PATENT SPECIFICATION 726,723

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Index at Acceptance :—**Class 132(3)**, S19(A4X : D10).

COMPLETE SPECIFICATION.

Improvements in or Connected with Toy Railway Systems.

We, TRIX LIMITED, of 11 Old Burlington Street, London, W.1, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement :—

This invention relates to toy electric railway systems and has for its object to provide a means and system whereby imitation coal or other material can be raised from an open hopper or container and deposited into a tipping truck which can be arranged to tip into the hopper or container.

According to this invention, the system incorporates a base, a hopper and a stand on the base, a conveyor belt adapted to raise material from the hopper to the upper part of the stand, an electric motor for driving the conveyor belt, a second stand, a detachable girder member adapted to be engaged and supported between the two stands, a conveyor band in said girder member adapted to receive material from the conveyor belt, a chute for receiving the material from the conveyor band and directing it into a truck or container, means for driving the conveyor band from the drive of the conveyor belt, and means for locating the rail track next to the hopper, whereby material can be raised from the hopper by the conveyor belt and conveyed by the conveyor band to the chute and discharged into a tipping truck and the tipping truck moved round to the hopper to tip the material in the truck into the hopper.

The invention will be clearly understood from the following description aided by the accompanying drawings, in which :—

Figure 1 is a perspective view showing one example of carrying the invention into effect. Figure 2 is a sectional side view. Figure 3 a section on the line III—III of Figure 2 and Figure 4 a section on the line IV—IV of Figure 2.

[*Price*

In the example shown in the accompanying drawings, the device comprises a base 1 on which is a stand 2, the lower portion of which is preferably enclosed and in which is located an electric motor 3 controlled from a remote point such as by a switch 4. In the upper part of the stand 2 is a cross-shaft 5 carrying a roller 6 and at one end a worm wheel 7 meshing with a worm 8 on a vertical shaft 9 geared to the shaft 10 of the motor 3.

On the base 1 and at a little distance from the stand is a hopper 11 having four upright walls and an inner member 12 of thin metal having sloping portions leading to a well 13 and adjacent the well 13 is a cross shaft 14 carrying a roller 15. Over this roller 15 and the roller 6 in the upper part of the stand 2 is an endless conveyor belt 16 formed of a band with outwardly directed ribs.

On the base 1 and next to the outside wall of the hopper 11 are pegs for locating a section 17 of the track in proper position in relation to the hopper. The base 1 is provided with india-rubber or resilient feet 1*a*.

A second base 18 is provided on which is a structure 19 or stand.

A girder member 20 is provided comprising two side frames connected together and having at each end a cross shaft 21, 22, each carrying a roller 23, 34, the cross shaft 21 at one end being provided with a worm wheel 25 meshing with a worm 26 on the vertical shaft 9. Over the rollers or pulleys 23, 24 is an endless conveyor band 27. Other cross shafts 28 and rollers 29 may be provided intermediate of the length of the member 20.

The girder member 20 is constructed so that one end can be detachably secured in the first stand 2 with the worm wheel 25 engaging with the worm 26 on the vertical shaft 9. For instance the girder member 20 may be provided with extending plates 30, one on each side, and having slots 31 which can engage on screws 32 which after the member 20

has been placed in position can be tightened up to hold this end of the member 20 in position.

The other end of the member 20 is positioned on the structure 19 by a pin 31 engaging in a hole in the top plate of the structure 19 so that the conveyor belt 16 can deliver material onto the conveyor band 27 and the conveyor band 27 move the material to drop into a chute 32 provided on the end of the member 20. The rear wall of the chute 32 is provided with an inwardly directed wall 33 of less length than the opening of the chute 32 so that the material drops onto the wall 33 before passing out of the chute 32.

The base 18 of the structure 19 is provided with an extension piece on which a section 35 of the track can be located.

If desired, more than one girder member can be connected together end to end so that one is below the other with the conveyor bands overlapping and gear wheels provided for intermeshing and driving the conveyor bands from the electric motor.

Preferably a straight section 17 of track is located on the base 1 next to the hopper 11 and another straight section 35 next to the other structure 18 and under the chute 32, the straight sections 17, 35 being connected to other sections to form an endless oval track. The girder member 20 is of a length that the track next to the hopper and the track next to the structure 19 are of correct distance apart for the oval track.

