Origins of the Waltham Model 57

References and Notes

by Ron Price

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originally published 2005 by NAWCC as Supplement No. 7
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NR New Reference: Philip T. Priestley, 2009 monograph published by NAWCC "Aaron Lufkin Dennison, An Industrial Pioneer and his Legacy"

Reference Notes

100. Serial Number Ledger:

Luckily for us, the American Watch Company (AWCo.) pre-pared a serial number ledger of all watches they made "Record of Watches" [ref. 1]. Although an occasional move-ment shows up that does not match exactly with the entry in the ledger, the ledger is amazingly accurate.

This ledger was likely derived from production ledgers that contain entries in chronological order by date when groups of identical movements were completed. The serial number ledger is in order by serial number. It has the same organizational structure and handwriting from beginning to end just as though it were a single assigned task, in which case it probably was compiled in the late-1880s after its last entry (S/N 1,500,000). It is the first of two known volumes [ref . 98].

Three production ledgers are in the "Waltham Watch Co. Collection" of docu-ments at the Historical Collections Department, Baker Library, Harvard Business School, Catalog items: L-1, v. 934 (1867-1868); L-2, v. 935 (1869-1872); L-3, v. 936 (1915-1917). The author was able to correlate several sample entries taken at random from the 67/68 production ledger with the serial number ledger.

At least two master handwritten serial number ledgers exist with identical line-for-line data but written in different handwriting. There is a very good possibility that additional ledgers existed that were used in different departments in the factory. If so, and even if they are copies of the original master (handwritten or photocopied), their owners might have made useful notes on them in the margins or covers. The author would appreciate being notified of any such records.

Record of

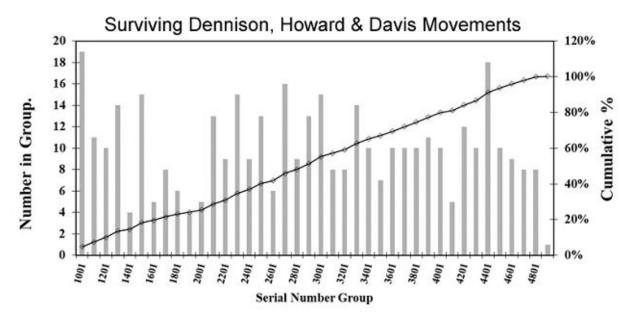
Page 1 of the serial number ledger [ref. 1] lists DH&D watches with S/Ns 1744, 1747, 1793 (with unclear production date), and 2601-5000 (with production date "March, 1856 to May, 1857"). See the first few entries in the Serial Number Ledger illustrated above. This handwritten record of movements by serial number might be a copy of Hauptman's [ref. 16] reference number one furnished to him in 1958 by Mr. George R. Watts, an executive of the WWCo. since 1903. Mr. Watts refers to this ledger as "two very old handwritten books" in a letter dated June 14, 1957; see reference 105 below.

Also see the note in reference 1 illustrated above that says, "The Dennison, Howard & Davis Co. finished work on this last hundred" which implies that the last 100 DH&D movements were actually made by BWCo., or did the scribe misinterpret a document in the files that was written 30-some years earlier. Perhaps Howard & Rice was intended; there is evidence that some (all?) of these movements were cannibalized for Howard & Rice movements (see reference 103 below).

One has to wonder if there is any significance for the DH&D entry 2601-5000 if AT&Co. did not possess these movements. On the other hand, perhaps the scribe simply dutifully logged an old BWCo. document (and/or made an educated guess based on the date the new company started) and filled in numbers 2201-2600 as "not made" to complete the serial number sequence. Based on other supporting evidence herein, the author gives no significance to this entry.

101. Statistical Analysis:

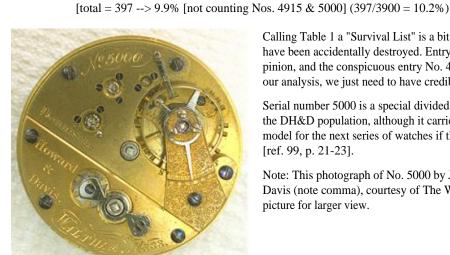
A list of serial numbers of surviving DH&D movements is summarized below in Table 1. This list is 9.9 percent of the original production, if indeed all 4000 movements between 1001 and 5000 were actually made and sold. One would think the surviving watches would be uniformly distributed over the full range, and they appear to be according to an analysis of the data originally performed by contributor Hans Dahlke. See Hans' histogram chart below based on current data. If the original production were complete over the serial number range, then the cumulative uniformly distributed survival would be a straight line over the range, as it nearly is in the chart. This analysis indicates that DH&D movements were not cannibalized for other signature movements (at least not in large numbers, although the last group of 100 movements is conspicuously small).



NAWCC's past research committee chairman, Snowden Taylor, points out that the recorded DH&D survival rate (as of this writing: 397/4000 = 9.9 percent) is consistent with the Samuel Curtis survival rate (76/900 = 8.4 percent). We would expect the survival rates to be nearly equal because the process of obtaining these serial numbers is the same. Therefore, if a large number of DH&D movements were not made, we would be seeing a much smaller apparent survival rate. In addition, the survival rate of DH&D S/Ns 1001-2600 (160/1600 = 10 percent) is consistent with the range 2601-5000 (237/2400 = 9.9 percent). If the latter range were in possession of Royal Robbins (per reference 100 above), Mr. Robbins did not cannibalize many (if any). As noted in the next reference, Sales Records [ref. 102], sales records of the AWCo. exist that list about 120 DH&D movements starting at S/N 4081. Again, Taylor points out the survival rate of the range 4081-5000 (84/920 = 9.1 percent) is consistent with the prior range (311/3080 = 10.1 percent), so that large numbers of DH&D watches were not cannibalized by the AWCo., although again the last 100 group is suspicious and is affecting this high-range calculation. Indeed, as shown below in reference 103, there is strong evidence that Howard cannibalized a number of movements (at least plates) in the 4901 S/N range (and others); i.e., they survived as H&R movements, not DH&D movements (in which case the high range survival rate would be 237/2300 = 10.3%, and the 4081-5000 range should really be 84/820 = 10.2%).

