NOTE: This electronic copy of the SEITZ Jewelling Manual is provided for your *personal use only*. It shall not be copied, distributed or sold without the express permission of NAWCC Internet Horology Chapter 185.

"Helping Hand" Tutorials by John D. Duvall

SEITZ

"SEITZ" FRICTION-JEWELS

specially manufactured for the watchmaker!

Up to the present all Jewels sold to the watchmaker were of the same large variety and second quality cast out by the watch factories.

The watchmaker had to be satisfied with this inferior quality, as there was nothing better obtainable. In a few years his assortment of jewels became a mixture of useless jewels.

For this reason Mr. Pierre SEITZ created an assortment of high-class jewels specially manufactured for the purposes of the watchmaker.

This catalogue is also printed in French and in German. Also all indications in the cases are given in French and in German on demand.

INDEX:

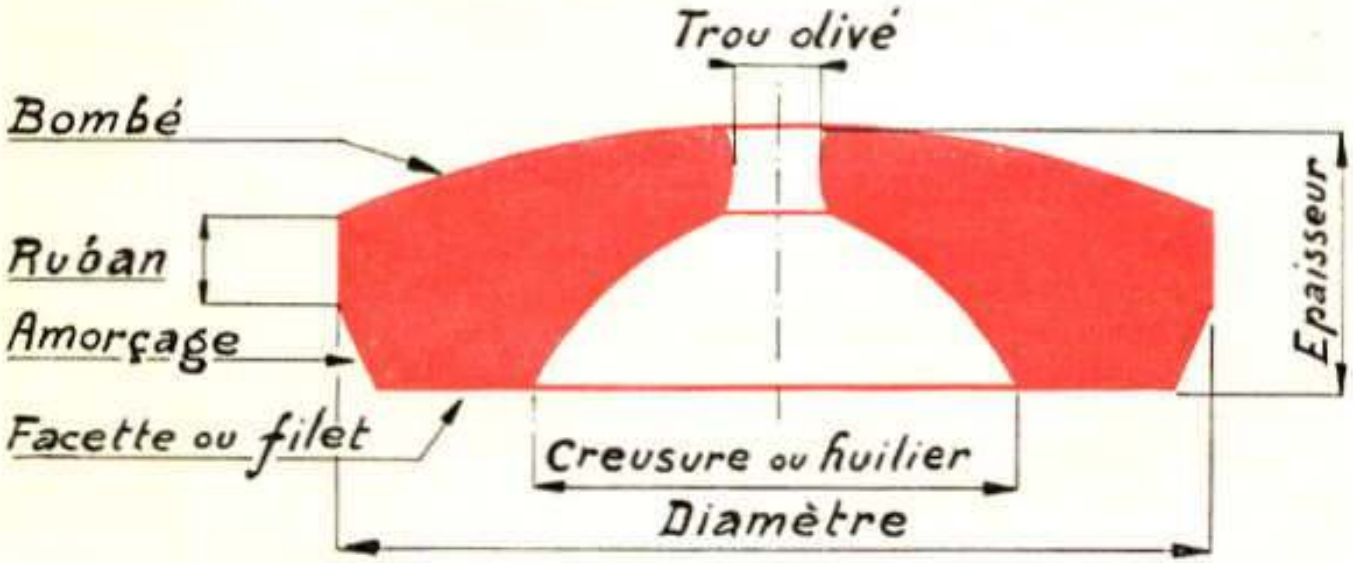
SEITZ' Outfit :

Friction jewels Seitz :

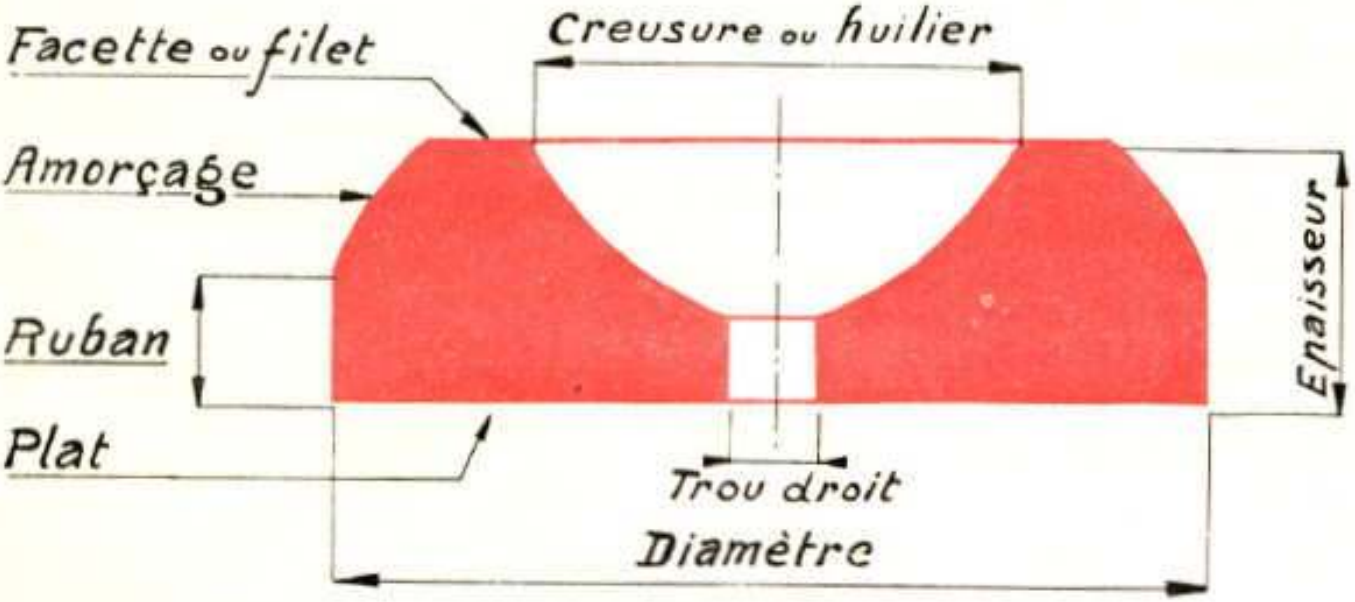
What is to be bought?

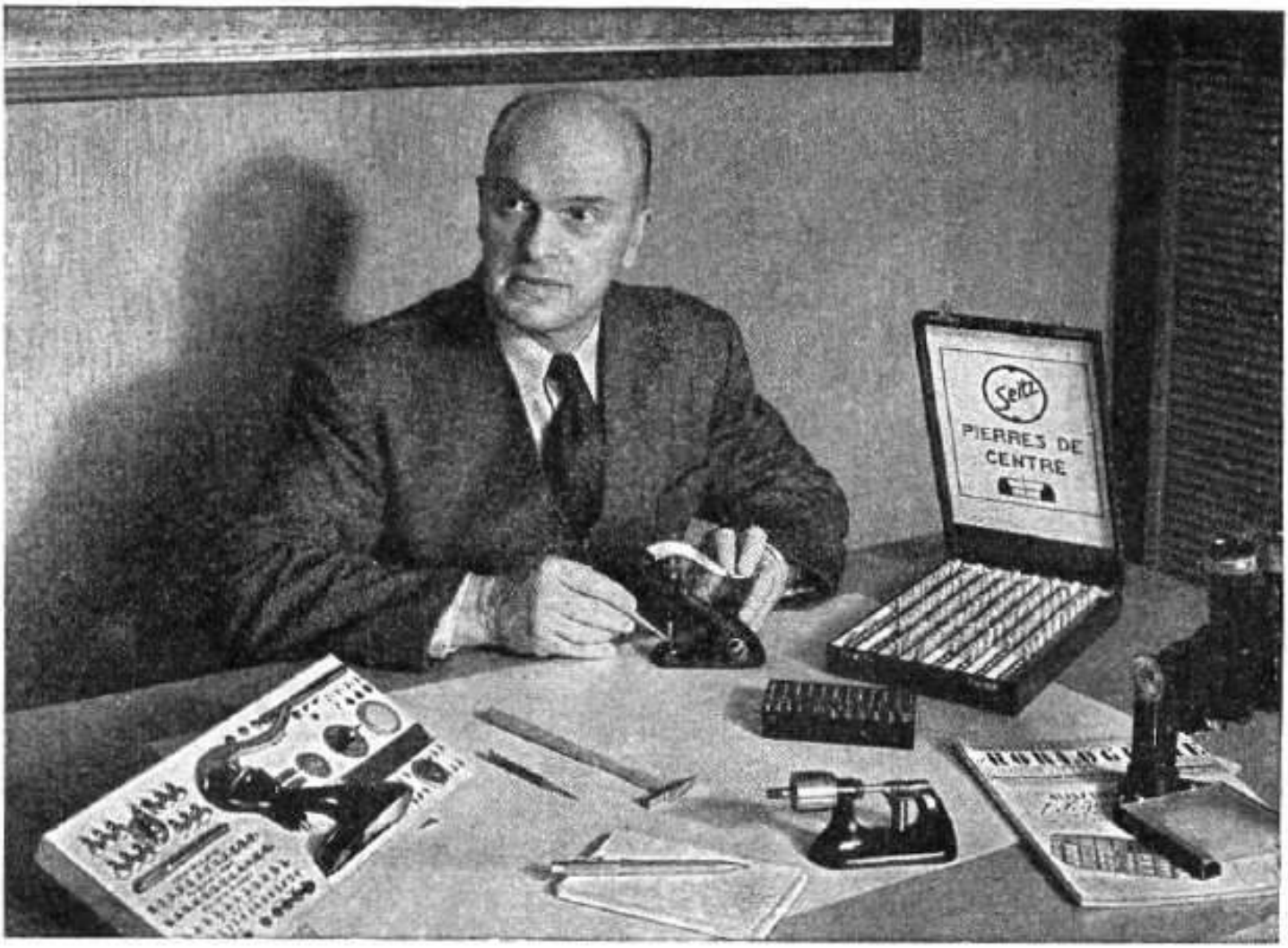
Appropriated terms of the jewel referred to in the directions on using the various tools «SEITZ».

Pierre de balancier



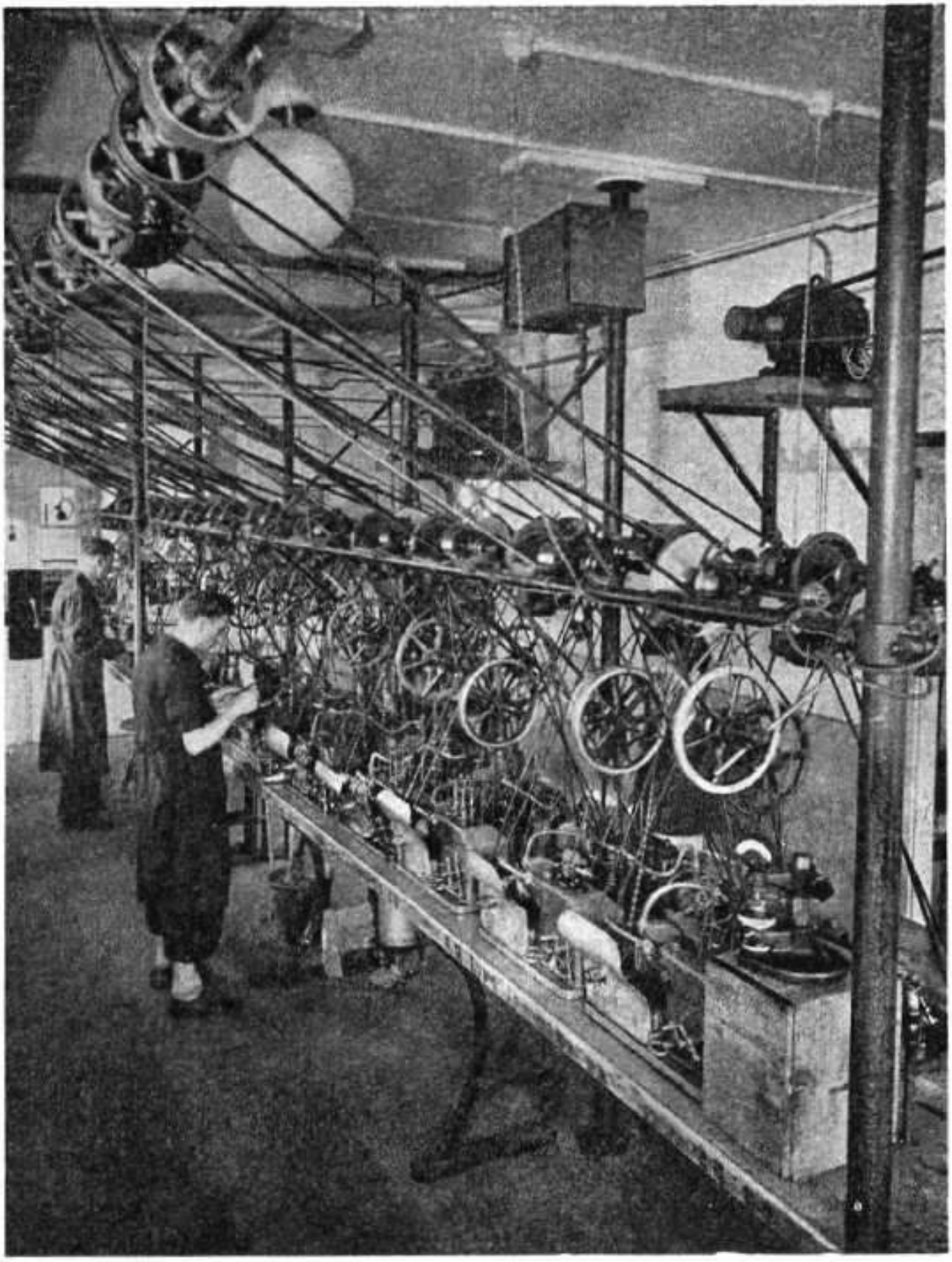
Pierre glace





Mr. PIERRE SEITZ,
manufacturer of the jewels
and jewelling tools
«SEITZ»

