

2014

PATENT ATTORNEYS

EXAMINATION

PAPER D

The New Zealand Law and Practice

**Relating to Preparation of Specifications for New Zealand
Patents**

Regulation 158 (1) (d)

Duration: 4 hours (plus 10 minutes for reading)

General instructions for this question:

Only the prior art that is referred to is to be taken into account in your answer. You must not take into account any prior art that you are separately aware of.

This exam has only one question for a total mark of 100 for the paper.

A full set of drawings is provided at the end of this question that you may use in your answer.

Question 1.

Your client Jim McLeod is a keen motorsports enthusiast. He owns a couple of Mazda RX7 race cars that he travels the country with to go racing. His favourite event is the Targa Rally. At your meeting with Jim he tells you that he tows his race cars to race meets on a trailer behind his Toyota Landcruiser. He used to use a standard trailer and put down two ramps at the rear of the trailer to drive a car on and off the trailer deck. He found this to be simple enough but as his cars became more and more lowered, the angle that the ramps made to the deck and to the ground meant that his cars were bottoming out during the process of loading and unloading.

During your meeting with Jim he mentions that he saw a trailer manufacturer a few years ago in Hamilton who had a solution to his problems. The manufacturer was selling a trailer with a deck that could be raised and lowered parallel to the ground. He shows you a couple of pictures of it (see Prior Art 1 attached). It has a deck (D) that is supported from a frame (F) using swing arms (S). It's set up in a parallelogram like manner. This ensures that at all times, the frame and the deck remain parallel as seen in the pictures. Figure 1 shows the deck (D) lowered to the ground whilst the frame is coupled at the trailer hitch (H) to a tow vehicle. The deck is presented to allow a vehicle to drive straight on and off without needing to go up a ramp. This solves the bottoming out problem. A winch (W) with cable (B) allows a user to bring the deck up off the ground. Jim used this trailer for a while but found it had two major issues. The first was that the cable was taking up all the weight of the vehicle on the deck as it was being wound up. The cable kept snapping as a result. Secondly the trailer could not be used for loading or unloading when not hitched to a vehicle. If the draw bar was sitting on the ground for example, the deck could not be lowered enough to get the end of the deck to ground level.

Jim informs you that he designed his own trailer to address the problems with the trailer of Prior Art 1. He filed his own provisional patent application NZ612345 for it on 10 January 2014, a copy attached. He refers to this trailer as the Mark 1 trailer.

The Mark 1 trailer worked so well that he decided to start selling them. He put several pictures, showing how the trailer worked, up on the Trademe online auction website on 1 March 2014. He used pictures straight out of his patent application. He sold his first trailer on 10 March 2014 to a guy who is now using it to tow his hotrod to car events.

Jim tells you that the Mark 1 invention still has two problems. These are namely:

1. When hitched, the deck in the lowered position is still at an angle as seen in figure 3 of his patent.
2. The arms 22 are each independently pivoted. Even though the cable gets wound in at the same speed on each side, one cable may be taking way more load. This may happen if for example the load on the trailer sits closer to one side of the trailer compared to the other.

Jim tells you of his solutions to these two problems. He shows you his drawings for what he calls his Mark 2 Invention and explains.

He explains that the second problem is overcome by connecting the arms together. So that they are connected in a manner that does not interfere with the load on the deck, he has made each arm (A) really long and put a steel beam (B) across. A single cable (C) is now connected to the beam (B).

