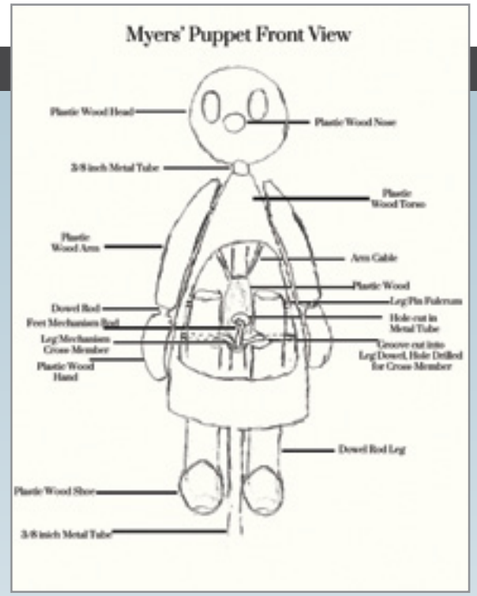
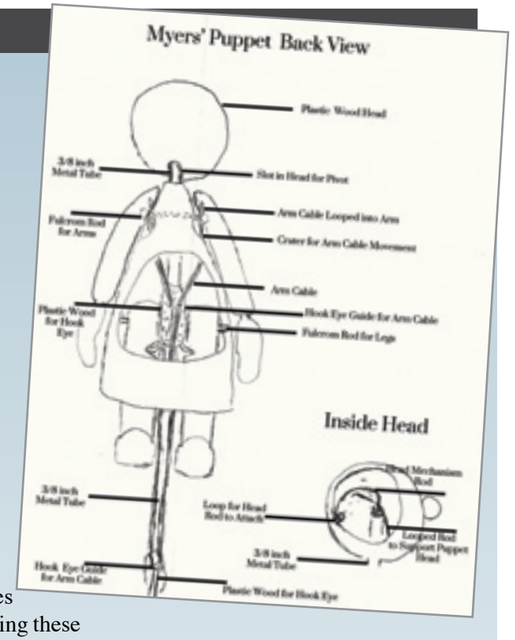
Dissecting the Mechanisms of the Dick Myers Rod Puppets

by Seth Shaffer

"Dick Myers developed the one-person show in a most amazing way, creating intricate spring mechanisms inside his rod puppets." from the *Puppetry Journal*

When it comes to mechanized puppets, there are many amazing examples across the world. It is difficult to discuss puppet mechanisms without acknowledging the work of American puppeteer, Dick Myers. Myers's work was a seemingly overnight sensation after a unique style of rod puppetry made its debut on June 25, 1966, at the Puppeteers of America Festival in San Diego, California. The unusual style of his puppetry and witty and charming script writing transformed *Dick Whittington and his Cat* from a well-known tale (and at the time overperformed story) into a unique and inspiring show. There are several aspects of Myers's performance that helped him achieve this. Vivian Michael wrote, "*Dick Whittington and his Cat* was simple, direct and, from puppets to staging, lighting, voices and music, it had a charm that puppets should have…although there were human characters in the play, their simple designing and studied movement forced them to remain puppets." ("Puppet Parade." *Puppetry Journal* 18.2 (1966): 12. Print.)



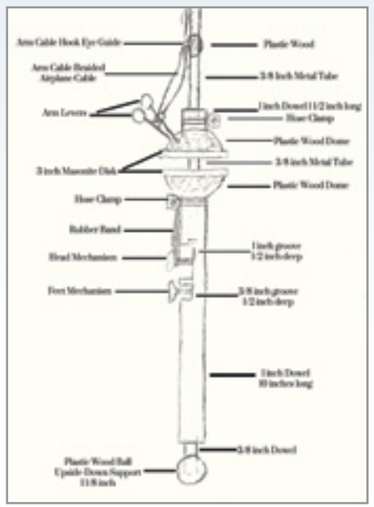


DRAWINGS BY SETH SHAFFER

What made Myers's puppet designs different than most? His shows had a mechanized flow. They seemed to be run by a mechanical process as opposed to a human one, almost as if the puppet stage was one giant cuckoo clock mechanism: an automaton. The reality was behind a curtain; a meticulous man was controlling every movement, every gesture, every technical effect, etc., to create the illusion of a mechanical show through technical development, rehearsal and precision. A key aspect in his shows' feel was in the mechanical design of his puppet. Johan Vandergun (Lampoon Puppets) remembered how Myers once claimed he would sometimes spend three months in developing a new mechanism within a puppet in order to achieve a specific movement. In fact, even the puppets with the traditional Myers mechanisms (those we are about to explore) would take Myers around a month of meticulous precision before he deemed the puppet ready for performance.

