

These handwritten notes from 1977 all appear to have been written by a Synchronome or Post Office engineer but we do not know their origin. They show the wiring diagrams for the Synchronome Shortt free pendulum wired to two slaves and also connections for the Greenwich Time signal via telephone.

At the end there is a single sheet showing the instructions for adjustment of the trunnion, a separate Synchronome drawing.

Circuit Description

A single 4 $\frac{1}{2}$ V battery provides the power for the complete system.

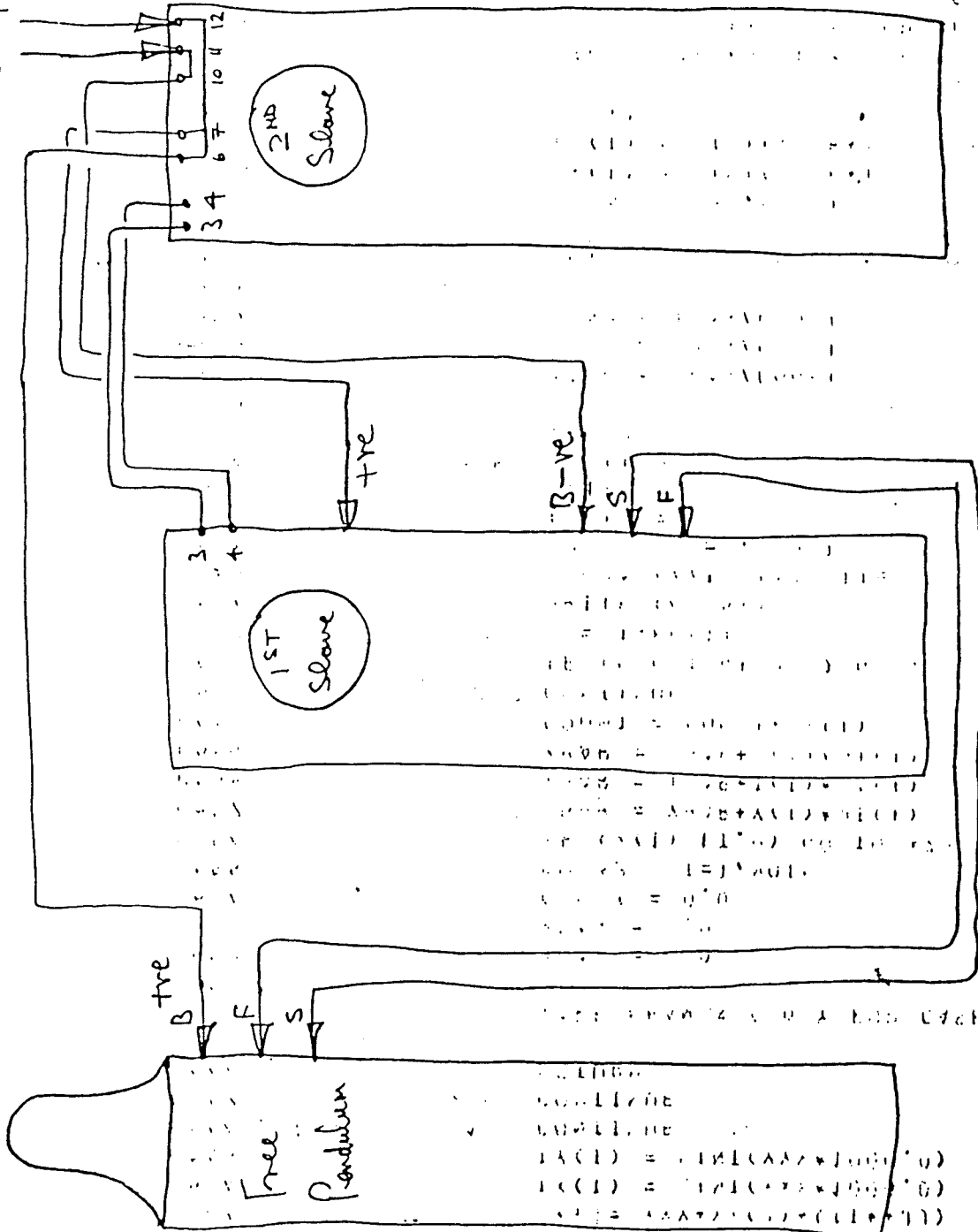
The ticks circuit is very simple and is shown in diagram 1. An ordinary carbon microphone is placed in the chronometer case and feeds a standard telephone ear piece in the handset. When the handset is raised from the cradle power is applied to the circuit and the ticks should be clearly heard.