In use imitation coal or other material is placed in the hopper 11 and a tipping truck 36 with a locomotive positioned on the section 35 of the track with the truck 26 under the chute 32. On starting the electric motor 3 the conveyor belt 16 will raise the coal and deposit same on the conveyor band 27 and the travelling conveyor band 27 will move the coal for it to drop down the chute 32 into the truck 36.

When the truck 36 is full or has received the desired quantity of coal the electric power to the motor 3 is cut off and the power applied from the switch 4 to drive the locomotive to pull the truck around the track until it comes opposite the hopper 11 when the locomotive is stopped, and by other electrical means, such as an electro-magnet 37 in the track, the body of the truck is tipped to deposit the coal into the hopper 11 so that the truck can be continually charged, moved round and tipped.

By mounting the base 1 and hopper 11 on rubber or resilient feet 1*a* the vibration of the motor 3 will vibrate the hopper 11 and cause the coal to ride down the walls into the well.

What we claim is :—

1. Means for conveying imitation coal or other materials in a toy railway system incorporating a base, a hopper and a stand on the base, a conveyor belt adapted to raise material from the hopper to the upper part of the stand, an electric motor for driving the conveyor belt, a second stand, a detachable girder member adapted to be engaged and supported between the two stands, a conveyor band in said girder member adapted to receive material from the conveyor belt, a chute for receiving the material from the conveyor band and directing it into a truck or container, means for driving the conveyor band from the drive of the conveyor belt, and means for locating the rail track next to the hopper, whereby material can be raised from the hopper by the conveyor belt and conveyed by the conveyor band to the chute and discharged into a tipping truck and the tipping truck moved round to the hopper to tip the material in the truck into the hopper.

2. A conveyor means for toy railways as claimed in Claim 1, wherein the conveyor belt and conveyor band are mounted on rollers rotatably carried by shafts, the shaft of the upper roller of the conveyor belt and the shaft of the end roller of the conveyor band are provided with worm wheels, and a vertical shaft, driven from the motor, has worms meshing with the worm wheels on the roller shafts.

3. A conveyor means for toy railways as claimed in Claim 1, wherein the hopper comprises a container, an inner member of thin metal having sloping portions leading to a well in which the lower end of the conveyor belt is located, the base carrying the hopper having india-rubber or resilient feet.

4. A conveyor means for toy railways as claimed in Claim 1, wherein the girder member is provided at one end with the chute, the outlet of the chute being provided with an inwardly directed end wall having a gap between the end of the wall and the opposite wall of the chute.

5. A conveyor means for toy railways as claimed in Claim 1, wherein one end of the girder member is provided with side extension plates, each plate having a slot, and screws in the stand so that the end of the girder can be detachably secured to the stand by engaging the slots with the screws and tightening up the screws.

6. Conveyor means for toy railways constructed substantially as described with reference to the accompanying drawings.

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Agents for the Applicants.

PROVISIONAL SPECIFICATION.

Improvements in or Connected with Toy Railway Systems.

We, TRIX LIMITED, of 11, Old Burlington Street, London, W.1, a British Company, do hereby declare this invention to be described in the following statement :—

This invention relates to toy electric railway systems and has for its object to provide a means and system whereby imitation coal or other material can be raised from a hopper or container and deposited in a tipping truck which can be arranged to tip into the hopper or container.

According to this invention, the system incorporates a base, a hopper and a stand on the base, a conveyor belt adapted to raise material from the hopper to the upper part of the stand, an electric motor for driving the conveyor belt, a second stand having a chute for directing material into a tipping truck next to the stand, a detachable girder member adapted to be engaged and supported between the two stands, a conveyor band in said girder member adapted to receive material from the conveyor belt, means for driving the conveyor band from the drive of the conveyor belt, and means for locating the rail track next to the hopper, whereby material can be raised from the hopper by the conveyor belt and conveyed by the conveyor band to the chute and discharged into the tipping truck and the tipping truck moved round to the hopper to tip the material in the truck into the hopper.

As one example of carrying the invention into effect, the apparatus comprises a base on which is a stand or structure, the lower portion of which is preferably enclosed and in which is located an electric motor controlled from a remote point. In the upper part of the stand is a cross-shaft carrying a roller and at one end a worm wheel meshing with a worm on a vertical shaft geared to the shaft of the electric motor and on the other end a gear wheel.