Some aspects of the workshop Pierre SEITZ:



Working the jewels to the precise diameter

Finishing the friction jewelling tools

Preparing the assortments of jewels

Recent developments in the process of repairing Watches

The layman is generally not aware of the contradictory qualities that he can expect from his faithful companion of life.

He desires a very precise watch, and this can only be obtained by reducing the diameter of the pivots to a minimum and by providing the points of pivoting with very hard stones, which are very breakable.

Fashion caused an extraordinary development of the wrist watch to the detriment of the pocket watch. The reduced size of the first renders however their manufacturing more difficult and the working of its parts more sensitive to the minutest defects. A watch worn on the wrist is much more exposed to shocks than a pocket watch, and if many modern watches are provided with security arrangements protecting the pivots of the balance staffs against shocks, many other parts, which are not especially protected have to suffer.

If Swiss watches of good makers can hold such contradictory conditions, it is the result of the technical progress of the last decades. Nevertheless, because of its structure and its size, the watch will always be a very delicate instrument that will require from time to time the services of a medical specialist! The physician of a watch is the watchmaker. His tools and working methods remained the same for over 100 years and the treatments he was able to effect were mostly lesser evils.

We must acknowledge that the infinite and daily increasing variety of watches, the many tiny pieces are not made to simplify his work.

Only an expert watchmaker who has acquired great technical knowledge, would be able to put in good working condition a watch entrusted to him.

For the good of watchmaking, some Swiss technical men, amongst whom Mr. Pierre Seitz has to be mentioned as being one of the

first, have been studying for some ten years, the modernization of the tools and the working process of the repairer.

The results of these researches were so profitable that they mark a considerable progress in watch repairing. The jewels are certainly the most fragile part of the watches; a pocket chronometer contains 19 to 21 of them, a good watch 15 to 16 and a lever watch of inferior quality at least 7.

The replacing of a broken jewel was always very difficult for the watchmaker, often impossible to realize to perfection. He had to have in his stock of replacing material a jewel that had exactly the same shape and the same dimensions as the jewel that had to be changed.

For one who knows the great variety of shapes and sizes of watch jewels, there is no doubt that this condition was rarely fulfilled. Because of these circumstances, the watchmaker had to be satisfied with a jewel having as near as possible the shape and desired size.

Thanks to the « Seitz » assortments of jewels especially manufactured for the repairer and to the « Seitz » jewelling tool provided with a precise, simple and very complete equipment, the replacing of a broken jewel is now, in every case, an easy process, rapidly executed and guaranteeing the integral maintenance of good conditions of pivoting. It would take too long to describe minutely, all the steps of this great progress.

In fact, it is due to the practical realization of two ideas, which are:

1. The creation, for the repairer, of an assortment absolutely complete, a minimum number at the least expense possible of first rate watch jewels.

2. The creation of rational, non encumbering tools, easy to handle, very complete and cheap, for replacing watch jewels and bushes. (The bush is a pierced brass-cylinder, that can be used instead of a watch jewel.)

The catalogue of the firm Seitz gives all desired information about details of manufacture and the particular advantages which constitute the realization of these two ideas.

We can say that it is now possible for a watch repairer, to be completely supplied with the necessary tools to do, under the best possible conditions all repairs of the watch jewels and bushes, at an expense of 300.— to 400.— francs (70—95 dollars).

The assortments (repairing cabinets) of «Seitz» friction-jewels of which there are various kinds contain also special jewels for lever escapment, ellipses, pallet stones right and left, cap jewels as well as bushes.

The «Seitz» friction jewelling tool has, in addition to the usual accessories, a broach to press in the jewels, a set of 12 flat pushers, 11 concave pushers, 12 self-centering pump pushers and 15 reamers; of 4 round-face plane hole reducing punches and 5 anvils, and can be completed with some other very useful and well made tools.

Such as the face plate with 3 clamps, the holder for jewels, the set of centering points on spring, the set of pushers and anvils for setting watch hands and the broach with 3 chucks for reamers.

The firm «Seitz» has also created a tool for straightening pivots and several types of metrical hole gauges for measuring pivots. These hole gauges are constituted of very carefully chosen watch jewels that can be easily replaced in case of breaking. The guaranteed precision is of 0,00012 mm.

The «Seitz» materials and outfits are delivered in well designed cases to simplify their use and maintenance.

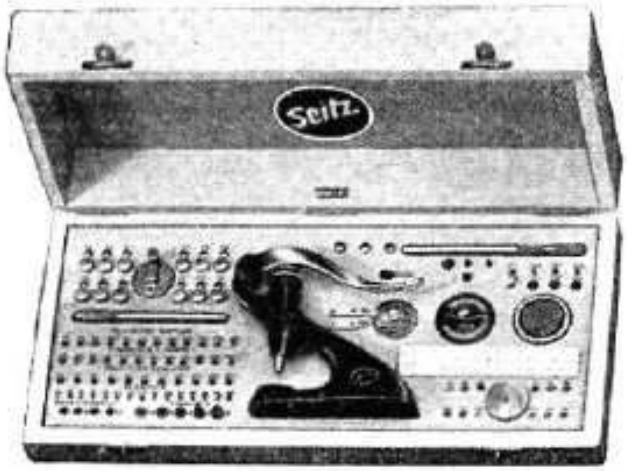
All these materials and outfits are manufactured in series by the most modern mechanical process. This means that they are absolutely interchangeable and in case of deterioration easily replaced at a small cost. At the beginning of this article I have compared the watchmaker to a medical man. Everyone knows that the great scientific discoveries, especially when treating infectious illnesses, have made the use of new methods of great value.

The scope of watch repairing is much more moderate, the remedies which are used, are essentially mechanical and practical.

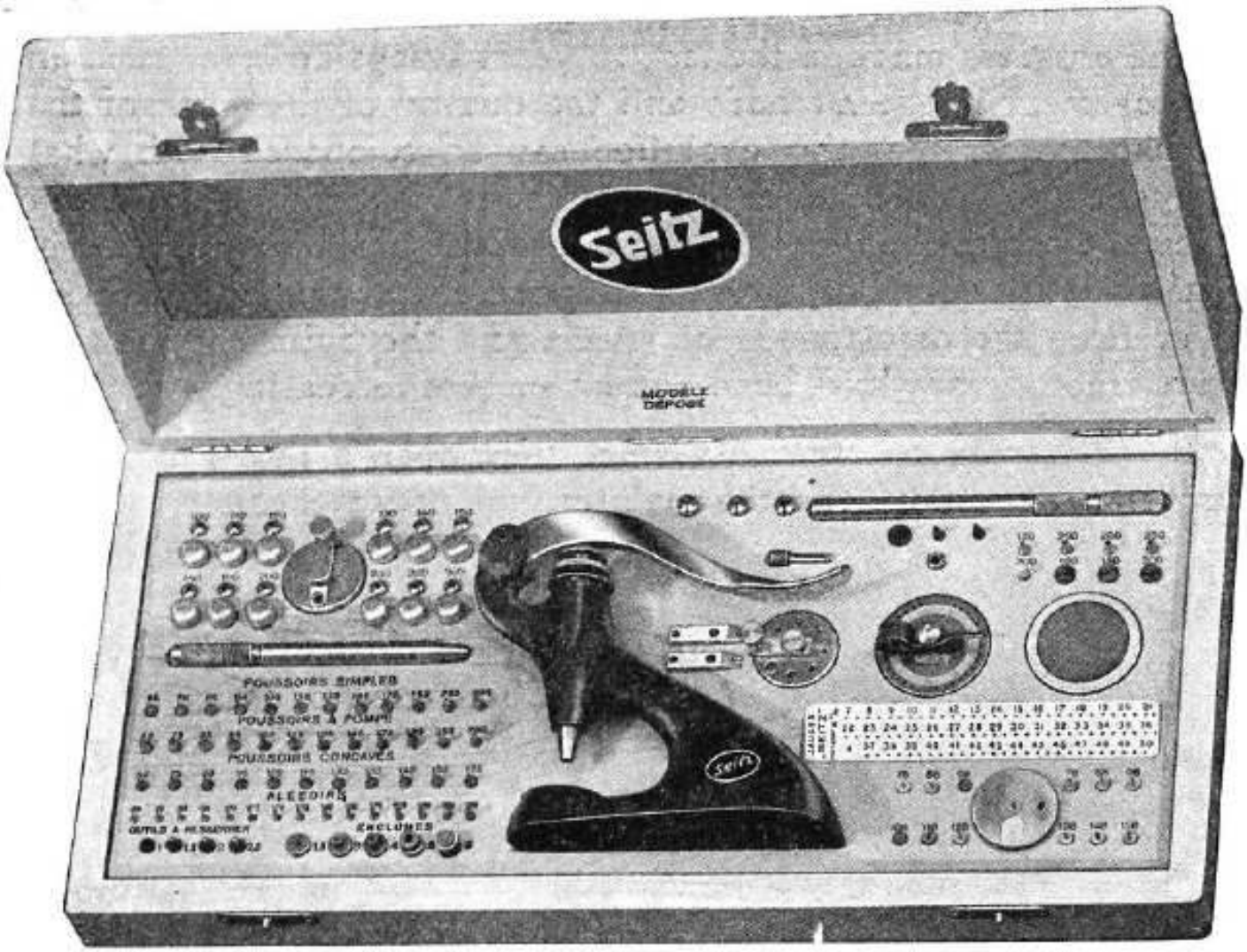
The progress made in the last 10 years brings however such an improvement in the methods and the quality of the work of the watch repairer that this evolution can be compared with what happened to medicine. Empiric methods depending essentially upon the professional ability of the practitioner, have resulted in real scientific methods, which are more efficacious and quicker. Ever since the assortments of jewels and the Seitz friction tool were created, they have been a great success increasing with time.

It can hardly be otherwise since they open a new era in the condition of repairs and the maintenance of watches.

S. Guye
Headmaster of the Watchmakers' school
of La Chaux-de-Fonds.



Complete «SEITZ» friction jewelling outfit in wooden case



Weight kgs : 2.100

Ref. 30150

This assortment is the most complete and precise on the market.
Unsurpassed for the watchmaker's needs in the use of friction jewels.

