

1902GOAMM..62M...1C

RATES OF DECK WATCHES

ON TRIAL

FOR PURCHASE BY THE BOARD OF ADMIRALTY,

AT THE

ROYAL OBSERVATORY, GREENWICH.

FROM 1900 OCTOBER 27 TO 1901 FEBRUARY 16.

(1) WEEKLY RATES IN ORDER OF TIME.

NAME of MAKER.	No.	Oct. 27 to Nov. 3.	Nov. 8-10.	Nov. 10-17.	Nov. 17-24.	Nov. 24 to Dec. 1.	Dec. 1-8.	Dec. 8-15.	Dec. 15-19.	Dec. 19-22.	Dec. 22-25.	Dec. 25-29.	Dec. 29 to Jan. 5.
		Watch Horizontal. Dial up.				Watch Vertical. Dial up.				Watch Vertical. Dial up.	Watch Vertical. Dial up.	Watch Vertical. Dial up.	Watch Vertical. Dial up.
Gabriel.....	56152	+ 9.3	+ 9.2	+ 7.4	+ 5.5	+ 9.6	+ 9.9	+ 6.7	+ 29.6	+ 29.4	+ 26.6	+ 29.1	+ 9.5
Ehrhardt.....	76677	+ 9.1	+ 9.7	+ 1.6	+ 0.8	+ 1.6	+ 0.2	+ 7.9	+ 12.1	+ 12.1	+ 15.6	+ 16.1	+ 13.9
Yeomans.....	181415	+ 8.0	+ 10.0	+ 11.2	+ 9.2	+ 14.1	+ 14.1	+ 14.7	+ 21.0	+ 21.0	+ 20.4	+ 28.5	+ 8.8
S. Smith and Sons.....	185231	+ 1.9	+ 0.8	+ 1.7	+ 3.0	+ 4.7	+ 5.3	+ 0.7	+ 14.7	+ 7.2	+ 9.3	+ 11.9	+ 8.9
Fridlander.....	25055	+ 4.2	+ 4.0	+ 1.3	+ 1.9	+ 4.8	+ 5.7	+ 4.9	+ 11.6	+ 6.3	+ 2.6	+ 2.3	+ 8.7
Nevens and Co.....	140229	+ 3.0	+ 3.6	+ 1.5	+ 1.7	+ 1.9	+ 1.5	+ 13.8	+ 41.8	+ 14.9	+ 4.9	+ 3.7	
E. White.....	7186	+ 10.2	+ 12.2	+ 5.9	+ 3.4	+ 1.7	+ 4.6	+ 12.1	+ 8.4	+ 17.7	+ 19.2	+ 2.1	+ 3.7
Yeomans and Co.....	181415	+ 8.0	+ 5.3	+ 6.8	+ 2.0	+ 1.9	+ 2.5	+ 5.9	+ 13.3	+ 15.6	+ 12.9	+ 18.2	+ 13.2
Johannes.....	6540	+ 2.2	+ 6.5	+ 9.6	+ 9.1	+ 11.0	+ 11.9	+ 13.9	+ 25.2	+ 26.8	+ 11.4	+ 38.0	+ 37.7
P. and A. Gye.....	12947	+ 13.4	+ 13.0	+ 16.6	+ 18.1	+ 15.4	+ 16.7	+ 8.2	+ 0.7	+ 22.2	+ 9.3	+ 12.8	+ 1.6
Nevens and Co.....	140229	+ 17.8	+ 15.3	+ 17.2	+ 17.5	+ 14.9	+ 18.4	+ 19.3	+ 9.5	+ 19.0	+ 47.4	+ 16.6	+ 7.9
Wright and Craighead.....	8208	+ 26.8	+ 31.5	+ 28.9	+ 28.6	+ 31.1	+ 29.2	+ 17.6	+ 8.2	+ 8.7	+ 3.3	+ 2.6	+ 21.4
J. White and Sons.....	58386	+ 39.7	+ 37.6	+ 29.8	+ 21.0	+ 15.3	+ 19.9	+ 26.5	+ 31.7	+ 38.8	+ 30.4	+ 7.0	+ 14.3
