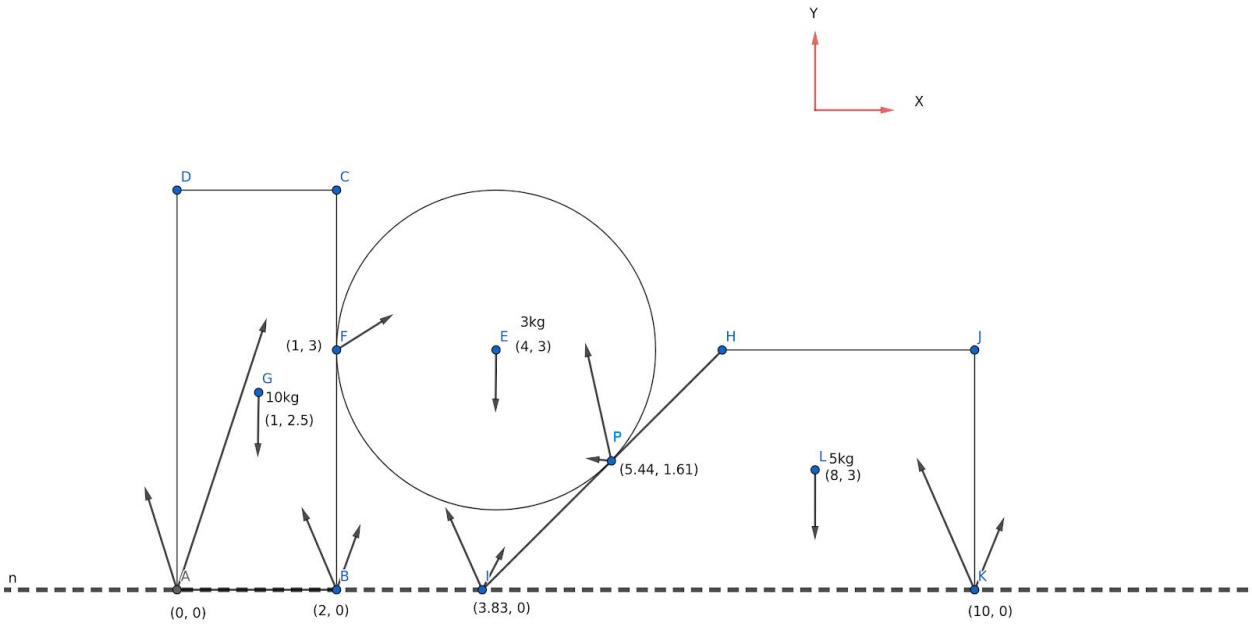
Stable Assembly Analysis

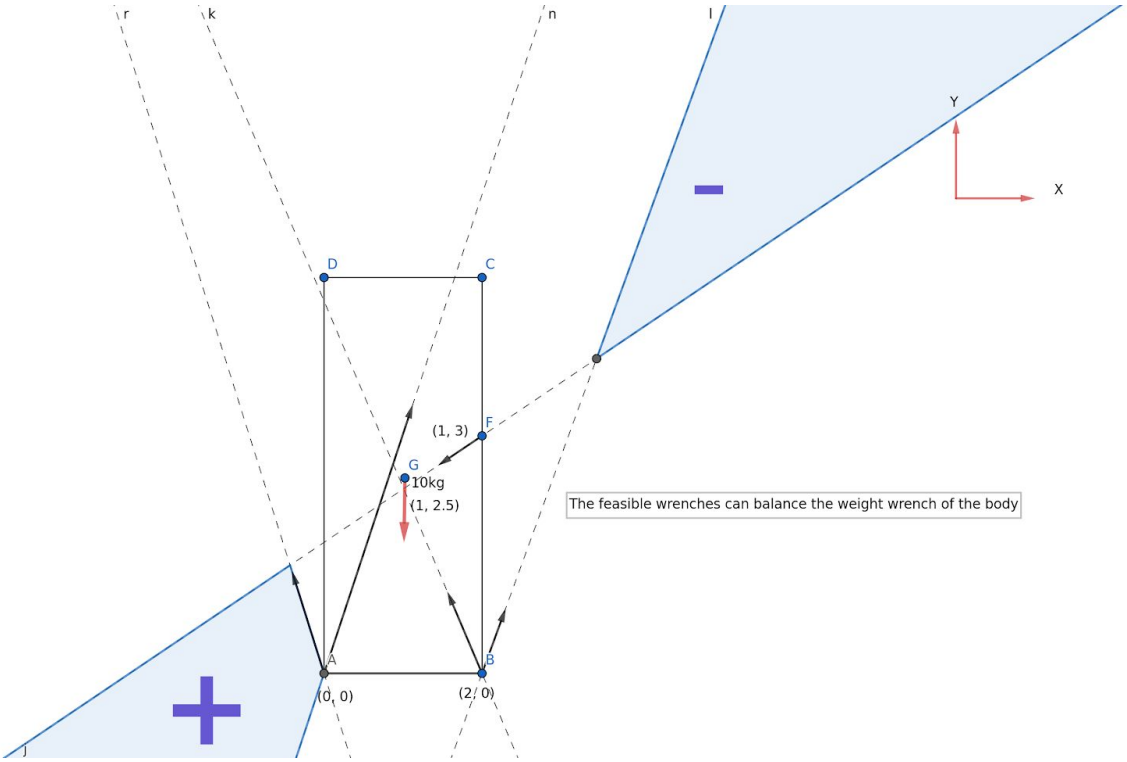


Wrenches and Linear Programming Solution coefficient for Wrenches (Friction coefficient 0.5)

Wrench ID	Description	Angle (Degrees)	Coefficient
0	Left wrench at point A	116.57	23.95
1	Right wrench at point A	63.43	55.36
2	Left wrench at point B	116.57	21.91
3	Right wrench at point B	63.43	17.26
4	Left wrench at point F	26.57	13.38
5	Right wrench at point F	-26.57	0
