



THE ELGIN SERVICE BUREAU BULLETIN

Subject:
Cleaning and Oiling

Issued by the
Elgin National Watch Company
Elgin, Illinois, U. S. A.

Introduction

AMONG the many inquiries addressed to our Service Bureau, we find the most common to be: "What is the best way of cleaning and oiling a watch movement?"

In this Bulletin we describe the method used in our factory in cleaning movements and also add some remarks on oiling, which necessarily must be done after cleaning.

CLEANING

Before a watch movement receives a final cleaning preparatory to assembling, all repairs necessary to put the movement in good order should be carefully made.

If any of the steel work shows signs of rust it should be removed with a suitable abrasive mixed with oil. Fine Arkansas oilstone powder, coarse diamantine or "red stuff" will be found satisfactory for this purpose.

To remove rust from the leaves of a pinion, prepare a piece of pegwood, making it wedge-shaped. Mix a little of the abrasive with oil and rub the rusty surface with the pegwood until the rust is removed. The finish may be restored by using a similar peg and fine diamantine.

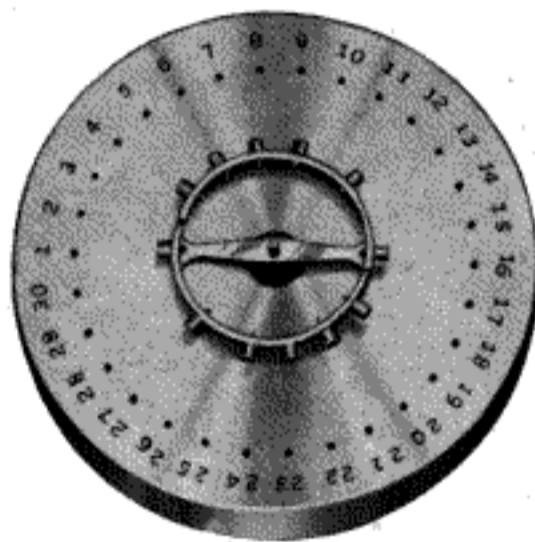
Rust may be removed from flat pieces, such as clicks, small springs and stem-wind wheels, by rubbing them on a fine flat oilstone or on a piece of Hubert paper laid on a perfectly flat surface.

If the pivots show lines from wear or are blackened they should be carefully re-polished.

If the balance wheel is rusty the screws are first taken out and the rust removed by rubbing with pegwood and a fine abrasive. The balance should be thoroughly washed in benzine before screws are replaced, and a medium stiff toothbrush will be found suitable for this purpose.

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In replacing the screws great care should be taken to replace them in their original positions. A little brass stand with a sufficient number of holes to receive all the screws will be found a convenience. We show an illustration of such a stand and it will be observed that each hole is numbered.