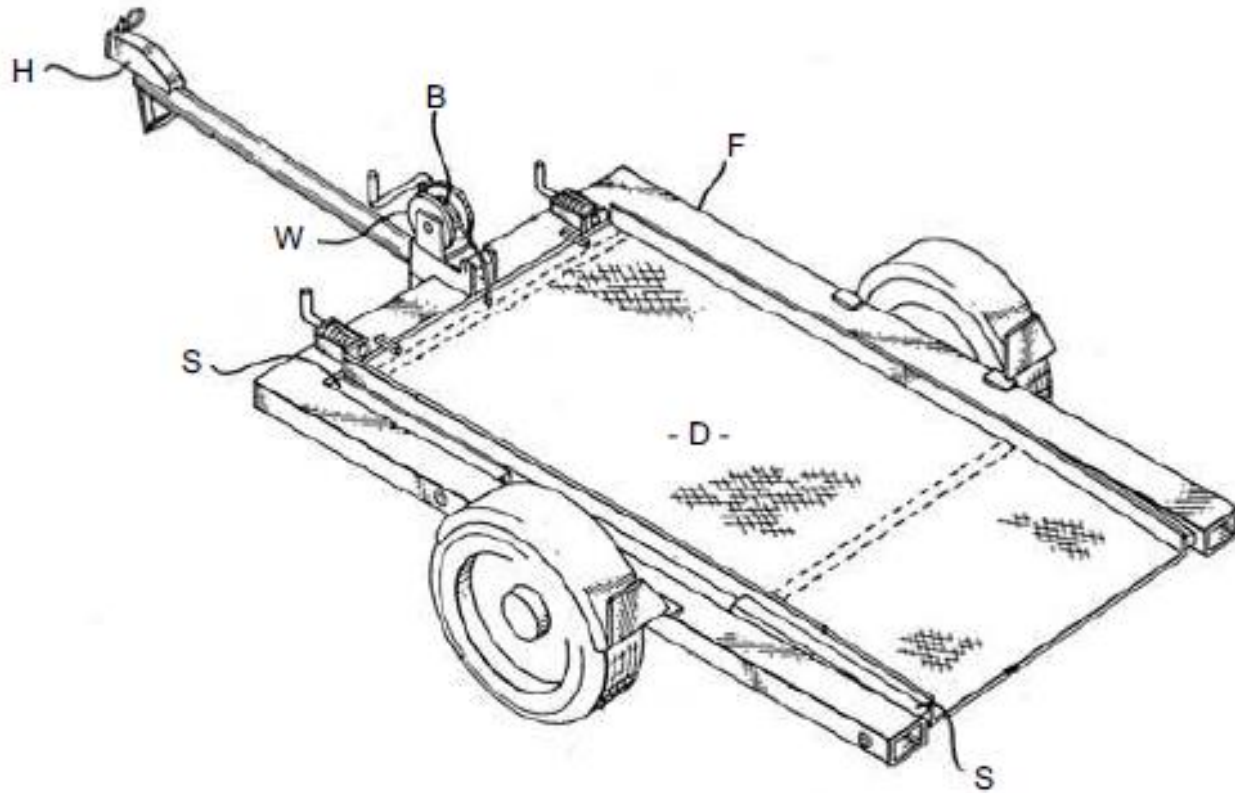
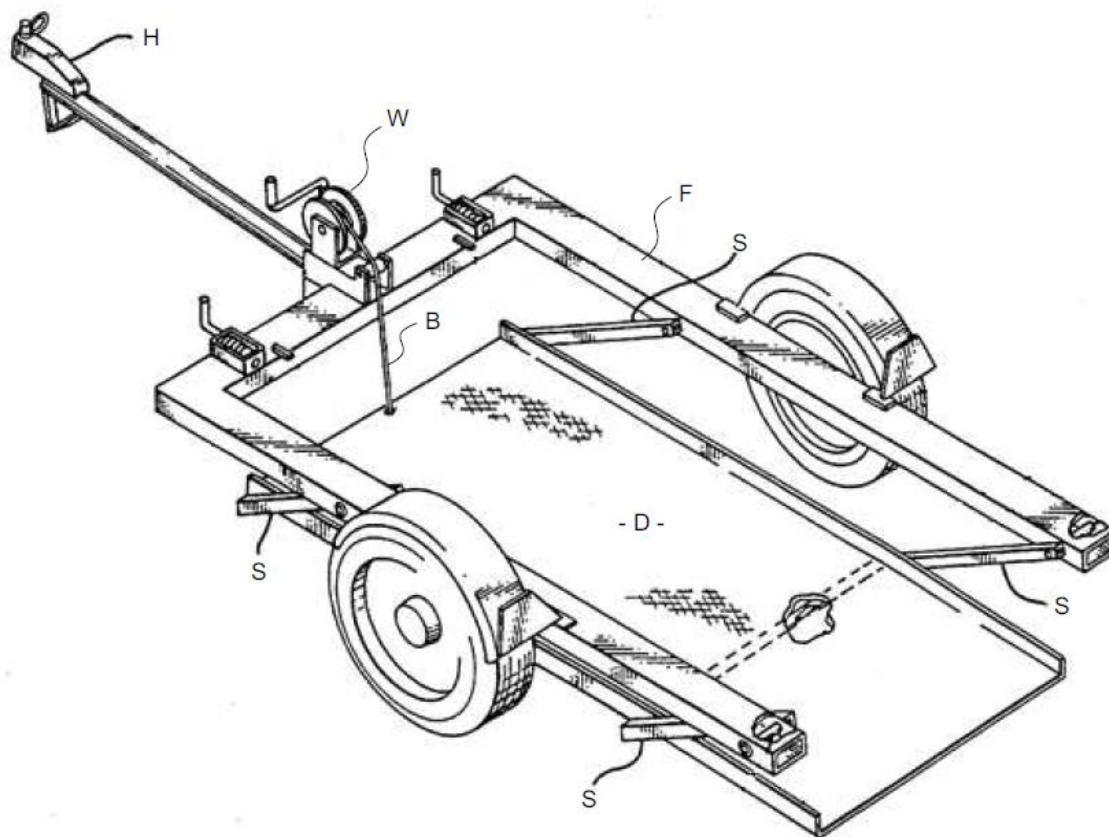
He explains that to solve the first problem he has made the draw bar (D) and the deck (E) independent of each other. With a couple of pins (P) the draw bar can now swing relative to the deck (E). He has also set up the cable (C) so that it can operate both the position of the beam (B) relative to the deck (E) and the position of the draw bar (D) relative to the deck (E). A winch (W) is still used. A couple of pins or latches (F) can lock the deck to the steel beam (B) when the deck is fully raised. A pin (S) can be used to lock the drawbar (D) to the deck (E).