The pips circuit is shown in diagram 2 and consists of a simple pulse shaping circuit followed by a multi-vibrator tone oscillator.

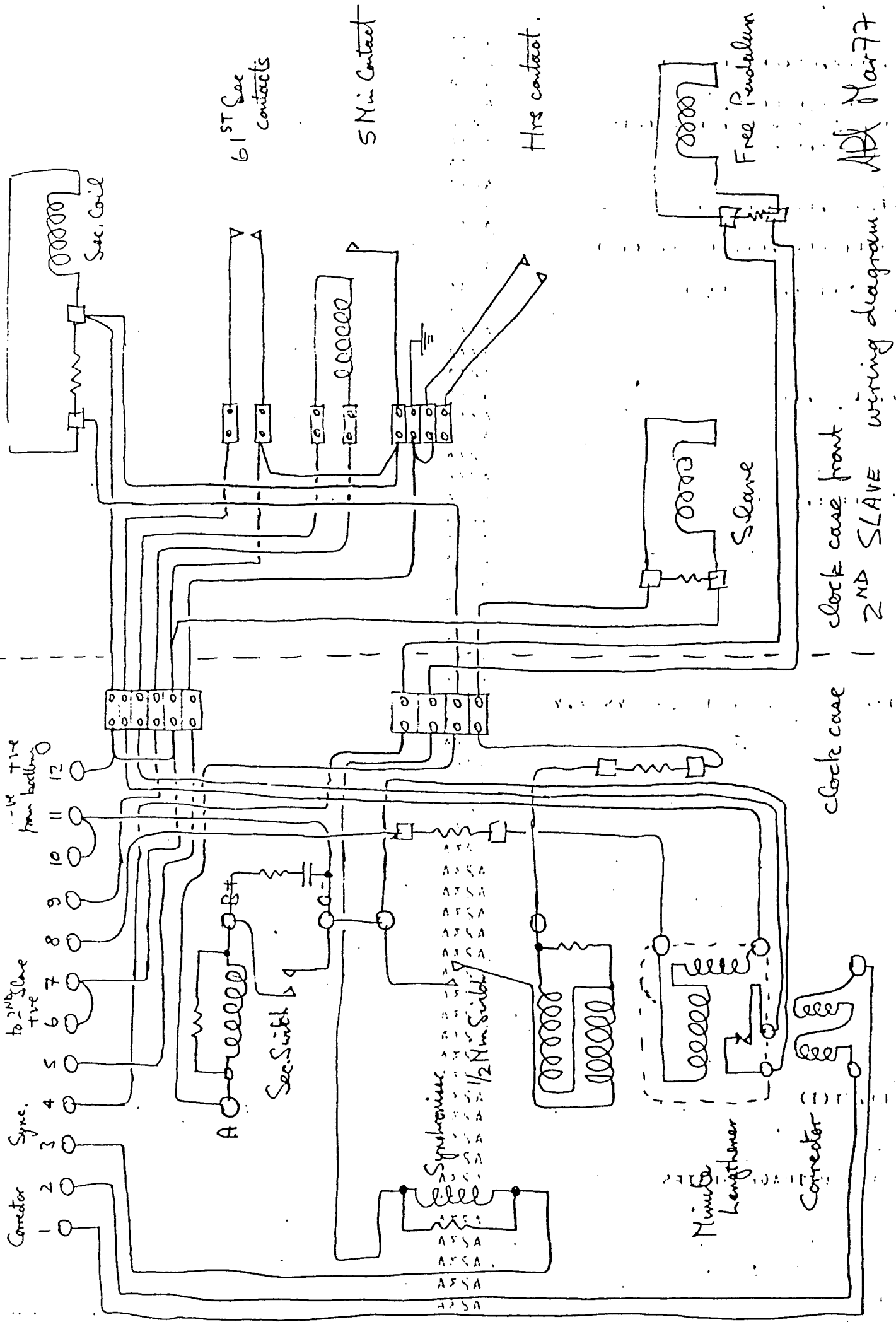
RLA is operated by the seconds pulse to the second slave dial, this triggers the pulse shaper off and it produces a pulse approx. 100 mSec long this allows power to flow into the tone oscillator and a short pip will be heard in the ear piece. When the 61ST second contact is made the next seconds pulse is lengthened to approx 400 mSec by the addition of the 10 μ F capacitor. When the handset is lifted from its cradle the pips will be heard.