Table 1. Surviving Dennison Howard & Davis Movements

1002 1003 1006 1007 1009 1011 1014 1016 1021 1034 1035 1038 1043 1053 1065 1072 1073 1079 1089 1105 1107 1109 1131 1136 1148 1184 1185 1187 1188 1190 1204 1205 1208 1235 1245 1263 1267 1276 1282 1294 1306 1312 1316 1320 1322 1351 1357 1358 1359 1369 1373 1375 1379 1385 1445 1466 1478 1483 1517 1525 1532 1534 1540 1543 1546 1547 1551 1557 1559 1571 1585 1591 1598 1633 1646 1657 1662 1690 1701 1718 1719 1724 1751 1757 1768 1786 1813 1832 1850 1855 1876 1881 1924 1936 1970 1975 1st 1,000 total = 96 --> 9.6%2024 2053 2068 2078 2092 2117 2126 2148 2149 2150 2153 2155 2158 2171 2174 2186 2193 2196 2201 2220 2231 2233 2254 2259 2279 2289 2299 2301 2304 2305 2325 2347 2356 2358 2361 2363 2368 2376 2383 2385 2386 2394 2439 2443 2457 2458 2470 2471 2491 2496 2497 2502 2504 2506 2521 2525 2545 2553 2565 2568 2572 2583 2590 2600 2612 2619 2622 2647 2657 2673 2714 2725 2736 2737 2738 2739 2753 2756 2761 2772 2776 2788 2795 2796 2797 2798 2801 2829 2836 2855 2857 2880 2884 2886 2894 2929 2937 2938 2940 2941 2942 2943 2954 2964 2976 2981 2982 2993 2nd 1,000 total = 108 --> 10.8%3003 3006 3011 3020 3026 3027 3036 3037 3060 3066 3074 3078 3085 3092 3094 3135 3141 3147 3156 3164 3169 3199 3200 3210 3222 3244 3254 3265 3275 3276 3284 3306 3311 3314 3315 3330 3334 3337 3348 3355 3369 3376 3384 3392 3400 3422 3429 3433 3436 3443 3445 3470 3475 3482 3486 3508 3515 3519 3528 3580 3582 3589 3611 3627 3631 3632 3648 3649 3668 3691 3694 3700 3703 3708 3713 3730 3733 3741 3770 3772 3773 3793 3801 3803 3812 3823 3825 3826 3830 3858 3883 3899 3914 3931 3935 3949 3953 3956 3960 3976 3978 3985 3991 3rd 1,000 total = 103 --> 10.3%4013 4021 4054 4058 4060 4076 4082 4090 4092 4098 4108 4118 4166 4190 4198 4221 4227 4240 4242 4252 4258 4267 4278 4286 4288 4291 4299 4308 4332 4337 4348 4356 4359 4370 4377 4380 4381 4407 4410 4412 $4420\ 4423\ 4425\ 4431\ 4443\ 4445\ 4448\ 4454\ 4458\ 4459\ 4460\ 4469\ 4472\ 4482\ 4483\ 4506\ 4523\ 4527\ 4533\ 4535$ $4546\ 4549\ 4550\ 4579\ 4594\ 4607\ 4617\ 4621\ 4627\ 4634\ 4642\ 4645\ 4660\ 4673\ 4702\ 4714\ 4737\ 4739\ 4747\ 4749$ $4754\ 4762\ 4810\ 4814\ 4841\ 4849\ 4855\ 4876\ 4883\ 4887\ 4915\ 5000$ $4th\ 1,000\ total = 90\ --> 9.0\%\ (90/900 = 10\%)$



Calling Table 1 a "Survival List" is a bit of a misnomer. One entry, for example, is known to have been accidentally destroyed. Entry No. 1235 is just the top plate with center wheel & pinion, and the conspicuous entry No. 4915 is just barrel bridge and balance cock only. But for our analysis, we just need to have credible evidence that the watch was actually made.

Serial number 5000 is a special divided-plate movement and should not be considered part of the DH&D population, although it carries the DH&D signature. It might have been Howard's model for the next series of watches if the Boston Watch Company had survived [ref. 99, p. 21-23].

Note: This photograph of No. 5000 by Jim Michaels of Bob Ravel's Dennison, Howard & Davis (note comma), courtesy of The Watch and Clock Museum of the NAWCC. Click picture for larger view.

Data from Watchcases:

Although not a reliable source of information, cases in which Dennison, Howard & Davis movements are mounted might tell us something about their origin. DH&D S/N 2673 is in the range recognized by the AWCo. Serial Number Ledger [ref. 100]. It is interesting in that it is in an Appleton Tracy & Co case. This case does not appear to be the movement's original. Author now believes the insolvency documents show that the AT&Co did not have this range of DH&D movements.

About 70 percent of the DH&D movements listed in Table 3 below of reference 102 (Sales Records) were sold with cases. Although the Sales Ledger does not specifically say the cases were company-made, the inference is that they were. Recorded BWCo cases are listed in Table 2 below. Note the correlation between BWCo case serial numbers with DH&D movement serial numbers. These data imply that the BWCo made nearly 4,000 movements and perhaps as many cases or a little less. Also implied is that Howard had BWCo. cases to sell with his H&R movements.

Table 2. BWCo. Watches with Factory Cases

Mvt.	Mvt.#	Case #	Comments
SC	418	101	OF W.H.W. w/ eagle & anchor hallmarks (BWCo. ?)
SC	536	525	silver OF case with eagle & anchor hallmarks (BWCo. ?)
SC	924	8xx	OF case with eagle & anchor hallmarks (no mention of initials)
SC	925	8xx	OF case with eagle & anchor hallmarks (no mention of initials)
SC	944	568	OF case with eagle & anchor hallmarks, no initials
DHD	1089	2271	HC with eagle hallmark (no mention of initials & anchor)
DHD	1190	1151	HC with eagle & anchor hallmarks, no initials
DHD	1306	1062	OF case with eagle & anchor hallmarks, no initials
DHD	1478	1356	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	1483	1333	HC w/BWCo. initials and eagle hallmark; no anchor
DHD	1517	1380	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	1559	3270	HC w/BWCo. initials (eagle?) no anchor (note high #)
DHD	1657	1207	OF case with eagle & anchor hallmarks, no initials
DHD	1690	1480	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	1718	1613	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	1832		w/BWCo. initials (case data not provided)
DHD	1970	1684	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD	2053	2018	OF w/BWCo. initials and eagle hallmark
DHD	2092	2060	OF w/BWCo. initials and eagle hallmark
DHD	2117	1675	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	2149	1715	HC w/BWCo. initials and eagle & anchor hallmarks dated 1856
DHD	2193	1810	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	2233	1751	HC w/BWCo. initials (other markings not provided)
DHD	2394	2092	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	2583	2188	HC w/BWCo. initials and eagle & anchor hallmarks

