Folk Toys
Patterns & Projects for the Scroll Saw

Ken Folk

STACKPOLE BOOKS
# Contents

**Introduction**
6

## The Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shorebird</td>
<td>8</td>
</tr>
<tr>
<td>Lumberjacks</td>
<td>12</td>
</tr>
<tr>
<td>Ladies Churning Butter</td>
<td>16</td>
</tr>
<tr>
<td>Zebra Hobbyhorse</td>
<td>20</td>
</tr>
<tr>
<td>Horse with Moving Rider</td>
<td>22</td>
</tr>
<tr>
<td>Diving Frog</td>
<td>26</td>
</tr>
<tr>
<td>Walking Pig</td>
<td>30</td>
</tr>
<tr>
<td>Court Jester</td>
<td>34</td>
</tr>
<tr>
<td>Walking Rabbit</td>
<td>36</td>
</tr>
<tr>
<td>Hinged Crocodile</td>
<td>40</td>
</tr>
<tr>
<td>Lady and Her Flock</td>
<td>42</td>
</tr>
<tr>
<td>Hinged Snake</td>
<td>46</td>
</tr>
<tr>
<td>Flying Chicken</td>
<td>48</td>
</tr>
<tr>
<td>Climbing Monkey</td>
<td>52</td>
</tr>
<tr>
<td>Pedaling Cyclist</td>
<td>56</td>
</tr>
<tr>
<td>Walking Crocodile</td>
<td>62</td>
</tr>
<tr>
<td>Hand-Powered Railcar</td>
<td>66</td>
</tr>
<tr>
<td>Hinged Dachshund</td>
<td>70</td>
</tr>
<tr>
<td>Beetle</td>
<td>72</td>
</tr>
</tbody>
</table>

**Sources of Supply**
77

**Metric Conversions**
78
Introduction

One surefire way to put smiles on children's faces is to give them amusing toys with moving parts. Early American toymakers realized this and went to great lengths to provide plenty of eye-catching antics with animation.

Early toys were crude and scarce because the colonists' lives consisted of long hours of labor with little time or money for amusement for themselves or their children. The Industrial Revolution, however, brought increased prosperity and leisure time to Americans, and toymaking developed. By the second half of the nineteenth century, hinges, cranks, and mechanical devices became common features on wooden folk toys. Smart, ingenious toy manufacturers built on these ideas as well as on techniques for clockworks passed down from their European fathers, and a multimillion-dollar industry was at hand.

The world has changed since that time. Plastic and video dominate the market. But these clever toys still offer timeless appeal for home craftsmen and their children. This book offers a collection of patterns for animated classics that were popular during the late-nineteenth and early-twentieth centuries as well as some of my own designs. You'll find a woman with a moving staff herding a flock of waddling geese, birds with nodding heads and flapping wings, animals that scuttle across the floor, and a beetle with feelers that swing from side to side. The toys are operated with pull cords, cranks, hand motions, or simple gravity.

PLANNING THE PROJECT
All of the projects in this book contain full-size patterns. My favorite method for transferring the shape of each part onto the wood is to use cardboard patterns that can be moved around for best position and then traced. Start by photocopying the patterns from the book. Then glue the copies onto a thin sheet (about 3/8-inch thick) of poster board. It can be easily cut with scissors, but it's stiff enough to trace. I buy the 22-by-38-inch size for less than $1 at arts-and-crafts or stationary stores.

If you are a novice scroll sawer and need more information on techniques, consult John Nelson's Patterns and Projects for the Scroll Saw, published by Stackpole Books.
MATERIALS
Most of the toys in this book require about one square foot of wood, so cost is not a significant part of the project. Pick a wood that is strong, resists splintering, and finishes well. Hard maple has these qualities in addition to a very tight grain, which makes it easy to get a glass-smooth finish with paint or varnish. You’ll find that cutting and sanding hard maple is slow going, but the improved appearance and life of the toy make it worth the extra effort.

ASSEMBLY AND FINISHING
Before assembly, make sure that the parts have been smoothly sanded and that all corners and edges have been rounded to at least a 1/2-inch radius to prevent splintering. Then temporarily assemble the toy without glue to make sure that there is a loose fit between the moving parts. When you’re satisfied with the fit, disassemble the toy and apply the finish to each part except for glued surfaces, pivot joints, and wheel axles.

There are many alternatives for finishing your toys, but whatever you choose, it must be non-toxic. For painted surfaces, I prefer an oil-base primer and topcoat for durability and a sprayed-on lacquer finish for the clear parts.

