Master WATCHMAKING

SHOP TRAINING JOB GUIDES

LESSON 4

Nomenclature and Sizes of Watches

—

Sections 106 - 123

CHICAGO SCHOOL OF WATCHMAKING

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MASTER WATCHMAKING

A Modern, Complete, Practical Course

CHICAGO SCHOOL OF WATCHMAKING

Founded 1908 by Thomas B. Sweazey

Lesson 4

Sections 106 to 119

NOMENCLATURE AND SIZES OF WATCHES

In former years, about the only place on a watch case where the designer could give vent to his talents was on the ornamentation. It was not unusual to see a man carrying a large heavy gold case with raised gold ornaments, hand engraved, perhaps with one or more diamonds set in it, having a round bow strong enough to carry such a heavy piece of adornment.

The shapes, sizes and parts of bow and crown were conventionalized and all manufacturers followed practically the same model.

Gradually sizes were reduced, movements made thinner, dials made more ornamental, bows and crowns were designed to harmonize with the rest of the case, so that today the modern watch is not only a serviceable time piece but a thing of beauty as well.

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The first men's wrist watches followed the same lines as pocket watches, round cases with a lug or attachment to which a strap or bracelet could be fastened. As the popularity of these styles increased, more attention was given to the shape of the case, so that now wrist watches have square, rectangular and oval shapes.

Earlier models of ladies' watches were made in 10 size and were in hunting cases. Today this size is used for thin model pocket watches.

Ladies' watches were reduced first to 6 size, then to 0 and 000 size, and were popular until the arrival of the bracelet watch.

With the advent of the bracelet watch, designers gradually produced more watches made in the oval or rectangular shape.

The most popular shapes found in bracelet watches are round, rectangular, cushion, diamond, oval and octagon.

Watch cases are made of nickel, stainless metal, silver, yellow, green and white gold, rolled gold plate, gold filled and platinum.

Sec. 106 — The Watch Movement

Follow the instructions in the order in which they are given. Close attention will make the various steps easy which will lead to your success as a Master Watch Repairer.

The beginner often tries to force parts together when such action is not needed, with the result that some of the more fragile pieces may be bent or broken. Before attempting to force any part of the watch into its position, be sure that you have the part in the proper location and above all things, "use force sparingly."

In your study and practice, try to obtain movements that can be easily taken apart and reassembled. Do not start on the clock watches — the so-called dollar watches.

For your first attempt, obtain a watch movement of the older style 16 size Elgin, Waltham or Hamilton, similar to figure 60. Any of these sturdy movements can be easily procured in most localities at a low cost. However, any three-quarter plate or bridge model American movement will be satisfactory for the beginner, provided it is a 12 size or larger.

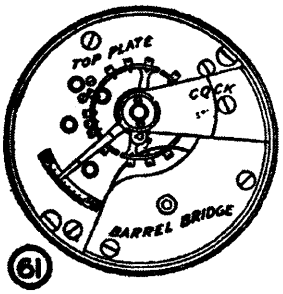
Figure 61 illustrates an 18 size full plate movement.

Figure 62 illustrates a drawing of a 16 size ¾ plate movement.

Figure 63 illustrates a drawing of a 16 size ¾ plate bridge model.

Figure 64 illustrates a 12 size bridge model.

Learn to speak of a watch as a 16 size ¾ plate Elgin or 12 size bridge model, etc.



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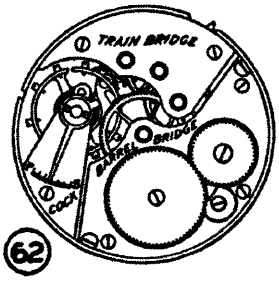

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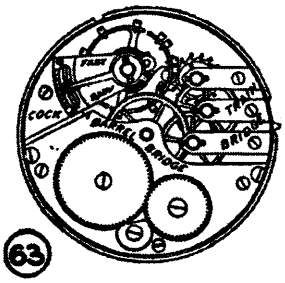
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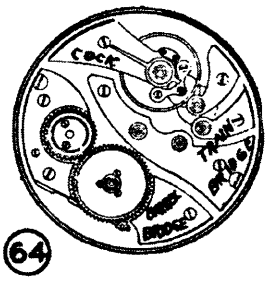

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Sec. 107 — Hunting and Open Face Watches

Most American pocket watches are either Hunting or Open Face. The difference is readily understood if you will remember that an open face model winds at 12 and a hunting face model winds at 3 regardless of the style of the case.

Watches winding at 3 were made originally for hunting cases and watches winding at 12 were made for open face cases. Now there are many watch movements formerly in hunting cases that, for one reason or another, have been transferred to open face cases. In these instances, you may have an open face watch with a hunting movement watch winding at 3 instead of 12. You may find some hunting case watches that wind at 12.

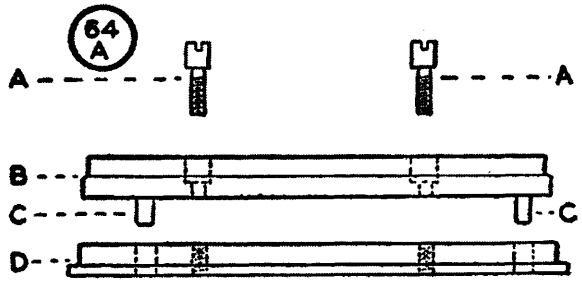
From now on, we will refer to a watch as a 16 size ¾ plate hunting movement or a 12 size open face bridge model, etc.

Men's or ladies' Swiss watches are not referred to as hunting or open face movements. This will be explained later in this lesson. Practically all wrist watches wind at 3.

Sec. 108 — The Plates

The plates of a watch are made of a flat piece of metal of uniform thickness. The lower plate sometimes referred to as the pillar plate is used as a base for assembly. The dial and portions of the winding and setting parts are supported by this plate. Upon the lower plate are erected pillar posts to which the top plate is held in place by screws. In some of the very old watches the top plates were held in place by tapered brass pins forced through holes in the pillar posts. These methods of securing plates are generally found in the older watches of which the 18 size American movements are excellent examples.

The plates of most watches are held together by a combination of screws and steady pins which are illustrated in figure 64-A. The lower or pillar plates of watches of like size are similar in shape. Size of the watch is determined by the size of this plate. The plates of watches are made of solid nickel, solid brass, as well as nickel and gold plated.



A. - - - - - - - - - PLATE SCREW.
B. - - - UPPER PLATE OR BRIDGE.
C. - - - - - - - - - - STEADY PIN.
D. - - LOWER OR PILLAR PLATE.

Formerly the brass plates finished with a matt surface and a very light plate of gold were most common and were known as gilt plates. After being cleaned and handled a few times, the light gilding would be worn off leaving a dingy looking set of plates.

Silver and nickel plates are the most popular types used today.

Sec. 109 — Top Plate

18 size and old model watches are about the only watches that have a top plate. Top plates have been replaced by bridges. These bridges serve the same purpose but are much easier to assemble.

