

Problems with platform escapements

Arthur Jones continues his series of practical workshop articles.

If in need of attention, the platform escapement as fitted to French carriage clocks and timepieces can present considerable difficulties to a repairer. The easiest way out is often seen as replacing the original platform escapement with a modern one. However, as a profession, horologists are increasingly becoming aware of the need to preserve a clock as closely as possible to its original condition. This includes retaining as many of the original parts as possible, and so restoring the platform escapement becomes part of the overall restoration process. Not only does this preserve the authenticity of the movement and its parts but, as we shall see, restoring an existing platform can in fact be less expensive and time consuming than fitting a modern replacement.

Having an existing platform escapement restored

A preliminary examination of the platform by the repairer will enable him or her to decide whether its restoration is within their capabilities or whether they would benefit from the advice of a specialist restorer, and whether or not its repair is financially viable (**Photo1**).

If an existing platform appears to be complete but has a broken balance staff or cylinder, or a cracked jewel hole, restoration is quite straightforward, though it must be borne in mind that some cylinder sizes are becoming hard to find.

When parts of a platform escapement are difficult to replace, such as missing pallets in the case of a lever escapement, or a missing cylinder and balance in the case of a cylinder escapement, restoration becomes more involved and is, therefore, likely to be more costly.

After this cursory visual inspection it is important to be aware



2: A restored period platform.

of a platform and its associated wheel train the repairer needs to carry out a wheel and pinion count and measure the diameters of the platform escape pinion and of the wheel it meshes with. Also check that the balance spring rating is correct for the given wheel count.

Having carried out this preliminary investigation the repairer will be in a position to decide whether the platform and its gear train are a perfect match and to discuss the extent of restoration needed with the platform restorer. If in any doubt the repairer ought to send the platform with the wheel count and with either the contrate wheel or the fourth wheel, for clocks whose platform is mounted on the backplate. Better still, send the whole movement. Unless the restorer is made fully aware of the extent of restoration to be undertaken, it is unrealistic to expect him or her to give an estimate. (**Photo 2**)

Fitting a period replacement platform

It is possible to obtain original period replacement platforms that are supplied fully reconditioned and lubricated. This is usually done on an exchange basis.

Once again the train count has to be checked in relation to the balance spring rating in order to assess whether they match. If the balance spring rating differs significantly the repairer must possess the skills to alter the number of vibrations per minute. The meshing between the platform pinion and the contrate or fourth wheel is also crucial. Module sizes must be the same. When the platform is tried on the clock it may be exactly the same size as the original but the escape pinion and cock may be in a different position. This may lead to dephasing problems with the contrate wheel which may have to be moved and re-collected in a different position on its arbor, as shown in **Photo 3**.

The mounting holes on the replacement platform rarely line up with the ones in the clock plates. Therefore a choice has to be made, whether to plug the holes in the plates and re-drill and tap or to elongate slightly them on the platform.



1: Cylinder platform beyond economic repair.

of some technical details. A platform does not function in isolation and it is imperative to consider the escapement and the gearing that drives it as one. There are, unfortunately, cases when platforms have been replaced during the life time of their movement or had their escape pinions replaced by pinions of the wrong module or leaf count or, possibly, had their balance spring tampered with. To check the authenticity

Modern replacement platforms

There may be circumstances under which an existing platform is replaced by a modern platform. If a repairer and his or her client arrive at such a decision they should be aware of the mechanical difficulties that may lie ahead.

As in the case of original platforms, a modern replacement must be looked at as an integral part of the clock movement. Several factors come into play and it is therefore essential to adopt a clear and planned approach before purchasing a new platform.

The issue of size is important. The width and breadth of the new platform must be adequate to span the plates and the original mounting holes of the movement. The drop of the pinion (the distance protruding under the platform to engage the contrate or fourth wheel) must also be suitable. Suppliers' catalogues give sufficient data to serve as a guide in selecting a correct size.

Unlike original platforms which are rated to suit the original gearing, all modern platforms are rated at 18,000 vibrations per hour. Therefore there is a need to undertake a wheel count from the centre wheel upwards in order to ascertain whether the gearing has to be modified or not.