The last step is to apply the facial, body, and ornamental details. There are two ways to do this type of decorating: hand painting and sign film. For hand painting, make a full-size photocopy of the decoration, transfer it onto the project with carbon paper, and then paint in the details. The sign film technique is an excellent alternative for those who don’t want to attempt hand painting. Sign film is made in dozens of colors and is sold by the foot at art supply stores. The film is about as thick as a human hair, so that when applied it’s difficult to tell the difference from paint. To begin, transfer the decoration on to the sign film using a photocopy and carbon paper. Cut out the detail with a scissors or craft knife. Peel off the paper backing and apply it to the project. If it doesn’t look right, remove it and try again.

To ensure that the toy runs smoothly, rub some candle wax on the wearing surfaces of the axles, pivots, and rubbing parts for lubrication. To finish, assemble the toy with a quality yellow glue or epoxy.
SHOREBIRD

8"
OPERATING STICK
\( \frac{1}{4} \)" THICK (2 REQ'D)

\( \frac{3}{16} \)" DIA.
2 HOLES

SAW
\( \frac{1}{8} \)" THICK

\( \frac{3}{4} \)" DIA.

PIVOTING ARM
(2 REQ'D)

\( \frac{1}{4} \)" DIA.
Dowel

\( \frac{3}{32} \) DIA.

\( \frac{5}{16} \)"

BODY SIDE
\( \frac{1}{8} \)" THICK (4 REQ'D)

\( \frac{1}{4} \)" DIA.

\( \frac{3}{8} \)"

\( \frac{5}{16} \)" DIA
3 HOLES
LADIES CHURNING BUTTER

TOY'S ACTION
HAND CRANK ROTATION CAUSES THE CHURN HANDLE TO STROKE UP AND DOWN AND THE LADIES TO MOVE FROM SIDE TO SIDE.

SOLDER WASHER TO SHAFT

HAND CRANK

RED
WHITE
YELLOW

BLUE

BROWN

YELLOW

DOWEL LADIES TO BASE

5/6 BRADS

DARK GREEN

12
13
14
LADIES CHURNING BUTTER
FULL-SIZE PATTERNS
CHURN HANDLE

HAND CRANK

DRIVE DISK

ARM

SPACER

CHURN
MAKE FROM 1 1/16 THICK (5/8) PINE

LIGHT GRAY

WHITE

BLACK

ZEBRA HOBBY HORSE

3/4" DIA. X 22" LONG DOWEL
FULL-SIZE PATTERN
HORSE WITH MOVING RIDER

TOY'S ACTION: ROLLING MOTION OF THE HORSE CAUSES THE RIDER TO MOVE UP AND DOWN.

FRONT VIEW

SIDE VIEW

PILOT DETAIL

EYE BOLTS FROM COMMON RAIL

MADE WITH SOLDER

RED BLACK

BLACK GOLD TAN WHITE

BROWN

WHITE

CLEAR FINISH

BLACK
HORSE WITH MOVING RIDER
FULL-SIZE PATTERN

FRONT LEG
\( \frac{3}{4} \text{"} \) THICK
(2 REQ'D)

OFF-CENTER DISK
\( \frac{1}{2} \text{"} \) THICK

DISK, \( \frac{1}{4} \text{"} \) THICK
(4 REQ'D)

SOLDIER,
\( \frac{1}{4} \text{"} \) THICK

ARM,
\( \frac{1}{4} \text{"} \) THICK
(2 REQ'D)

\( \frac{3}{4} \text{"} \) DIA.

\( \frac{1}{8} \text{"} \) DIA.

BEND LINES

REIN
\( .020 \) ALUMINUM
(2 REQ'D)
TAIL, \( \frac{1}{4} \)" THICK

HEAD, \( \frac{1}{4} \)" THICK

REAR LEG, \( \frac{1}{4} \)" THICK (2 REQ'D)

LEVER, \( \frac{1}{4} \)" THICK

WHEEL, \( \frac{1}{2} \)" THICK (4 REQ'D)

\( \frac{1}{8} \)" DIA.

\( \frac{5}{16} \)" DIA.

\( \frac{1}{4} \)" DIA.
OPERATING ROD

BODY
1/4" THICK

GLUE LEG HERE

ARM
1/8" THICK PLYWOOD
(2 REQ'D)

ARM SPACER
1/8" THICK PLYWOOD
(2 REQ'D)

LEG
1/8" THICK PLYWOOD
(2 REQ'D)

