“Scott Olson’s SkyRide,” 2015
Video, 2:05

Stratasys Ltd

"3D-Printed 'Magic Arms,'" 2012
Video, 3:56

Various artists
American, European

Series of inline skate patents, 1860–1907, 1909–21, 1921–27, 1928–46, 1951–78, 1978–91, compiled 1980s
Paper

U.S. Patent Office, publisher
Lent by Scott Olson

Scott Olson assembled a "museum" of patents to understand technologies that had already been developed, in order to license or adapt them for different uses. No inventor, after all, wants to reinvent the wheel. While patents are usually seen as protections against someone else reproducing your invention, they're also records of creativity that can spur fresh thinking.

Tariq Rahman
American, 1960

Two Sketches for WREX armature, February 1998

Sketch of alternative WREX ideas, June 1999

Sketch of simpler WREX design for wheelchair or vest, January 29, 2012

Pen on paper

Lent by Tariq Rahman

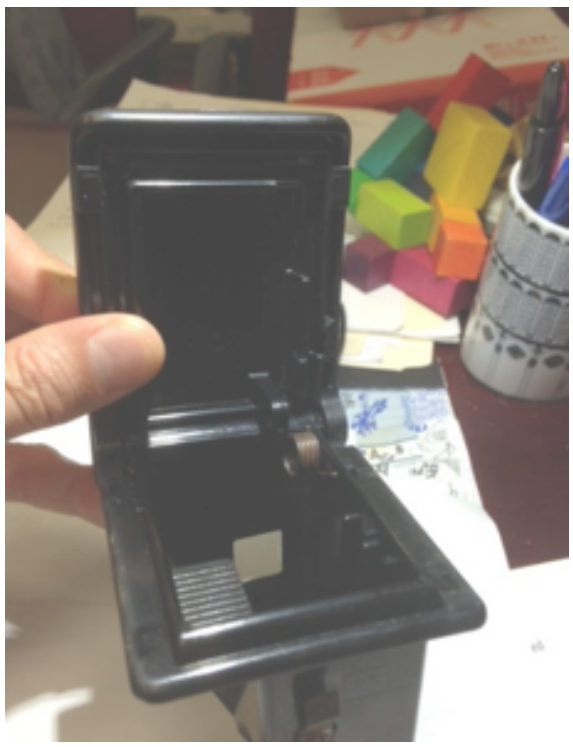
These four drawings show the steady refinement of the WREX design. The first two sketches, approximations of the prototype, lead to alternative ideas in the third set. All are ultimately rejected in a process summed up on the third page: "Select one or two subjects; solicit ideas; demonstrate prototypes." The forth page advances the concept considerably, simplifying the design while expanding its functionality, allowing the apparatus to be mounted on a rigid vest or wheelchair.

Tariq Rahman
American, 1960

Sketch of an idea for an elbow joint inspired by a car ashtray lid, May 31, 2012
Pen on paper

Lent by Tariq Rahman

Leonardo advised his followers that inspiration could spring from unlikely sources: ashes, clouds, rock formations. For Rahman, a breakthrough came from an old car ashtray. Powered by a spring, the ashtray's lid is a "bistable" mechanism—it wants to be either all the way open or completely shut. Candidates for the WREX system generally have weak biceps (the muscles at the front of the upper arm) but strong triceps (the muscles at the back of the upper arm). The triceps can pull against the elbow joint to open the arm—like opening the ashtray lid—while the elastic cord and elbow joint gives the biceps an assist—like flicking the lid shut.



The car ashtray that inspired a new WREX elbow joint design.

By 1960, the vast majority of American households—about 80 percent—owned at least one automobile. Kids riding in cars was the new normal, and a market emerged for seats that kept them safe—or at least in place. From the late 1950s through the early 1970s, Don Harley & Associates worked with clients to design numerous car seats, creating dozens of presentation drawings that gave shape to their ideas.