Setting up of the 61ST second lengthening circuit is fairly straight forward. The operating cam to the 61 sec contact must be made for the 61ST sec and encompass it completely.

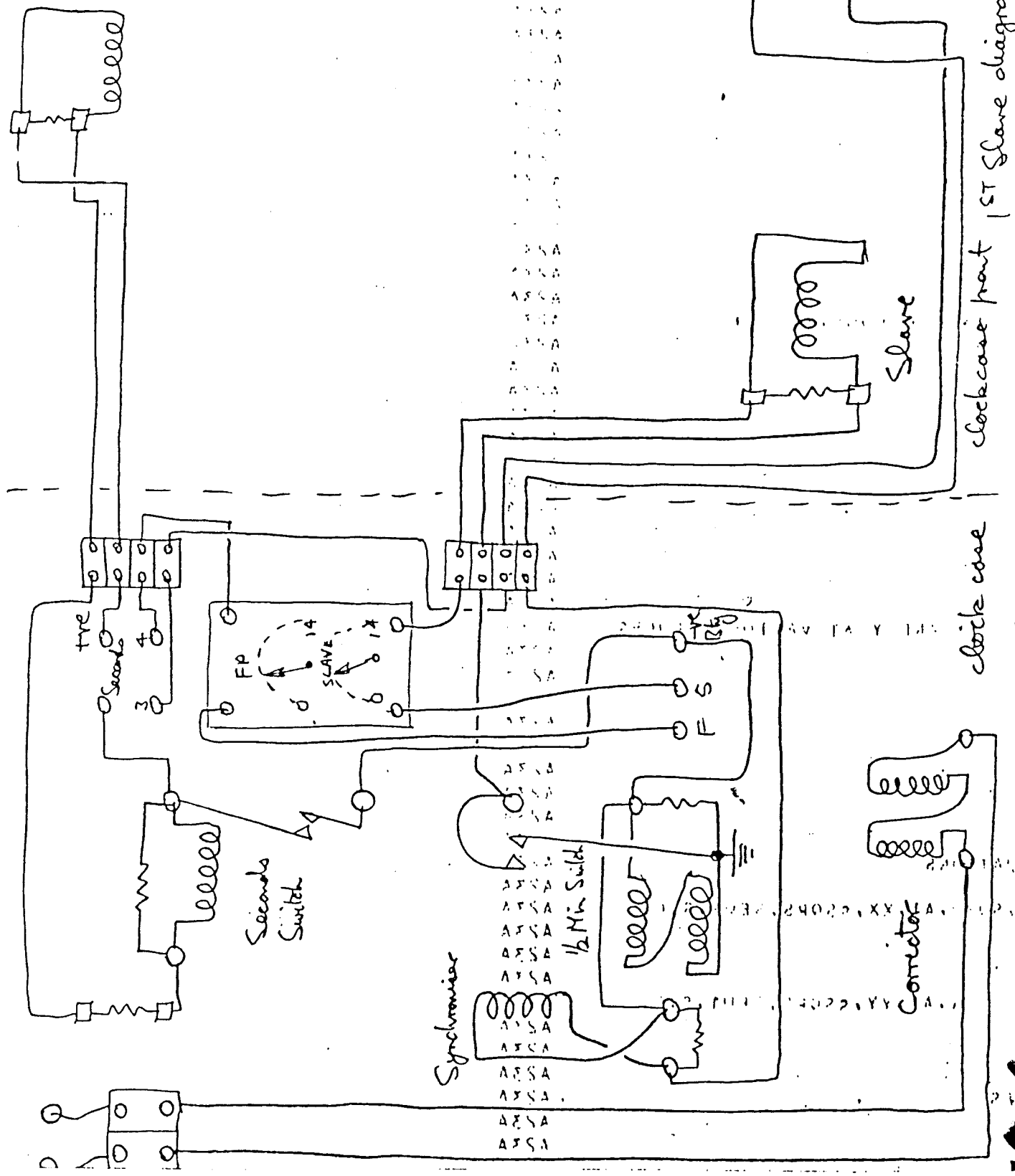
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Intermediary diagram