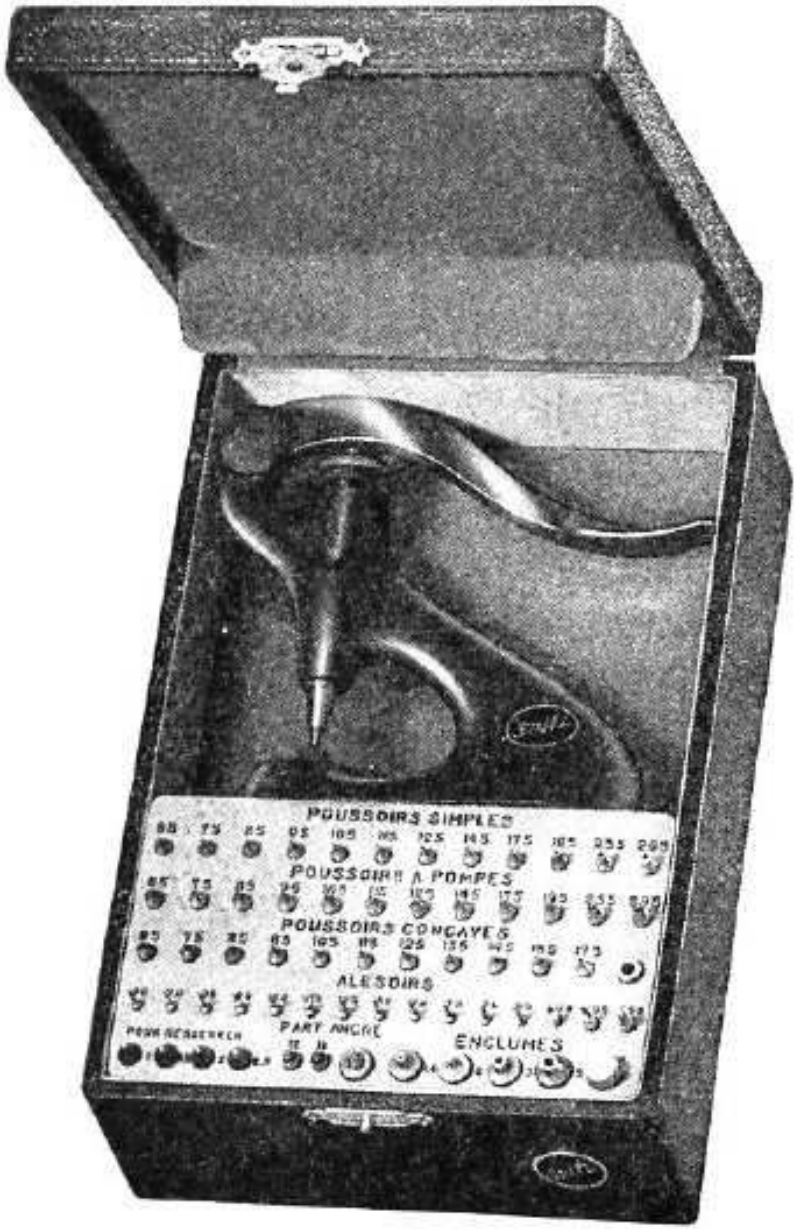
CONTENTS OF THE CASE:

Friction jewelling tool with 12 flat pushers and 5 anvils
Set of 11 concave pushers
Set of 15 reamers with broach
Set of 12 pump pushers
Tools for setting the lever
Set of 4 round-face plane hole reducing punches
Reducing ring
Face plate with 3 clamps
Holder for jewel hole setting
Set of 12 centering points on spring
Set of 5 pushers and 3 anvils for setting watch hands
Handle with 3 chucks
Tool for straightening pivots
Pivot gauge for watch repairers
Centering pump pusher to upright
Grinding stone.

Friction « SEITZ »

jewelling Standard outfit -

in black case



Weight kg. : 1.

Ref. 30300

This assortment is absolutely indispensable for friction jewelling.

CONTENTS OF THE CASE :

Friction jewelling tool with 12 flat pushers and 5 anvils
Set of 11 concave pushers
Set of 15 reamers with broach
Set of 12 pump pushers
Set of 4 round face plane hole reducing punches
Tools for setting the lever
Reducing ring.

All Seitz' accessories of the Standard type are placed on an unbreakable bakelite base.

The «SEITZ» friction jewelling tool

for the repairs with set of 12 flat pushers and 5 anvils. The «SEITZ» friction jewelling tool made of a special alloy and black varnish of the nicest finish.

height 12 cm - weight gram. 400

Ref. 30520

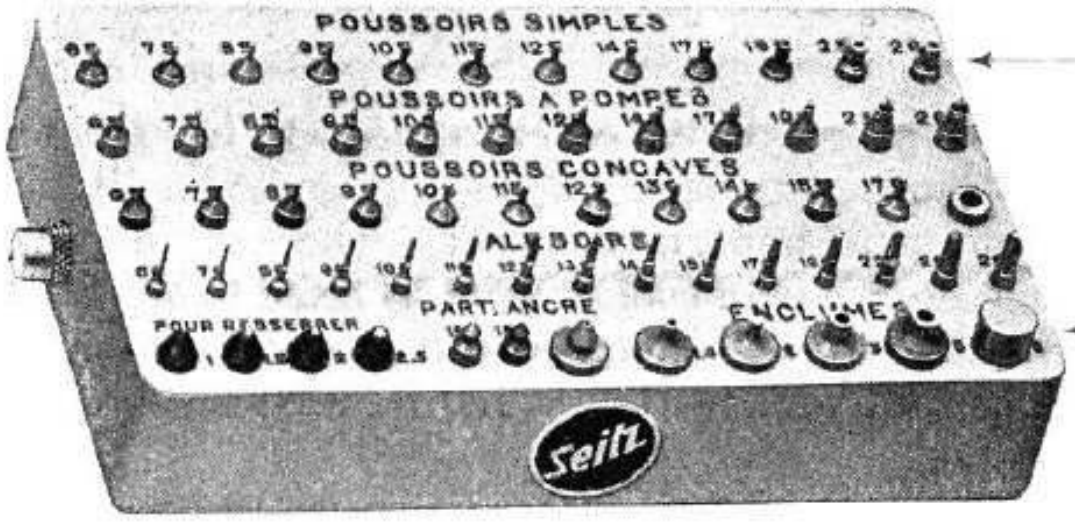
Its elegant and modern shape distinguishes it from all other friction jewelling tools. It is manufactured with such precision that it will give satisfaction to the most exacting watchmaker. Its light weight (400 grams) makes it easy to use, and at the same time gives a perfect layer and great solidity.

It is provided with the following improvements:

1. its chromed lever may be unhooked with great ease (Swiss pat.) to make it less cumbersome when reaming.
2. its micrometrical nut as well as its index with sloped and set off divisions (Swiss pat.) permits an easy and precise reading.

3. The handle of the « Seitz » jewelling tool

is so arranged that the pushers can be instantaneously set into place. This handle naturally belongs to the indispensable set of friction jewelling tools (page 11).



12 flat pushers and

5 anvils

These 17 pieces are always sold with the friction tool «Seitz». They are calculated in its price.

The sets of anvils and pushers are a part of the «Seitz» friction tool. The anvils are placed on the face, the pushers into the handle.

All the « Seitz » tools placed on the bakelite base, are hardened and their diameters rectified, in order to assure perfect interchangeability.

Set of smoothing broachers (reamers) "SEITZ"

Handle for reaming
Set of 15 reamers

Weight : 80 gr.

Ref. 30522

The «SEITZ» smoothing broach, the creation of which has revolutionized the methods of replacing a jewel, is undoubtedly the most precise and most important tool of «Seitz» set of tools. This smoothing broach with conical joint, is fixed to a special handle, having the same diameter as the pressing-broach. It can be interchanged with the latter and be used in the friction jewelling tool.

The «SEITZ» smoothing broach begins with a cutting part with a half round section thus avoiding every off-center of the hole of the bridge or of the plate ; then it continues with a cylindrical part; this last one has a diameter precise to the hundredth of mm. The number of this diameter is stamped on the smoothing broach. It is evident that when the smoothing broach is completely pushed in, the hole thus made will have the exact diameter wanted and will be perfectly cylindrical. The diameter of the smoothing broach is one hundredth smaller than the diameter of the jewel to be forced in.

This design shows the set jewels and the new pressed jewels and the work done by the smoothing broach «SEITZ».

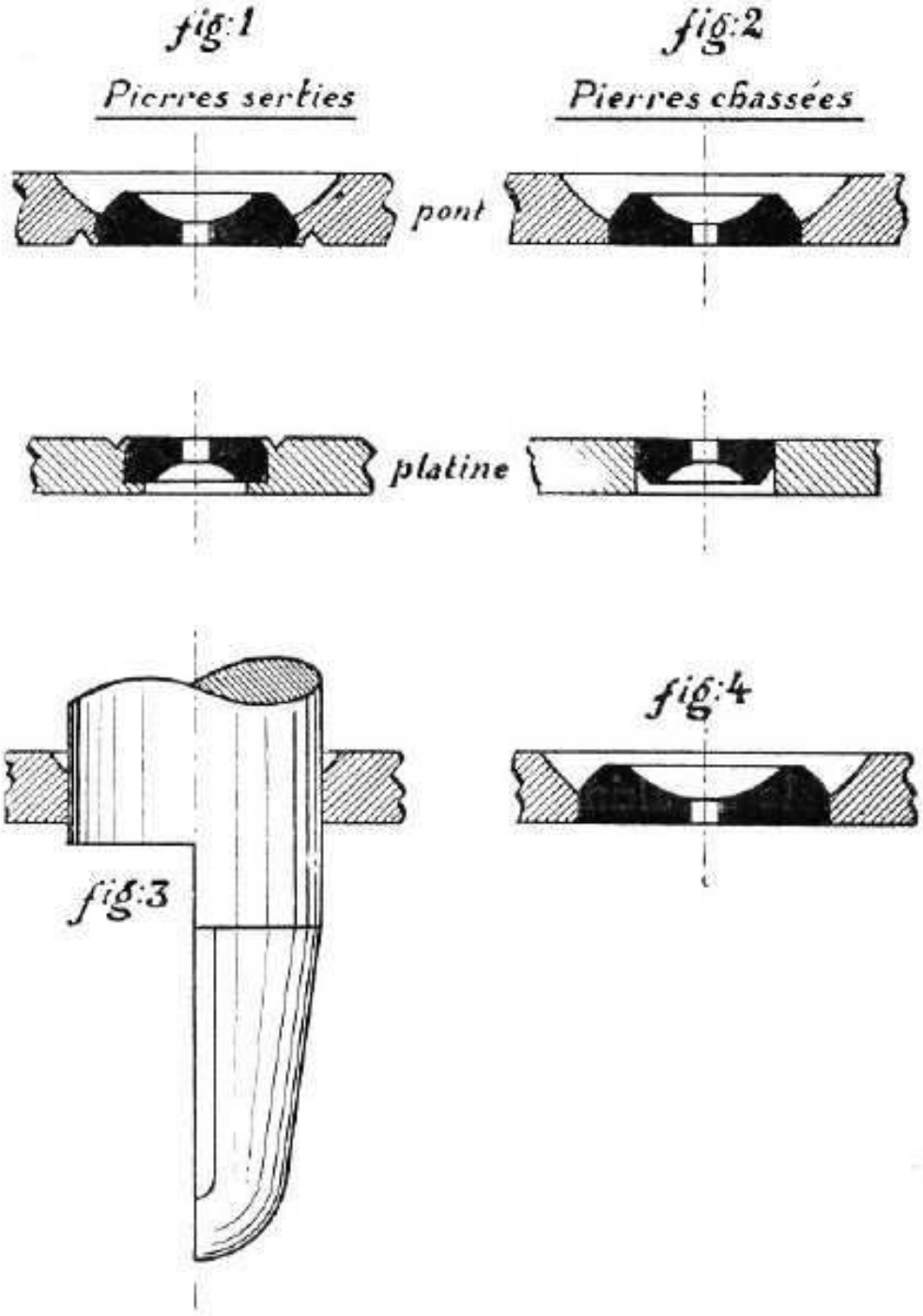
The fig. 1 shows a bridge and a set plate jewel.

The fig. 2 the same with a friction jewel.

Comparing these two draughts it is easy to understand that the *pressed jewel is fixed more rationally than the set one.*

The fig. 3 shows the work done by the smoothing broach, which went through the setting of fig. 1, to replace the supposed broken jewel, by a jewel of a greater diameter. The smoothing broach has prepared a well perpendicular hole exactly one hundredth of mm. smaller than the diameter of the jewel.