Hillbrand.....	2194	+ 14.6	+ 16.3	+ 20.1	+ 20.6	+ 23.6	+ 22.5	+ 11.3	+ 40.1	+ 36.6	+ 42.0	+ 45.2	+ 31.9
Johannes.....	6544	+ 11.1	+ 11.2	+ 19.5	+ 14.8	+ 19.2	+ 18.8	+ 20.0	+ 24.9	+ 23.0	+ 27.1	+ 29.8	+ 49.1
J. White and Sons.....	38237	+ 13.9	+ 14.4	+ 13.8	+ 14.6	+ 19.2	+ 10.9	+ 5.2	+ 0.0	+ 69.3	+ 84.0	+ 2.5	+ 15.3
Burton.....	2129	+ 1.0	+ 1.2	+ 5.1	+ 7.8	+ 4.1	+ 1.2	+ 7.2	+ 2.8	+ 7.2	+ 22.0	+ 2.6	+ 10.7
Gibson.....	50671	+ 2.0	+ 1.8	+ 15.9	+ 18.0	+ 14.3	+ 19.1	+ 14.3	+ 0.1	+ 1.4	+ 13.7	+ 13.8	+ 23.0
B. Smith.....	801	+ 14.0	+ 23.6	+ 19.1	+ 18.4	+ 21.1	+ 18.4	+ 19.3	+ 14.8	+ 14.0	+ 14.7	+ 13.3	+ 23.0
Usher and Cole.....	22907	+ 20.2	+ 18.7	+ 17.9	+ 15.0	+ 17.1	+ 12.9	+ 6.0	+ 45.3	+ 12.2	+ 19.4	+ 11.0	
Pyke.....	8447	+ 5.3	+ 9.1	+ 2.3	+ 5.6	+ 2.2	+ 9.1	+ 19.8	+ 22.6	+ 19.8	+ 23.5	+ 15.0	
Usher and Cole.....	22906	+ 25.1	+ 25.6	+ 22.7	+ 22.3	+ 20.3	+ 20.7	+ 11.0	+ 14.4	+ 8.1	+ 24.7	+ 19.2	
Webb.....	50671	+ 10.6	+ 15.0	+ 12.8	+ 12.6	+ 18.0	+ 18.3	+ 18.7	+ 31.7	+ 49.3	+ 21.1	+ 44.3	+ 35.2
Gibson.....	50671	+ 10.6	+ 15.0	+ 12.8	+ 12.6	+ 18.0	+ 18.3	+ 18.7	+ 31.7	+ 49.3	+ 21.1	+ 44.3	+ 35.2
Terry.....	50441	+ 2.1	+ 2.0	+ 14.9	+ 14.6	+ 12.8	+ 0.1	+ 31.2	+ 20.5	+ 28.2	+ 24.5	+ 3.1	
L. Hall.....	1732	+ 2.3	+ 8.0	+ 0.9	+ 4.4	+ 8.6	+ 8.0	+ 22.9	+ 29.1	+ 0.9	+ 11.4	+ 30.6	
C. J. Hill.....	149984	+ 1.1	+ 3.5	+ 1.6	+ 8.1	+ 7.9	+ 6.5	+ 23.4	+ 24.5	+ 11.2	+ 3.7	+ 3.8	
Northern Gold and Silvermiths Co.....	50442	+ 8.8	+ 7.1	+ 10.0	+ 9.9	+ 4.6	+ 3.9	+ 3.6	+ 4.0	+ 1.6	+ 3.7	+ 0.7	+ 15.3
Usher and Cole.....	22906	+ 4.9	+ 9.5	+ 9.2	+ 0.4	+ 1.4	+ 2.9	+ 10.1	+ 38.0	+ 38.6	+ 1.2	+ 42.7	+ 1.4
Mean Weekly Temperature.....		58.7	59.1	59.8	59.4	59.1	58.4	58.8		78.7		80.4	81.4
Extremes of Temperature as shown by the Self-Regis- tering Thermometer.....		58.4-60.9	58.6-60.8	59.0-59.5	51.6-59.7	51.8-59.8	50.9-56.7	74.9-92.0		65.8-88.0		70.5-89.3	70.0-87.4

