2011

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)

When considering answers to the questions in this year's examinations, no account is to be taken of any provisions of the Patents Bill, the Trade Marks (International Treaties and Enforcement) Amendment Bill or any other bill that may be before the New Zealand Parliament.

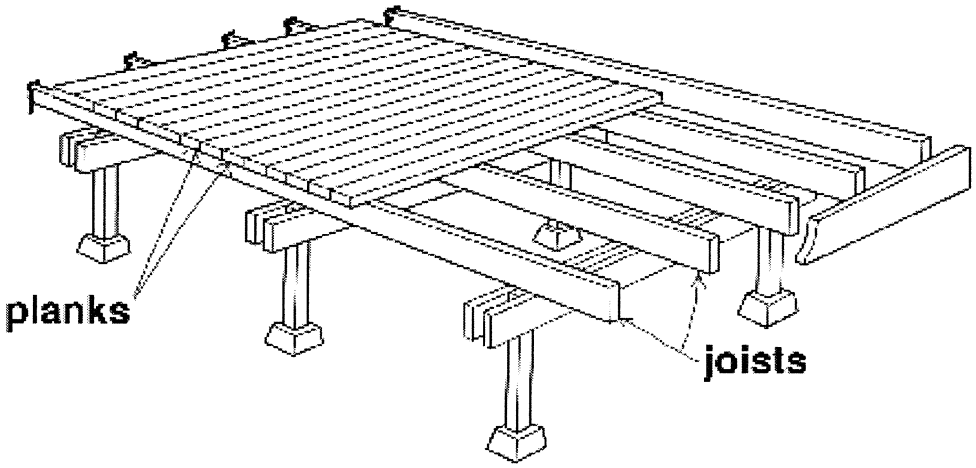
General instructions for both questions: Only the prior art that is referred to in each question is to be taken into account in your answer. You must not take into account any prior art that you are separately aware of.

Question 1.

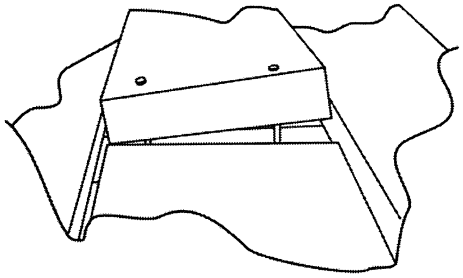
This is question one of two and it is worth 50 marks out of a total mark for the paper of 100. A full set of drawings is repeated at the end of this question that you may use in your answer.

Your mate Dave is a builder. He has been building for 20 years and has always come up with clever ideas to make the job quicker and improve quality. He builds a lot of decks.

Decking timber comprises long planks that are arranged next to each other and are nailed down onto the joist below. Nails are driven down through the planks from above and penetrate the wooden joist below. This holds the planks down and in place. The picture below shows a typical top nailed deck.



Dave does not like building decks much these days because the decking timber that most timberyards supply is not dry. Traditionally, timber planks were cut from kiln dried logs. But now planks are cut from wet logs. When such planks dry out they have a tendency to deform. The deformation forces can be significant and enough to lift the planks and pull the nails at least partially out of the joists. This means that Dave is often called back to the job after a few months to re-nail the popped planks. He sketches a drawing of a popped plank.

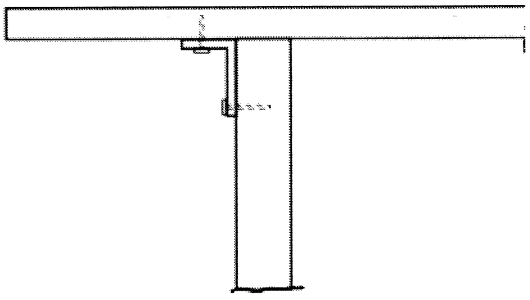


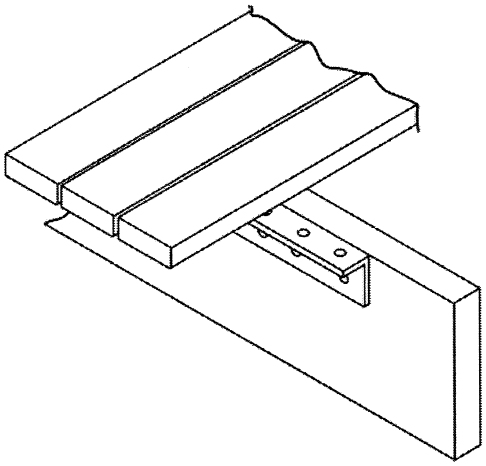
When planks pop, nails may also end up protruding above the planks. People have been cut and have punctured the bottoms of their feet on such protruding nails.

Even when planks don't pop, nails may originally not have been nailed down hard enough and can protrude out of the deck.

Dave has thought about ways of preventing the problem of popping and protruding nails. He has previously built decks for customer using screws instead of nails. Screws can prevent popping and when screwed in deep enough, don't protrude either. But using screws requires time consuming drilling of a pilot hole in the timber planks before the screws can be driven in. Also, screws are expensive compared to nails.