In the following excerpt from my book, *The Dick Myers Project,* published by Charlemagne Press, I explore and break down the art and mechanics behind Dick Myers's rod puppets:

Understanding the basics of Myers's mechanisms is essential in understanding how his puppets move. The following explanation explores the traditional Myers mechanism. The measurements are mostly consistent from puppet to puppet, however there are some slight differences depending on the puppet. The control rod of the puppets has different "buttons" and levers to control the actions of each puppet. When it comes to creating these mechanisms, precision is key. There is almost no room for error, one bad joint could make the mechanisms bind up and not work smoothly.



The handles of Myers's puppets are made with a 1-inch dowel. This dowel has a 3/8-inch hole drilled from the top to the area where the mechanism rods come out of the handle. Once this hole was drilled, the dowel rod would then be split with a bandsaw for the entire length that the hole was drilled. This ensured that the dowel could clamp tightly around a 3/8-inch metal tube. From the control rod (this dowel) to the top of the puppet, a 3/8-inch metal tube provided both the backbone support of the puppet, as well as the necessary conduit for the leg and head mechanisms. This tube is tightly secured into the control rod by a metal hose clamp.

Glued to the very top of this control rod is a 3-inch diameter disk made of Masonite (earlier puppets were made of copper). The bond between the Masonite and the control rod is further strengthened by a dome of Plastic Wood. Myers poked holes into the Plastic Wood to increase its surface area. If this was not done, Plastic Wood would dry on the outside and stay wet on the inside, making it not as secure of a bonding agent. By poking the holes, Myers ensured that the Plastic Wood would dry and cure quickly and evenly.

A shorter 1-inch diameter dowel has a 3/8-inch hole drilled all the way through and sliced with the bandsaw just like the control rod. This shorter dowel also has a 3-inch Masonite disk glued (this time to the bottom) and a Plastic Wood dome to ensure its strength. The two disks are essential to hold the puppet upright at play-board level when the operator is not holding the puppet. There is enough room left between the disks to sandwich a slot on the playboard of the puppet booth. Myers used long pieces of plywood with slots cut into it in order to allow the puppets to remain on stage, thus freeing his hands to control other puppets, lighting, etc.

Before the control rod is secured to the metal tube, the mechanisms for the feet and head must be completely set. The head and foot mechanisms are controlled through two separate buttons located on the control rod, and grooves were cut out to give the mechanisms room to move. Myers chiseled out a little more than enough space for each of these mechanisms to move effectively.

For the foot mechanism, a metal rod runs from between the legs of the puppet to the control rod. At the legs of the puppet, Myers cut a section of the metal tube, allowing the feet mechanism rod to exit the tube. On the tube around the cut, Myers reinforced the tube by wrapping it with Plastic Wood. The foot rod was bent towards the front of the puppet and soldered to a separate metal rod, the cross member. This cross member went through each of the puppet's legs, through a drilled hole. The puppet's legs are made of 1-inch dowels. Where the cross member enters the legs, Myers carved away a slot in the leg, enabling the cross member to rock back and forth with enough clearance. Above where the cross member attaches to the legs, each leg is attached to the puppet through another rod. This rod is the fulcrum on the legs and provides the pivot point for the legs to move forward and backwards. Down at the puppet's control rod, the foot rod is bent and spiraled into a button. The puppet operator rocks the button right and left, transitioning that energy up the foot rod, to the cross member, and into the legs of the puppet. This movement ensures that when the right foot moves forward, the left foot moves back, and vice-versa.