Your client wants you to file a complete specification at IPONZ to best protect both his Mark 1 invention and his Mark 2 invention.

1. Please prepare a complete specification for filing at IPONZ [Marks 100/100]

End of Question 1/1

Prior Art 1.



NZ612345

NZ Provisional specification.

Filed 10 January 2014.

Title: A trailer

Background: This invention is a trailer designed to help get a load such as a race car on and off the trailer.

Figure 1 is a view of my trailer 10 with the deck 12 raised. The deck is shown as a frame but it can take a sheet of plywood to form the deck. At the end of the draw bar 15 is a hitch 16 to connect the trailer to a tow ball of a tow vehicle.

Figure 2 is a view of my trailer with the deck lowered. Cables 28 run to each plate 22 from a winch. The arms pivot at 30 to the frame 12 of the trailer 10. Having the pivots of the arms far away from the free end of the arms helps reduce the load on the cables. Especially if the wheels are positioned nearer the pivot end. The cable can control the pivoting of the wheels 18 relative the frame 12. Pin 24 can lock the plates 22 in place as seen in figure 1. The plates 22 can be made to be longer at their free end so that the leverage that can be applied to raise the deck, can be greater. This may be desired for heavier loads on the deck.

Figure 3 shows how the trailer can be hitched to a tow vehicle and for the deck to be lowered to allow a race car to be driven on.

Figure 4 shows the trailer with the deck raised.

Figure 5 shows how the trailer can be used when not hitched to a tow vehicle yet for the deck to be lowered to allow a race car to be driven on.

Figure 6 shows the trailer, unhitched yet having it's deck raised. This is possible where the centre of mass of the vehicle is between the tow hitch and the wheels. Otherwise the trailer may tip backwards.

The invention is essentially a trailer that can be raised and lowered next to frame because of wheels, with their axles welded to a plate, that can pivot to the frame and with the use of a cable the plates can be made to pivot so as to lower and raise the trailer. I have considered some variations to what I have drawn and these include:

- The cable could be a rope or even a hydraulic system could be used to raise and lower the deck. The hydraulic system could replace the winch and act on the cable.
- The plates are made from steel and should not be able to bend. I have thought of using pipe or box section steel for this component too.
- The axle of each wheel may be directly connected to a respective plate. Alternatively the each wheel may be mounted on springs that are in turn connected to the plate.