These drawings reveal the evolution of car-seat design, from flimsy boosters hooked over the back seat to something like we use today. Ideas are advanced, discarded, recycled, or repurposed. Multiple approaches lead to a single elegant solution, and sometimes to unanticipated uses, like a design for an inflatable car seat that inspires a collapsible infant seat for use on airplanes.

Branched Anemone Garden, 2007

**Christine Wertheim and Margaret Wertheim.
With additional pieces by Shari Porter,
Helen Bernasconi, Lynn Latta, and Sarah Simons**

Yarn, baskets, felt, and sand

From the collection of Lisa Yun Lee

Coral Forest – Medusa, 2007–14

Margaret Wertheim and Christine Wertheim. With spiral horns and tubeworms by Tane Clark and Nancy Yahrous (Arizona), bubble coral by Jane Canby (Arizona); octopi by Helen Bernasconi (Australia), kelps by Anitra Menning, plus contributions by Sarah Simons, Christina Simons, Jemima Wyman and Anna Mayer (Los Angeles); Evelyn Hardin (Texas); Marianne Midelburg, Helle Jorgensen and Barbara Wertheim (Australia)

Yarn, felt, cable ties, video tape, sono-tube, and chicken wire

From the collection of the Institute For Figuring

Coral Forest – Stheno, 2007–14

Margaret Wertheim and Christine Wertheim. With crochet coral pseudospheres by Anitra Menning (Los Angeles) and Jing Wong (Pasadena), crown-of-thorns starfish by Evelyn Hardin (Texas), plus contributions by Jemima Wyman, Christina Simons, Anna Mayer (Los Angeles)

Yarn, felt, cable ties, sono-tube, and chicken wire

From the collection of Jorian Polis Schutz

Coral Forest – Ea, 2013–14

Christine Wertheim and Margaret Wertheim. With additional pieces by Sarah Simons and Clare O'Callaghan (Los Angeles); Kathleen Greco (Pennsylvania), Evelyn Hardin (Texas), Matt Adnam (UAE), Christina Simons, Jemima Wyman (Los Angeles)

Shopping bags, New York Times wrappers, hula hoop, plastic spades, found objects, yarn, felt, sono-tube, and chicken wire

From the collection of the Institute For Figuring

Coral Forest – Eryali, 2007–14

Margaret Wertheim and Christine Wertheim. With rubble corals by Shari Porter (Los Angeles), sea slug by Marianne Midelburg (Australia), pink tube worms by Heather McCarren (CA), spiral horns by Una Morrison (Ireland), spiral fronds by Evelyn Hardin (Texas), plastic anemones by Beverly Griffith (UK), felted corals by Helle Jorgensen (Australia), plus contributions by Christina Simons and Anna Mayer (Los Angeles)

Yarn, felt, sono-tube, and chicken wire

From the collection of the Institute For Figuring

Coral Forest – Chthulu, 2011–14

Christine Wertheim. With additional pieces by Evelyn Hardin (Texas), Matt Adnam (UAE) and Suha Mulqi (UAE)

Videotape, tinsel, drinking straws, glitter-grass, yarn, felt, sono-tube, and chicken wire

From the collection of the Institute For Figuring

Coral Forest – Nin-imma, 2011

Christine Wertheim and Margaret Wertheim. With additional pieces by Gina Cacciolo, (Los Angeles), Katherine Wertheim and Barbara Wertheim (Australia), Pate Conaway (Chicago), Matt Adnams (AUE), plus cable tie anemones by Evelyn Hardin (Texas)

Plastic shopping bags, Saran wrap, found plastic trash, yarn, felt, cable ties, sono-tube, and chicken wire

From the collection of the Institute For Figuring

Carnation Coral Mound, 2007

Marianne Midelburg (Australia)

Yarn, felt, basket

From the collection of the Institute For Figuring

Hyperbolic Sea Snake, 2006

Helen Bernasconi (Australia)

Hand spun yarn and batting

From the collection of the Institute For Figuring

Latvian Isola, 2008–09

The Latvian Satellite Reefers

Yarn, cable ties, and chicken wire

Courtesy of Tija Viksna and Gallery Consentio, Riga, Latvia