6	Left wrench at point I	116.57	22.11

7	Right wrench at point I	63.43	12.37
8	Left wrench at point K	116.57	32.65
9	Right wrench at point K	63.43	15.63
10	Left wrench at point P	161.57	4.70
11	Right wrench at point P	108.43	23.75

- Body 1 Analysis

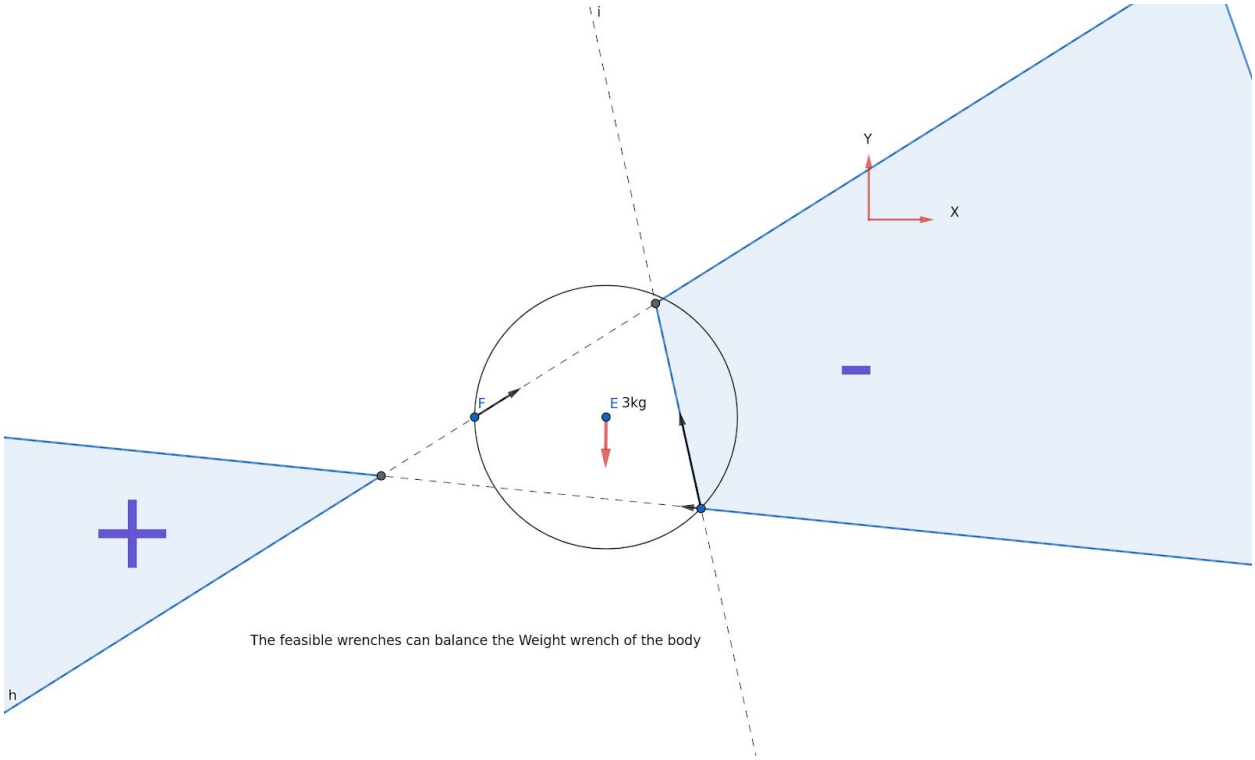


Horizontal Components for Wrenches (0 to 5):
*23.95 * cos(116.57) + 55.36 * cos(63.43) + 21.91 * cos(116.57) + 17.26 * cos(63.43) + 13.38 * cos(26.57 + 180) = 0.00258 ~ Zero*