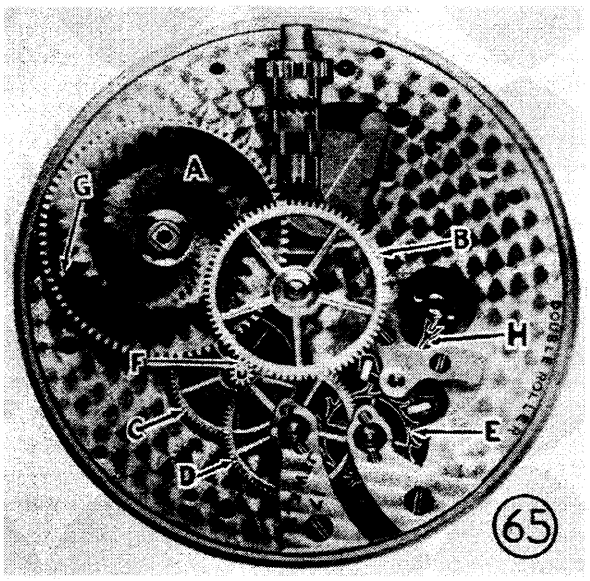
Sec. 110 — What is Meant by The Train?

A series of connected gearings is called a train. Thus in a watch or clock, the series of gears which transmit the power from the mainspring to the escapement is the train.

By the escapement is meant that part or device in a watch or clock which controls the power and distributes it uniformly. In other words, it keeps the train moving at an even speed.

Sec. 111 — Wheels and Pinions

The wheel which receives the power and gears it into a much smaller wheel is called a pinion. This pinion is fastened to another wheel,



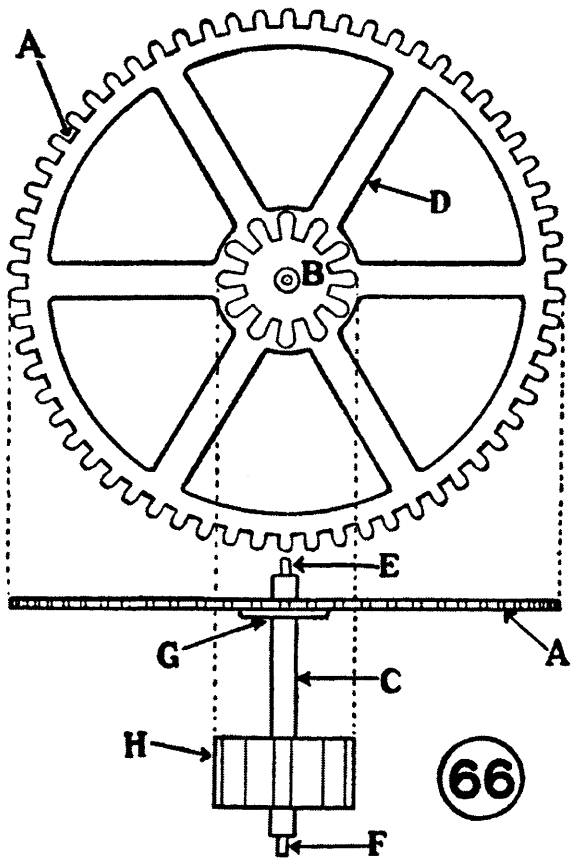
the two having a common center; this second wheel gears into a third pinion on which is also fastened a wheel, and so on to the last pinion and wheel. The wheels are generally made of brass and the pinions of steel. In watches the wheels are usually gold plated but in some cases are made from rolled gold plate.

In figure 65 is shown the train of an Illinois watch movement. The wheels and pinions are lettered beginning with the barrel or first wheel at A. The next is the second wheel or center wheel at B, third wheel at C, fourth wheel at D and escape wheel at E.

Each of the wheels from the center wheel down is carried on a pinion and these pinions are numbered in the same way, 2nd or center pinion, 3rd pinion, 4th pinion and escape pinion. The wheels gear into these pinions and thus transmit the power from the mainspring, which is contained in the barrel or first wheel. In this photograph may be seen the center wheel gearing into the third pinion at F.

Sec. 112 — Teeth and Leaves

Figure 66 is a drawing of a wheel and pinion showing end and side view, in which A represents the wheel and B the pinion. The indenta-



tions on the outer circumference of the wheel are called teeth, while those on the pinion are called leaves.

The six spoke-like parts, at D, are called arms, this being a six arm wheel.

The part C together with the leaves H and the pivots at E and F are all cut from one piece of steel. In the center of the wheel is a hole of such diameter that the pinion, when forced through at G, will be tight enough to keep the wheel from slipping on the pinion when power is applied. Usually the center of the wheel is reinforced with a thicker piece of brass in order to give a greater bearing surface for the pinion as shown at G.

In most American watches, the wheels of the train outside the center are fitted to the pinion in this manner. Where a greater percentage of power is applied a larger shoulder is cut on the pinion, directly on the leaves and this is fitted in the center hole of the wheel, the steel being riveted or staked over the brass of the wheel.

Generally in clocks you will find that wheels are fastened to the pinions in this way.

In the finer grade of Swiss watches, the pinions are nearly always staked on the wheel and are finished with a long undercut. The beautiful finish given these Swiss pinions is something that the watchmaker should strive to equal in his own work.

Sec. 113 — Oscillations of a Pendulum or Balance

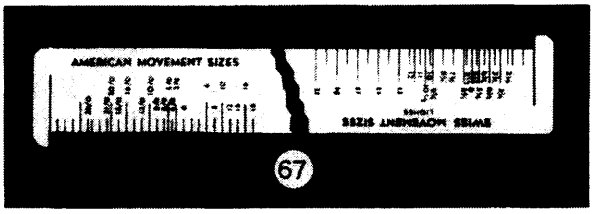
The balance wheel of a watch or the pendulum of a clock oscillates (swings back and forth) in regular periods of time, depending in the one case upon the diameter and weight of the balance together with the length and strength of the hairspring, and in the other, upon the length of the pendulum.

The rate of a timepiece depends upon the regularity of these oscillations which are induced by the impulses given through the escapement, which in turn receives the power by means of the train.

Sec. 114 — Purpose of the Train

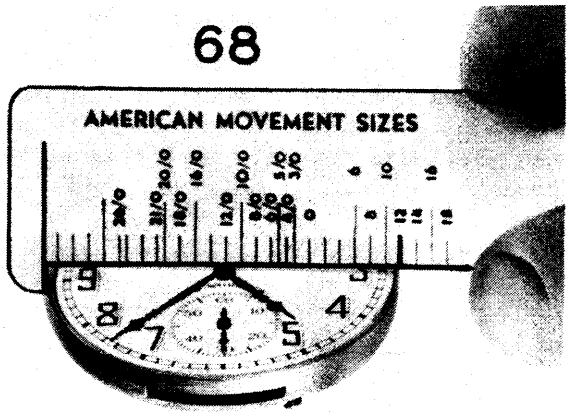
The whole purpose of the time train then is to apply the power to keep these oscillations going and to calculate and indicate just how many oscillations occur during a given period.

For instance, the fourth wheel of a watch, with its pinion (carrying the second hand) makes one complete turn in one minute. The train must be so arranged that the center wheel with its pinion (carrying the minute hand)



makes a complete turn in one hour. Hence, the fourth wheel must make sixty turns to one of the center wheel.