DHD	2714	2858	HC w/BWCo. initials & eagle (no mention of anchor)
DHD	2739	3183	HC w/BWCo. initials & eagle (no mention of anchor)
DHD	2797	2893	HC w/BWCo. initials & eagle (no mention of anchor)
DHD	2929	1786	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	2942	2123	HC w/BWCo. initials and eagle & anchor hallmarks
DHD	2954	2639	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD	2981	2928	HC w/BWCo. initials & eagle hallmark, no anchor hallmark
DHD	2993	3329	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD	3011	3254	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD	3027	2306	HC w/BWCo. initials & eagle hallmark
DHD	3156	2521	OF w/BWCo. initials, no eagle hallmark
DHD	3164	2587	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	3265	2661	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD	3276	2531	OF w/BWCo. initials, no eagle, dated Oct. 22, 1856
DHD	3330	3178	HC w/BWCo. initials, 18K gold
DHD	3334	2966	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	3589	3377	OF w/BWCo. initials, no eagle hallmark
DHD	3627	3071	HC w/BWCo. initials & eagle hallmark
DHD	3708	3268	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD	3730	3136	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	3793	2361	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	3883	3479	HC w/BWCo. initials (no mention of hallmarks)
DHD	3978	3601	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	4013	2490	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	4092	4185	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	4190	4551	HC w/TB&Co. initials & eagle hallmark
DHD	4258	4171	HC w/BwCo. initials & eagle hallmark (no anchor hallmark)
DHD	4299	3541	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
DHD	4308	3895	OF w/BWCo. initials (eagle unclear) (no anchor hallmark)
DHD	4337	3982	HC w/BWCo. initials (eagle unclear) (no anchor hallmark)
DHD	4348	3529	HC w/BwCo. initials & eagle hallmark, dated 1857
			HC w/BwCo. initials & eagle hallmark
DHD	4380	3464	5
DHD DHD	4454 4549	3904 3734	OF w/BWCo. initials, no eagle hallmark
DHD	4621	3712	HC w/BWCo. initials & eagle hallmark (no mention of anchor) HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD			,
	4714	3927	OF w/BWCo. initials, no eagle hallmark
DHD	4737	3972	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
DHD	4810	2074	HC w/BWCo. initials & eagle hallmark (no mention of anchor) # not given
DHD	4814	3974	HC w/BWCo. initials & eagle hallmark
H&R	6058	4095	HC w/BWCo. initials & eagle hallmark
H&R	6065	2395	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
H&R	6073	3934	HC w/BWCo. initials & eagle hallmark
H&R	6083	4131	HC w/BWCo. initials & eagle hallmark (no anchor hallmark)
H&R	6238	4020	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
H&R	6298	3425	HC w/BWCo. initials & eagle hallmark (no mention of anchor)
H&R	6424	3473	HC w/BWCo. initials & eagle hallmark (no mention of anchor)

Take note of the good number of surviving BWCo cases housing Howard & Rice movements. As of this writing the author has yet to record a single BWCo case on any Waltham movement after the insolvency. Even the DH&D movements sold by Robbins did not have BWCo cases as yet reported. It looks like Howard (& Rice) took all available BWCo cases after the insolvency since he kept the BWCo name on his H&R movements, and Robbins made his cases new. According to Sales Records (see Table 3 below in [ref. 102]), DH&D movement #4092 was originally sold without a case, so the origin of its case is uncertain. Another reported interesting example, DH&D #4190 was sold in a TB&Co case.

The February 2, 1857, inventory document from the BWCo insolvency papers lists 138 cases 9/10 to 1/8 done in the silver department under "workmen's hands" (see Appendix 1 in Richard Watkins' "Cook Rice and Potatoes"). Howard and Rice would have had access to this material. Finished cases would have been stored in an office area (e.g., sales) along with completed movements. Rice might have thought he did not have access to these finished goods, but finished cases stored there would have been very tempting. It is interesting to note some H&R movements are housed in lower numbered cases. It is conceivably possible that Robbins did get some BWCo cases and sold them with his cache of DH&D movements. Perhaps we just have not yet seen enough surviving examples to see a Robbins' DH&D movement in a BWCo case.

We also have surviving DH&D movements with Tracy Baker & Co. and AT&Co. dials (e.g., see S/Ns 3823, 4082, & 4198 in the data table at end of this monograph). Were these movements sold with these dials or are the dials replacements? S/Ns 4082 and 4198 were sold by AT&Co.; see Table 3 (Sales Records [ref. 102]).



The BWCo. watchcases illustrated here are especially interesting because they date approximately when the DH&D movements that they encase were made. The first illustrated case holding DH&D S/N 2149 at the left dates the watch by virtue of an amateur inscription "1856" on the inside front cover. This watch was most surely sold by the BWCo.

The second frame, lower left, shows the inside back cover. Quoting Hauptman [ref.16, p. 931-932], "On the inside of the back lid is stamped the typical American Eagle, which though not mandatory was used by many of the early American silversmiths to denote that the article was American made. Under this mark is an anchor mark. This symbol was adopted by a large number of the Rhode Island smiths presumably from the Rhode Island seal Anchor and Hope. It is assumed that the anchor mark appears in the case because Cabel Westcott [...] carried on his trade in Providence before he [was hired by] the Boston Watch Co. [to make pocket watch cases.]"

Photograph of Boston Watch Company silver hunting case S/N 1715 housing DH&D S/N 2149 permission of owner.

Movement S/N 4348 is encased in BWCo. hunting case S/N 3529 which has the presentation date of 1857 (not illustrated but listed above in Table 2). Unfortunately, the month isn't engraved in the presentation and we are unable to conclude much from this case.