On the base and at a little distance from the stand is a hopper or container having four upright walls and a suspended inner member of thin metal having sloping portions leading to a well in the centre and adjacent the well is a cross shaft carrying a roller. Over this lower roller and the roller in the upper part of the stand is an endless conveyor belt formed of a band with outwardly directed ribs.

On the base and next to the outside wall of the hopper are clips for engaging and holding a section of the track in proper position in relation to the hopper.

A second base is provided on which is a structure or stand carrying at its upper end a chute leading downwards to one side of the structure.

A girder member is employed comprising two side frames connected together and having at each end a cross shaft each carrying a roller, the cross shaft at one end being provided with a toothed wheel meshing with a small tooth wheel rotatably mounted on the member. Over the pulleys or rollers is an endless conveyor band. Other cross shafts and rollers may be provided intermediate of the length of the member.

The girder member is constructed so that one end can be detachably secured in the first mentioned stand with the small tooth wheel on the girder member engaging with the gear wheel on the shaft of the roller and the other end of the girder member in the second mentioned structure so that the conveyor belt can deliver material onto the conveyor band and the conveyor band move the material to drop into the chute.

If desired, more than one girder member can be connected together end to end so that one is below the other with the conveyor bands overlapping and gear wheels provided for intermeshing and driving the conveyor bands from the electric motor.

Preferably a straight section of track is engaged in the clips on the base next to the hopper and another straight section of track next to the other structure and under the chute, the straight sections of the track being connected to other straight and curved sections to form an endless oval track. The girder member is of a length that the track next to the hopper and the track next of the other structure are of the correct distance apart for the oval track.

In use imitation coal or other material is placed in the hopper and a tipping truck with a locomotive positioned on the track with the tipping truck under the chute. On starting the electric motor the conveyor belt will raise the coal and deposit same on the conveyor band and the travelling conveyor band will move the coal for it to drop down the chute into the tipping truck.

When the tipping truck is full or has received the desired quantity of coal the electric power to the electro-motor is switched off; the power applied to drive the locomotive to pull the truck around the track until it comes opposite the hopper when the locomotive is stopped, and by other electrical means, the body of the truck is tipped to deposit the coal into the hopper, so that the truck can be continually charged, moved around and tipped.

The suspended member of the hopper is so to speak floating so that the vibration of the motor on the thin base will also vibrate the suspended member.

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FIG. 1.