Learn the names of each and every part of these watches. Do not be content to read this over once and take it for granted you can remember the terms. Each time you work on a watch, repeat to yourself the name of the part you are working upon. If you do not know, refer



to illustrations. In figure 65, you will notice how many wheels actually exist in the train of the average watch:

A Mainspring Barrel and Arbor
B Center Wheel and Pinion
C Third Wheel and Pinion
D Fourth Wheel and Pinion
E Escape Wheel and Pinion
H Pallet Fork and Arbor

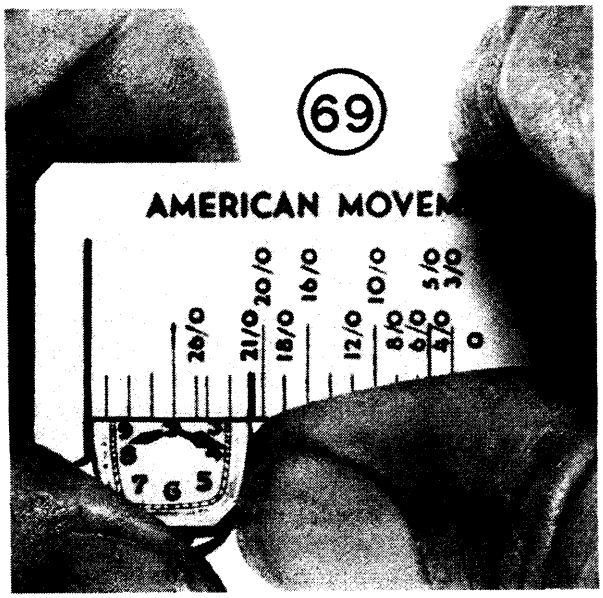
These, plus the balance, comprise the actual parts that make the watch run and probably 80% to 90% of repairs are concerned with these few wheels. Of course, there are more wheels in other types of watches, such as Automatic Wind, Repeaters, Chronographs, and Sweep Second watches, but even in the above-named watches there are basically the same number of wheels that give cause for repair.

Sec. 115 — Sizes of Watches

In watchmaking, you will learn to know and speak of a watch by its name and size, or, as in Swiss watches, by the manufacturer's name and the size. Swiss watches are imported into this country by the millions, under many different names. However, the watch movements are made in relatively few factories. For identification purposes in the Swiss watches, the Newall Fingerprint system of Swiss watches is explained. There are other systems but they are similar. Some watch material supply houses furnish gauges similar to figure 67.

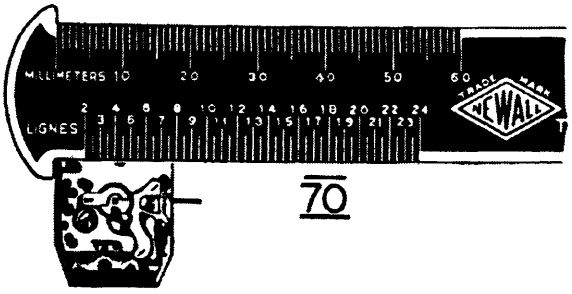
American watches are measured in sizes such as 18 size, 16 size, 3/0 size and 21/0 size. See Sec. 117. Using the gauge illustrated in figure 67, measure across the pillar plate in round watches at their widest point.

Figure 68 illustrates the correct method of measuring a 12 size movement. To measure the size of an American movement that is any other



shape than round, measure across the shorter distance as in figure 69, which, in this case, is a 21/0 size (pronounced twenty-one-oh-size).

Swiss watches are not measured in sizes, but in lignes. Figure 70 illustrates how to correctly measure a 7¾ ligne (pronounced seven and three-quarter line) Swiss watch with a ligne



gauge. In some Swiss watches you will find that the dial extends over the pillar plate so it will be necessary to remove the dial, in order to accurately determine the correct size. You should obtain a catalog illustrating these different sizes and "Fingerprints" from your watch material dealer.

The charts illustrated in Secs. 116 and 117 are a comprehensive list of the different sizes of watches, both American and Swiss. The measurements obtained with your millimeter gauge are compared with the list of watch sizes. Example: If the pillar plate measures 45.7 mm, you will see that an 18 size watch measures 45.7 mm. Therefore, figure 71 is 18 size. Remember this: the first factor to be determined is whether or not the watch is an American or a Swiss watch. For example, a 10/0 American watch measures 22 mm; a 9¾ ligne Swiss watch measures 21.99, practically the same size. However, you would not say it was a 10/0 size unless it was an American made watch.

Below are listed a great many different sizes. This is for your reference, and as you progress with the work it will be interesting to note that only a few Swiss sizes are used in our every day work such as 5½ ligne, 6½ ligne, 8¾ ligne, 9¾ ligne, 10½ ligne, etc. With continued practice you should be able to identify the size of watches without referring to the chart.

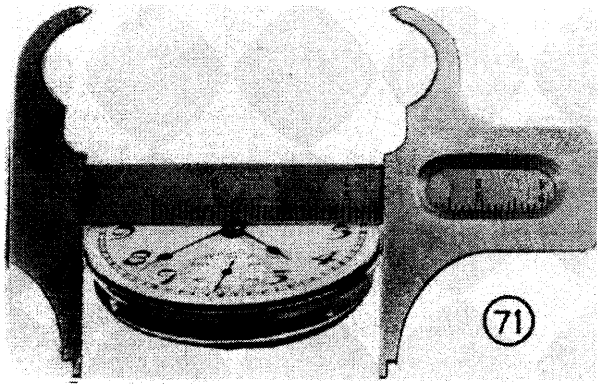
Sec. 116 — Sizes of Swiss Watches

LIGNES	MM	LIGNES	MM
3	6.77	11¾	26.51
3¼	7.38	12	27.07
3½	7.87	12¼	27.63
3¾	8.42	12½	28.20
4	9.03	12¾	28.79
4¼	9.59	13	29.33
4½	10.15	13¼	29.89
4¾	10.72	13½	30.45
5	11.28	13¾	31.02
5¼	11.84	14	31.58
5½	12.40	14¼	32.15
5¾	12.97	14½	32.71
6	13.53	14¾	33.27
6¼	14.10	15	33.84
6½	14.66	15¼	34.40
6¾	15.23	15½	34.98
7	15.79	15¾	35.53
7¼	16.35	16	36.09
7½	16.92	16¼	36.66
7¾	17.48	16½	37.22
8	18.05	16¾	37.78
8¼	18.61	17	38.35
8½	19.17	17¼	38.91
8¾	19.74	17½	39.48
9	20.30	17¾	40.04
9¼	20.87	18	40.60
9½	21.43	18¼	41.17
9¾	21.99	18½	41.73
10	22.56	18¾	42.30
10¼	23.14	19	42.86
10½	23.69	19¼	43.42
10¾	24.45	19½	43.99
11	24.81	19¾	44.55
11¼	25.38	20	45.12
11½	25.94		

Sec. 117 — Sizes of American Watches

One Ligne = 2.258 MM.
One Inch = 25.4 MM.

