event unusual lateral strain is imposed on the blade carrying mechanism. At the same time, the invention contemplates a simple means for centering the blade carrying mechanism out of contact with the track portions so as to provide the utmost freedom of vertical movement of the blades, such centering function being a secondary function of the blade raising lever. To this end, the invention provides a simple arrangement for providing, between the central body portion of the tractor (in the form of a solid block of, e. g., wood) and a laterally projecting step member, a slot through which the lever projects.

Another object is to provide a simple means for locking the blade in its operative position, such means comprising simply a pin extended through said step member and engaging the blade elevating lever.

Further objects and advantages of the invention will be brought out in the following part of the specification.

Referring to the drawings, which are for illustrative purposes only,

Fig. 1 is a plan view of a toy embodying the invention;

Fig. 2 is a side elevation of the same;

Fig. 3 is a vertical longitudinal sectional view of the same taken on the line 3—3 of Fig. 1; and

Fig. 4 is a vertical transverse sectional view of the same taken on the line 4—4 of Fig. 1 and showing the rock shaft for the blade mounting mechanism.

As an example of one form in which the invention may be embodied, I have shown in the drawings, a toy bulldozer which comprises a main body portion, indicated generally at 10, simulating a track-tractor and a raisable blade assembly, indicated generally at 19. The main body portion 10 includes a central body portion, indicated generally at 11, formed of a solid block of material such as wood. The body portion 11 is milled or otherwise fabricated with a transverse slot 12 to form a forward central body portion 13 simulating a tractor engine and a rear central body portion 14 simulating an operator's seat, with a floor portion 15 joining the portions 13 and 14. Secured to the respective sides of the central body portion 11 and extending longitudinally substantially coextensively with the seat and floor portions 14 and 15, are a pair of step members 16 and 17 respectively, the upper surfaces of which are substantially flush with the upper surface of the floor portion 15. The steps 16 and 17 are attached by nails 18 extending through the steps and driven into the body portions 14 and 15 respectively.

Secured to the under side of the central body portion 11, near the forward and rear ends thereof respectively, are a pair of axle members 21 and 22 respectively, to the end of which are attached the track members 23. The track members 23 are in the form of solid blocks of material, such as wood, and each is provided with a pair of openings 24 receiving respective reduced portions 25 on the ends of the axle members 21 and 22. The reduced end portions 25 are secured to the track members 23 by nails 26 extended through both members and may be further secured by glueing. For maximum simplicity and sturdiness of construction, the reduced end portions 25 are in the form of cylindrical tenons and the openings 24 are also cylindrical and are formed by drilling through the blocks comprising the track members 23. The axle members 21 and

22 are comprised of short bars of wood, the central portions of which are rectangular in cross section and are nailed or screwed to the under side of the central body portion 11.

In the track members 23 are cylindrical openings 31 which form bearings for the blade frame shaft 32 which is extended therethrough and journaled therein. The blade assembly includes a blade 33 and the blade frame which comprises the blade supporting arms 34 and the shaft 32, to the ends of which the arms 34 are secured. To this end, the arms 34 are provided with openings 35 which receive reduced end portions 36 of the shaft 32 and the arms are secured to the reduced end portions 36 by short brads 37 extended through the arms 34 and the shaft portions 36. The blade 33 is securely attached to the forward ends of the arms 34 by securing elements, such as screws 38, extending through the blade and embedded in the arms 34. The arms 34 and shaft 32 are formed of wood, and the blade 33, although preferably made of metal for durability and most efficient operation, may also be made of wood for the purpose of avoiding the use of critical material, and is therefore shown as being formed of a material such as wood.

The simplest and most satisfactory construction for the joint between the arms 34 and shaft 32 is to form the shaft portions 36 as cylindrical tenons and the openings 35 as cylindrical drilled openings in which the tenons 36 snugly fit. Between the tenons 36 and the main body portion of the shaft 32, and between the tenons 25 and main body portions of the axles 21 and 22 are defined shoulders 39 which serve to space apart the arms 34 and the track members 23 respectively, and to add rigidity to these connections.

An operating lever 41 is extended downwardly through a slot 42 formed as a notch in the step 16 and defined between the step 16 and floor member 15. The lower end of the shaft 41 is extended through an opening in the shaft 32 and may be pinned to the shaft by a pin 43. The lever 41 is adapted to normally rest against the forward extremity of the slot 42 and to thereby support the blade 33 against movement below the normal operating position shown in Fig. 2. Without such support, the blade assembly would tend to buckle underneath the tractor body portion of the toy when pushed into a body of sand, etc. At the same time, the blade may be locked against upward movement from this normal operating position by means of a pin 44 extended through an opening 45 in the step 16 and into an opening 46 in the floor member 15 and crossing the slot 42 behind the lever 41. The pin 44 may also, if desired, be employed to lock the blade in the elevated position shown in dotted lines in Fig. 2, being in this case extended across the slot 42 ahead of the lever 41.

