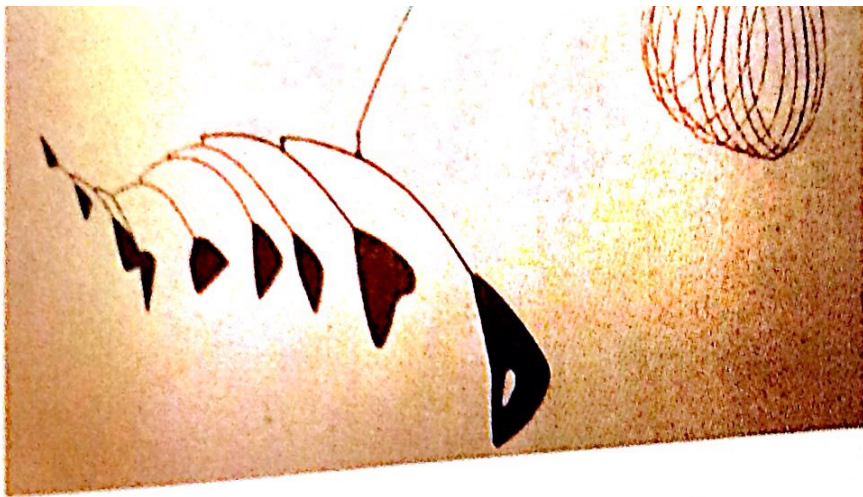


and jar lid. ... a jar lid for a moment. You exert a relatively small input force when you turn the lid, but this force is greatly increased because of the screw threads on the lid (which fit into matching threads on the jar). The result is that the lid is pulled against the top of the jar with a strong enough output force to make a tight seal.

✓ *Checkpoint* How are wedges and screws related?

Levers

Have you ever ridden on a seesaw or pried open a paint can with an opener? If so, then you are already familiar with another simple machine called a lever. A **lever** is a rigid bar that is free to pivot, or rotate, about a fixed point. The fixed point that a lever pivots around is called the **fulcrum**.



... Lobster
Trap and Fish Tail," is in the
Museum of Modern Art
in New York City.

To understand how levers work, think about using a paint can opener. The opener acts as a lever. The opener rests against the edge of the can, which acts as the fulcrum. The tip of the opener is under the lid of the can. When you push down, you exert an input force on the handle and the opener pivots about the fulcrum. As a result, the tip of the opener pushes up, thereby exerting an output force on the lid.

The lever helps you in two ways. First, it increases the effect of your input force. Second, the lever changes the direction of your input force. You push down and the lid is pried up.

Different Types of Levers When a paint can opener is used as a lever, the fulcrum is located between the input and output forces. But this is not always the case. There are three different types of levers, classified according to the location of the fulcrum relative to the input and output forces. Examples are described in *Foot...*