The wheel train count should only be investigated after checking the module size of the new platform pinion against the existing contrate or fourth wheel. The diameter of the escape wheel pinion is not stated in suppliers' catalogues but is available from their technical teams.

If the meshing is incorrect and the wheel needs changing, now is the opportune time to check that the wheel count is correct for an 18,000 vibrations per hour train, as it may be possible to make the necessary change on the final driving wheel.

The next step consists of checking the position of the contrate wheel with the platform pinion. If the depthing is too deep or too shallow with the platform in the correct position, the contrate wheel may have to be moved and re-colleted on its arbor until the depthing is correct (**Photo 3**).

Before this operation is carried out, set the end shake up on the contrate arbor using the adjusting screw on the small cock on the back plate. This screw is to set-up the end shake, not to set the contrate wheel relative to the platform pinion. The four holding screws are for that purpose.

It is imperative to dismantle the platform, leaving only the escape wheel and pinion in place, before establishing the correct position of the platform and drilling the fixing holes.

When the platform is in its correct position and the gearing is in depth and running freely, mark, drill and tap one fixing hole and hold it in place with one screw. The other three holes can then be marked off and drilled and tapped.

Finally clean, assemble and lubricate the platform and movement.

Fitting a new platform escapement is not as easy as one might first imagine. It is usually a time consuming job, requiring knowledge, skill, patience and often some specialised equipment. Rarely can a new platform be fitted without carrying out some small alterations to the movement. Before advising a client and arriving at an accurate estimate the repairer must be aware of the whole process of assessing what has to be done. If we add to the cost of purchasing a new platform escapement that of fitting it onto the movement, the cost involved might be as high as the cost of restoring an existing platform. To that cost, of course, must be added the depreciation in the value of the clock being restored.

The BHI runs an excellent course on overhauling platform escapements. However, it is true that cutting and fitting a pallet jewel, turning a pallet or a balance staff demand a great deal of skill, experience and equipment. They are best left to the specialist. But with a modest amount of equipment, most repairers, if adopting a well trained approach, should be able to carry out the basic overhauling of an escapement. Not only will they retain an original part of the movement they are restoring, but very often they will do so at less expense and with less difficulty than if they had opted for a modern replacement.

Arthur Jones

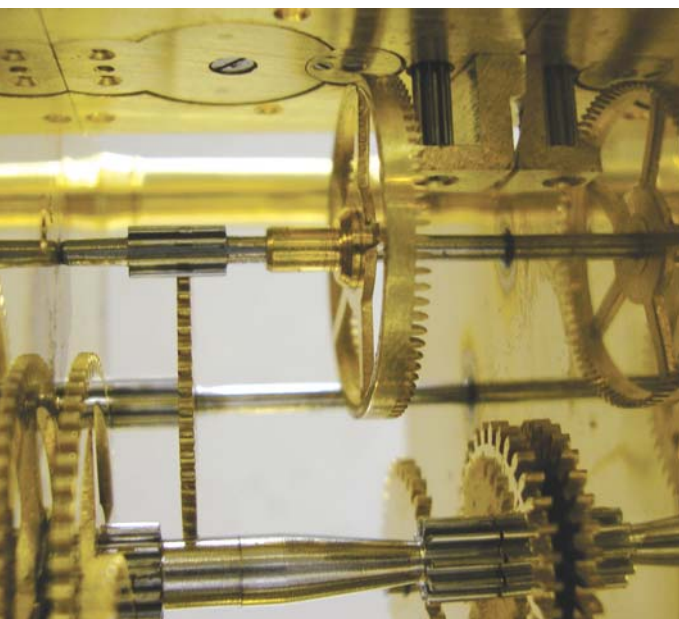
PAINTED & BRASS DIAL RESTORATION



Careful, sympathetic restoration
done the way you want it.



John Nicholls & Wayne Brereton
at R. Loomes MBHI FRSA Clock Restoration
3 St Leonards Street, Stamford
Lincs, PE9 2HU
Tel: 01780 481319
www.dialrestorer.co.uk/3.html



3: Contrate wheel needs re-colleting towards front plate.