The engagement of the lever 41 with the respective sides of the slot 42 normally positions the blade assembly against lateral shifting movement in either direction and maintains the arms 34 out of contact with the track members 23. However, in the event the toy is used so roughly as to exert lateral pressure against the blade assembly sufficiently to cause the arms to yield laterally into contact with the track members 23 at their forward ends, such contact will prevent any further yielding and will thereby protect the blade assembly against substantial damage. Also, because the sides of the track members 23 are smooth and the tenons 25 do not project, it is possible still for the blade assembly to move vertically while such contact is established, and thus, in the event the connections between the arms 34 and the shaft 32 become sufficiently loose to permit the arms to readily contact the track members 23 (and it will be understood that this is likely to occur after the toy has been used for a long period of time), the toy may still be operated in its intended manner without difficulty.

In addition to the main features hereinbefore described, the toy may include embellishments such as the imitation stack member 51 and levers 52 and 53; also, the hub disc 54 covering the ends of the rear axle 22; and the draw bar connection 55 at the rear end of the central body member 11.

The operation of the toy is believed to be obvious from the foregoing description, to which may be added that the track members 23 function as skids for sliding the toy upon the surface of the ground or a body of sand, the smooth lower surfaces 56 and rounded end surfaces 57 facilitating such sliding movement. At the same time, the rounded end surfaces 57 and the straight surfaces 56 correspond in general to the outlines of an endless track of a real tractor.

I claim as my invention:

1. A bulldozer toy comprising: a body assembly simulating a track laying tractor and having a central longitudinally extending body portion and a pair of longitudinally extending skid members secured to said body portion on the respective sides thereof and projecting therebelow, and a blade assembly comprising a shaft extended through and journaled in said skid members below said central body portion, a pair of arms secured to said shaft and projecting forwardly, and a blade secured to the forward ends of said arms and extending transversely ahead of the forward end of the body assembly.

2. A bulldozer toy comprising: a body assembly including a pair of spaced, longitudinally extending, skid members simulating the endless track portions of a tractor, a blade assembly including a transverse shaft journaled in said skid members, a pair of arms secured to said shaft and projecting forwardly, a blade secured to the forward ends of said arms and extending transversely, and a lever rigidly secured in said shaft and projecting upwardly.

3. A bulldozer toy comprising: a main body assembly including a central, longitudinally extending, body portion, a pair of axle members secured to the under sides of said central body portion and projecting therefrom on either side, a pair of skid members simulating the endless track portions of a tractor, secured to the ends of said axle members and projecting below the bottom of said central body portion; and a blade assembly including a shaft journaled in said skid members and extending transversely below said central body portion, a pair of arms secured to said shaft and projecting forwardly, a blade secured to the forward ends of said arms and extending transversely of and ahead of the forward end of said body assembly, and a lever rigidly secured to said blade assembly and projecting upwardly.

4. A bulldozer toy comprising: a main body assembly including a central, longitudinally extending, body portion, including a forward upwardly projecting section simulating a toy engine,

a rear upwardly projecting section simulating an operator's seat, and a central floor section joining said forward and rear sections; a pair of axle members secured to the under side of said central body portion and projecting therefrom on either side; a pair of skid members simulating the track portions of a tractor, secured to the ends of said axle members in laterally spaced relation to the respective sides of said central body portion; a blade assembly including an axle extending through and journaled in holes in said skid members, said axle extending transversely beneath said floor portion, a pair of arms secured at their rear ends to the respective projecting ends of said axle, embracing between them said skid members and projecting forwardly, substantially parallel thereto, beyond the forward end of said body assembly, a blade secured to the forward ends of said arms and extending transversely forwardly of said forward end of the body assembly; and means attached to said blade assembly for manipulating the latter vertically above the axis of said shaft.

5. A bulldozer toy comprising: a body assembly including a step member projecting laterally and provided with a longitudinally extending slot, and a blade assembly including a shaft journaled in the body assembly and projecting beneath said step and beneath said slot transversely of the body assembly, a pair of arms secured to said shaft and projecting forwardly, a blade secured to the forward ends of said arms and extending transversely forwardly of the forward end of the body assembly, and a lever secured in said shaft and projecting upwardly through said slot, said lever being arranged to engage the forward extremity of said slot to support said blade assembly with the blade in a normal operating position.

6. A bulldozer toy comprising: a body assembly, and a blade assembly comprising a shaft journaled in the body assembly and extending transversely of the longitudinal axis thereof, a pair of arms secured to said shaft and projecting forwardly, a blade secured to the forward ends of said arms and extending transversely and forwardly of the forward end of the body assembly, and a lever secured to said blade assembly and projecting upwardly, said blade, arms, and lever comprising a rigid unit.

7. A bulldozer toy comprising: a body portion simulating a tractor, and having ground engaging means, blade supporting means pivoted to said body portion on a transverse axis toward the rear of said body portion and projecting forwardly, and a blade rigidly attached to said blade supporting means near the forward extremity of said body portion and extending transversely thereof, and a lever rigidly associated with said blade supporting means near the rear extremity thereof and projecting upwardly, said lever, blade supporting means, and blade being associated together in a rigid unitary assembly.

HOWARD A. BIBY.