

Fig. 138. Action of tumbler gripper.

grippers mounted on arms, pivoted on a shaft running parallel with the impression cylinder (or first in-feed cylinder). The shaft is rotated through an arc of  $90^\circ$  or less, so that arms and grippers swing backwards and forwards, accurately timed to synchronise with register and cylinder movements (*fig. 140a*). The basic principle is that the grippers are in a stationary position when they close on the sheet, and this stationary period within the machine cycle is maintained irrespective of varied rotational speed. In other words, if the stationary period is  $30^\circ$  of the machine cycle, this will be the same whether the press is running at 3,000 sheets or 7,000

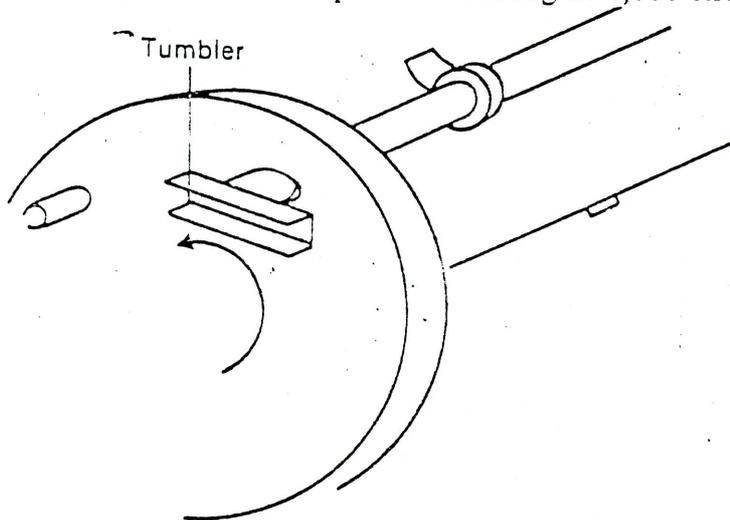


Fig. 139. Old type tumbler.