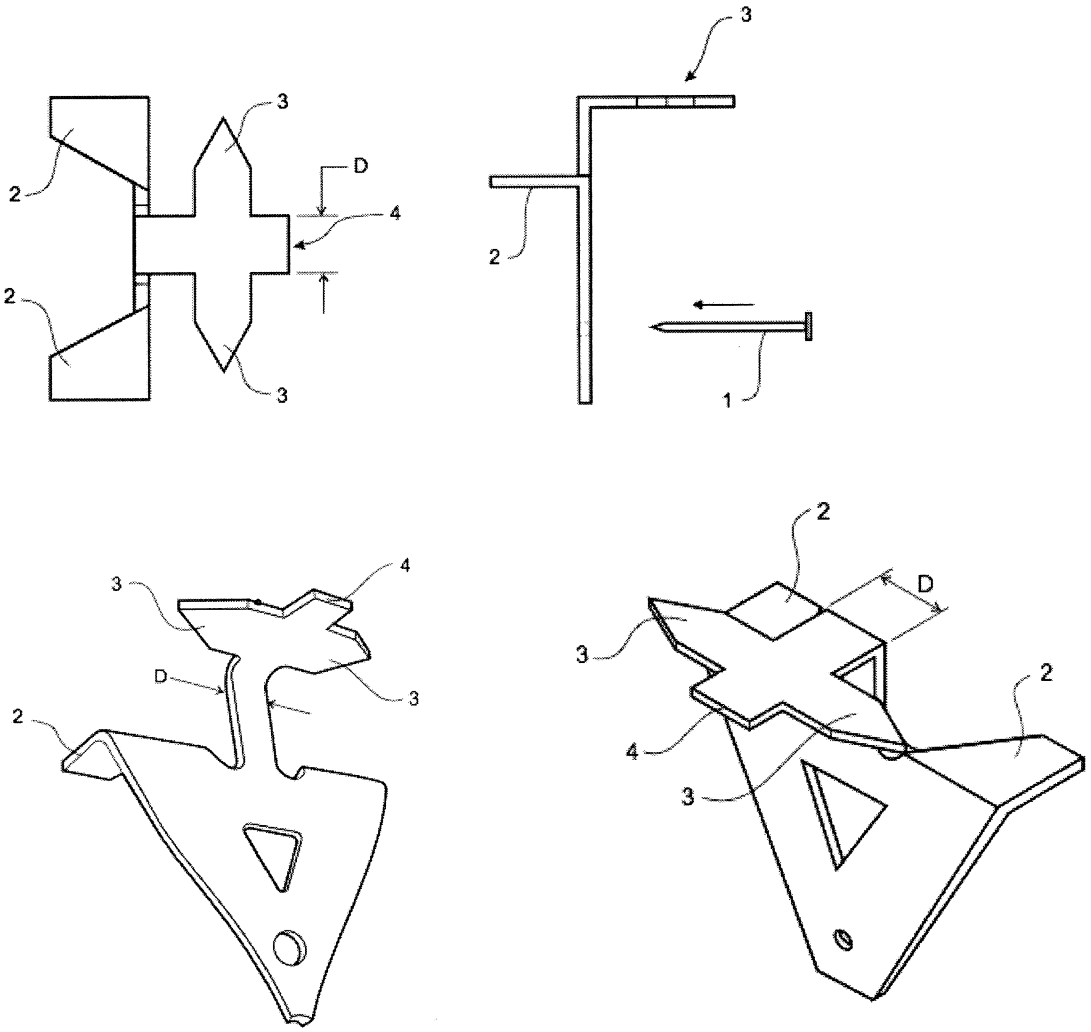
Dave has also built decks for customers using an angle bracket that runs along the joists. An bracket can first be nailed to the joist. He can then get under the deck and hammer nails through the holes in the bracket and into the planks. This way of securing the planks prevents nails from protruding through the top of the planks but it but does not prevent the planks from popping. The two drawings below show the angle bracket in use. But the planks can still slip off the nails and pop and he has been called back by customers to re-nail the planks. He also needs a mate to stand ontop of the planks as the nails are driven in from below. Otherwise the planks will just be pushed up by the nails as they are driven in, rather than penetrating into the planks.

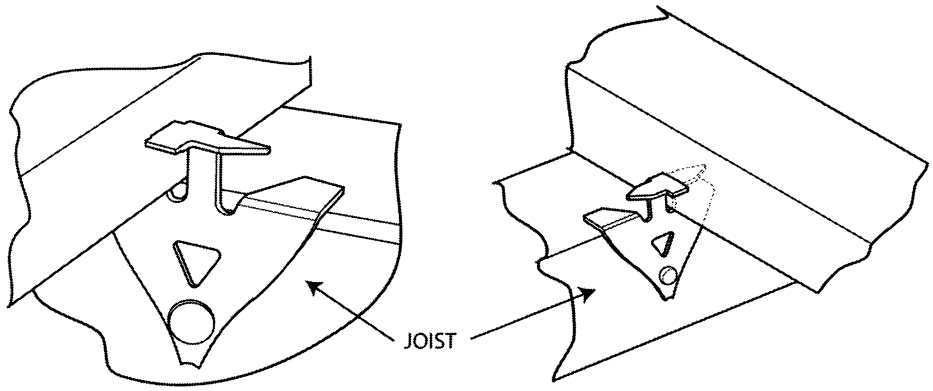




Another problem in using the bracket is that there needs to be enough space under the deck to swing a hammer (or use a nail gun) to drive the nails in from below. This is often not possible because some decks are built near ground level.

Dave has now come up with a solution to both of the problems of popping boards and protruding nails. This is what his new device looks like and how it will be installed.





He explains some important benefits because it is a bit more expensive than using screws or nails through the top of the planks.

The device provides some other benefits in addition to the popping and protrusion problem.

Only one nail (1) is required that is driven into a vertical face of the joist. So there are no hammer swing space constraints. The lips (2) sit on top of the joist and can hence set the height of the device so that the prongs (3) are roughly set to penetrate the planks in the middle of their thickness. Though Dave reckons there are other ways of setting the height, including eye judgement.

