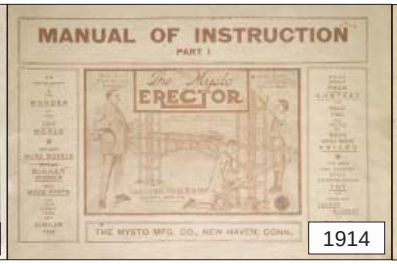
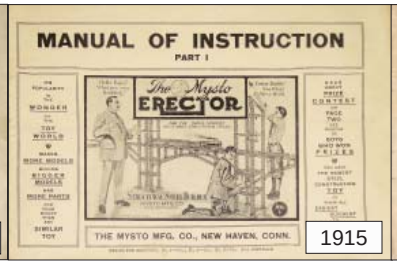
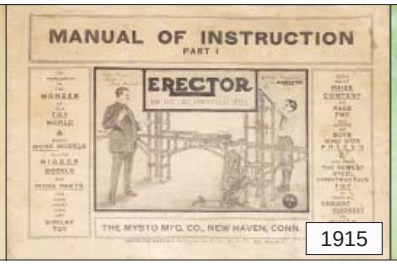
1913



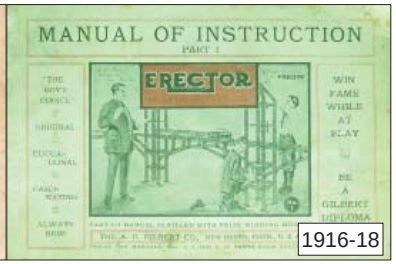
1914



1915



1915



1916-18

A. C. Gilbert Heritage Society Members' Model Manual

1919

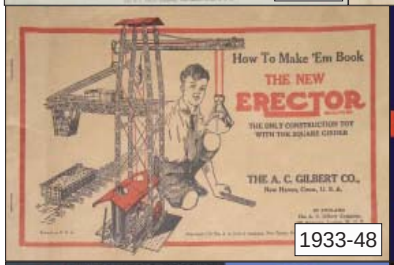
1921

1922-23

1924

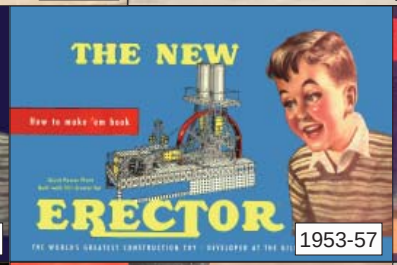
1925-27

1928-32



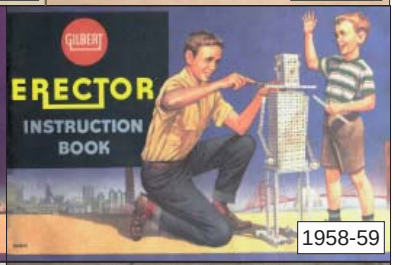
1933-48

1948-52

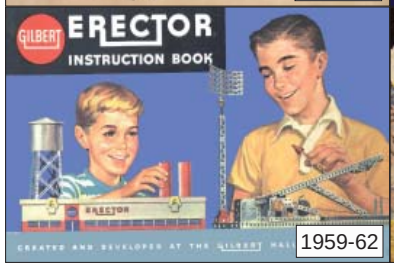


1953-57

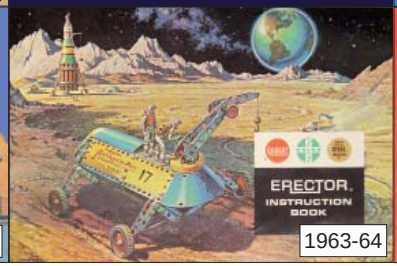
1958-59



1958-59



1959-62



1963-64

1964-66

1966-70

1969-74

ACGHS Members' Model Manual

The A. C. Gilbert Company introduced the Erector Set in 1913. Its introduction brought the educational entertainment of building models to America's youth. Contests were held with a top prize of a new automobile for the best new model conceived that year. Swinging arm saw, battleship, motorized locks, crane, aeroplane, etc. models were submitted by the hundreds. What a job it must have been picking the best models!

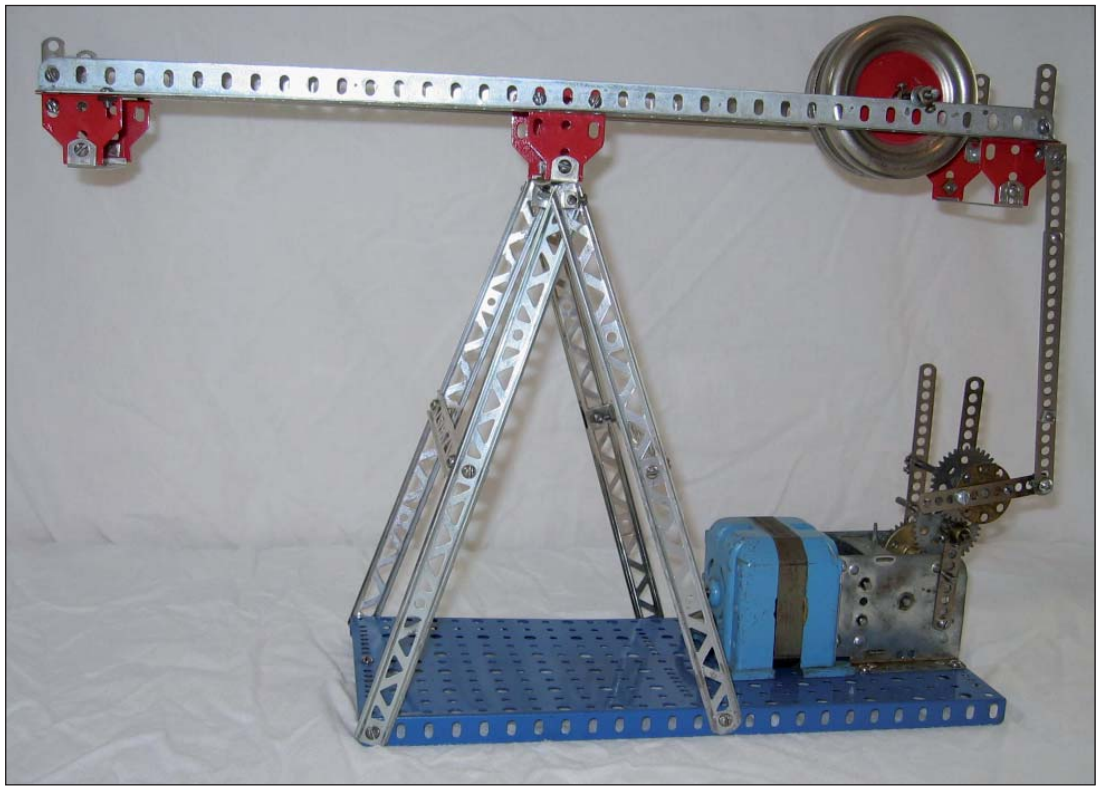
The following pages contain photos of models built by members of the A. C. Gilbert Heritage Society. The ACGHS' goal is to preserve the history of the products of the former A. C. Gilbert Company. The society does this through members' study of documents relating to the company and its products. Those products included microscopes, chemistry, magic, puzzle, train sets and many others including the Erector Set. Gilbert's goal with the Erector Set was not to preserve their "as shipped from the factory" appearance. No, it was for boys and girls to get on their hands and knees and make something with the shiny metal parts! Enjoy the creativity of a number of models from the ACGHS membership.

Many more model photos can be viewed on the home page of the A. G. Gilbert Heritage Society at:

www.acghs.org or www.acgilbertheritagesociety.com

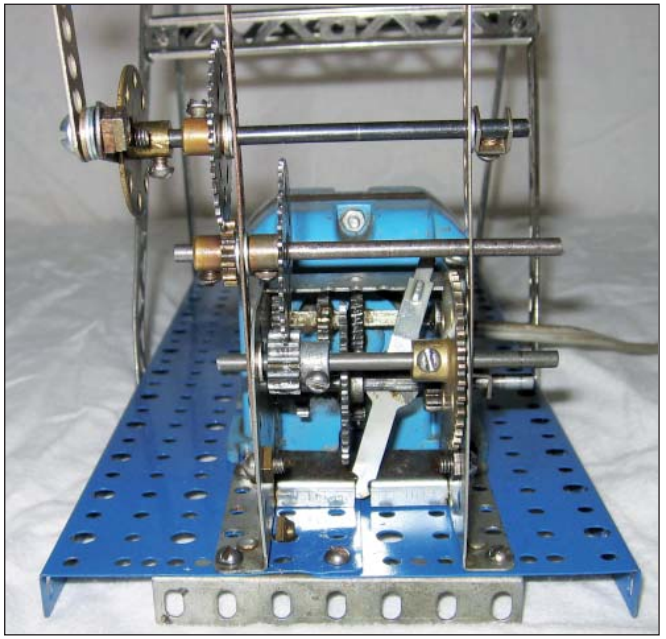
Models Built with No. 8 1/2 (plus 2 MB 18 1/2” angle girders)

Wheel Toy by Dave Ware



The model works best with postwar wheels. It works with the heavier prewar wheels although differently.

The long arm up to the end of the track is made with 2 overlapping I’s. Length of arm and crank are sensitive to good action. F 5 hole strips act as stops on one end and 7 hole strips on the other end (set has only 2 of each). 2 MV flat car trucks in the middle and 4 P79 car trucks on the ends (set has only 4 P79’s).



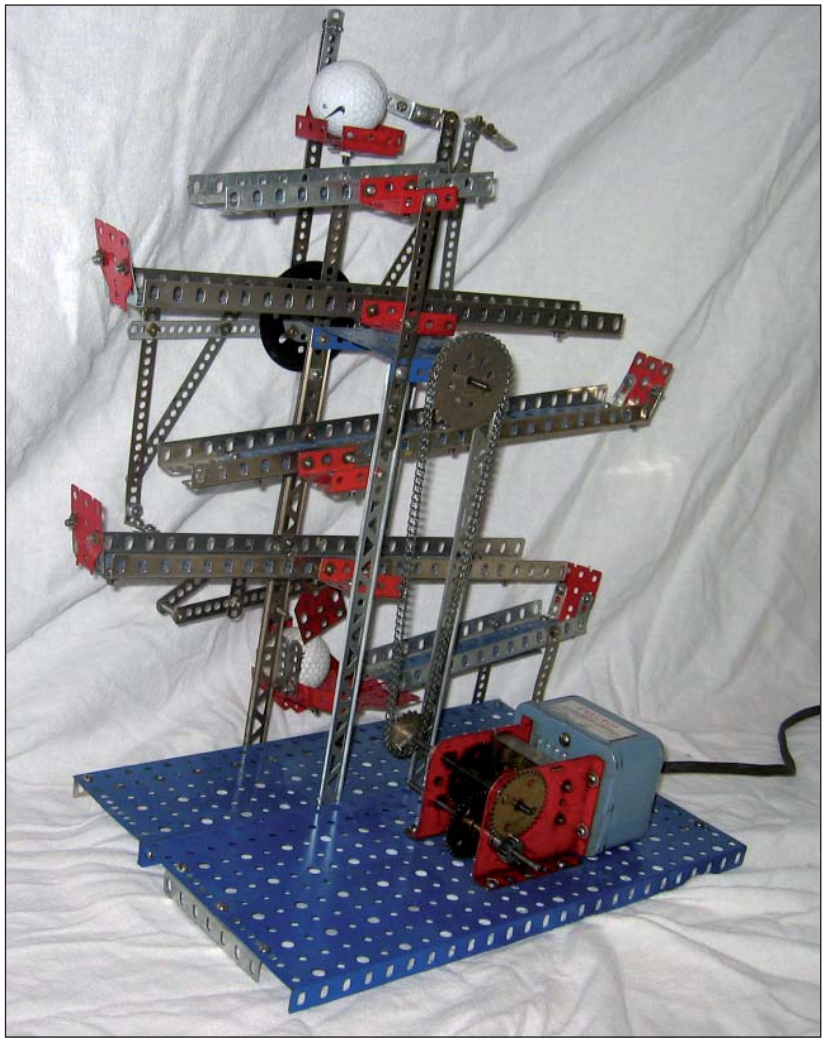
Motor is geared down 27 times with CJ / P13(B) gears.

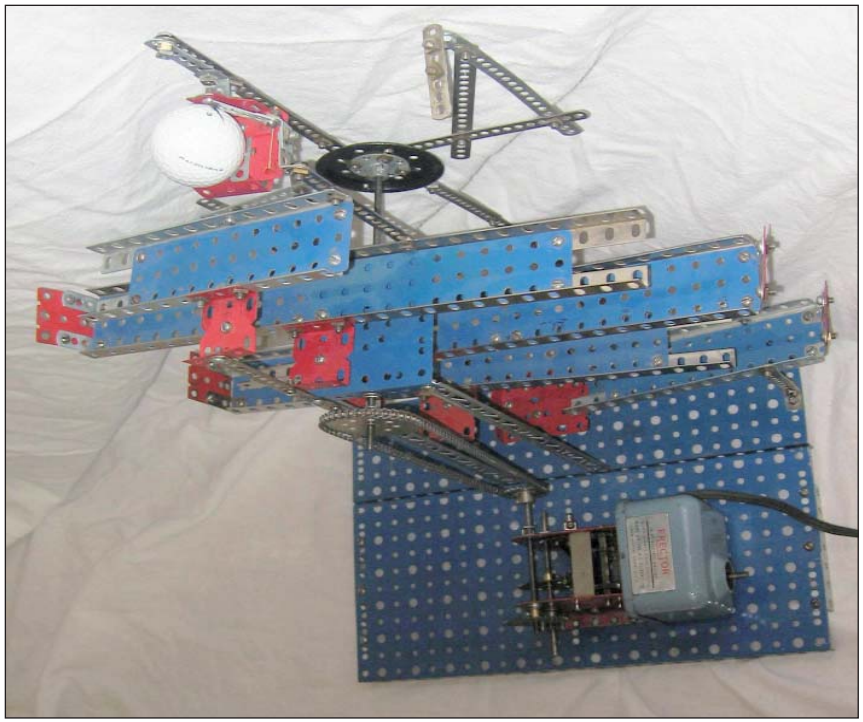
Models Built with No. 8 1/2 (plus 2 MB 18 1/2” angle girders)

The track pivots on the main axle via 2 CH’s mounted on an N (round holes of CH on the axle).

Washers on the wheel axle must be on the outsides of the rails.

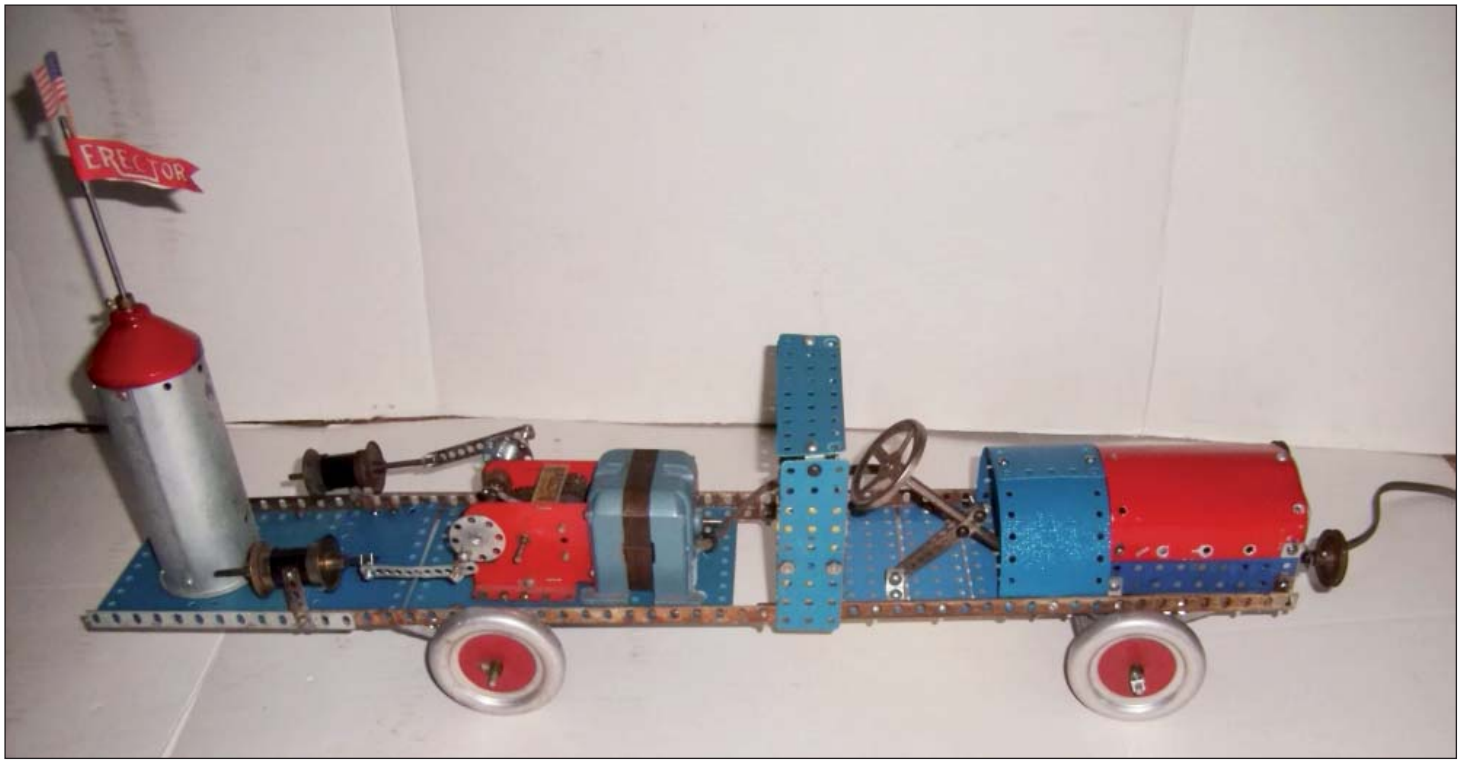
Dave Ware’s Golf Ball Machine





This machine picks up, lifts and drops off golf balls which roll down a series of tracks to the start.

Teddy Klein’s Antique Fire Truck



Teddy is a Junior member of the ACGHS. Here’s his model of an antique fire truck. The A49 engine runs a simulated water pumper.

