Docket #: S16-465

Industrial gloves with selectively sticky surfaces

Researchers in Prof. Mark Cutkosky's laboratory have developed gloves with customized patterns of sticky (dry adhesive) and non-sticky areas to assist the wearer with lifting and handling smooth heavy objects, particular those with a tacky coating. These "gecko" gloves enable a person manipulate objects with less grasping force while preventing adhesion to substances such as glue, caulking beads, pressure sensitive tape or gasket adhesives. In manufacturing applications, these features could make it easier for a person to assemble components such as sound-deadening sheets for automobiles or adhesive coated plastic panels.

Stage of Research
The inventors have used a microsculpting process to fabricate several prototype gloves with different patterns of sticky and non-sticky surfaces. They have demonstrated their utility for: grabbing and lifting smooth items with no squeezing force; adhering to hard-to-grasp objects with unusual shapes (e.g., a football); and grasping sheets of glass without slipping (see Prototype Figures below).

Applications

- **Specialized gloves for manufacturing/industrial use**

Advantages

- **Selectively sticky:**
  - dry adhesives on gripping area of the gloves allows wearer to handle smooth surfaces with very low grip force
  - microstructured “anti-sticky” pads on non-gripping surfaces will not stick to, or become fouled by sticky or tacky materials such as glue, tape or

caulk
    - customized patterns for various uses (e.g., pinching small objects, grasping large objects, sliding sheets or flat objects)
- **Minimal squeezing** - protects delicate materials
- **Easier handling** - reduced effort and strain for person maneuvering objects while wearing gloves

Patents

- Published Application: 20190110536
- Issued: 11,375,762 (USA)

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