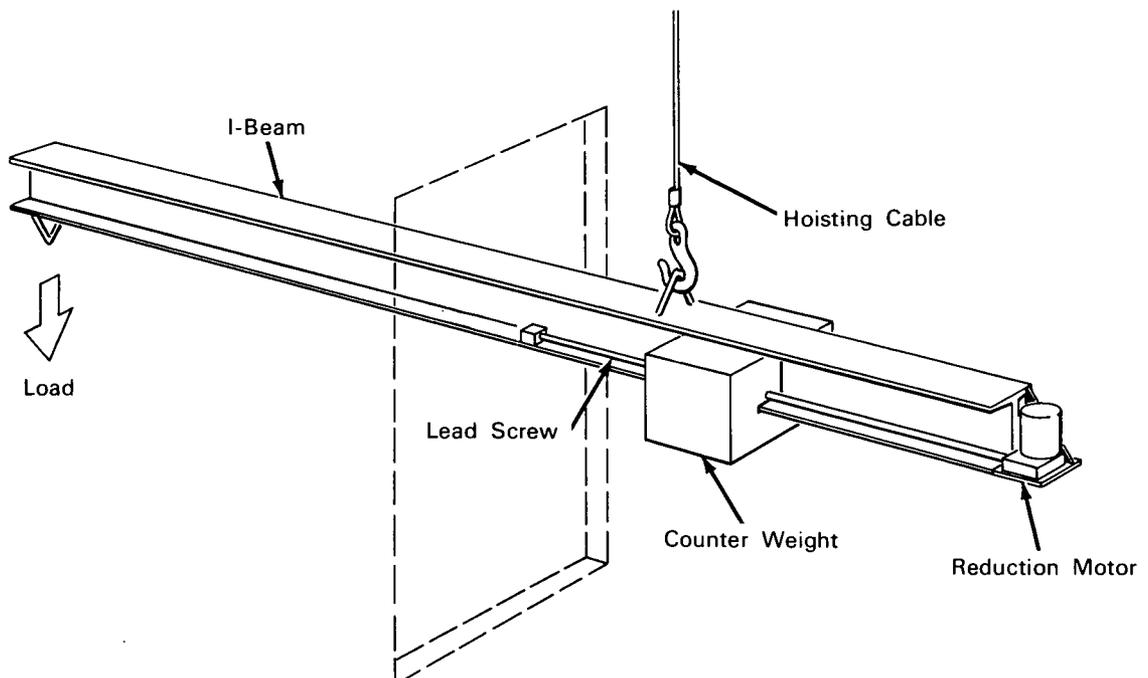


NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

Self-Balancing Beam Permits Safe, Easy Load Handling Under Overhang



The problem: Moving heavy machine parts or other loads when they are located under an overhang so that a crane cannot be used directly. A similar problem is encountered in moving machinery or heavy parts through windows or doorways.

The solution: An I-beam with a motor-driven balance that can be quickly positioned to balance the load.

How it's done: An I-beam and a counterweight are selected to suit the size and weight of the load to be handled. (In one particular application at Marshall Space Flight Center, the maximum load is 1500 pounds.) A hoisting eye is mounted near the center

of the beam chosen. One end of the beam is constructed to hold the load while a motor is placed at the other end and geared to drive a lead screw. Turning the lead screw moves the counterweight along the beam.

Use of the balancing beam is extremely simple. The load is first secured to the beam. Then the counterweight is moved to a point on the beam exactly balancing the load. The load is then guided into place. (Only one man is required to guide a 1500-lb. load into place in the application at MSFC.)

The beam cannot be overloaded. Should an overload be attempted, the counterweight will not be able to balance, and this acts as an automatic safety factor.

(continued overleaf)

Notes:

1. Use of this beam can greatly simplify many types of load moving jobs in manufacturing and storage operations and in shops where heavy components must be handled in limited space or the hoisting cable cannot be attached directly to the machine.
2. Safety alone would justify use of this balancing beam in many load handling operations. Not only is overload prevented but the lift can be made vertically upward where a standard hoisting cable

could not hold the load until it clears an obstruction.

3. Loads of any weight or shape, can be handled with this device by selection of the proper beam and counterweight.

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated by NASA.

Source: O. H. Edwards
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