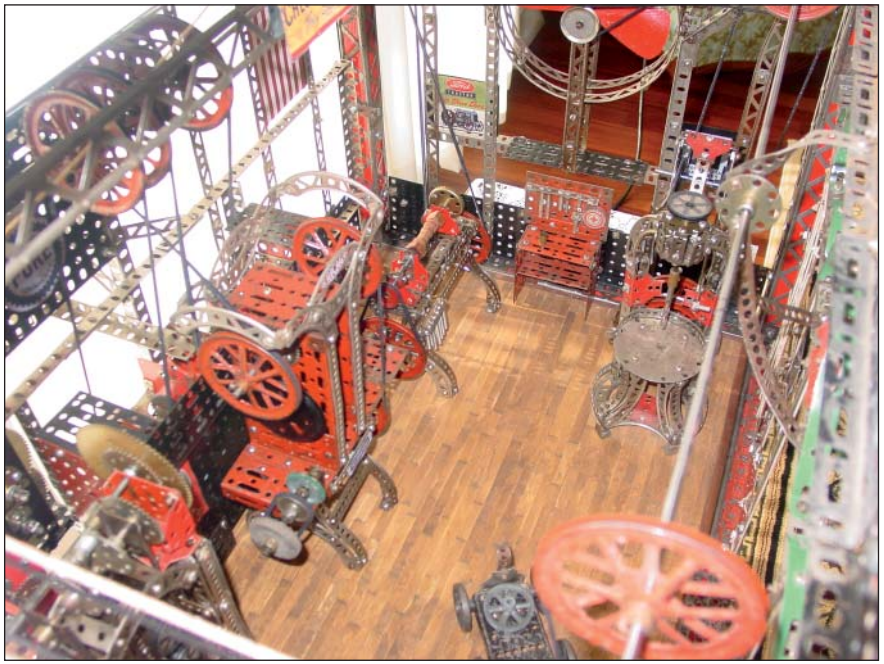
Gary Wood's Duluth Harbor Lift Bridge

This bridge is modeled after the lift bridge located at the entrance to Duluth Harbor from Lake Superior in Duluth, MN. Gary made it from extra pieces from incomplete sets and did not alter any pieces. The A49 motor on the left hand side of the model raises and lowers the bridge.

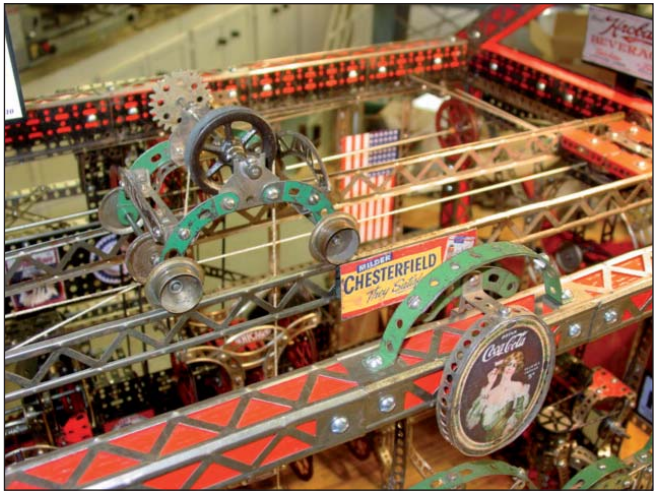
Randy Sauder’s Machine Shop

This 1924 tool shop has approximately 1000 continuous moving parts including 138 individual gears, wheels and pulleys. The shop is powered by four A-49 engines (1 for the hoist and 3 for everything else). It has 18 drive bands, 97 Type I wide girders, 95 various size base plates and thousands of parts overall. Most are Gilbert erector parts from the 1920’s but a few are later. This project was built over a 3-year span and has 35 period advertising signs. The red wood frame inside the Type I girders is oak. The shop also has a working table saw, drill press, power press, grinder, band saw, lathe, two wall fans, and a steam hit and miss engine outside on one end. Real steam engine sounds with whistle are also incorporated. The project is dedicated to my father and mother. To my father who in the late 1950’s gave me his boyhood erector set thus starting my journey into the amazing world of A.C. Gilbert. And, mother for nurturing my feeble early artistic talents.

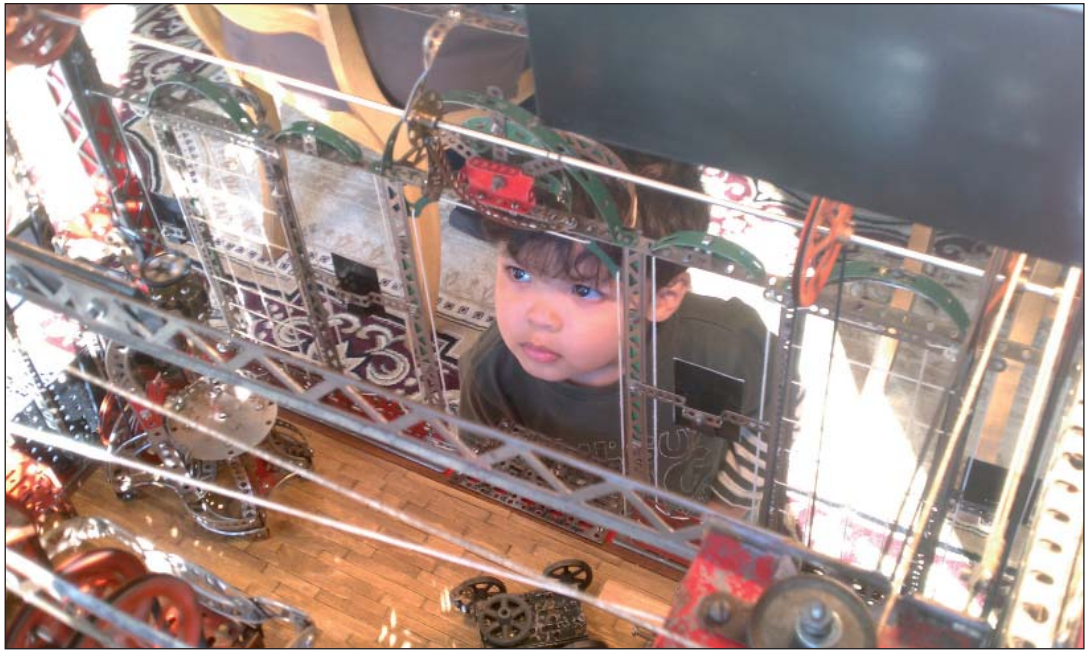
Randy Sauder’s Machine Shop - continued



The wood flooring was made from approximately 500 Popsicle sticks glued to 1/2” plywood. See the amazing detail put into Randy’s spectacular model.

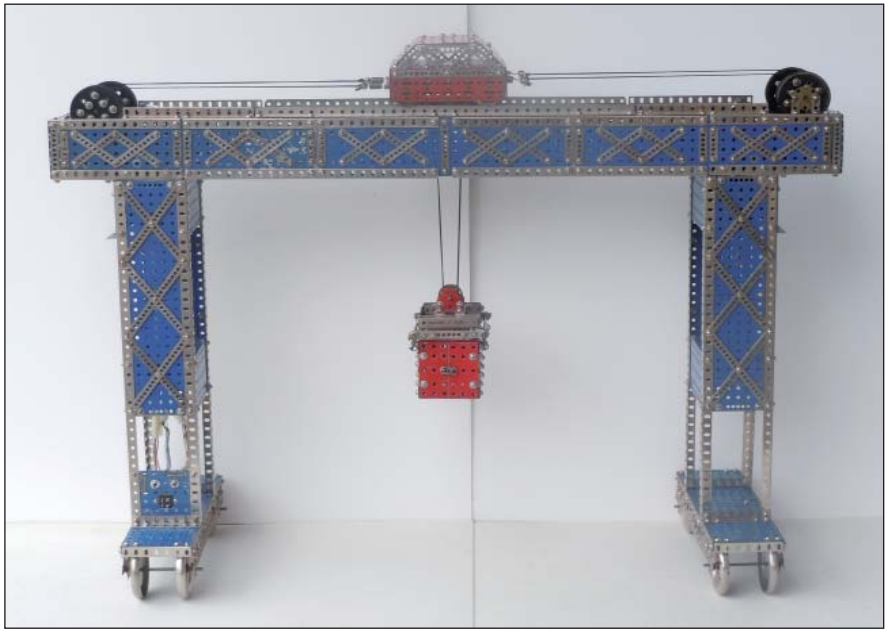


The most technical and challenging part of the build was the hoist. It required several different proto type gearing efforts before one was finally found to work. The final version (on the back of the shop) allows the hoist to independently and continuously move in three dimensions (forward/ back, left/right, and up/down). All this takes place from one individual motor working in one direction with no reverse.



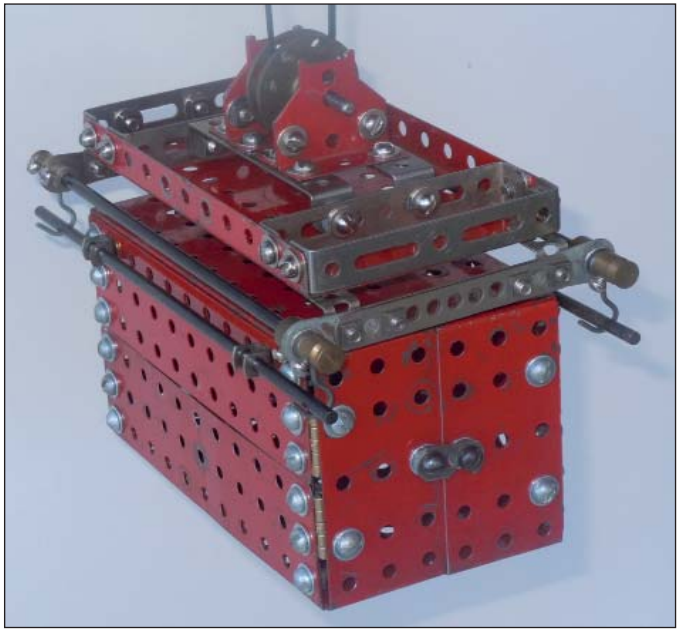
It was a big hit with my two year old grandson. This picture shows the wonder of Gilbert.

Charlie Pack's Intermodel Crane



This type of intermodel crane is similar to the large ship unloading cranes you see at major ports. The crane is freelance and not built to scale, but the real thing would typically be used in a railroad yard for transferring standard containers from a truck to a railroad car, or vice versa. The hoisting and trolley movement functions are each powered by an Erector P55 motor. The entire crane is on wheels, four in each base. The control panel is located at the bottom of the left leg in the photo. The model is about 39" long by 13" wide by 29" high overall.

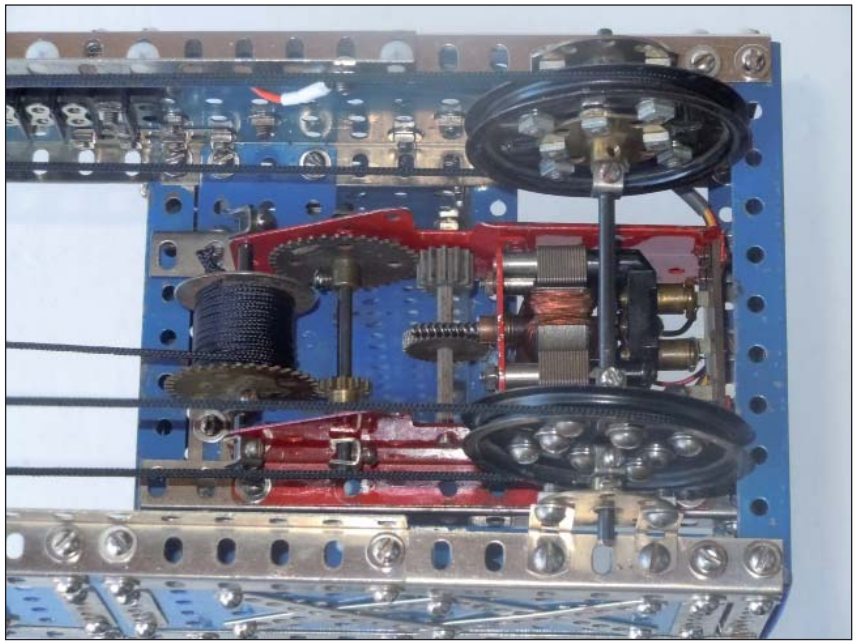
Instead of a hook, the crane has a lifting frame which attaches itself to a container, and containers can be transferred from train to truck or vice versa as in the real thing.

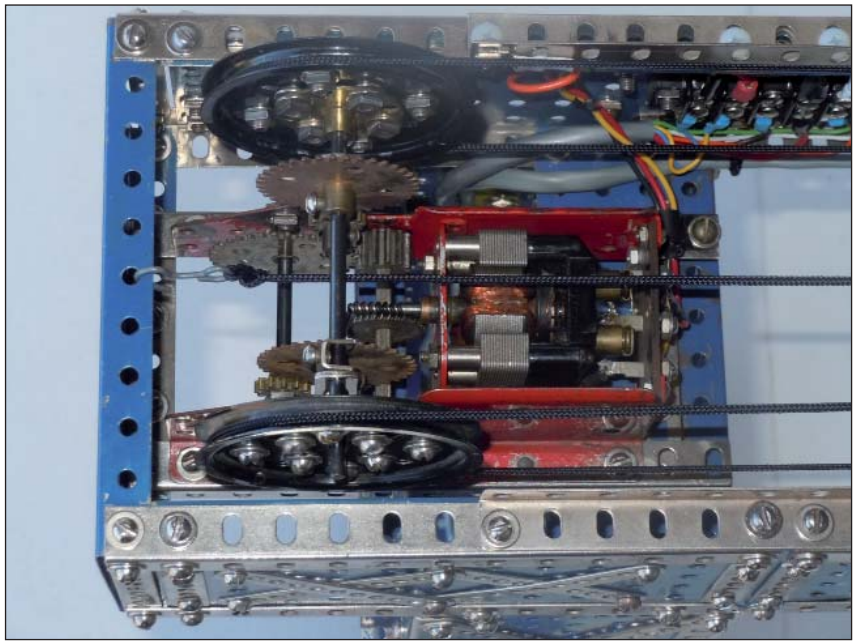


The lifting device is a rectangular frame with a small hook dangling at each of the four corners. It is positioned just over and a bit to one side of the container. The trolley is then moved slightly so the open parts of the hooks are under the side rails on the container. When the device is lifted the hooks grab onto the container so it is also lifted. Precise control of motor speed is needed!

The container has opening doors at one end. It fits perfectly on a Lionel Standard Gauge flat car, suggesting the crane could be the center of a train layout at some point.

Charlie Pack's Intermodel Crane - continued





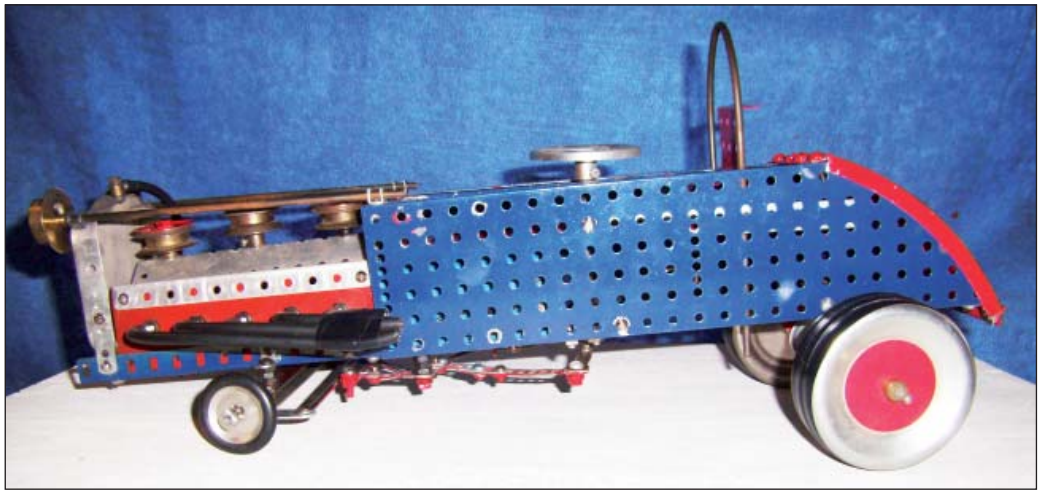
The trolley is pulled in either direction by two cords. Each cord runs from one end of the trolley, around a pulley which is powered by the motor drive at the left end of the gantry, across the inside of the gantry, around another idler pulley at the opposite end, and then back to the opposite end of the trolley forming a continuous loop. The trolley stops automatically at each end of the gantry, even if power is still applied. Here's how that works:

The trolley rails on one side of the gantry are insulated from the frame. There are three rail sections - a long center rail, and a short stop rail at each end. The stop rails are isolated from the long center rail, which is always alive. When the trolley switch is thrown - say to the left - the motor circuit is completed through an insulated rail, the trolley's wheels and axles, and the gantry's frame (ground) - and the trolley moves to the left. When it rolls onto the left stop rail, which is dead, the circuit is broken and the trolley motor stops. Now we throw the trolley switch to the right. This makes the left stop rail alive, the circuit is again made, and the trolley rolls to the right.

There's a lot of wiring in the photo - that is because all of the wiring from both motors (four wires each) and the three insulated rails congregate at a long barrier terminal next to the trolley motor. Two cables run from there to the control panel at the bottom of the left leg.

Models Built by Bill Klein

Rat Rod Roadster

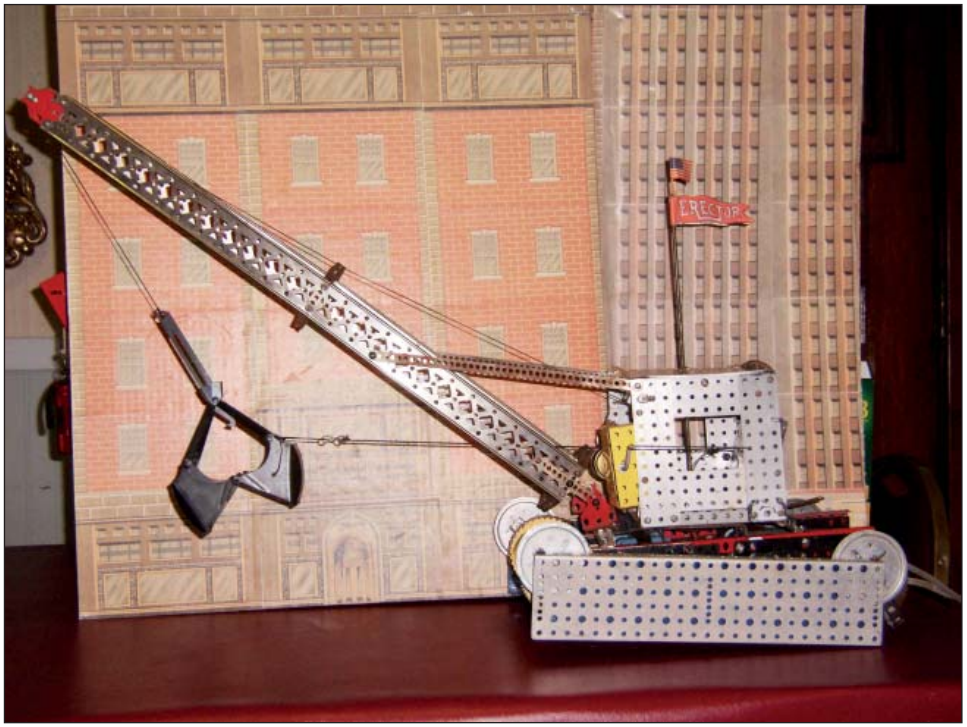


The exhaust pipes and water line are vacuum hose. The rear tread is electrical tape. The roll bar is an axle bent around a tin can. The front wheels are FP small disk wheels with o-rings for tires. The “fast back” shape was made by cutting damaged plates from Bill’s junk box. A rubber band (not shown) connects the 3 speed Gabriel Erector motor to the rear axle.