* The Weekly Rates have been computed from the rates for three days.
During the period Dec. 8 to Jan. 5 the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kulbberg's automatic governor,
which controls the supply of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

† The Weekly Rates have been computed from the rates for four days.

(2) ABSTRACT OF THE PRINCIPAL CHANGES OF RATES.

Jan. 5. 6-12.	Jan. 13-19.	Jan. 19-26.	Jan. 26 Feb. 2.	Feb. 2-9.	Feb. 9-16.	Difference between gradual and least weekly Rates. Dial up. a.	Greatest difference between one week and next. Dial up. b.	Difference of Weekly Rates.			Trials Number.	NAME of MAKER.	No.
								Pendant up - Dial up. c.	Pendant right Dial up. d.	Pendant left Dial up. e.	a + 2b + 1/2 (c + d + e)		
+ 6.7	+ 6.0	+ 3.8	+ 1.1	+ 2.8	+ 1.6	12.7	4.1	+ 21.3	+ 21.9	+ 18.6	38.2	Gabriel.....	56152
+ 15.0	+ 15.0	+ 18.2	+ 13.4	+ 19.6	+ 15.4	27.0	8.6	+ 31.1	+ 31.7	+ 28.5	51.8	Ehrhardt.....	76677
+ 23.3	+ 15.1	+ 16.3	+ 17.3	+ 18.6	+ 19.6	27.0	9.4	+ 3.2	+ 3.2	+ 4.7	48.6	Yeomans.....	181415
+ 31.0	+ 19.3	+ 21.8	+ 27.1	+ 24.8	+ 28.9	23.3	11.7	+ 4.6	+ 4.6	+ 1.6	49.9	S. Smith and Sons.....	185231
+ 5.6	+ 3.6	+ 8.7	+ 10.2	+ 9.5	+ 8.2	15.8	13.9	+ 8.8	+ 2.7	+ 4.8			
+ 10.9	+ 10.9	+ 14.0	+ 15.7	+ 17.3	+ 16.3	22.2	10.6	+ 8.9	+ 8.2	+ 4.5	50.0	Fridlander.....	25055
+ 1.5	+ 10.3	+ 14.2	+ 12.3	+ 17.3	+ 13.3	23.7	8.8	+ 9.1	+ 8.2	+ 7.3	51.8	Nevens and Co.....	140229
+ 1.2	+ 0.1	+ 7.1	+ 5.5	+ 1.5	+ 1.3	23.3	7.5	+ 11.1	+ 9.8	+ 11.5	53.8	E. White.....	7186
+ 39.7	+ 36.6	+ 35.6	+ 38.4	+ 40.7	+ 41.7	39.5	4.3	+ 6.2	+ 7.0	+ 22.5	52.9	Yeomans and Co.....	181415
								+ 5.8	+ 1.0	+ 14.6	53.6	Johannes.....	6540
- 11.3	- 23.4	- 19.2	- 19.7	- 19.9	- 21.3	21.8	12.1	+ 11.0	+ 17.9	+ 1.6	54.7	P. and A. Gye.....	12947
- 15.3	- 24.8	- 21.8	- 18.4	- 20.8	- 23.3	16.9	9.5	+ 27.2	+ 16.8	+ 10.3	57.9	Nevens and Co.....	140229
