Springs at work

Many springs are made of metal coils. These springs can push, pull or simply support things.

Metals are naturally springy materials. But you can make the springiness much more useful if the metal is made into a coil. We call this a coil spring.

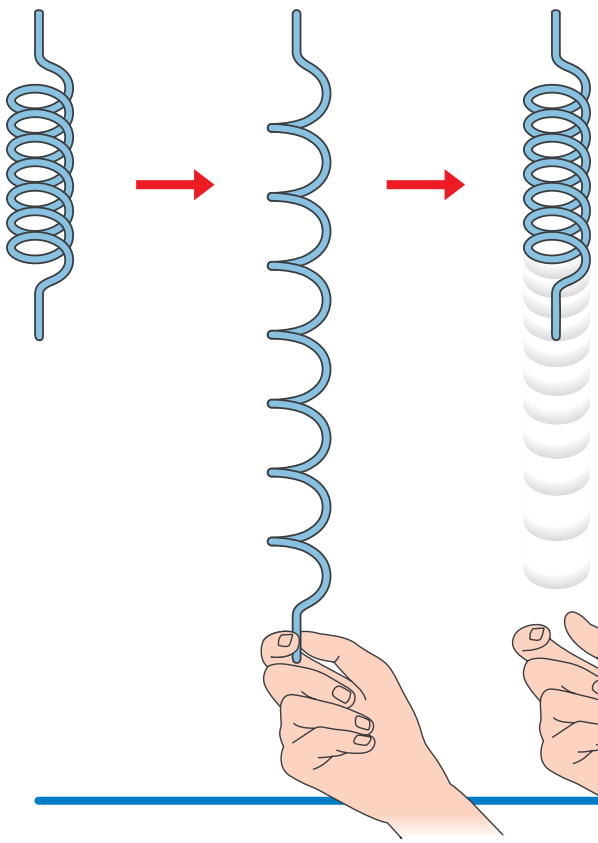
How a coil spring works

If you hang a weight on a coil spring the coil will stretch and the spring will pull against the **WEIGHT** (Picture 1). If you push down on the coil it will push back up against you (Picture 2). Notice that whichever way you push or pull, the spring works against you.