The next example BWCo. case illustrated at the left holds DH&D S/N 3276. It was awarded to an officer in the British Army during the Crimean war on Oct. 22, 1856.

Double sunk Turkish dial on DH&D S/N 3276.

This movement and case were very likely made seven months or more before the May 9, 1857, insolvency. If the watches were made and sold in order by serial number, and at the rate of 250 per month (see [ref. 23]), 3276 + (250 watches/month X 7) = 5026; this calculation, even at a little lower production rate, does not leave many finished or nearly finished DH&D watches for Royal Robbins.

This Boston Watch Company silver open-face case S/N 2531 housing DH&D S/N 3276, which saw duty during the Crimean War, was immortalized by poet Lord Alfred Tennyson's Charge of the Light Brigade. Photos courtesy of owner.



Inscription reads:

1st Prize
Awarded to
E.C. Johnson
by the
Honorary Members
of the
Watson Light Guard
at Target Practice
Oct. 22, 1856.

102. Sales Records:

The Historical Collections Department in the Baker Library at the Harvard Business School has a collection of documents on the Waltham Watch Company. One such document is the ledger, "Sales Records T.B. & Co., June 1857 - December 1858" [ref. 62]. This ledger lists the sales of about 120 DH&D movements beginning with S/Ns 1282, 2329, and 4081 and ending with S/Ns 4199 and 4223 (see Table 3, below). These data are also listed in [ref. 55] with some errors. The Sales Ledger (according to [ref. 55]) accounts for nearly all of the new production through December 1858 (last serial number 14065); at least there are no large blocks of missing numbers. Although not compiled in [ref. 55] nor herein, the sales records do show a number of silver cases with serial numbers below 5,000 that might have been BWCo. cases sold without movements.

Although other sales ledgers are in the Library, records for the period between December 1858 and August 1865 are missing. This is unfortunate

because, as documented during the depression of 1857/58, "Many a time, Mr. Robbins deposited with his own hands in Boston Banks large boxes of watches as collateral security for his notes discounted at eighteen percent" [ref. 47, p. 741]. These notes were cleared and the watches sold in about 1859 [ref. 48, p. 24] and [ref. 49, p. 20], for when the sales records are missing.

Table 3. Dennison Howard & Davis movements from Sales Ledger^a [ref. 62]

1282-15	2329-15	4081-07	4082-07	4083H07	4084-07	4085H07	4086Н07	4087-07	4088H07
4089-07	4090-07	4091-15	4092-15	4093-15	4094-15	4095-15	4096-15	4097-15	4098-15
4099-15	4100-15	4101-07	4102-07	4103-07	4104-07	4105-07	4106-07	4107Н07	4108-07
4109-07	4110-07	4111H07	4112H07	4113Н07	4114H07	4115H07	4116Н07		4118H07
4119Н07	4120H15	4121-15	4122H15	4123H15	4124H15	4125H15	4126H15	4127H15	4128H15
4129Н15	4130Н07	4131H07	4132Н07		4134007	4135Н07	4136Н07	4137007	4138Н07
4139Н07	4140H07	4141-15	4142H15	4143H15	4144H15	4145H15	4146H15	4147H15	4148H15
4149H15	4150H15	4151H15	4152H15		4154H15	4155H15	4156H??	4157H15	4158H15
4159-16	4160H15	4161H16	4162H16	4163H16		4165-16	4166-16	4167-16	4168-16
4169-16	4170-16	4171H07	4172H07	4173007	4174H07	4175H07	4176Н07	4177007	4178H07
4179007	4180H07	4181H07	4182H07	4183Н07	4184007	4185H07	4186Н07		
4189Н07	4190H07	4191H07	4192H07	4193Н07	4194H16	4195H07	4196Н07	4197H07	4198H07
4199Н07		4223H16							

Hawkins in [r55 page 117] also lists 7J DH&D #4037 and 15J DH&D #1954 in a 12/31/1858 inventory report.

a. **H** = Silver Hunting case **O** = Silver Open Face case -= w/o case; underlined movements have been reported and are in data table Jewel count follows case type using [ref. 55] data; however, author believes jewel count entries of 16 are suspect because DH&D movements are typically listed in the actual records with group of AT&Co. movements which were 16J ("4 1/2 pairs"), but the 4 1/2 pairs designation probably didn't apply to the DH&D movements.

Robbins' deal with the Waltham Improvement Company in the merger to form the American Watch Company included keeping his "stock" of watches for himself. Robbins made a personal profit from the "pawned" watches [ref. 48, p. 24], and considering the dollars involved, the number of watches in question could have been substantial.

Moore documents the appraisal of the AT&Co. property and the terms of its sale by Royal Robbins to the Waltham Improvement Company [ref. 51, p. 38]. Robbins was to receive \$125,000, of which \$100,000 was payable in stock of the new company and \$25,000 in notes. This amounted to a \$20,000 bonus over the appraised value of the AT&Co. Robbins' "stock" of watches was in addition. Moore further documents that on September 1, 1858, when the new company took over operations of the plant, the inventory of finished watches was worth \$83,770; Robbins sold \$52,714 worth of this inventory through the rest of the year (four months) and the remaining inventory to the new company on December 30, 1858; the new company took over sales on January 1, 1859 [ref. 51, pp. 316-318].

One could conclude from this scenario that the September 1, 1858, inventory of watches was Robbins' "stock." Moore makes this connection and claims Robbins profited from it [ref. 51, p. 32]. On the other hand, perhaps Robbins was just carrying out the duties of a sales agent until the new company took over on January 1, 1859, as agreed. This author does not believe the directors of the Waltham Improvement Company would give Robbins the output of the factory after paying him for his entire investment in the factory which produced the output (plus a bonus). However, this author can believe that the directors allowed Robbins to keep the watches he pawned and invested the money so derived into the company.

When Moore conducted his research in the late-1930s [ref. 51 p. xxii], he did not have the wealth of information now readily available. Perhaps a different conclusion would be reached if we reviewed Moore's references today, which include records of stockholder meetings of the Boston Watch Company and records of director meetings of the Waltham Improvement Company. The whereabouts of these historical documents are currently unknown to this author.