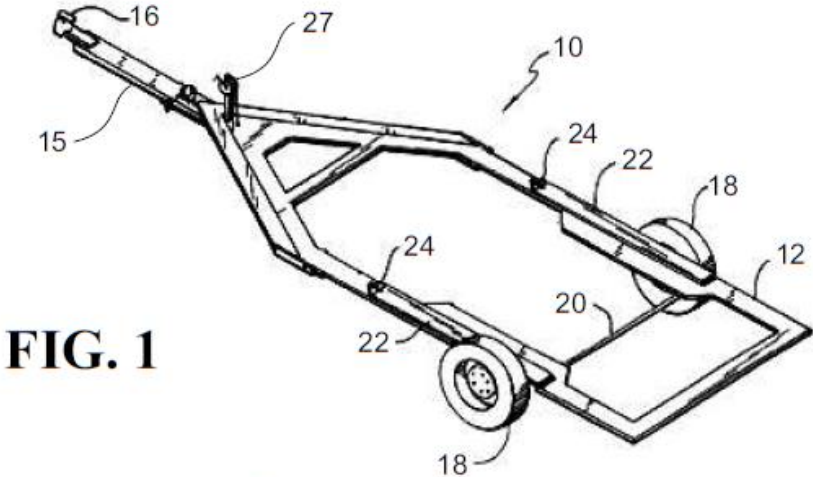


FIG. 1

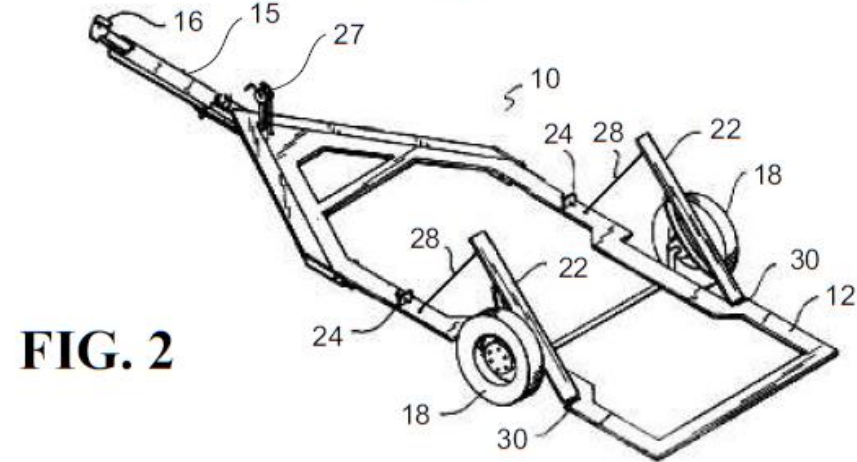


FIG. 2



FIG. 3

FIG. 4

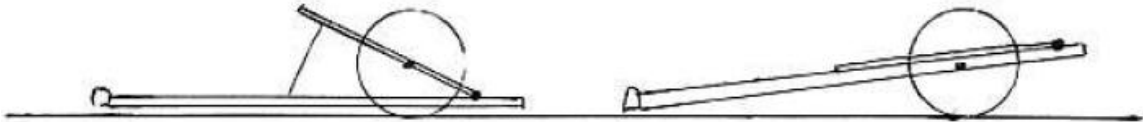
