1870 Crescent Street

The “First” American Railroad Watch

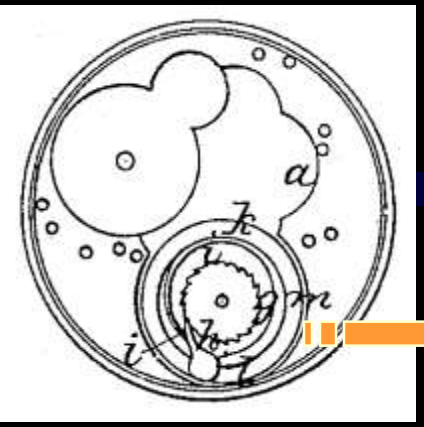
Why did they build it?

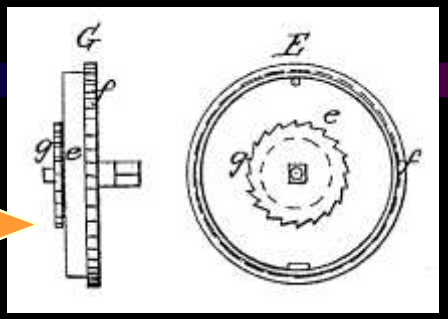
- In 1869 Charles Vander Woerd was in charge of the ¾ Plate or “Nashua” Department.
- The company decided to produce a high grade full plate watch to complement the high end ¾ plate watches derived from the Nashua design.
- Woerd had some new ideas that he wanted to incorporate and several new patents to apply.
- Waltham’s venerable 1857 model was getting a bit stale even with continuous improvements.
- It was decided that Woerd’s 1869 Patent Watch was too radical a departure.
- The 1870 Crescent was the compromise that resolved all the conflicting desires.

1869 Patent Watch

- The 1869 Patent Watch was intended to be a new design that would be very simple to manufacture.
- It could be made essentially dustproof by providing a flat plate with a die cut design to seal the movement from the back.
- This is the patent model, but the watch was never produced commercially.

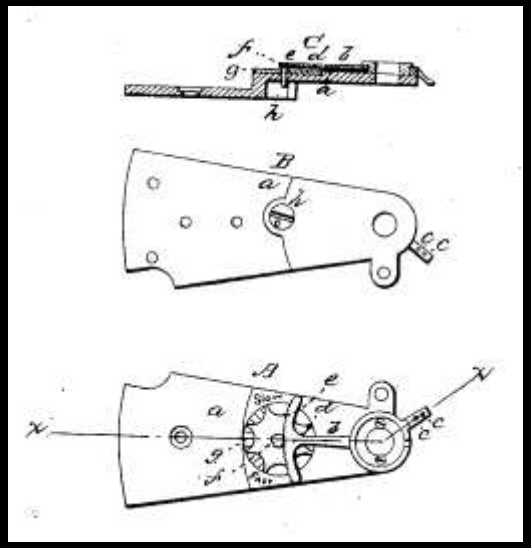
Woerd's Patents in 1870 Crescent Street



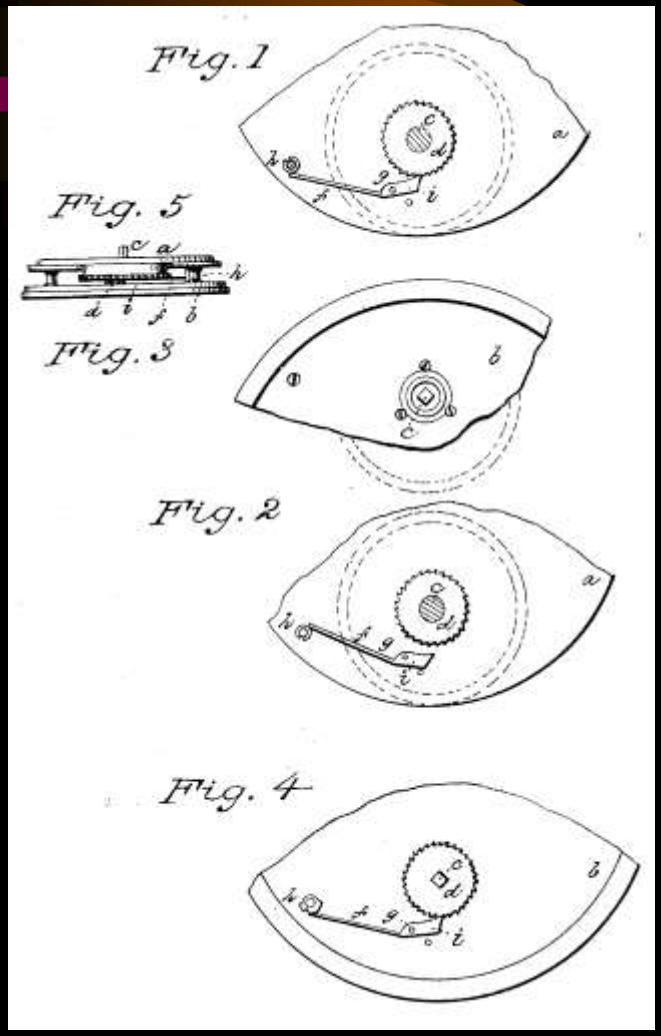


95547

- 95547 Oct 5, 69 – Barrel and Pawl
- 101398 Mar 29, 70 – Main Spring Pawl & Ratchet
- 110614 Dec 27, 70 – Regulator