103. Serial Number Under Top Plate:

All Dennison, Howard & Davis movements appear to have their full serial number stamped horizontally on the underside of their top plates. This is a serialization of matched parts. The last two significant digits are stamped on the pillar plate and on the underside of the balance cock. The minute and hour wheels have the last significant digit.

How convenient of the BWCo. to do this. So, if we find movements with non-matching numbers, we can conclude that some salvage work had taken place. Aside from the possibility of modern day reconstructions, we do see Howard & Rice movements and early AT&Co. movements with differing numbers. A listing is given in Table 4 below.

Except for very early AT&Co. movements (e.g., up to 6377) and possibly the first C. T. Parker movements, all Model 57 movements have only a portion of the serial number stamped on the underside of the top plate and on other subassemblies (e.g., AT&Co. S/Ns 6534, 6590, and 6669 have only "34," "90" and "69," respectively, stamped under their top plates). The number of significant digits stamped on the subassemblies was probably based on the size of the batch.

A large amount of BWCo. material was left at the factory at the time of the insolvency and the May 9, 1857 auction, in particular movements and plates. The insolvency papers [ref. 106] list inventory including 100 movements 1/2 to 7/8 done, a long list of parts in various stages of completion, and 1170 pairs of plates! Rice (and Howard) was specifically accused in the insolvency papers of removing "movements numbered 4891 - 4910 inclusive and other movements." This inventory was incorporated in H&R movements and in early TB/AT movements. It would make sense that

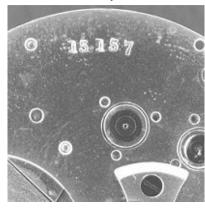
H&R would take off with low numbered parts and Robbins was left the high numbered parts. So what we see are matched part numbers inside the movements but different from the visible number on the barrel bridge on H&R and early AT&Co. movements. The DH&D S/N is stamped in the same general location on all movements this author has seen. An example can be seen on the top plate for DH&D 4535.

The underside of early Howard & Rice top plates have five digits. Because there are so many examples in Table 4, and they are all consistent, this author believes Howard added the digit '1' in front of the original BWCo. serial number. It is interesting to note that all of the H&R "4-digit" numbers are lower than the AT&Co. numbers. This author believes Howard added the digit "1" to the BWCo number to distinguish his movements from BWCo movements but still kept the BWCo subassembly numbers.

number on the underside of three example early movements after the BWCo. insolvency







AT&Co. 5026 H&R 6011 H&R 6252

The 5-digit number, 14983, under H&R 6011's top plate appears to have an alignment scribe mark under the full set of digits. This would indicate that all of the five digits were stamped at one time to make a single number. However, this mark might be a coincidental scratch. Other H&R movements this author has seen do not have such a mark.

Table 4. Serial Number under Top Plate

name of movement	# on barrel bridge	# under top plate	name of movement	# on barrel bridge	# under top plate
Howard & Rice	6003	14930	TB&Co	5012	5812*
Howard & Rice	6006	14927	AT&Co	5026	5826
Howard & Rice	6011	14983	AT&Co	5042	5842
Howard & Rice	6019	14985	AT&Co	5084	5884
Howard & Rice	6037	15022	AT&Co	5158	5958
Howard & Rice	6047	16**	AT&Co	5190	5990
Howard & Rice	6060	15048	AT&Co	5221	5921
Howard & Rice	6065	15043	AT&Co	5332***	5332
Howard & Rice	6112	14865	AT&Co	5341	5341
Howard & Rice	6128	15217	AT&Co	5404	5404
Howard & Rice	6149	14948	AT&Co	5461	5461
Howard & Rice	6161	14977	AT&Co	5715	5715
Howard & Rice	6214	15115	AT&Co	5760	5760
Howard & Rice	6217	15116	AT&Co	5823	5823
Howard & Rice	6238	15137	AT&Co	5826	5826****
Howard & Rice	6252	15157	AT&Co	5901	5901
Howard & Rice	6264	15163	AT&Co	6085	6085
Howard & Rice	6282	15182	AT&Co	6377	6377
Howard & Rice	6300	23*****	AT&Co	6534	34****
Howard & Rice	6343	17	AT&Co	6590	90
Howard & Rice	6424	94	AT&Co	6669	69
E. Howard & Co	6447	27	AT&Co	16447	47
E. Howard & Co	6482	40	AT&Co	21792	92
* Author originally re	ecorded this num	ber as 5012 by obs	ervation at Sotheby's	on 10/09/04 under	poor light

conditions, but now having experience in observing 5026 (5826) and 5042 (5842) just by looking between the plates with better lighting where the '8' was difficult to distinguish different from '0', this under-top-plate-number should be 5812. This is also consistent with the other movements.

- ** This is not author's observation. Wish this number could be confirmed.
- *** Looks like around #5300 Robbins' S/Ns match the BWCo S/Ns. [researching new theory where Robbins started with BWCo plates #5301]
- **** Just drawing attention to the visible S/N 5826 which is the inside number for 5026, but by now this was Robbins' actual new S/Ns. The pillar plate is numbered '26'.
- ***** Looks like around #6500 Robbins started putting only the subassembly number under the top plate.
- ***** Looks like around #6300 Howard started using his own assembly numbers.

104. Payrolls:

In 1859 and 1860 P. S. Bartlett was paid over \$300 per month, whereas A. Dennison received only \$125 per month [ref. 92]. Bartlett's entries in the payroll ledger are listed as "job rate" (as are several other peoples). Although Bartlett's entries are not the highest, at these high rates, he was probably being paid to run a crew or something like that, perhaps at piece rate (the figure was different each month); this might have been something like a modern day contractor. In any case, this information does not fit well with the image of a young, bright, popular employee upon whom the honor of a trademark was bestowed. There must be a story here waiting to be told.

The May 1, 1859, payroll shows 135 entries (individuals and others at "job rate"). Individual entries calculate out to six-day weeks, 10 hours per day [ref. 92].

It is also interesting to note that Charles Parker had a larger labor rate than other employees in the insolvency records [ref. 106, Case 116, Sheet 51].