The prongs (3) are the things that do the work. They push into the side of the planks to hold the planks down. The forces of a warping plank cannot pull the nail out. And the prongs are strong enough so that the whole device can prevent planks popping.

In addition there is no visible sign of how the planks are fastened to the joists. Dave tells you that there are “No more rusty nail heads to be seen from on top of the deck with this thing”.

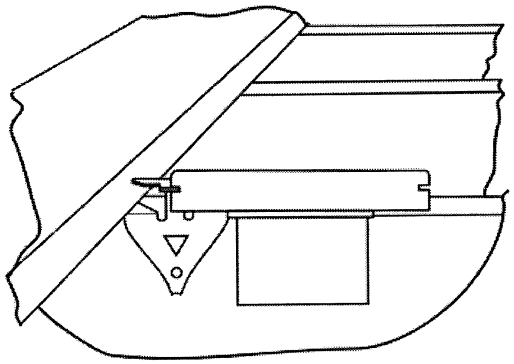
The middle bit (4) of the device helps set the space between planks at a distance “D” apart. This is also important as planks should not be secured to the joists without a gap between planks. Rainwater needs to be able to run off between the gap. A consistent gap between adjacent planks is also visually appealing.

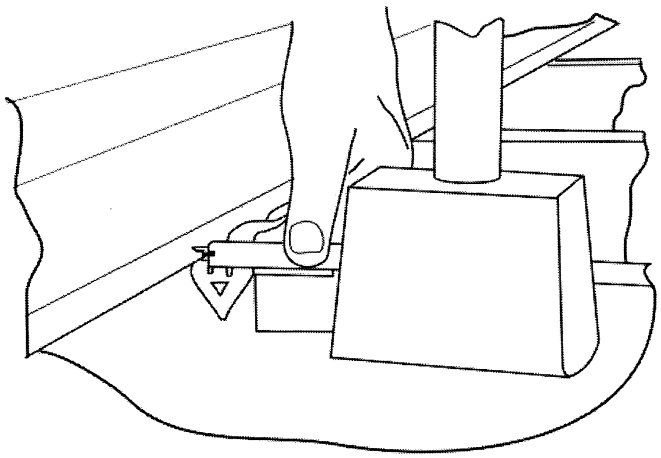
Dave has also designed a new tool to install the new device. He found that using a hammer directly on the device without using the tool would blunt or bend the prongs. Below are pictures of the tool and how it is used together with the device to build a deck.

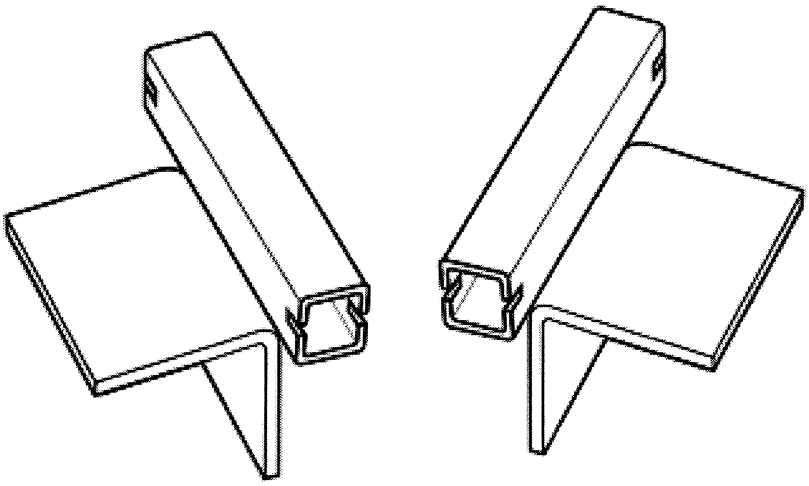
The tool locates against the side of the middle bit (4) and lip (2) so that a hammer can hit the tool and drive a prong into the adjacent plank. The tool helps to keep the device in the right orientation.

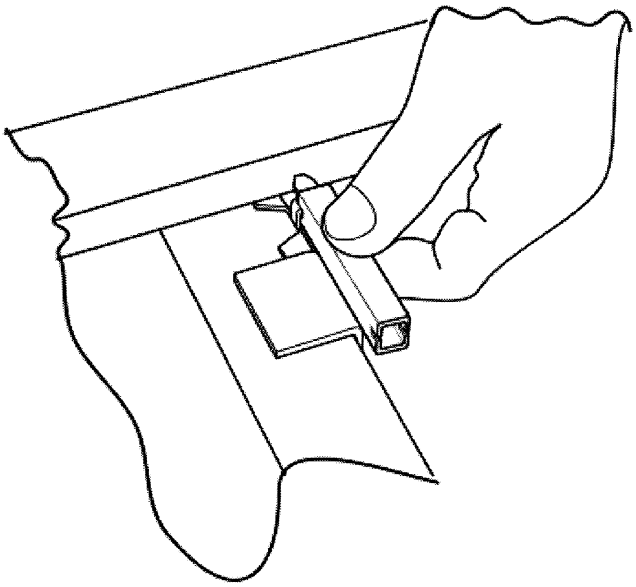
The tool helps to drive one of the two prongs (3) of each device into a plank and push a lip (2) between the plank and the joist. A nail can then be driven through the nail hole and into the joist. One of such devices can be driven into a plank at each of the joists that the plank sits on and then be nailed to the joist. The next plank can then be placed on the joist and manually (or by using a hammer) be pushed onto the exposed prong of each device that is already nailed to each joist. The next plank is then ready for these steps to be repeated. Planks can hence be sequentially laid down and secured. The last plank of the deck, with one of its edges exposed, does not get secured at its exposed edge by the device. It is secured in some other way.

