BELL SYSTEM PRACTICES
Private Branch Exchange
Installation and Maintenance

SECTION B490.820
Issue 2, April, 1954
AT&T Co Standard

DIALS
2, 4, 5, AND 6 TYPES

(Reference Section for B408.002)

1. REQUIREMENTS

1.01 **Lubrication**

(a) **6 Type:** Not lubricated (Fig. 1).

(b) **2, 4, and 5 Types:** One drop of KS-14413 grease at points marked A and B in Figs. 2 and 4, and two drops at points marked A and B in Fig. 3.

Note: Dials identified by either red stripes (manufacture or repair) or white stripes (field) shall not be relubricated.

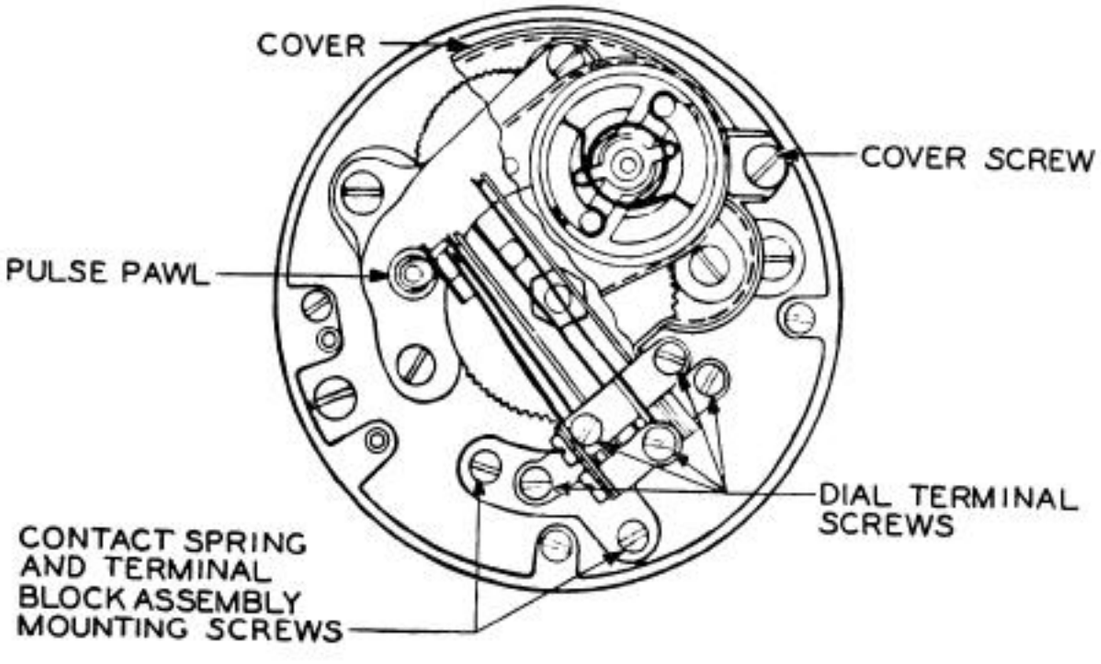

Fig. 1 — 6-type Dial

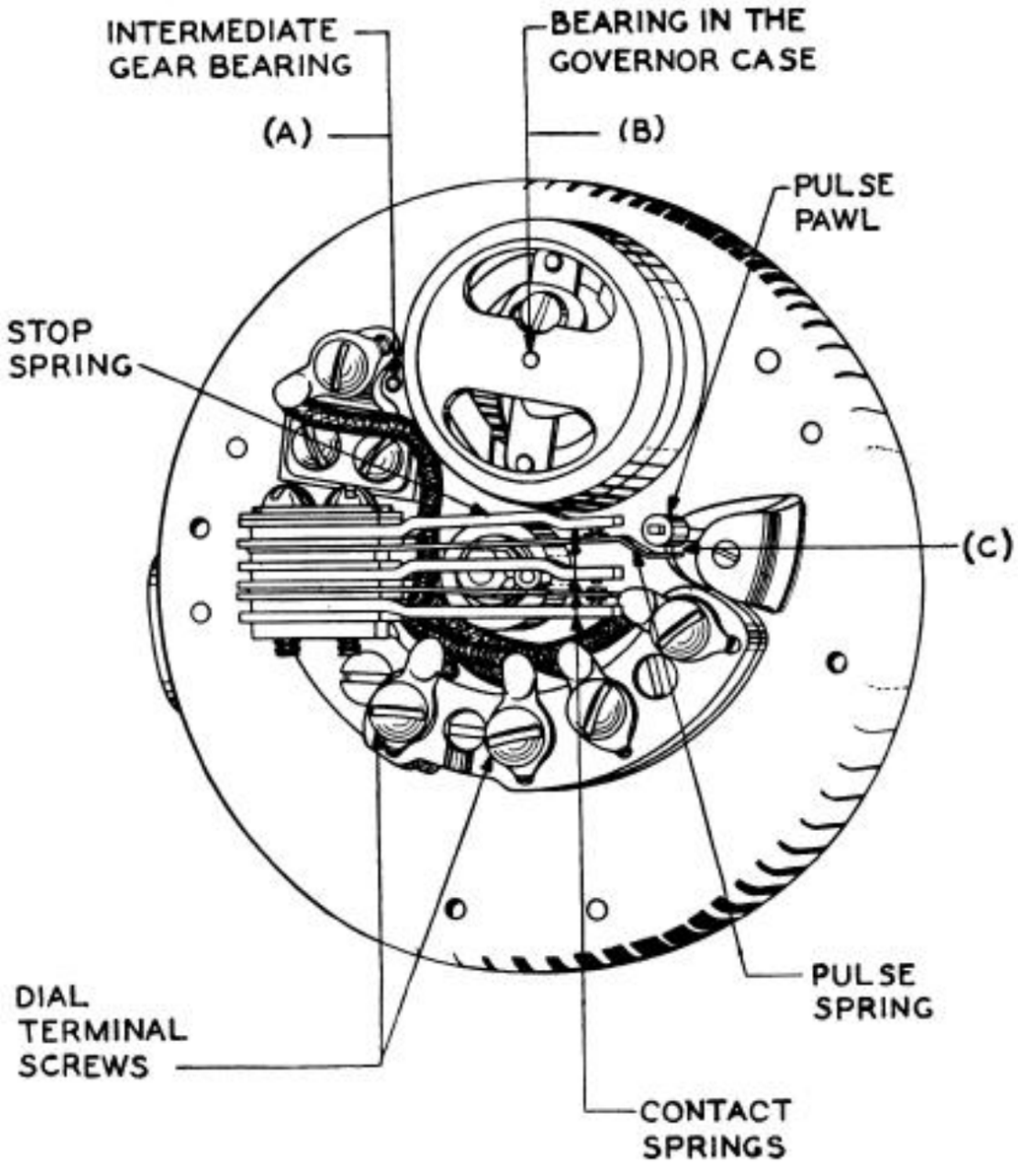

Fig. 2 — 2- and 4-type Dials

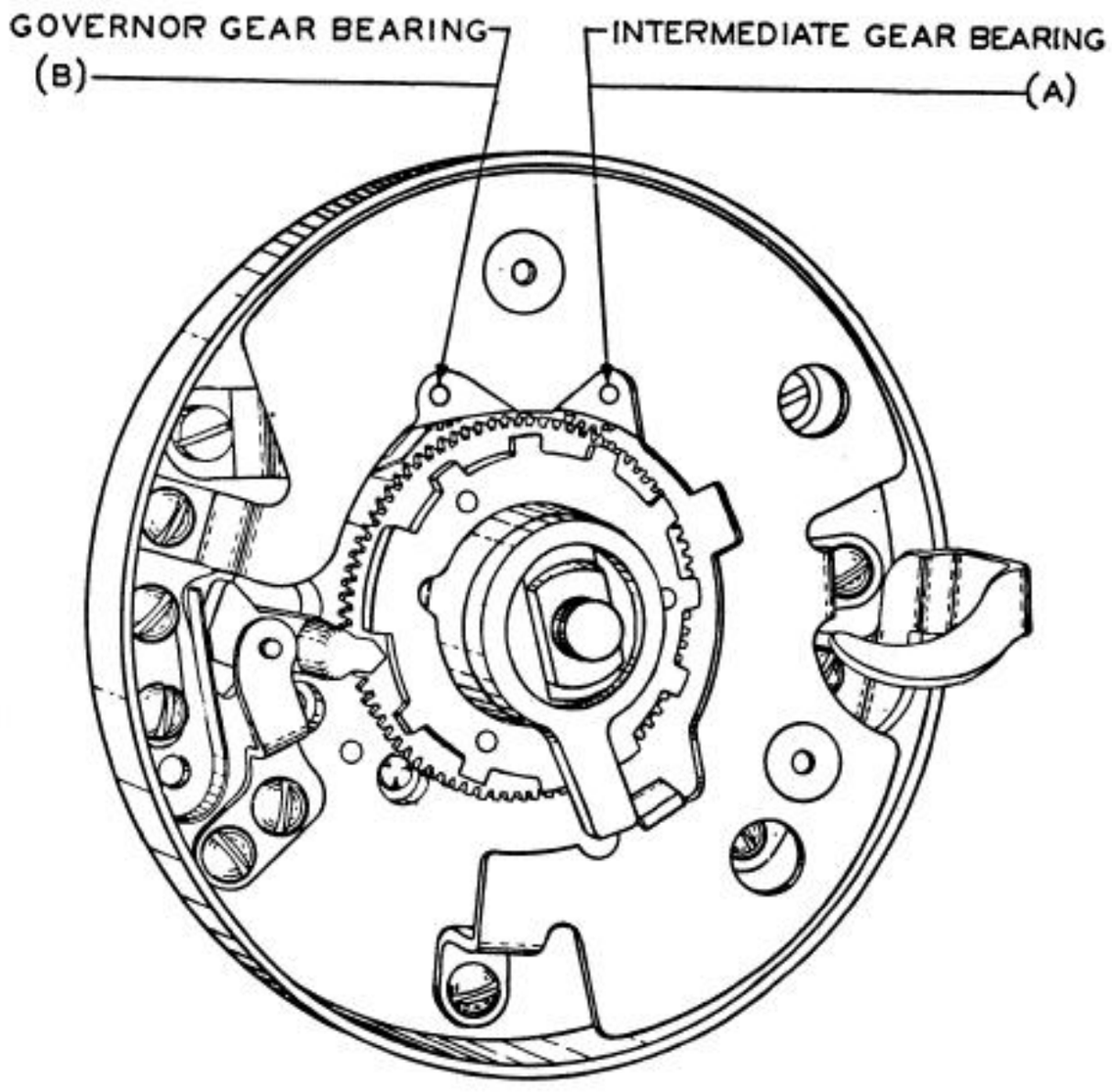

Fig. 3 — Lubrication Points on Inside of Dial Other Than 6 Type

1.02 **Clearance Between Finger Wheel and Underside of Finger Stop:** 0.025 inch No. 66D gauge.

1.03 **Clearance Between Finger Wheel Periphery and Finger Stop When Digit "0" Is Dialed:** 0.015 inch No. 66D gauge.

1.04 **Finger Wheel Wobble:** Max 1/16 inch.

1.05 **Pulse Pawl**

(a) **2 and 4 Types With Pulse Springs Having Offset:** Pulse pawl shall strike flat portion of pulse spring and not angular offset.

(b) **2 and 4 Type:** Fig. 2(C) — Clearance between pulse pawl and pulse spring — dial at rest — 0.005 inch.

(c) **5 Type:** Fig. 4(C) — Pulse spring shall not move as pulse pawl moves away from spring.

