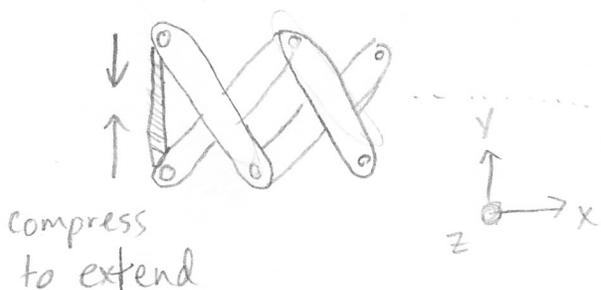


Problem 7a

PUPS #3

Because the length of the load lock is less than half of the total travel distance needed, some sort of multi-stage, telescoping transfer mechanism is needed.

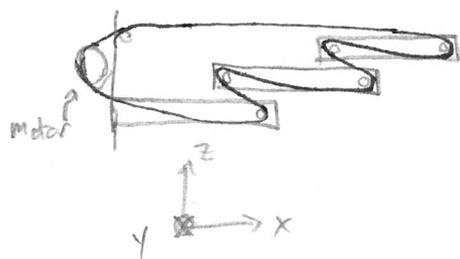
One of the classic versions of this is a scissor actuator.



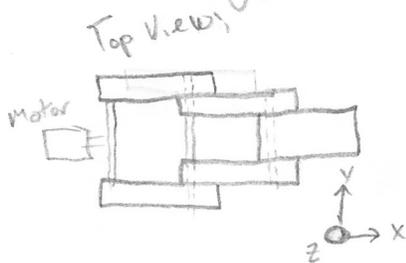
Pro: simple, lots of "length amplification"

Con: wide when retracted, would probably be very weak in the z-axis.

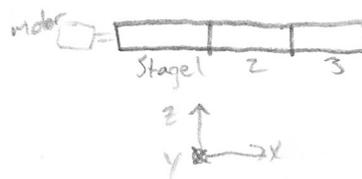
A better approach is probably something like a multi-stage extension lift, except turned on its side (for x-axis motion).



If the rigging could be internalized, then the stages could maybe be nested, e.g.



Side view:



Pro: should be stiff and strong, possibly very compact

Con: rigging/belts could be difficult to arrange, belt vacuum compatibility

Perhaps there is also a leadscrew-based topology out there, but I haven't been able to think of a reasonable (i.e. not overly complex) one.