SIZE	MM	SIZE	MM
18	45.7	6/0	25.4
16	43.1	8/0	23.7
14	41.5	10/0	22.0
12	39.8	12/0	20.31
10	38.1	14/0	18.6
8	36.4	15/0	17.8
6	34.7	16/0	16.9
4	33.0	18/0	15.2
0	29.6	20/0	13.5
3/0	27.9	21/0	12.7
4/0	27.09	22/0	11.8
5/0	26.2	26/0	8.5



Sec. 118 — Important Factors for Identifying American and Swiss Movements

A Swiss watch is one which is made in Switzerland. A Swiss watch may also consist of a movement made in Switzerland and contained in a watch case made in the U. S. A. An American watch is one which is made and cased in the U. S. A. The most common are Elgin, Waltham, and Hamilton. But the watchmaker may still find many other watches produced by manufacturers who are no longer in business. Among these are Illinois, South Bend, Rockford, Burlington, Studebaker (made by South Bend). In fact, there are thousands of watches, both American and Swiss—some many years old —which are still in use. This fact, together with the many new models turned out now, makes the problem of identification seem complex when parts are needed. However, there are only a few ways to identify movements whether they are American or Swiss.

Movements are either round or shaped. Shaped movements are any shape other than round. This applies to both American and Swiss movements.

Another designation of movements is by their distinguishing features. Some possible variations are listed below:

Regular Lever Movement. This has a detached lever escapement. The jeweled lever movement is the most common type of watch which the watchmaker is called upon to repair. Therefore, this course is based on this type of movement.

Bascule Setting. (Employs a Rocker Arm instead of a Clutch.)

Pin Lever (or Pin Pallet). The pallets are in the form of pins instead of pallet stones. Found in mass-produced, inexpensive American and Swiss watches.

Chronographs. A movement equipped with a center second hand which can be started, stopped, and returned to zero. It differs from a timer because it also carries the normal hour and minute hands, indicating the time of day. (Principally Swiss.)

Self-Winding Watch (or Automatic Wind Watch). This is a watch with a device whereby the movements of the wearer keep the mainspring wound.

Roskopf. A type of movement without the conventional center wheel. The cannon pinion fits *loosely* on a center arbor, and is driven by the minute wheel, which is fastened friction-tight to the mainspring barrel cap. Roskopf watches generally have pin lever escapements, which are sometimes erroneously termed Roskopf escapements. Actually, very few pin lever watches are Roskopf watches.

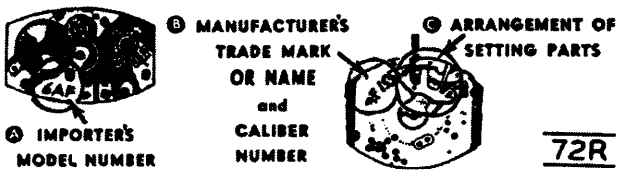
Cylinder. Refers to the type of escapement.

Both Cylinder and Roskopf are considered unreliable and the watchmaker usually will find it not profitable to repair them.

AMERICAN movements are identified principally by:

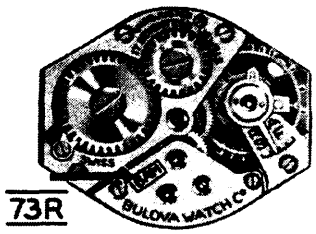
The manufacturer's name
Size
Movement and/or model number or name
Number of jewels
and in the case of pocket watches, whether
Hunting (winds at 3), or
Open face (winds at 12).

There are three common ways to identify SWISS movements:

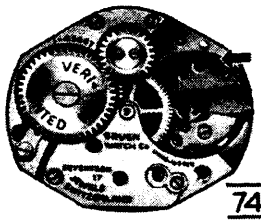


72R

A. Large *importers*—among them Bulova, Benrus and Helbros—have their name and model designations stamped on the upper plates or bridges, figure 73R. The name of the importer plus the model designation is positive identification of the movement regardless of the name appearing on the dial.



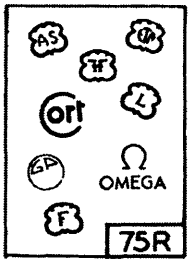
73R



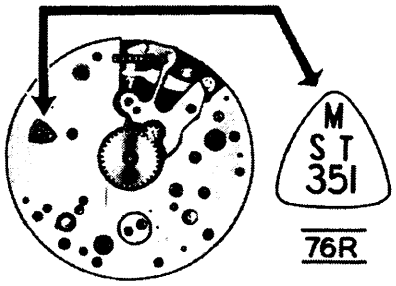
74R

B. The second method is the name or trade mark of the *manufacturer* plus the caliber or reference number. Names of manufacturers are usually found stamped on the upper bridges of plates. Caliber or reference numbers in these instances are under the balance wheel on the lower plate (figure 74R), or between the barrel and train bridges on the lower plate. In some cases it is necessary to remove the balance cock and balance to see the caliber or reference number. This type of model identification is common with Gruen movements.

An alternate identification is by factory trade mark. There are many of these trade marks. A few are shown in figure 75R. This trade mark is stamped on the dial side of the lower plate, figure 76R, and is also positive identification and should be used when method A does not apply.



75R



76R

NOTE: There are a few exceptions to the above. Some factories, such as ETA, stamp their insignia or trade marks on the dial side of the lower plate, but stamp their caliber or reference number on the lower plate under the balance wheel.

C. The method of identifying movements by their setting parts is rapidly falling into discard, because identification is not always positive. However, if the methods shown in A and B above cannot be applied, then the illustrations of setting parts found in most material catalogs can be used. Not all material dealers use the same methods of identification. However, because the basic principle is the same, only one of many systems is explained here.

The Newall "Finger Print System":

Models are listed under Newall series numbers and will be found in two sections. Fancy shape movements are located in the first section; round shape movements in the second. Movements within each section are arranged by size. Each section begins with the smallest movement and proceeds to the larger sizes.

To locate the proper Newall series number for a movement, first identify its shape. Next, remove the dial and measure across the pillar plate with a movement gauge or millimeter gauge (figure 70) to get the correct size. Now turn to the proper section, whether fancy or round and locate the size in the section. Compare the setting parts of the movement with the illustrations and the proper Newall series number will be established.

The number shown in figure 77R shows the serial number to be 1101. This number would be given when ordering parts from *any* material dealer. However, the series number should be preceded by the caption *Newall*. Thus, Newall Series Number 1101.

77R

In the Newall catalog, a number of the illustrations of setting parts incorporate the symbol DISC. This symbol denotes manufacture of movements and material for this particular model has been discontinued by the factory. However, it does not mean material is no longer available, for in some instances stocks of materials are in the possession of the manufacturer, the importer or the distributor.

The mechanics of most material catalogs are the same and are clearly explained at the beginning. No matter what system you use, proper identification is most important, both to you, who want to obtain the correct material, and the dealer, who wants to get it to you as quickly as possible.

Sec. 119 — How to Order Material for American and Swiss Watches

The material dealer from whom you order parts cannot possibly have every part for every watch which has ever been made. However, in many cases, he is able to obtain material for obsolete and old movements. At times parts may be ordered from Switzerland. The important point is that ordering parts by just giving the name of the movement or by individual names found on the dial is not enough and is not always reliable.

Give the material dealer as much information as

possible. Most dealers now prefer complete information in order to eliminate the matching of samples, which may or may not be correct. Sending samples of material has been an accepted practice for many years, but with the ever increasing reliability of the material catalogs, this practice is also being discarded. Nonetheless, the burden of identification and correct name of the desired parts is still the watchmaker's responsibility and anything which contributes to that end should be considered. The more exact information you give, the less chance there is for error and delay on the part of the dealer.

After correct identification, the next important step is to give the CORRECT NAME of the *part* desired. Next, the *quantity*. If only one is wanted, write *1 only*. If three are wanted, write *3* or ¼ *dozen*, and so on.