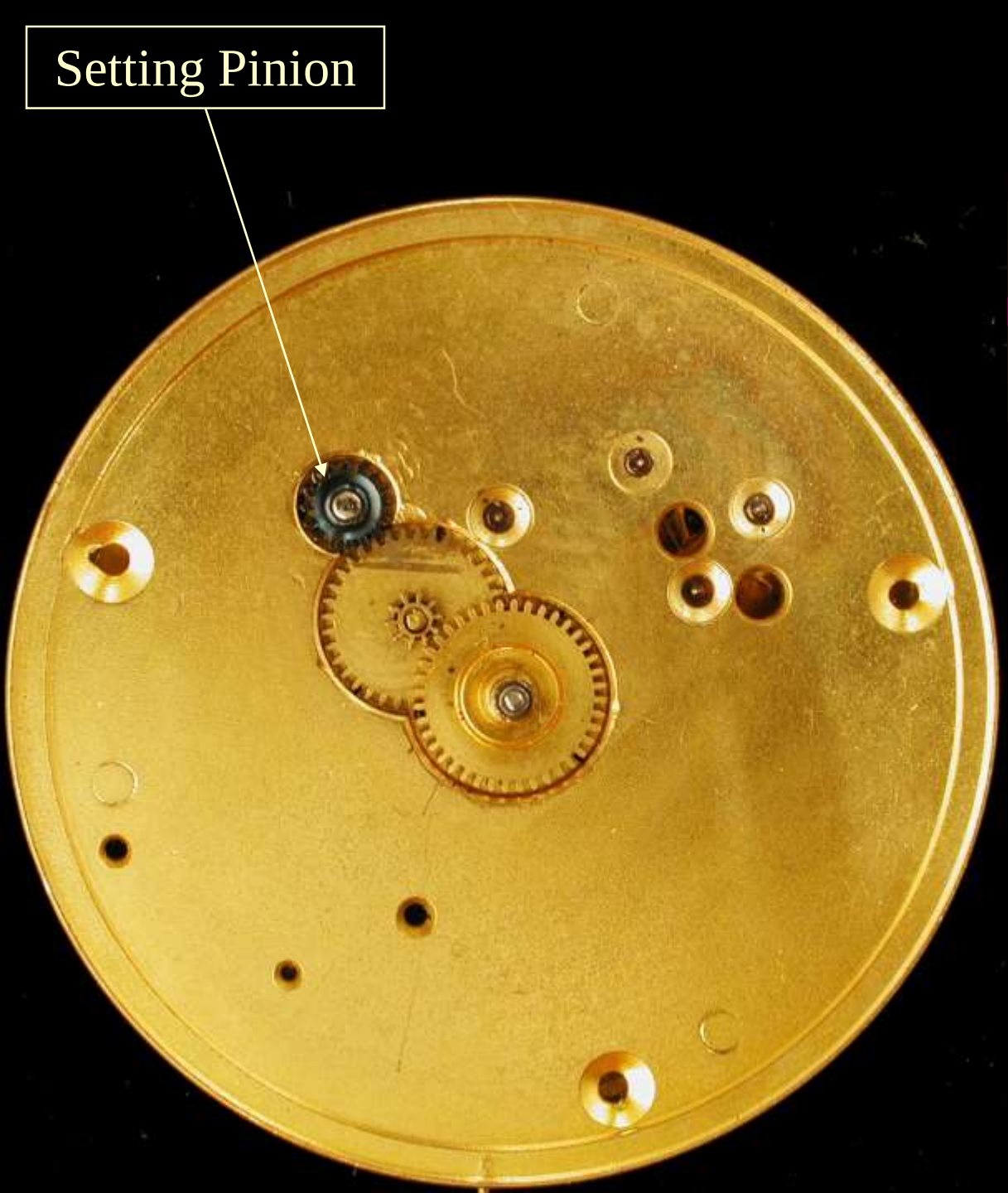
110614



101398

First Run

- Watch from First Run (470682) produced between January and May 1870.
- The regulator patent had not yet been awarded.



Back Setting

- Waltham had been making ¾ plate watches to set from the back.
- The Full Plate watch balance is over the center arbor so it requires a special mechanism to set from the back.

Stem Winding

- Waltham had introduced Stem winding and setting on their 1868 model.
- The United States Watch Co., Howard and Elgin were moving aggressively to stem wound watches.
- Waltham adapted all the existing models to stem wind with the new Crescent Street taking the lead.
- All of the early stem wind watches were hunting case configurations because of the train layouts of the existing keywind models.
- Waltham experimented with a number of different stemwind mechanisms on the 1870 model Crescent Street.

1868 Model Stem Winding

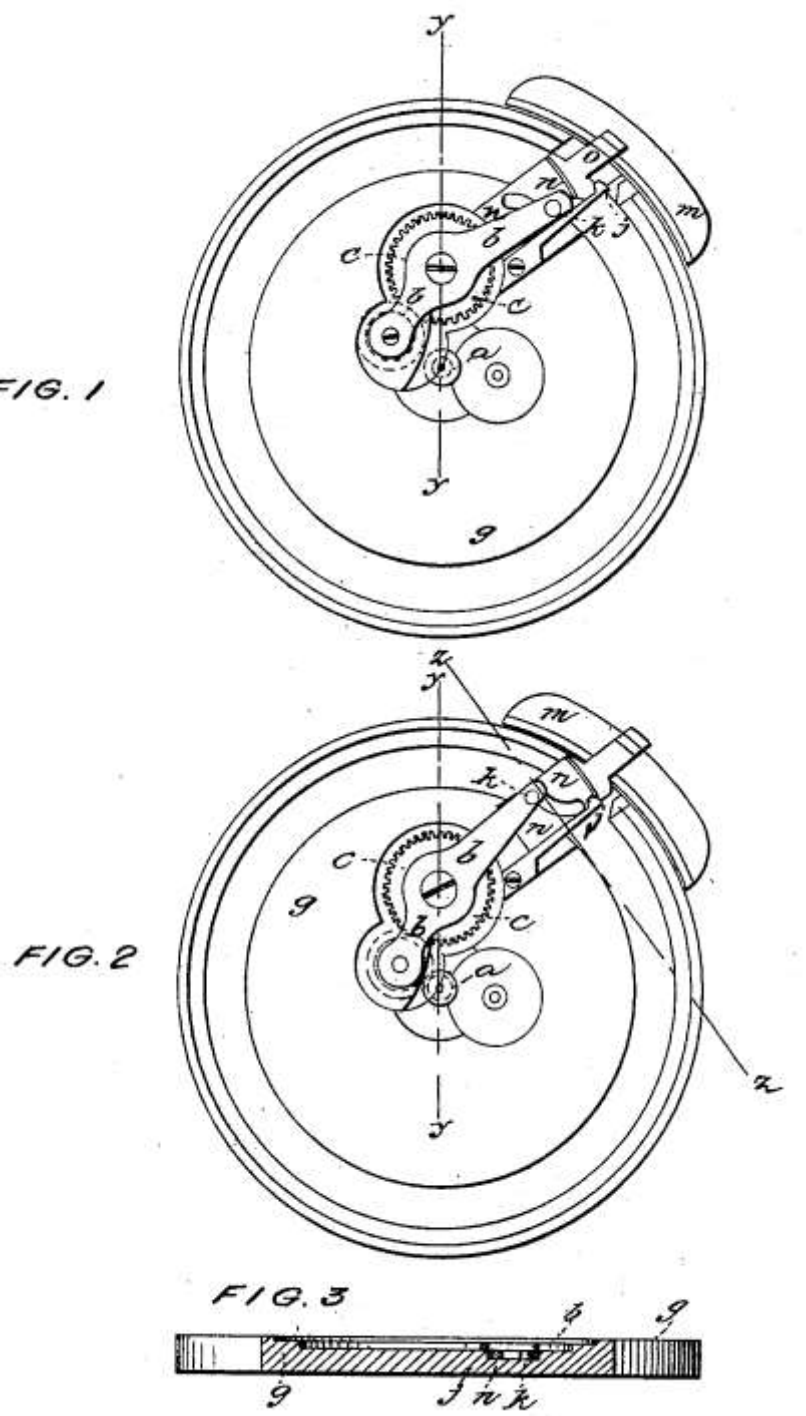
- This watch has stem winding that is functionally the same as the 1868 model.
- When pulled out the hands may be set. When pushed back the watch may be wound.
- Serial num. 650691