Balance screw stand

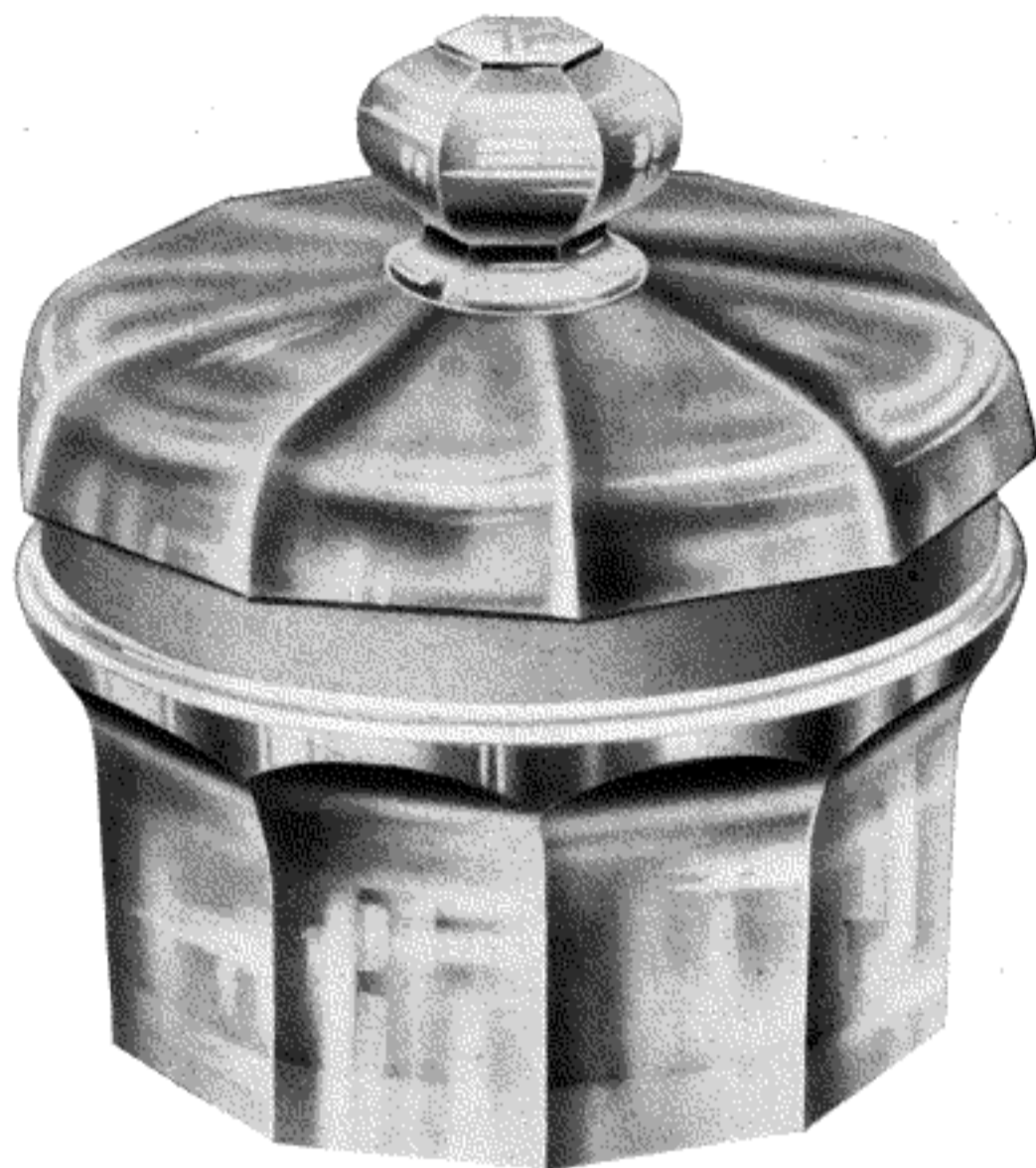
After replacing the screws in the balance, see that it is in perfect truth and poise.

We will now proceed to a general cleaning of all parts.

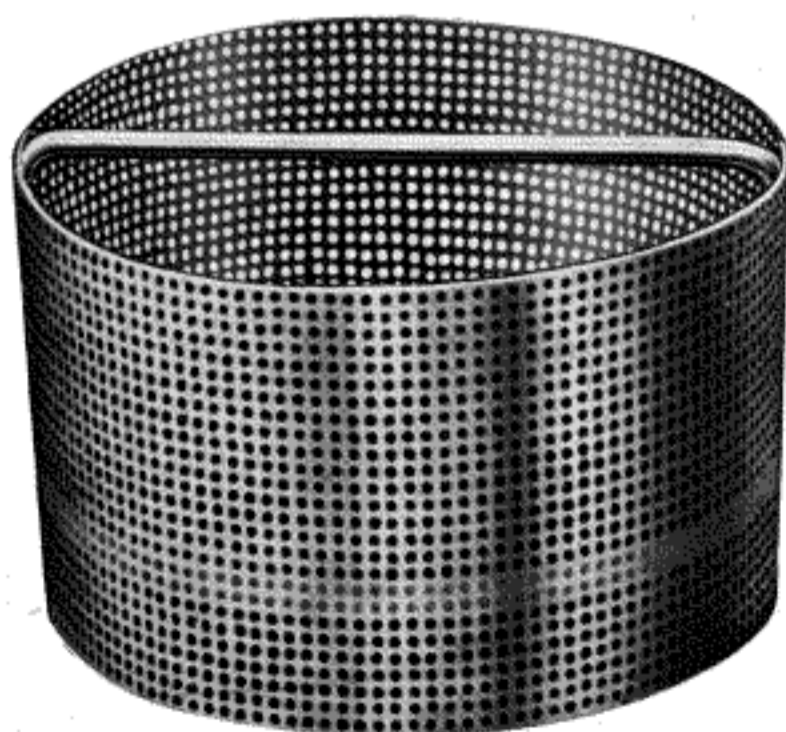
An ordinary alcohol dish partially filled with benzine should be made ready using a metal strainer similar in form to the one we illustrate, such as will fit loosely in the dish.

