

LOCAL HARDENING

The carbonizing process is often used for hardening certain parts of a piece, and leaving the rest soft, as illustrated by the pieces shown in Fig. 143. The three pieces are turned from machinery steel to the lines shown by the outside line of each piece. After this they are carbonized to the proper depth, then annealed, and then the parts shown by the sectional lines are turned off, after which they are hardened.

By turning off the parts shown by the sectional lines, the outside layer that has been carbonized is turned off, and this leaves these parts with the machinery steel exposed. When hardening, therefore, the machinery steel does not harden, and consequently remains soft, while the balance of the pieces, which have a carbonized outer shell, do harden, and this makes the pieces hard in the parts desired and soft in the other places.

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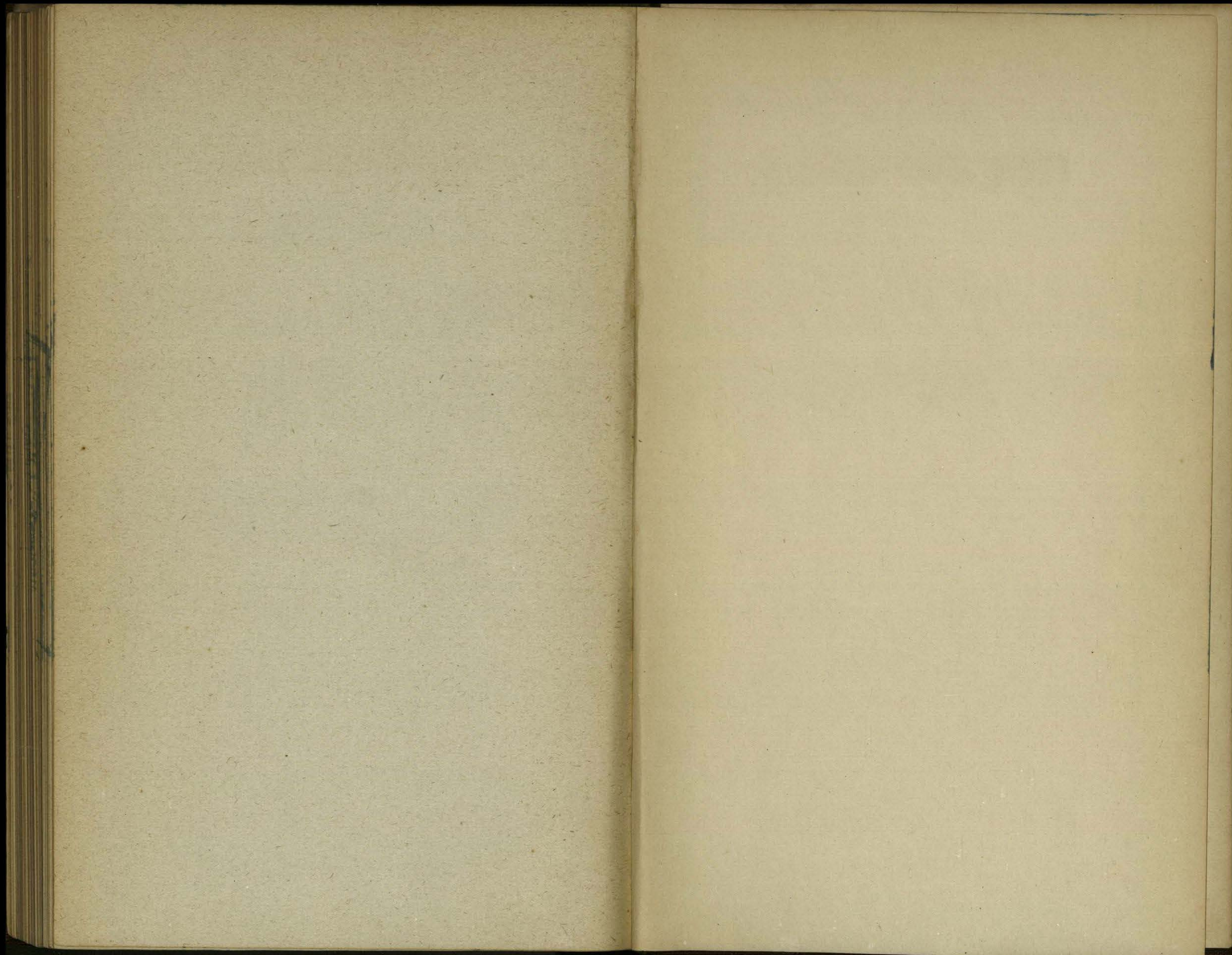
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