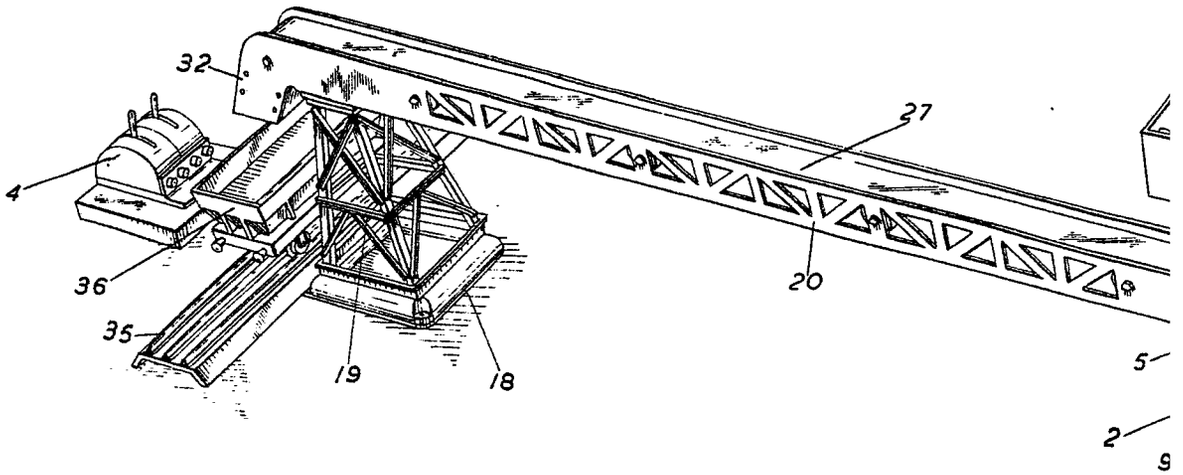


FIG. 4

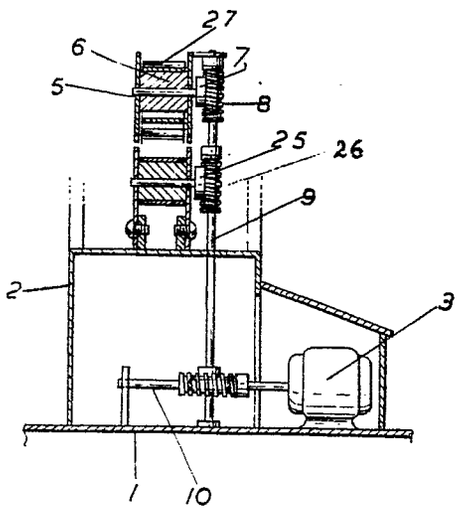


FIG. 3.

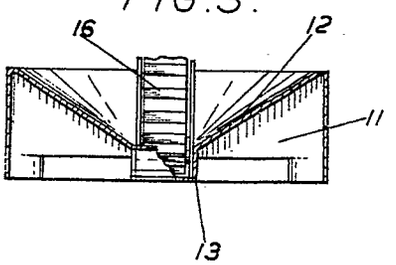
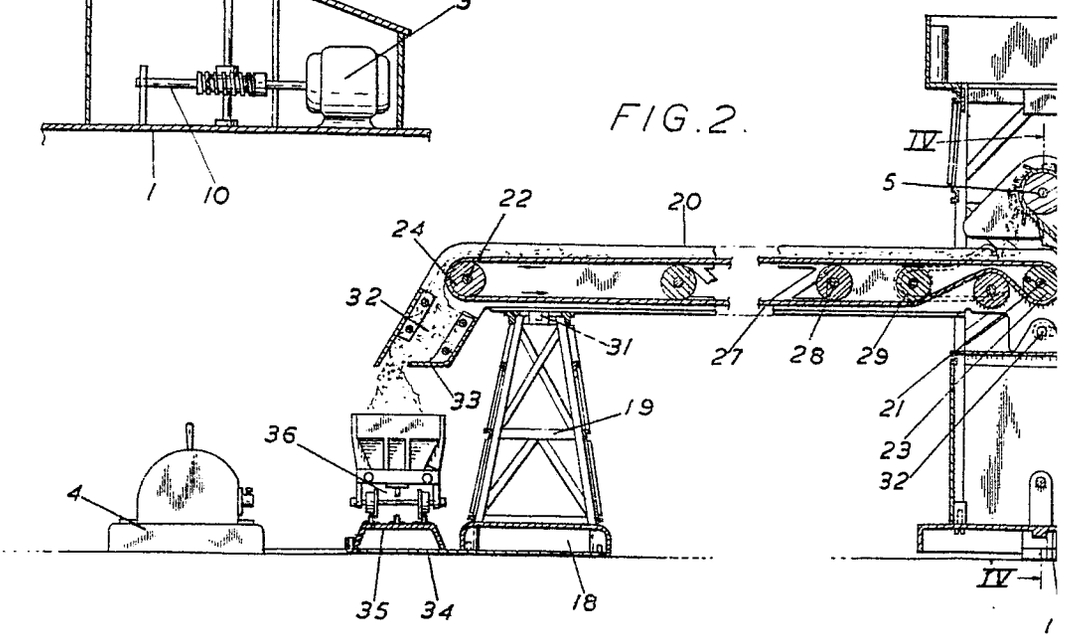


