Meadows & Passmore Ltd

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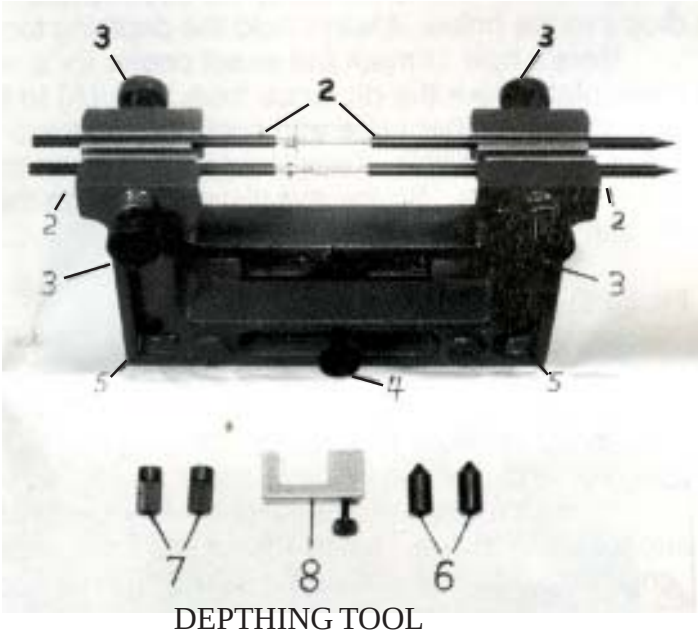
INSTRUCTIONS FOR DEPTHING TOOL 0947000115

Major uses for the tool are:

1. Observing and adjusting the fit (depth) of a wheel to its matching pinion.
2. Transferring (scribing) this correct centre distance to the clock plate.
3. Fitting an escape wheel and a set of pallets to work together.

PARTS LIST

1. MAIN FRAME
2. RUNNERS - 4 in set. 2 pointed
3. RUNNER CLAMP KNOBS - Hand tightening
4. DEPTH ADJUSTING SCREW - controls the opening of the main frame.
5. HINGE FRICTION SCREWS - used only to gain a firm but not loose hinge.
6. CONE PIECES - 2 in set used where a large centre is needed, such as mainspring barrels or unmounted wheels.
7. TRUMPET PIECES - 2 in set used where a large inverted cone is needed such as mainspring arbors.
8. OVERHUNG RUNNER ADAPTER - used where an escapement verge crutch would interfere with the adjacent runner



DEPTHING TOOL

INSTRUCTIONS FOR USE

Fitting a Wheel and Pinion

Mount a matching pair of wheels and pinions in the tool as shown in Figure 2, so a wheel and pinion mesh as they would in the clock. Each pivot (axle end) rests in the end of a runner. Tighten the thumbscrew at each runner; the wheels should turn easily but must not be loose.

Use the depth adjusting screw to set the jaws of the tool for optimum depth of wheel and pinion. To increase the distance between centres, turn the screw clockwise. To decrease it, turn the screw counterclockwise while maintaining light pressure on the jaws to close them. As you turn the wheels you will be able to observe the wheel-to-pinion action clearly, without the movement plates or other parts blocking the view.

A good light and close observation is needed to bring teeth to proper running position. In most cases the best running point is where the shoulders of the wheel and pinion contact at a parallel line as (figure 1).

Figure 1

The shoulder is determined as the point where the straight side of the tooth "A" joins the curved section "B". This gives the teeth their proper rolling action. When the teeth have been adjusted to this point, check the shake and free running. At this point, depthing is complete and the points of the runners can be used to mark the clock plates or check existing pivot holes.

Scribing Centre Distance

As long as you do not touch the depth adjusting screw, the depth you have set is maintained even after you remove the wheel and pinion from the tool. Hold the tool up to the clock plate (Figure 3) to compare actual centre distance to the one you have determined using the wheel and pinion. Loosening the runner thumbscrews at this point allows the runners to adapt to variations in hole size or height on the clock plate.

If the pivot hole has been "moved" because of bushing or punching, it is sometimes necessary to fit a plug into the clock plate and then drill a new pivot hole in the right location. To help in locating the hole, take the centre distance of the corresponding holes from the other clock plate. If these holes are not worn oval, they will provide you with correct centre distances in most cases. Just loosen two runners and, using the depth adjusting thumbscrew, set the depthing tool until the runners drop into the holes. Always hold the depthing tool perpendicular to the clock plate for accurate results.

Here's how to mark the exact centre for a new pivot plate hole (Figure 4). Using the undamaged clock plate, take the distance from hole (A) to the hole which is the opposite one to the "bad hole". Return to the other plate and scribe a small arc from hole (A) across the plug you have fitted in place of the damaged hole. Now locate hole (B) on the "pattern" plate and take the distance from this hole to the "bad" one. Scribe the distance across the plate as shown. The intersection of the two arcs is the centre for your drill.