Vertical Components for Wrenches:
*23.95 * sin(116.57) + 55.36 * sin(63.43) + 21.91 * sin(116.57) + 17.26 * sin(63.43) + 13.38 * sin(26.57 + 180) = 99.982 ~ 10kg*

Likewise it can be also shown that the moment around point G is also zero. Hence Body 1 is stable

❖ Body 2 Analysis

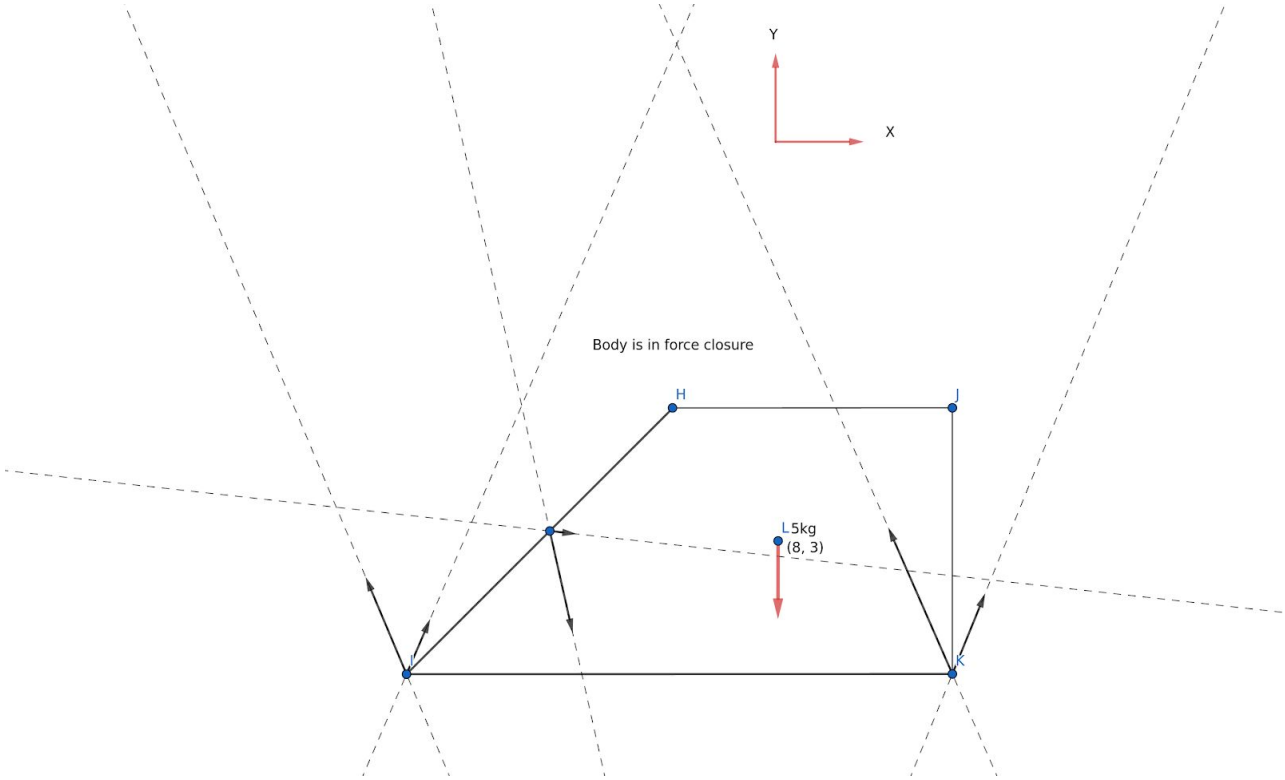


Horizontal Components for Wrenches (4, 5, 10, 11):
*13.38 * cos(26.57) + 4.70 * cos(161.57) + 23.75 * cos(108.43)* = -0.00048 ~ Zero

Vertical Components for Wrenches:
*13.38 * sin(26.57) + 4.70 * sin(161.57) + 23.75 * sin(108.43)* = 30.00 ~ 3kg

Likewise, it can also be shown that the moment around point E is zero.
Hence Body 2 is stable

❖ Body 3 Analysis



Horizontal Components for Wrenches (4, 5, 10, 11):
*22.11 * cos(*116.57) + 12.37 * cos(63.43) + 32.65 * cos(116.57) + 15.63 * cos(63.43) + 4.70 * cos(161.57 + 180) + 23.75 * cos(108.43 + 180) = -0.002 ~ Zero

Vertical Components for Wrenches:
*22.11 * sin(*116.57) + 12.37 * sin(63.43) + 32.65 * sin(116.57) + 15.63 * sin(63.43) + 4.70 * sin(161.57 + 180) + 23.75 * sin(108.43 + 180) = 50.0 ~ 5kg

Likewise, it can also be shown that the moment around point L is also zero. Hence Body 3 is stable