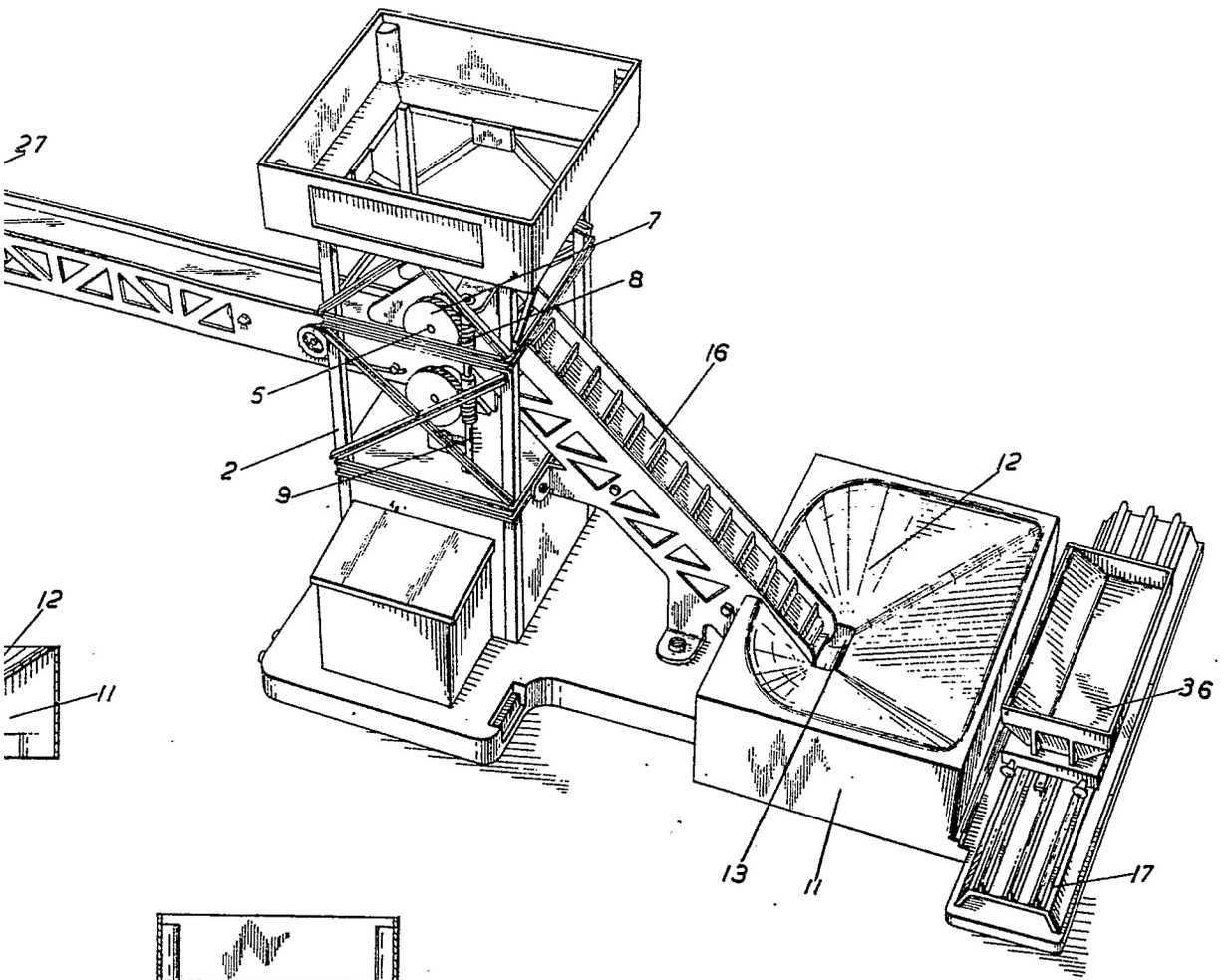
FIG. 2.



726,723 COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale.