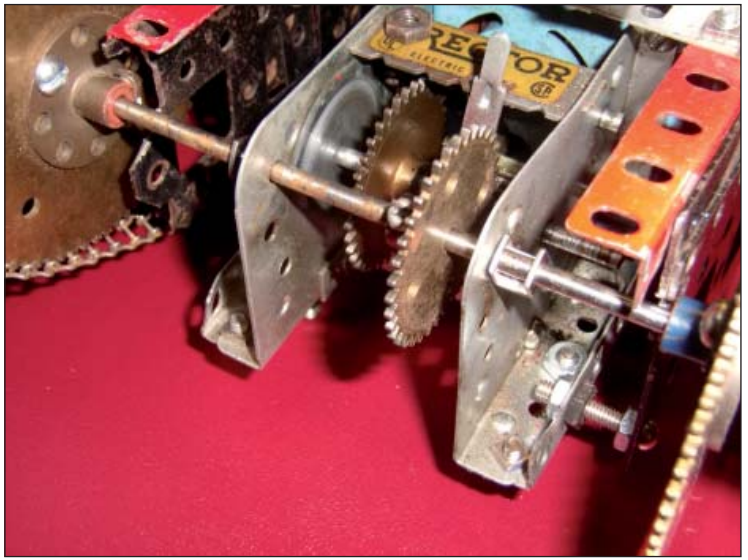
Rocket Jet Ride

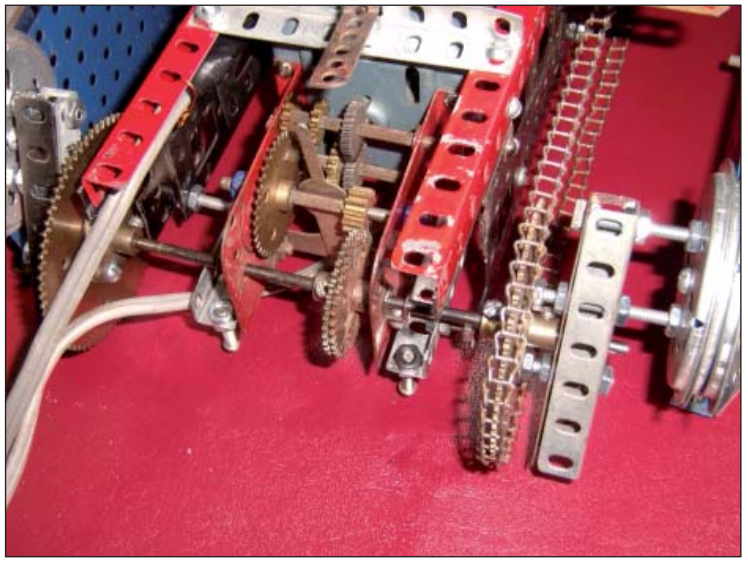
This model simulates a modern Amusement Park ride. “Riders” travel around in “rockets”.

Bill Klein’s Strip Mine Walking Crane

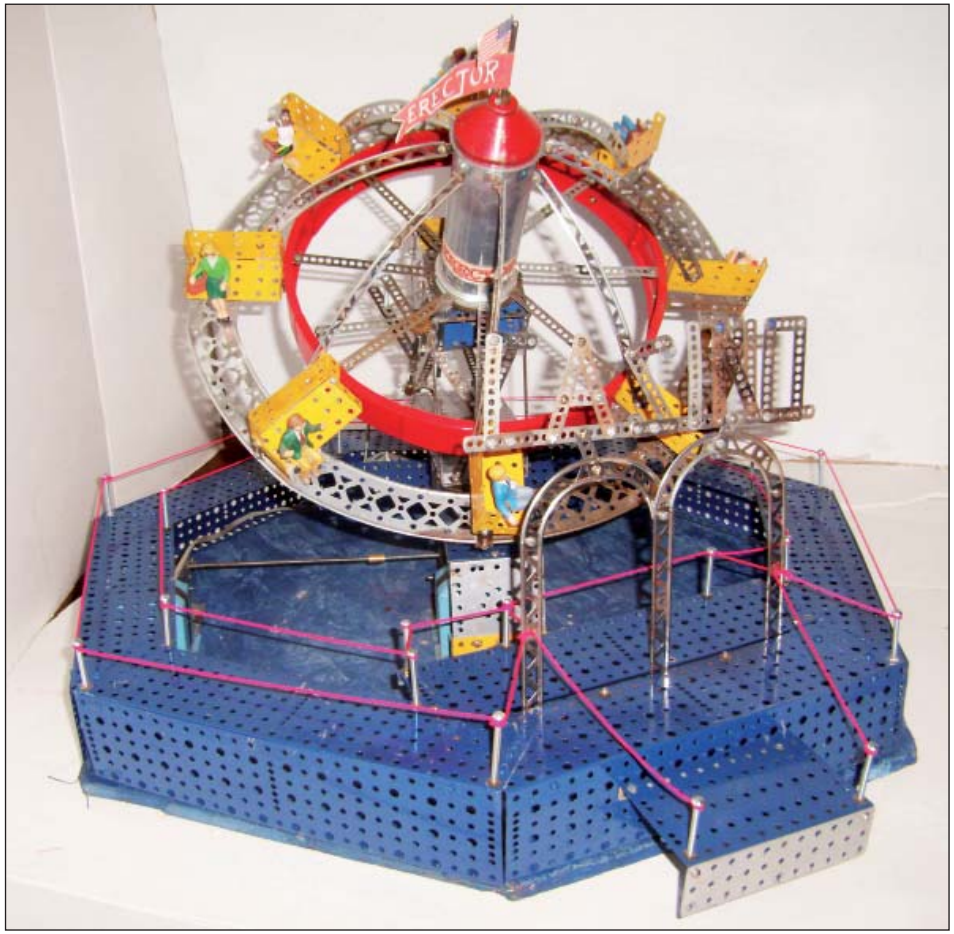


An A-49 motor and appropriate gearing “walk” this model across the table.

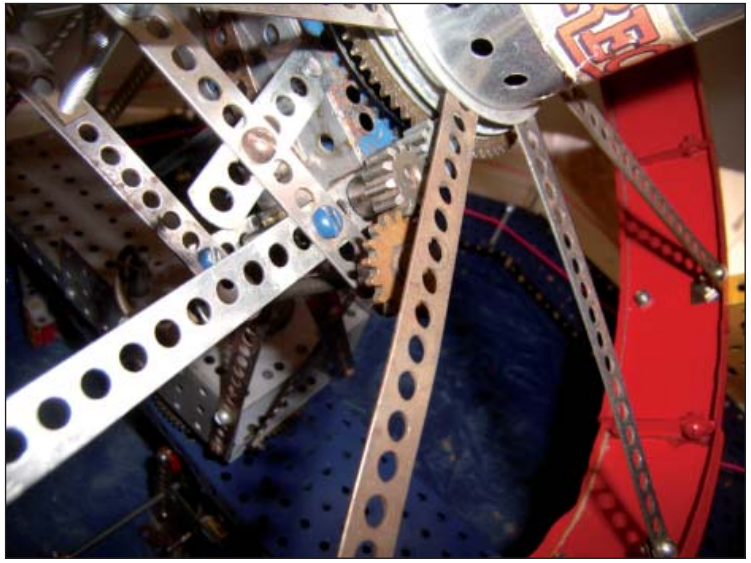


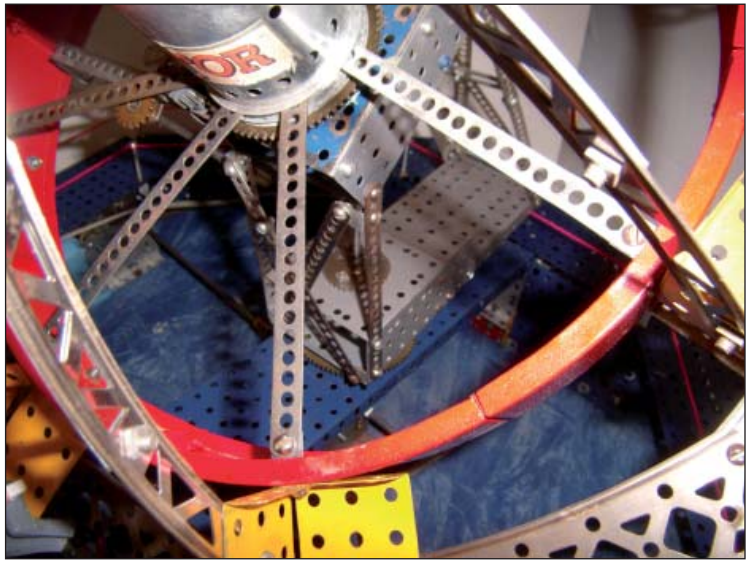


Bill Klein’s Casino Ride

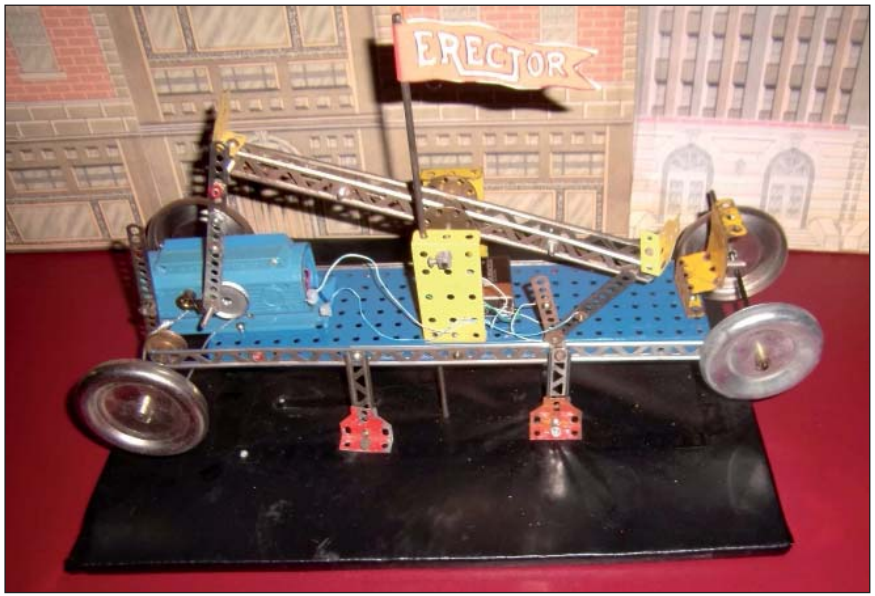


This model simulates an Amusement Park ride. The circular portion tilts up and down as it rotates.



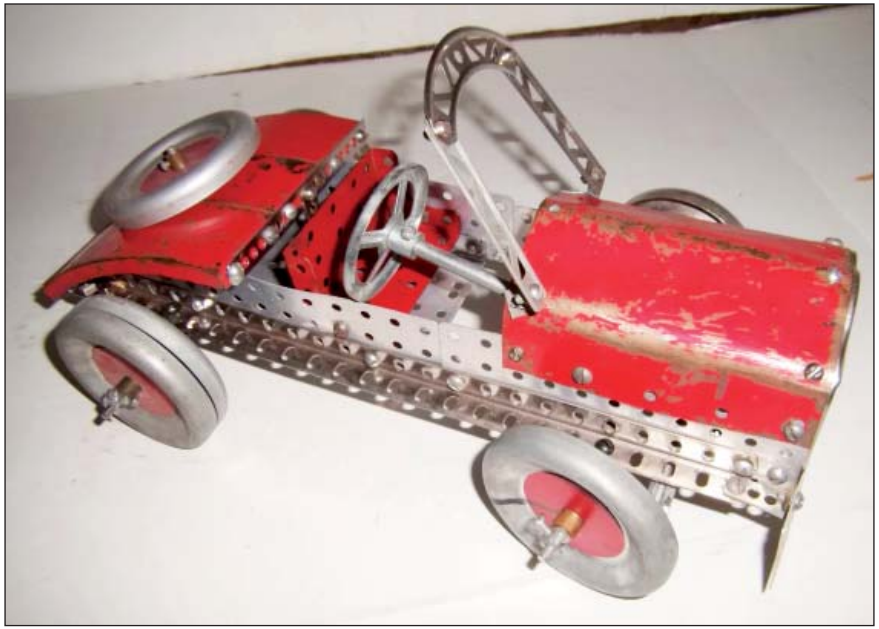


Models Built by Bill Klein

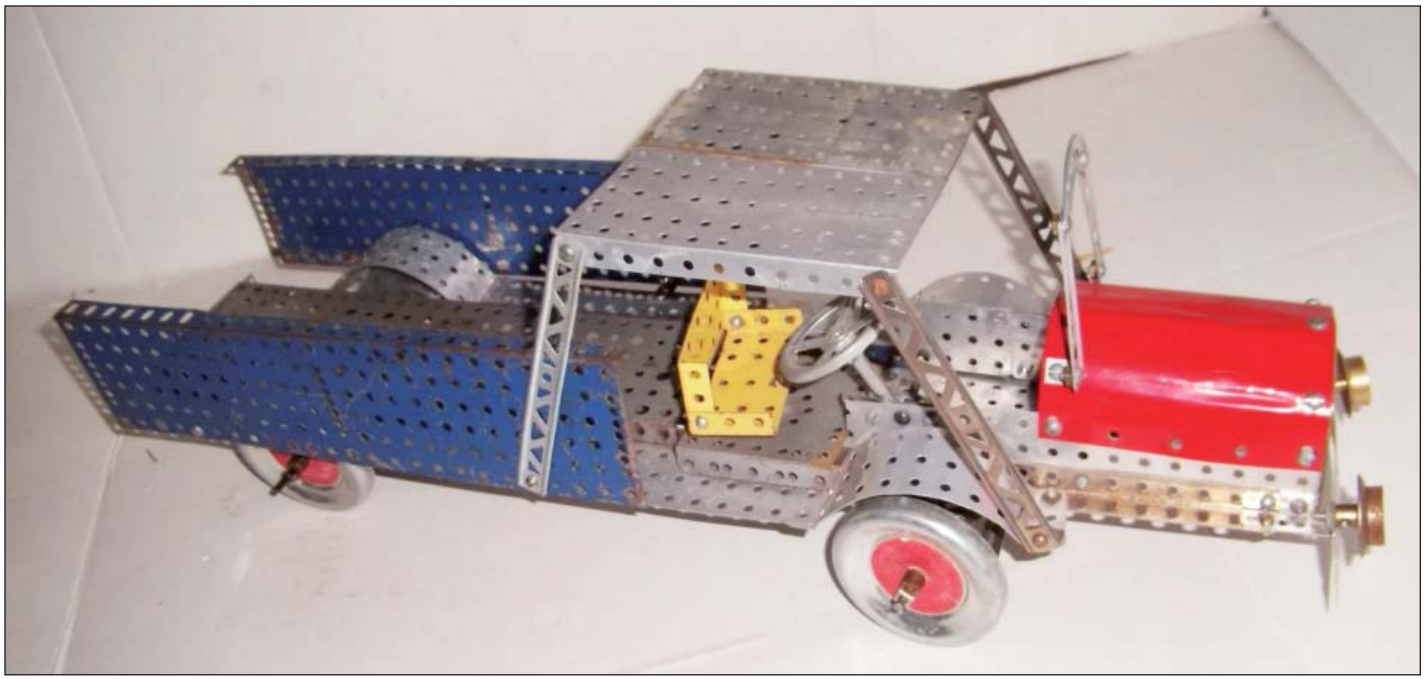


Bill's Powered See-Saw

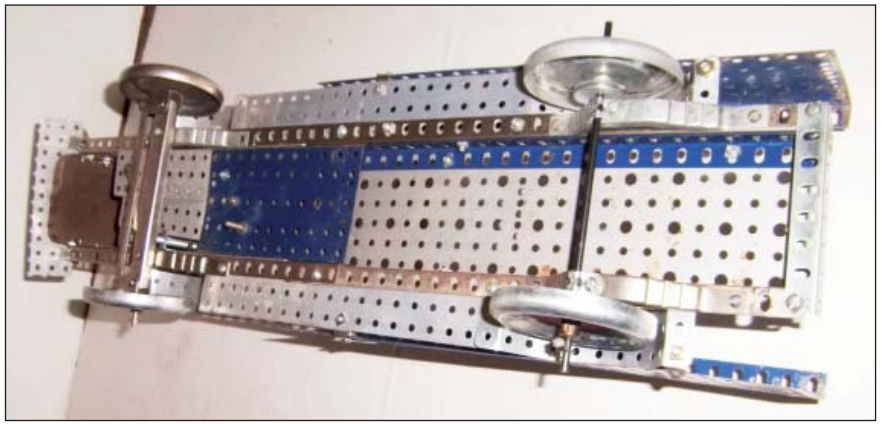
Bill's Rat Rod Pickup and Delivery Truck



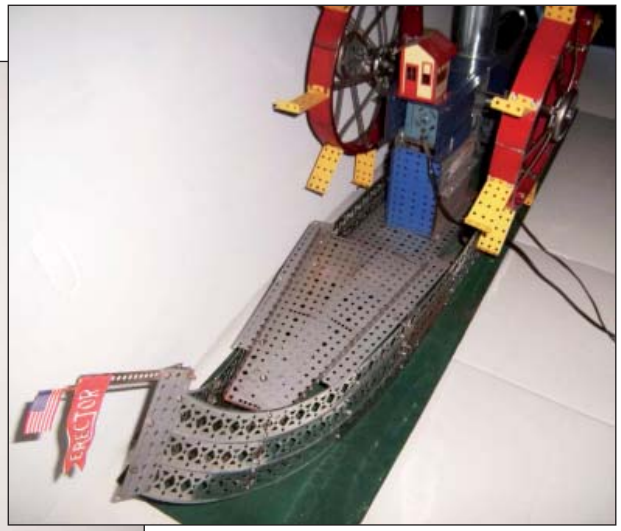
Bill Klein’s Heavy Hauler Truck



This model is a “push car” with a steerable front axle.