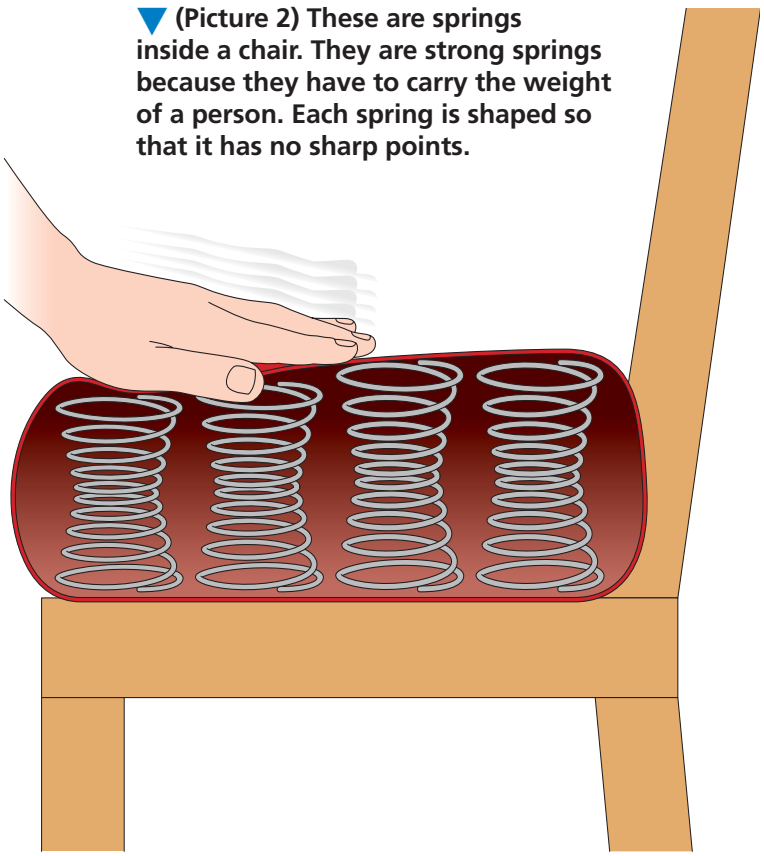
Springs that push

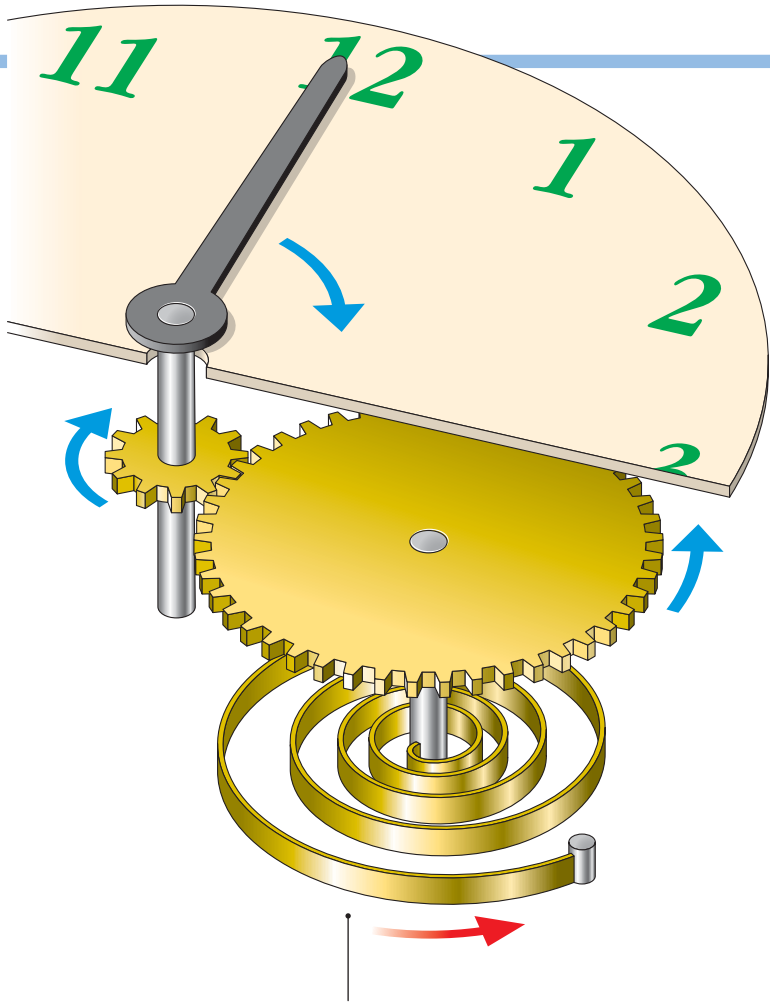
There are many kinds of springs that push. The spring in a torch (Picture 1, page 4) is one of these. A clock spring is another kind of spring designed to push (Picture 3). When it is wound up, the coil 'soaks up' the force of the winding. The spring is connected to a set of toothed wheels which are not strong enough to stop the push of the spring. As a result, the spring pushes the wheels and this drives the clock.

▼ **(Picture 1) A metal coil that we call a spring will return to its original shape no matter how much it is pulled or pushed.**



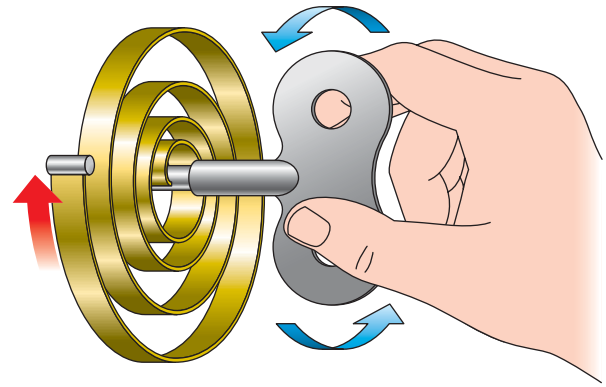
▼ **(Picture 2) These are springs inside a chair. They are strong springs because they have to carry the weight of a person. Each spring is shaped so that it has no sharp points.**



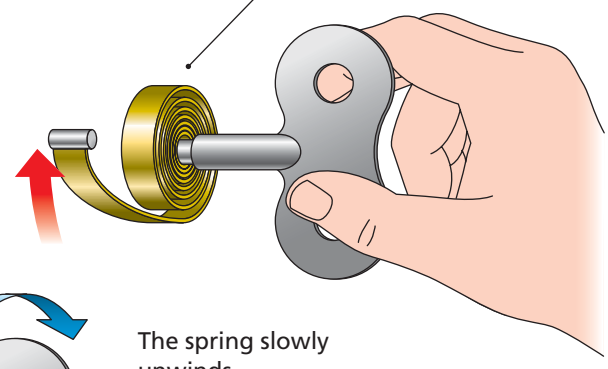


The unwinding spring pushes the wheels, which move the clock hands.

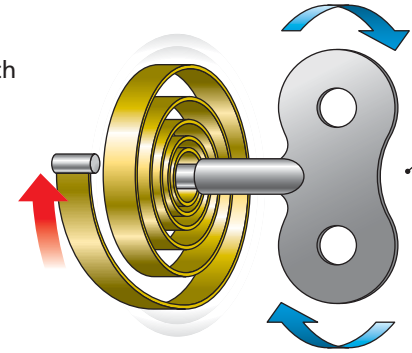
▼ (Picture 3) A clock spring is an example of a pushing spring.



The spring is wound tighter.



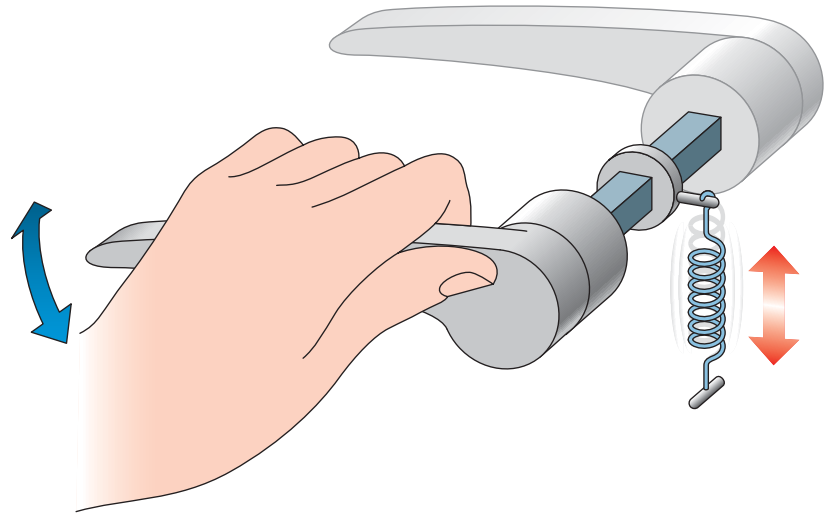
The spring slowly unwinds.



Springs that pull

Inside a door handle there is also a spring (Picture 4). When you push down on the door handle you stretch the spring, and when you let go the spring pulls the handle back up again. This spring is designed to pull the handle back up again.

▼ (Picture 4) A door handle spring is an example of a pulling spring.



Summary

- Springs can be made to push.
- Springs can be made to pull.
- Springs can be made to support a weight.