BUG
1/2" THICK
WALKING PIG

TOY'S ACTION: ROLLING MOTION CAUSES THE WALKING ACTION

JOIN AXLE, SPACER AND WHEEL WITH GLUE

ALLOW 1/8" CLEARANCE BETWEEN MOVING PARTS

WOODEN BALL

BLACK

LIGHT TAN

BROWN

BLACK
COURT JESTER

TOY'S ACTION
THE JESTER WILL SEEM TO MAGICALLY CLING TO THE EDGE OF A TABLE OR THE STAND AS HE ROCKS BACK AND FORTH

STAND

\[ \frac{1}{4} \times \frac{1}{8} \] DEEP CUT WITH A GOUGE CHISEL

\[ \frac{1}{2} \] DIA. X 3 3/4" LONG BOWEL
RED
DARK GREEN
YELLOW
BLACK
BROWN
BLACK
RED
FLESH TONE
DARK GREEN
YELLOW

1/8" PLYWOOD

EPOXY FOUR 1/2" WASHERS IN PLACE AS SHOWN

WEIGHT HERE CREATES A LOW CENTER OF GRAVITY FOR THE ILLUSION
WALKING RABBIT

Toy's action: Rolling motion causes the legs to move with a walking action.

Top view:
- Allow clearance between moving parts.
- Wooden ball.

Diagram:
- Brown: 1/2" x 1/2" screws
- White: 1/2" plastic eyes
- Walnut stain and varnish

Dimensions:
- 1.060 x 8.000
GLUE IN PLACE

5/16" DIA. X 2 9/16" LONG DOWEL

5/32" DIA. X 3 5/16" LONG DOWEL (2 REQUIRED)

3/8" DIA. X 1/2" LONG (REQUIRED)
REAR PAW
1/2" THICK (2 REQ'D)
FULL-SIZE PATTERNS

HEAD
\( \frac{1}{2} \) THICK

BODY
\( \frac{1}{2} \) THICK

TAIL
\( \frac{1}{2} \) THICK
LADY AND HER FLOCK

Toy's action:
Rolling motion causes the Lady's staff to wobble and geese to move from side to side.

Varnish over walnut stain on wheels, base, and drive parts.

Flesh tone on arms and face.

Brown, white, yellow, red.
FULL-SIZE PATTERNS

1. HEAD
   \(\frac{1}{2}\)" THICK

2. BODY
   \(\frac{1}{2}\)" THICK (A REQ'D)

3. TAIL
   \(\frac{1}{2}\)" THICK
FLYING CHICKEN
FULL-SIZE PATTERNS

1/4 DIA.

WING 1/2" THICK

MATCH LINE

BODY CENTER 1/2" THICK

50
BODY SIDE
1/2" THICK (2 REG'D)

1 5/64 DIA.

1/4" DIA.

DRIVEDISK
7/16" THICK

DRIVE LEVER
7/16" THICK

SLIDE
7/16" THICK

1 7/64 SLOT
CLIMBING MONKEY

TOY'S ACTION
DROP MONKEY ON FIRST RUNG AND WATCH HIM DESCEND THE LADDER.

FRONT VIEW

SIDE VIEW
CLIMBING MONKEY
FULL-SIZE PATTERNS
PEDALING CYCLIST

TOY'S ACTION

ROLLING MOTION CAUSES THE CYCLIST'S LEGS TO MOVE WITH A PEDALING ACTION

ALLOW CLEARANCE BETWEEN MOVING PARTS

DARK GREEN

MEDIUM RED

MEDIUM BLUE

YELLOW

BLACK

MEDIUM RED

WOODEN BALL
PEDALING CYCLIST
FULL-SIZE PATTERNS

LEG
RIGHT SHOWN, MAKE LEFT OPPOSITE HAND

1/4" DIA. X 3/4" LONG DOWEL

BODY
1/4" THICK
SECTION VIEW

1/4" DIA. X 3/4" LONG DOWEL

1/4" DIA.

3/32" DIA.

WHEEL CRANK
(2 REQ'D)

FRONT WHEEL
1/4" THICK

LOWER LEG
1/4" THICK (2 REQ'D)
PEDALING CYCLIST
FULL-SIZE PATTERNS

FRONT WHEEL FORK

ARM SPACER
(2 REQ'D)
ARM
RIGHT SHOWN, MAKE LEFT OPPOSITE HAND

REAR WHEEL
(2 REQ'D)

REAR WHEEL SPACER
(2 REQ'D)
WALKING CROCODILE

Toys' Action
Rolling motion causes the legs to move with a walking action.

Joint axle, spacer, and wheel with glue
Allow clearance between moving parts

Wooden ball
White
Light green
Black
Dark green

Dimensions:
- Width: 4.5
- Height: 5.25
WALKING CROCODILE
FULL-SIZE PATTERNS

3

15/16" DIA.
1/4" DIA.

4

3/4" DIA.
1/4" DIA.

ARM SPACER
1/2" THICK (4 REQ'D)

WHEEL SPACER
1/2" THICK (4 REQ'D)

2

17/64" DIA.