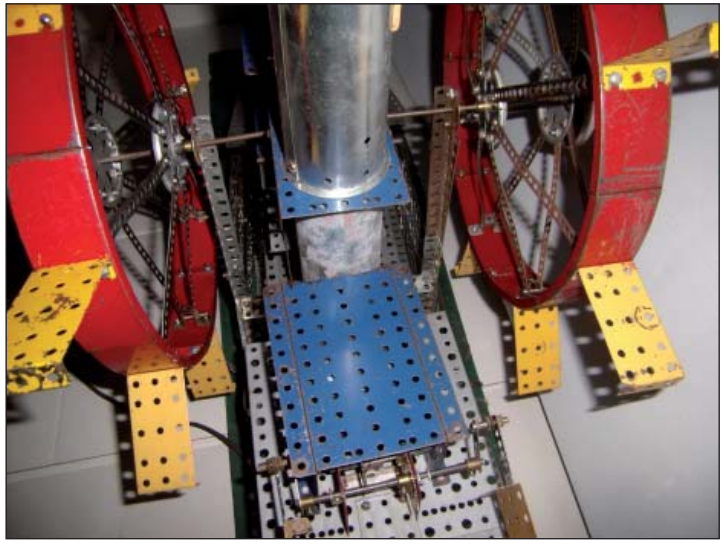


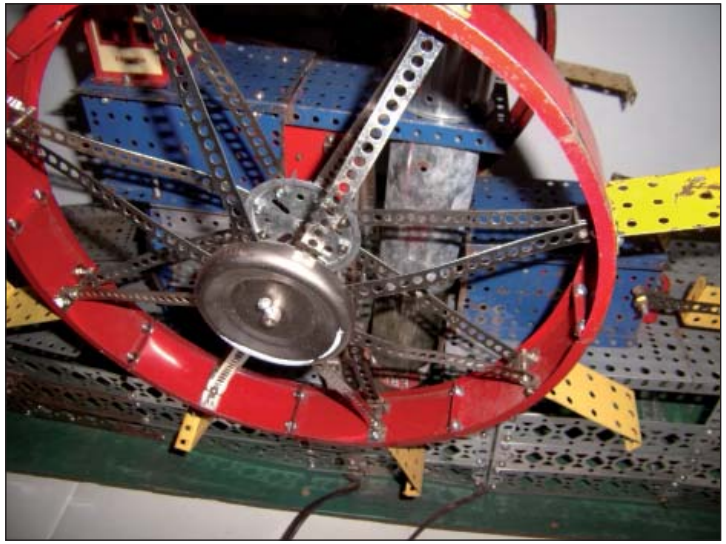
Bill Klein’s River Paddle Boat



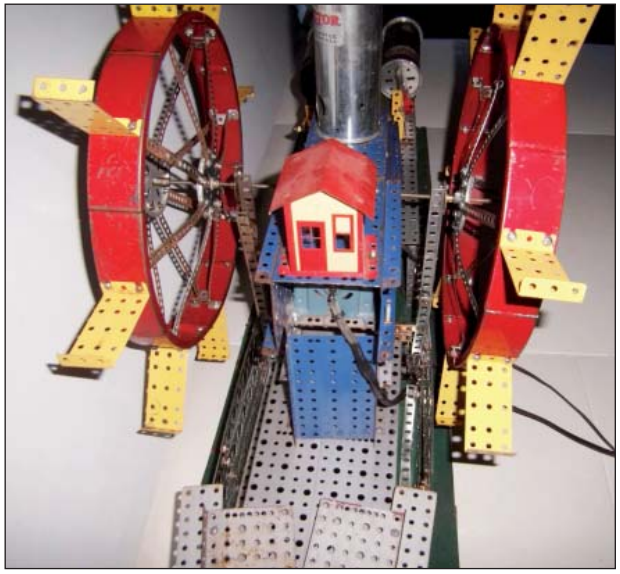
This model has rotating paddle wheels and a simulated steam engine.

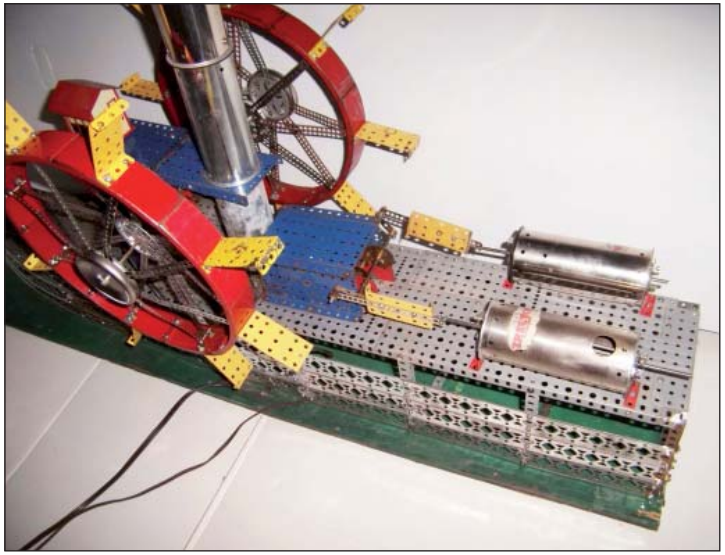
Bill Klein’s River Paddle Boat - continued



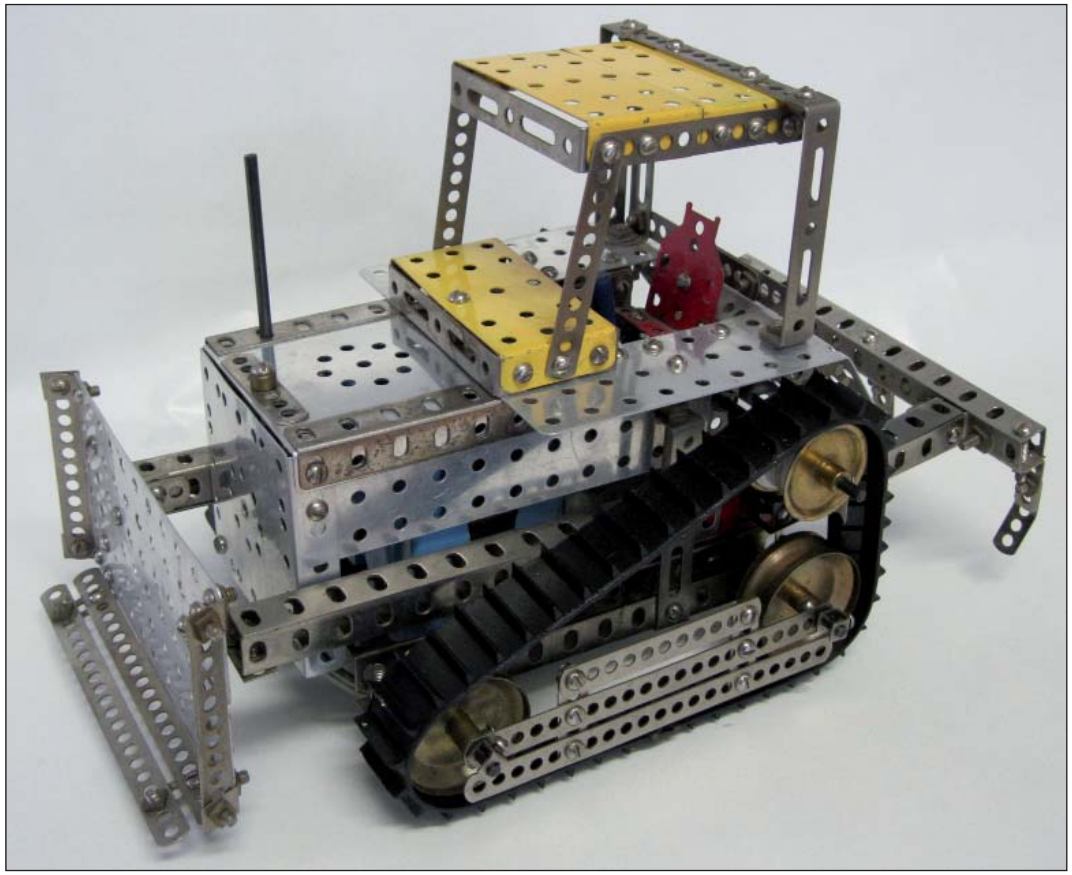


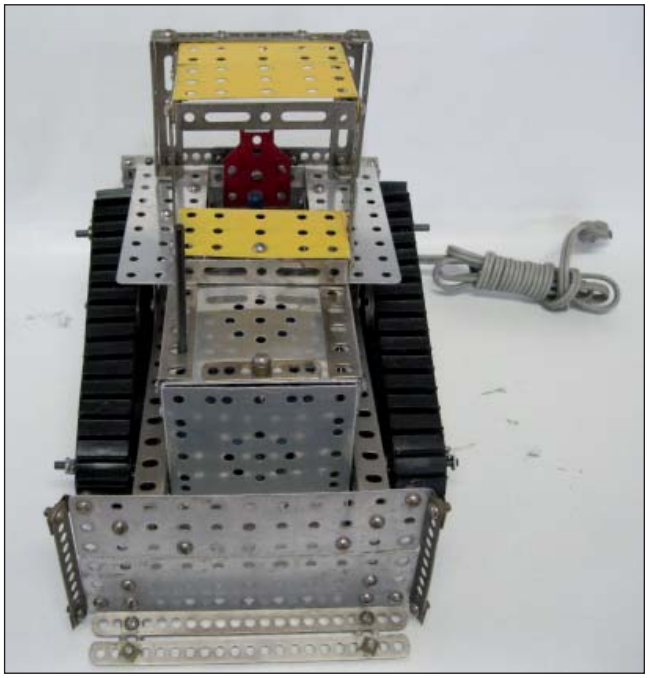
More views of the details in Bill’s model.





Maurice Ruyter's Bulldozer





This model was built from a No. 12 1/2 set. The standard NX tread pulleys are at the bottom of the treads, Z flanged wheels form for the top pulleys.

Maurice Ruyter's Bulldozer Continued

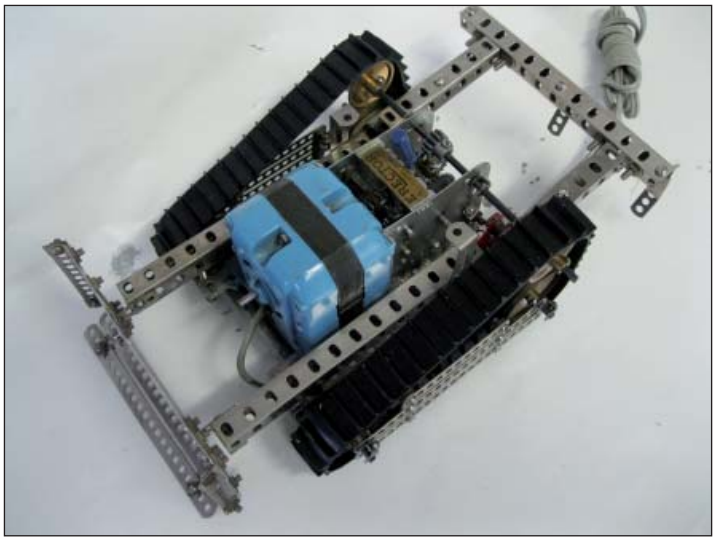
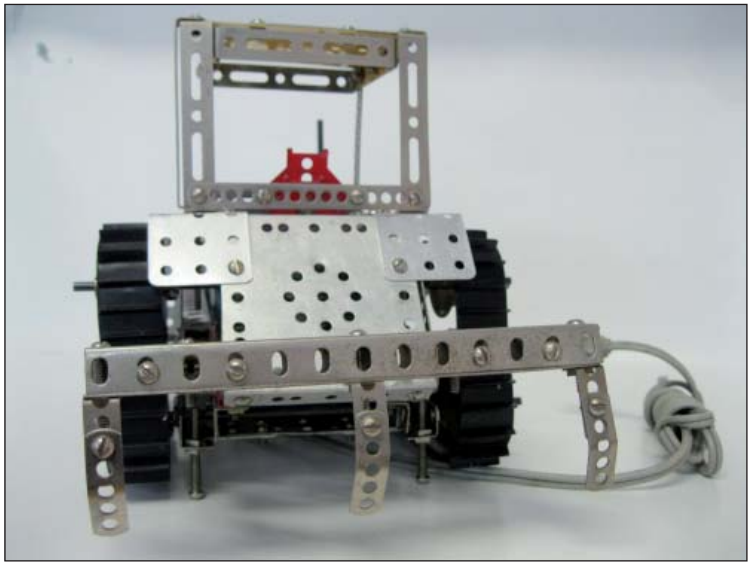
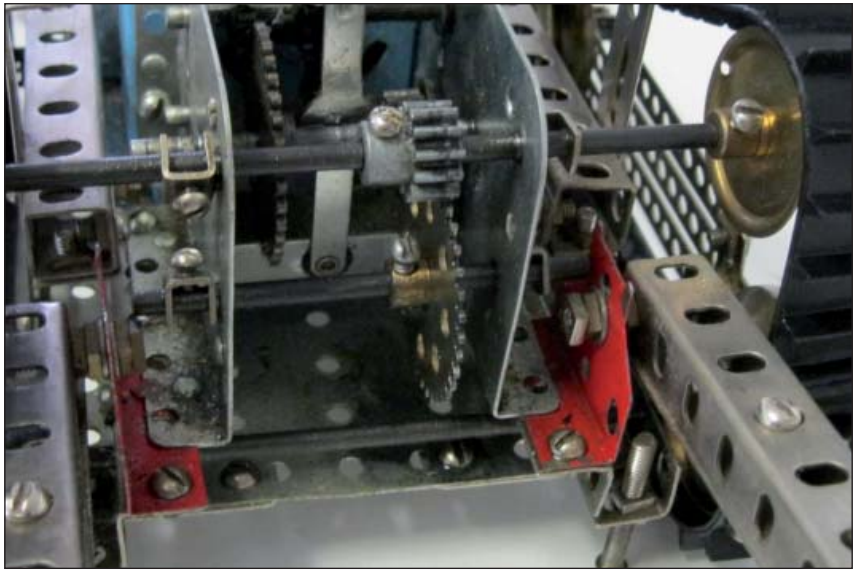


Photo to the left is a view of the bulldozer with the cab removed.

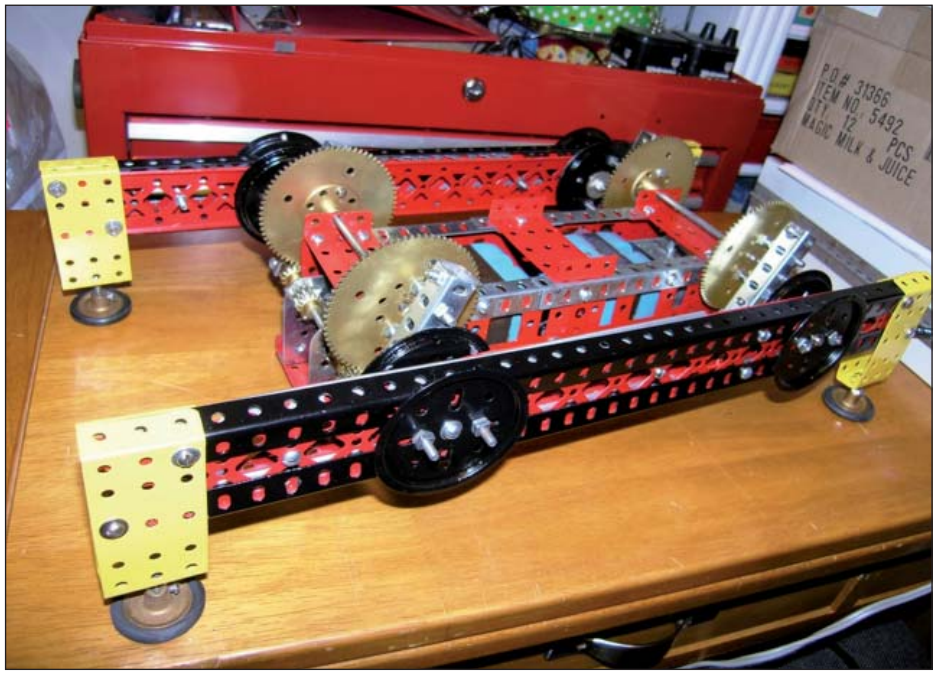
Photo on the bottom left is a rear view. Part 'O' pawls form rakers.

Photo on the bottom right is a view of the A-49 motor gearing.

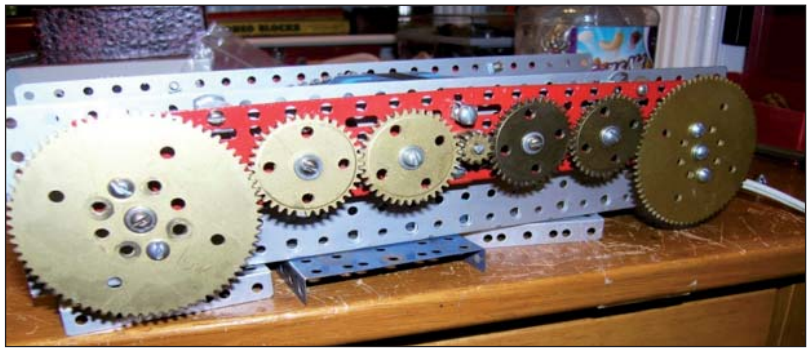


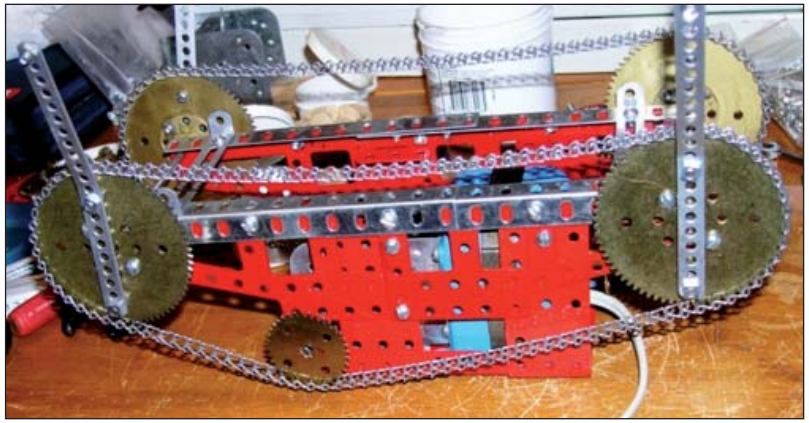


Larry Worley's Crawler



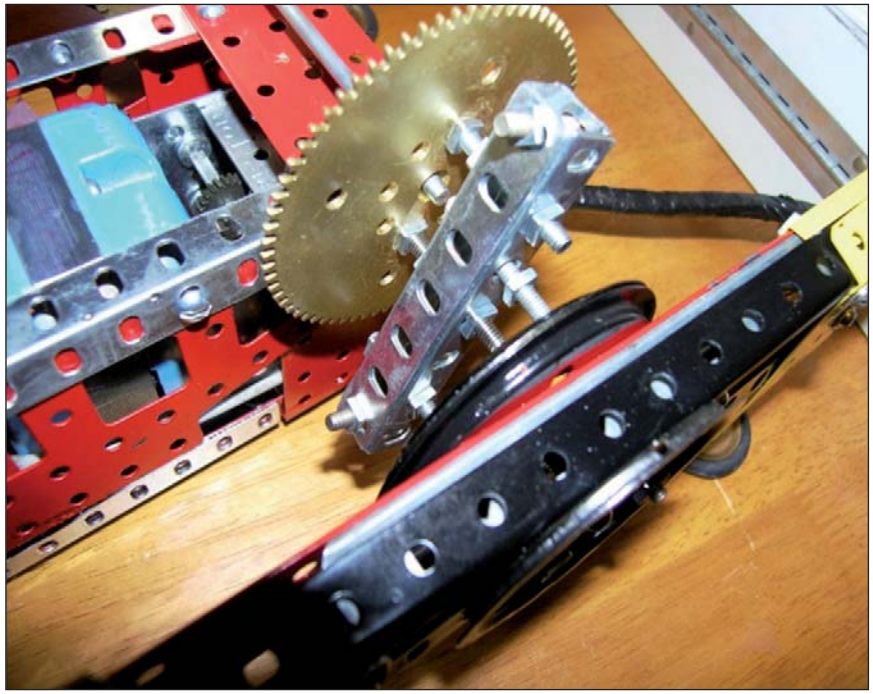
"The Crawler" was originally designed as a "Moon Walker" and its legs were quite lengthy. However, when it was up at its highest point, about 10 inches, it was terribly unstable. The center of gravity while up there at its height, combined with the weight of the two A49 motors, would collapse and sometimes bend parts. I had even planned to try to make it climb stairs, but that didn't work out either.