Here are some samples of parts orders for American watches:

Hamilton, 16s, 21 jewel, Htg. (Hunting), ¾ plate. Movement No. 1,051,201. Grade 993.
1 only balance staff (double or single roller).
Pivot _____ (State pivot diameter required).
1 only balance jewel in setting (State *cock* or *foot*).
Hole _____ (Give diameter of hole wanted.)

Elgin, 8/0, 17 jewel, Movement No. V805,299, Grade 555.
1 only mainspring, double brace _____ (width), _____ (strength), _____ (length).
¼ doz. stems.

Waltham, 6½ ligne, 15 jewel, Oval Movement No. 26,469,011, Model 650.
1 only balance complete (State whether flat hairspring or Breguet hairspring). ¼ doz. dial screws.

When ordering material for Swiss watches, you need to give the material dealer:

Either the Importer's name and model designation, *or*, the Manufacturer's name or trade mark with the caliber number or reference number.
Size of movement.
Number of jewels.
THE CORRECT NAME OF THE PART.

IMPORTANT: It is often necessary to give additional information because of variations in manufacture. Therefore, when ordering:

Parts, such as:	*Be sure to specify:*	*Abbreviated thus:*
Escape wheels and pinions	Both pivots conical	c/c
	Both pivots straight	s/s
	Lower pivot conical	s/c
	Lower pivot straight	c/s
Cannon pinions	Give height in millimeters	
Hour wheels	Give height in millimeters	
Balance staffs	Give collet and roller measurements in millimeters, especially with Gruen. Also, whether shockproof, Incabloc or regular.	
Balance complete	Shockproof, Incabloc or regular.	
Hairspring	Breguet or flat.	
Regulators	State if shockproof, Incabloc or regular model and whether hairspring is a flat or Breguet (Overcoil).	
Minute wheels	Long pinion for curved models. Short pinion for flat models.	
Pallet arbors	Thread or friction fit.	

Here are some samples of parts orders for Swiss watches:

BULOVA 6AP

1 only mainspring _____ (width), _____ (strength), _____ (length).
¼ doz. stems.

FF60

¼ doz. balance staffs
1 pair gilt hands (give length in millimeters).

GRUEN 430

1 balance complete (Specify whether Breguet or flat hairspring).

Newall Series Number 1101

1 escape wheel and pinion s/s
1 mainspring barrel
1 barrel arbor

IF THE INFORMATION YOU HAVE IS INCOMPLETE, SEND A SAMPLE.

There is generally quite a substantial saving to be had by purchasing frequently used watch material in quantities of ¼ dozen or more at a time. This is an excellent method of building your own master material cabinets. It not only saves money on each piece, but it also helps you give your customer quicker service when you have the material on hand.

MASTER WATCHMAKING

SECTIONS — 120, 121, 122, 123

Lesson 4.

NOMENCLATURE AND CORRELATION

CHICAGO SCHOOL of WATCHMAKING

CHICAGO, ILLINOIS

FOUNDED 1908

REVISED 1955 PRINTED IN U. S. A 58 992

Sec. 120 — NOMENCLATURE

(The terms used in any Art or Science)

Sec. 121, 122 and 123 consist of three pages. Sec. 121 pertains to the generally accepted nomenclature of Swiss watch parts. This section also illustrates the correlation of the parts. Sec. 122 refers to the nomenclature of a 16 size Elgin movement; Sec. 123 of an 18/0 Grade 989 Hamilton movement. The principal parts with the correct terms or names opposite the illustrations (Sec. 121) are numbered from 1 to 50, and lettered A, B, C, etc., in the correlation illustration (Sec. 121). Compare these as follows:

Letter - - - - - compares with - - - - **Number**

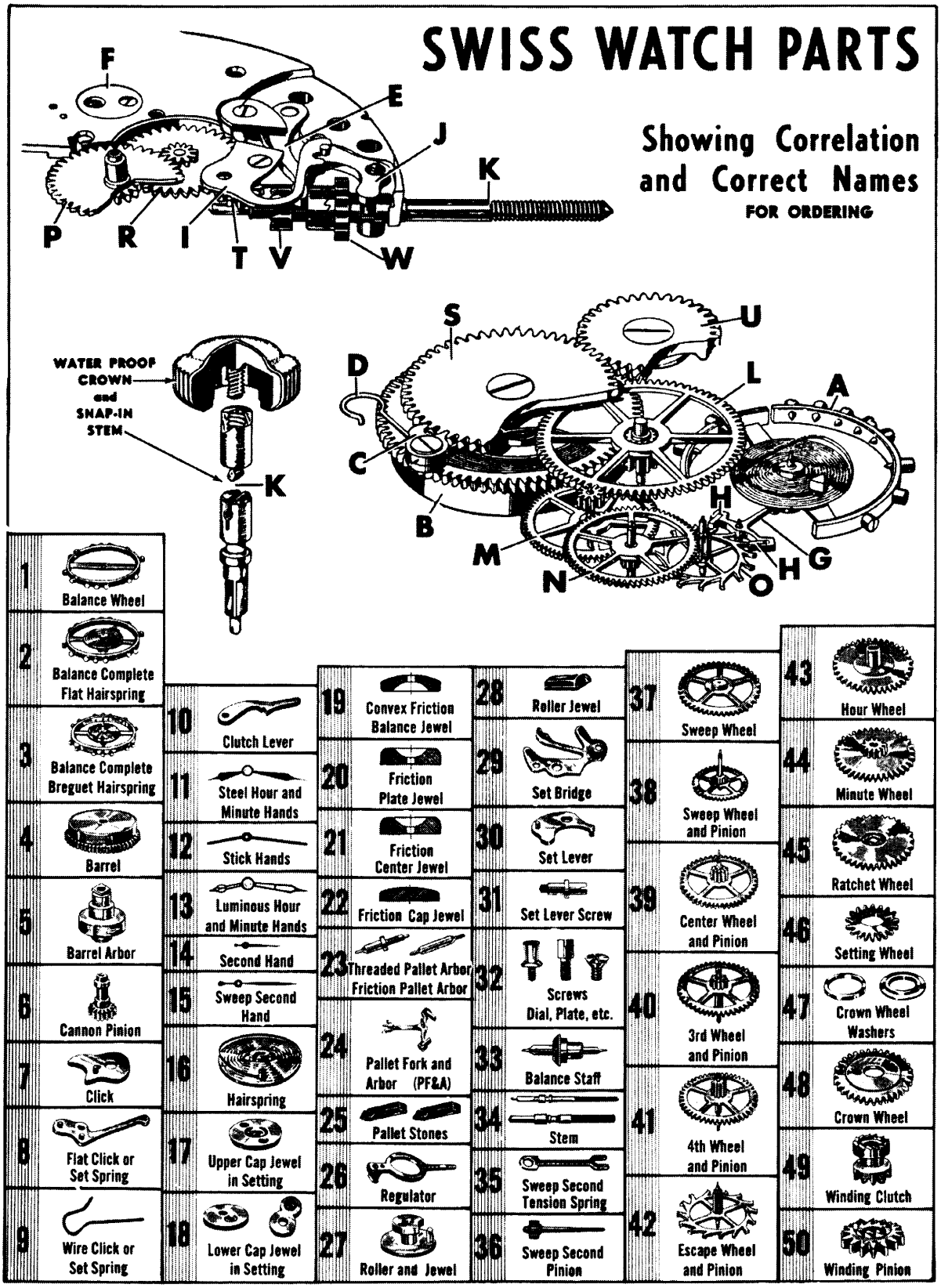
	Name of Parts	
A	Balance complete with Breguet Hairspring	3
B	Barrel with Mainspring	4
C	Click	7
D	Click Spring	9
E	Clutch Lever	10
F	Lower Cap Jewel in Setting	18
G	Pallet Fork and Arbor (PF&A)	24
H	Pallet Stone Set in PF&A	25
I	Set Bridge (although illustration is not same style as)	29
J	Set Lever	30
K	Stem (2 Styles shown)	34
L	Center Wheel and Pinion	39
M	3rd Wheel and Pinion	40
N	4th Wheel and Pinion	41
O	Escape Wheel and Pinion	42
P	Hour Wheel	43
R	Minute Wheel	44
S	Ratchet Wheel	45
T	Setting Wheel (Visible under Set Bridge I	46
U	Crown Wheel	48
V	Winding Clutch	49
W	Winding Pinion	50