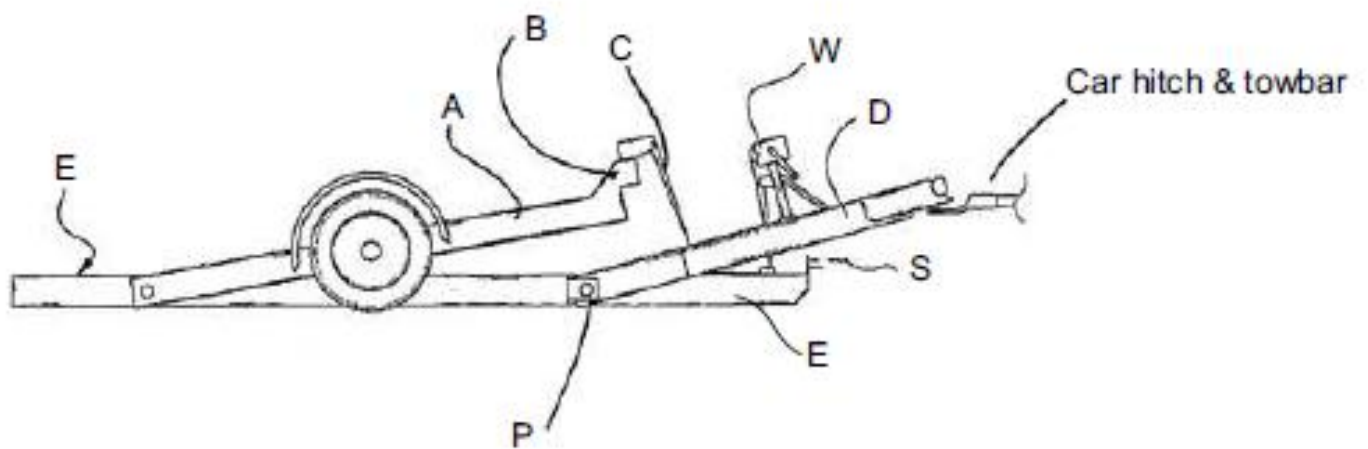
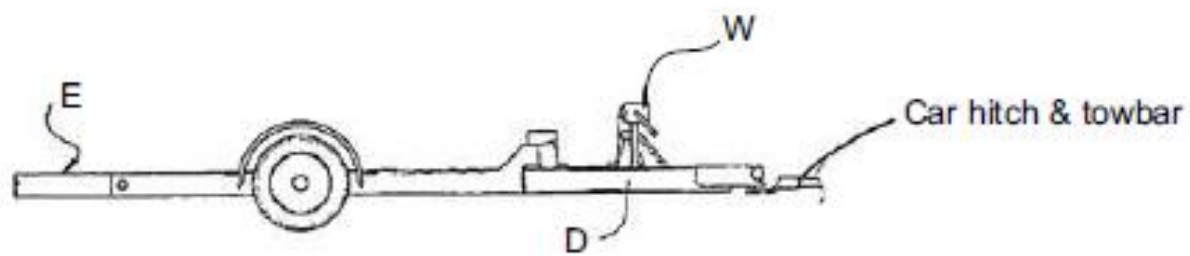
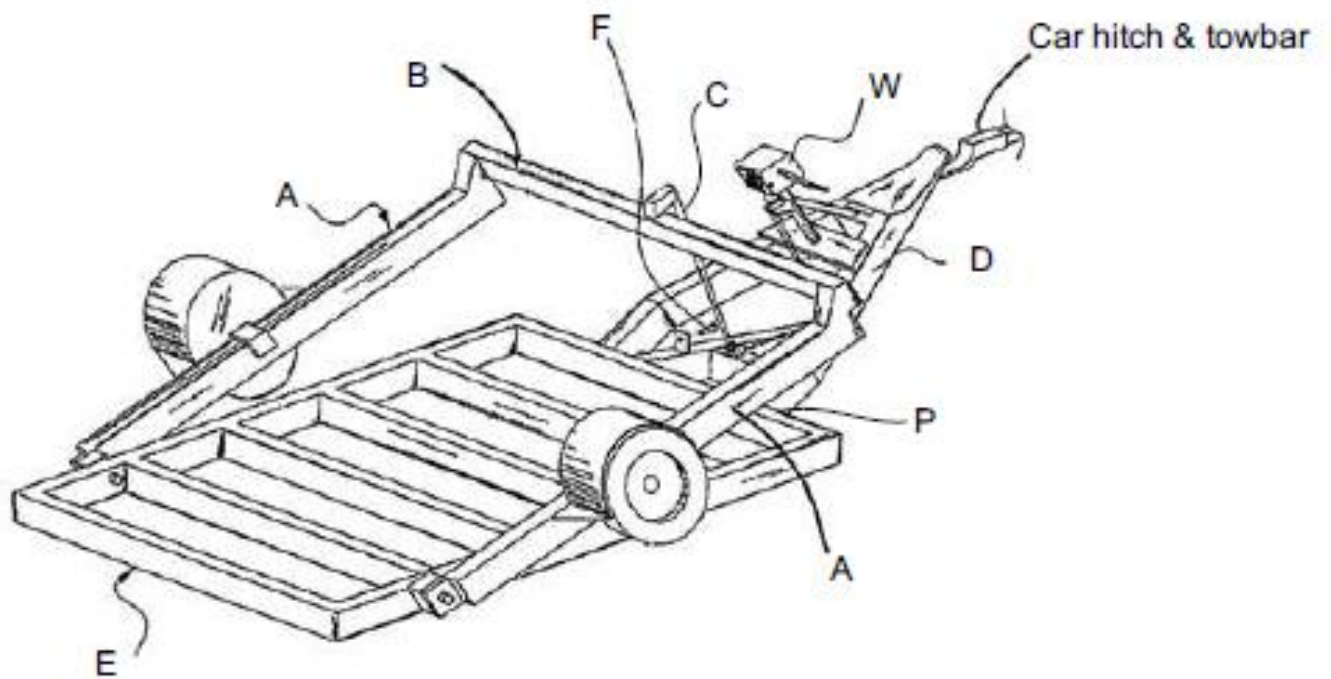