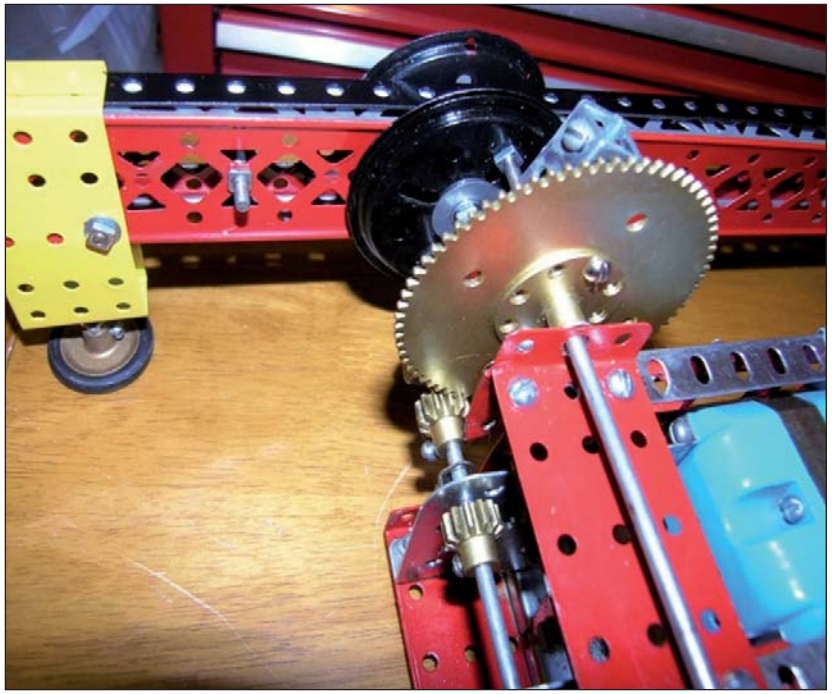




My dog, Tid-bit, doesn't like it. He barks at it and runs back and forth, threatening to attack it. Probably due to the noise from it as it is a bit loud.

Larry Worley's Crawler Continued





Originally, it had different transmissions, chain drives, etc., but I had to settle on this low-to-the-ground design due to its rickety performance while lifting up and lowering back down. Maybe one day I can figure out a design to make all that work and even climb stairs.

Frosty Wyrick's Mackinac Bridge Model

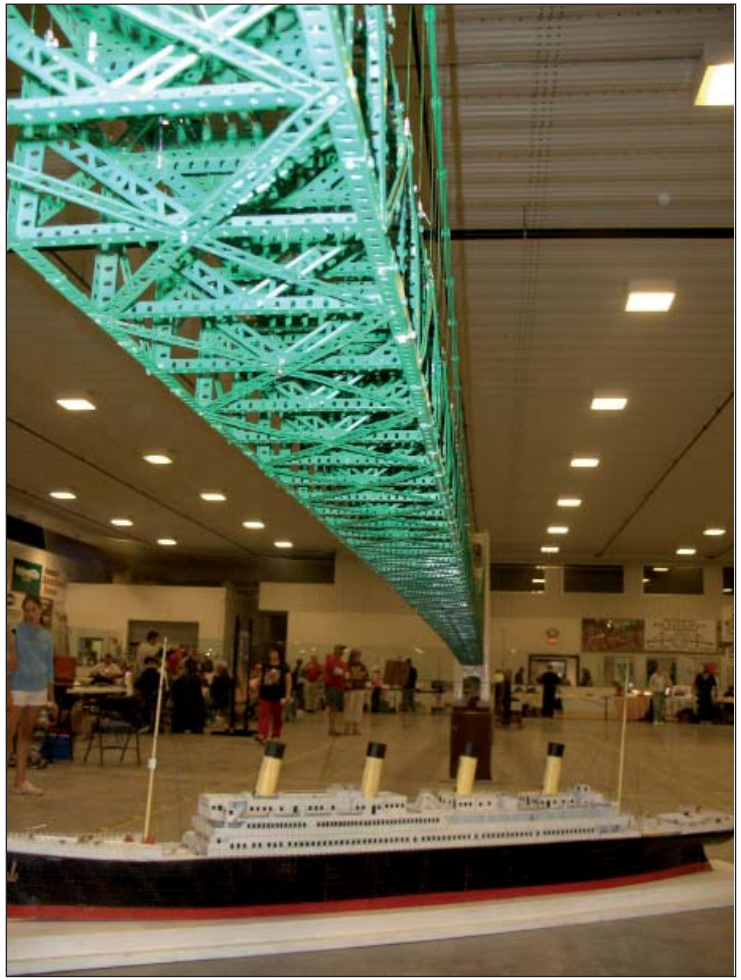
Frosty's over 100 foot long model of Michigan's Mackinac Bridge was featured at the 2007 ACGHS National convention. The model was scaled roughly 1:86 from original prints of the bridge.

Frosty Wyrick's Mackinac Bridge Model - continued

The bridge was painted with the same paint used to upkeep the actual Mackinac Bridge making the color match perfect. The model is accurate to the original in respect to the suspension support of the bridge road bed. The upper heavy cables carry the weight of the bridge. Loops of smaller cable drop down and support the weight of the road surface.

Michigan's Mackinac Bridge was completed in 1957 and connects Michigan's Upper and Lower Peninsulas.

Frosty Wyrick's Mackinac Bridge Model - continued



The ship model under the bridge is Frosty's scale model of the Titanic. It is over 8 feet long.

Charlie Pack's Railroad Trestle Bridge

The bridge is built in three separate sections: north, center and south, which relate to their orientation in my den. The total length of the bridge is 160.5" (13 feet 4.5"). It is installed on a one-piece shelf 165.25" long and 9.0" wide in my den. A single Standard Gauge track carries a Lionel passenger train headed by a 408E locomotive. The scale is approximately 27 to 1 based on photos of similar bridges.

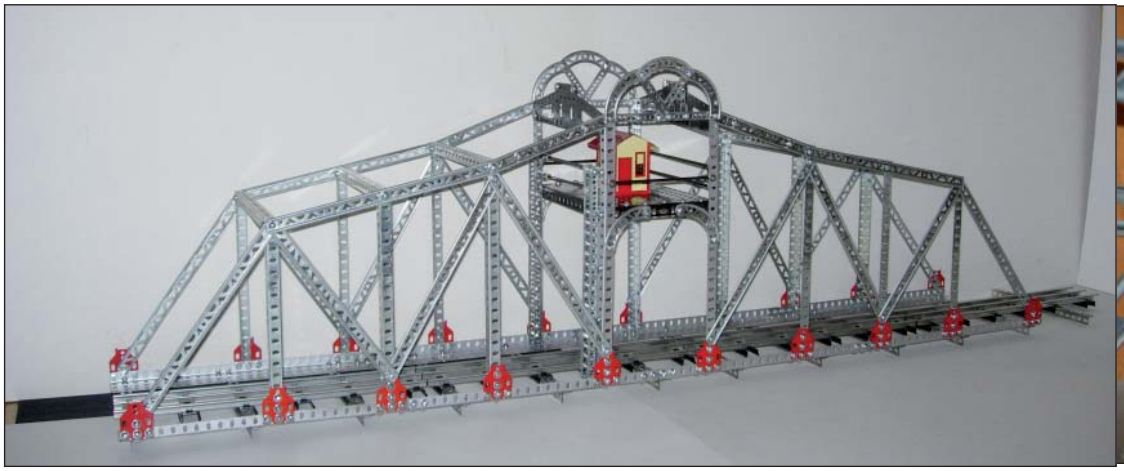
The south section (on the left) is 115 holes long and the bridge section itself is 94 holes long. The tracks are electrically live so the train can be lit up, but the locomotive itself sits on an insulated section so it doesn't move. This loco has no reverse unit and no on-off switch.

Also visible in this and the next photo are part of Charlie's Lionel Standard Gauge collection, plus the 1931 Erector Hudson built by the late John Drury.

The north section base, which is 106 holes long, and the north section bridge itself is 94 holes long. The north and south sections are nearly identical except the center bay on the north section is 1.5" shorter than that of the south section. This was done to make room for wiring.

The center section is a re-design of a model displayed at the Whitney Museum in New Haven. There is a real railroad bridge of a similar style in northern California. The center section base and bridge section is 100 holes (50.0") long. The north and south sections are Charlie's own design.

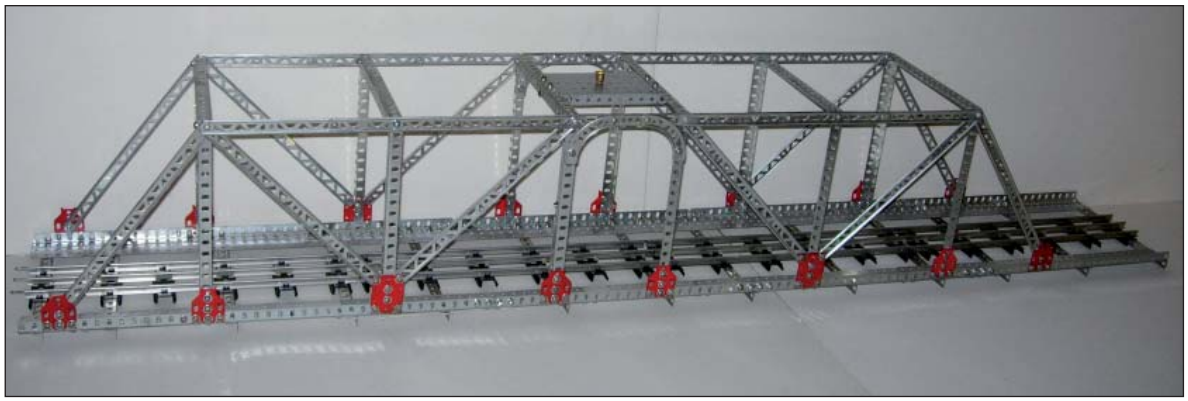
Charlie Pack's Railroad Trestle Bridge - continued



Above is a photo of the center section, before installation. The bridge is 17 holes (8.5") wide and the cross members supporting the track ties are Type III angle girders part no. 11. Most real railroad bridges do not have the tracks set on a solid base, and this model follows this practice by bolting the track ties directly to the cross members. Using MTH or Lionel Standard Gauge track sections, there was no need to drill or "move" any holes. There is a catwalk made from MF plates on each side of the track. The watchman's house in the center is fixed on two laterally mounted "S" plates. The guard rails are black axle rods attached with P37 collars. The access ladders, one on each side of the track, are each made from perforated strips and long bolts and nuts. The entire bridge needs 121 angle girders of various sizes, 60 MVs, 60 C girders, 60 MF plates and a lot of other parts (a total of around 3,500 pieces in all). But you can reduce the parts count and size by building just the center section alone. In Charlie's model, some girders are "trimmed" to fit, but in some cases smaller pieces could be overlapped to get the right length.

The photo above shows how to use a 3/8" dia. solid collar as a captive nut in the south bridge section. On each side, three C girders and one vertical angle girder are fastened together with an S62 7/8" bolt and a solid collar on the inside. The collar is rotated on the S62 so its threaded bore aligns horizontally with the bolt (not visible) that holds the end of the crosswise angle girder in place. Washers may have to be inserted on the S62 between the collar and the girders so the collar's threaded bore will align exactly with the holes in the two angle girders. Insert a 6-32 long bolt into the threaded bore of the collar to hold it in place temporarily while the S62 is tightened securely. You should then be able to remove that bolt with your fingers if the holes are properly aligned. Now, insert the cross piece between the collar and the vertical angle girder. If it is loose, bolt on a perforated strip so it will fit tight. The photo shows this in my model; this prevents distortion of the parts when everything is tightened up. Now insert the cross piece, thread the bolts into the collars on each side and it's done. A 3/8" dia. solid collar can be found in the form of a boss on unwanted MH wheel.

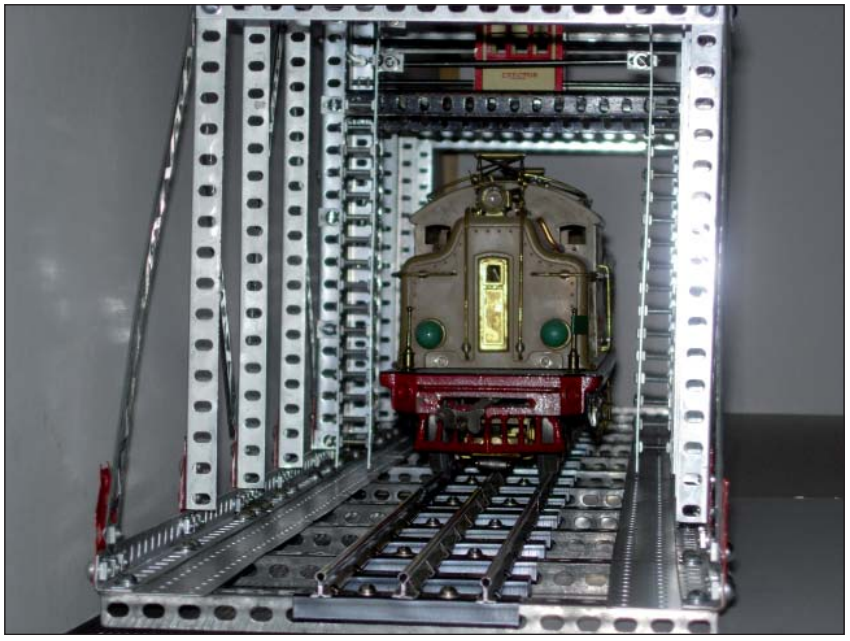
Charlie Pack's Railroad Trestle Bridge - continued



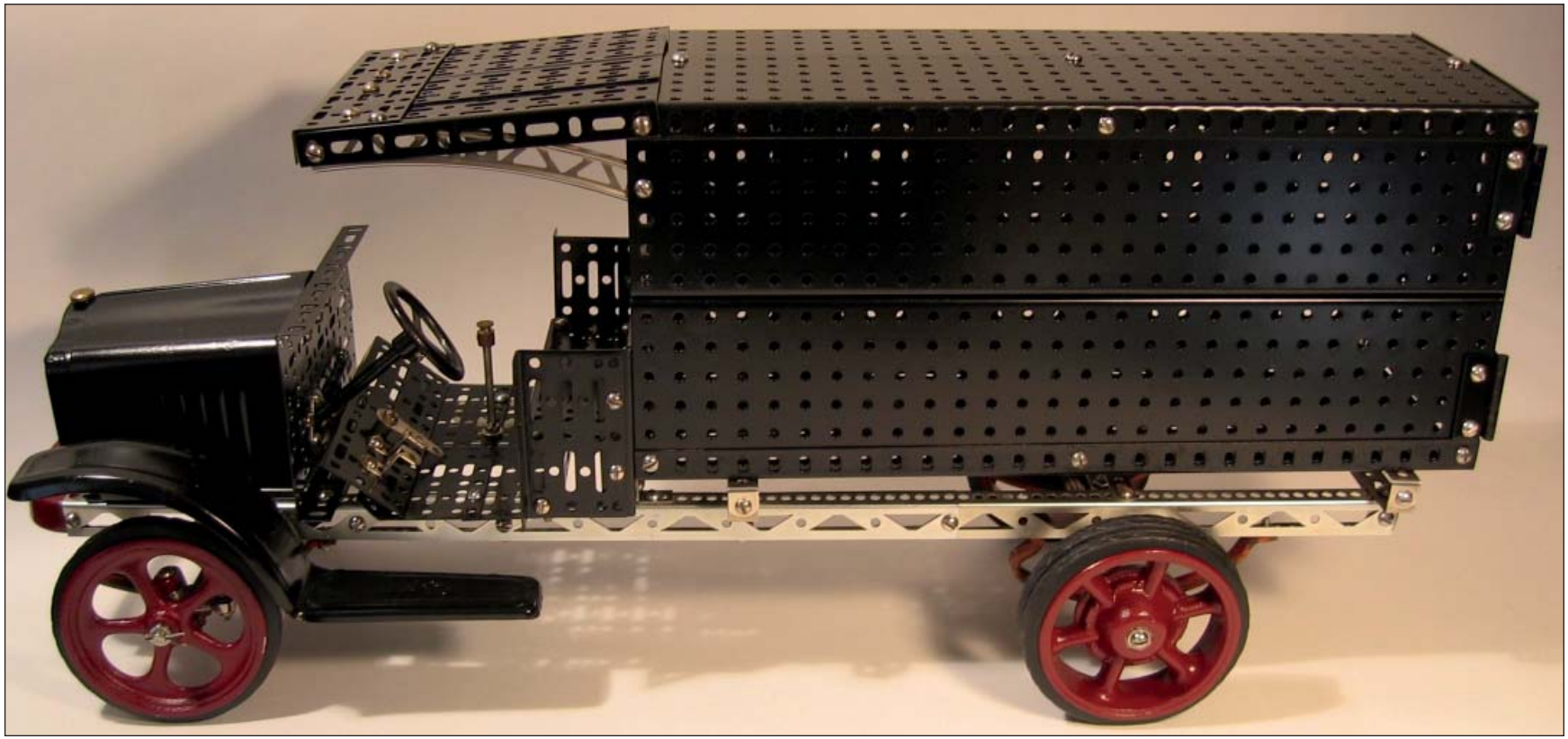
You had better DUCK or the Lionel No. 408E will run you over! Here is another photo of the center section showing more detail of the access ladders, the catwalks and how the track is mounted. The access ladders are attached with CH angle brackets. If you are into O gauge trains, a pair of O gauge tracks could be used in place of the single Standard Gauge track.

In this photo of the south section, the bridge is turned 180 degrees from the way it is seen in Charlie's den in the overall composite photo. The north section is similar in construction, but it is 3 holes shorter to make room for wiring at the end. Each section has a clearance light in the middle (the bulb is missing in this photo).

To provide access for inserting and removing trains, one of the upper end cross members is attached with screws going into solid collars used as captive nuts. This allows it to be easily removed and replaced. In this photo it's the leftmost cross member. The captive pieces are not visible, as they are on the inside.