The head mechanism rod extends from the control rod of the puppet to inside of the puppet's head. The rod is arched inside the puppet's head from the 3/8-inch tube to the back of the puppet's head. From there, the tube is attached to a hook-eye that is secured to the back of the puppet's head using Plastic Wood. The arch of the head mechanism rod is important to be precise because if it is done wrong, the head rod would seize up and not operate effectively. The 3/8-inch metal tube does not extend to the top of the puppet's head, but instead is supported by a separate rod in the very center of the head. This rod is attached to the lower cheeks of the puppet and extended up to the 3/8-inch metal tube (almost like a widened, upside-down "v"). The rod is twisted into a loop that rests on the very top of the 3/8-inch metal tube. The head mechanism rod exits the tube while threading through the middle of that twist, thus keeping the head in place. The bottom of the puppet head has a slot just a little wider than the 3/8-inch metal tube, which ensures that the head can move up and down smoothly, and only in the intended directions. The head-mechanism rod is bent into a button at the control rod, much like the foot-mechanism rod. The head-mechanism rod can move right, left, up and down, enabling the puppet's head to move in the same ways.

Both the head and the leg mechanism rods are bent and looped out of the control rod. The loop is covered in Plastic Wood creating

a "button." A piece of sandpaper is glued onto the Plastic Wood button to give an abrasive surface for the operator to easily control the puppet. I believe that Myers set all the mechanisms on the puppet first, then bent the mechanism rods at the bottom. Only after this would he have clamped the control rod into place. The feet stay in a neutral position by gravity pulling downwards on the leg dowels; however gravity works against the head control. If the head control is left alone without a return, the head would rest with the puppet looking at the ceiling. Myers discovered that rubber bands make a great return to ensure that the puppet's head is in neutral position and is facing forward. This rubber band wraps around both the head mechanism button and the hose clamp that is used to secure the control rod to the 3/8-inch metal tube.

The arms of Myers's puppets are cable controlled. The arm control mechanism is located above the upper 3-inch disk that support the puppet on the slotted shelf. Myers created two levers, one for each arm, and attached them to the puppet by placing a metal pin through the bottom of the levers before securing the pin with Plastic Wood. He incorporated the metal pin into the design of the Plastic Wood dome for the shorter upper dowel rod. The arm control levers are made of metal rods that have a soldered bent "u" shaped rod attached. The end of the rod, where the operator pulls down, is covered with a Plastic Wood ball. Braided airplane cable is looped through the "u" shaped rod attached to each lever, and then soldered to itself. This cable runs up the outside of the 3/8-inch metal tube. Myers secured two hook eyes onto the metal tube (using Plastic Wood) that help guide the cables up the puppet; one is part way up the metal tube and the

second was placed behind the cut made in the metal tube for the leg mechanism. The cables are routed through the puppet's body and out through crater shaped holes drilled behind the shoulders of the puppet. The holes are crater shaped to minimize snag and resistance on the cable.

Myers drilled two holes in the top of each of the puppet's arms. The top hole was drilled from the back of the arm, all the way through to the front. The second hole is drilled just under that top hole, and only goes about halfway through the arm. Myers then channeled out a little Plastic Wood to bridge the holes together. The airplane cable enters the top hole from the back, threading through the arm. I believe that Myers then applied Duco Cement to the tip of the cable, and then placed it into the lower hole. He waited for the cement to dry before pulling back on the cable, allowing it to rest inside the channel that bridges the holes before he applied a little Plastic Wood over the cable, hiding the cable from the front.

The puppet's arms are attached to the puppet by a rod that extends the entire length of the inside of the puppet. At each end of this rod, Myers soldered a washer and created a dome of solder. The smooth solder is what the Plastic Wood arm pivots on. From below, the operator pulls down on the arm levers, putting tension on the cable, pulling at the top of the arm and lifting the arm up. Gravity works as the natural return for the puppet's arms. If it was necessary to keep the arms up (such as in the ballroom dance with Geraldine and the Beast in *Beauty and the Beast*), Myers would create hooks that the arm levers could rest in, allowing the puppet's arms to remain up and freeing the operator's hands to control other mechanisms.

SETH SHAFFER holds an MFA in Puppet Arts from the University of Connecticut, where he remounted the work of Dick Myers. He currently is a Drama and Music teacher in Chandler AZ, where he incorporates puppetry across the curriculum.