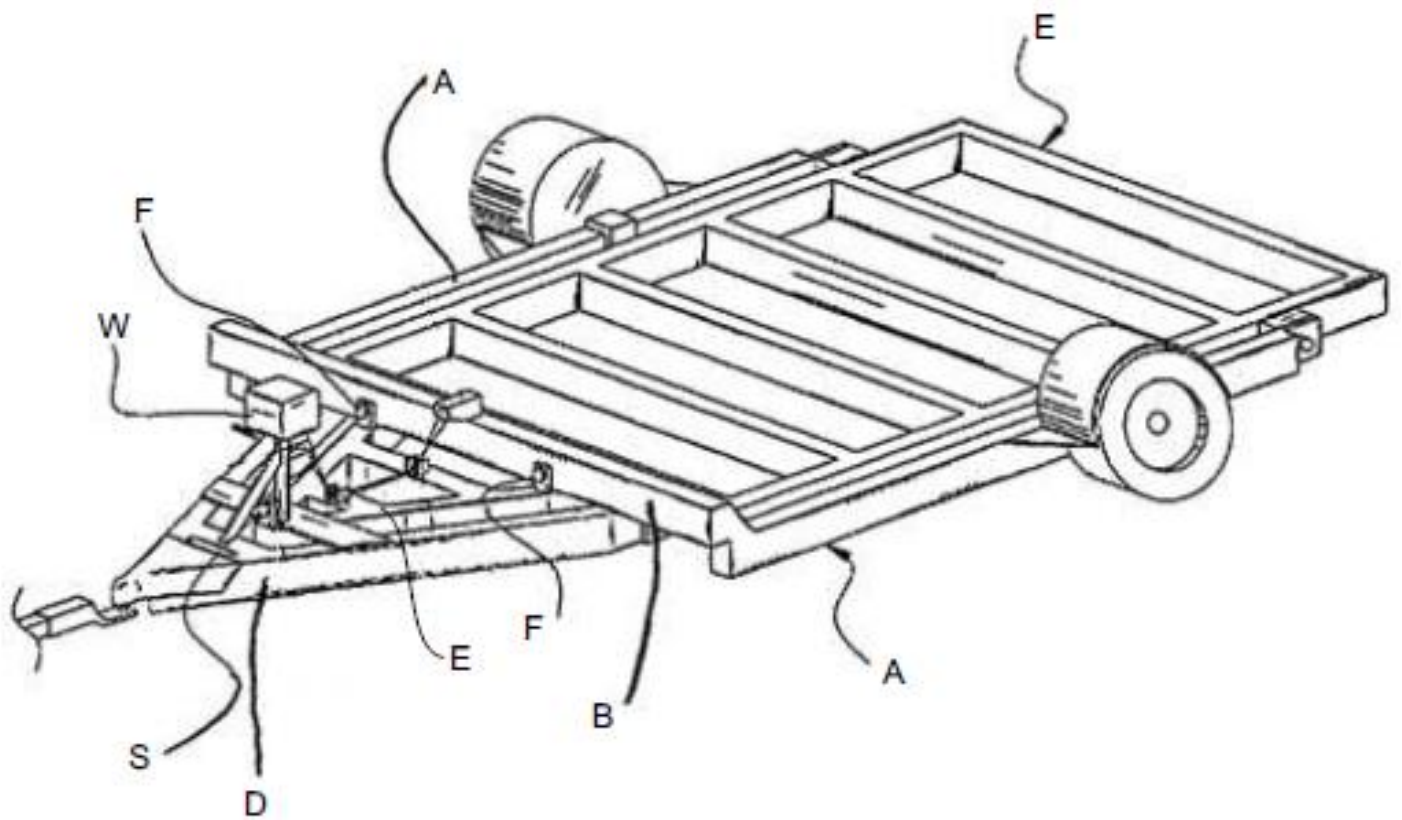
FIG. 5

FIG. 6

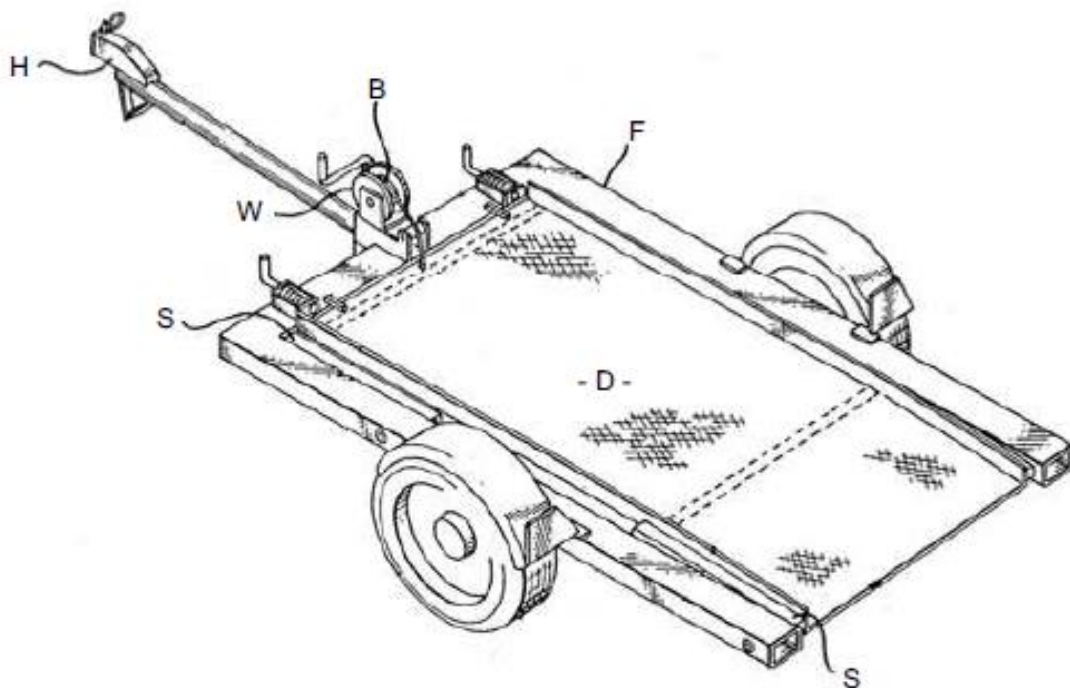
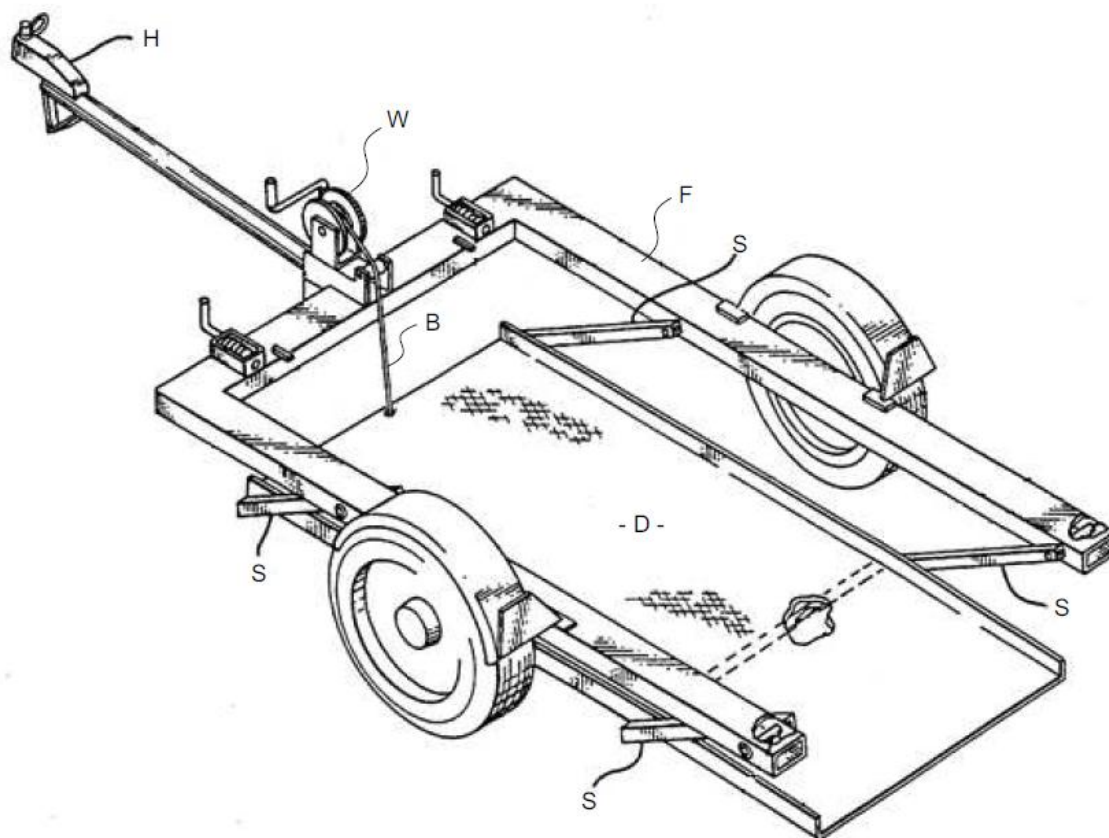
Mark 2 invention drawings (page 1/2)