Draft a provisional patent specification for Dave.

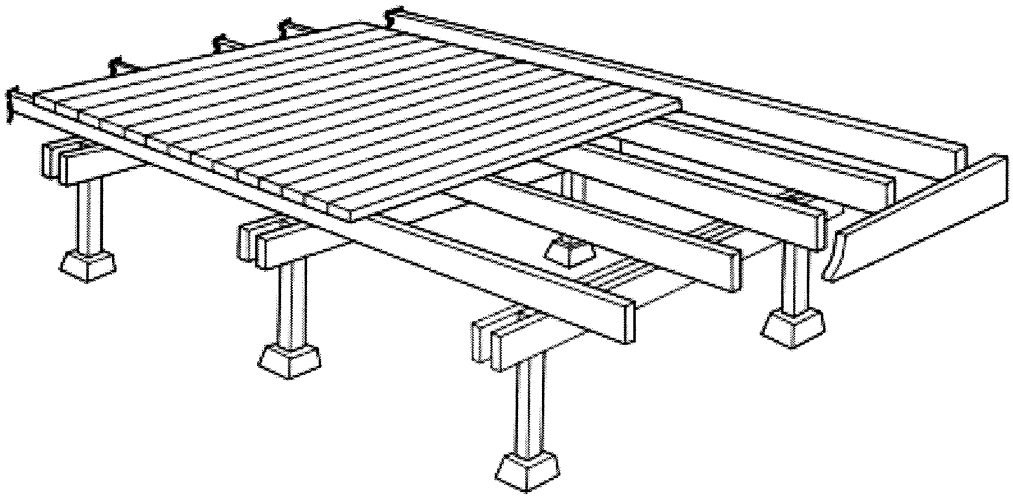


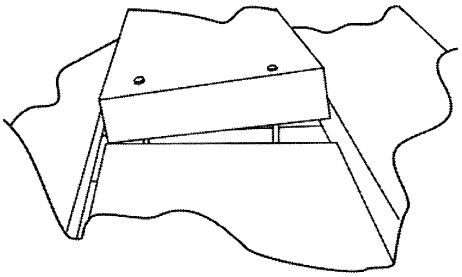


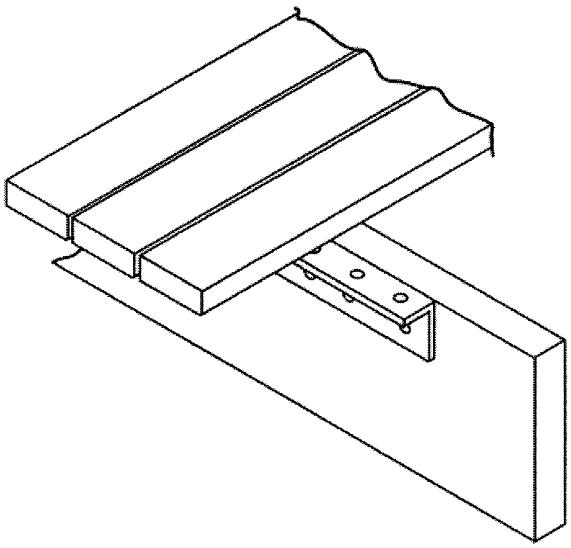


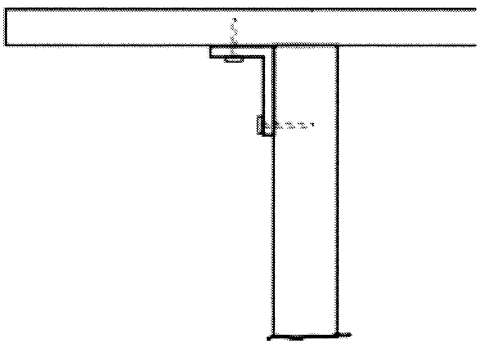


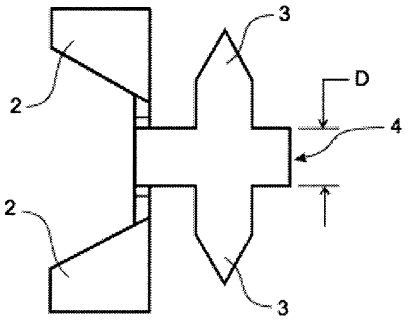
Extra set of drawings for you to use in answering question 1. Pages 8 - 11