Fitting the Pallets

Figure 5 shows an escape wheel and a set of pallets (sometimes called the verge) mounted in the depthing tool. For this application the offset runner attachment is used so that the crutch can pass through. With the depthing tool placed on its side at the edge of the bench, the crutch extends downward as it would in the clock.

To watch the escapement action, gently turn the escape arbor in the direction the wheel is supposed to rotate. Move the crutch from side to side and observe the locking action. Adjust the centre distance with the depth adjusting thumbscrew.

If you have already set the depth to be the same as the centre distance between the escape arbor and the pallet arbor in the clock, you can observe any faults which presently exist.

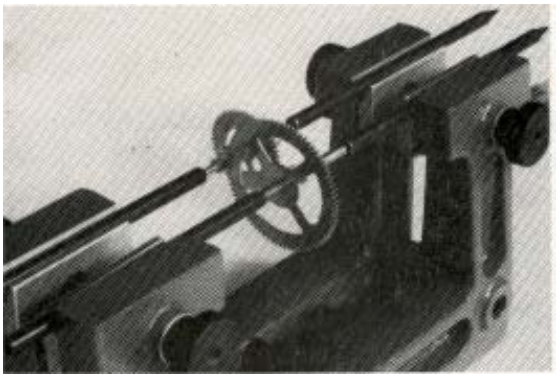
On the other hand, you may want to set the correct depth using the tool and then transfer this measurement to the clock. Many clocks have an adjustment on this centre distance, either a bridge held with set screws or an offset screw which carries the pallet arbor pivot hole.

Going further, you can use the depthing tool when you need to change the placement of adjustable pallets. These are held in the pallet body with small screws. The tool allows quick adjustment and observation without mounting the escape wheel and pallets in the clock after each try — a very time consuming operation. You can make your adjustments quickly in the depthing tool. Before you touch adjustable pallets, however, be sure that they are the problem!

Using the Large Runner Tips

The runner tips are used with large arbors on grandfather clock chain wheels and second wheels from large clocks. They fit over the ends of the runners and provide wide-angle points and larger holes to hold the pivots. Most of your work will utilize only the runners, but these large tips will enable you to work with large arbors whenever it is necessary. Figure 6

These are a few of the uses of the Depthing Tool. The tool will speed your work and make it better.