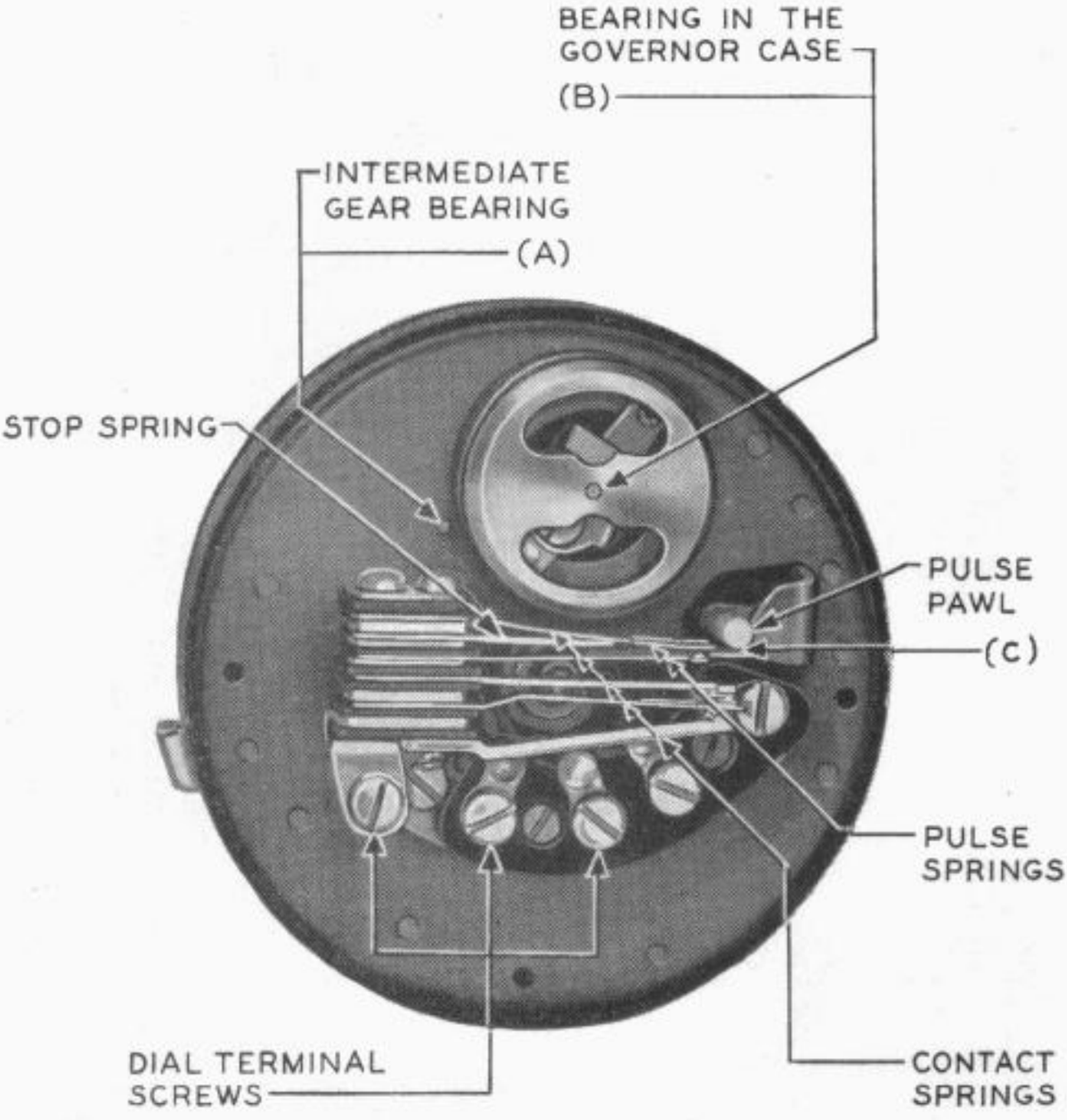

Fig. 4 — 5-type Dial

(d) **5 Type Having Molded Pawl:** Fig. 5(A) — Engagement of pulse wheel and pulse pawl with pawl spring resting on large flat of pulse — 0.015 inch.