Winding

Setting

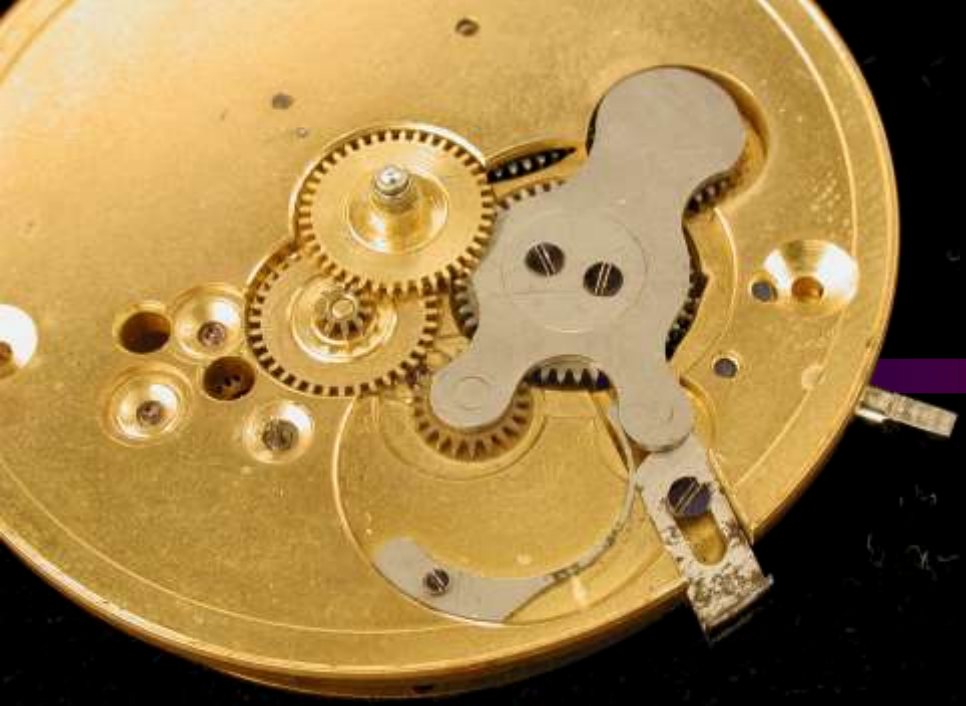
Lever

1868 Stem Wind Patent



- The diagrams show the operation of the 1868 winding and setting mechanism.
- Although it differs from the 1870 model watch, the rocking yoke is essentially the same.
- The winding is, curiously, not shown in any of the patent drawings.

1870 Push Set



- Push setting was the first advance over the 1868 setting design.
- Push setting could be adapted to internal/nail setting or external/button setting.
- Ezra Fitch patented a case improvement to latch the push set mechanism in place for convenience.

Fig 1.

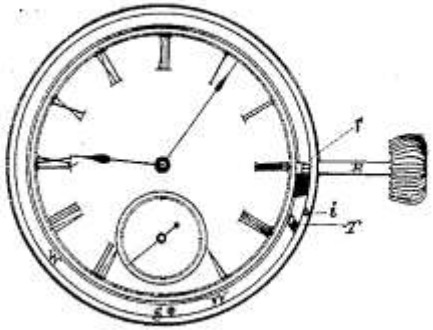


Fig 2.

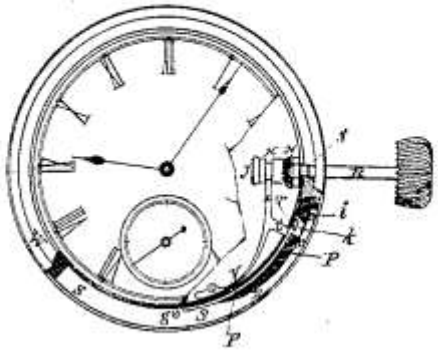


Fig 3

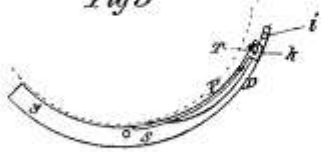


Fig 5.

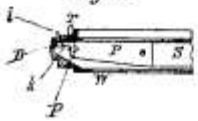


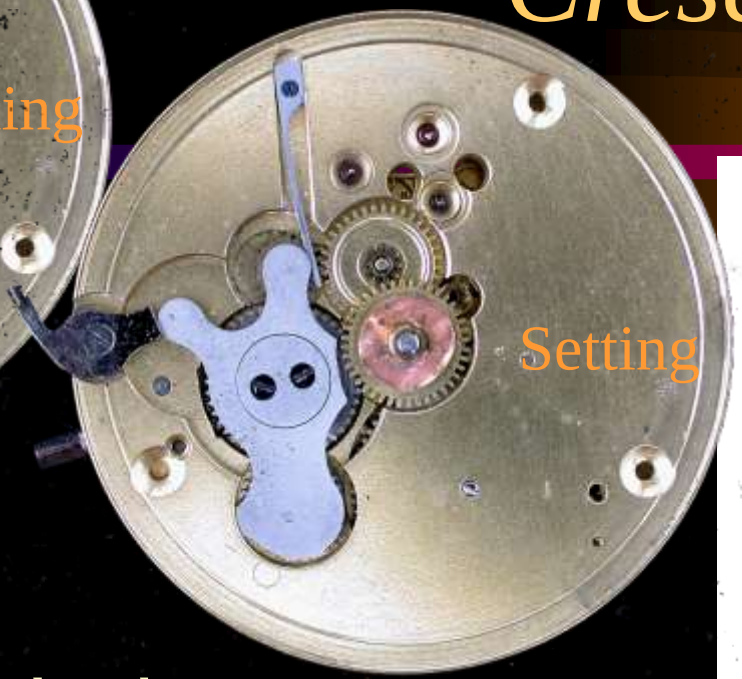
Fig 4.

Fitch's Patent Setting

- Fitch was working for Robbins & Appleton when he patented this mechanism on June 11, 1872
- It was fitted to a wide range of Waltham products in the early 1870's.
- When the setting piece is pushed in, the pin in the slot latches it.
- When the pin to the right is pushed down, the latch is released.