The fig. 4 shows the repair when finished.



We insist upon the fact, and any watch repairer will understand it, that the «SEITZ» method which is so simple, is valuable only because of its precision. It is not enough to have a jewel and a smoothing broach; a «SEITZ» jewel and a «SEITZ» reamer are necessary.

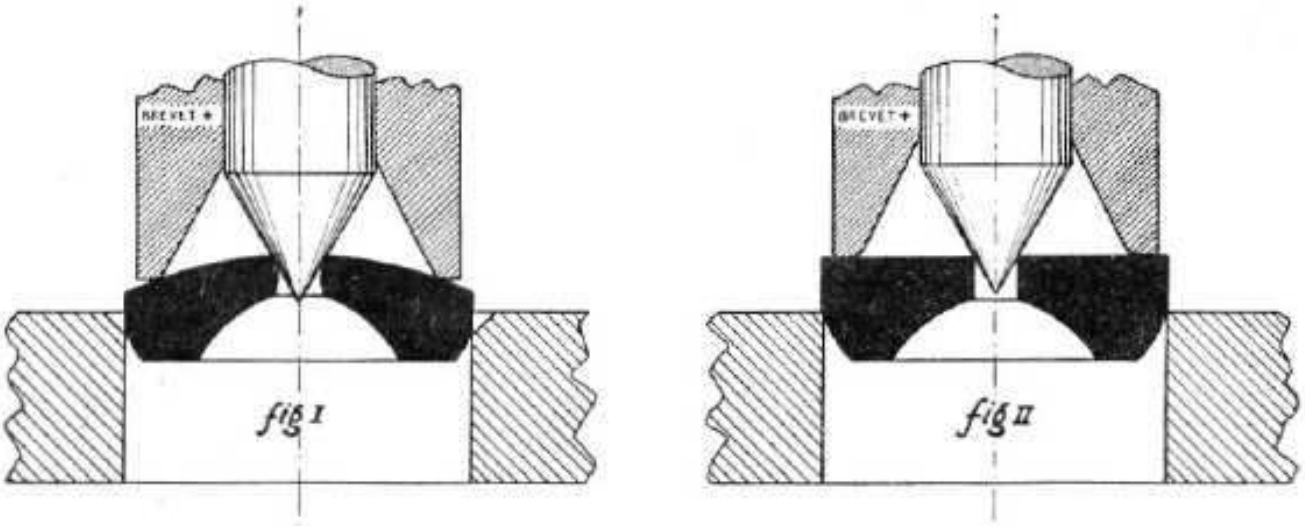
Set of 12 "SEITZ" centering pump pushers

Swiss pat. Nos 75328 & 80599.

Ref. 30523

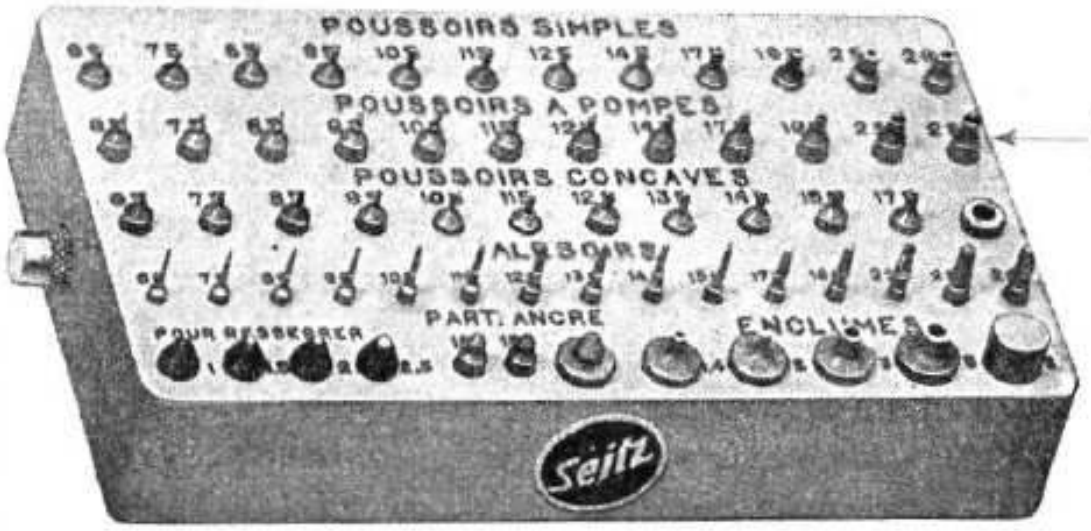
Its advantages:

As shown on the pictures I & II.



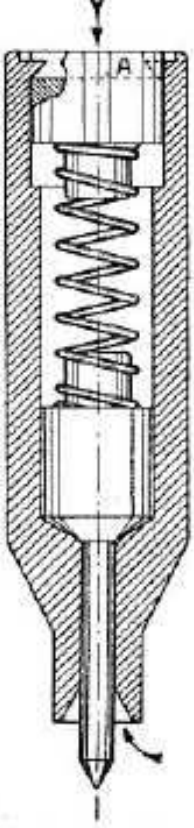
the face of the pusher is hollowed, allowing the pressing of flat and convex jewels. The special shape of the pusher helps the watchmaker to obtain a perfect pressing or displacing, without possible breaking of any jewel.

It is evident that in order to displace the jewel on the other side, that is on the side of the oil sink, you must take a pusher corresponding to the diameter of the facet of the jewel (see jewels page 2).

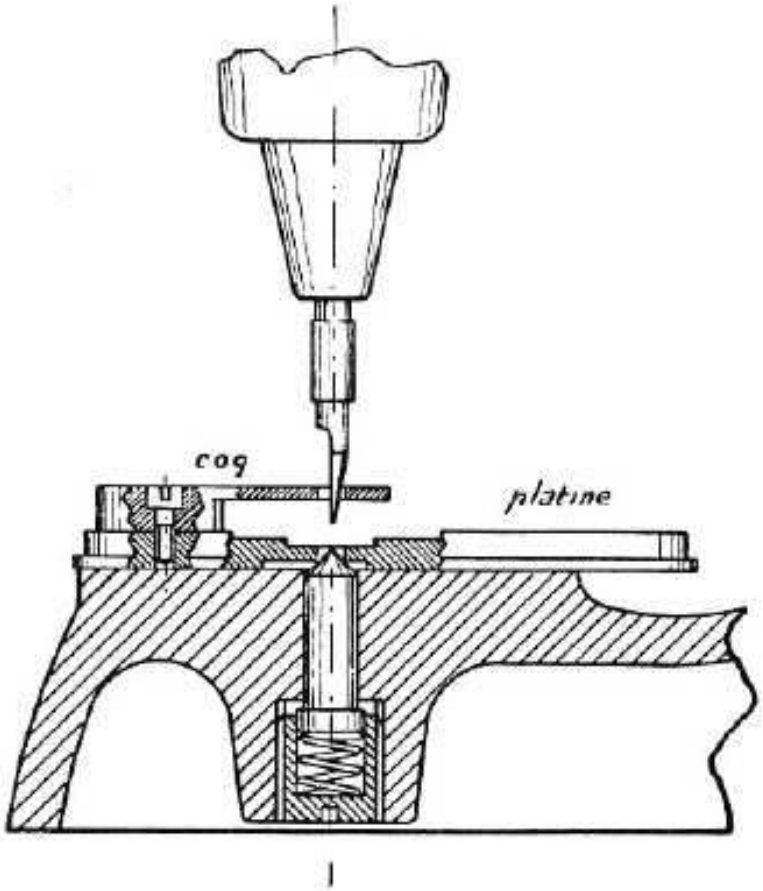


Set of 12 centering pump pushers.

How to dismantle a centering pump pusher:



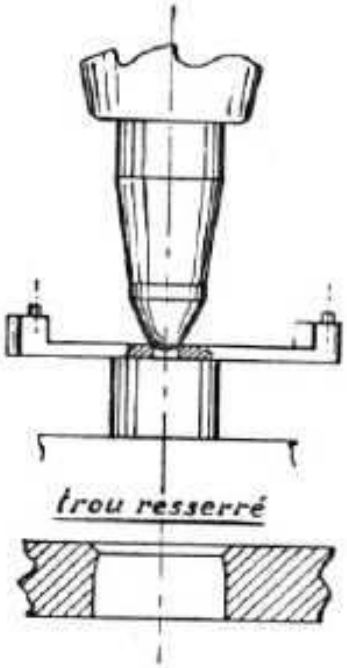
In order to rectify periodically the pushers to obtain a straight pressing, this new pump pusher is so made that it can be taken apart instantaneously. You have only to press slightly on the top part A with a screw driver in order to compress the spring, then to turn ¼ that will release the top A, the spring and the pump. This way of rapidly dismantling the pusher, will enable the watchmaker to straighten the face of each pusher on the friction tool itself, with the grindingstone «Seitz» made for that use, or also to sharpen the point of each pusher on the lathe. The putting together will also be done quickly. The experiences with the friction jewel show us every day that too many watchmakers use pushers in a bad state. There would be much less breaking at the time of the pressing, if pushers of all kinds were sharpened periodically (see page 24).



«SEITZ» centering pump pusher to upright

Ref. 30531

This pump has been specially made to enable the watchmaker to upright a defective hole with respect to a hole in good state. This pump can be adjusted in the base of the friction tool and gives an uprighting of great precision.



Set of 4 "SEITZ" round-face plane hole reducing punches

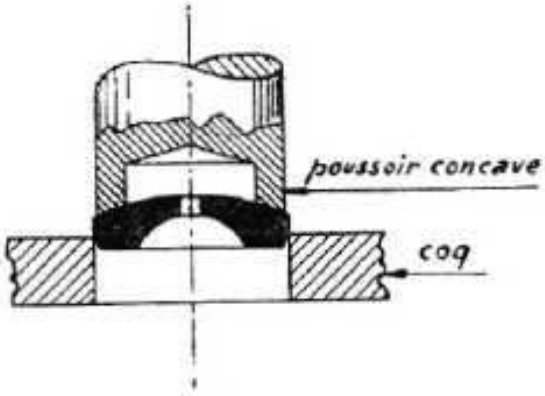
Weight : 20 gr.

Ref. 30524

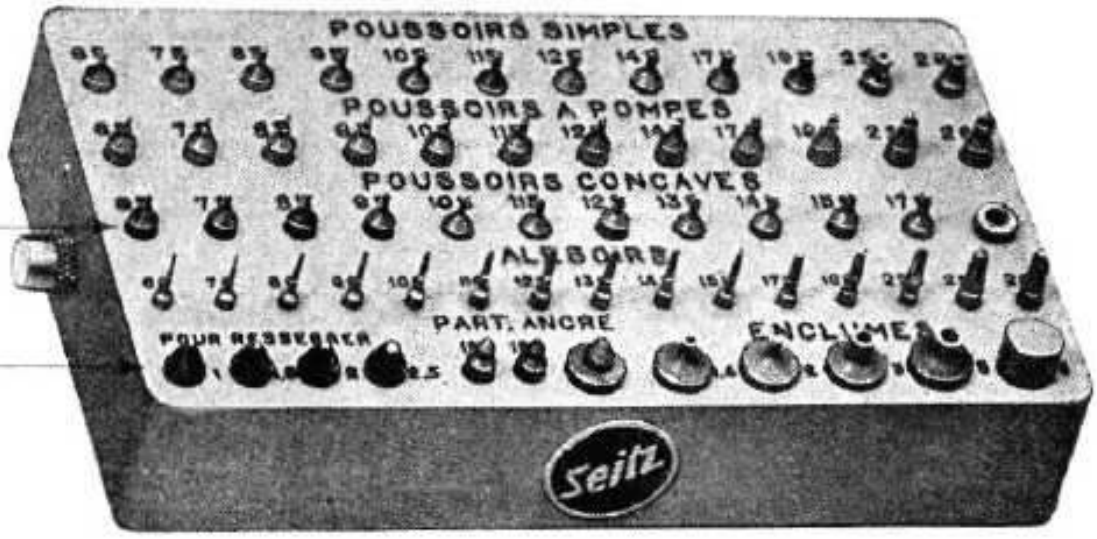
These 4 small tools made of hardened and polished steel, will without any difficulty and without injuring the plate, enable you to reduce a hole. In some cases, it will avoid the replacing of a jewel which is still untouched but that doesn't hold well in its place. This picture in section shows clearly how to use this accessory.

