Stanley "Handyman" Planes

The first handplane that I owned was a Stanley Handyman #4 plane (model #12-204) from about 30 years ago. It was used to trim a pine door. I quickly learned how to sharpen the blade as the door had staples embedded in it as part of the manufacturing process, and these made nicks in the blade. The plane managed that task adequately, although the plastic adjustment wheel has a lot of play.

Over time, I acquired many more planes, but kept the Handyman for rougher jobs in softwoods. I tuned up the plane, by flattening the sole and the bedding on the frog for the blade; making sure the blade and cap iron fitted together properly; and adjusting the position of the blade in the throat.

However, when planing any wood harder than pine, the Handyman plane never really worked well. The blade could chatter and even dig in, jarring the plane to a sudden stop. Recently, I was using the plane to trim a millimetre from the side of a piece of pine shutter ply, and the dig-in became so bad, that the plane would jar to a halt. The dig-in was effectively increasing the depth of cut each time the blade dug in, leaving a noticeable divot.

Plywood consists of layers of wood laid alternately at right angles, so when planning an edge, half the cut is on side grain plies and the other half on end grain plies. To achieve a clean cut, the blade needs to be kept sharp, otherwise the end grain will tear out. As you may know, end grain is much harder to plane than side grain, so the forces on the cutting edge of the blade are significantly higher. This was enough to cause the blade to deflect downwards and dig in. My trusty Stanley Bailey #4 did not dig in at all when faced with the same task, so the problem lay with the Handyman plane.

Something associated with the frog and blade support was clearly moving, so I disassembled the plane to see if I could see anything obvious. There was nothing under the blade or between the frog and the sole, such as a shaving or a casting flaw, that could create play and allow the cutting edge of the blade to move downwards.

I then disassembled my Stanley Bailey #4 and put them side by side. The above picture shows the two – Bailey on the left, Handyman on the right.

The Handyman is noticeably lighter at 1510g, than the Bailey at 1744g. I thought perhaps the sole was too thin around the mouth, so I measured them. The thickness of the soles was more or less the same at about 3mm. I then compared the seating of the frogs onto the soles and the problem became apparent. The mating surfaces of the Bailey are machined. Those on the Handyman are rough cast and painted, which is an immediate concern, they need to be machined for accurate alignment and to seat properly.

The picture on the right shows a side view of the two frogs, Handyman at the top, Bailey at the bottom. The Handyman frog has been redesigned, presumably for easier manufacturing.

If you look at the diagram below showing the cross section of a plane you can see that the frog (6) is clamped to the sole by two screws

(10). The frog is slotted so that it can move backwards and forwards to change the opening of the mouth and to align the frog to the sole. The bottom of the frog bears onto the sole along two areas, just behind the mouth and under the clamping screws. The front bearing area is important, because this resists the downward cutting forces from the edge of the blade.