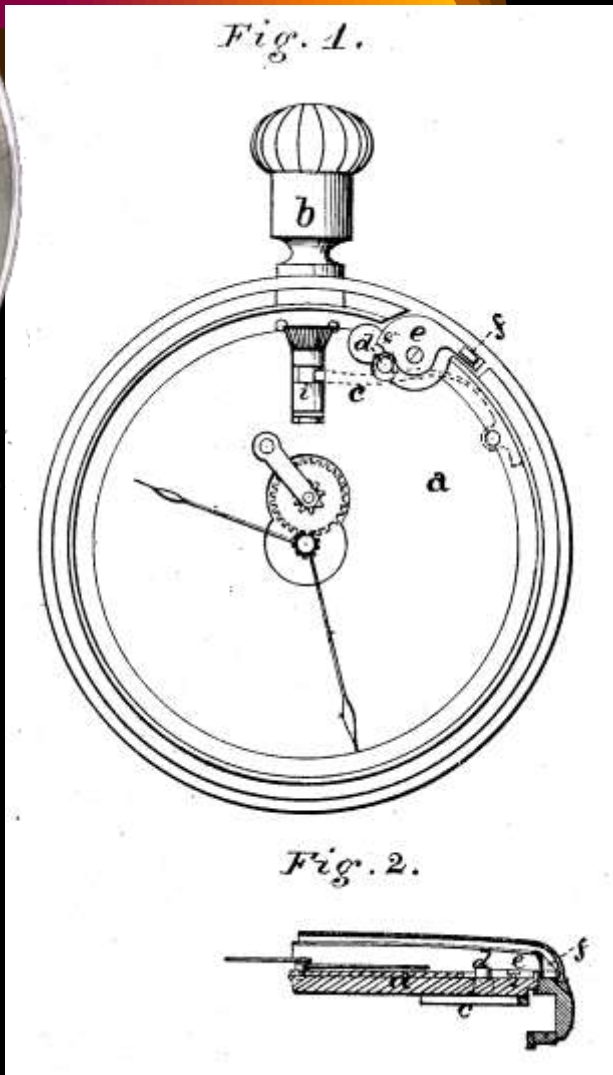
Lever Setting 1870 Crescent Street

Winding



Setting

- Lever Setting appeared on the 1870 Crescent Street on the last 3 runs starting Nov 1877.
- Woerd's lever setting patent 161725 was awarded April 6, 1875.
- The 1870 design differs from the patent mechanism shown in the drawing. See the picture of the 1872 model for an example of the patent design.
- The 1870 lever may not have been patented because of close similarity to the push set mechanism



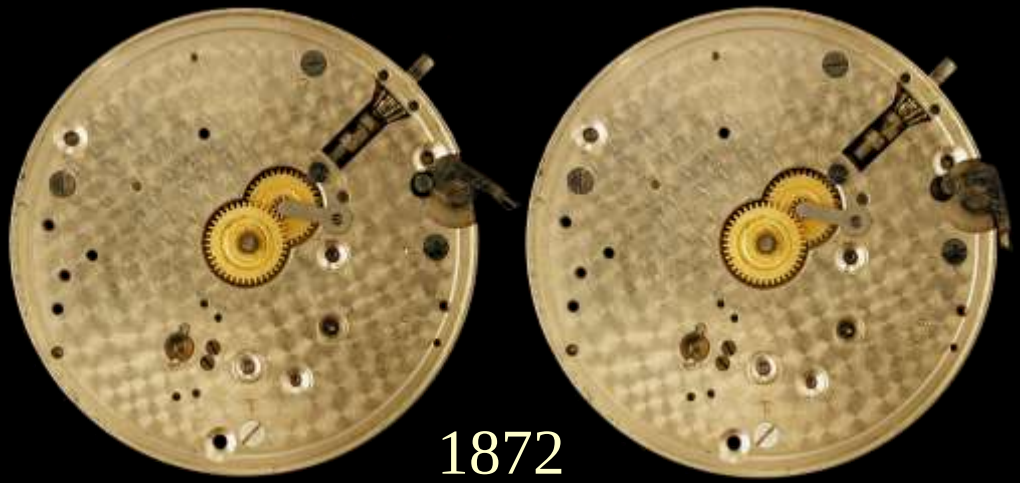
Lever Set Dial and Movement

- This is the lever set example all together with the lever extended.
- Many of the later 1870 model watches have the “Adjusted” mark.
- The earliest 1870 models were advertised as “Adjusted to Temperature.”
- These later watches may have been adjusted to positions as well but none have Breguet hair springs.

1857 & 1872 Lever Setting

1857

Set Position Wind Position



1872

Set Position Wind Position

- Waltham provided lever setting for several models at about the same time.
- The 1857 and 1872 setting levers are superficially the same as the 1870 lever.
- The mechanisms are quite different under the dial.
- The 1857 uses a similar rocking yoke but the geometry is different and it sets directly on the cannon pinion requiring an intermediate wheel on the yoke.
- The 1872 model uses a sliding sleeve on the stem controlled by a stud that is moved by the lever.

Woerd's Patent Escapement

- Woerd's patent square roller jewel escapement appears in all 1870 model watches.
- The patent was not actually filed until after Woerd left for the United States Watch Co. of Waltham.
- The somewhat fuzzy picture of the fork shows the pincer shaped fork slot and the guard pin.
- Woerd claimed that the square roller was easier to install and the fork no more expensive to punch out than a standard one.

Why the First American Railroad Watch?

- There were other American railroad watches before the 1870 Crescent Street Model.
- The first were by Barraud & Lunds for Bond & Co. sold to the Vermont Railway
- Waltham also sold 1857 models to the Pennsylvania Railroad and the New York Central Railroad.
- The 1870 Crescent Street was the first American railroad watch advertised and sold directly to users.

Announcement

To the Trade

A NEW FULL PLATE MOVEMENT

MADE BY THE

American Watch Company of Waltham.

We have to submit to your examination *a new description of Watch Movement*, which will hereafter make a separate class and variety. Being produced by the set of workmen which makes the highest grade of Waltham manufacture, and mainly by entirely new machinery, we are instructed to present it as the *best Full plate Movement ever made in this country*, and as being likely, on account of its many particular points of excellence, as well as of its general quality and reasonable cost, to become very popular. We call attention expressly to the new regulator – for which a patent is pending – by which, as is obvious at a glance, the very smallest change can be effected with certainty. The watchmaker will observe the pivot of the steel star wheel is set in a small eccentric of brass, by means of which the pinion can always be maintained in close contact with the segment on the regulator.

Another great improvement will be found in the *Ratchet Click*, which is also the subject of application for patent. By turning with a screw driver the steel post half a turn, the point of the spring which forms a part of the Click will be brought inside the post, and the watch can then be let down by the key. Other improvements will be observed in this watch; notably, the setting of the hands on the back of the Watch, also the holding of the dial by screws. It is furnished with patent centre pinion and dust ring. This variety will bear, as a trade mark, the words, "American Watch Co., Crescent St., Waltham, Mass." It is placed in the list at a price that should insure a very general sale. Being of a new shape and caliber, it will not fit the regular Waltham full plate case, and casing blocks will be supplied as usual.