Now compare the letters (A, B, C, etc., Sec. 121) with corresponding numbered parts (1, 2, 3, etc.) and try to find these parts in Sec. 122 and 123. For example:

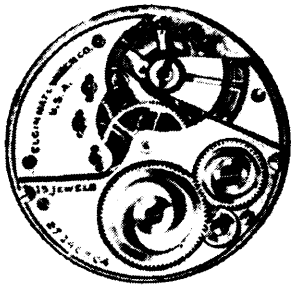
Letter A, Sec. 121 Number 3, Sec. 121 Number 104, Sec. 122 Number 217, Sec. 123	Are all Illustrations of a Complete Balance

Use this method to familiarize yourself with the names and parts shown. The ease with which you will be able to name the different watch parts and order material will soon be apparent to you, as well as others with more experience.

Sec. 121 — Nomenclature and Correlation: Swiss Watch Parts

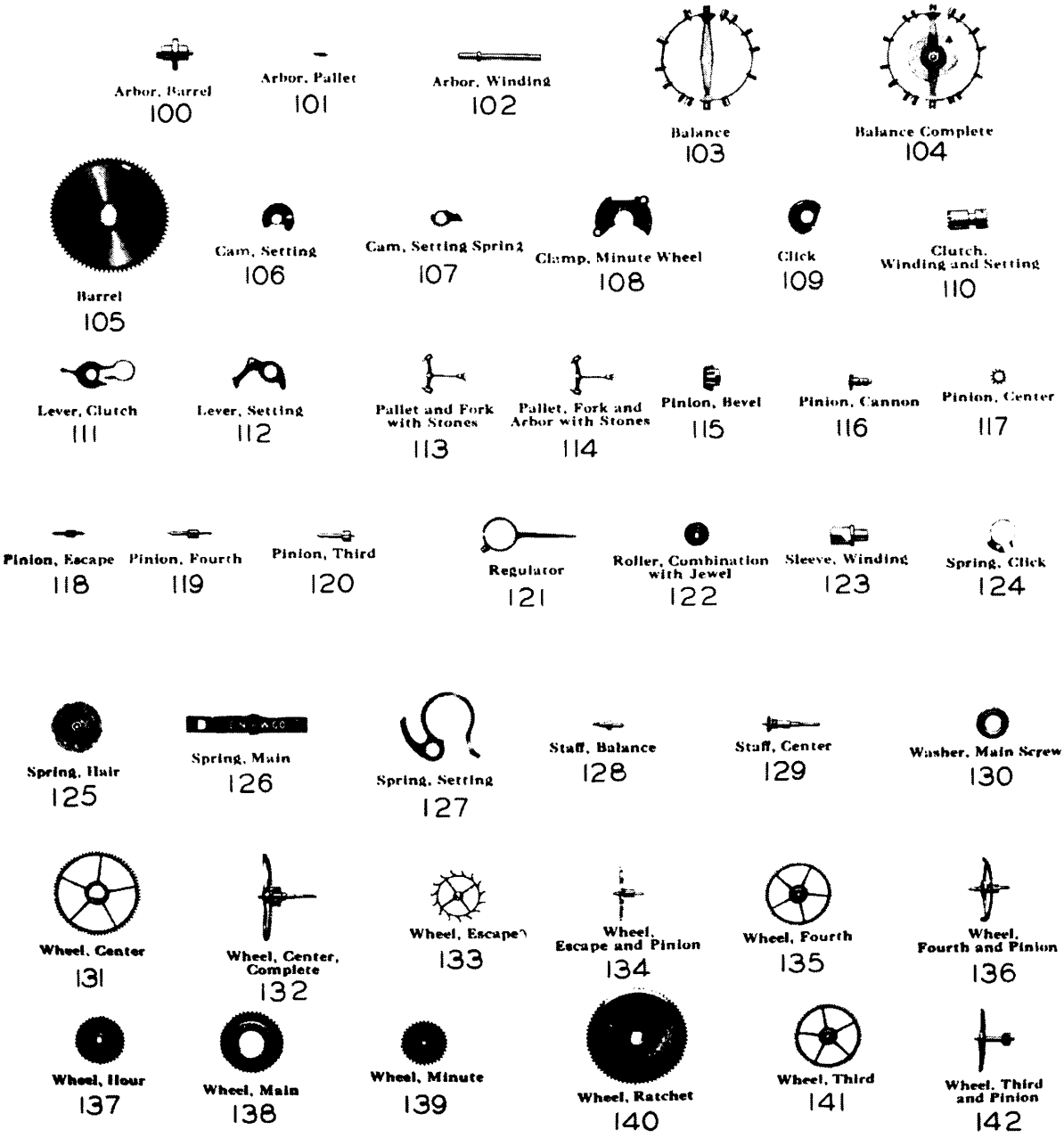


Sec. 122 — Nomenclature: Elgin Watch Parts

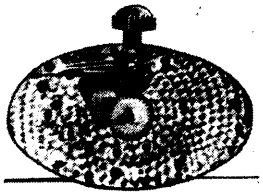


The illustrations in this section show in a general way the shapes and kinds of material used in practically all Elgin Watches.

The movement shown is a 16 size Pendant setting watch, and the named parts below are the principal ones in the watch. This type of watch was also made lever setting and some of them had steel barrels.