+ 19.7	+ 25.3	+ 29.3	+ 25.5	+ 20.7	+ 20.1	13.9	12.6	+ 24.9	+ 23.2	+ 22.8	59.3	Wright and Craighead.....	8208
+ 27.1	+ 34.9	+ 37.7	+ 35.8	+ 34.2	+ 29.6	23.4	12.8	+ 0.5	+ 14.9	+ 49.3	60.0	J. White and Sons.....	58386
+ 38.3	+ 29.5	+ 34.5	+ 27.1	+ 32.4	+ 35.5	27.0	11.2	+ 21.1	+ 15.0	+ 20.4	63.8	Hillbrand.....	2194
+ 27.9	+ 29.4	+ 23.2	+ 34.4	+ 34.5	+ 26.2	22.0	15.2	+ 4.2	+ 9.6	+ 4.5	65.9	Johannes.....	6544
+ 7.9	+ 3.4	+ 1.7	+ 1.8	+ 4.6	+ 5.8	21.0	7.4	+ 9.0	+ 69.0	+ 94.3	66.0	J. White and Sons.....	38237
+ 12.7	+ 9.1	+ 9.2	+ 0.6	+ 8.7	+ 9.1	19.8	18.8	+ 9.1	+ 1.8	+ 29.0	66.1	Burton.....	2129
- 10.0	+ 9.3	+ 16.2	+ 22.4	+ 22.7	+ 21.2	14.7	13.0	+ 37.0	+ 34.8	+ 35.4	70.9	B. Smith.....	801
- 2.0	- 8.5	- 7.8	- 3.3	+ 3.6	+ 4.1	31.2	15.0	+ 11.7	+ 46.3	+ 0.5	70.9	Usher and Cole.....	22907
- 3.2	+ 5.4	+ 6.4	+ 19.7	+ 21.7	+ 22.3	20.1	15.3	+ 31.8	+ 32.7	+ 29.9	73.0	Pyke.....	8447
- 9.0	+ 22.0	+ 16.9	+ 15.5	+ 19.5	+ 19.7	21.3	18.8	+ 9.1	+ 18.8	+ 31.4	73.4	Usher and Cole.....	22906
+ 15.8	+ 22.7	+ 33.6	+ 37.5	+ 24.6	+ 21.4	25.3	10.9	+ 26.2	+ 47.5	+ 38.3	74.7	Webb.....	50671
+ 13.1	+ 18.4	+ 23.3	+ 21.7	+ 21.8	+ 19.1	21.0	20.6	+ 15.2	+ 14.8	+ 15.3	74.9	Gibson.....	50671
+ 17.9	+ 20.1	+ 17.0	+ 20.7	+ 18.2	+ 16.3	22.8	14.8	+ 29.5	+ 22.1	+ 29.8	75.0	Terry.....	50441
+ 16.3	+ 3.6	+ 2.3	+ 6.4	+ 8.7	+ 12.6	32.9	14.9	+ 4.5	+ 25.9	+ 39.9	76.9	L. Hall.....	1732
+ 16.4	+ 10.6	+ 10.1	+ 1.6	+ 9.4	+ 9.7	34.7	15.9	+ 0.5	+ 2.9	+ 17.6	78.4	C. J. Hill.....	149984
- 5.2	+ 4.3	+ 4.4	+ 4.7	+ 0.0	+ 5.9	26.5	21.5	+ 8.1	+ 8.0	+ 10.1	76.4	Northern Gold and Silvermiths Co.....	50442
+ 7.3	+ 8.5	+ 8.0	+ 8.4	+ 11.4	+ 8.6	21.5	15.0	+ 44.5	+ 41.0	+ 3.3	77.3	Usher and Cole.....	22906
44.5	48.5	52.4	49.8	49.5	46.7								
38.7-49.4	45.5-75.5	49.8-54.7	46.5-58.7	43.2-52.1	43.9-50.6								