Mark 2 invention drawings (page 2/2)



Duplicate of drawings for candidates to use for their answer



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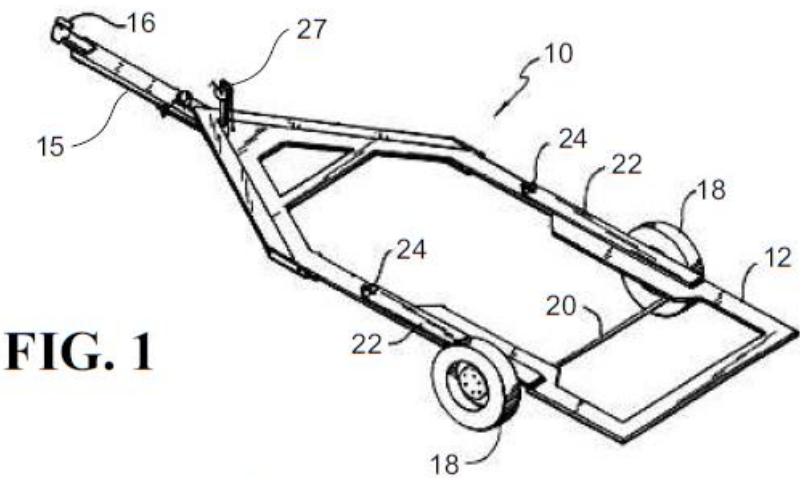