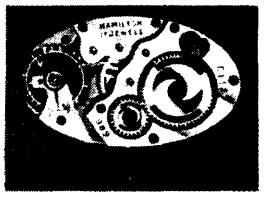


Sec. 123 — Nomenclature: Hamilton Watch Parts

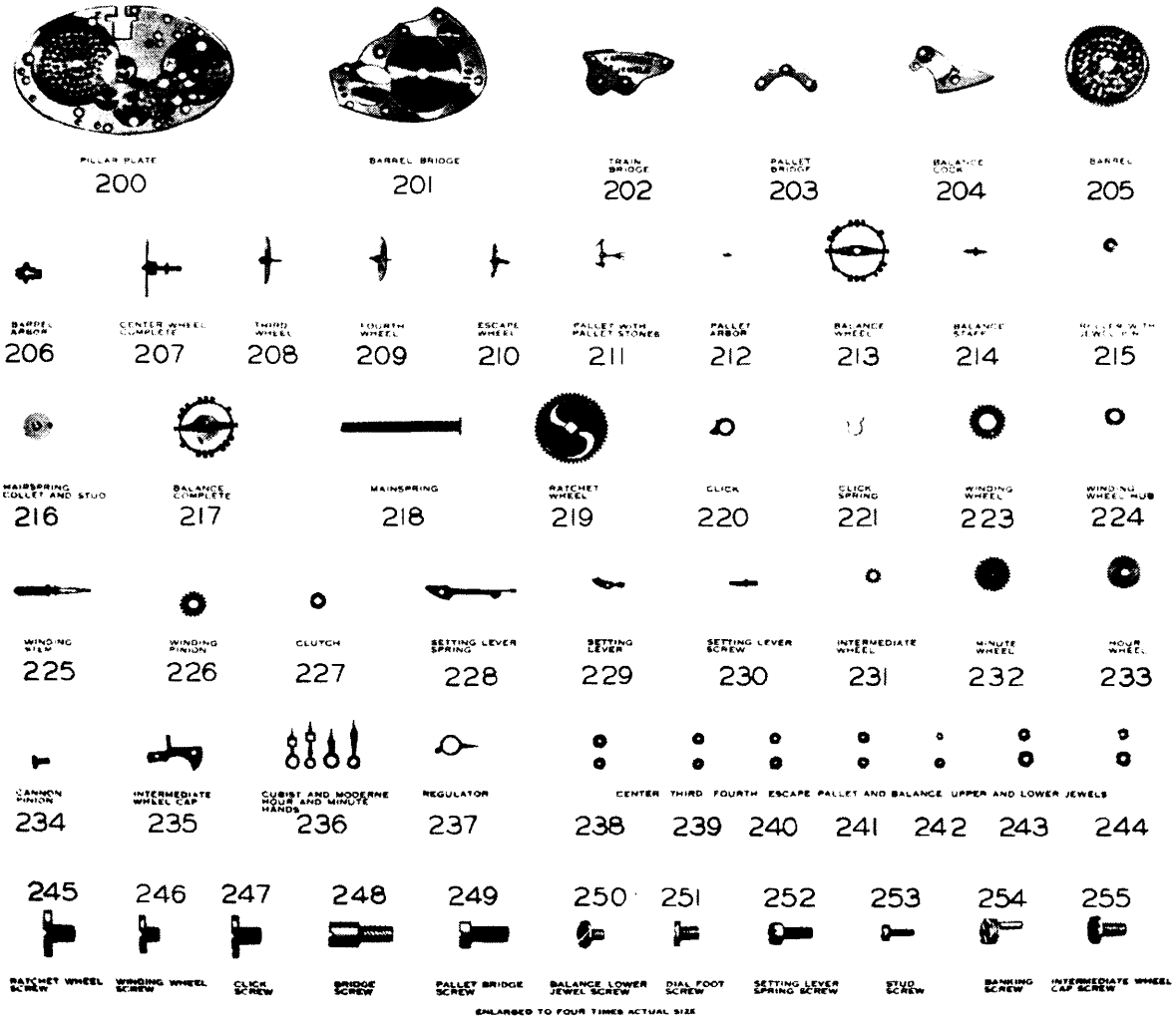


Dial Side of Movement

A Factory Nomenclature of Individual Parts or sub-assembled parts of the Hamilton 18/0 Grade 989 Movement is shown below:



Train Side of Movement



" The better part of every man's education is that which he gives himself."

-- James Russell Lowell

EXPLODED VIEWS OF A TYPICAL

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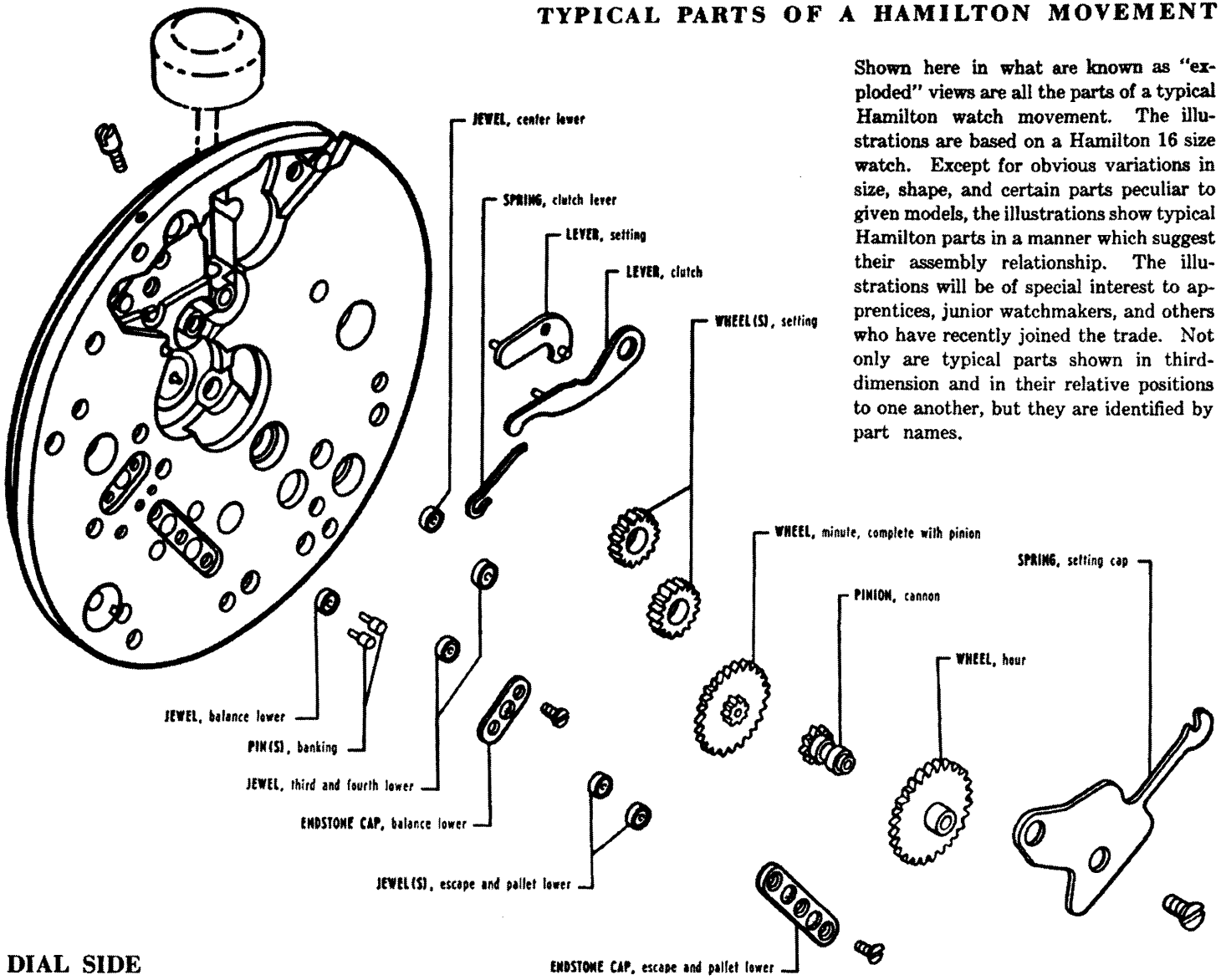
TYPICAL PARTS OF A HAMILTON MOVEMENT

Shown here in what are known as "exploded" views are all the parts of a typical Hamilton watch movement. The illustrations are based on a Hamilton 16 size watch. Except for obvious variations in size, shape, and certain parts peculiar to given models, the illustrations show typical Hamilton parts in a manner which suggest their assembly relationship. The illustrations will be of special interest to apprentices, junior watchmakers, and others who have recently joined the trade. Not only are typical parts shown in third-dimension and in their relative positions to one another, but they are identified by part names.