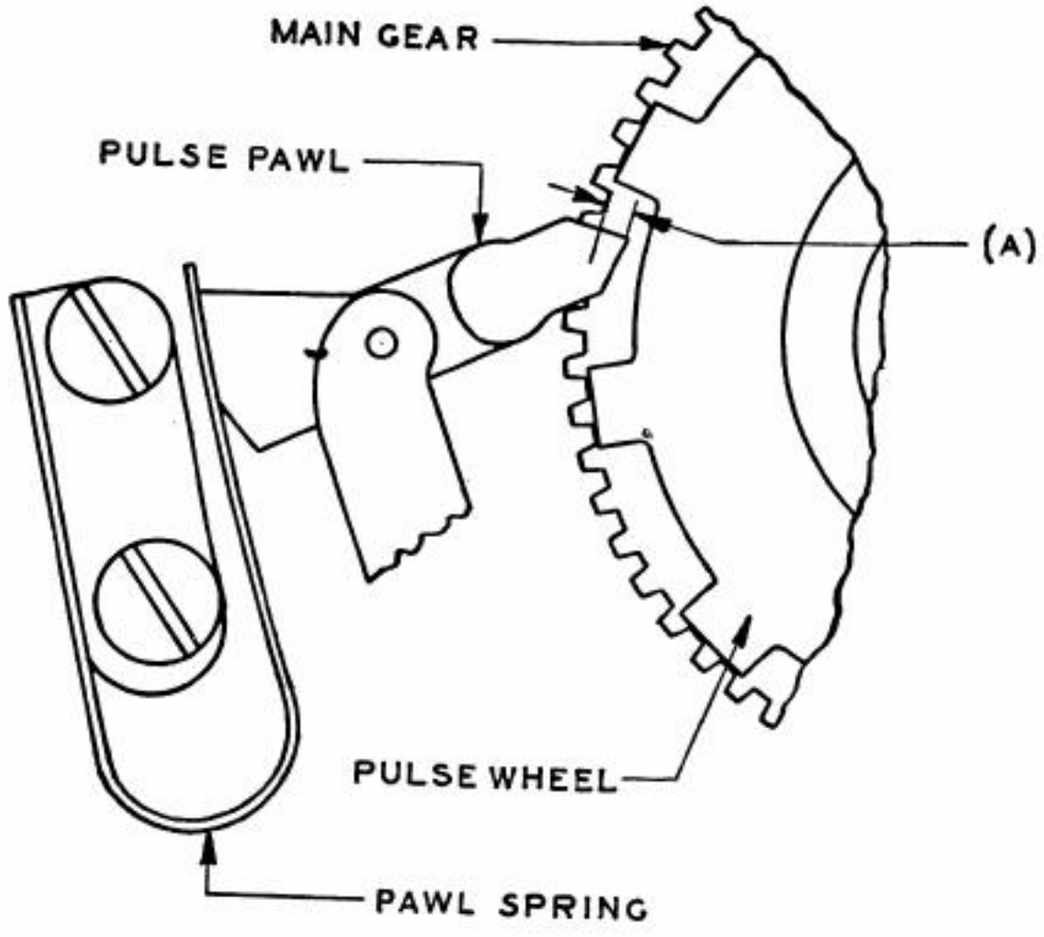

Fig. 5 — Molded-type Pulse Pawl for 5-type Dials

(e) **6 Type:** Fig. 6(A) — Clearance between end of pawl finger and each bifurcation of pulsing spring — dial at rest — 0.005 inch.

(f) **6 Type:** Fig. 6(B) — Clearance between pawl finger and end of cam follower — 0.015 inch.