105. Franklin Dennison's Collection:

There is a strange note of possible historical significance in the catalog describing Franklin Dennison's collection of antique pocket watches. This collection was displayed by the Waltham Watch Company in the 1940s. It was bequeathed to the Waltham Watch Company in 1934 by Franklin Dennison, son of Aaron Dennison, and president of the Dennison Watch Case Company in England [ref. 51, page 261]. The catalog is titled: "Historic Horology Being a Catalogue of a Collection of Antique Watches belonging to the Franklin Dennison Collection and exhibited by the Dennison Watch Case Company at the Jewellers' Exhibition, 1913." The note in question is in item No. 504, which actually was part of "Supplement 1914 Containing recent additions to the Franklin Dennison Collection of Antique Watches," Dennison's Exhibit, Jewellers' Exhibition, 1914. (Copy of catalogue provided by NAWCC Library and Research Center.)

Item No. 504 reads: "This is the ninth Waltham watch that was numbered, the first thousand having been sold without numbers. Manufactured about 1854."

Unfortunately, the "ninth Waltham watch" is not described so we are unable to date precisely when the statement applies, assuming the statement has any authenticity. Indeed, it is hard to believe there could have been any period between the spring of 1853 to late 1857, when an additional 1,000 movements could have been produced that have not already been accounted for. That is, could there really have been 1,000 Warren movements made? Or 2,000 Samuel Curtis movements? Or 5,000 DH&D movements? If so, presumably they would have also been un-named because there is of yet no highly published record of such a movement without a serial number.

Perhaps an unmarked early pre-M57 movement could have gone unnoticed all these years because it would look of English origin, but 1,000 of them do not seem plausible. DH&D S/N 1009 (which might have been Aaron Dennison's personal watch - see listing) could be the "ninth Waltham watch" in question because it was the ninth watch made at the Waltham factory; the previous 1,000 movements being made in Roxbury. The cataloger might not have known the history of the company and recorded an incorrect conclusion. Similarly, if the watch in question was C. T. Parker 1009, the cataloger might not have known that the numbers started at 1001.

(Maybe someday details on No. 504 will surface that will clear up this mystery. The NAWCC Library and Research Center searched for articles on the Jewellers' 1914 Exhibition in the British *Horological Journal*; also *Jewelers Circular* might be worth trying.)

Nevertheless, there was some confusion/misunderstanding at the factory on this matter even as late as 1957. Contributor Leslie Nesky found copies of letters in the "Waltham Watch Company" collection at the Charles River Museum Of Industry from George R. Watts, manager, Material Sales Department, dated in 1957. These letters were responses to inquiries about early "Waltham" watches that people had written to the factory. In these letters Mr. Watts writes, "The first thousand watches were not numbered and were made in Roxbury. When the manufacture was started in Waltham in 1854, #1000 was used."

106. Relevant Documents:

Boston Newspapers at the Boston Public Library, Microtext Department:

- Boston Post, Tuesday, April 14, 1857, Page 1: ad for "The American Watch" on sale by principal dealers throughout the country; manufactures Dennison, Howard & Davis.
- Boston Daily Advertiser, Thursday, April 16, 1857, Page 2: four ads announcing the insolvency of Howard, Davis, Curtis and Dennison, and a meeting of their creditors to be held at the Court of Insolvency in the Boston Court House at 10 a.m. on April 29, 1857. (Same ad was run

in the Boston Daily Courier.)

- Boston Daily Advertiser, Tuesday, May 5, 1857, Page 3: ad by assignee Nathan W.C. Jameson announcing the auction sale of the Boston Watch Company estate (about two acres), large buildings, machinery, tools and stocks in the process of manufacture at 10 a.m. on Saturday, May 9, 1857, on the premises. (Same ad was run through Saturday, May 9; ditto in the Boston Daily Courier.)
- Boston Herald, Tuesday, May 12, 1857: small article on the sale of "The American Watch Company" in Waltham on Saturday last by Boston auctioneer N. A. Thompson. Purchaser, Royal S. Robbins on behalf of a New York com-pany, for \$37,500. The company is said "will carry on the watch making business on an extensive scale as soon as the present lease expires."
- Boston Evening Transcript, Wednesday, May 13, 1857, Page 1: a little larger article than the Herald's on the sale of "the property of the American Watch Company," upon the lands of the Waltham Improvement Company. Charles Rice is mentioned as having the lease.
- Boston Daily Advertiser, Tuesday, May 19, 1857, Page 2: assignee Jameson advertises (four ads) second meeting of creditors of Curtis, Howard, Davis and Dennison at 1 p.m. on May 28, 1857. (Same ads were run in the Boston Daily Courier.)

Insolvency Records at the Massachusetts Archives in Boston:

Case No. 116 of Samuel Curtis containing 205 so-called "sheets" (often many pieces of paper).