The sign + indicates a gaining rate.

The quantities a, b, c, d, e, in the formula $a + 2b + \frac{1}{2}(c + d + e)$, are taken numerically, without regard to sign.

Only those watches have been included in this list for which the trial number did not exceed 100.

(1) WEEKLY RATES IN ORDER OF TIME.

NAME OF MAKER	No.	Oct. 27 to Nov. 3.	Nov. 8-10.	Nov. 10-17.	Nov. 17-24.	Nov. 24 to Dec. 1.	Dec. 1-8.	Dec. 8-15.	Dec. 15-19.	Dec. 19-22.	Dec. 22-25.	Dec. 25-29.	Dec. 29 to Jan. 5.
Watch Horizontal. Dial up.													
Watch Vertical. Pendant up.													
Watch Vertical. Pendant right.													
Watch Vertical. Pendant left.													
Watch Vertical. Pendant up.													
Watch Horizontal. Dial up.													
L. Hall	1706	+ 37.4	+ 38.8	+ 34.4	+ 32.0	+ 35.5	+ 35.7	+ 47.0	+ 59.2	+ 42.7	+ 20.5	+ 85.9	+ 57.6
S. Smith and Sons	18389	+ 37.4	+ 38.8	+ 34.4	+ 32.0	+ 35.5	+ 35.7	+ 47.0	+ 59.2	+ 42.7	+ 20.5	+ 85.9	+ 57.6
Usher and Cole	29814	+ 37.4	+ 38.8	+ 34.4	+ 32.0	+ 35.5	+ 35.7	+ 47.0	+ 59.2	+ 42.7	+ 20.5	+ 85.9	+ 57.6
Newnham and Co.	18606	+ 37.4	+ 38.8	+ 34.4	+ 32.0	+ 35.5	+ 35.7	+ 47.0	+ 59.2	+ 42.7	+ 20.5	+ 85.9	+ 57.6
Lindqvist	0108	- 0.4	- 1.0	- 5.9	- 5.9	- 6.8	- 11.8	- 3.4	- 12.1	- 16.3	- 8.6	- 18.7	- 4.8
Wright and Graydon	8205	+ 17.5	+ 15.1	+ 12.8	+ 11.5	+ 6.9	+ 8.0	+ 8.0	+ 4.4	+ 5.6	+ 6.5	+ 10.4	+ 4.8
Usher and Cole	29814	+ 3.0	+ 7.5	+ 14.7	+ 23.2	+ 24.5	+ 23.9	+ 23.4	+ 29.6	+ 32.4	+ 36.9	+ 34.0	+ 18.1
Chandler	1347	+ 38.2	+ 34.8	+ 27.4	+ 23.7	+ 30.0	+ 28.8	+ 9.3	+ 22.1	+ 14.5	+ 11.7	+ 21.9	+ 24.7
L. Hall	1706	+ 16.5	+ 14.2	+ 14.0	+ 17.2	+ 20.0	+ 18.0	+ 5.2	+ 14.2	+ 49.9	+ 7.9	+ 34.5	+ 23.0
Thornley	61059	+ 4.0	+ 6.4	+ 1.4	- 0.8	- 6.0	- 6.2	- 8.6	+ 4.7	+ 13.8	+ 8.8	+ 10.5	+ 10.9
Mathews	37346	+ 10.1	+ 9.8	+ 7.1	+ 2.9	+ 9.3	+ 13.7	+ 2.9	+ 37.8	+ 45.0	+ 44.6	+ 44.5	+ 19.2
L. Hall	1706	+ 8.1	+ 0.9	+ 0.8	+ 2.9	+ 5.7	+ 6.1	+ 14.7	+ 21.2	+ 1.6	+ 14.0	+ 18.0	+ 29.6
