

RATES OF DECK WATCHES

ON TRIAL

FOR PURCHASE BY THE BOARD OF ADMIRALTY,

AT THE

ROYAL OBSERVATORY, GREENWICH.

FROM 1889 OCTOBER 26 TO 1890 FEBRUARY 15.

RATES OF DECK WATCHES ON TRIAL FOR PURCHASE BY THE ADMIRALTY AT THE

(1) WEEKLY RATES IN ORDER OF TIME.													
NAME OF MAKER.	No.	Oct. 26 to Nov. 2.	Nov. 2-9.	Nov. 9-16.	Nov. 16-23.	Nov. 23-30.	Nov. 30 to Dec. 7.	Dec. 7-14.	Dec. 14-21.	Dec. 21-28.	Dec. 28-35.	Dec. 35 to Jan. 4.	Watch Horizontal. Dial up.
		Watch Vertical. Dial up.											
Ashley	3682	+ 7.0	+ 10.0	+ 8.6	+ 9.0	+ 11.3	+ 8.6	+ 15.3	+ 15.6	+ 23.7	+ 22.8	+ 19.6	
Hall	3681	- 0.6	- 0.6	- 2.6	- 1.2	- 2.8	+ 2.6	+ 1.1	+ 11.7	- 11.9	- 0.2	+ 7.9	+ 7.5
C. Frodham and Co.	07462	+ 31.2	+ 34.2	+ 32.6	+ 33.9	+ 33.9	+ 32.1	+ 30.1	+ 50.1	- 11.2	+ 12.4	+ 30.9	+ 30.9
C. Frodham and Co.	07586	- 20.6	- 22.0	- 22.9	- 21.7	- 27.1	- 24.4	- 18.3	- 18.2	- 19.8	- 38.5	- 24.9	- 10.6
Buckney	30390	+ 12.7	+ 17.8	+ 10.5	+ 6.7	+ 4.3	+ 2.4	+ 8.6	+ 35.3	+ 11.2	- 8.6	+ 4.4	+ 12.4
Ashley	3923	+ 6.3	+ 5.7	+ 3.6	+ 1.5	+ 1.2	- 3.1	- 0.1	- 7.2	- 56.0	- 24.5	- 7.0	+ 7.6
Buckney	30302	+ 8.9	+ 7.8	+ 6.5	+ 7.5	+ 7.9	+ 2.7	- 1.7	- 20.3	+ 37.8	- 23.6	- 2.0	
Isaac	10797	- 2.1	- 1.6	- 3.0	- 2.9	- 4.7	- 9.3	- 19.0	- 5.4	+ 3.0	- 62.5	- 31.9	- 15.5
Hammersley	3015	+ 20.9	+ 22.9	+ 22.6	+ 24.3	+ 24.3	+ 21.0	+ 29.5	+ 13.1	+ 13.1	- 20.6	- 6.0	+ 25.8
E. Dent and Co.	43537	- 5.2	- 3.1	- 4.9	- 7.4	- 0.0	- 5.3	+ 10.9	+ 5.1	+ 11.7	+ 6.8	- 2.6	+ 12.3
C. Frodham and Co.	07587	+ 10.8	+ 10.4	+ 8.7	+ 10.1	+ 5.4	- 3.2	+ 15.1	+ 24.9	+ 25.9	- 13.3	+ 7.6	+ 23.6
Isaac	10825	- 9.7	- 11.6	- 3.5	- 7.0	- 2.8	+ 9.3	+ 1.3	+ 45.8	- 20.3	- 1.9	+ 21.5	+ 2.4
Isaac	10795	- 10.5	- 15.9	- 15.5	- 17.0	- 16.6	- 20.2	- 4.1	- 10.3	+ 19.8	- 49.9	- 26.4	- 5.3
Brookbank and Atkins	215	+ 7.3	+ 9.8	+ 11.9	+ 11.6	+ 11.3	+ 15.5	- 7.0	+ 2.8	- 28.7	+ 15.2	+ 10.2	+ 10.2
Brookbank and Atkins	213	+ 21.7	+ 25.6	+ 23.5	+ 22.2	+ 22.3	+ 21.7	+ 30.6	+ 38.1	+ 37.6	+ 30.1	+ 67.0	