- Sheet 1: April 15, 1857, Debtor's Petition of Insolvency.
- Sheet 2: missing (probably order for Sheriff to take possession and call first meeting of creditors).
- Sheet 3: schedule of creditors (including WICo for \$6,000).
- Sheet 4: list of creditors of Curtis personally
- Sheet 5: oaths Rice owed \$26,870.19.
- Sheet 30: April 29, assignee Nathan W. C. Jameson accepted (merchant in Antrim, NH) at first meeting of creditors.
- Sheet 34: May 8, order for second meeting of creditors on May 28.
- Sheets 29, 96, 120, 147, 158, 162, 178, 188: Lists of debts proved at creditors meetings totaling \$41,617.74 as individual, \$101,309.75 as BWCo., \$30,577.95 as member BWCo., all total \$173,505.44.
- Sheet 51: May 26, oath Charles Parker owed \$127.23 for labor (oaths No. 43-95 all similar labor debts, typically much less).
- Sheet 98: June 16, petition by William B. Fessenden owed \$14,913.16 in 18 short-term notes (6-14 months), plus mortgages on the two H&D Roxbury properties; Insolvency Judge made Fessenden assignee of the Roxbury properties.
- Sheet 110: June 23, oath Fellows & Schell owed \$1,636.84.
- Sheet 121: June 27, order for third meeting of creditors on July 16.
- Sheet 139: July 16, Jameson recorded received from sale of real estate and personal property of the Waltham Watch Factory \$37,500; also \$491.90 from "collections." Author cannot explain the \$4,000 difference that Robbins recorded paying for the factory, \$41,500 (\$8,500 real estate and \$33,000 for contents) [ref. 51, p. 314] although Jameson transferred the deed to Robbins for \$8,500 [see Reg. of Deeds, Middlesex, Book 768, p. 176]. Also see Sheet 202 below.
- Sheets 141 and 142: August 1, more oaths Rice owed \$4,835.50.
- Sheet 150: Court orders Howard and Rice to appear Aug. 14 to answer Tracy & Baker complaint.
- Sheet 153: filed Aug. 25, Interrogatories (23 questions) to Rice regarding removing property from factory; e.g., did Rice have contract with company about Feb. 1, 1857, in writing, where is it, what was lease with WICo in March (item 13), did Rice remove stock, tools, and fixtures from the factory and what right did he have to do it, was the attached listing of inventory "A" the inventory of the factory on Feb. 2, did Rice remove part of this inventory, at the night before the sale, or before, did Rice remove movements numbered 4891-4910 inclusive and other movements (item 20), and so on. Of interest of the inventory in Attachment A (account of stock in workmen's hands Feb. 2, 1857) is 100 movements 1/2 to 7/8 done, 1,170 frames (pairs of plates), long list of parts in various stages of completion, with total value including case room \$7,510.49.
- Sheet 164: Sept. 15, order for first distribution of dividends \$14,935.50 at 20 cents on the dollar.
- Sheet 175: Sept. 15, another oath Rice owed \$26,556.60.
- Sheet 176: Sept. 21, another oath Rice owed \$7,607.23.
- Sheet 179: Oct. 15, creditors assent to discharge (including Rice and Fessenden).
- Sheet 180: Oct. 15, Curtis' affidavit: "Until sale of some of my property ... pledge security within three weeks of filing petition [insolvency] ... had reasonable cause to believe I should be able to continue to do business and that I could pay all my liabilities."
- Sheet 183: Oct. 15, order for second distribution of divi-dends \$7,261.94 at 20 cents on the dollar.
- Sheet 185: Nov. 11, 1857, oath Jameson said Curtis as individual owed him \$15,353.83 in notes.
- Sheet 193: Dec. 4, 1858, order for fourth meeting of credi-tors on Dec. 13.
- Sheet 202: Dec. 13, 1858, Assignee's Account, recorded receiving \$275 for sale of Curtis lot in Charlestown (not home) and \$800 for sale of debtor's furniture; list of expenses including advertising and legal fees; \$900 for services of Jameson and \$109.75 for services of auctioneer N. A. Thompson.
- Sheet 203: Dec. 13, 1858, order for third distribution of dividends \$12,413.32 at 20 cents on the dollar. Total of the three distributions is \$34,610.76, divide by 20 percent is \$173,053.80, which is close to total proved debts, difference in part to small privileged payments not recorded here; see sheet 29, etc., above.
- Sheet 205: May 25, 1859, Assignee's Account, balance \$8.00 after expenses.

- Sheet 1: April 15, 1857, Debtor's Petition.
- Sheet 2: April 15, Sheriff to take possession and call first meeting of creditors.
- Sheet 3: April 29, list of creditors as known to Davis (10 names, including Jameson).
- Sheets 6 & 13: Lists of three debts proved at creditors meetings totaling \$1,005.76 as member of firm H&D and \$791.27 as member BWCo., all total \$1,797.03.
- Sheet 15: July 16, Assignee's account; nothing received.
- Sheet 16: Oct. 6, creditors assent to discharge (three signatures).
- Sheet 17: Oct. 15, Davis affidavit:" ... I left the [BWCo.] and firm of [H&D] three years before the filing of ... [insolvency and therefore not liable] "for subsequent transactions of [BWCo.]."

Case No. 118 of Edward Howard containing 62 "sheets" (no oaths by Rice nor Fessenden).

- Sheet 1: April 15, 1857, Debtor's Petition.
- Sheet 2: April 15, Sheriff to take possession and call first meeting of creditors.
- Sheet 3: April 29, list of creditors as known to Howard (including Rice \$650 cash, Curtis \$16,549.25) totals over \$90,000.
- Sheets 22, 31, 41, 53, 62: Lists of debts proved at creditors meetings totaling \$52,937.18 as individual, \$2,497.46 as Howard & Davis, \$8,515.02 as member BWCo.; all total \$63,949.66.
- Sheet 35: Petition of American Sewing Machine Co. owed \$736.32 for tariff on sold machines and \$342.60 in notes.
- Sheet 52: July 16, Assignee's account; nothing received except \$7.13 from "collections."
- Sheet 56: Filed Aug. 27, Interrogatories (19 questions) to Howard regarding contract with Rice, Rice's lease of factory, and removing "stock, materials, tools & fixtures" from factory (similar to Rice's in Curtis Sheet 153 above).
- Sheet 57: Missing; only one in this case 118 [could it have contained the answers to the interrogatories?].
- Sheet 58: Oct. 15, creditors assent to discharge.
- Sheet 59: Oct. 15, Howard's affidavit: in essence Howard's property would have covered his own debts if Curtis hadn't failed with notes
 endorsed by Howard.

Case No. 119 of Aaron L. Dennison containing 29 "sheets."

- Sheet 1: April 15, 1857, Debtor's Petition.
- Sheet 2: April 15, Sheriff to take possession and call first meeting of creditors.
- Sheet 3: April 29, list of creditors as known to Dennison (11 names including the Waltham Improvement Co.).
- Sheets 10, 25, 22: Lists of debts proved at creditors meetings totaling \$14,821.03 as member BWCo.
- Sheet 23: July 16, Assignee's account; nothing received.
- Sheet 27: Oct. 15, 15 creditors assent to discharge.
- Sheet 28: Oct. 29, Dennison's affidavit: in essence sold his interest in company to Curtis more than six months prior to insolvency and therefore not liable.

Registry of Deeds, Norfolk County, MA (below is subset of 58 examined records).