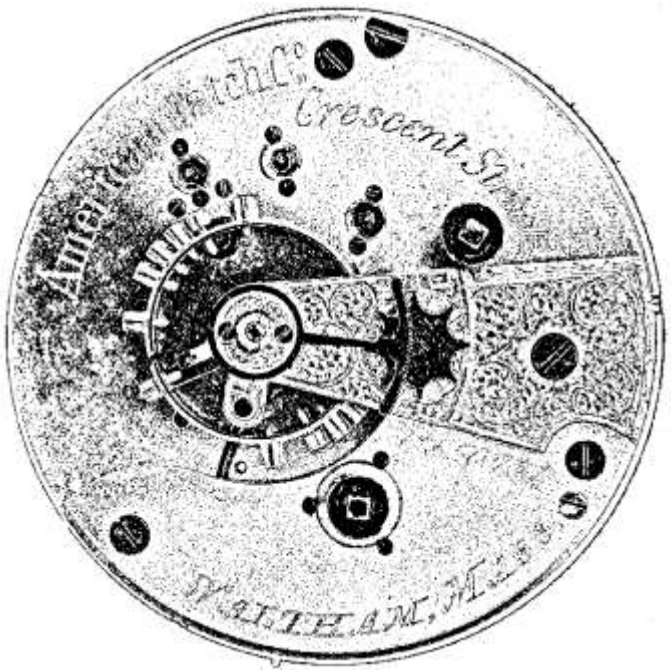
The trademarks of the various styles made by the Company:
AMERICAN WATCH Co.,Waltham, Mass.WALTHAM WATCH Co.Waltham, Mass.
AMN. WATCH Co.Waltham, Mass.P. S. BARTLETTWaltham, Mass
AMERICAN WATCH Co. Crescent St.Waltham, MassWM. ELLERYWaltham, Mass
APPLETON, TRACY & CoWaltham, MassHOME WATCH Co.Boston, Mass.
Examine the spelling of these names carefully before buying. Any variation, even of a single letter indicates, a counterfeit.
For sale by all leading jewelers.

ROBBINS & APPLETON,
General Agents, 182 BROADWAY, N. Y.

Jewelers who desire Prices, must send Business Card.

- First Advertisement for the new American Watch Co. Crescent Street grade
- The Watchmaker and Jeweler, Volume 1, No. 1, Page 15 September 1869.

The New Plate Watch—Railroad Timekeeper



THE WATCH

For Business Men.

This is the highest grade of full plate watches made at Waltham. In size and appearance, finish and general excellence, is especially intended for and recommended to business men, and in particular to railroad and expressmen, constant travelers. In fact all wanting such a watch should get the "American Watch Co., Crescent Street." Counting on such destination for this variety of their manufacture, the company devote the greatest care to its construction, employing upon it only their best men and machinery, and issue it with their reputation at stake upon its success.

No. 6.	Full Plate. Straight line Lever Movement. 18 size. 4 pair extra jewels. Expansion Balance, adjusted heat and cold. Patent Regulator and Patent Ratchet Click, in Coin Silver Open Case, pl. or eng. Tr.	$ 50.00

First Railroad Ad

This ad has been replicated in new fonts and is not identical to the original copy. A good example of the ad was not available for scanning.

It was published in 1870.

GENTLEMEN'S WATCHES—Continued.

No. 12½.

"AMERICAN WATCH CO., Crescent Street." Lever Movement, 15 Jewels, Chronometer Balance, Patent Pinion, Adjusted to heat and cold, and Patent Regulator.

	Key Winder	Stem Winder
In 2 oz Coin Silver Hunting Case,	$53	$
" 3 " " " " "	56	70
" 4 " " " " "	60	74
" 5 " " " " "	64	78
" 6 " " " " "	68	82
" 8 " " " " "	78	92
" 2 " 14 Karat Gold, " "	92	
" 2 " 18 " " "	102	
" 2½ " " " "	112	127

All the above have the Patent Dust Cap.

For heavier Gold Cases than the above we charge for the extra weight,

$1 00 per pennyweight

1.25 " "

Engraved Gold Cases, $5 extra.

Fuller 1874

American Watch Co.

WALTHAM, MASS.

3-4 Plate Stem Winders and Stem Setters.

No. 1.	"*American Watch Co.*" ¾ plate, 16 size, nickel, adjusted,	$300 00
2.	"*American Watch Co.*" Fine ¾ plate, 16 size, Nickel adjusted,	150 00
2½	"*American Watch Co.*" ¾ plate, 16 size, gilded, adjusted,	100 00
3.	"*Park Road*," same as No. 2, 2d quality,	80 00
4.	"*American Watch Co.*" ¾ plate, 14 size, adjusted, made to wind at figure XII, for open face case,	75 00
5.	"*Riverside*," modeled like No. 4, 2 pair jewels, adjusted,	40 00
6.	"*Riverside*," plain jeweled, adjusted,	35 00

Ladies' Size Stem Winders and Stem Setters.

7.	"*American Watch Co.*" 8 English size, adjusted, NICKEL,	75 00
8.	*Same* as No. 7 but not nickel,	50 00
9.	"*Riverside*," modeled like No. 7, 2 pairs jewels, adjusted,	40 00
	Same as above, but Key Winder,	30 00
10.	"*Riverside*," plain jeweled, adjusted,	35 00
	Same as the above, but Key Winder,	25 00

Full Plate Movements.

11.	"*Crescent Street*," 18 size, adjusted,	50 00
12.	"*Crescent Street*," 18 size, adjusted Stem Winder,	65 00

3-4 Plate Ladies' Key Winders.

20.	"*Appleton, Tracy & Co*" 10 English size, Expansion Balance,	30 00
21.	*Same* as No. 20, nickel, 10 English size,	35 00
22.	"*P. S. Bartlett*," 10 size, Exp. Balance,	23 00
23.	*Same* as No. 22, nickel, Exp. Balance,	27 00
24.	"*Wm. Ellery*," plain jwld. Nick. Bal.	13 00
24½.	" plain jwld. Exp. Bal.	16 00
25.	" 2 pair jwls. Exp Bal.	18 00

3-4 Plate, 14 Size, Key Winders.

26.	"*Crescent Garden*," p	13 00
27.	"*Same*, 2 pairs jewels,	16 00
28.	"*Same*, 4 pairs jewels,	18 00

Scott 1876

Other Early Ads

First	Last	Total	Begin	End	Set
470501	471000	500	1/1/1870	5/1/1870	Key
500001	500060	60	4/1/1870	6/1/1870	Key
500061	500780	720	8/1/1871	8/1/1871	Key
500781	501000	220	7/1/1871	9/1/1871	Key
501001	501020	20	2/1/1871	2/1/1871	Push
501021	501480	460	2/1/1871	10/1/1871	Push
501481	501500	20	2/1/1871	10/1/1871	Key
501601	502000	400	4/1/1871	4/1/1871	Key
520001	520060	60	9/1/1870	9/1/1870	Key
520061	520140	80	9/1/1870	11/1/1870	Key
520141	520300	160	10/1/1870	10/1/1870	Key
520301	521000	700	10/1/1870	5/1/1871	Key
550001	555000	5000	7/1/1871	6/1/1872	Key
600501	601000	500	5/1/1871	5/1/1872	Push
601001	602000	1000	1/1/1872	5/1/1872	Key*
626001	627000	1000	1/1/1872	12/31/1872	Key*
650001	651000	1000	4/1/1872	9/1/1872	Push^
671001	673000	2000	10/1/1872	5/1/1873	Push
690001	691000	1000	10/1/1872	2/1/1875	Push
770001	771000	1000	4/1/1876	9/1/1877	Push
986001	987000	1000	11/1/1877	9/30/1883	Lever
1140001	1140500	500	1/1/1879	2/28/1881	Lever*
1323501	1324000	500	4/1/1881	10/31/1882	Lever*