Set of 11 concave pushers

Ref. 30521

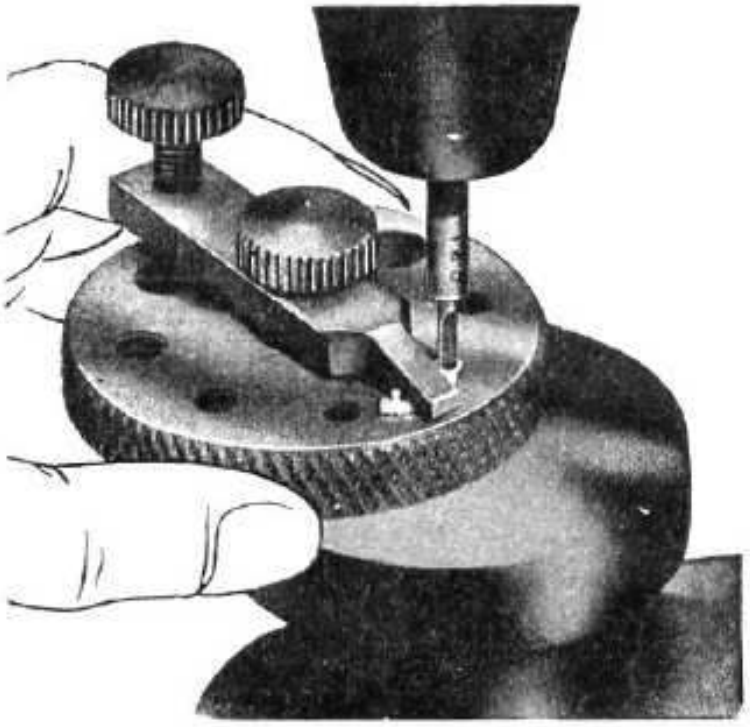


The concave pusher is indispensable for the pressing of all convex jewels. It is clear that pressing a convex jewel with a flat pusher will present a great risk of it breaking. This picture in section of the concave pusher will explain why a concave pusher is necessary for pressing in convex jewels.



Set of 11 concave pushers

Round-face plane hole reducing pushers



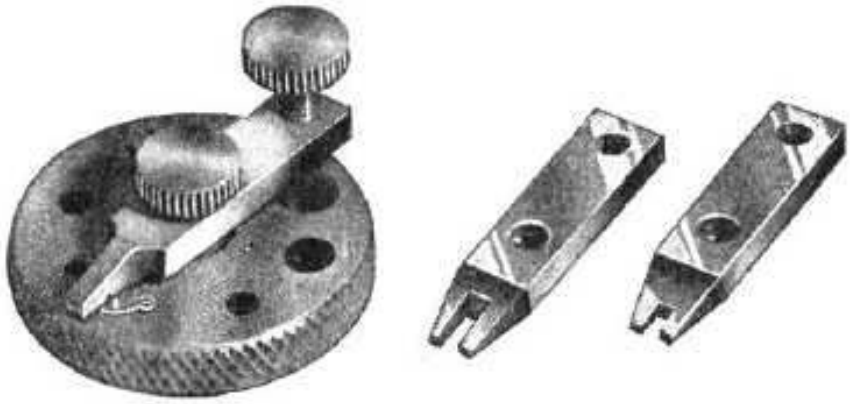
"SEITZ"
Face plate
with 3 clamps

If you wish to ream out an arm, a cover plate, a cap jewel plate etc. the face plate «Seitz» will greatly help, because it will enable you to hold a small piece of any shape.

Each piece is well fixed on the face plate. The very light face plate «Seitz» follows the reamer when working, avoiding all unround holes. To press jewels in small movements the face plate is also indispensable, because it holds it very flat and enables you to center it very easily under the pusher.

"SEITZ"
The face plate
with 3 clamps

Ref. 30157

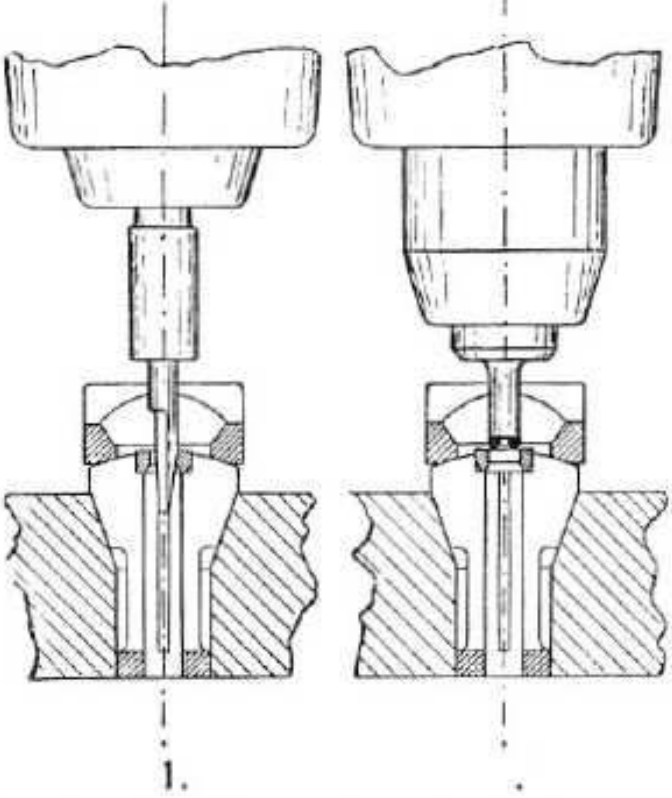


Weight : 30 gr.

«SEITZ» the great Swiss Factory of watch jewels, known for quality and high precision, producer for the most important Watch factories, created for the watch repairer tools and a unique assortment of friction jewels.

Holder "Seitz" for jewel hole settings (chatons)

in case, containing the brass settings



1.

DIRECTIONS:

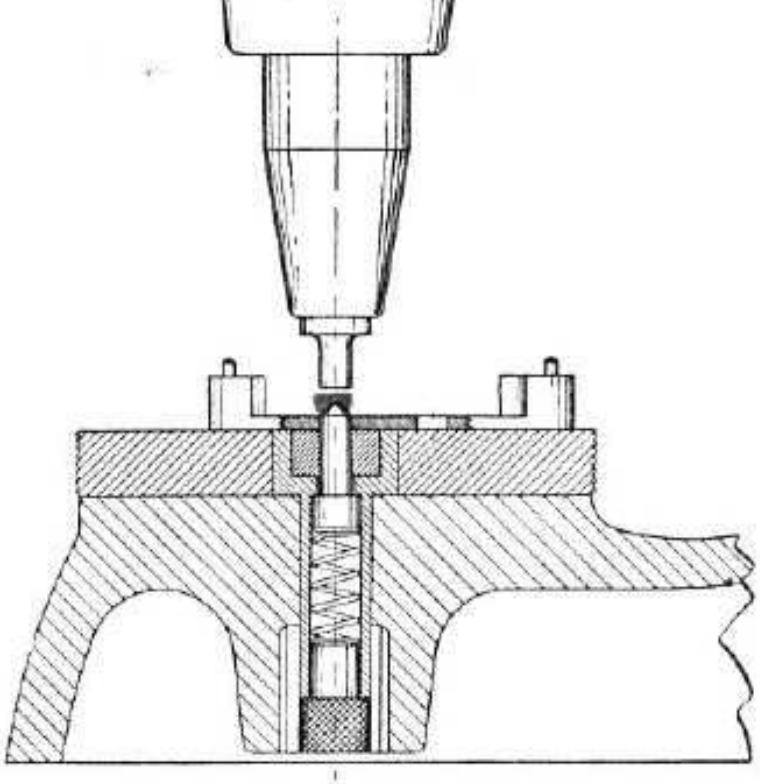
Choose the brass setting of the desired diameter, put it into the chuck, place the chuck into the holder, bring back over the clamp and tighten slightly (see pict. 1) Small settings must not be tightened too strongly so that they should not get out of shape. When the reaming out of the setting is done, the jewel can be pressed into it as usual (pict. 2).

Advantages of «Seitz» holder for jewel hole settings compared with all similar tools: The holder «Seitz» for jewel hole settings is held with 2 fingers and is put on the face of the «Seitz» friction tool. The reaming out is done as usual and as the holder is not fixed, it will follow the movement of the reamer, avoiding all off-center of the reamed out hole in respect to the exterior of the bush or setting. It is possible to press one after the other 4 or 5 jewels of different diameters in the same setting when reaming out each time a little bigger with no off center resulting between the hole and the exterior diameter of the setting. In the systems where the holder is fixed into the base of the friction tool, there will always be some off-center when reaming out. This is the result of the holder not being able to follow the movements of the reamer, as is the case with the holder «Seitz». Watch repairers will always be able to buy the necessary settings.

Weight 150 gr.

Ref. 30154

They will always find great satisfaction when repairing good watches provided with hole settings.

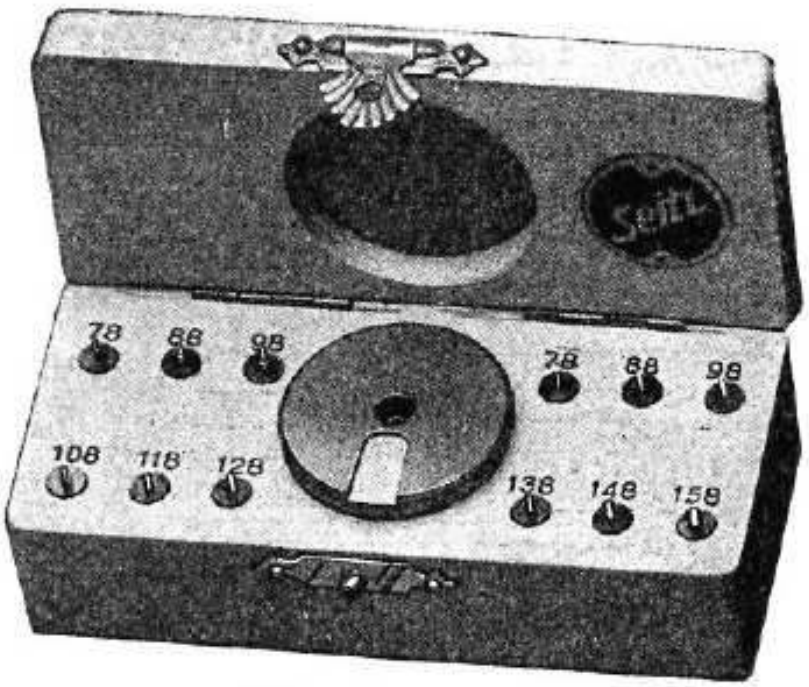


centering points on spring

The pressing in series.

This set is composed of: 1 plate bearing the point on spring which can be adjusted in the base of the friction jewelling tool; 12 interchangeable centering points on spring. This set was specially made for the factory's watchmaker but also for the watch repairer. This outfit centering automatically the jewel in respect to the plate, will allow to make pressing or aftertouch in series.

Ref. 30155

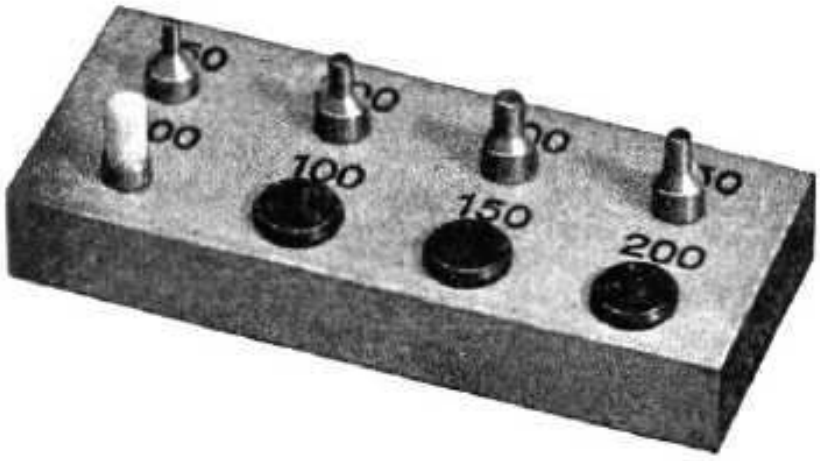


Weight: 100 gr.