- Book 169, pp. 211 and 222: June 1, 1846, Howard, Davis & Stephenson purchase property (23,225 sq. ft.) between East & Yeoman streets from Sumner & Williams for the Clock & Balance factory with \$4,243 mortgage from Sumner & Williams (East is now Hampden; Yeoman is now Norfolk at location of property).
- Book 175, p. 154: Apr. 1, 184 7, Luther Stephenson backs out.
- Book 182, p. 66: Jul. 15, 1848, Howard purchases property on Eustis Street for home (about 7,000 sq. ft.) from David Simpson for \$1,500 and assumes Simpson's mort-gage of \$978.77 with A. D. Williams.
- Book 188, p. 211: July 15, 1848, Howard sells about half (4/7ths) of Eustis property to Davis for \$10 + 1/2 mortgage.
- Book 198, pp. 119 and 120: Nov. 1, 1850, Howard & Davis purchase property (6,250 sq. ft.) on corner of East & Prescott Streets from Sumner for the Boston Watch Company factory with \$1,845 mortgage from Sumner.
- Book 203, p. 248: Oct. 16, 1848 (not recorded until 1951), Howard adds lot (about 1,138 sq. ft.) to his Eustis home for \$300.
- Book 231, p. 177: Oct. 11, 1854, Howard & Davis re-mortgage the East & Prescott property with William B. Fessenden (a jeweler in Lowell, MA) for \$6,000.
- Book 232, p. 99: Nov. 24, 1854, Howard mortgages his Eustis St. property for \$5,100.45 with Nathan W.C. Jameson, merchant in Cambridge, MA.
- Book 241, p. 117: Dec. 4, 1855, Howard mortgages Eustis St. property with Curtis for \$2,500 in addition to the mortgages with Williams (split with Davis) and Jameson.
- Book 241, p. 118: Sept. 15, 1855, Howard & Davis mortgage the East & Yeoman property with Horace Barnes for \$6,000 in addition to mortgage with Sumner & Williams.
- Book 245, p. 42: May 1, 1856, Howard & Davis sell the East & Yeoman property to John T. Ellis (lumber dealer) for \$1,000 plus mortgages
 to Sumner & Williams and Barnes.
- Book 245, p. 54: May 1, 1856, Howard sells his Eustis Street property to Ellis for \$1,000 plus mortgages.
- Book 246, p. 28: May 29, 1856, Barnes sells East & Yeoman mortgage to William B. Fessenden for \$6,000.
- Book 253, p. 220: Mar. 14, 1857, Ellis sells the East & Yeoman property to William B. Fessenden for \$1,000.
- Book 257, p. 173: July 1, 1857, Fessenden sells Rice the East & Prescott property with its mortgages for \$5,000 with provision that Rice can return it with 30 days notice.
- Book 257, pp. 173-175: Jul. 16, 1857, Fessenden agrees to sell Rice the East & Yeoman property plus shares in the Waltham Improvement

- Co. and East Boston Iron Co. with three payments, last one due Nov. 16, 1958, totaling \$11,626.43.
- Book 274, p. 211: Apr. 16, 1857 (recorded Mar 26, 1859), insolvency of Howard & Davis (clockmakers).
- Book 274, p. 212: Mar. 9, 1859, the East & Yeoman property with mortgages transferred to Rice.
- Book 274, p. 258: Mar. 9, 1859, Fessenden releases the East & Prescott property to Rice.
- Book 276, p. 101: Feb. 14, 1859 (recorded May 10), Jameson, Howard & Davis release rights to East & Prescott to Rice.
- Book 276, p. 102: Mar. 31, 1859, Fessenden and Davis for-mally transfer rights to the East & Yeoman property to Rice.
- Book 296, p. 142: Oct. 1, 1860, Howard purchases additional property (9,337 sq. ft.) from William H. Sumner adjacent and south of the East & Prescott property for \$11,750 mortgage from Sumner.
- Book 298, pp. 92 and 93: Apr. 30, 1861, Howard purchases the original East & Prescott property from Rice with \$6,200 mortgage plus the Sumner & Williams mortgage.
- Book 298, p. 94: May 1, 1861, Howard sells the East & Prescott addition to the Howard Clock & Watch Company.
- Book 299, p. 95: June 14, 1861, Rice sells the East & Yeoman property to Merchants Bank of Boston.
- Book 299, p. 187: June 19, 1861, Rice sells Howard's East & Prescott mortgage to Freeman's Bank of Boston.
- Book 311, p. 204: Sept. 16, 1862, Davis sells his Eustis Street property for S500.

Registry of Deeds, Middlesex County, MA (below is subset of 20 examined records).

- Book 678, p. 44: Mar. 31, 1854, George Lawton sells five acres of land to the WI Co.; Lawton holds mortgage.
- Book 698, p. 465: Nov. 20, 1854, the WICo. sells 61,000 sq. ft. of property on Charles River (lot No. 1) to Curtis, Howard & Dennison (BWCo.) for \$1,400.36.
- Book 698, p. 468: WICo. holds \$7,380.57 mortgage on above; recorded WICo. took possession of property on Mar. 3, 1857.
- Book 718, p. 489: Nov. 20, 1854, Curtis, Dennison & Howard (BWCo.) takes second mortgage, \$15,000 from William B. Fessenden; recorded Fessenden discharges mortgage on May 22, 1857, having received full payment.
- Book 729, p. 9 and Book 736, p. 371: Nov. 1, 1855, WICo. sells BWCo. second parcel of land (9,000 sq. ft.) and holds mortgage; foreclosed Mar. 3, 1857.
- Book 749, pp. 52 and 54: July 15, 1856, WICo. sells BWCo. third parcel of land (12,000 Sq. ft.) and holds meeting; foreclosed Mar. 3, 1857.
- Book 768, pp. 7, 8, and 9: Apr. 16, 1857, Dennison, Howard & Curtis assign their property to assignee Jameson.
- Book 768, p. 176: May 9, 1857, Jameson transfers the BWCo. property (but only the first 61,000 sq. ft. parcel), to Royal Robbins for \$8,500 plus its incumbencies.
- Book 799, p. 15: Aug. 13, 1858, Robbins sells watch factory to WICo. for \$8,500 and outstanding BWCo. mortgages.
- Book 817, p. 69: Jameson transfers the above second and third parcels of land to the American Watch Company for \$32 "in pursuance of a sale at public auction of said premises May 24, 1859."