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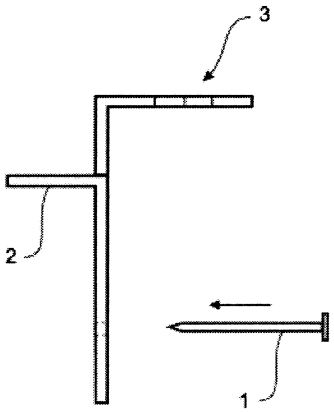
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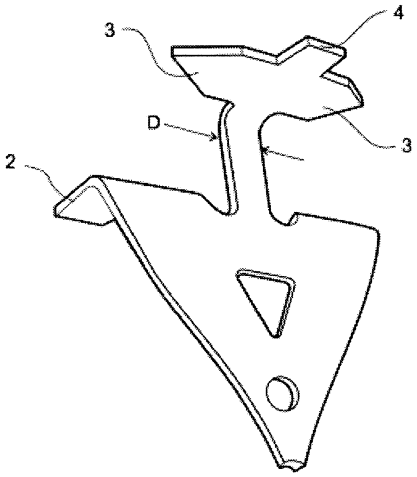
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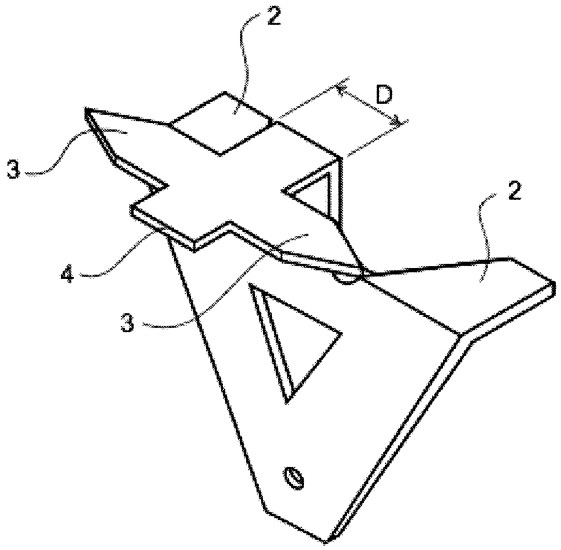
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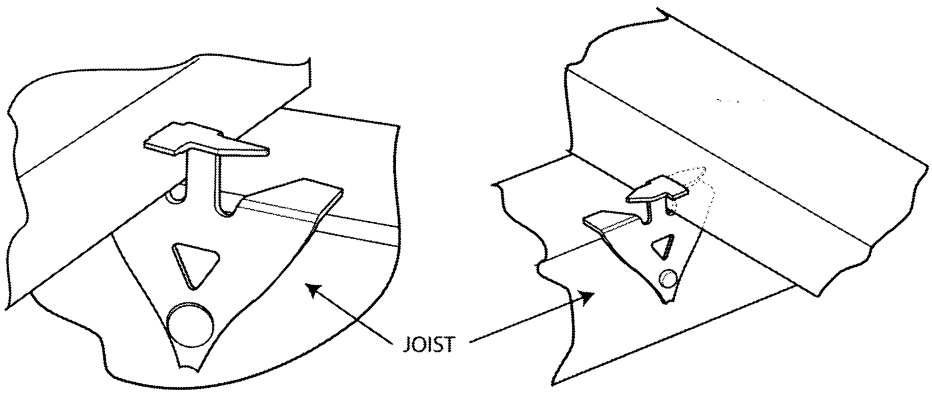
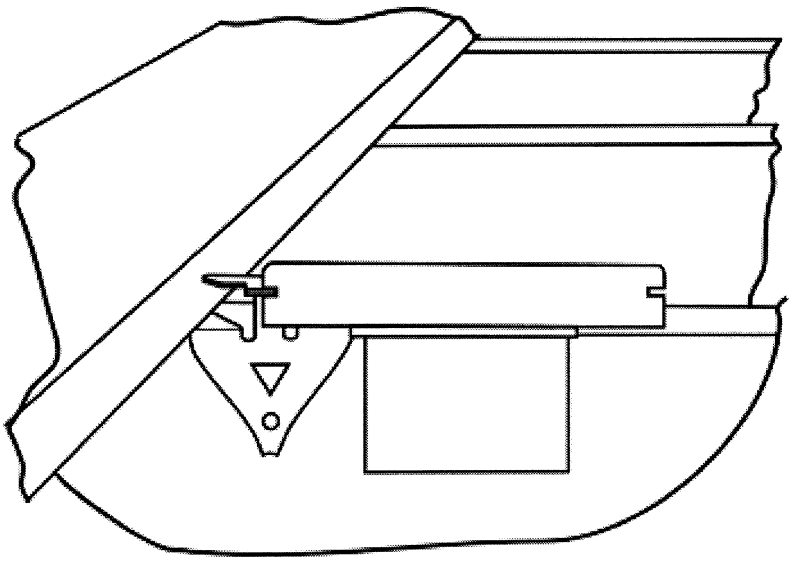
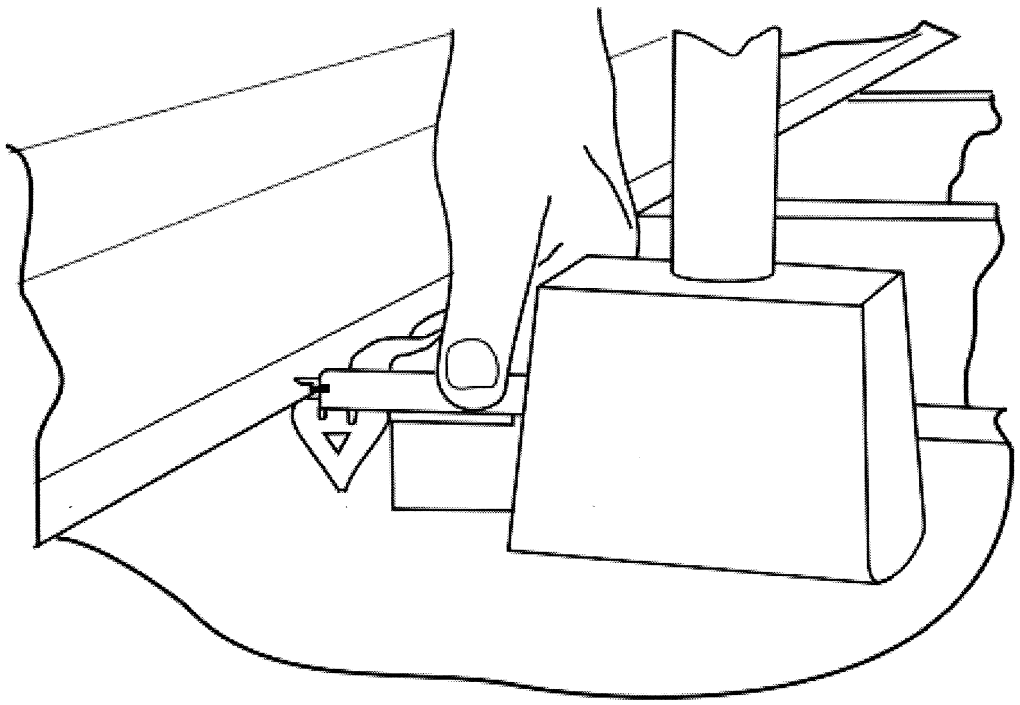
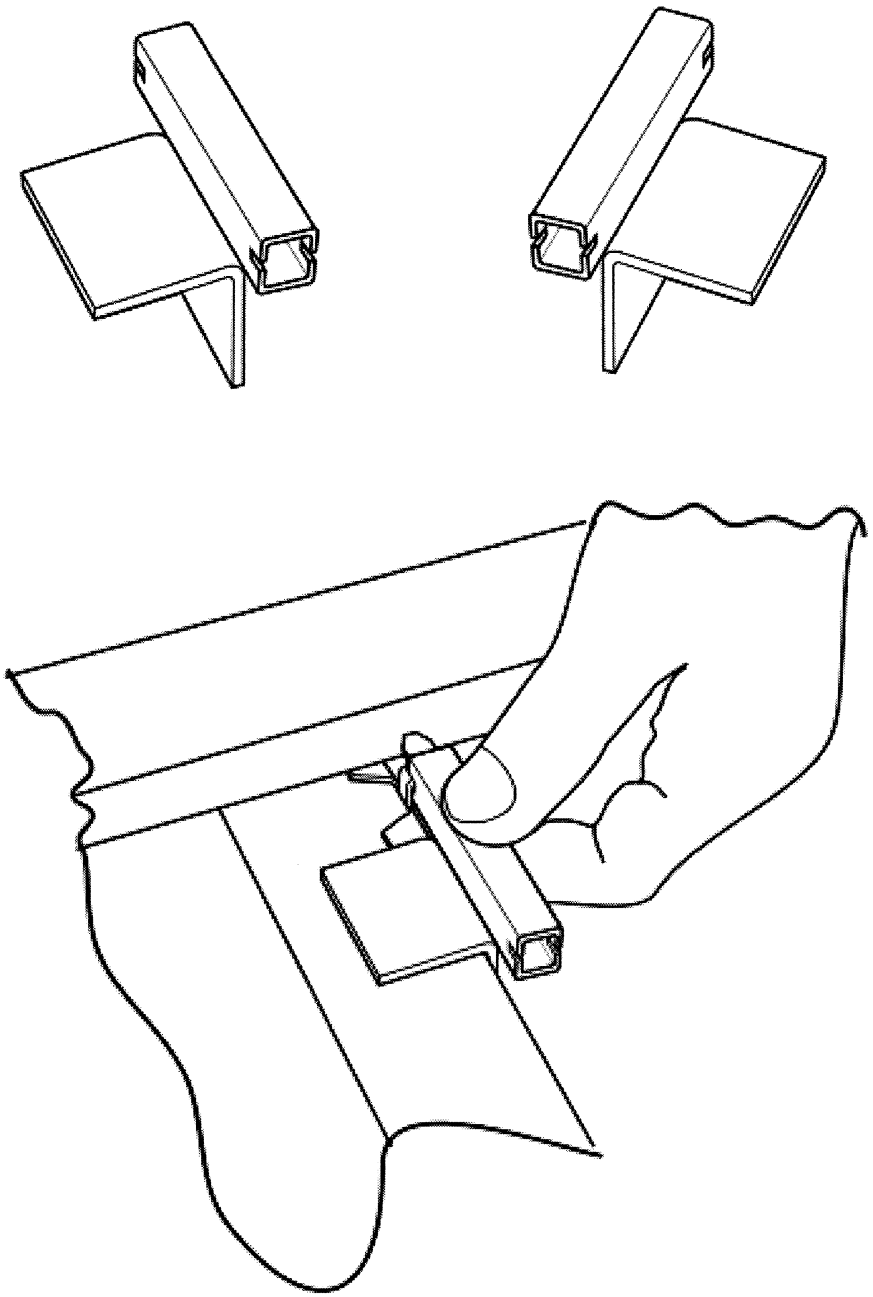

