MOLD CREEP, DEFORMED MOLD, SPRINGBACK

- pattern
- mold
- casting

Sand castings.

In comparison with the drawing and the pattern the casting shows either local or general distortion which may vary from part to part.

Possible Causes
- The pattern or pattern plate is subjected to excessive stresses during ramming of the mold and sustains elastic distortion.
- The pattern or pattern plate is mounted on a crooked or insufficiently rigid support.
- The mold has been deformed before pouring due to deformation of the flask (during handling, for example).
- Placement of the mold on an uneven surface.
- Deformation during transport due to insufficient rigidity of the flask.
- Uneven or excessive weighting of the mold.
- Improper clamping.
- Insufficient ramming in certain locations or generally.

Remedies
- Place the mold on a flat foundation. In the case of an irregular parting line, use a precisely matched follow board. In the case of plated patterns mounted in frames, take care that the frame is flat and that ramming is uniform.
- Pour test samples for trial inspection.
- Reinforce thin patterns with tie bars.
- Construct core prints so that they contribute to the rigidity of the pattern. Mount patterns on plates. Reinforce pattern plates with ribbing.
- Place molds on a flat, uniformly-resistant bed of sand.
- Choose flasks of sufficient rigidity.
- Mold weights must be supported by the lateral walls of the flask with weight evenly distributed.
- Allow for the degree of bending by calculation and experience.
- Ram the mold as much as necessary; also change molding material.
- Use properly located reinforcing members in the mold.

Figure 218

Cope half of mold distorted by handling with chain slings spaced too far apart.

Figure 219

Drag mold distorted by excessive and poorly-distributed weighting on the mold.