As the watch is taken down, each piece should be placed in the strainer

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Alcohol Dish



Metal Strainer

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which is then immersed in the benzine, to loosen the decomposed oil and dirt. Agitate the benzine slightly by giving the strainer a circular and up-and-down motion and the residue will settle to the bottom of the dish.



Cleaning wires

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In removing the mainspring from the barrel be careful not to distort it, and if cleaned with tissue paper, have the fingers with tissue in them, follow the natural curve of the spring.

If the coils of the spring are straightened or distorted in the cleaning it is very liable to break after replacing in the barrel.



Watch brush

Provide two or more wires, similar to the ones illustrated, and on one wire string the plates, cock and pallet bridge, being careful to keep the pieces back to back in order to avoid scratching them. On another wire string the train, including the barrel, from which the main-spring has previously been removed.

The parts are now ready for washing, which should be done in warm soft water with castile soap, using a soft watch brush.

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After the parts have been thoroughly washed and rinsed in clear water, dip them in grain alcohol and dry them in clean dry boxwood sawdust. It is important that the sawdust be renewed quite often and it should be kept in a covered box or drawer. It is also desirable that the sawdust be kept in a warm place in order that the work may dry quickly and bright.

The stem-wind wheels and other steel parts should now be removed from the strainer, one at a time, and thoroughly brushed with a medium stiff toothbrush moistened with benzine.

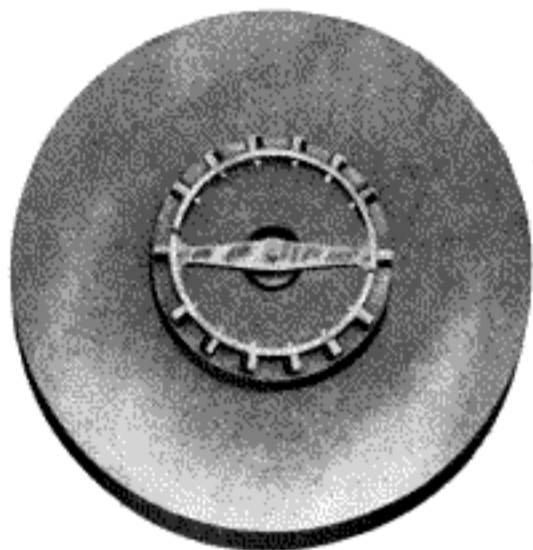


Tooth brush

The pallet-fork-and-arbor may be cleaned in the same way, and all steel parts may be dried between the folds of a clean cotton cloth or in sawdust. If the latter is used have a separate box for those parts that are dried immediately after cleaning with benzine.

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In cleaning the balance, first remove the hairspring. Place the balance on a dipping wire, dip in benzine and clean with a soft brush, being very careful not to get the balance out of shape. Dry in