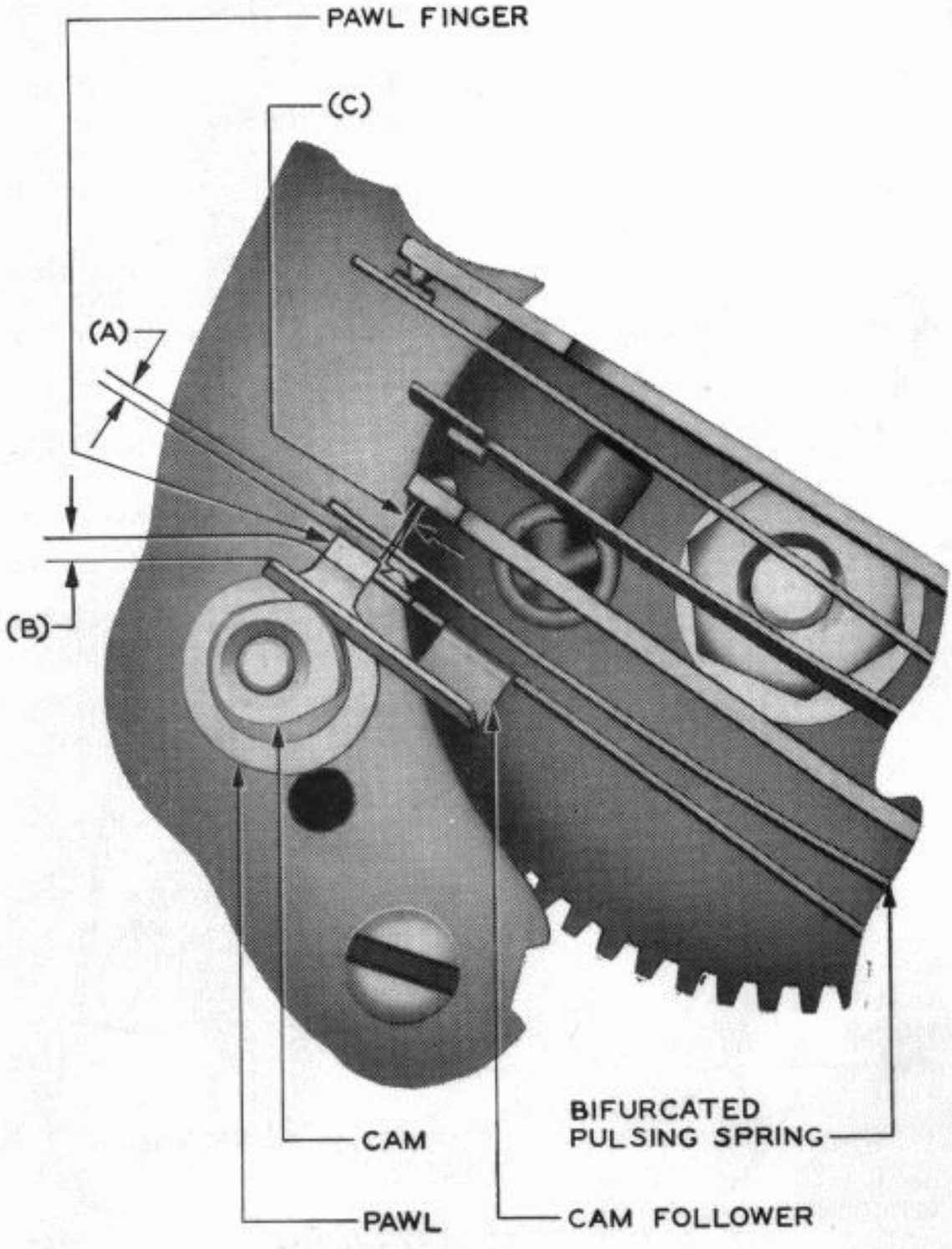

Fig. 6 — 6-type Dial — Pulse Pawl and Contact Spring Pile Up When Dial is at Rest

(g) **6 Type:** Fig. 6(C) — Pawl finger shall not touch bifurcated pulsing spring contacts.

(h) **6 Type:** Fig. 7(A) — Overlap between end of pawl finger and cam follower when dial is fully wound — 0.020 inch.