^1868 style lever found in run
*Watches marked Adjusted seen in run

1870 Runs

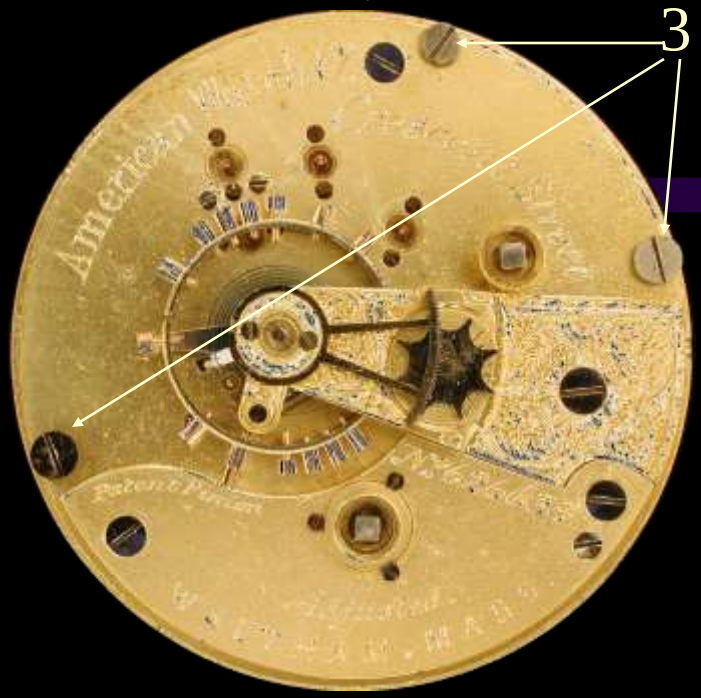
- Production began January 1870
- Production ended September 1883
- First Stemwind February 1871
- Last Keywind December 1872
- 22 Runs (14 sequences)
- 17,900 Total Production
- 9,920 Keywind
- 7,980 Stemwind
  - 2,000 Lever
  - 5,980 Push

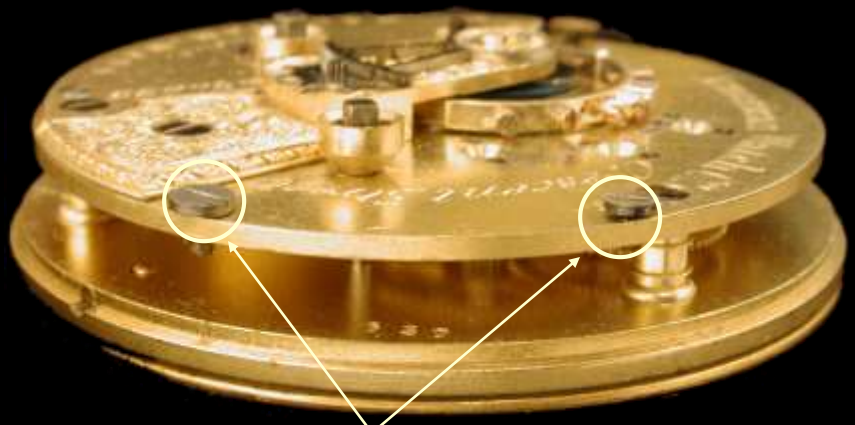
Variations

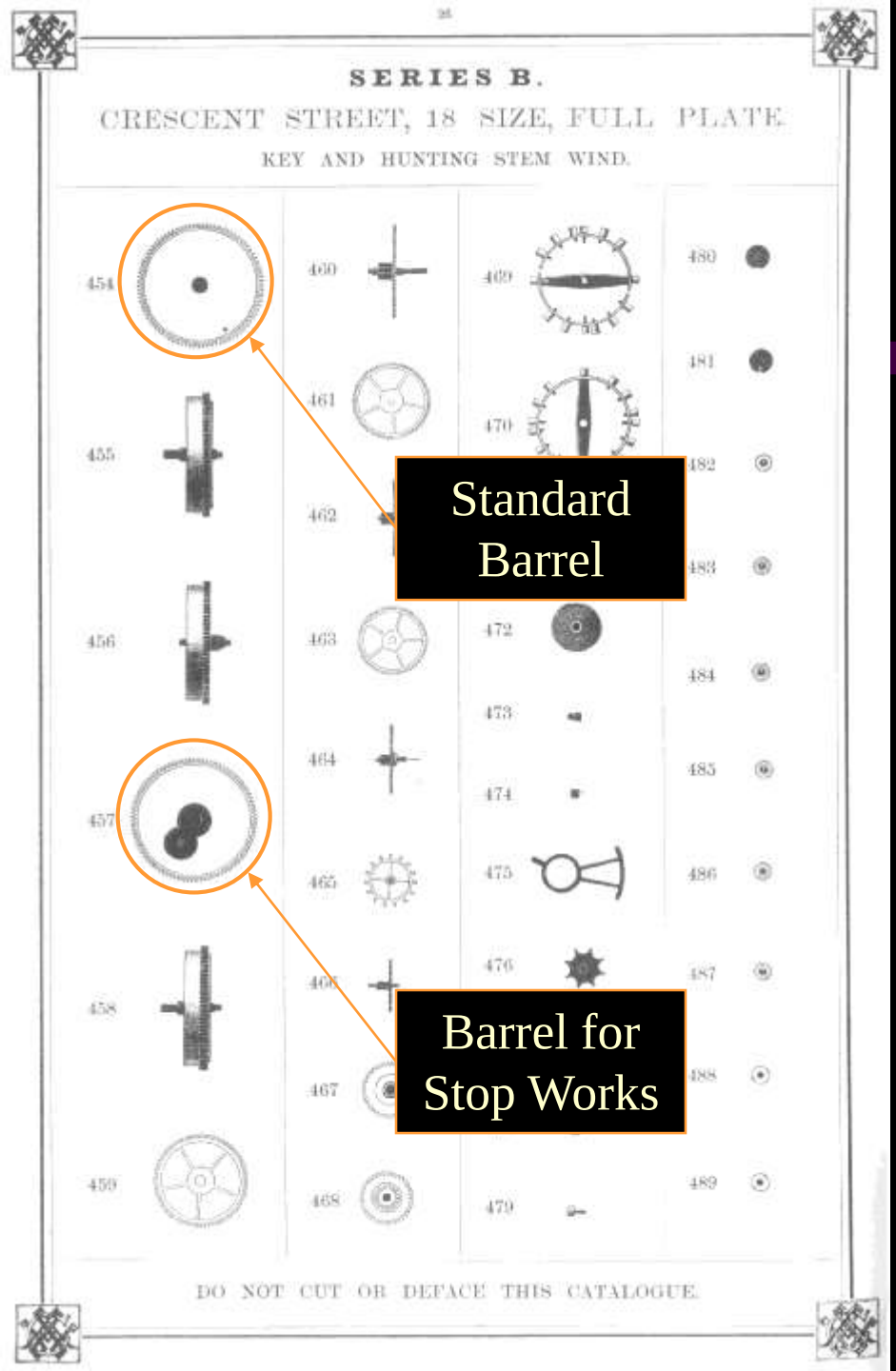
- Mainspring
  - Let down arbor – On all keywind
  - Stop Works on Barrel – Early KW
  - First model SW one piece mainspring click – Early random
  - Second model SW two piece mainspring click - Unknown
  - Third model SW two piece let down mainspring click – Late random
  - Large 70 Tooth winding wheel – Later (Early 36 tooth is scarce)
- Case Screws
  - Long case screw in pillar plate – Early KW production
  - Single case screw – “All” keywind
  - Two case screws – “All” stemwind
  - Three case screws – One keywind (possibly a modification)
- Push Setting Variants
  - Approximately 90% Nail set vs. 10% Button set (estimated)
  - Fitch’s Patent setting 25% (estimated)
  - Single example of 1868 style setting known
- Single arm regulator – KW Random
- Heavy balance screws vs. light screws – Not observed
- Marking
  - Marked “Adjusted” – Late production, random
  - Serif Font “WALTHAM MASS.” – Early KW