« SEITZ » method for replacing the jewel, based on the system of the friction-jewel adopted by all modern Watch factories, is a real progress.

Allowing for speediness and precision the repairing of ancient and modern movements « SEIITZ » has rapidly acquired a world-wide reputation.

Set of 5 pushers and 3 anvils for setting watch hands "SEITZ"

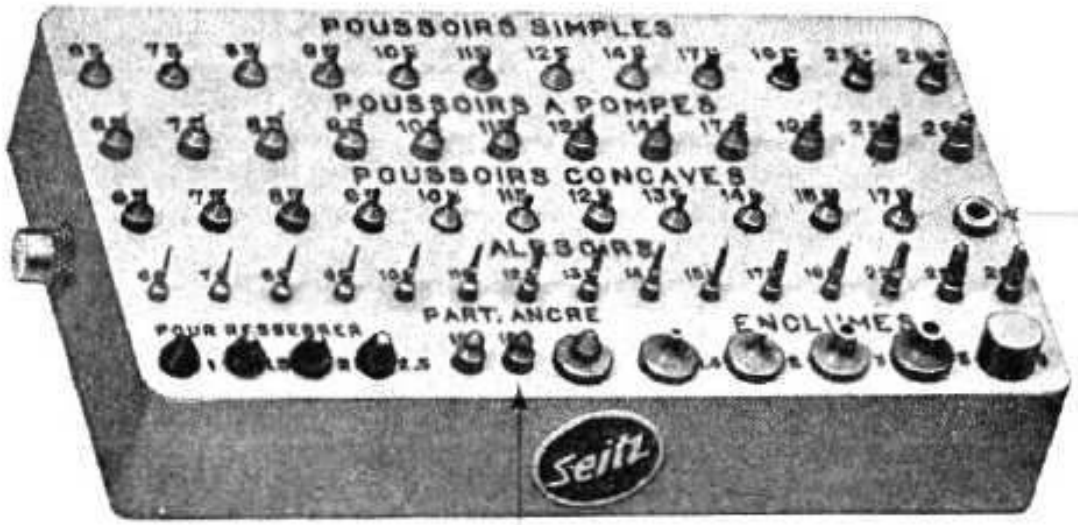


Ref. 30158 Weight : 10 gr.

This set completes the «Seitz» outfit. It allows an easy fitting of watch hands. It is composed of 4 brass pushers, one horn pusher and 3 anvils. The pushers are fixed into the Seitz broach for pressing.

"SEITZ" Tools for setting the lever

This tool will be useful for displacing the lever on its stem, so as to regulate the pallet stones, that they should get to the same level as the lever wheel. To operate, introduce the lever-stem into the



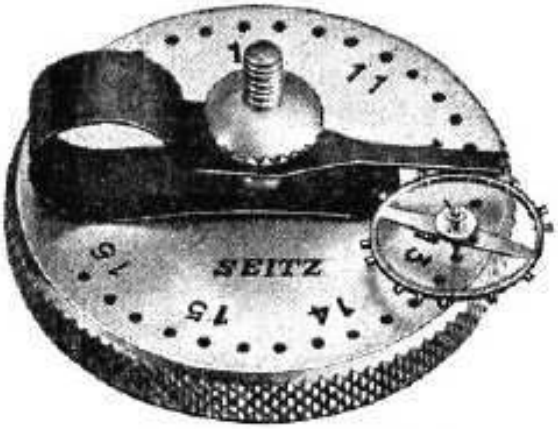
Ref. 30525

Reducing ring

Tools for setting the lever

anvil, choose the necessary pusher which will allow the displacing of the lever-stem as wished.

"SEITZ" tool for straightening pivots



Ref. 30350

Weight : 20 gr.

to ¼/100th of mm.

As the picture shows, the tool is composed of :

a round metal plate, bored with 33 jewelled holes on its periphery from 8 to 16 to ¼ of 100th. These holes are as precise as the jewels of Seitz' gauge.

DIRECTIONS :

Example : a balance pivot diam. 10 is bent.

Place the bent pivot into a hole of bigger diameter, say 12 or 13, according to the curve of the bent pivot. Turn the balance gently with a brush and press lightly on the highest part of the balance with a wooden peg or tweezers. Repeat this operation each time, putting the pivot to be straightened into a hole ¼/100th smaller until you get to the hole of the diam. 10.

The moveable ruler is only used to control the round of the balance, it must not be used to press on the rim or on the top pivot.

With a little practice, the watchmaker will be able to straighten perfectly, even the most bent pivots, without any flats appearing on the pivot, as is the case with all other methods of straightening.

With this tool, the pivot is straightened on all its length, without any off-center and without facets, which is another advantage.

Ref. 30528

The "SEITZ" grinding stone

Weight : 30 gr.

This tool is composed of a round stone, diameter 30 mm. set into a metal plate ; the chosen stone has been especially selected for the work required.

Its Use : the first condition that the pushers and anvils of any sort of friction tool must fulfil, is that they must be strictly flat in respect with the face of the tool.

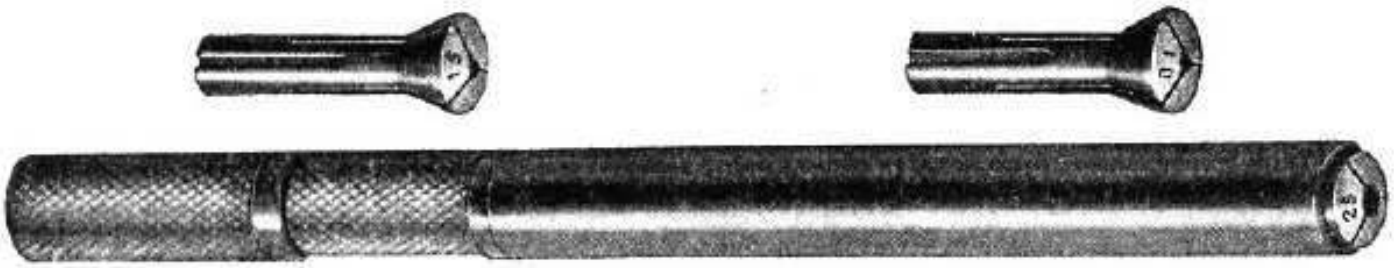
How many times does a jewel break when being pressed, because the pusher pressing on it is defective, or the anvil not flat.

The grinding stone « Seitz » avoids this inconvenience. It is set in a knurled metal disk with a perfectly flat base and parallel to the grinding stone.

DIRECTIONS :

It will be sufficient to put the grinding stone on the face of the friction tool and move backwards and forwards whilst pressing slightly on broach. Pushers and anvils will be rectified easily as well as all the special tools having to be quite flat. The reducing ring will be put into the place of the pusher and allow the adjusting of the anvils for their rectifying with the grinding stone, it is included in the Standard outfit (see page 22).

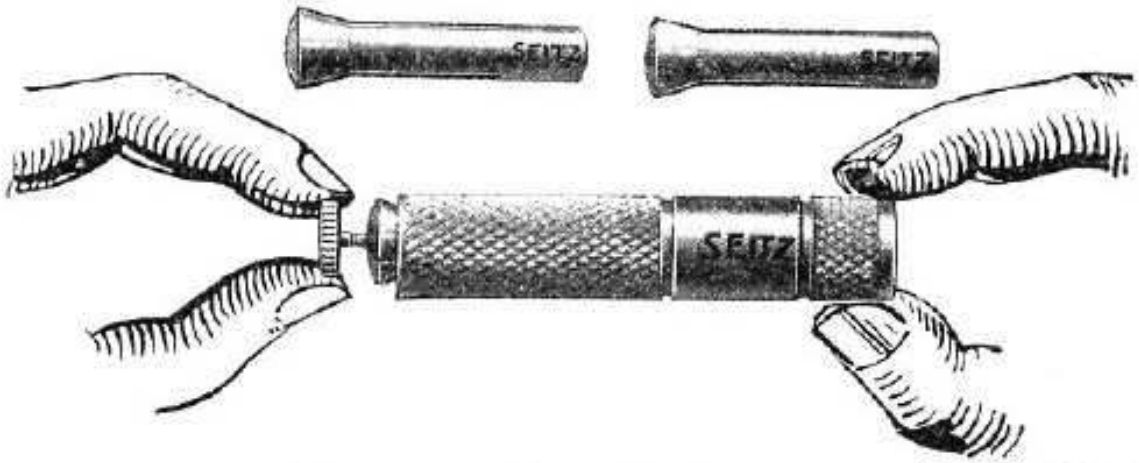
This stone will be of great help to the watchmakers and will also find its place in all friction jewelling workshops.



Weight : 40 gr. | Ref. 30159

This tool is most useful. It is put in the place of the broach and the use of it enables to fix the drills, reamers etc. It is not a necessary tool for pressing the jewels, but is a useful accessory for all sorts of jobs.

"Seitz" Chuck holder



Weight : 20 gr. | Ref. 30517

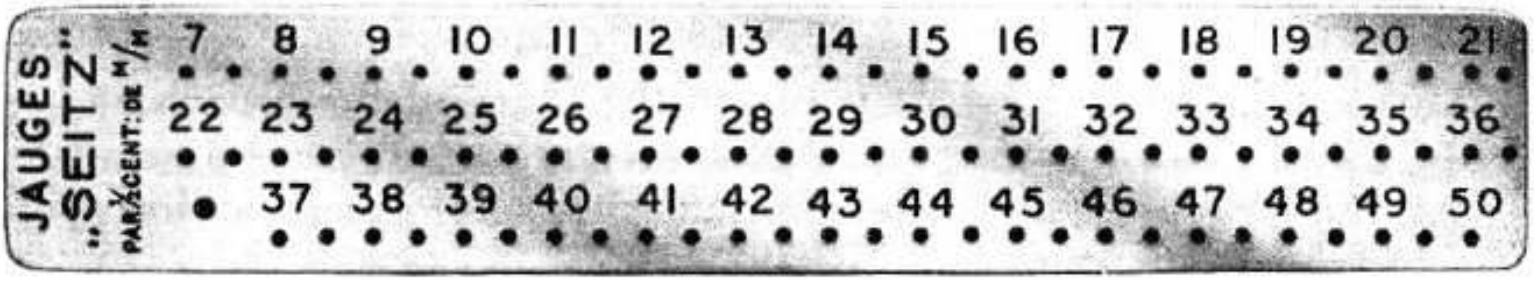
This tool was specially made to grip the winding stems on their widest diameter. The chuck was made to avoid damaging the winding stem and to fix a crown securely.

This tool cannot be used in the place of the above mentioned one. It is delivered with the special chucks « Seitz » 10 - 12 - 15.

The "Seitz" Pivot-gauge (in case)

It is composed of a small rectangular chromed plate carrying 87 gauges in ruby. The holes are graduated from 7 to 50/100 of mm. by ½/100 of mm with a precision of ¼/100 of mm. The numbers are engraved on the plate and are easy to read.

This gauge allows the watchmaker to measure rapidly and most precisely the diameter of a pivot. Thus he will find the jewel-hole which he needs. Weight : 6 gr. Ref. 30529 A



The same gauge is made with 44 holes in pressed rubies going from 7 to 50/100 of mm by 1/100. Ref. 30529 B

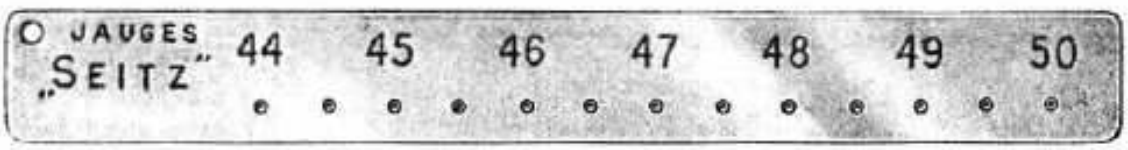
"Seitz" Pivot-gauges with graduation in 1/4/100 of mm.

These gauges identical to the pivot-gauge here above have the advantage of giving the ¼/100 of mm. Example : hole 8/100, 8¼/100, 8½/100, 8¾/100, 9/100 of mm.