Balance cleaning block



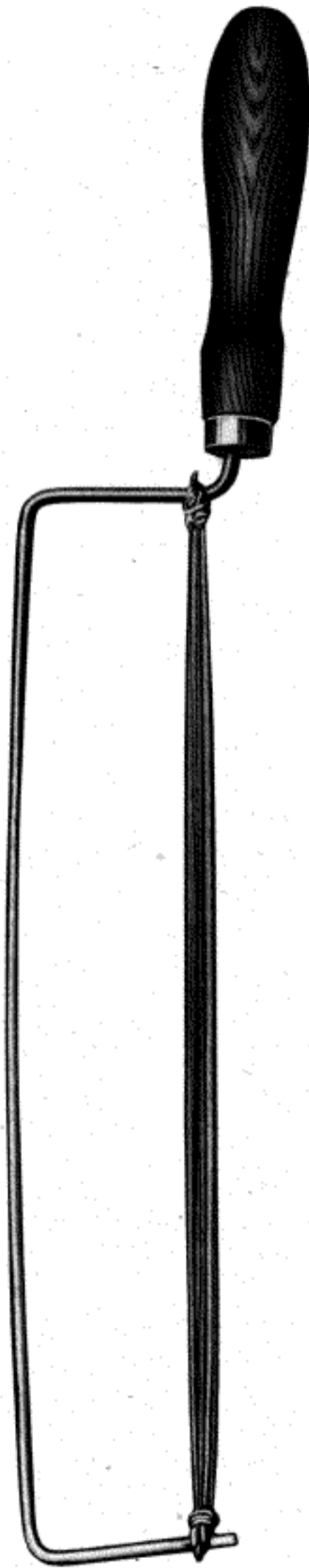
Balance holder

sawdust directly after the benzine washing. Its brightness may be restored by buffing. Rest it on a little block having a hole large enough to receive the roller, and buff both faces of the balance and the sides of the screws with a flat chamois or buckskin buff.

The balance is then held in a little holder which exposes the edge and is buffed with a bow made of strings cut from a chamois skin.

The bow strings and buff may both be charged slightly with rouge, but great care should be used to remove the free rouge from them by rubbing on a clean cloth.

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Balance cleaning bow

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Jewel pusher

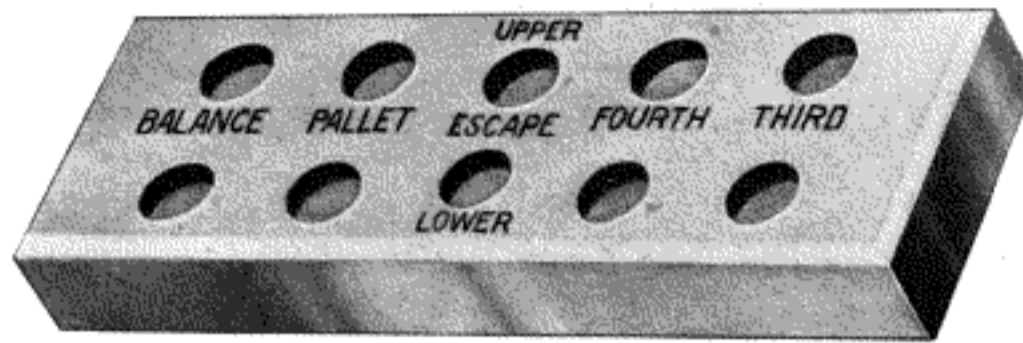
All jewels that are capped (with end-stones) should be removed and both the hole jewels and the cap jewels thoroughly cleaned in alcohol by brushing with a tooth brush. In pushing the jewel settings from the cock and plates, be careful not to mar them. This operation may be done with a piece of pegwood of proper form or with jewel pushers made to suit the different diameters of settings. A pair of tweezers with points curved to conform to the circle of an average-sized jewel setting will be found a convenience for holding the jewel firmly on a flat surface while washing.



Jewel washing tweezers

Great care must be taken not to mix the jewels and it is a good plan to have a little block, either of wood or metal, preferably the latter, with several holes (in pairs) to receive the jewels as they are removed. In arranging a block for this purpose, have the holes in the block large enough to receive both the hole jewel and its end stone.