S. Smith and Sons	18389	+ 0.5	- 0.9	- 4.1	- 5.7	- 1.6	- 2.7	+ 10.1	+ 1.4	- 0.7	+ 8.0	+ 4.4	+ 13.4
Kendal and Dent	12514	+ 5.0	- 6.0	+ 0.9	+ 8.5	+ 4.9	+ 11.5	+ 69.0	- 43.9	- 19.1	- 9.5	- 7.9	- 7.9
Milne	55170	- 21.3	- 22.1	- 27.1	- 28.3	- 42.4	- 41.8	- 25.6	- 23.9	- 21.5	- 24.5	- 23.2	- 23.2
P. and A. Guye	12946	- 8.4	- 8.4	- 12.7	- 16.6	- 13.7	- 13.3	+ 7.1	- 2.8	- 10.5	- 1.2	+ 4.4	+ 11.3
Johannes	5543	- 8.4	- 8.4	- 12.7	- 16.6	- 13.7	- 13.3	+ 7.1	- 2.8	- 10.5	- 1.2	+ 4.4	+ 11.3
S. Smith and Sons	18389	+ 16.5	+ 14.2	+ 14.0	+ 17.2	+ 20.0	+ 18.0	+ 5.2	+ 14.2	+ 49.9	+ 7.9	+ 34.5	+ 23.0
Mathews	37346	+ 19.4	+ 16.9	+ 22.7	+ 13.4	+ 27.6	+ 23.4	- 3.1	+ 7.5	+ 2.1	- 5.9	- 16.8	+ 2.1
Webb	9233	+ 27.1	+ 30.4	+ 28.2	+ 21.9	+ 25.6	+ 25.0	+ 29.6	+ 61.4	+ 24.5	+ 86.3	+ 63.9	+ 44.4
Johannes	5543	+ 22.2	+ 25.5	+ 20.6	+ 29.6	+ 22.6	+ 28.9	+ 38.1	+ 23.7	+ 37.7	+ 39.6	+ 39.2	+ 42.0
Robertson	28668	+ 47.3	+ 37.9	+ 54.8	+ 49.1	+ 54.2	+ 58.7	+ 41.1	+ 35.0	+ 46.7	+ 45.6	+ 44.1	+ 38.1
Usher and Cole	29808	- 9.8	- 9.2	- 5.0	- 6.6	- 6.1	- 6.7	- 13.9	+ 13.1	+ 36.3	+ 26.8	+ 12.4	+ 19.8
J. White and Sons	96809	- 7.5	- 3.7	- 4.9	- 7.1	- 4.9	- 5.9	+ 14.6	+ 17.3	+ 28.7	+ 5.9	+ 24.2	+ 27.0
Northern Gold and	50438	- 45.1	- 58.7	- 65.1	- 67.7	- 66.4	- 65.3	- 45.4	- 28.2	- 28.7	- 37.1	- 35.7	- 39.1
Silvernatha Co.	50279	- 16.2	- 24.0	- 31.6	- 38.3	- 28.0	- 36.8	- 42.2	- 17.0	+ 55.3	+ 42.7	+ 40.8	- 17.9
Mackay and Chisholm	9239	- 6.8	- 6.1	- 8.0	- 7.5	- 6.8	- 7.6	+ 9.9	- 1.4	- 25.0	+ 40.4	+ 37.0	+ 32.2
Webb	9239	- 7.1	- 12.9	- 17.4	- 19.1	- 19.5	- 21.4	+ 7.6	+ 6.0	+ 16.8	+ 16.1	+ 10.7	+ 9.8
J. White and Sons	96806	- 7.1	- 12.9	- 17.4	- 19.1	- 19.5	- 21.4	+ 7.6	+ 6.0	+ 16.8	+ 16.1	+ 10.7	+ 9.8
Mean Weekly Temperature		55.7	59.1	58.8	52.4	54.1	54.4	86.8	78.7		80.4		81.4
Extremes of Temperature as shown by the Self-Registering Thermometer		54.4-60.9	56.6-60.8	50.6-66.5	51.5-55.7	51.8-55.8	50.9-56.7	74.9-96.0	65.8-88.0	70.3-89.3	70.0-87.4		

