on reduction gearboxes and winches. There is a paddle attached to the section of a worm gear, and a small section of the worm wheel is incorporated into the bottom of the frog plate, so when the paddle is moved from side to side the frog plate rises and falls.

The frog plate is held in place, somewhat loosely, by one round head screw at its base, and the mesh of the gears at the top. The lever cap is a two-piece system, the upper one in cast iron and the lower one made in hard steel forming a chip breaker. The two arms on the lever engage with corresponding steps behind the lever plate. When the blade is placed between them, and the screw on the lever tightened, the blade forms a bridge between the planes base, at the bottom, and the meshed gears at the top. The cast top half of the lever bears down on the centre of the steel plate, which can pivot slightly, and so at its top and bottom bear down on the blade positioned close to the edge of the blade to perform the chip breaker function.

Blades will fall out the bottom of the original patent planes when the lever cap screw is loosened, so care is needed when handling them.

The Improved Patent planes

The major difference is the addition of a lateral blade adjuster to the improved patent planes, interestingly located forward of the blade, and a different depth adjustment from the original patent – the screw and lever were replaced with a rocking cam.

Chaplin Improved Patent Plane

The Planes

Distinctive features of the improved patent plane

One of the most obvious features is the Hard Rubber handle. (not Gutta percha or Bakelite).Vulcanized hard rubber (Ebonite) was invented by Charles Goodyear c1844.

And produced by prolonged vulcanising of rubber with the addition of sulphur.

The lever caps and steel back irons riveted to them have assembly numbers.

More hand fitting was required (probably one of the reasons for their relatively short production life).

Parts are less likely to be interchangeable than other makers.

Evidence of re-working was more obvious, (lead solder under nickel-plated iron knob, holes in castings plugged, crooked castings).

Perhaps they were sold discounted, but I doubt that.

Lower standards of quality compared to other contemporary makers, Steers, Bailey, Stanley, and The Metallic Plane Company…(but they were responsible for the horror three-lever adjuster).

Wooden body planes were only made in the Original Patent design.

The Cast of Thousands

The large number of individuals involved in designing and making the Chaplin's Patent planes.

Orril R. Chaplin. Inventor and machinist working in Boston, Mass (also shoe making machinery).

Charles Ballard: Worchester, Mass. Inventor, firearms maker, possibly made the first type of Chaplin's planes.

Ivor Johnson: Casting and manufacturing the planes (and firearms).

John J. Tower, inventor and company owner.

Tower and Lyon (John J. Tower and Polhemus Lyon): hardware firm sold the planes.