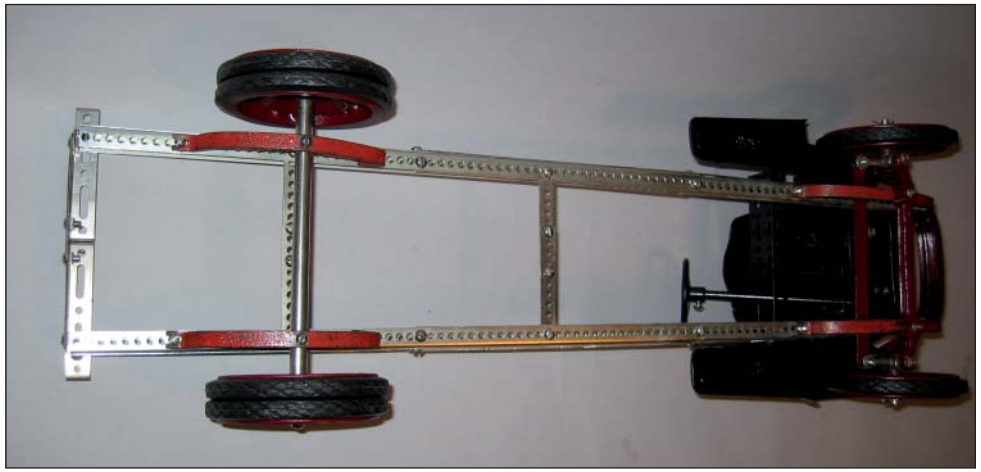


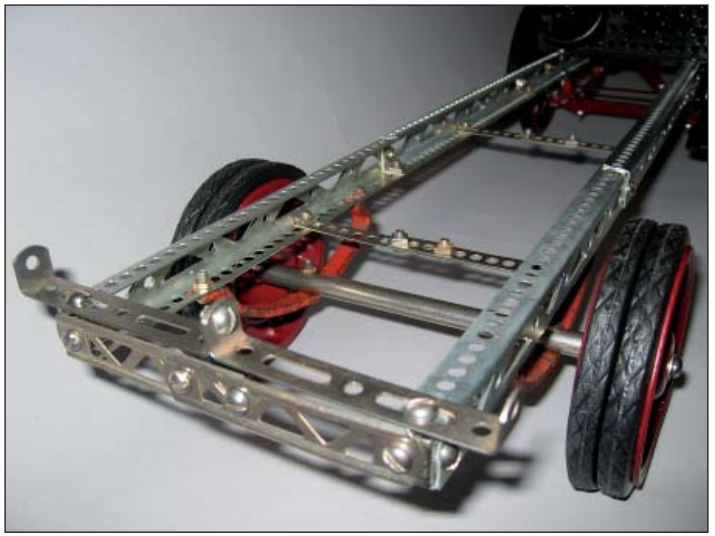
Dave Blood's 1926 White Delivery Truck



This model is pictured in the 1926 White Truck manual and was built with the early cast wheels. The box portion of the truck was built using 8 DQ special base plates.

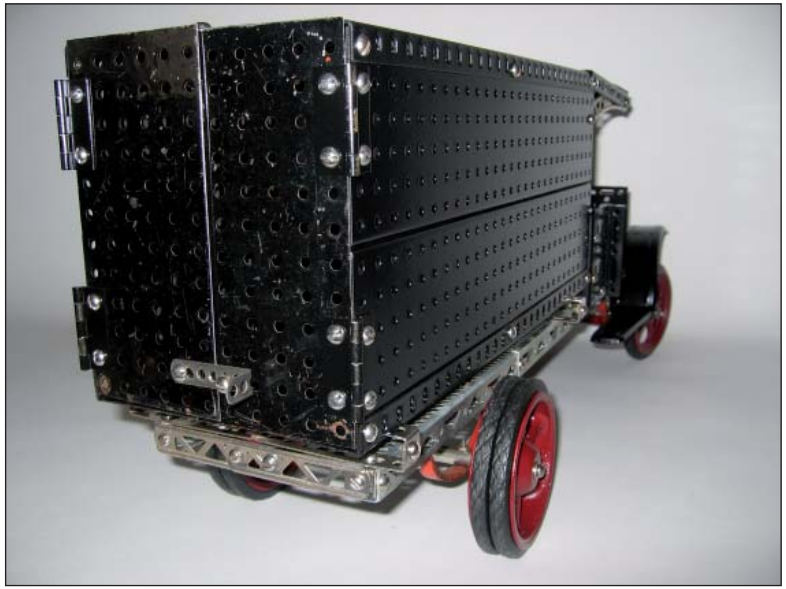
Dave Blood's 1926 White Delivery Truck - continued

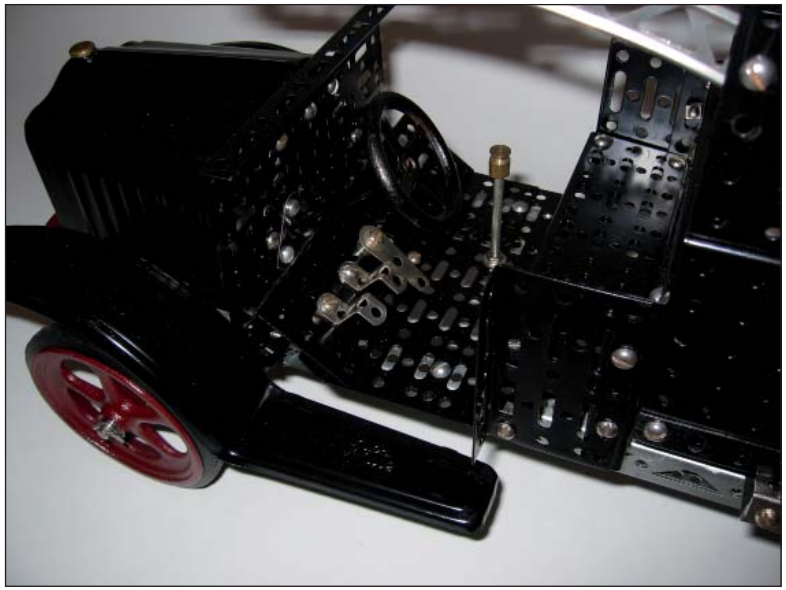


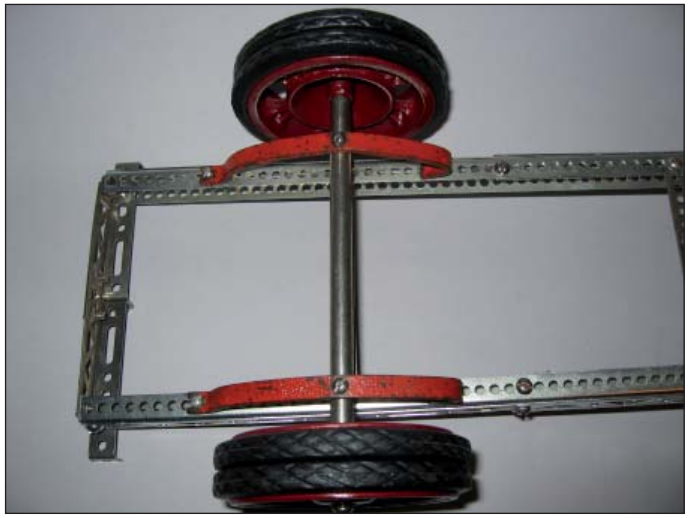


Views of the chassis including eight early DP angle girders for the frame members. The original model likely used just four, with a number of J strips used to complete a 'C' channel for the frame. Dave's design with the additional DP's added tremendously to the overall structure. The suspension is supported by early 1926 curved DK springs.

Dave Blood’s 1926 White Delivery Truck - continued







The back doors were made from a cut down EA base plate. Note the attention to detail on the interior with pedals and a shift knob which are not part of Gilbert’s design.

Move views of the suspension to the left.

Dave Blood's World Trade Center Towers Model

Dave built this model as a tribute to 9/11 -- all Erector parts with the exception of the little brass ball which he turned on his engine lathe to represent the fountain in the plaza. The model contains all original panels and rivets from A. C. Gilbert Skyscraper sets.

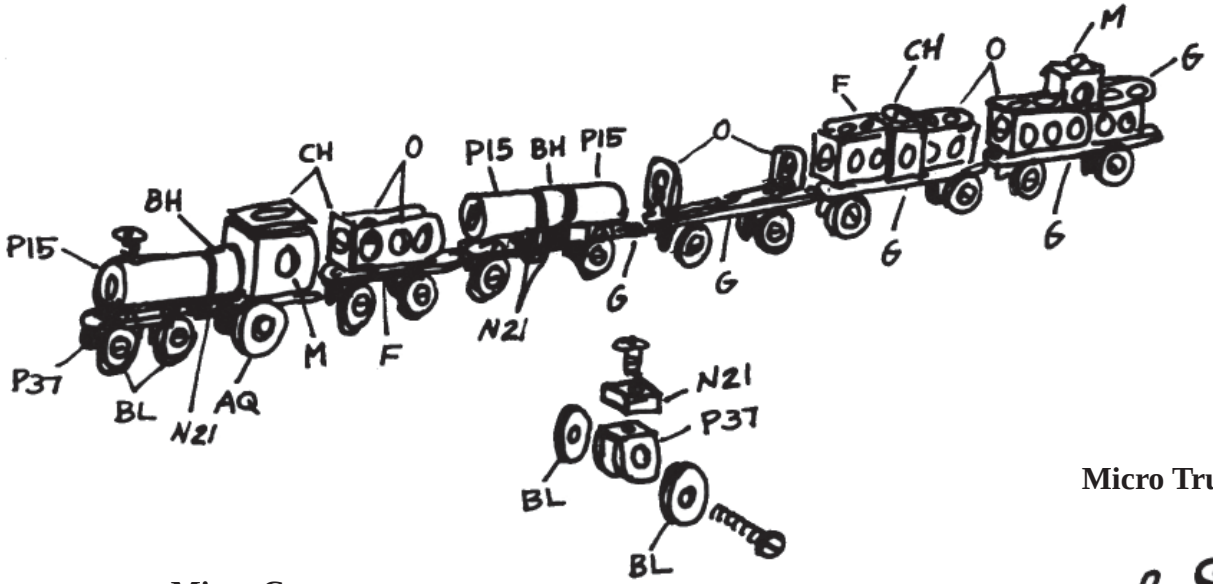
The height of the model, not including the antenna, is 51 inches.

The bill of materials is as follows:

Qty.		Description
64	ND	6" upper story sections
4	NA	3" main entrance sections
4	NB	3: ground floor sections
2	NG	roofs
352	MT	snap rivets
100	S51	1/4" X 8-32 screws
100	N21	8-32 sq. nuts
40	DP	12" angle girders
48	I	21 hole strips
1	DA	10" axle rod
4	P15	couplings
1	BT	pierced disc

Because of the brass rivets, brass round head screws were used for a better color match. The Skyscraper Set came with nickel plated screws that threw the color scheme off for the Towers. Obviously, in addition to the rivets, the 12 inch angle girders that comprised the frame had to be fastened with screws and nuts through the cardboard. And, when you are making a skyscraper with the 12 inch angle girders on the inside, the 8-32 screws that come with the set have such a small diameter head that they almost pulled through the cardboard sections when tightened. The brass screws used had slightly larger diameter heads to solve that problem.

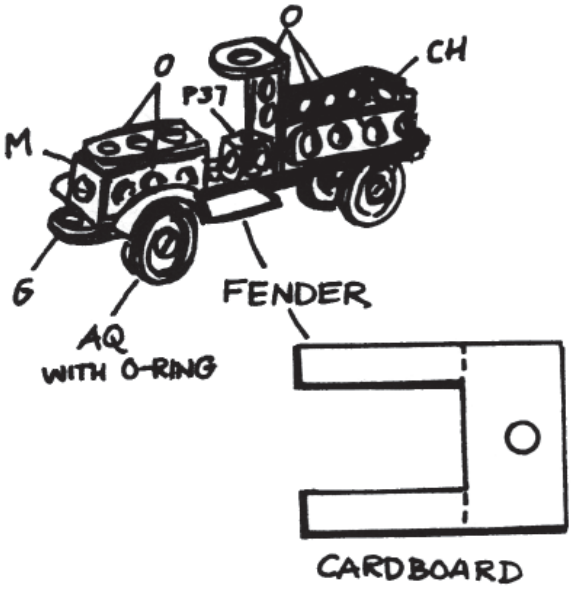
Brian Johnson's Micro Model Illustrations



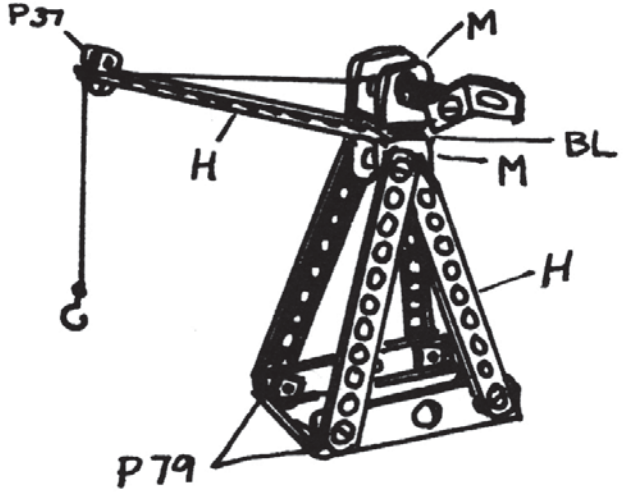
Micro Train

This model is constructed from all common parts. Illustration below the train is a typical truck used under the locomotive and cars.

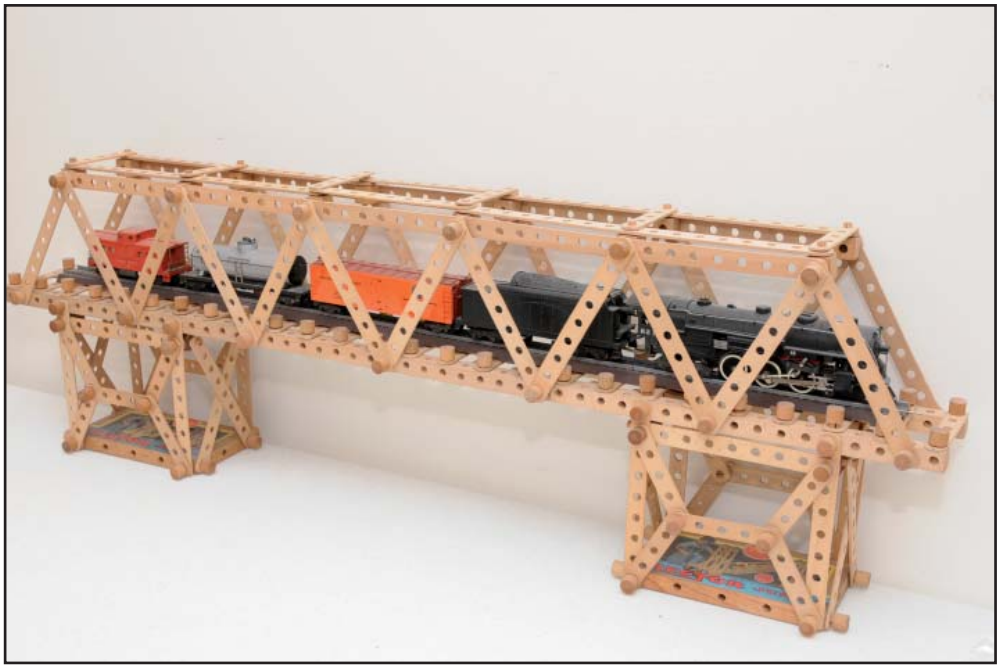
Micro Truck



Micro Crane

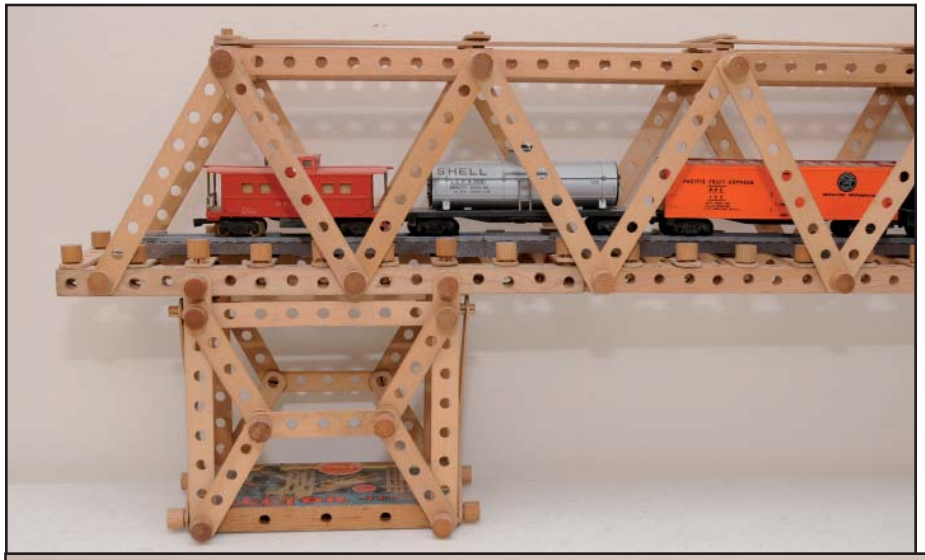


Mitch Brown's "No. 10" Erector Bridge



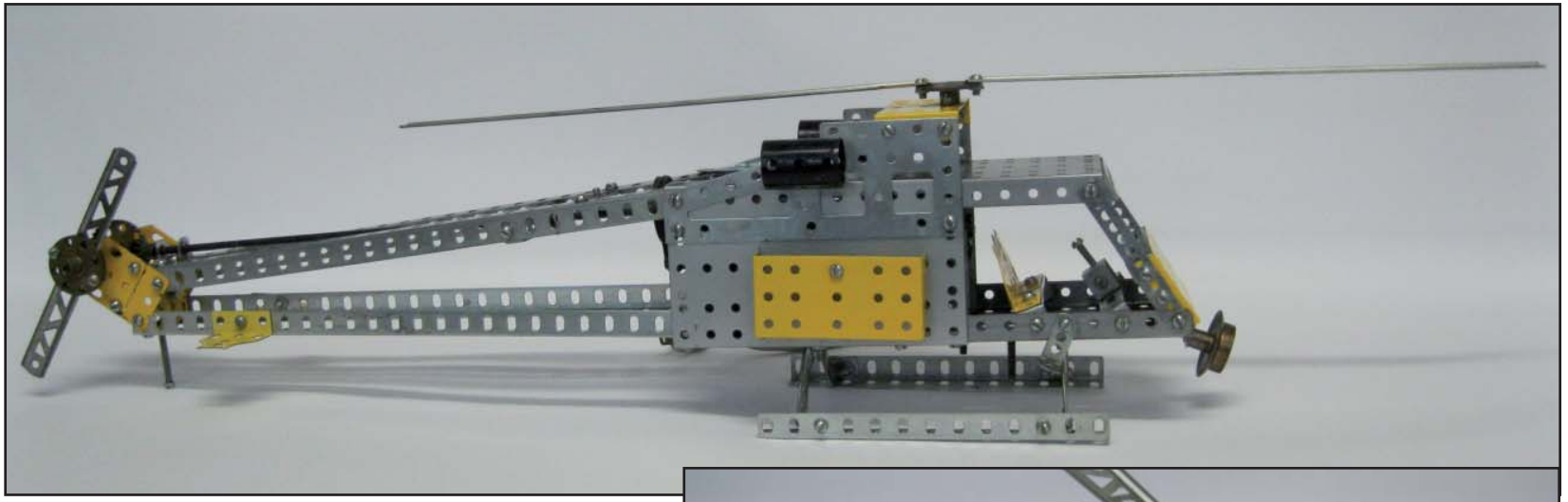
Mitch call's this model a #10 bridge because you need two of the largest No. 5 Erector Junior sets to build it. Of course that is a 1946 Gilbert HO train and track on the bridge as well. The bridge is surprisingly sturdy when well braced, but you can't use any split girders!