Case Screws

Four known variations of case screws.







Stop Works

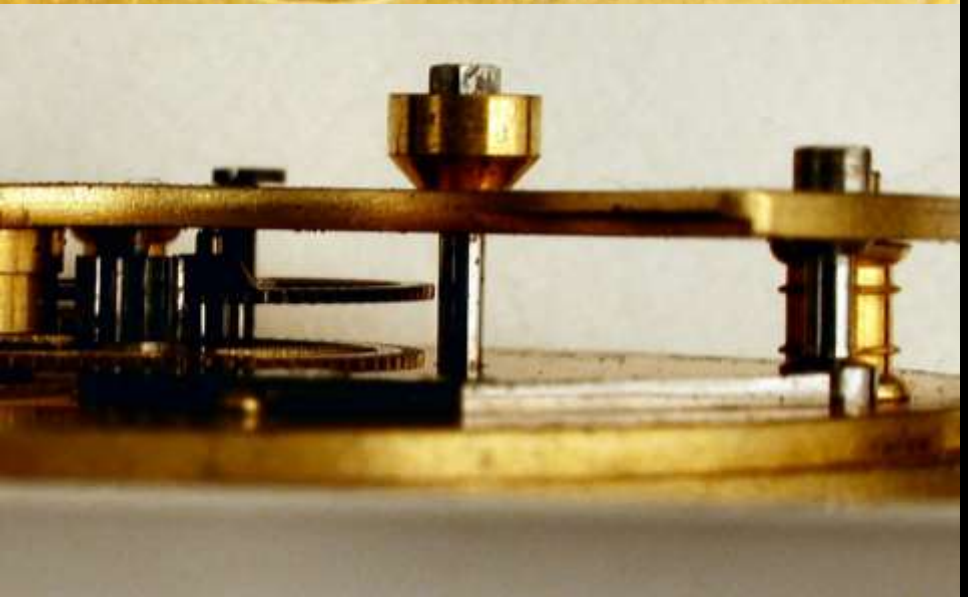
- Waltham phased out stop works on all models soon after the introduction of the 1870 model.
- Early examples were fitted with Geneva stop works on the barrel.
- The page is from the 1884 Waltham parts catalog.

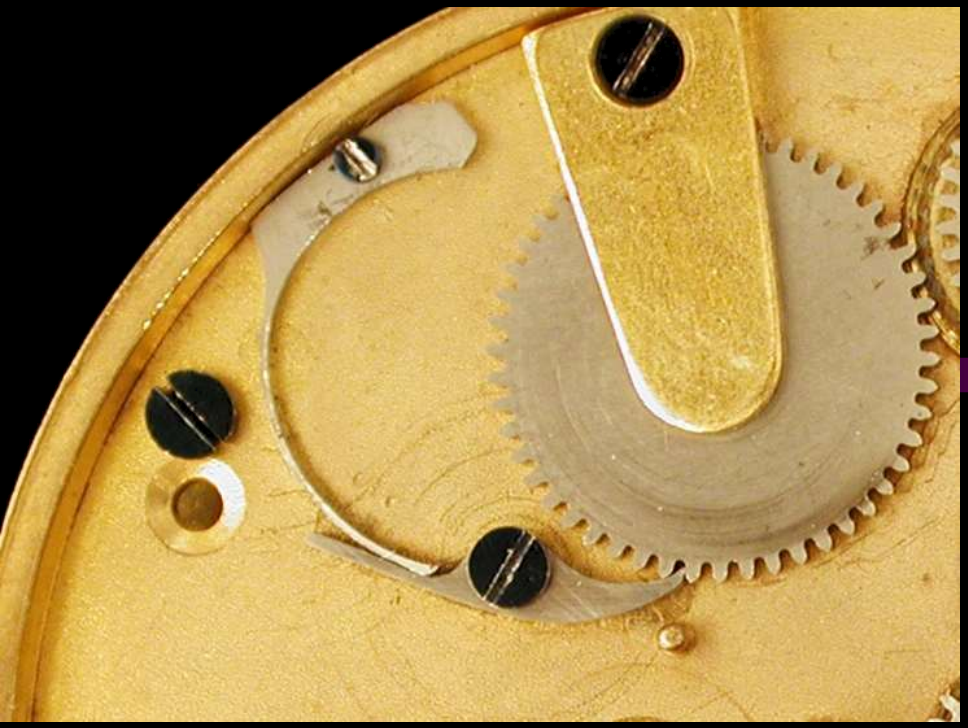
- Early Barrel with Stopworks (removed) and two later Barrels.
- Note the variation in marking and font.

Three Generations of KW Barrels & Bridges

Mainspring Letdown on KW

- Waltham heavily touted Woerd's patented letdown ratchet.
- When the arbor is turned the click tail moves to the other side of the arbor.





1857 Model Letdown Screw

- Stem wind 1857 models are often fitted with a screw that looks similar to the 1870 Letdown Arbor.
- Since the ratchet wheel is accessible when the dial is removed, the screw is at most a convenience.
- In this example it all appears to be there. However, a short click and spring are present instead of the integral click and long tail spring that operate with the screw.
- An intact example was not available to photograph but the spring tail engages the screw slot and functions the same as the 1870 model example.