* The Weekly Rates have been computed from the rates for three days.

* The Weekly Rates have been computed from the rates for four days. During the period Dec. 3 to Jan. 5, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Keilberg's automatic governor, which controls the supply of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

(2) ABSTRACT OF THE PRINCIPAL CHANGES OF RATES.

WATCH HORIZONTAL.						DIFFERENCE OF THE WEEKLY CHANGES OF RATES.					Trial Number.	NAME OF MAKER.	No.
Jan. 5-12.	Jan. 12-19.	Jan. 19-26.	Jan. 26 to Feb. 2.	Feb. 2-9.	Feb. 9-16.	Difference between greatest and least Weekly Rates. Dial up. a.	Greatest difference between one week and the next. Dial up. b.	Difference of Weekly Rates.					
						Pendant up. c.	Pendant right. d.	Pendant left. e.	$a + 2 + b + c + d + e$				
+ 38.3 - 14.1 + 5.2 + 6.1 + 34.1	+ 42.0 - 14.1 + 8.0 + 5.7 + 46.9	+ 44.1 - 13.6 + 8.4 + 4.8 + 43.6	+ 44.9 - 1.3 + 9.3 + 48.1	+ 45.2 - 1.7 + 10.5 + 42.4	+ 44.2 - 0.1 + 8.1 + 39.4	23.6 22.9 23.4 23.4 33.4	18.3 20.2 11.5 19.7 17.0	+ 20.3 - 20.2 - 35.8 - 25.3 - 40.4	- 9.6 - 10.6 - 37.8 - 23.3 - 40.4	- 31.8 - 11.0 - 35.7 - 22.0 - 24.4	78.3 79.5 79.4 80.1 81.7	L. Hall S. Smith and Sons Barbault Usher and Cole Newnham and Co.	1706 12687 12283 29413 18606
- 18.8 - 4.0 - 36.6 - 29.1 + 9.0	- 16.0 - 8.9 - 30.2 - 29.1 + 9.0	- 12.6 - 7.1 - 24.0 - 22.1 + 12.1	- 17.9 - 1.2 - 29.2 - 24.8 + 12.2	- 20.7 - 1.9 - 27.8 - 26.6 + 7.3	- 28.1 - 3.4 - 29.4 - 29.0 - 1.8	32.9 32.6 38.6 37.4 33.0	23.1 20.2 17.5 27.4 19.5	+ 0.1 - 20.2 - 11.0 + 1.1 - 5.4	- 17.0 - 10.6 - 11.6 - 31.5 - 11.0	+ 4.9 - 20.4 - 16.1 - 28.7 - 8.7	82.9 83.7 83.7 84.5 86.2	Lindqvist Wright & Graydon Usher and Cole Newnham and Co. Candler	0108 8205 29814 18606 1247
+ 7.0 + 2.7 + 1.2 - 3.6 - 13.0	- 2.7 + 0.6 - 1.2 + 4.6 + 4.9	+ 2.6 + 14.4 - 12.5 + 8.0 - 1.9	- 15.0 + 29.6 - 9.4 + 9.4 - 1.5	+ 0.8 + 14.1 - 3.8 + 8.6 - 3.8	- 10.0 + 39.5 - 17.3 + 4.4 - 6.7	37.0 48.1 20.2 27.8 26.2	17.6 15.2 16.6 27.4 26.2	+ 10.8 + 4.4 - 3.9 - 8.8 - 3.7	+ 36.3 + 12.6 + 43.7 - 17.7 - 11.0	- 5.7 - 8.6 + 41.8 - 10.4 - 8.3	84.6 85.2 86.2 86.3 88.8	L. Hall Usher and Sons Matthews L. Hall S. Smith and Sons	1706 12687 29413 18606 19588
- 21.1 - 43.9 - 13.0 - 1.8 + 56.2	- 20.8 - 35.0 - 13.0 + 0.3 + 62.2	- 22.0 - 40.9 - 12.5 + 8.8 + 68.6	- 17.7 - 52.8 - 14.1 + 6.3 + 68.6	- 15.4 - 58.7 - 14.1 + 2.4 + 64.0	- 16.7 - 69.1 - 16.1 + 2.8 + 63.9	30.5 38.8 30.9 38.2 33.1	18.4 21.7 20.9 20.9 8.1	+ 34.7 + 6.9 - 2.4 - 9.5 - 22.4	- 34.5 - 3.1 - 10.2 - 11.8 - 37.0	- 3.7 - 10.6 - 12.3 - 16.8 - 24.8	87.1 88.0 88.0 88.3 90.7	Kendal and Dent Usher and Sons P. and A. Guyot L. Hall S. Smith and Sons	1251 12687 12284 18606 19588
+ 12.9 + 49.5 + 22.8 + 11.6 - 18.1	+ 11.3 + 34.9 + 38.3 + 14.4 - 11.0	+ 23.8 + 58.2 + 59.6 + 14.3 - 11.0	+ 23.8 + 13.9 + 39.2 + 24.3 - 14.0	+ 19.8 + 11.5 + 42.0 + 22.0 - 17.0	+ 10.7 + 10.4 + 37.9 + 15.1 - 26.6	30.7 38.1 36.9 47.1 30.8	28.5 15.2 26.9 21.5 22.4	- 11.7 - 25.7 - 20.9 + 2.8 + 2.8	- 1.6 - 12.5 - 10.2 - 9.6 - 29.6	- 5.4 - 49.8 - 12.3 + 6.5 - 17.2	94.1 91.7 91.8 94.6 94.6	Matthews Webb Johannsen Roberts Usher and Cole	3781 6546 6546 29896 29896
- 1.2 - 61.9 - 23.8 - 22.8 - 22.7	0.0 - 57.2 - 9.7 + 1.0 - 22.2	- 0.8 - 56.3 - 12.4 - 25.6 - 17.7	- 1.7 - 7.7 - 25.6 - 11.9 - 17.7	+ 1.7 - 1.3 - 41.9 - 18.9 - 15.7	- 1.8 - 68.1 - 41.6 - 17.6 - 10.7	34.5 41.2 32.5 40.0 32.5	23.2 28.8 17.8 20.0 23.5	0.0 + 9.8 + 1.2 + 1.2 + 1.2	+ 7.9 - 8.1 - 65.4 - 17.4 - 17.4	- 14.9 - 47.7 - 72.8 - 96.1 - 12.7	94.7 95.0 95.1 96.1 96.1	J. White and Sons Northern Gold and Silversmith Co. Mackay & Chisholm Wright & Graydon J. White and Sons	8680 6546 5027 6546 5027
44.5	45.5	55.4	49.8	48.5	46.7								
38.7-49.4	47.7-51.5	58.8-54.7	46.5-55.7	45.3-52.1	43.9-50.6								

The sign + indicates a gaining rate.

The quantities a, b, c, d, e , in the formula $a + 2 + b + c + d + e$, are taken numerically, without regard to sign.

(1) WEEKLY RATES IN ORDER OF TIME.