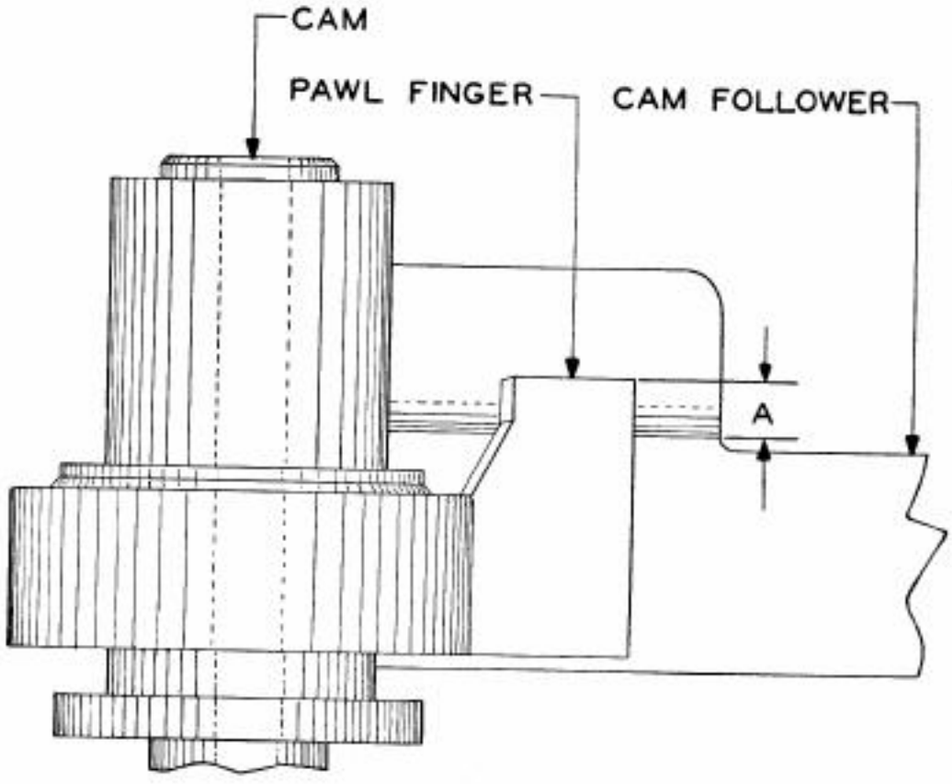

Fig. 7 — 6-type Dial — Position of Pawl Finger When Dial is Fully Wound

1.06 **Speed**

(a) Speed range shall be:

Dial Codes	Pulses per Second			
	Test		Readjust	
	Min	Max	Min	Max
2F, 4F, 5F, 5K	16	20	17	19
All other 2, 4, and 5 Types	8	11	9.5	10.5
6F, 6G	See Note 1		See Note 1	
All Other 6 Types	8	11	See Note 1	

Note 1: No readjust limits are specified for the 6-type dials and no test limits are specified for the Nos. 6F and 6G dials.

(b) Before checking speed, exercise dial by dialing "Zero" several times.

Methods of Checking Dial Speeds

(c) **Dial Testing Circuit:** Connection is made through test desk. Dial test desk code. When dial tone is heard dial "Zero." Testman will report results of test except where dial tester is arranged to give audible signals which indicate as follows:

OK — Ringing Induction
Fast — Rapidly Interrupted Dial Tone
Slow — Slowly Interrupted Dial Tone

(d) **Dial Testing Circuit:** Connection is made automatically. Dial ringer test code and listen for dial tone. Then dial desired digit indicated in the following table.

Test Being Made	Digit to Be Dialed
Test — 8 to 11 pps	2
Readj — 9.5 to 10.5 pps	3
Test — 16 to 20 pps (Panel and Crossbar Only)	4
Readj — 17 to 19 pps (Panel and Crossbar Only)	5

When dial tone is heard again after dialing one of the above digits, dial "Zero" and listen for audible signals as defined in (c) to determine whether dial speed is OK, fast, or slow.

(e) When testing circuits are not available for testing 8 to 11 pps dials, use stroboscope.