Innovation: Andersson´s Hjälpande Hand/The Andersson Helping Hand
Klassification: 24 18 03 Gripping Aid

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The Product is designed for:
* people with arthralgia
* people with fibromyalgia
* people with rheumatism
* people with milder motorical disorders such as milder shakes

Describing the problem:
Many people lack enough strength to hold/grip an ordinary drinking glass.
What many of us take for granted, is for people with aches or disabilities -
to hold/grip, an impossible obstacle in every day life.

People with shakes, are left out to plastic mugs where both hands are used to grip the mug -
which reminds of mugs for children, and that´s not worthy for an adult person.

Andersson´s Hjälpande Hand/The Andersson Helping Hand has been developed with the purpose to enable people with diverse disabilities to hold/grip a drinking glass and with the help of the grip rotation – even to drink. With minimun strength, the battery box is operated on and off. The grip and the mechanichal arm is operated with the four switches (pole reversers).
It´s Andersson´s Hjälpande Hand/The Andersson Helping Hand who supplies the strength.

Prototype:
A working prototype has been developed in LEGO.
The Product is to be manufactured in metal or plastic
(the arm construction and the tower construction) and in stainless steel (the glass platform).

The Product is to be used by the kitchen table and/or by the kitchen sink.

TECHNICAL SPECIFICATIONS
for Andersson´s Hjälpande Hand/The Andersson Helping Hand

The Axis

Axis 1: **Grip the glass**
The Gripper - grips and releases

C**onstruction:** four Technic Tread Crawlers and four Tyre Small (treaded) and down-gearing with worm screws for a superior and firm grip.

Motor: Electric RC Race Buggy (5292), down-geared from 1 500 rpm

Axis 2: **Raise the glass**
The Arm moves up and down

Construction: double fourwheeldrives (Twin 4WD) -
one lower fourwheeldrive and one upper fourwheeldrive,
for the strength and a smoother motion.
The arm is moving up and down on slides with gear racks.

Motor: Electric RC Race Buggy (5292), down-geared from 1 500 rpm

Axis 3: **Rotate the glass**
The Gripper rotates

Construction: down-gearing with worm screws
for a very precise positioning of the glass.

Motor: Electric Technic Motor 9V (2838c01),
with modified down-gearing from 4 000 rpm - 948, page 8 (1:20).

Axis 4: **The Tower (with the arm and the gripper) rotates**

Construction: modified rotation from art.no 8094 Technic Control Center, Model 3

Motor: Power Functions XL-Motor (8882)

Switches (pole reversers)
* three Power Functions Control Switch (8869)
* one Electric Pole Reverser (6551)

Battery Box
Power Functions Battery Box (8881) with an axle for easy on- and off-operation.
Usually only one or two axis are used at the same time and therefore there´s
no chance of power shortage (power failure).
The Battery Box holds six 1,5 Volt AA-Batteries (LR6).

Functions
Drinking by the kitchen table
1. Grip the glass (Axis 1)
2. Raise the glass (Axis 2)
3. Rotate the glass (Axis 3)
4. Drink!

Drinking by the kitchen sink
1. Grip the glass (a glass smaller in height than an ordinary drinking glass,
but has a wider diameter) - Axis 1
2. Raise the glass above the platform – Axis 2
3. Position the glass near the kitchen tap with the Tower Rotation – Axis 4
4. Fill the glass with water
5. Position the arm close to you with the Tower Rotation – Axis 4
6. Raise the glass close to your mouth – Axis 2
7. Rotate the Gripper – Axis 3
8. Drink!

Condition:
Drinking glass
Normal size drinking glass
Height: 100 mm/3.9 inches, diameter bottom 53 mm/2 inches, diameter rim 69 mm/2.71 inches

Amount of water
Water up to 78 mm/3 inches (marker; 4 marks below maximum)
Weight: 330 gram/11.6 oz

N.B.:
Because of the risk of scalding, no hot fluids are allowed together/in combination
with Andersson´s Hjälpande Hand/The Andersson Helping Hand

Ingelstad, April 1st, 2012

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ULF ANDERSSON

Appendix
Wednesday, April 4th, 2012

Considering people having problems with fine motor skills,
three infrared receivers (Power Functions IR Receiver, 8884)
with three infrared remote controls (Power Functions IR Remote Control, 8885)
have been added to Andersson´s Hjälpande Hand/The Andersson Helping Hand

The addition doesn´t change the function of the axis in the original product description,
and because of the addition, Andersson´s Hjälpande Hand/The Andersson Helping Hand
is more user friendly.

It´s considered to make the use much easier, if you as a complement can control
Andersson´s Hjälpande Hand/The Andersson Helping Hand with the joysticks
on the remote controls, and that you´re not depending on the fine motor skills required
to operate the switches (pole reversers) on the control panel.