NAME OF MAKER.	No.	Oct. 27 to Nov. 3.	Nov. 3-10.	Nov. 10-17.	Nov. 17-24.	Nov. 24 to Dec. 1.	Dec. 1-8.	Dec. 8-15.	Dec. 15-19.	Dec. 19-22.	Dec. 22-25.	Dec. 25- 29.	Dec. 29 to Jan. 5.
		Watch Horizontal. Dial up.						Watch Vertical. Pendant up.		Watch Vertical. Pendant right.	Watch Vertical. Pendant left.	Watch Vertical. Pendant up.	Watch Horizontal. Dial up.
Thornloe.....	61622	- 9-5	- 10-4	- 6-7	- 5-7	- 3-5	- 7-2	- 4-8	- 86-2	+ 14-9	- 20-1	- 32-0	0-0
Bannister.....	1715	- 14-7	- 13-6	- 13-7	- 18-8	- 15-9	- 17-2	- 0-4	- 15-1	- 89-8	- 43-4	- 14-4	+ 4-0
Newson.....	160247	- 25-3	- 23-2	- 23-3	- 23-4	- 26-2	- 28-0	- 25-1	+ 10-0	- 50-4	- 56-2	+ 10-5	- 21-2
Fyke.....	8458	- 20-2	- 23-8	- 26-8	- 23-3	- 19-5	- 22-4	- 18-1	- 15-6	- 9-5	- 6-8	- 0-4	+ 11-2
Wright and Craighend.....	8181	- 5-5	- 16-9	- 18-6	- 25-5	- 19-2	- 13-6	- 8-1	+ 20-8	+ 25-9	+ 24-5	+ 25-4	+ 14-8
Mean Weekly Temperature ...		58-7	59-1	58-3	57-4	54-1	54-4	56-8	78-7		80-4	81-4	
Extremes of Temperature as shown by the Self-Regis- tering Thermometer		53-4-60-0	56-6-60-8	50-6-56-5	51-5-53-7	51-8-55-8	50-9-56-7	74-9-99-0	65-8-88-0	70-3-89-3	70-0-87-4		

* The Weekly Rates have been computed from the rates for three days.
 † The Weekly Rates have been computed from the rates for four days.
 During the period Dec. 8 to Jan. 5, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kullberg's automatic governor,
 which controls the supply of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

(2) ABSTRACT OF THE PRINCIPAL CHANGES OF RATES.

Jan. 5-12.	Jan. 12-19.	Jan. 19-26.	Jan. 26 to Feb. 2.	Feb. 2-9.	Feb. 9-16.	Difference between greatest and least Weekly Rates. Dial up. a.	Greatest difference between one week and the next. Dial up. b.	Difference of Weekly Rates. Pendant up -Dial up. c.	Pendant right -Dial up. d.	Pendant left -Dial up. e.	Trial Number. $a + 2b + \frac{1}{2}(c + \frac{d+e}{2})$	NAME OF MAKER.	No.
- 24-6	- 25-4	- 21-5	- 14-1	- 13-4	- 15-5	35-4	24-6	- 21-7	+ 17-3	- 17-4	86-8	Thornloe.....	61622
- 21-0	- 19-8	- 16-2	- 14-9	- 16-0	- 17-7	25-0	25-0	- 18-6	- 32-6	- 45-2	86-8	Bannister.....	1715
- 43-2	- 36-5	- 33-2	- 33-6	- 45-3	- 48-1	35-9	22-0	+ 33-5	- 27-2	- 33-0	87-7	Newson.....	160247
- 15-1	- 6-9	+ 0-9	+ 4-2	+ 2-6	+ 3-8	39-5	27-8	- 4-5	- 6-0	- 9-3	98-0	Fyke.....	8458
- 5-7	+ 0-1	+ 1-2	- 11-6	- 25-3	- 28-0	42-3	20-0	+ 20-0	+ 22-8	+ 21-2	99-6	Wright & Craighend.....	8181
64-5	48-5	52-4	49-8	48-5	46-7								
38-7-49-4	45-7-51-5	49-8-54-7	46-5-53-7	45-3-52-1	45-9-50-6								

The sign + indicates a gaining rate.

The quantities a, b, c, d, e, in the formula $a + 2b + \frac{1}{2}(c + \frac{d+e}{2})$, are taken numerically,
 without regard to sign.

Only those watches have been included in this list for which the trial number did not exceed 100.