Seconds, Dial

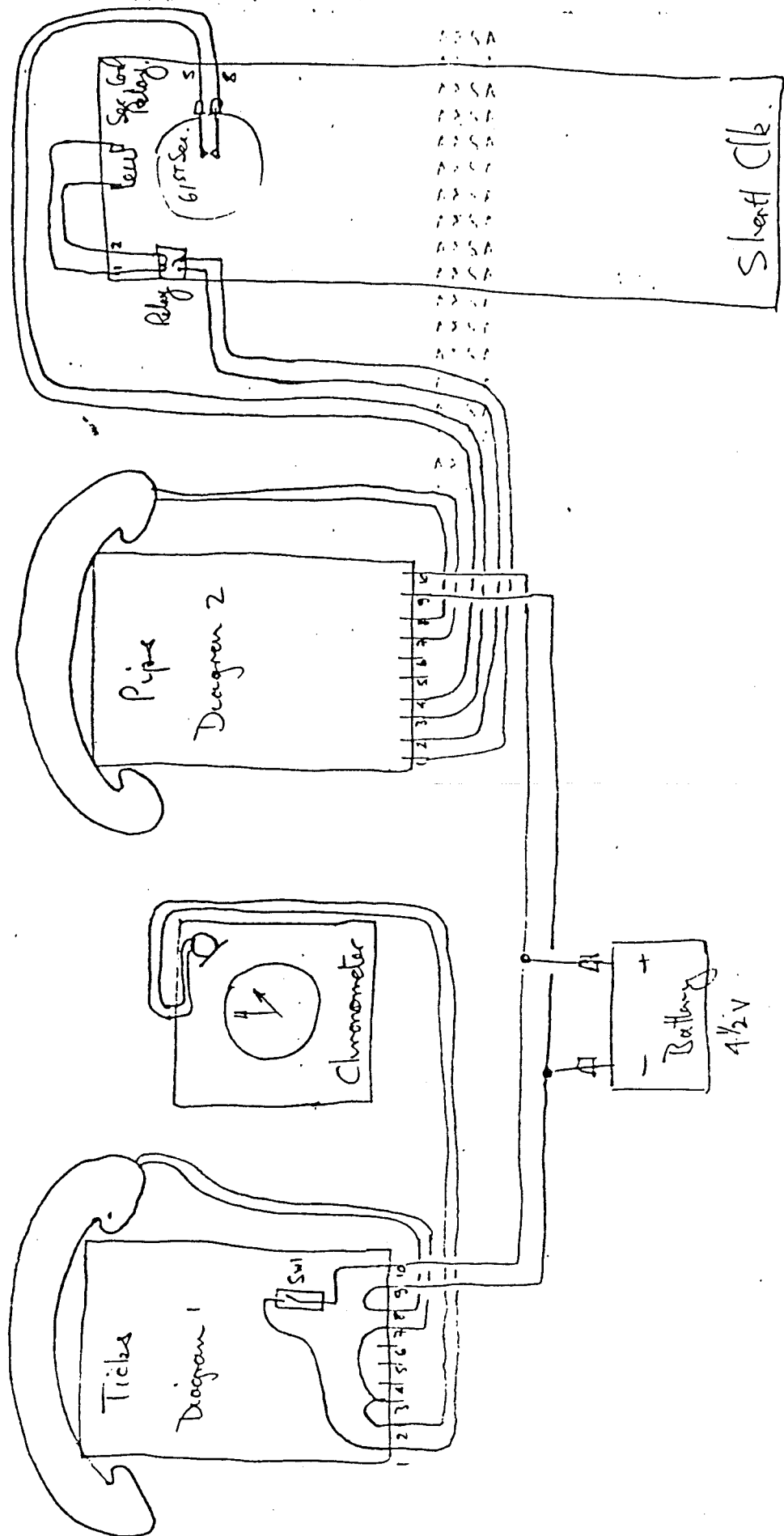


clockcase part 1st Slave diagram