JOIST







Question 2

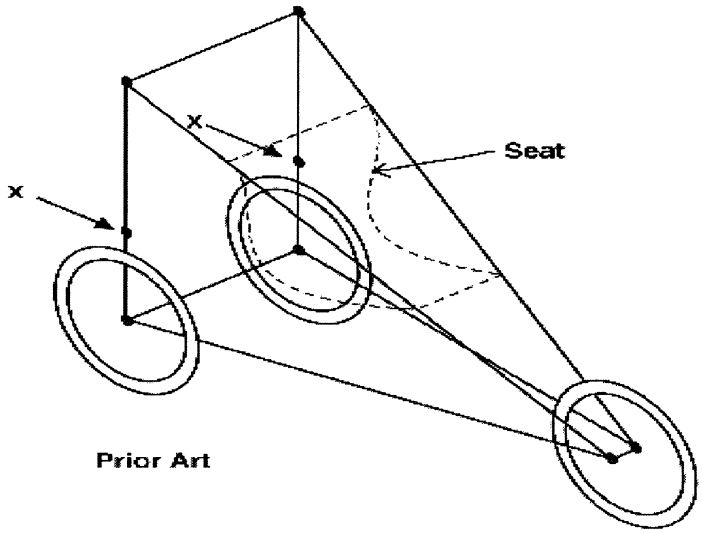
This is question two of two and it is worth 50 marks out of a total mark for the paper of 100.