The precision is also of ¼/100 of mm. Indispensable to the manufacturer of watches they will also be appreciated by all good watchmakers.

Weight : 5 gr

To be had : 6 to 8/100, 8 to 11, 11 to 14, 14 to 17, 17 to 20, 20 to 23, 23 to 26, 26 to 29, 29 to 32/100 of mm.



Weight : 5 gr

Identical gauges, but in ½/100 of mm. To be had : 32 to 38, 38 to 44, 44 to 50, 50 to 56, 56 to 62/100 of mm.

Directions for use of the "SEITZ" jewelling tool

and its set of reamers.

How to press a «SEITZ» jewel when replacing a set jewel in an old plate.

1. Open the setting in order to take the jewel to be replaced.
2. Choose a smoothing broach big enough to remove the setting. Adjust it to the handle made for this and slide it into the pressing tool. Remove the setting. For holes of large diameters, do not make the hole speedily larger, but do it gently and gradually, so as to avoid making a bad hole.

   Always use the smallest possible smoothing broach, if necessary the operation can always be repeated with a larger one.

3. Take away the broach for the reamers and replace it by the one to press in. Put the jewelling tool very flat. Choose a pusher and an anvil to that effect, center on the anvil the piece to be repaired. Choose a jewel corresponding to the diameter of the « Seitz » reamer that has just been used.

   Example : reamer 139/100 — jewel 140/100.

   With the micrometer-screw, regulate the pusher to the desired height. One division equal to 1/100th of mm.

   Place the jewel, oil-sink downwards.

   Press gently on the lever until the pusher touches the jewel.

When the jewel has taken its flat position, press harder on the lever.

How to press in a «SEITZ» jewel in a plate already provided with a pressed in jewel :

The work is the same except operations No 1 and 2 (unless the hole is not in a perfect state).

«SEITZ» Tools and their set of friction jewels will do for any repairs, either on old movements or on modern movements provided with friction jewels.

We guarantee that the watchmaker in possession of our outfit «SEITZ», no longer requires any other jewel.

What is to be bought?

We advise the watchmaker to purchase:

A «Seitz» friction tool with the indispensable accessories, those which are mentioned on page 11. However we advise the purchase of a large cabinet as shown on page 10 complete. Il this is not possible at the beginning, the great wooden cabinet may be bought only with the tools mentioned on page 11. The other tools may be bought later on, gradually. We don't know of any case where the watchmaker having bought a «Seitz» friction tool didn't want to have it complete later on.

Jewels: It is well understood that the purchase of an asortment of «Seitz» jewels completely does away with the assortment of jewels in settings.

For the beginning the assortment B is mostly required.

The assortment A, reduced (see chart on pages 32 & 33) allows a start with little expense. It can be completed at any time. In addition to the cases A, B, C or D, the supplements are very useful. These supplements are delivered with 3, 6 and 12 jewels of each.

Supplement No 0: Convex balance jewels, with olive holes, their shape prevents the oil from spreading.

Supplement No 8: Plate jewels of great diameters (260 & 300/100) indispensible for the old big movements.

Supplement No 6 & 7, roller jewels and pallet stones: These last ones complete advantageously the set of «Seitz» friction jewels.

In order to have a complete assortment don't hesitate to buy:

The assortment of convex balance jewels, with olive holes E, F, G or H.

The assortment of center jewels J, K, L or M.

"SEITZ" JEWELS

If the precision and the simplicity of «SEITZ» tools enchant the watchmaker, the quality and accuracy of the jewels will make him a faithful customer. He who has ever used «Seitz» jewels will never buy others.

Technical informations.

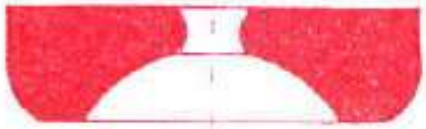
«Seitz'» jewel is made of first-rate synthetic Ruby. A garnet jewel cannot be used for the «Seitz» process, this material being too breakable. A ruby jewel of inferior quality might cause troubles for the same reason.

The exterior edge of the jewel to be pressed is made exactly concentric to its hole. The exterior diameter must be precise to one half hundredth of mm; this is of the greatest importance. Why? The hole in the plate being prepared with «Seitz» reamer at a 1/100 of mm smaller than the diameter of the jewel, it is evident that the diameter of the jewel to be pressed in must be of absolute precision. For example: for a jewel, diameter 100/100 of mm, the hole will be prepared at 99/100 of mm. If the jewel measures 101/100 it will break when pressed in, if on the contrary, it measures 99/100, it will not stay put.

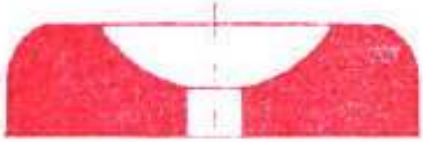
Conclusion :

A set of «SEITZ» tools, in spite of their great precision, is only valuable when used with «SEITZ» jewels and vice versa.

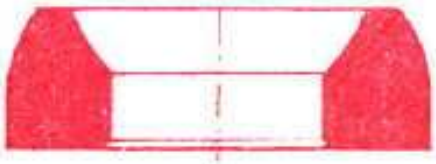
Convex balance jewels, olive shaped holes (see list, 0, pages 32 & 35).
This jewel has the advantage, with its convex part, of keeping the oil constantly on the pivot of the balance. Its olive shaped hole reduces the friction of the pivot to a minimum. These jewels are generally used for first-rate movements.



Glaces, olive shaped holes (see list, sec. 1, page 32)
Used for the balance, in current watches or for any other kind of stone in the escapement.



Glaces, straight hole (s. list, s. 2, 3, 4 & 8, p. 32 & 33)
Either used for the bridge or the plate. There are no more, as in jewels to set, flat jewels and convex jewels.



Center-jewels for jewelling. The center wheel (see list, center jewels, sec 9 & 10 page 37).

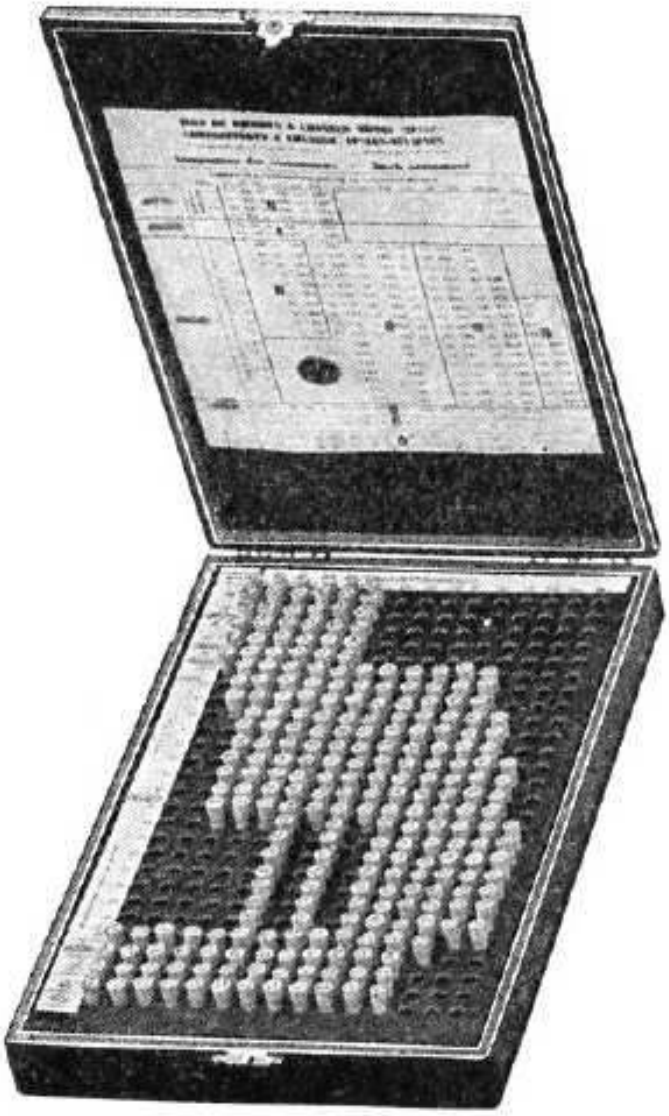
Cap-jewels (see list, sec. 5, page 33).

Roller jewels (see list, sec. 6, page 33).

Pallet stones right (se list, sec. 7, page 33).

Pallet stones left (see list, s. 7, page 33).

The repairing cabinet "Seitz" Standard



The black cabinet:

This elegant cabinet covered with washable black «pega» contains all the jewels «Seitz» necessary for any repairing. Strongly made, it groups on a little board 177 glass tubes with corks, carefully numbered.

The disposition is clear : horizontally the exterior diameters, vertically the diameters of the holes. The jewel wanted is found in a second.

Size: 35 cm × 20 cm - Weight: 900 gr.

Ref. 30310

There are the following «Standard cabinets»:

A	reduced assortment with	3 jewels
B	complete assortment with	3 jewels
C	complete assortment with	6 jewels
D	complete assortment with	12 jewels

In order to have a cabinet containing all the jewels, the sections 0, 6, 7 & 8 must be added.

CHART

Showing the disposition of the repairing cabinet "Seitz"

This chart is placed in every case-cover.

		Exterior diameters of jewels in hundredths of mm. ⌀	70	80	90	100	110	120	130	140	150	160	180	200	230	260	300
	Convex balance-olive	ol. 8	70	80	90	100	110	120									
		ol. 9	70	80	90	100	110	120									
		ol. 10	70	80	90	100	110	120									
		ol. 11	70	80	90	100	110	120									
		ol. 6	**70**	**80**	90	**100**	110	**120**									
		ol. 9	**70**	**80**	90	**100**	110	**120**									
	jewel in hundredths of mm.	10		**80**	90	**100**	110	**120**	130	**140**	150	160	**180**	200			
		11		**80**	90	**100**	110	**120**	130	**140**	150	160	**180**	200			
		12		**80**	90	**100**	110	**120**	130	**140**	150	160	**180**	200			
		13			90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**		
		14			90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**		
		15			90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**		
		16			90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**	260	
		17			90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**	260	
	Diam. of the hole of the	18			90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**	260	
		19			90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**	260	
		20						**120**		**140**		160	**180**	200	**230**	260	300
		22						**120**		**140**		160	**180**	200	**230**	260	300
		24						**120**		**140**		160	**180**	200	**230**	260	300
		26						**120**		**140**		160	**180**	200	**230**	260	300
		28						**120**		**140**		160	**180**	200	**230**	260	300
		30						**120**		**140**		160	**180**	200	**230**	260	300
		32						**120**		**140**		160	**180**	200	**230**	260	300
	Cap-jewels		**70**	**80**	90	**100**	110	**120**	130	**140**	150	160	**180**	200	**230**		
	Roller jewels	⌀	32	34	36	38	40	42	44	46	48	50	52	54			
	Pallet stones right		22	24	26	28	30	32	34	36	38	40	42	44			
	Pallet stones left		22	24	26	28	30	32	34	36	38	40	42	44			

The empty spaces correspond to sizes not used or special sizes which are not manufactured.
The diameters grouped in the reinforced frame are those contained in the assortments A, B, C, and D.
The composition of the assortment A (reduced assortment) is indicated by the sizes in heavy type.
The sections 0, 6, 7 & 8 are sold on demand by 3, 6 & 12 jewels (see price-list).
See list of special jewels on the back of the enclosed price-list.

balance jewels with olive hole "SEITZ"

The brown cabinet

Ref. 30305

Size : 15 cm × 15 cm - Weight : 250 gr.

This cabinet

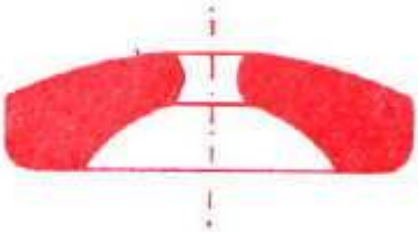
covered with washable brown «pega» contains an incomparable assortment of friction Convex balance jewels with olive hole «Seitz».

Holes going from 7 to 16/100 of mm, diameters from 70 to 180/100 of mm. The disposition of the jewels is identical to that of the repairing cabinet Seitz (see page 31). This new assortment is indispensable to all watchmakers wanting to do a fine job.