FOOT
1/2" THICK (4 REQ'D)

MATCH LINE

1/4" DIA.
HAND-POWERED RAILCAR

TOY'S ACTION
ROLLING MOTION CAUSES THE PUMP LEVER AND MEN TO MOVE UP AND DOWN

3/16" DOWELS TO ATTACH MEN

1/4" PIVOTS FOR ARMS AND LEGS ONLY

Washer and Epoxy Rod

White with Black Stripes

Blue Dowers for Arms and Legs Only

N2.3RS.98
DRIVE DISK
1/4" THICK

TOWER SIDE
1/4" THICK (2 REQ'D)

TOWER CENTER
5/16" THICK

LEVER
1/4" THICK

DRIVE ROD
1/16" MUSIC WIRE
HINGED DACHSHUND

NOTE: PAINT PARTS BEFORE ASSEMBLY

DRILL TONGUE PORTION OF THE JOINT ¾" O ERSIZE

PIVOT JOINT

APPLY GLUE TO TOP THIRD OF DOWEL TO KEEP THE JOINT FREE-MOVING

¾" DOWEL STOCK

MAKE EARS FROM ⅛" STOCK AND GLUE IN PLACE

PAINT DETAILS BLACK

MEDIUM BROWN

TOP VIEW

3 ¾"
HEAD
1/2" THICK

BODY
1/2" THICK

TAIL
1/2" THICK
BEETLE

TOY'S ACTION
ROLLING MOTION CAUSES THE BEETLE'S FEET TO MOVE FROM SIDE TO SIDE

WHEEL

Screw eye

Wooden ball

A A SECTION VIEW

2 1/2" Dia.

1/2" Dia.

1/4" Dia.
UPPER BODY
PARTS
1/2" THICK

MIDDLE BODY
1/2" THICK
For additional patterns, try these other scroll saw books from Stackpole . . .

CLOCKS
Full-Size Designs, Ready to Cut
Offers detailed patterns for exquisitely crafted timepieces, many based on antique originals. Includes designs for shelf clocks, wall clocks and a weather station. $14.95

EASY CLOCKS
Full-Size Designs, Ready to Cut
Amusing and imaginative, the patterns in this book include a teddy bear clock, a football helmet clock, a cat clock, and an elegant Victorian silhouette clock. $14.95

FANCY FRETWORK
39 Full-Size Designs, Ready to Cut
Contains intricate patterns for a variety of decorative and practical household items, such as trivets, plant hangers, mirrors, shelves, clocks, and picture frames. $14.95

LETTERS AND NUMBERS
Full-Size Designs, Ready to Cut
Use these designs and typeface styles to make signs for the front yard, bookends for your office, personalized toys, decorative plaques for special occasions, and more. $14.95

PLAIN AND SIMPLE FUN
59 Full-Size Designs, Ready to Cut
Animal cutouts, wall plaques, puzzles, and pull toys are but a few of the many projects in this book. Give them as gifts to children or to any person who enjoys good ol' fun. $14.95

TRAINS, PLANES, AND AUTOMOBILES
Decorative Designs, Ready to Cut
Features patterns of classic cars, famous planes, and historic steam engines. Cut them out and start a collection. Use them as knickknacks or wall plaques. $14.95

STACKPOLE BOOKS
Also from Ken Folk...

COUNTRY TOYS & CHILDREN'S FURNITURE
Antique Designs with Complete Plans and Instructions

With the detailed plans and easy-to-follow instructions provided in this book, you can recreate enjoyable toys, games, and play furniture from the past. Eighteen delightful projects are included:

- Small Child's Chair
- Doll Cradle
- Small Wagon
- The Acrobat
- Marble Solitaire
- Nine Men's Morris
- Rocking Horse
- Eighteenth-Century Cradle
- Play Wagon
- Rolling Horse
- Ring Toss
- Pigs in Clover
- Diablo
- Twirler Tops
- Three-Wheeled Doll Pram
- Child's Rocker
- Military Drum Toy Box
- Child's Sled

$19.95 • PB • 192 pages • 11 b/w photos • 167 drawings • 8 x 11 • 0-8117-2428-X

STACKPOLE BOOKS
With a scroll saw, some scrap wood, a touch of paint, and this book, you can create fascinating, movable toys from the past. Full-size patterns and plans for 19 pull-cord, hand-crank, and gravity-operated classics are offered. You'll find a waddling shorebird, diving frog, strutting pig, creeping crocodile, scuttling beetle, and more than a dozen other toys that crawl, push, pull, rock, roll, bob, leap, spring, pivot, plummet, and zigzag.

KEN FOLK, an engineer and woodworker, is author of Country Toys and Children's Furniture.