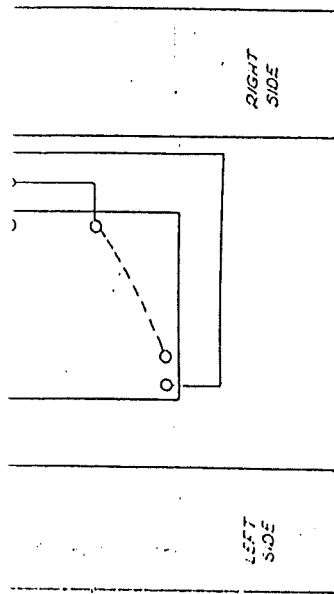
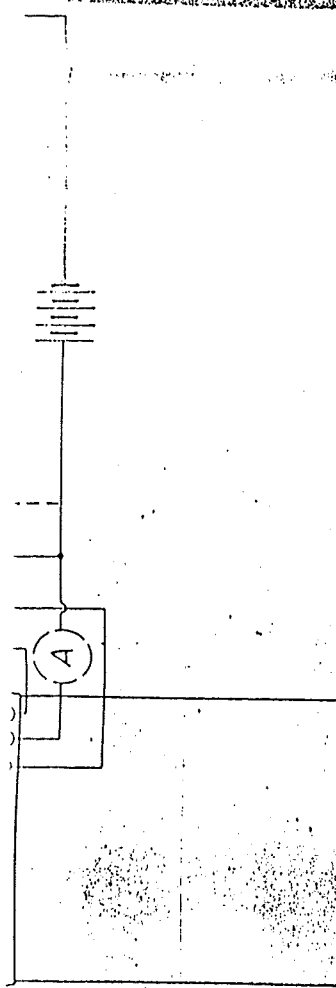
clock case

