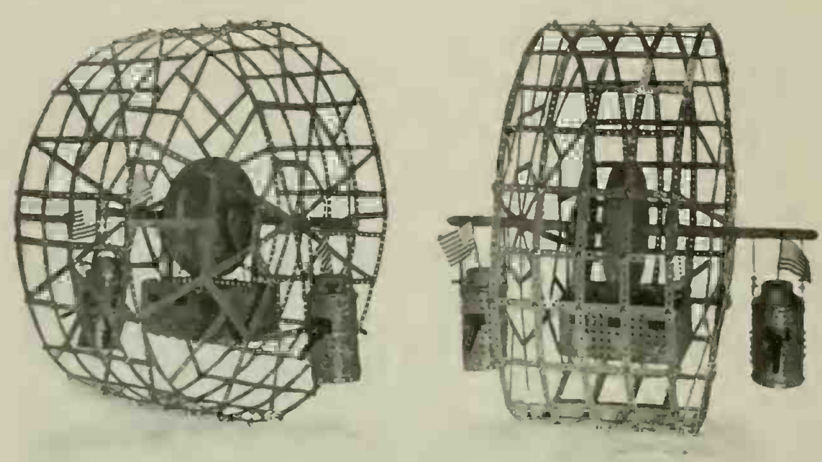
How I Built a Model Gyro-Electric Destroyer

By LeROY H. MAHONY

THE illustration represents a 25-inch model of Mr. Gernsback's "Gyro-Electric Destroyer." The entire machine with the exception of the Gyroscope and the driving motors was built of "Meccano" parts.



Here Is a Fine Model of the "Gyro-Electric Destroyer." It Is Fitted with Electric Motors and All. It Was Constructed by the Author from "Meccano" parts. It Stands 25 Inches High and Weighs 15 Pounds.

I first constructed each side of the big wheel. To a bush wheel I bolted eight 12½ inch strips equally divided into angles of 45 degrees. I then bolted together seven 12½ inch strips overlapping two holes each. I bent this around the ends of the side braces and fastened it to them by means of angle brackets. In the same way I constructed the other side. I selected pairs of 5½ inch strips and bolted each pair together, overlapping them one hole. Three center treads, the same in circumference as the sides, were then made of seven more 12½ inch strips, overlapping two holes. It now remained to connect the two side and the center tread together by means of the preconstructed pairs of 5½ inch strips. One pair was bolted at right angles to each side brace and one equally placed between them. To preserve more stability, I connected the side braces with 3½ inch strips. This completed the main wheel.

The next part to consider was the engine cage. Three small plates fastened side by side with 3½ inch strips, composes each side, while each end comprises a large plate with the flanged edges flattened out. The sides and ends were fastened together by angle brackets. It is necessary to fasten inside the cage two motors (preferably electric), one to drive the gyroscope separately, and the other to propel the entire machine. As to the position in the cage for these motors—that is left to the discretion of the builder as his type and size of motors may differ from those of the writer. However, the motor driving the gyroscope must be placed in the center as the gyroscope must be driven in the center. The other motor must turn the axle of the wheel by means of chain and sprocket. On each side of the cage is fastened a 3½ inch strip so that the cage is suspended from the center axle.

I next turned my attention to the main axle and the gyroscope. The gyroscope I turned from two pieces of ⅞ inch wood 8 inches in diameter. To the side of it I secured a small sprocket for the driving chain. The gyroscope must run FREE of the main axle. The axle itself is 18 or 20 inches long and must be securely fastened to both sides of the wheel. The axle carries two armored cars (the construction of which I will explain further on), two sprockets, equidistant from the center, and also securely fastened to the main axle, the gyroscope, and the engine cage. A lever action that moves the gyroscope from left to right may be constructed also, at the discretion of the builder, because his material for the gyroscope will again undoubtedly differ. The lever action must be extended down into the engine cage.

The armored cars were lastly put together. For each car, eight large plates, with the flanged edges flattened out, were bent so as to form half a cylinder. Each pair was fastened together, overlapping one hole and making a complete cylinder. Then two of the cylinders were fastened, one on top of the other, with strips bolted to each side and extending over the top so that the car might hang from the main axle. Two inch axles (or better wooden models) were collared to the front and rear of the car to give the appearance of projecting guns. The model was now complete. The builder may elaborate on his model by cross-bracing with string, and so forth. The entire model weighs 15 pounds.

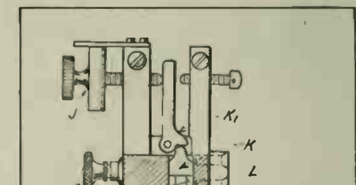
TEAK THE HARDEST OF ALL TIMBERS.

People familiar with different kinds of wood are aware that African teak is the hardest timber known to the mechanical industries. So indestructible is this teak wood that vessels built of it have lasted over one hundred years. The peculiarity of this wood is its hardness and great weight, causing extraordinary durability. Its weight varies from 42 to 52 pounds per cubic foot. It works easily considering its hardness, but the large quantity of silex in the substance require the tools to be extremely hard and even then they are subject to rapid wear. It also contains an oil which prevents nails driven into it from rusting.

EINTHOVEN GALV. STRING.

A commercial form of Einthoven galvanometer string is shown below. The case, E, contains the fine wire carrying the current to be measured. The figure shows schematically the detailed construction of the suspension for the fine wire E, which must be as fine as possible. Platinum, silver or aluminum can be used, but it was found that even a smaller diameter can be obtained by using quartz or glass fibers, these being platinized or silvered. The ends of the wire are soldered to T-shaped members, which are held by the set screws C and F at the ends. Adjusting the tension of the wire is a close operation and it is carried out by mounting the upper wire carrier upon a rod having the cam K at the upper end, the rod being normally pushed up by a spring L. The lever K¹, presses the rod down, this lever being operated by the micrometed screw J. With this arrangement a very fine adjustment of the wire is secured.

Contributed by SAMUEL COHEN.



Those Who Are Interested In Building an Einthoven String Galvanometer for Measuring and Recording Radio Signal Currents, as Described in the September and October Issues, Will Find This Detail of the String Suspension of Value.