Mitch Brown's "No. 10" Erector Bridge - continued



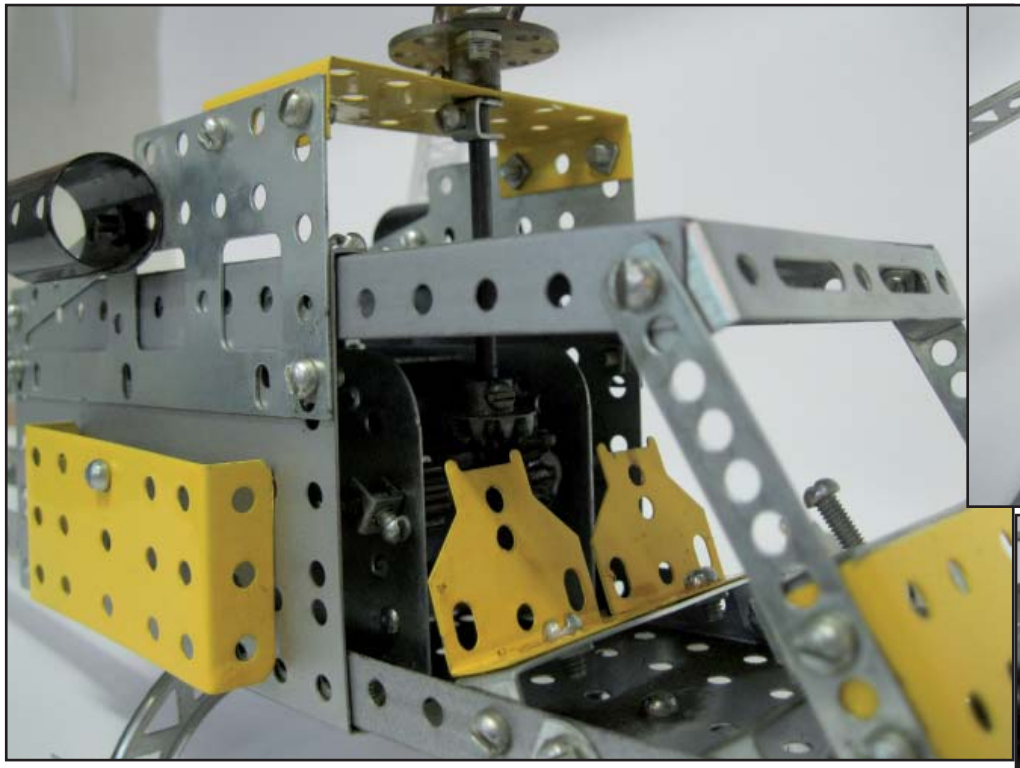
Gilbert sold Erector Junior sets made from wood from 1943 - 1947. Pictured below is the largest set produced, a No. 5 (two complete sets required to build Mitch's "No. 10" Bridge).

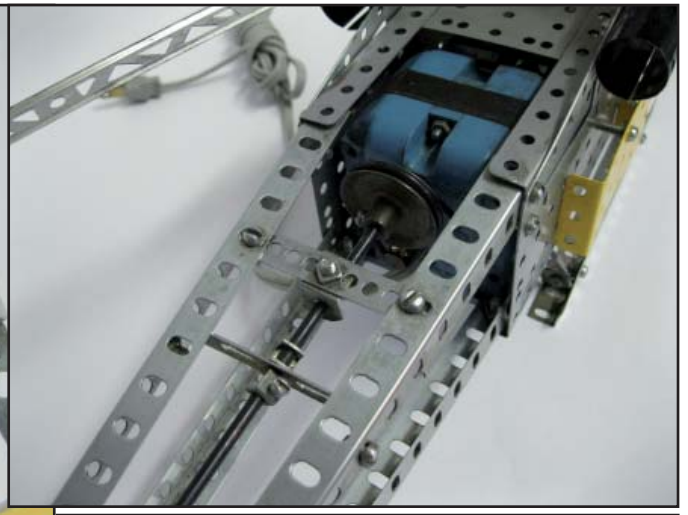
Maurice Ruyter's Action Helicopter

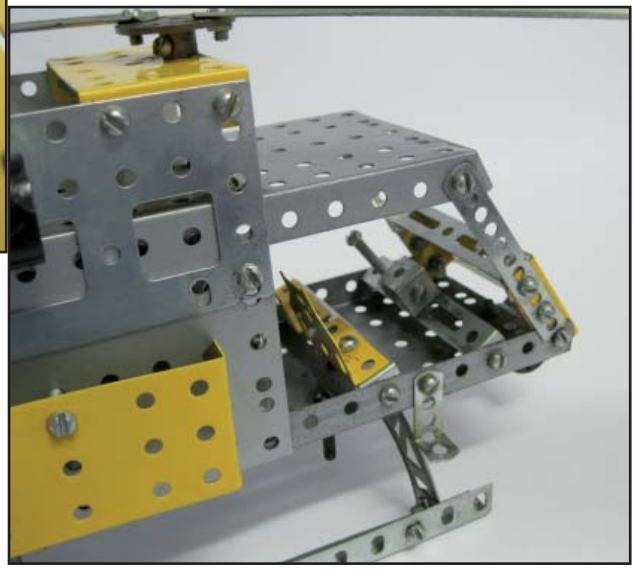


This version of the Action Helicopter model can be built from any No. 8 1/2 and up set post 1938. The model is approximately 24 inches in length, the rotors turn about 120 revolutions per minute and are powered by the A49 motor.

Maurice Ruyter's Action Helicopter - continued

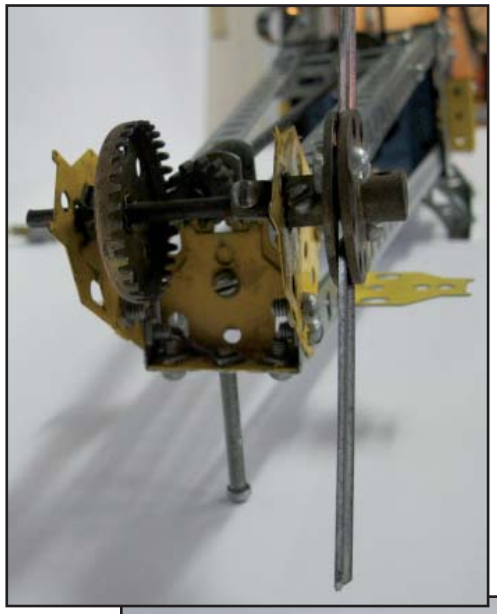


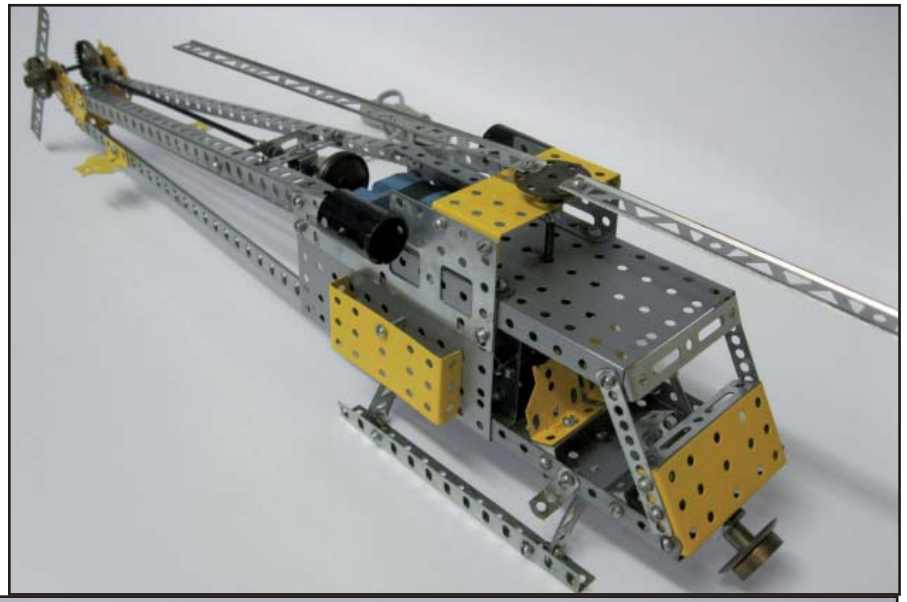


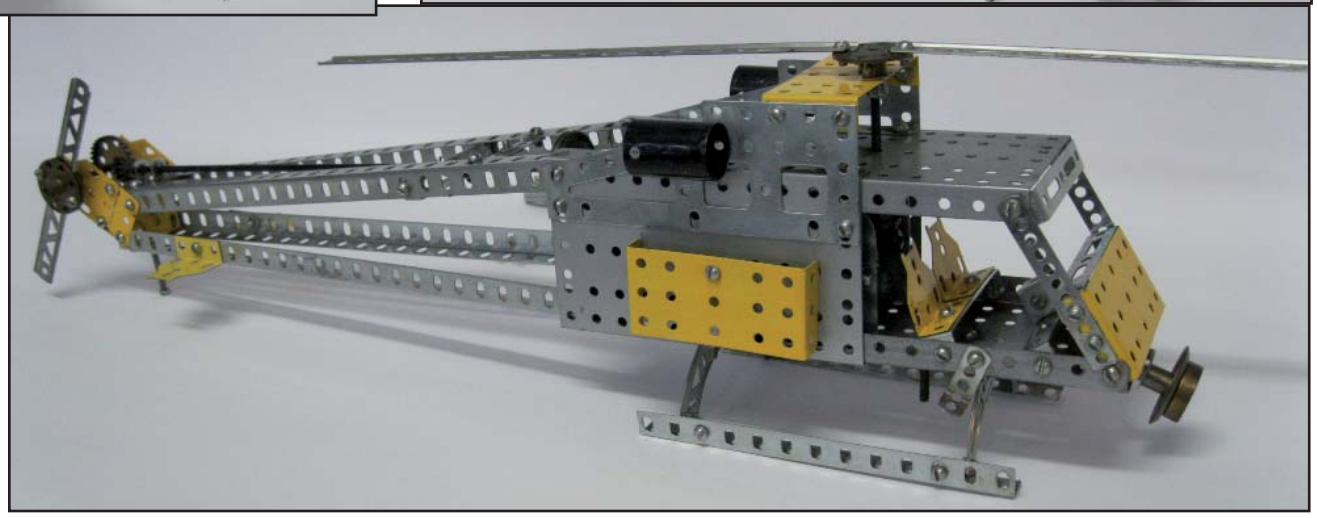


The main rotor is driven from the A49 gear box using two P48 mitre gears. The tail rotor is powered off the rear of the A49 using a DB motor pulley tied to a P7A pulley. Power is transferred between these two pulleys using a small rubber O ring, then power is transferred to the rear with a P57F 12 inch axle.

Maurice Ruyter’s Action Helicopter - continued

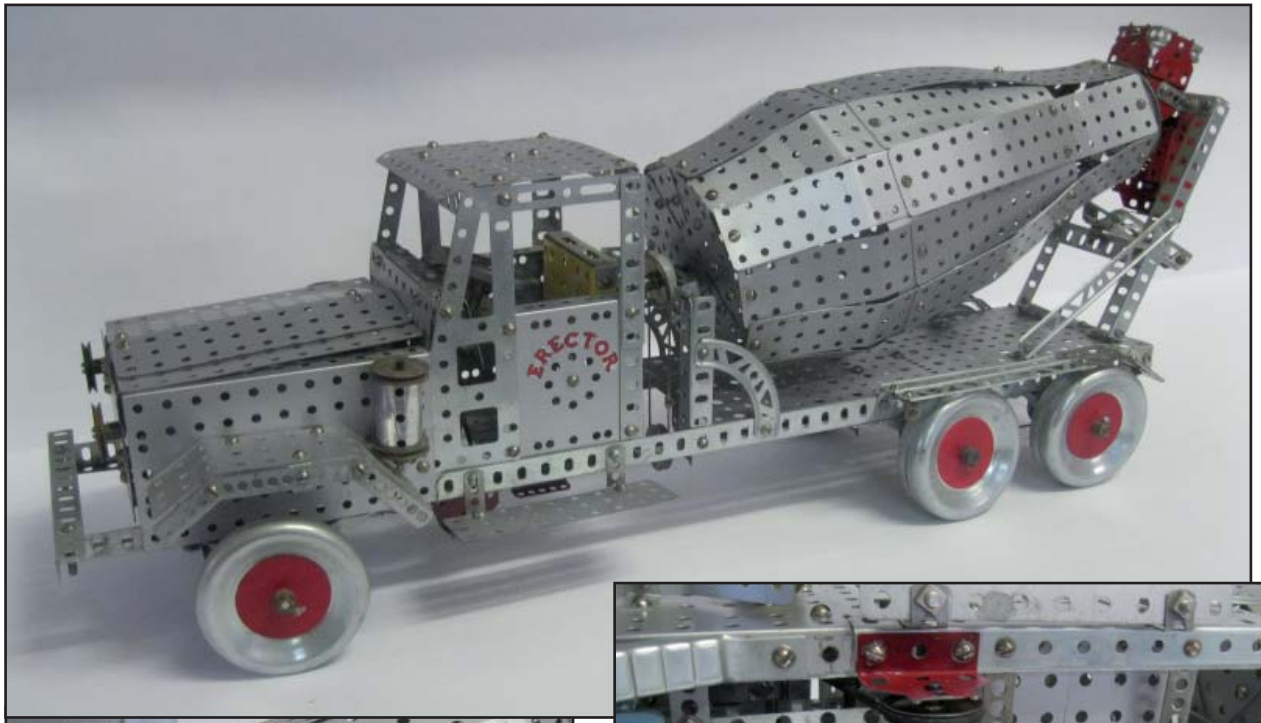


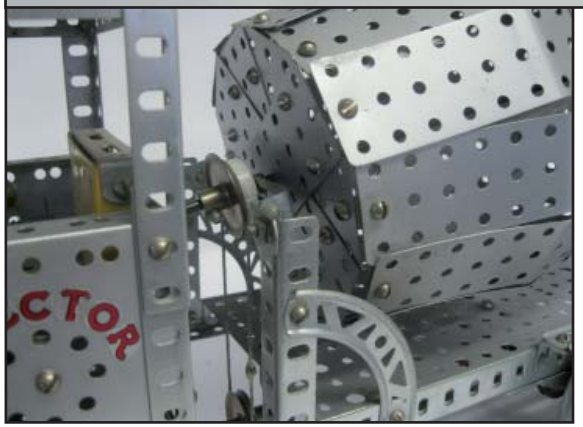


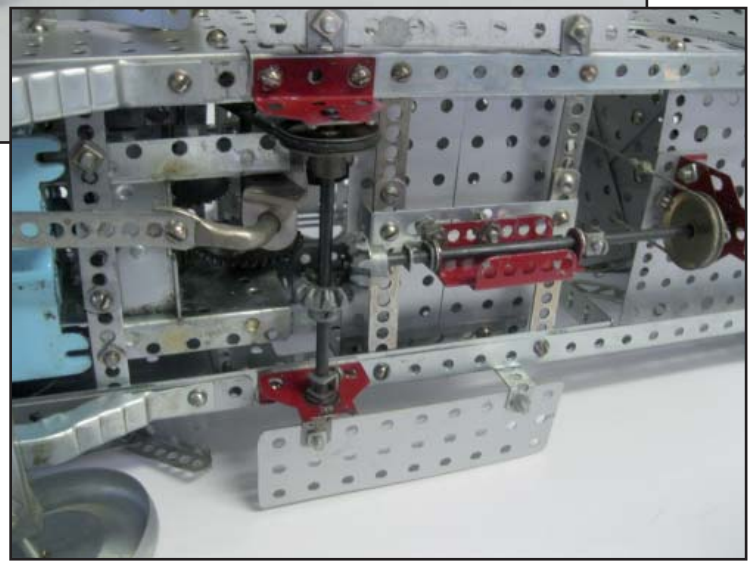


The P57F 12 inch axle driven by the back of the A49 motor has a P13 gear on it which engages with a P12 crown gear to power the tail rotor. This is a great action model that can run for hours and it is built with all very common parts.

Maurice Ruyter's Cement Mixer

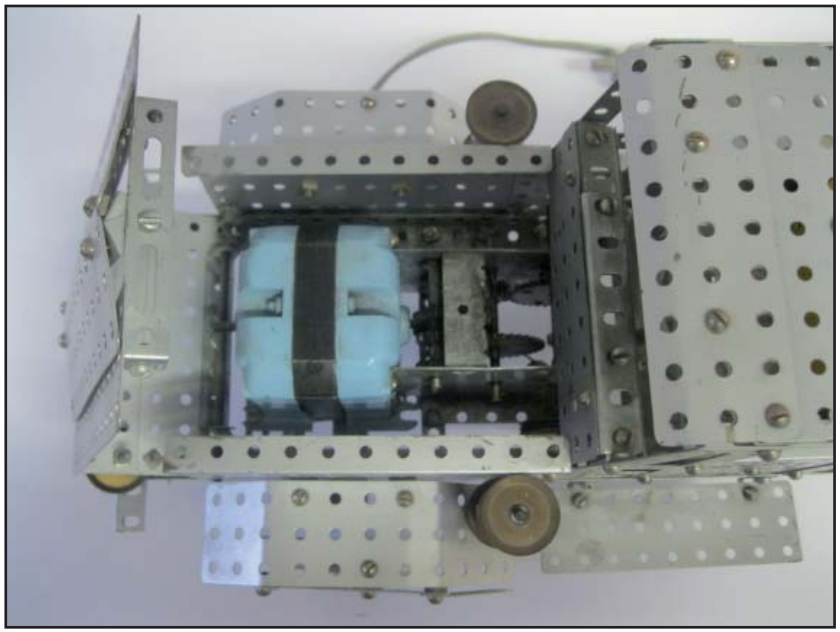


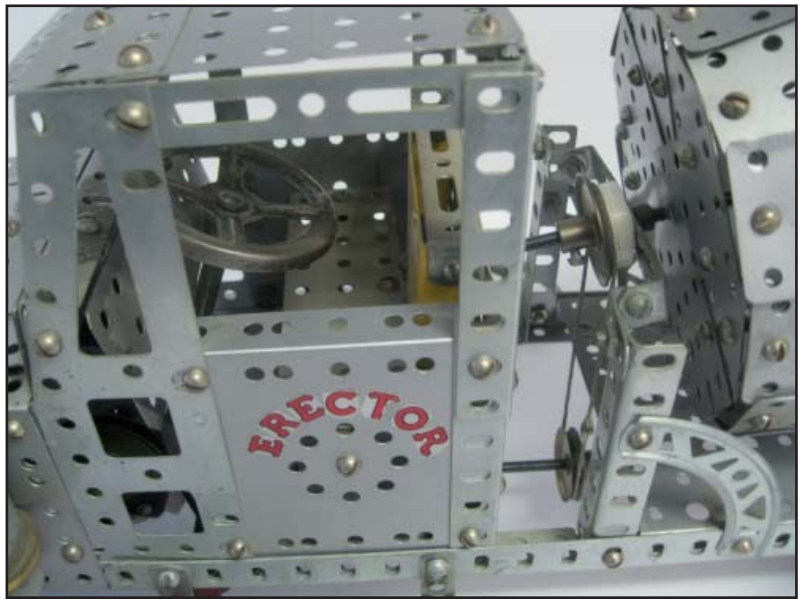




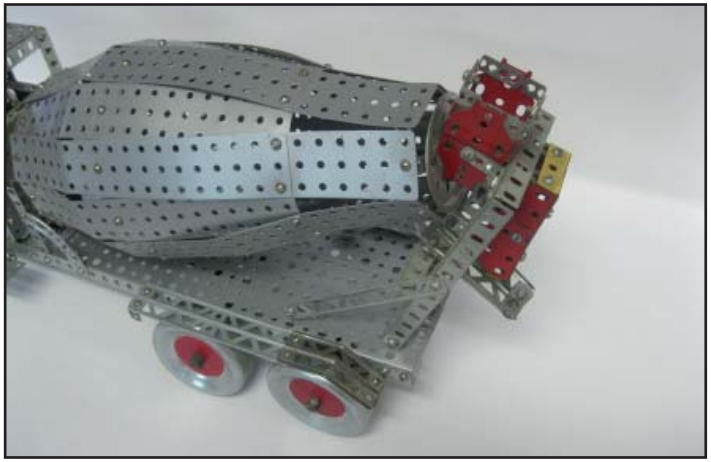
This cement mixer truck model can be built with the No. 10 1/2 and the No. 12 1/2 sets post 1949 with an additional seventeen MF 1"x 5" base plates and nineteen ME 1"x 4" base plates.