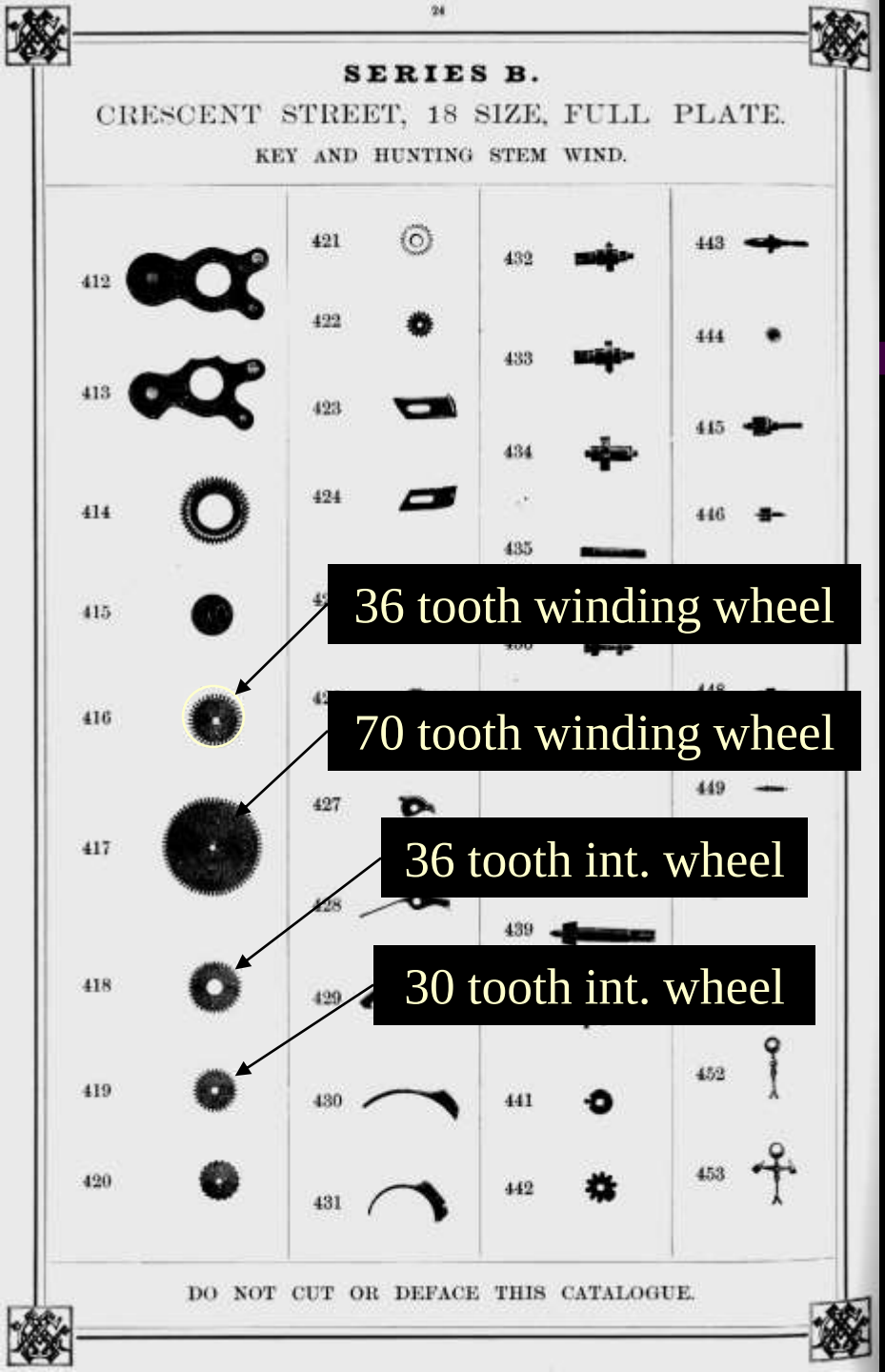
Stemwind Mainspring Variations

Letdown Hole

1 piece click

- The 1870 model was made with several variations on mainspring management
- The original stemwind click and spring is very similar to that on the 1872 model Park Road.
- It is let down from the dial side with a thin pin.
- The final form provides access from the side of the well for a convenient letdown.

2 piece click w/ Letdown



Winding Wheel Variants

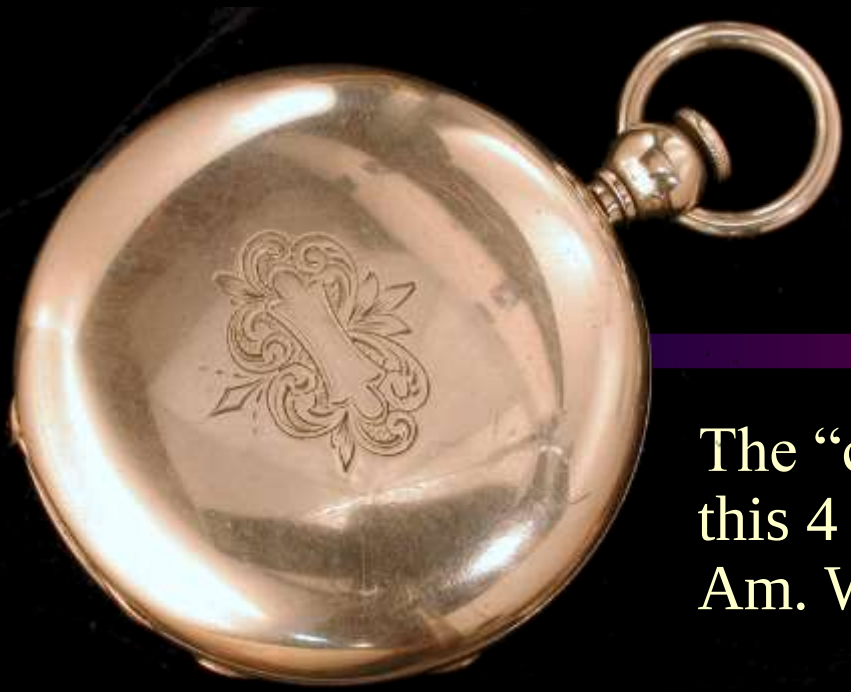
- The earliest stem wind 1870 models use a winding wheel of 36 teeth driven by a 36 tooth intermediate wheel.
- The later models use a 70 tooth winding wheel driven by a 30 tooth intermediate wheel.
- The 36 tooth form was not found in any of the examples studied but is in the parts book.

1870 Model Cases

- The 1870 model would not fit in a standard 18 size case.
- Waltham provided case blocks on request to case makers.
- There are a wide variety of cases found in Silver, Ladd's patent gold filled and 18K gold.
- Other gold filled cases are uncommon.
- An unusually high number of watches survive in AWCo 18K cases.
- The keywind watches may or may not have the "hands" indication on the cuvette.

Sterling Silver Case

The “classic case” for the 1870 model is this 4 oz. Coin Silver example signed Am. Watch Co., Waltham Mass.



AWCo 18K Case

- Many of the stem wind examples are found in cases like this AWCo 18K example.
- This example is button set, but similar cases are also found on nail set watches.

G. W. Ladd Patent Case

- Ladd's Patent was awarded in 1865.
- Many gold filled cases found with 1870 models are Ladd's patent.
- This example is an Open Face keywind case.

Other Case Makers

- Waltham provided blanks for other makers to make cases for the 1870 model.
- The keywind case is marked H.P. & Co.
- The nail set case is marked O.B. & H.
- Neither case maker has been identified.
- Both cases are 18K