FIG. 1

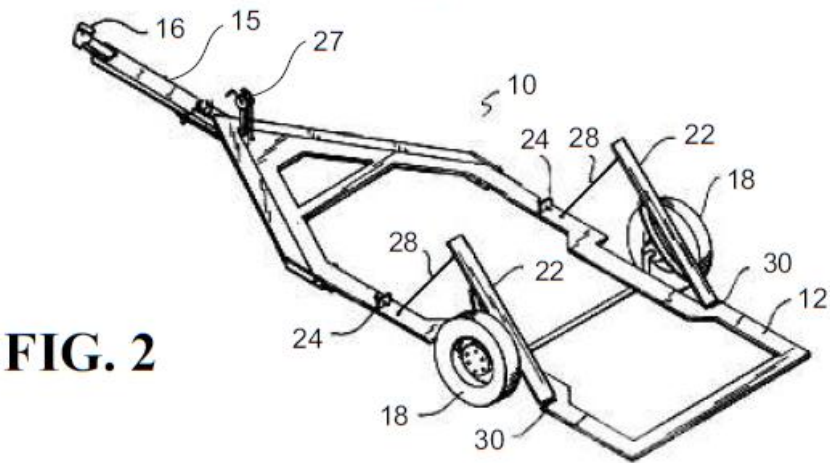


FIG. 2



FIG. 3

FIG. 4

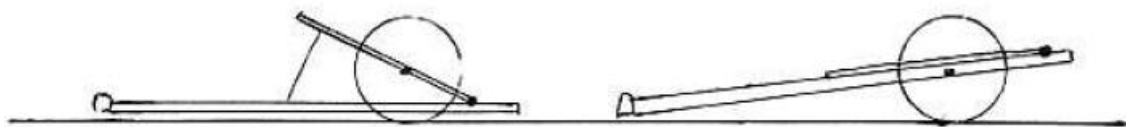
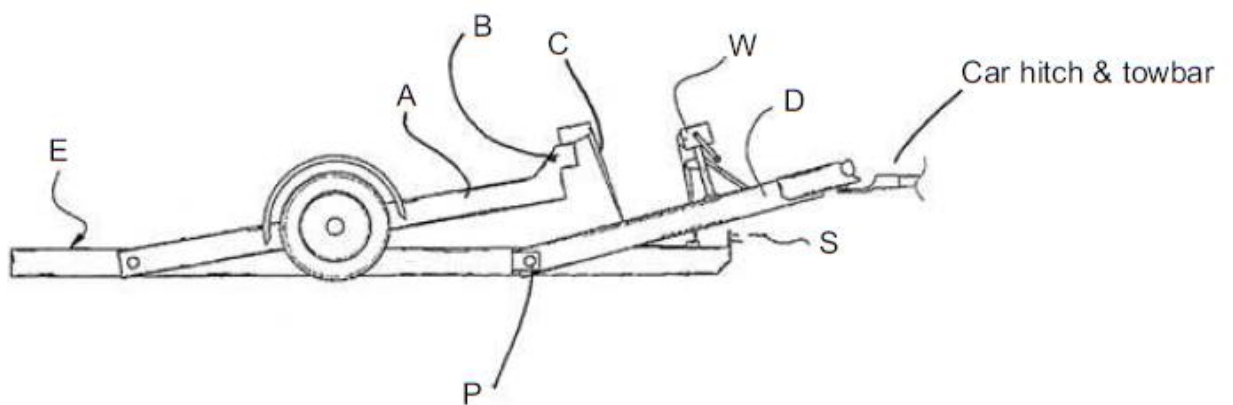
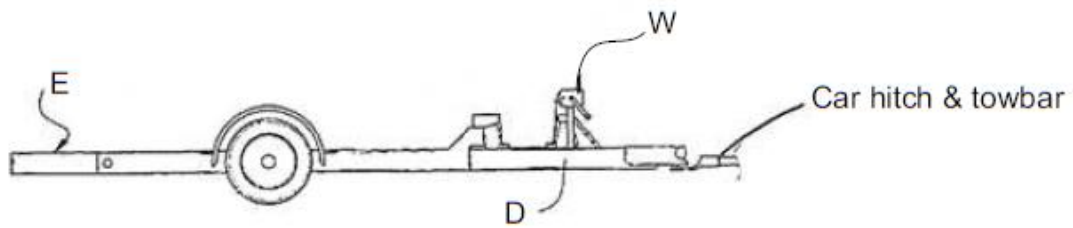
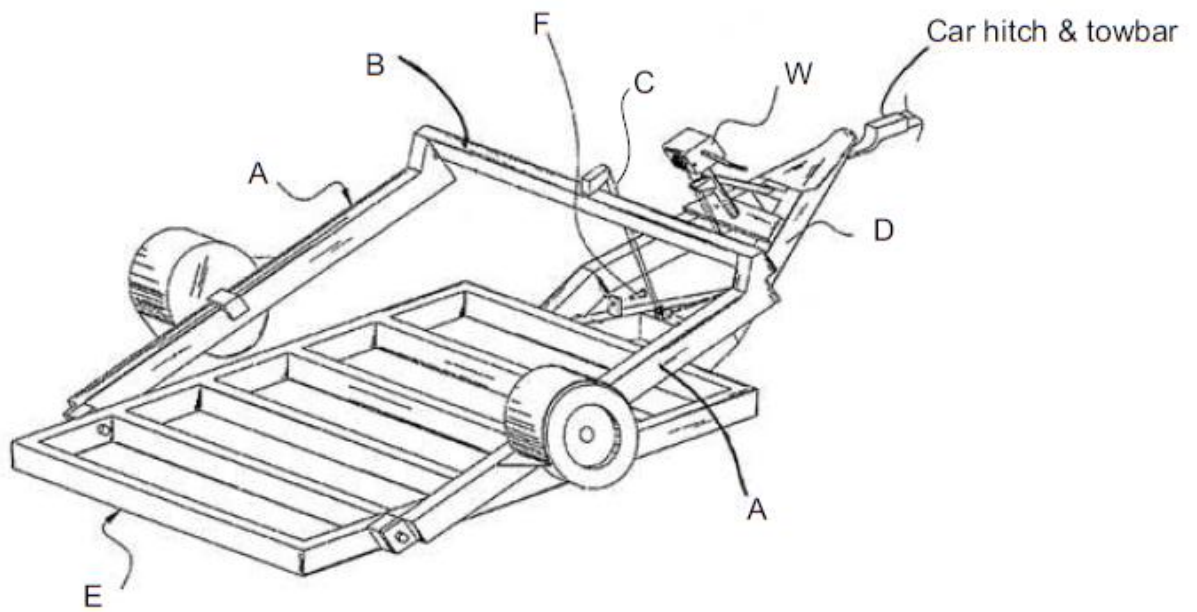


FIG. 5

FIG. 6

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