Maurice Ruyter's Cement Mixer - continued

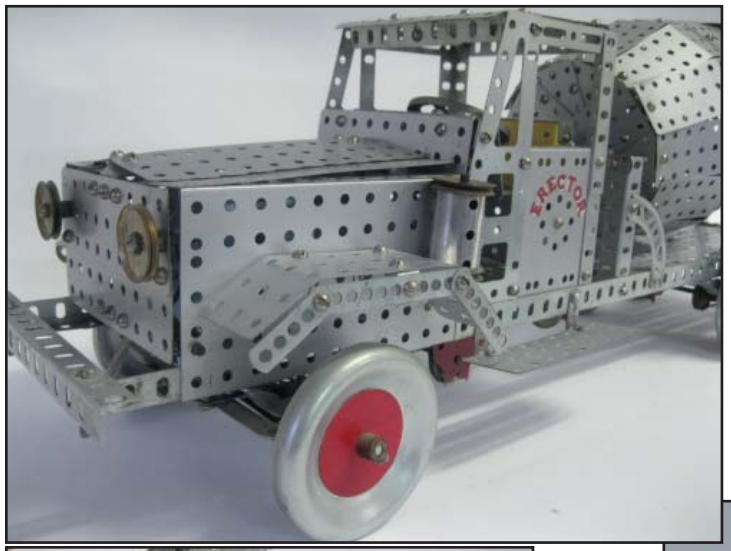


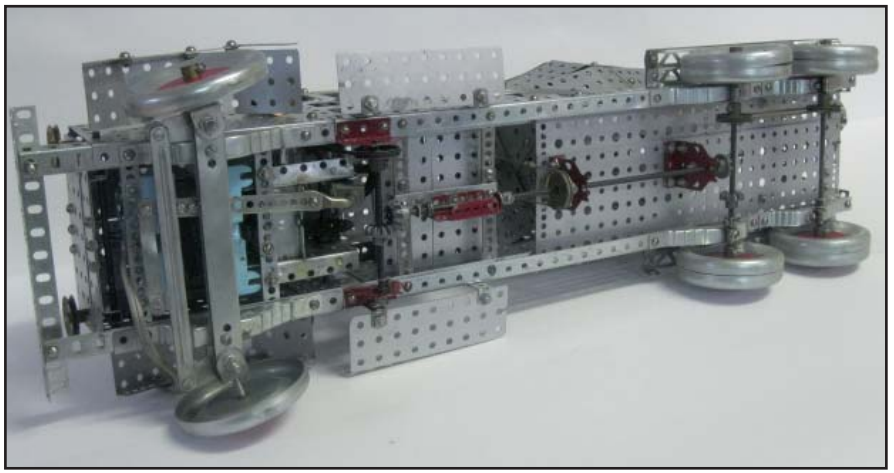


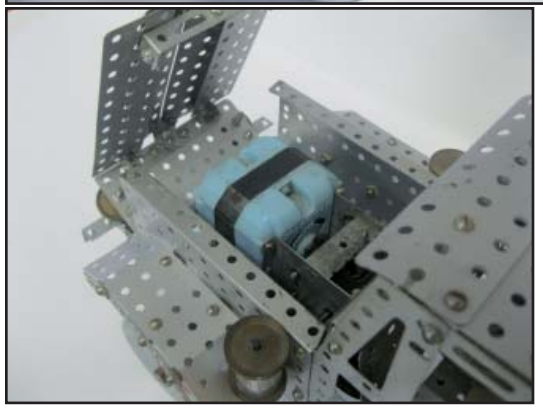
Sixteen of the MF base plates are modified to build this model: 2 for the fenders and 4 inside of the drum in the shape of an octagon-shaped ring type frame at the largest point of the drum. Twelve MF parts on the drum, as shown on the pictures, are also modified. A total of thirty five MF 1"x 5" base plates are used on the drum itself. Ten of the ME 1"x 4" base plates are over lapped to form a round plate and are attached to the front of the drum with four CH right angles.

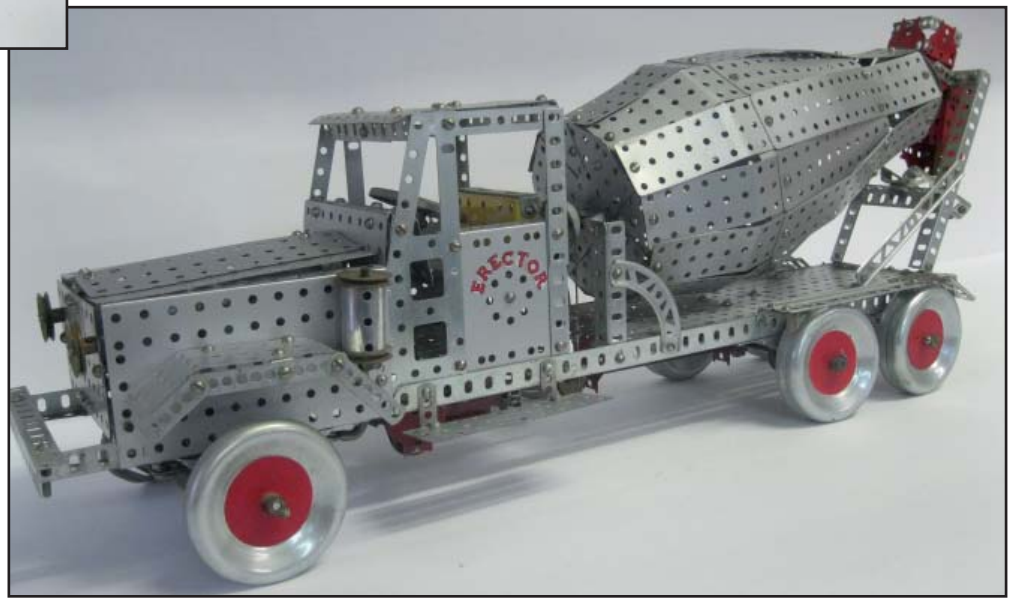


Maurice Ruyter’s Cement Mixer - continued



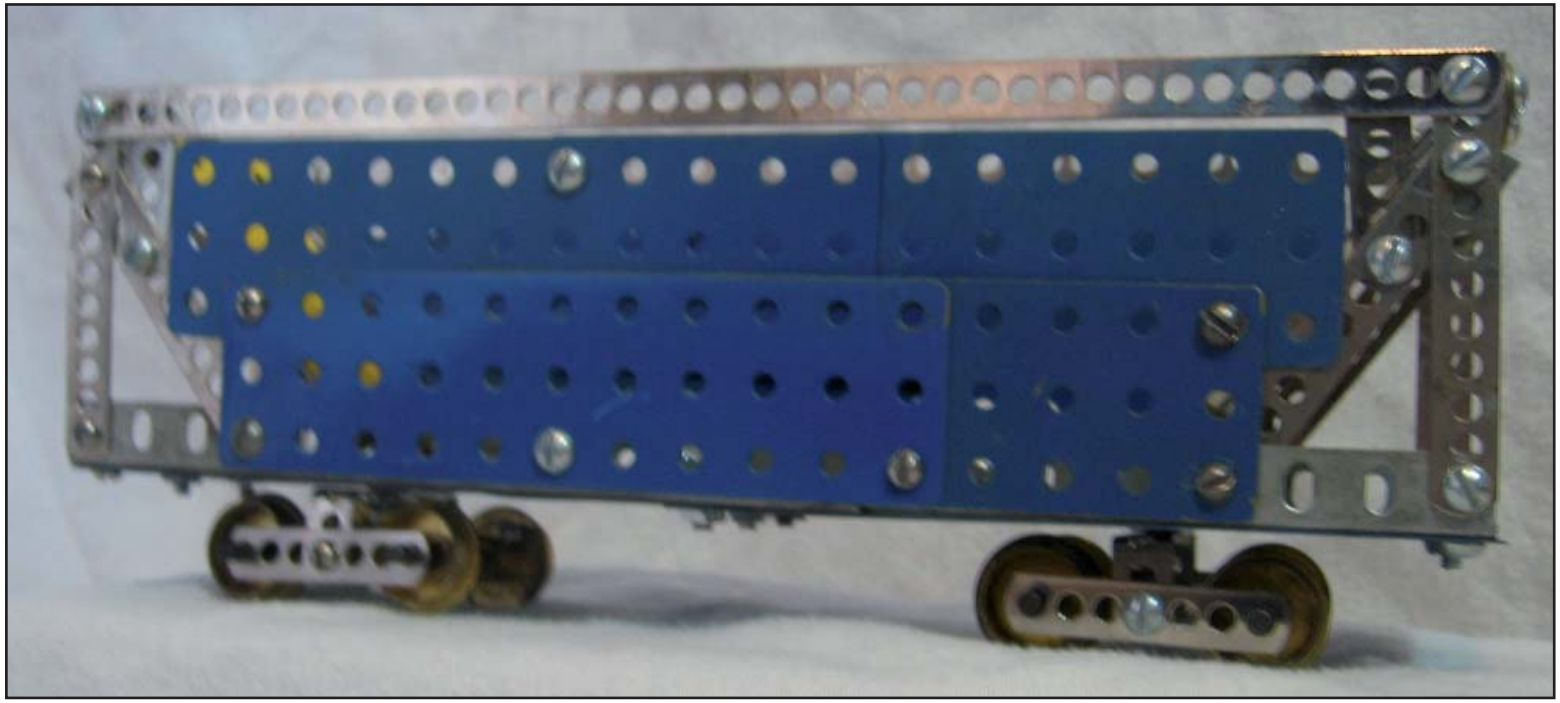




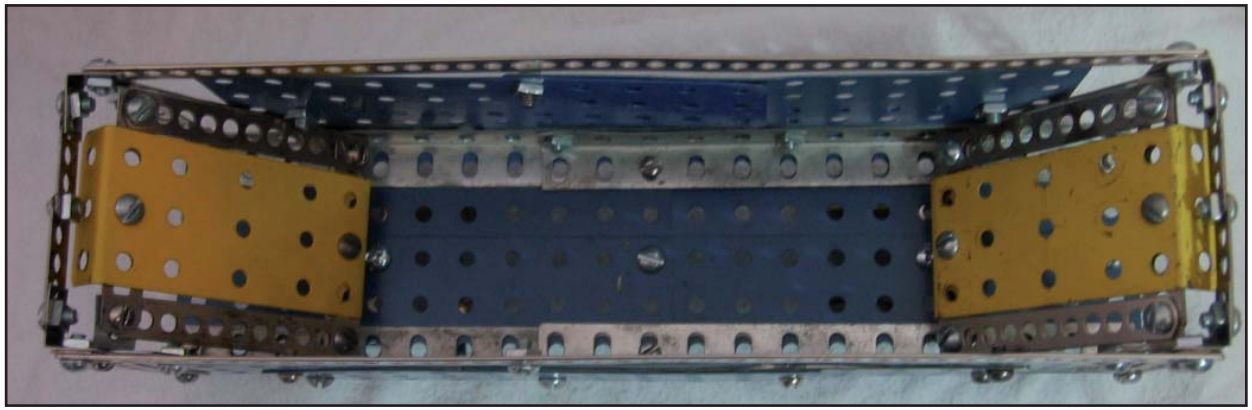


This is primarily a stationary model with the rear wheels and drum turning when the model is on jack stands, the steering is also operational.

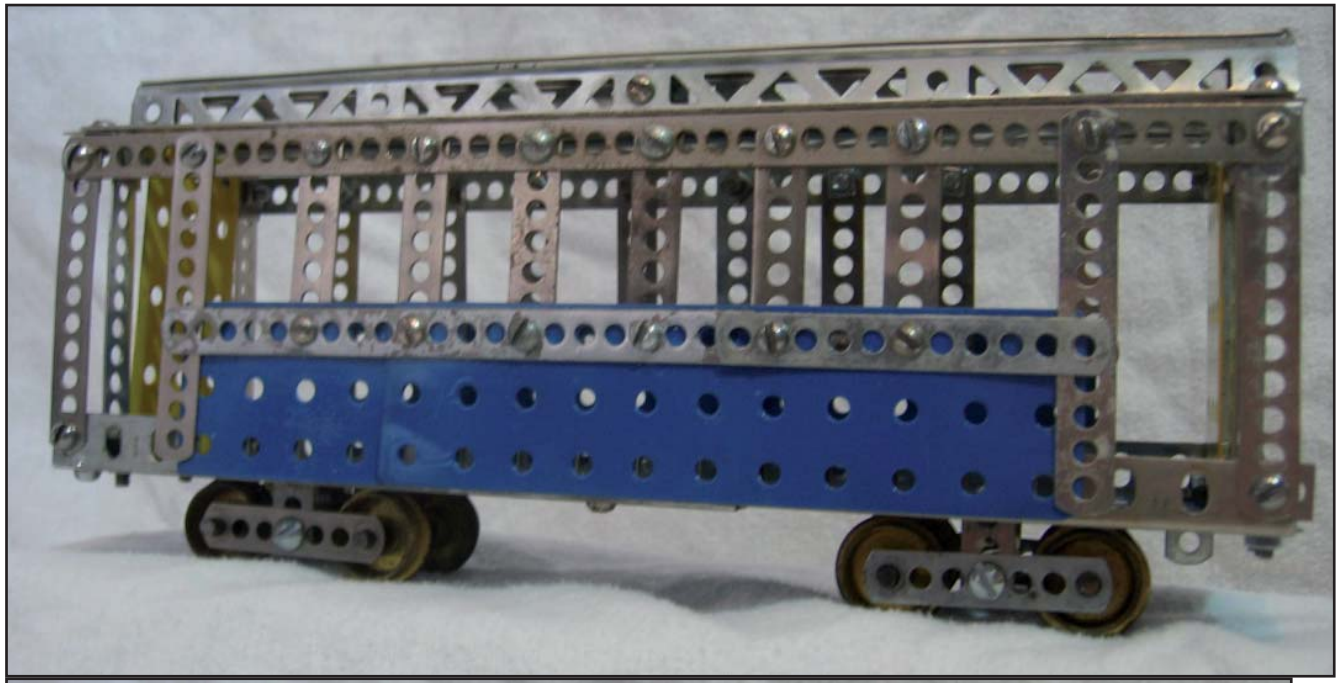
Dave Ware's Electric Train cars - Built from Brian Johnson designs

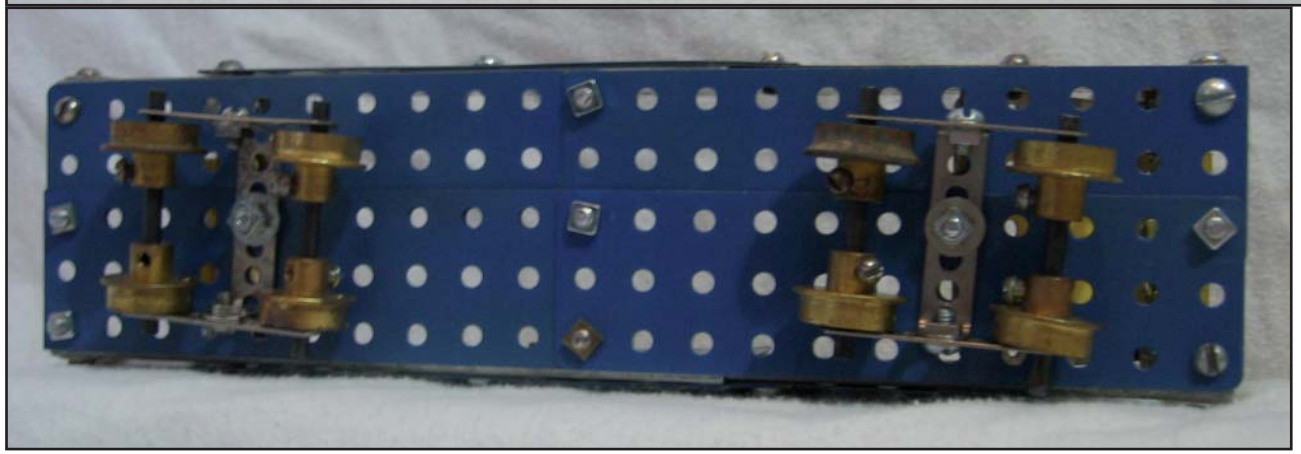


This Hopper car was made from Brian Johnson's sketches. It uses common Erector parts except for the bolster brackets and wheels. MC's were substituted for NN's on this Hopper Car.



Dave Ware's Electric Train cars - Built from Brian Johnson designs





This Pullman Car was also built from Brian Johnson's sketches. Both the Hopper Car and Pullman Car have the same base.

Gilbert sold the No. 10 1/2 Electric Train sets from 1938 - 42. The sets included an 'O' gauge Locomotive, a circle of track and parts to built a number of different rolling stock.

Doug Truckenmiller's Wind Turbine

This model was built with a no. 8 1/2 Erector set with the following additional parts:

2 extra T parts (boiler) and 41 hole strips.

The wind turbine is a rendition of the 1.2 Mega Watt wind turbines being built all over the US. This model is hand driven by a crank in the top back and a red navigational light has been added. The three propeller wind blades are consistent with today's wind generation technology regarding cost and efficiency.

Doug Truckenmiller’s Wind Turbine - continued