HL Mär 77

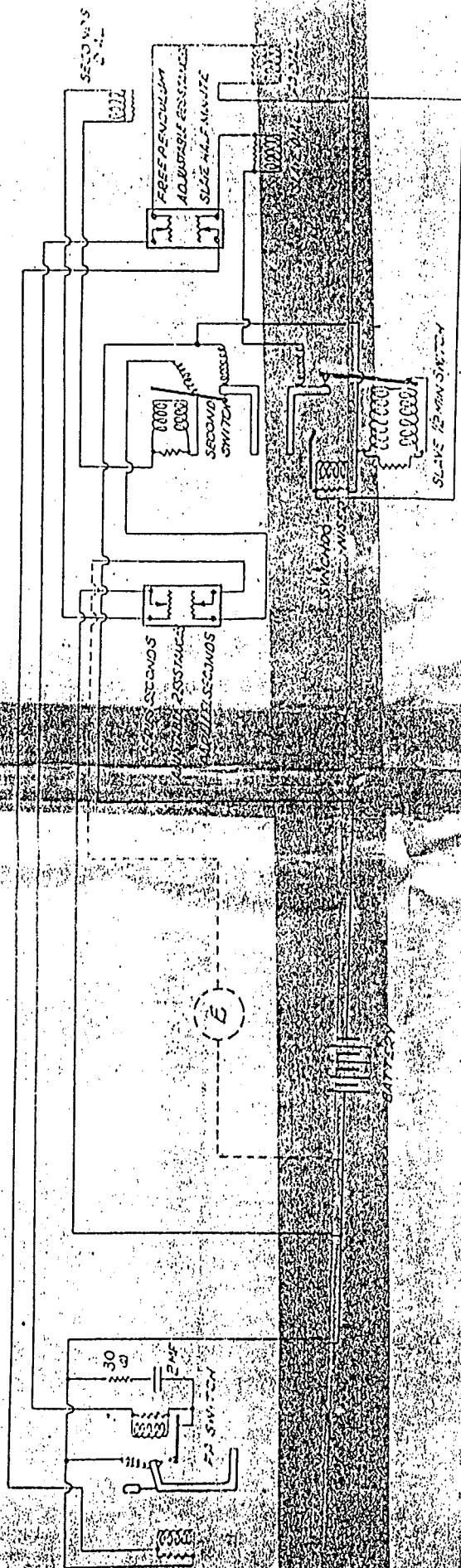
Diagram 3



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DEVELOPMENT OF SLAVE CASE



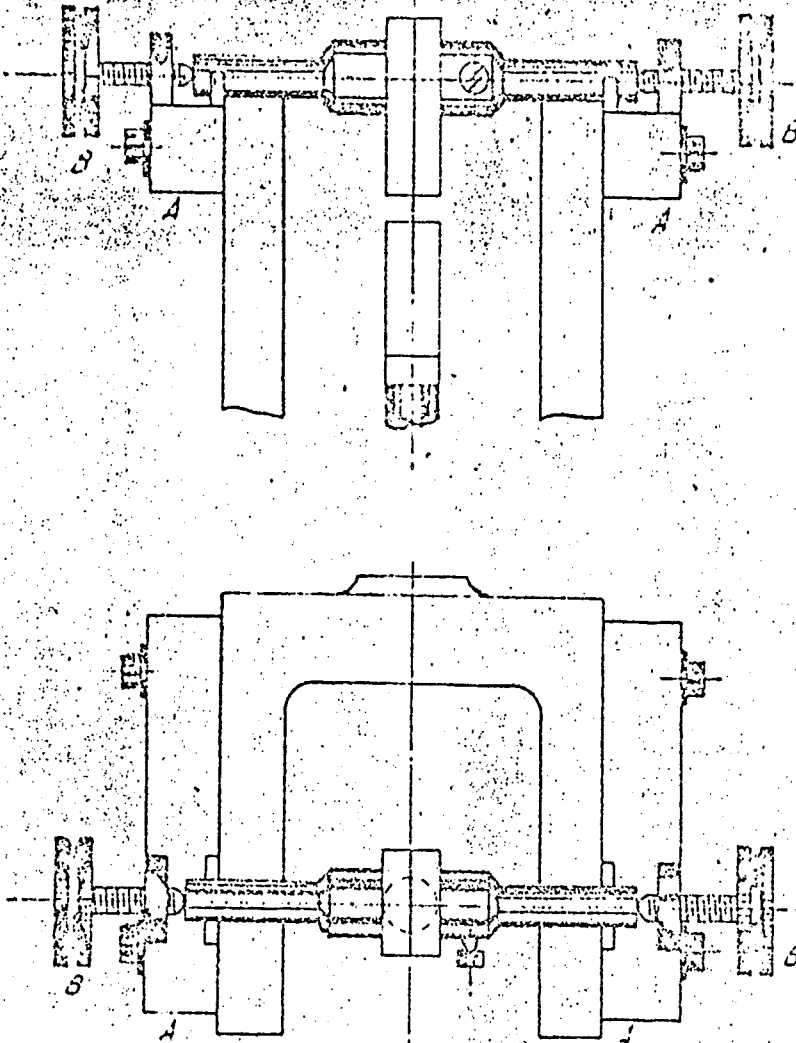
CREED RELAY MODEL 27 WITH MARK C COILS

INSERT RELAY AT A FOR FREE PENDULUM AND SLAVE HALF MINUTE IMPULSES ONLY
 B : SLAVE IMPULSES ONLY
 C : SECONDS IMPULSES
 D : SECONDS IMPULSES

NOTE

CIRCUITS A, B AND C OPERATE AT 1/3 AMP AND TO OPERATE RELAY IN THESE CIRCUITS THE COILS OF THE RELAY MUST BE SHUNTED WITH A RESISTANCE OF 3 OHMS RESISTANCE AND FOR CIRCUIT D WHICH OPERATES AT 80 MALTAMS THE RELAY COIL MUST BE SHUNTED WITH A RESISTANCE OF 3 OHMS RESISTANCE
 CIRCUIT E: SECONDS PARALLEL CIRCUIT. PLACE RESISTANCE OF 750 OHMS IN SERIES WITH THE RELAY BATTERY SENDS 8 VOLTS. THIS IS AN OPTIONAL CIRCUIT AND SHOULD BE AT LEAST 4 OHMS PER 1 VOLT IN CIRCUIT IF USED IN 11-13 VOLTS RANGE
 - CIRCUITS A, B, C, D ARE ALL SERIES CIRCUITS WHICH MUST NOT BE LEFT OPEN -

INSTRUCTIONS FOR TRUNNION TRAVERSE