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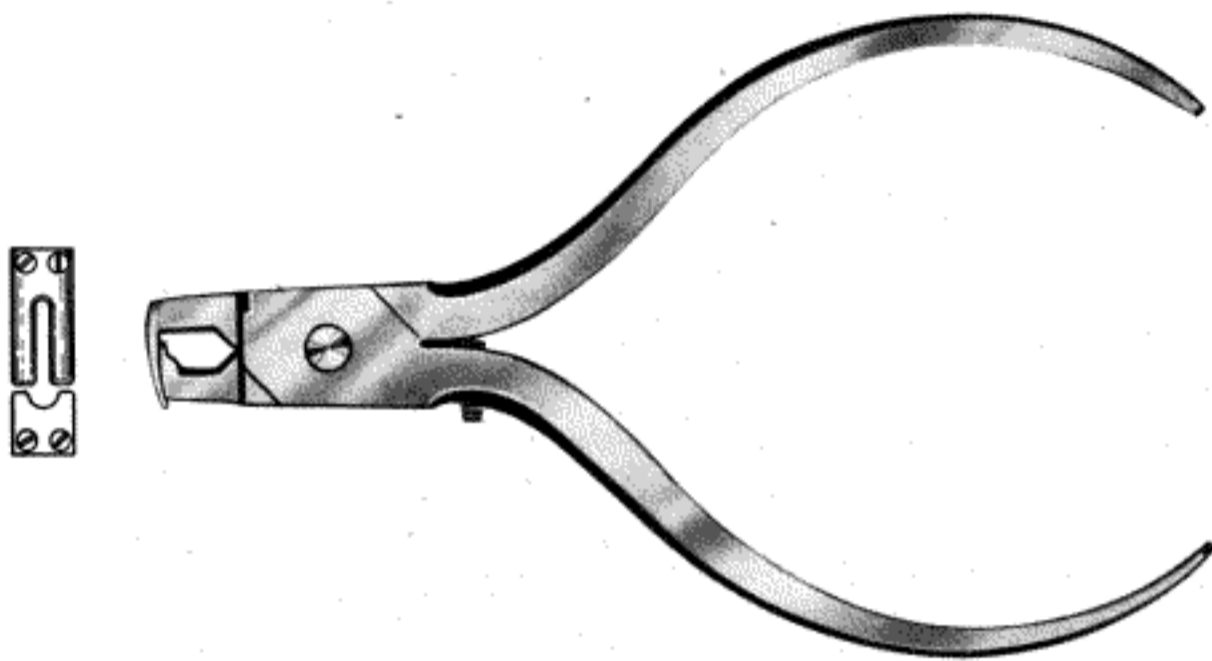


Jewel holding block

If the hairspring is oily, the oil may be removed by dipping it in clean benzine. Care must be taken not to distort the overcoil of a Breguet spring and it may be dried by laying it on a clean cloth, which will quickly absorb the benzine.

Do not in any case dip the hairspring in water or in a solution of cyanide, and in removing it from, and replacing it on the balance do not distort it in any way. The spring may be removed either with hairspring removing pliers or by inserting a steel wedge in the slot of collet, far enough so that it is sprung open sufficiently to permit of its being raised from the staff with the wedge.

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Hair spring removing pliers



Hair spring collet wedge

After brushing all parts with a soft dry watch brush to remove sawdust, all pivot holes, whether they be metal or jewel, should be thoroughly cleaned with a piece of sharpened pegwood. Clean the pivots with burdock, elder or broom-corn pith. The latter is not as close-grained as burdock or elder and may be improved by rolling on a flat surface with the hand. Examine the teeth of wheels and pinions and see that all residue has been removed. Should any be left that cannot be brushed out, remove it with a piece of sharpened pegwood. Jewel settings which have become tarnished may be brightened by using a small square of chamois skin,

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applied by placing it on the end of a piece of pegwood which has been previously shaped so that it will enter the bevel of the jewel settings.

We do not recommend the use of cyanide, as it is a deadly poison, but if it seems necessary to use it for cleaning badly tarnished gilt or nickel work or removing stains, the following will be effective:

Dissolve one ounce of cyanide of potash (potassium cyanide) in 3 pints of water. String the parts to be cleaned on a wire and dip in this solution for five or six seconds. Remove and rinse in running water for a minute—then in grain alcohol, drying finally in warm, dry boxwood sawdust.