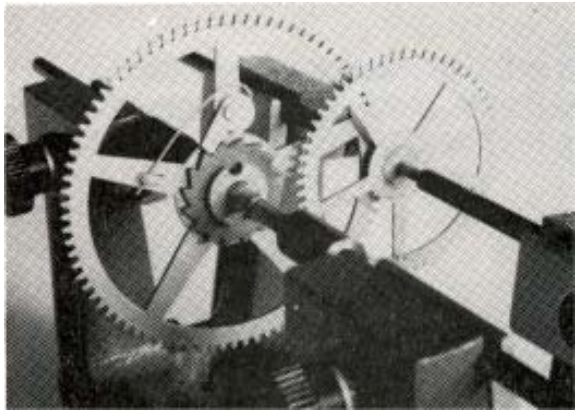


Figure 2

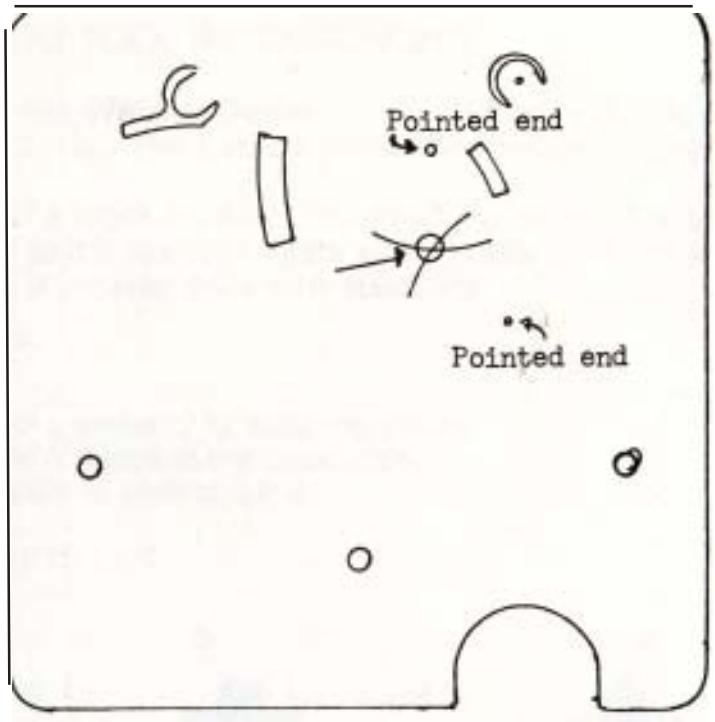
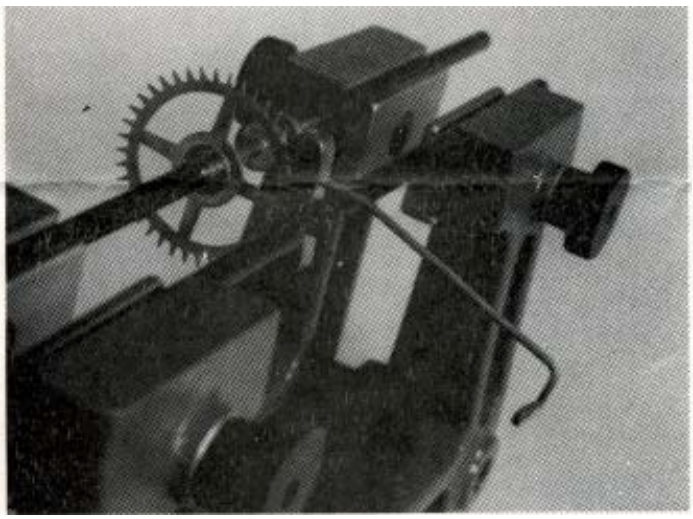


Figure 3 and 4



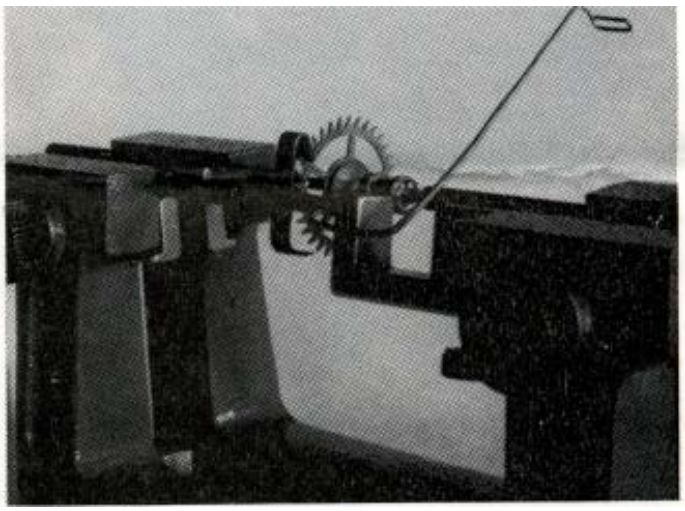
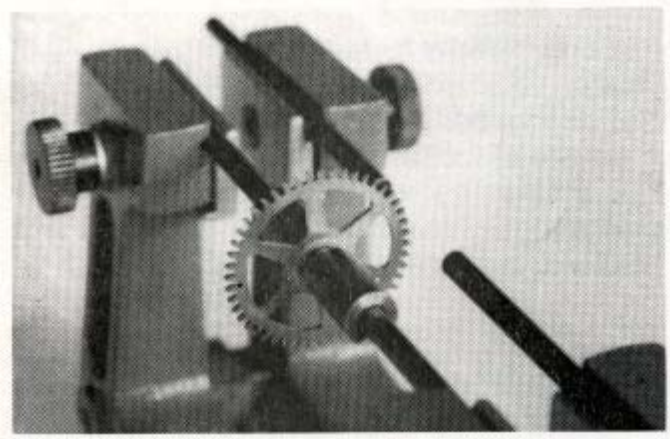


Figure 5



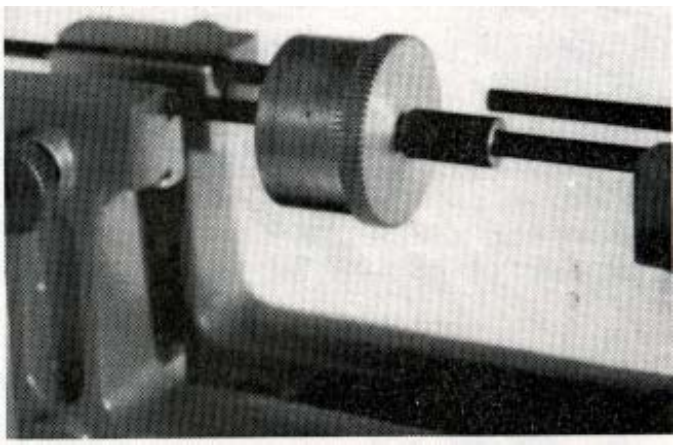


Figure 6