DIAL SIDE

HAMILTON WATCH MOVEMENT

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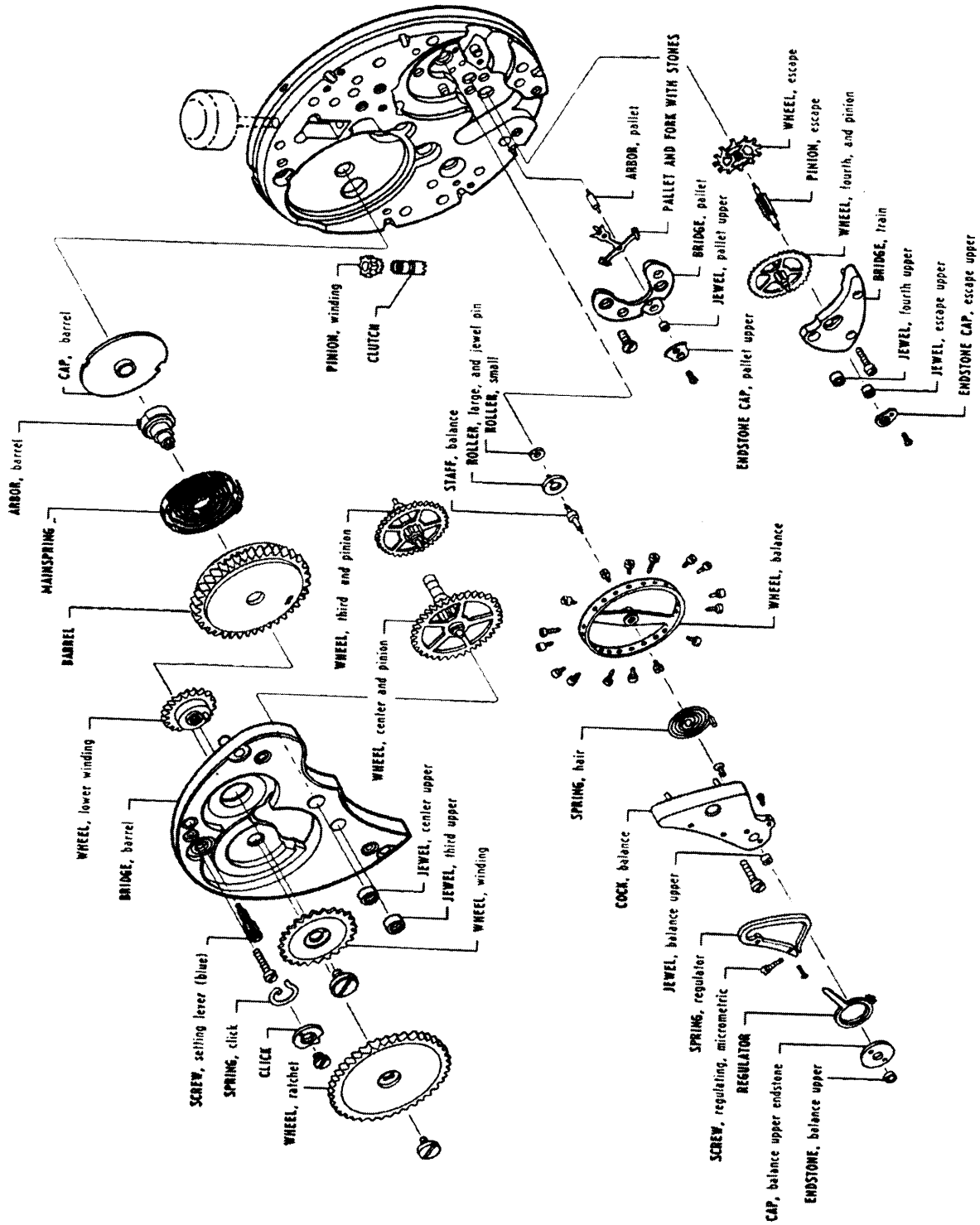

TRAIN SIDE

CHICAGO SCHOOL
OF WATCHMAKING

TABLE OF CONTENTS: Unit W1 - Lesson 4

JOB SHEETS

W4-J1 - Movement Size: American or Swiss

W4-J2 - Ordering Parts: American and Swiss Watches.

MOVEMENT SIZE: American or Swiss

INTRODUCTORY INFORMATION:

Determining the size of a movement is very important as it is used as a part of movement identification. (Sec. 115) There are two common methods of determining size: Use of Millimeter Gauge, taking measurement directly across the pillar plate and using the conversion table to determine the size (Sec. 116 & 117) or using a movement gauge on which the various sizes are marked off. The Millimeter Gauge is the more accurate.

TOOLS, EQUIPMENT AND SUPPLIES:

Millimeter gauge or movement gauge

PROCEDURE

HOW TO DETERMINE THE SIZE OF A WATCH MOVEMENT

1. Remove movement from case.

2. Measure directly across the pillar plate from point stem enters movement.

   NOTE: Movement gauges generally have a scale for both Swiss and American, use the scale that corresponds to the origin of the watch. If the dial extends beyond the edge of the pillar plate, it may be necessary to remove the dial. If Millimeter gauge is used, refer to charts in sections 116 and 117 to determine American or Swiss size.

ORDERING PARTS: American and Swiss watches

INTRODUCTORY INFORMATION

Ordering parts for either American or Swiss is alike in this respect; the dealer must have complete identification of the movement and a clear listing of the parts desired using correct names.

PROCEDURE

A. INFORMATION TO BE FURNISHED WHEN ORDERING PARTS FOR AMERICAN WATCHES

1. Name of Watch.

2. Size.

3. Model name or number. If model can not be determined, furnish serial number of the movement.

4. Number of jewels.

5. If a pocket watch, indicate whether Open Face or Hunting movement.

6. Specify part or parts desired.

B. INFORMATION TO BE FURNISHED WHEN ORDERING PARTS FOR SWISS WATCHES

1. A. Make and model designation. (Sec. 118)
   or
   B. Trade mark or Manufacturer and Calibre number.
   or
   C. Identification of setting parts.
   NOTE: If identification B or C is used you should first determine size to aid in identification. (See Job Sheet W4-J1)

2. Specify part or parts desired.

SAMPLE ORDERS: American

1 Mainspring
Waltham 18/s 17 Jewel, Hunting,
Serial number 16,188,003

1 Escape wheel and pinion
Elgin 21/0s, 17 Jewel Model 662

SAMPLE ORDERS: Swiss

1 Balance complete with flat
Hairspring FF 120

1 Breguet hairspring
Bulova 6AH