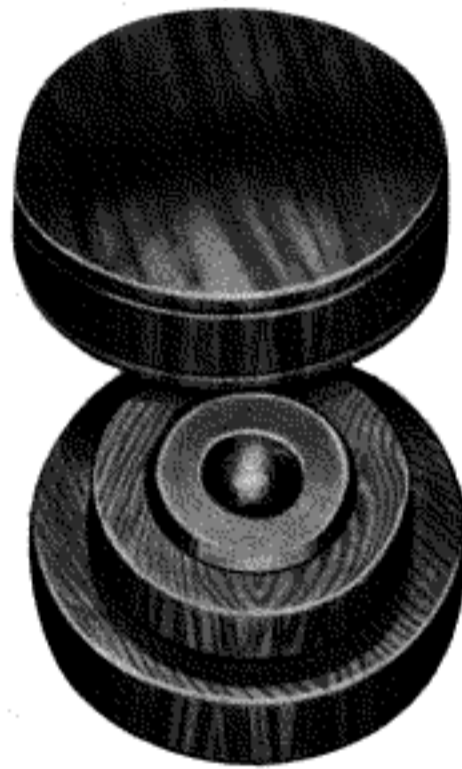
Cyanide should be kept in a glass or earthen jar having a closely fitting stopper or cover and be sure to label it "POISON".

After gilt or nickel parts have been washed they should not be handled except with soft tissue paper and the tweezers.

Wooden assembling blocks, such as may be had from the tool and material dealers, will be found very convenient.

OILING

Shallow agate oil cups mounted in boxwood will be found satisfactory for the small amount of oil necessary for daily use. Keep the oil cup covered when not in use and clean thoroughly before filling with



Oil cup

fresh oil. The small bottle containing your stock of watch oil should be carefully corked and kept in a dark, cool place.

A pivot broach flattened on the end and slightly pointed so that it is dart-shaped makes a very satisfactory oiler. It should be inserted in a neat handle and have a little piece of flat metal (filed octagonal in shape) placed on the oiler just above the handle, to keep the point of oiler off the bench.

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Oiler

In assembling the watch, the balance jewels, also all capped pallet and escape jewels, should be oiled just before they are placed in position. This is important as it sometimes happens that the oil does not work through the hole jewels to the endstones and the result is that the ends of the balance pivots run dry, thus pitting the endstones and causing a grind.

In oiling the end stone be careful and place the oil directly in the center of the jewel and a very small globule is sufficient.

Oil the barrel arbor pivots before placing in the barrel, and also oil the edge of mainspring sufficiently so that the oil will work in between the coils.

The center staff, on account of its location so close to the source of power, is apt to become worn unless the pivots are well oiled. We have found it a good plan to put a little oil on both pivots of the center staff before placing it in the watch.

Because of the slight shake allowed the pallet arbor pivots it is best to oil them before placing the pallet in position, as otherwise the shoulders of the arbor might not receive oil.

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While the watch is being assembled, the bearings of the stem-wind wheels and winding pinion should be oiled, as well as all pivots. The face of each pallet stone should receive a very little oil. Never oil the jewel pin or the teeth of any of the wheels or pinions.

If the oiling is done sparingly and carefully no trouble will be experienced with the oil creeping to other parts of the watch.

**NOTES THAT WILL BE
FOUND HELPFUL**

If the plates become finger-marked or slightly oily, after being assembled they may be cleaned with a buff stick dipped in benzine. Strike most of the benzine from the buff by rubbing it on a clean cloth before drawing it over the plates. The buff must be almost dry, otherwise the oil may be dragged out of pivot bearings.

Avoid the use of chalk, burnt bone or anything of like nature, for cleaning or brightening the plates or other parts after washing, as some of the dust is liable to work into the pivot holes or pinion leaves, where it will cause trouble after the watch is assembled and oiled.

The term "red stuff" is applied to rouge of the kind used in polishing steel work. It may be had in several different grades of coarseness.

Diamantine will be found very useful for polishing both steel and brass work, and comes in different grades of coarseness. The diamantine used for steel is different from that used for brass or other soft metals.

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After cutting the chamois strings for use with the balance cleaning bow, soak them in alcohol before stringing. This gives them additional strength.

If, for any reason, the pallet with stones fitted or roller with jewel are put in alcohol, bear in mind that pallet stones and jewel pins are set with shellac and unless soon removed from the alcohol will become loosened by its action upon the shellac.