Buckney	30402	+ 0.4	- 2.6	+ 1.7	+ 7.1	+ 0.8	- 24.3	- 25.5	- 23.9	+ 61.2	+ 1.9	+ 4.6	- 10.1
Brookbank and Atkins	74213	- 25.4	- 32.1	- 24.6	- 24.6	- 10.4	- 17.3	+ 2.5	+ 14.0	+ 31.2	+ 39.4	+ 30.1	+ 30.6
Hall	3094	+ 55.4	+ 55.0	+ 56.4	+ 44.8	+ 44.9	+ 30.3	+ 38.5	+ 14.7	+ 30.8	+ 60.2		
J. Poole and Co.	6424	+ 21.0	+ 20.8	+ 20.3	+ 19.7	+ 15.0	+ 14.7	+ 45.3	+ 9.3	+ 0.9	+ 14.5	+ 34.3	+ 30.9
Hammersley	3011	+ 12.5	+ 20.5	+ 23.2	+ 23.7	+ 20.0	+ 13.9	+ 25.7	+ 58.1	+ 20.8	+ 25.0	+ 38.5	+ 13.3
J. Poole and Co.	6498	+ 10.4	+ 9.7	+ 7.9	+ 4.8	+ 5.2	+ 9.2	- 24.7	- 58.3	- 28.8	- 12.1	- 29.4	- 15.9
Buckney	30201	- 18.9	- 24.9	- 21.8	- 19.6	- 24.3	- 43.1	- 7.0	- 12.1	+ 2.1	- 50.2	- 36.9	- 45.4
Hall	3005	- 31.9	- 33.6	- 35.5	- 37.0	- 35.1	- 38.9	+ 10.3	- 4.4	- 5.4	- 7.3	+ 9.8	+ 19.5
Kendal and Dent	25450	- 21.0	- 16.1	- 15.7	- 6.5	- 1.4	- 6.4	- 45.0	+ 6.3	+ 9.1	+ 55.5	+ 17.9	- 36.7
C. Frodham & Co.	07463	+ 19.4	+ 22.2	+ 21.1	...	...	...	...	...	...	...	...	...
Mean Weekly Temperature	...	58.5	57.7	57.1	56.3	55.8	45.7	84.5	84.3	82.9	82.5	82.5	...
Extremes of Temperature as shown by the Self-Registering Thermometers.	...	55.3-63.8	54.3-61.0	53.8-61.3	52.0-60.2	48.0-60.8	44.0-54.4	35.2-58.2	83.1-85.5	79.0-85.5	81.5-85.0	...	...
* The Weekly Rates have been computed from the Rates for four days. † The Weekly Rates have been computed from the Rates for three days. During the period Dec. 7 to Jan. 4, the watches were placed in its own heated by jets of gas the temperature being regulated by Railway's automatic governor which controls the supply of gas. The gas fixtures 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. † The Weekly Rates have been computed from the Rates for three days. During the period Dec. 7 to Jan. 4, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kailberg'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.