Your client makes and sells baby prams in New Zealand. He has designed these to be very robust and with large chunky wheels. This allows the pram to be pushed along by parents at pace and along rough terrain such as along the beach or over grass. These prams are particularly popular with parents that like to jog.

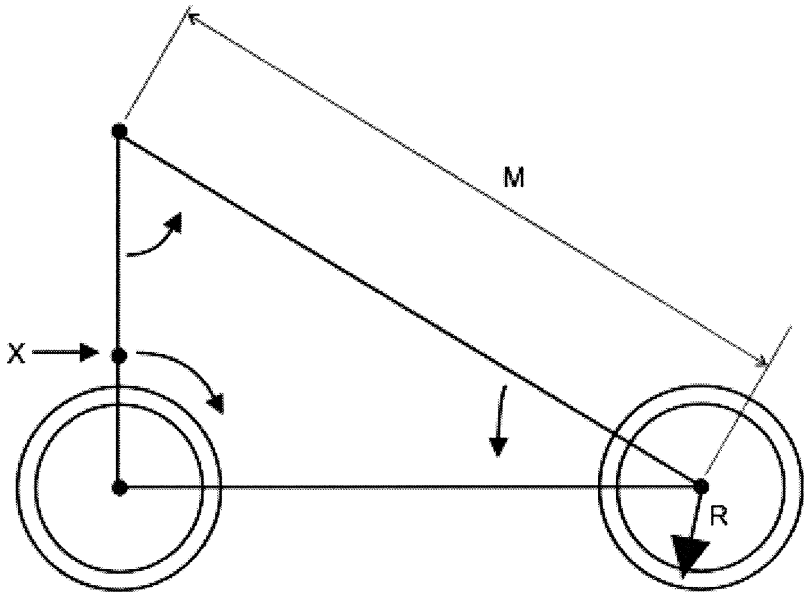
The wheels take up quite a bit of space as they have a fairly large diameter. The wheelbase of the pram is also fairly large so that the pram has some inherent stability. Its wheelbase is both wide and long.

To let the pram be folded up, so that it can fit into the boot of a car, the pram can collapse. Your client draws wire frame sketches for you (called "prior art" below) to show you what the pram roughly looks like. He explains that it has 2 rear wheels and one front wheel, though he makes a wide version of the pram so that two children can sit side by side each other, that has two front wheels for extra stability. Between the wheels is a chassis and a frame that is made up of lengths of tube that can hinge relative to each other so that the frame can collapse. There are two rear upright tubes, and two diagonal tubes. The chassis may be made from tubes as well. Specially moulded plastic hinges create pivots at where your client has drawn the black dots on the drawings below. At point X, the two rear tubes can fold by virtue of a hinge that can be locked. In the locked position the rear tubes are straight, but when unlocked, the rear tubes can pivot at point X so as to allow the frame to collapse.

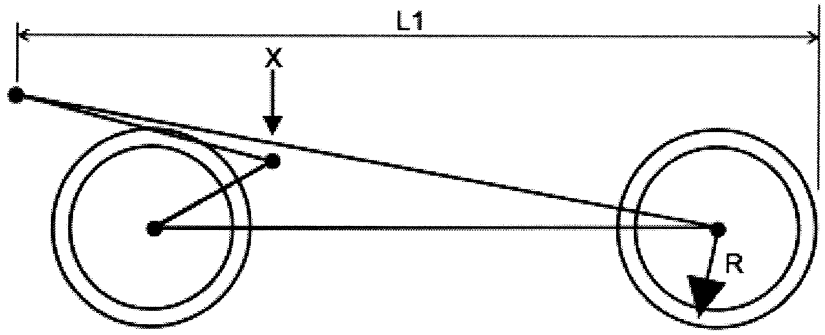
The problem with the way the pram collapses is that when collapsed, the pram is still quite long. Your client draws L1 on the drawing to explain what he means. L1 is equal to the radius R of the front wheel plus the length M of the diagonal tube. This length can make the pram hard to fit into the boot of some cars. Your client could make the wheel diameter smaller, or make the wheelbase of the pram not so long, to make the pram more compact when collapsed. But he decided that he did not want to sacrifice stability of the pram as safety always comes first in his design work.