There are the following assortments :

E reduced assortment, 3 jewels each tube of the diam. in heavy type
F complete assortment, 3 jewels a tube
G complete assortment, 6 jewels a tube
H complete assortment, 12 jewels a tube

(See page 35)



CHART

showing the disposition of the assortment of convex balance jewels with olive hole «SEITZ»

Holes of the jewels in hundredths of mm	*Diameters of the jewels in hundredths of mm.*										
	70	80	90	100	110	120	130	140	150	160	180
7	70	**80**	90	**100**	110	**120**					
8	70	**80**	90	**100**	110	**120**	130	**140**	150		
9	70	**80**	90	**100**	110	**120**	130	**140**	150		
10	70	**80**	90	**100**	110	**120**	130	**140**	150		
11	70	**80**	90	**100**	110	**120**	130	**140**	150		
12	70	**80**	90	**100**	110	**120**	130	**140**	150	**160**	**180**
13			90	**100**	110	**120**	130	**140**	150	**160**	**180**
14			90	**100**	110	**120**	130	**140**	150	**160**	**180**
15			90	**100**	110	**120**	130	**140**	150	**160**	**180**
16			90	**100**	110	**120**	130	**140**	150	**160**	**180**

The arrangement of the reduced assortment is given by the numbers in heavy type

For special convex jewels, see enclosed price-list.

Size 30 × 19 cm.
Weight : 580 gr.

The blue cabinet

Ref. 30315

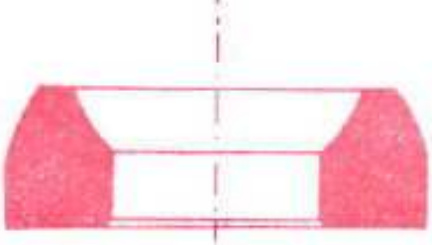
This assortment of friction Center-jewels will be appreciated by all watchmakers. The composition of this assortment is the result of a sort of vote organized between the most important supply houses for watchmakers of Europe and U.S.A. It contains a complete collection of center jewels. This cabinet is the continuation of the repairing cabinet «Seitz» (see page 31). This cabinet is made identically to the two other assortments, only the cover is blue. Every size is clearly indicated on the cork and the board by vertical and horizontal numbering. Holes going from 34 to 110/100 of mm, diameters from 120 to 300/100 of mm.

There are the following assortments :

- J reduced assortment, 1 jewel a tube of the diameters of the holes in heavy type
- K complete assortment, 1 jewel a tube
- L complete assortment, 2 jewels a tube
- M complete assortment, 3 jewels a tube

For special center jewels, see enclosed price-list.

(see page 37)



CHART

showing the disposition of the assortment of «SEITZ» center-jewels

Diameters of the center-jewels in 1/100 of mm.

Holes of the center-jewels in 1/100 of mm.

120	140	160	180	200	230	260	300
34	34	**34**	34	40	46	56	**60**
36	**36**	36	**36**	**42**	**48**	**58**	62
38	38	**38**	38	44	50	60	**64**
40	**40**	40	**40**	**46**	**52**	**62**	66
42	42	**42**	42	48	54	64	**68**
44	**44**	44	**44**	**50**	**56**	**66**	70
46	46	**46**	46	52	58	68	**72**
48	**48**	48	**48**	**54**	**60**	**70**	**74**
50	50	**50**	50	56	62	72	76
52	**52**	52	**52**	**58**	**64**	**76**	**78**
54	54	**54**	54	60	66	80	80
56	**56**	56	**56**	**62**	**68**	**82**	**82**
58	58	**58**	58	64	70	86	**86**
60	**60**	60	**60**	**66**	**72**	**90**	**90**
	62	**62**	62	68	76	96	**92**
	64	64	**64**	**70**	**80**	**100**	**96**
	66	**66**	66	72	82	106	100
	68	68	**68**	**74**	**86**	**110**	106
	70	**70**	70	76	90		**110**
		72	**72**	**78**	**92**		
		74	74	80	96		
		76	**76**		**100**		
		78	78				
		80	**80**				
	sec. **9**					sec. **10**	

The composition of the reduced assortment is given by the numbers in heavy type

Diam. 70 to 300/100. Thickness for *extra flat* movements

Ref. 30320/1

Size 12 × 6 cm. - Weight : 110 gr.

The bushes, made with great precision, diameters and holes very precise, polished and gilt, can be used without any touching up. The great advantage of these bushes is that the exterior diameters are as precise as the diameters of the friction jewels « Seitz », it is thus possible to use « Seitz » reamers as well as the friction tool « Seitz », exactly in the same way as for the friction jewels. The height can also be regulated (with the bush in its place) by using the micrometric screw of the friction tool. No more conical bushes, no more bushes that have to be rivetted.

Diam. 70 to 300/100. - Thickness for *high* movements

Ref. 30320/2

No	∅	Hole	Thick	No	∅	Hole	Thick	No	∅	Hole	Thick	No	∅	Hole	Thick
41	70	10	50	**51**	130	11	60	**61**	160	75	120	**71**	230	50	90
42	80	10	60	**52**	140	11	80	**62**	180	14	110	**72**	230	70	110
43	90	50	90	**53**	140	40	70	**63**	180	45	90	**73**	230	90	120
44	90	10	45	**54**	140	35	90	**64**	180	50	80	**74**	260	60	90
45	100	11	60	**55**	150	12	90	**65**	180	80	120	**75**	260	80	100
46	100	30	80	**56**	150	40	110	**66**	200	16	110	**76**	260	100	110
47	110	11	60	**57**	150	70	90	**67**	200	40	120	**77**	260	120	120
48	120	11	70	**58**	160	12	80	**68**	200	60	120	**78**	300	60	90
49	120	35	90	**59**	160	40	90	**69**	200	80	120	**79**	300	80	100
50	120	50	100	**60**	160	45	100	**70**	230	18	120	**80**	300	100	120

Trademark and packing "SEITZ"

«Seitz», through good quality and precision has succeeded in creating a friction jewel bearing a trade mark. The watchmaker who has used a friction jewel «Seitz» wants again «the friction jewel Seitz».

In order to avoid all counterfeiting, the packing of «Seitz» bear the trade mark; there are two kinds:

Glass tubes with numbered corks and bearing the trade mark «Seitz». These tubes are used in the cabinets as well as in the refills, by 3, 6 or 12 friction jewels.

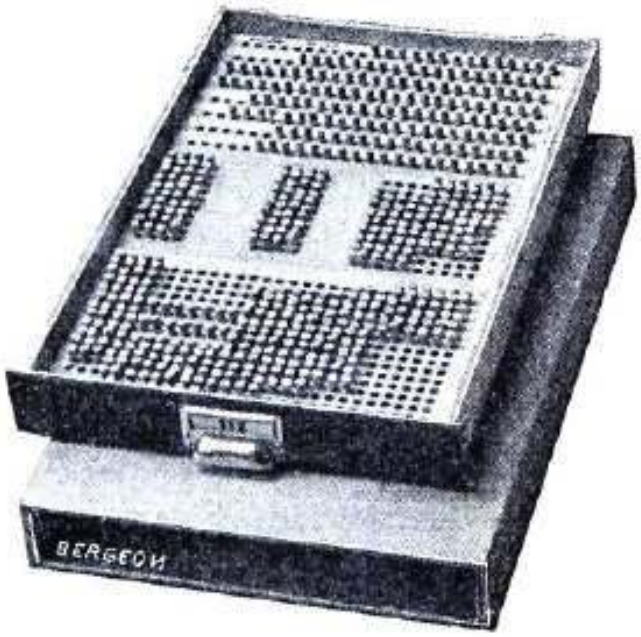
The wrapper «Seitz», is made of transparent cellophane bearing the trade mark «Seitz». It is used for refills mainly for overseas.

Watchmakers!

If you want to be sure to get a friction jewel «Seitz» ask for the original package «Seitz».

In Switzerland, and in many other countries the glass tube is used. It is very practical and is no more expensive than the cellophane wrapper. Empty tubes are not taken back.

Special drawer



This drawer is specially made for holding the 3 «Seitz» assortments of jewel and 2 assortments of bushes to press in.

It can be put into BERGEON's cabinet.

(For more details, ask for the special catalogue.)

«SEITZ» pivot gauge No 30529 B discribed on page 26.

Set of 15 reamers with broach . . . . . *14—15
Set of 12 centering pump pushers . . . . . *16—17
Set of 4 round face plane hole reducing punches *18
Tools for setting lever *22
Reducing ring *22
Black cabinet alone *11
Face plate with 3 clamps 19
Holder for jewel hole settings, with settings complete in case 20
Set of 12 centering points on spring, complete in case . . . 21
Set of 5 pushers and 3 anvils for setting watch hands . . . 22
Handle with 3 assorted chucks 25
Tool for straightening balance pivots, hole by 1/4/100 . . . 23
Pivot gauge for the repairer to the 1/100 of mm. . . . . 4(
Uprighting pump tool 17
Grinding stone 24
Wooden cabinet alone for the complete set of tools 10
The complete cabinet (see page 10) composed of all above mentioned articles without the empty black cabinet . . . 10
The Standard cabinet composed of all the articles with a * 11
Chuck holder 25

Gauges : (page 26) Pivot gauge for the repairer to the 1/100 mm. (see above)
Pivot gauge of the 1/2/100 of mm. 26
High precision gauges, precision warrant. to 1/4/100 of mm. N° 6—32 26
ditto to 1/2/100 of mm. N° 32—50 26
ditto to 1/2/100 of mm. N° 50—62 26

Friction jewels : Assort. in elaborate cabinets, lid with hinges.

1. **Standard black cabinet** (pages 31, 32, 33)

A Reduced assortment, 3 jewels a tube in heavy type in sec. 1, 2, 3, 4 and 5 . . . . . .
B Complete assortment, 3 jewels a tube in sec. 1, 2, 3, 4 and 5
C Complete assortment, 6 jewels a tube in sec. 1, 2, 3, 4 and 5
D Complete assortment, 12 jewels a tube in sec. 1, 2, 3, 4 and 5

The jewels of the sections 0, 6, 7 and 8 outside the black frame (see chart pages 32 and 33) are not included in the prices but can be put into the cabinets, they must be ordered :

Suppl. for sec. 0 (convex balance, olive holes)
3 jewels a tube . . . . . .
6 » » » . . . . . .
12 » » » . . . . . .

Suppl. for sec. 6 (roller jewels)

12 » » » . . . . . .

Suppl. for sec. 8 **(jewels diam. 260 and 300)**

3 jewels a tube . . . . . .
6 » » » . . . . . .
12 » » » . . . . . .

2. **Brown cabinet,** convex balance jewels (see page 34)

E Reduced assortm., 3 jewels a tube of the diam. in heavy type
F Complete assortment, 3 jewels a tube . . . . . .
G » » 6 » » » . . . . . .
H » » 12 » » » . . . . . .

3. **Blue cabinet,** center jewels (see page 36)

J Reduced assortm., 1 jewel a tube of the diam. in heavy type
K Complete assortment, 1 jewel a tube . . . . . .
L » » 2 jewels » » . . . . . .
M » » 3 » » » . . . . . .

4. **Cabinet containing the assortment of bushes to press in**

(page 38) No 1 . . . . . 120 pces
ditto No 2 . . . . . 120 »

Jewels for refilling

Sections	0	1	2	3	4	5	6	7	8	9	10
1 jewel a tube . . .	—	—	—	—	—	—	—	—	—		
2 jewels a tube . . .	—	—	—	—	—	—	—	—	—		
3 jewels a tube . . .											
6 jewels a tube . . .											
12 jewels a tube . . .											
144 jewels in wrapper .											

O.Sp: = hole 6 all exterior diam. : - all jewels exterior diam. 60/100

Spare parts

Tools	Swiss Francs
Flat pusher, alone . . .	
Concave pusher, alone . .	
Pump pusher	
Reamer alone	
Anvil alone	
Special anvil on demand .	
Round-face plane hole reducing punch alone . . .	

Jewels			Swiss Francs
Hole settings all numbers	(p. 20)	10 pces 100 »	
Bushes all numbers	(p. 38)	10 » 100 »	
Standard black cabinet, empty			
Brown cabinet for convex balance jewels, empty . .			
Blue cabinet for center jewels, empty			
100 corked tubes, not numb.			
100 » » numbered			