ROYAL OBSERVATORY, GREENWICH, FROM 1889 OCTOBER 26 TO 1890 FEBRUARY 15.

(2) ABSTRACT OF THE PRINCIPAL CHANGES OF RATE.											
Jan. 4-11.	Jan. 11-18.	Jan. 18-25.	Jan. 25 to Feb. 1.	Feb. 1-8.	Feb. 8-15.	Difference between greatest and least Weekly Rates.	Difference between one week and the next.	Difference of Weekly Rates.	Trials Number.	NAME OF MAKER.	No.
Watch Horizontal. Dial up.						Pendant up. <i>a</i> .	Pendant right. <i>b</i> .	Pendant left. <i>c</i> .	$a + 2b + \frac{1}{2}(c + \frac{d+e}{2})$.		
						Dial up. <i>a</i> .	Dial up. <i>b</i> .	Dial up. <i>c</i> .	Dial up. <i>d</i> .	Dial up. <i>e</i> .	
+ 88.2	+ 88.6	+ 88.1	+ 81.6	+ 80.9	+ 80.9	15.2	6.6	+ 1.7	+ 9.2	+ 11.5	36.8
+ 9.9	+ 7.0	+ 11.9	+ 10.6	+ 8.9	+ 6.0	18.6	6.0	+ 5.5	- 16.2	- 4.5	36.8
+ 38.9	+ 43.5	+ 44.1	+ 39.6	+ 37.2	+ 41.3	14.0	4.6	+ 6.8	- 44.7	- 21.1	37.5
- 6.5	...	...	...	...	...	20.6	9.1	- 7.1	- 5.3	- 24.0	41.3
+ 2.3	+ 11.0	+ 5.0	+ 9.2	+ 6.2	+ 6.0	18.5	11.1	+ 8.9	+ 0.2	- 19.6	45.5
- 0.7	+ 5.0	+ 8.8	+ 7.2	+ 5.1	+ 2.1	11.9	8.3	- 10.9	- 59.8	- 38.3	50.4
+ 2.1	+ 12.1	+ 12.8	+ 9.0	+ 5.1	+ 2.4	14.8	10.0	- 23.1	+ 39.7	- 21.9	56.7
- 0.6	- 3.0	- 6.7	- 8.2	- 10.2	- 10.7	18.4	14.9	- 1.4	+ 30.3	- 45.2	59.8
+ 8.3	+ 8.3	+ 38.9	+ 8.1	+ 80.1	+ 1.9	14.9	8.5	- 29.1	- 19.6	- 62.3	60.2
- 5.9	- 7.2	- 5.0	- 8.1	- 8.3	- 7.0	20.6	18.6	- 10.3	+ 0.1	- 5.1	63.1
+ 5.1	+ 7.4	+ 6.9	+ 9.4	+ 6.1	+ 2.6	26.8	18.5	- 3.1	+ 6.5	- 33.2	72.0
- 3.5	+ 3.0	+ 9.0	+ 15.6	+ 9.0	+ 13.0	27.2	12.1	+ 33.3	- 23.2	- 3.8	72.4
- 19.9	- 17.8	- 20.1	- 20.6	- 27.1	- 29.0	24.9	16.1	- 13.7	+ 45.5	- 45.2	75.6
+ 20.0	+ 14.1	+ 20.8	+ 19.4	+ 17.4	+ 18.4	28.4	23.1	+ 6.4	- 30.0	+ 13.9	85.1
+ 32.1	+ 32.0	+ 31.4	+ 33.0	+ 33.7	+ 35.5	35.3	24.9	- 9.7	- 6.2	- 35.6	96.9
- 5.8	- 7.5	- 4.8	- 4.0	+ 6.8	+ 2.7	32.6	25.1	+ 8.1	+ 70.0	+ 50.7	102.9
- 4.9	- 6.3	+ 7.0	+ 7.9	+ 12.1	+ 18.0	40.0	25.5	+ 10.5	+ 6.7	+ 17.8	106.0
+ 49.3	+ 59.4	+ 57.3	+ 63.3	+ 65.8	+ 66.0	40.0	24.9	- 19.5	- 1.6	- 25.4	110.1
+ 20.7	+ 20.6	+ 20.6	+ 23.1	+ 18.2	+ 12.9	32.4	30.6	- 25.8	- 41.7	- 23.1	118.1
+ 8.0	+ 5.8	+ 8.8	+ 40.4	+ 55.9	+ 42.8	52.4	30.0	+ 25.5	- 1.2	+ 3.0	125.9
+ 13.8	+ 14.9	+ 20.5	+ 20.2	+ 24.4	+ 25.6	50.3	33.9	- 13.6	- 6.5	+ 8.2	127.4
- 40.0	- 27.4	- 22.9	- 20.0	- 42.4	- 4.8	40.6	37.6	+ 1.7	+ 28.3	- 63.0	131.9
- 15.6	- 12.5	- 14.7	- 19.8	- 27.8	- 37.6	55.4	40.2	- 13.2	- 20.3	- 12.1	170.0
+ 9.6	+ 4.2	+ 4.7	- 0.4	+ 4.5	+ 7.9	54.6	46.3	+ 53.0	+ 50.0	+ 95.4	168.1
...	...	...	...	...	...	...	...	...	...	...	...
54.9	56.0	55.5	55.5	52.8	50.4	...	...	...	...	...	C. Frodsham & Co.
The sign + indicates a gaining rate. The quantities <i>a</i> , <i>b</i> , <i>c</i> , <i>d</i> , <i>e</i> , in the formula $a + 2b + \frac{1}{2}(c + \frac{d+e}{2})$, are taken numerically, without regard to sign.											
50.2-59.2	51.7-59.3	51.2-56.8	51.4-59.0	46.0-58.5	45.2-53.0	C. Frodsham, 07461. The mainspring of this watch was found broken in the 47th week of the trial. It was removed by the maker on December 30.					
C. Frodsham, 07396. The mainspring of this watch was found broken in the 17th week of the trial, after the trials in position and heat. Its position in the list, having been determined without reference to the duration of the trial, is not necessarily correct.											