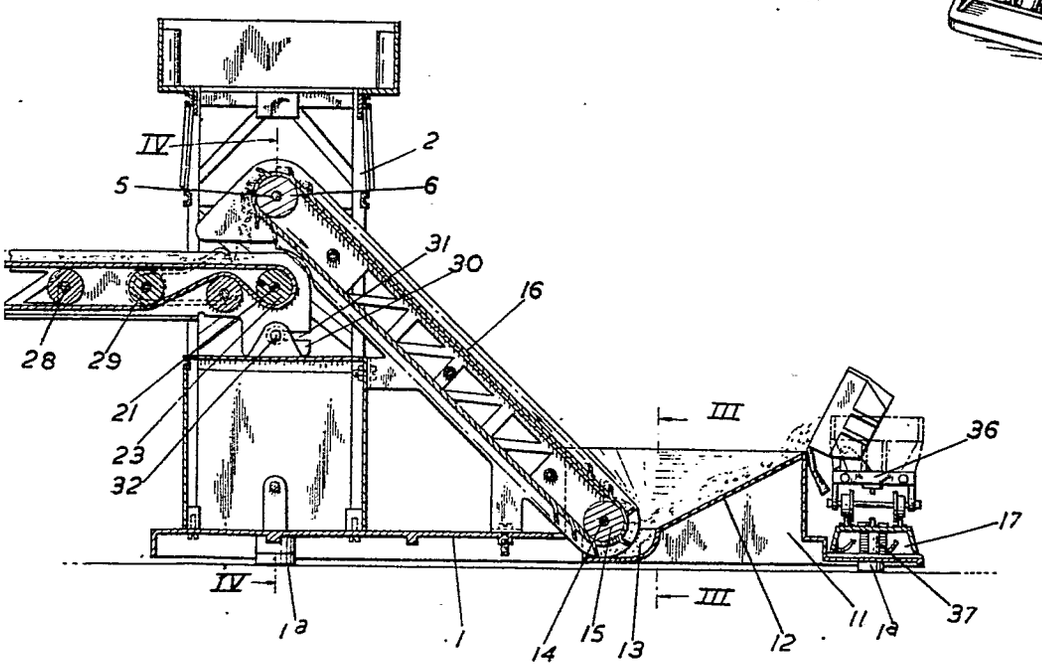


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FIG. 1

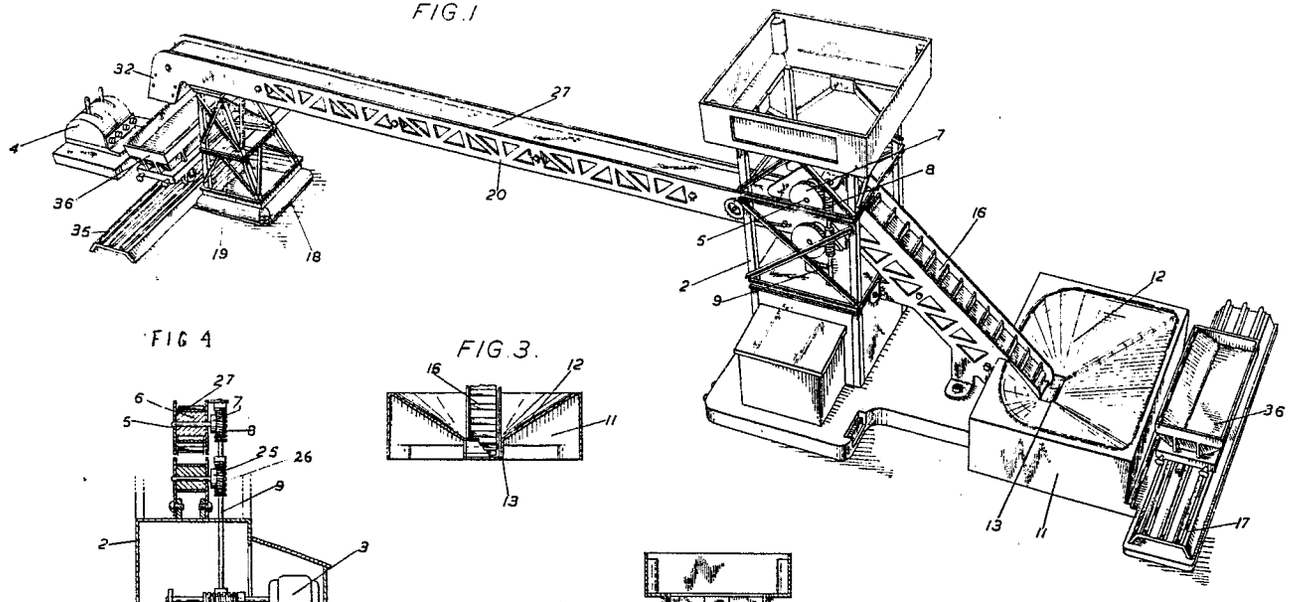

FIG 4

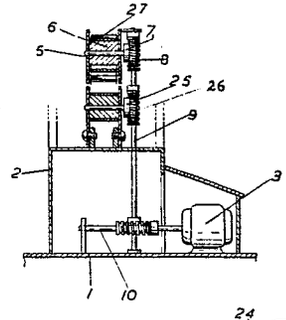

FIG. 3.

FIG. 2.