Prior Art

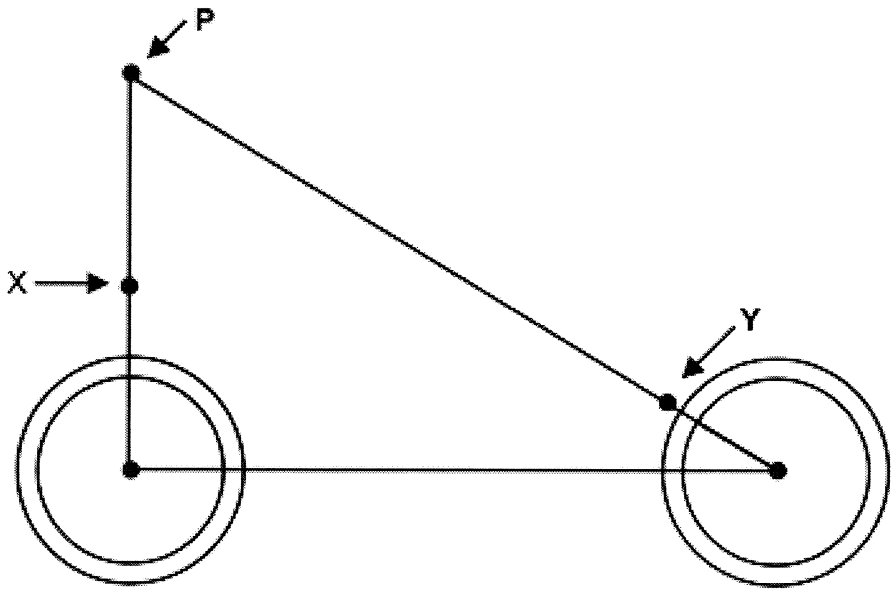


Prior Art

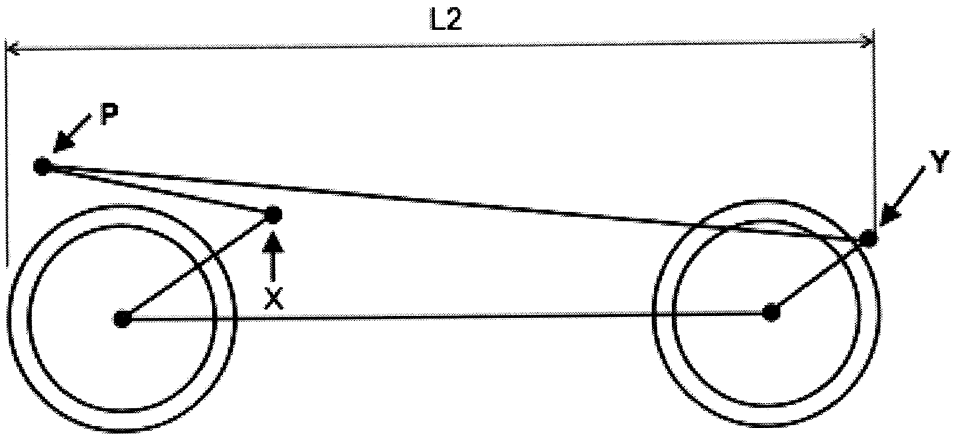


Prior Art
Folded Down

Your client has instead developed a new pram that can collapse in a way that allows him to keep the same wheelbase but the length of the pram when collapsed, is shorter than in his prior art version. He draws a sketch of what he has come up with below. As well as at point X, at point Y he has now placed a lockable hinge like that used at point X of the old version. The diagonal tube can now fold into two parts and the whole pram can be made to collapse so that the over all length L2 is shorter than L1.



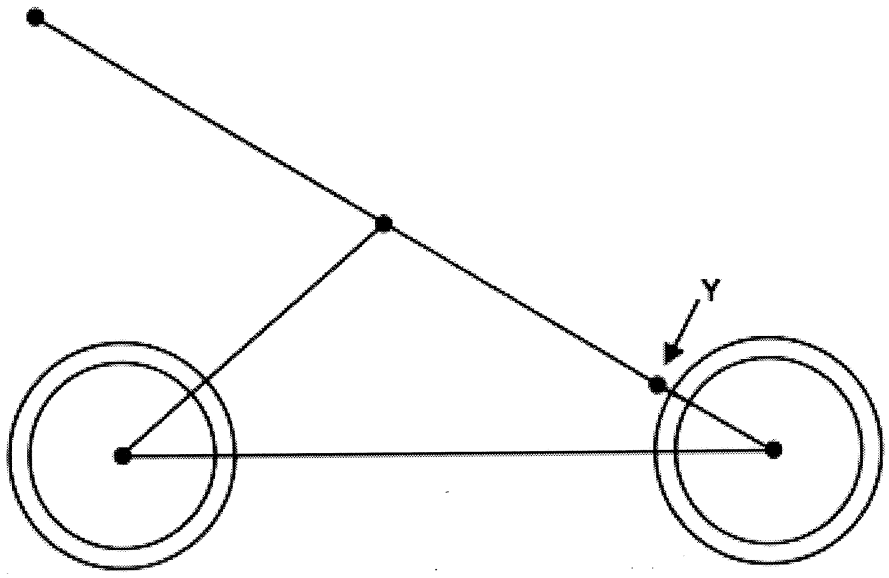
Invention



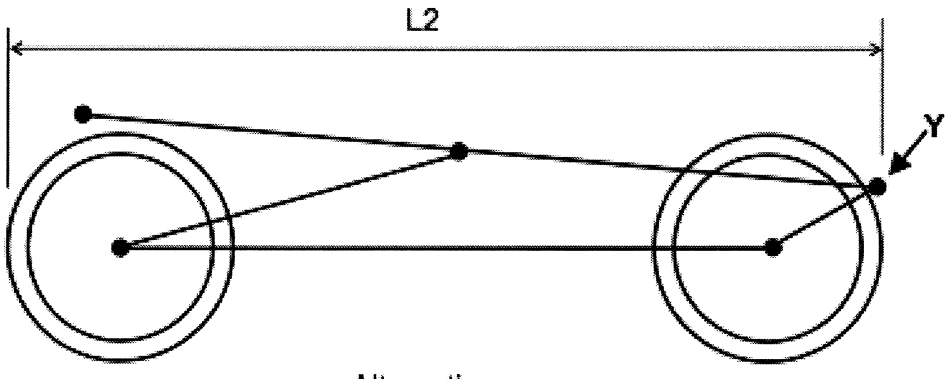
L2 < L1

Invention

Your client wants to protect this invention and says that the only prior art he is aware of is his own prior art version. You then explore the sketch with your client and ask him about how easy it would be to operate both locks at hinge X and Y to collapse the pram. He agrees that it would be a bit of a hassle but immediately sketches a different version of his invention that would not need a hinge on the back tubes.



Alternative



Alternative
Folded down

Prepare claims for a complete specification for your client's invention.