



- ① Mitsukoshi brand (around 1925) syringe and outer lever
- 2 Atena (Maruzen) (around 1925) syringe and outer lever
- 3 Sheaffer (made in USA) (around 1930) syringe and outer lever
- 4 Pilot (around 1960) syringe and inner lever
- 5 Pelican (made in Germany) pump
- 6 Montblanc (made in Germany ) pump
- 7) Sheaffer (made in USA) syringe
- 8 Parker (made in USA) A: syringe, B: cartridge pump, C: cartridge
- 9 Parker (made in USA) suction by capillary force

Ink is suctioned using a rubber syringe. The syringe is pushed by pulling up the side lever of the pen. The suction of the syringe is carried out when the side lever returns and syringe inflates (1), (2), (3)). (4) has the lever inside the pen and the lever on the back plays the role.

Later in Germany, the suction is made by a pump (⑤), ⑥). Pump is pushed when the bottom of the pen is twisted and it suctions the ink during returning. The pens are partly transparent and the ink motion can be observed.

The Sheaffer (7) made in USA looks like a pump but the structure is the syringe. Bottom is pulled out to push the syringe and pushed back to suction the ink.

- 8 is Parker made in USA. This is transition from the syringe type to the cartridge. model and 3 suction types can be used. 8A is the syringe type, 8B is the cartridge pump type and 8C is the cartridge type.
- 9 is also Parker made in USA, but it use new suction by capillary force. This had a problem to reduce suction volume in long use and the pen shifted to the cartridge type.