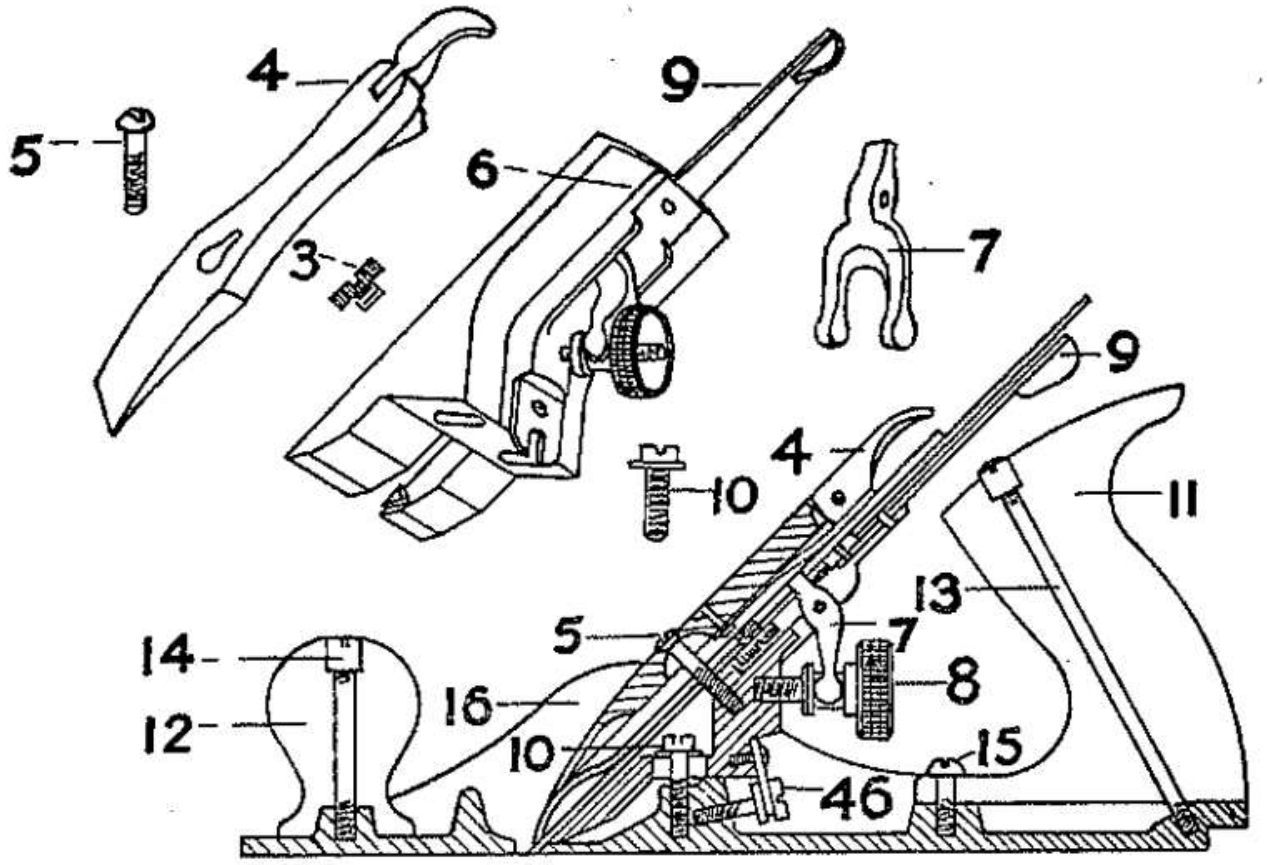

Fig. 22.—Parts of Record Planes.
3—Cap Screw. 4—Lever Cap. 5—Lever Cap Screw. 6—Frog, complete.
7—"Y" Adjusting Lever. 8—Adjusting Nut. 9—Lateral Adjusting Lever.
10—Frog Screw. 11—Plane Handle. 12—Plane Knob. 13—Handle Bolt and Nut.
14—Knob Bolt and Nut. 15—Handle Toe Screw. 16—Plane Body.
46—Frog Adjusting Screw.

As a plane is pushed forwards over the workpiece, the cutting edge penetrates the wood, lifting a shaving. The force on the cutting edge is downwards and backwards. This is resisted by the frog through to the sole.

Inspecting the frog of the Handyman plane, it was apparent that it made contact only under the clamping screws. There is a gap under the front of the frog, and this is the real cause of the problem.

Clearly, when the cutting edge encountered a lot resistance, the front of the frog was unable to support it and it moved downwards, chattering or even digging in!

The picture shows a feeler gauge in the gap under the front of the frog, a gap of more than half a millimetre. When there is downward force on the cutting edge, the frog can move down, allowing further downward movement of the cutting edge resulting in a dig in.

For a heavy cut one would probably adjust the blade to take off about a tenth of a millimetre or more. For fine work, one is probably adjusting the plane to take off a hundredth of a millimetre. Any deflection at all is undesirable, let alone a possible movement of half a millimetre.

This explains to me why the plane behaved the way it does with heavy cuts. I checked another example of this Stanley Handyman plane and this was apparent , so this is not unique to the example I have.

Saving on machining fatally compromised the working of this plane. Clearly the designers never used this plane themselves.

If you are offered one of these planes, I would check for this issue, before trying to use it on anything more than soft pine. This may also apply to the range of “Global” planes offered by Stanley – check before you buy.

It may be possible to correct the problem by removing metal from the frog in the area under the two screws until the front of the frog makes contact with the sole. This would need to be done carefully to maintain the geometry of the frog relative to the sole, but it should solve the dig in problem.

The other issues that I have with the Handyman range are not insurmountable – there is no screw (46) to help align the frog front-to-back, making setting the mouth more difficult. Also the adjustment wheel (8) is plastic and has a lot of play, but it is workable.

I remember reading a question posed to Paul Sellers (at paulsellers.com) about a plane chattering, and Paul said he had never encountered it. I think that the poor person posing the question was probably trying to use a Handyman plane, which Paul had probably not encountered. Paul Sellers is well worth reading – he is not convinced that fancy planes with low angles and thick irons are noticeable better than a well tuned Stanley Bailey of a reasonable vintage.