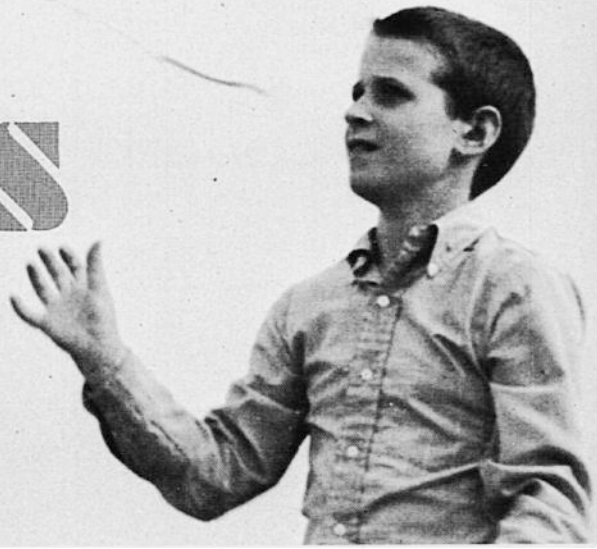
A free flight kite, alias Ben Franklin's Revenge, uses rubber motor for its own wind.

Stringless Wonder



BILL HANNAN

HERE'S A LOW-COST project which can be completed in a few hours and which is guaranteed to attract attention! Stringless Wonder is the result of a desire to enter something out-of-the-ordinary in a local kite contest. I've always enjoyed flying kites but, like Charlie Brown of "Peanuts" fame, I generally ended up with tangled strings. Solution? Eliminate the string!

The prototype of Stringless Wonder was accepted as a legitimate entry at the kite contest by the judges, who finally decided that my entry simply "made its own wind!" To see just how far rules could be pushed, I also entered my scale towline glider, and it was also welcomed, which goes to show that there are still unexplored ways to have fun with this hobby.

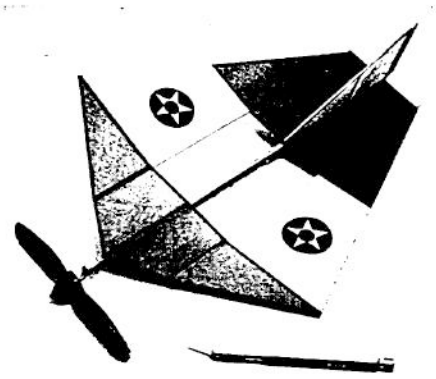
Kites have traditionally been colorful, and Stringless Wonder is no exception. The original is red, white, and blue, but why not let your imagination go wild and really be creative?

Construction

The plan is full-size and should be covered with plastic wrap or waxed paper. Select several straight medium-hard 1/16" square balsa strips, and cut them to the length shown. Cutting the long pieces first will minimize waste. Take time to achieve good fits for maximum strength as well as neat appearance. The outer wing panels and stabilizer are not glued to the wing center section until after they are covered.

After the frames have dried thoroughly, cover them on the top side only (the fin is covered on just one side) with lightweight tissue. It may be applied with clear dope or thinned-out white glue. To prevent warping, pin or weight the parts to the building board for an hour or two, while the tissue adhesive dries. Do not water shrink or dope the covering, as it would surely distort.

Motor Stick: Select a straight, very hard ¼ x ⅛" balsa strip and cut it to the length shown. A scrap of ⅛" balsa is glued to the underside of the motor stick to shim it to the size required for a North Pacific propeller bearing assembly. This is the type of plastic thrust bearing which is furnished with Delta Dart kits (AMA Cub), North Pacific Skeeters, and Sleek Streek ready-to-fly models. The rear rubber motor hook is bent to shape from a thin-wire paper clip and bound to the rear of the motor stick with thread and glue. Don't get carried away with the amount of thread, or the resulting lump will prevent the wing from seating properly. Only a few turns of thread are needed.



Not-so-obvious detail is absence of covering material at center. See plan.

Assembly: The perspective drawing shows the relationship of the various parts. First, place the wing center section flat on the building board and weight or pin it in place. Next, glue on the outer wing panels, adding suitable blocks under each tip for 1¼" dihedral per side. Allow plenty of time for drying. Turn the assembly over and add a little extra glue in the V slots at the dihedral joints. Use discretion, as an excess of glue may soften the joints, and the dihedral will be lost.

Next, glue on the motor stick in its correct location. Add the vertical fin, centering it carefully. Then the stabilizer may be installed. It is glued to the underside of the fin, creating an incidence angle. The small paper rudder and elevator (typing paper) are glued in place next.

The optional kite tail is made from tissue about ¼ in. wide, and two or three ft. long. This is strictly for effect, and helps create the illusion of a kite while flying. An overly long tail will add excess drag and reduce performance.

Propeller: The prototype model performed best with a 5½" dia. plastic VF-8000 propeller, which may be obtained from Sig Mfg. Co. This propeller features a neat spinner and also an effective free-wheeling device. The model also has been flown with other plastic props, including the Kaysun 4" dia., Kaysun 5" dia., North Pacific Skeeter (4⅛" dia.), and the North Pacific Sleek Streek (5½" dia.).

Since the model was designed for the VF-8000, which weighs more than any of the others because of its spin-

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TO USE FULL-SIZE PLAN, REMOVE CENTERFOLD FROM MAGAZINE AND TURN OVER →

Stringless Wonder

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ner, the substitution of other propellers will require adding nose weight, such as modeling clay. Regardless of the type of propeller, spend a few extra minutes checking its balance. A little sanding of the heavy blade will reduce vibration and improve performance. Also, several tiny brass thrust washers and a drop of oil will do wonders. Without them, the plastic prop will gradually wear down against the plastic bearing assembly and won't turn as freely.

Flying

Make up a single loop of ⅛" brown rubber, allowing a little slack between the hooks. With the motor in place, the aircraft should balance at about the point indicated on the plan. If not, add a small amount of modeling clay to the nose or tail, as required. Next try a gentle glide (do not throw). The model should float to the ground with perhaps a slight mushing effect. If it dives, add a little up elevator or subtract some nose weight. If it stalls (noses up suddenly, then dives) add clay to the nose.

Wind in 75-100 turns and launch the model gently, parallel with the ground. It should exhibit a natural tendency to climb in a shallow turn. If it turns too tightly, compensate with a slight bending of the rudder in the direction opposite to the turn. If the model falls off on one wing repeatedly, add a small lump of clay to the opposite wing tip. Gradually increase the number of turns and readjust, as required.

If very high power is used, it may be necessary to increase the downthrust of the propeller. A fair amount is built into the North Pacific thrust bearing assembly. It is also easy to add right or left thrust adjustments by bending bearing assembly slightly.

In spite of its kite motif, this model should be flown in calm weather, at least until familiar with its performance and adjustments. When all is satisfactory, lube the motor and pack in the turns with a geared winder for best performance.

This craft is also known as Ben Franklin's Revenge. Because of an archaic law, of obscure political origin, kite flying is illegal in Washington, D.C. Since model airplanes are (apparently) allowed, it would seem that string is the real offender. We wonder if America's most celebrated kite flyer, Ben Franklin, might consider Stringless Wonder a possible "key" to this problem!

Editor's Note: Happily, the law against kites has been revoked, thanks to appropriate lobbying of Congress. So, come to Washington and join us, flying kites on the Mall!