THE OBJECT OF THESE FITTINGS IS TO ENABLE THE PENDULUM TO BE ADJUSTED FROM RIGHT TO LEFT & VICEVERSA WITH ABSOLUTE PRECISION IN ORDER TO EQUALISE THE SECONDS ELECTRICAL BEATS; THE CROSS BAR OR TRUNNION OF THE SUSPENDED PENDULUM LAYS ACROSS THE TOP BRACKETS OF THE BASEPLATE & TO THESE IS FITTED THE BLOCKS "A", HELD ON BY FOUR CHASTIN HEADED SCREWS. IF NECESSARY THESE SCREWS CAN BE LOOSENED OFF & THE BLOCKS MOVED FROM FRONT TO BACK OR VICEVERSA THROUGH ELONGATED HOLES. THIS SHOULD NOT BE NECESSARY IF THE CLOCK HAS BEEN ADJUSTED PROPERLY. IF THE PENDULUM HAS BEEN CORRECTLY POSITIONED RIGHT & LEFT THE SECONDS ELECTRICAL BEATS SHOULD BE WITHIN ONE OR TWO HUNDREDTHS OF A SECOND. TO CORRECT ANY IRREGULARITY BETWEEN THE BEATS, TRVERSE THE TRUNNION BY MEANS OF THE SCREWS "B" AT EACH END OF IT, BE SURE TO BACK ONE AWAY BEFORE TIGHTENING THE TRUNNION WITH THE OTHER. DO NOT LEAVE SCREWS "B" TIGHTENED TIGHT AT EACH END OF THE TRUNNION. IF THE BEATS ARE UNUSUAL BY AN AMOUNT MORE THAN 0.05 SECONDS THE LISTING (STALLED) END OF THE PENDULUM WILL NOT CATCH MUST BE KEPT EVEN OR INDENTED BY REACHING THE CROSS SCREW (SEE PHOTOGRAPH) & TIGHTENING THE LISTING TO THE REQUIRED LENGTH. TIGHTENING THE LISTING WITH A TONGUE WREN. THIS ADJUSTMENT SHOULD NOT BE NECESSARY IF THE CLOCK HAS BEEN SET FROM A GOOD SWISS REPERTORY MOVEMENT.