

Concretes. Methods of shrinkage and creep flow  
determination

24544-81\*\*

11            1980 .      237

01.01.82

279—65

12

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\*                 (            1987 .)                 1,  
                                1985 .;                 56  
24.05.85 (            8—85)

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1.

1.1.

70X70X280,

100X100X400, 150X150X600, 200X200X800

150X150

600

40X40X160

1.2.

10180—78.

1.3.

10180—78

24452—80.

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1.4.

10180—78.

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10180—78.

1.6.

10180—78,

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1.7.

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2.

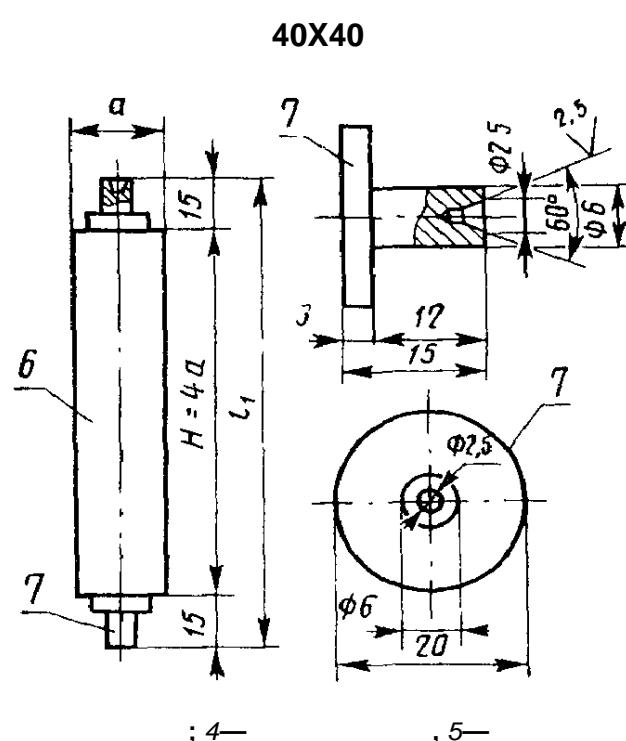
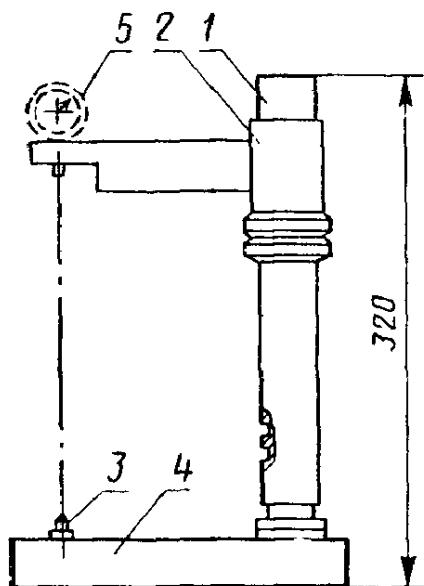
2.1.

8.001—80

8.7—77.

2.2.

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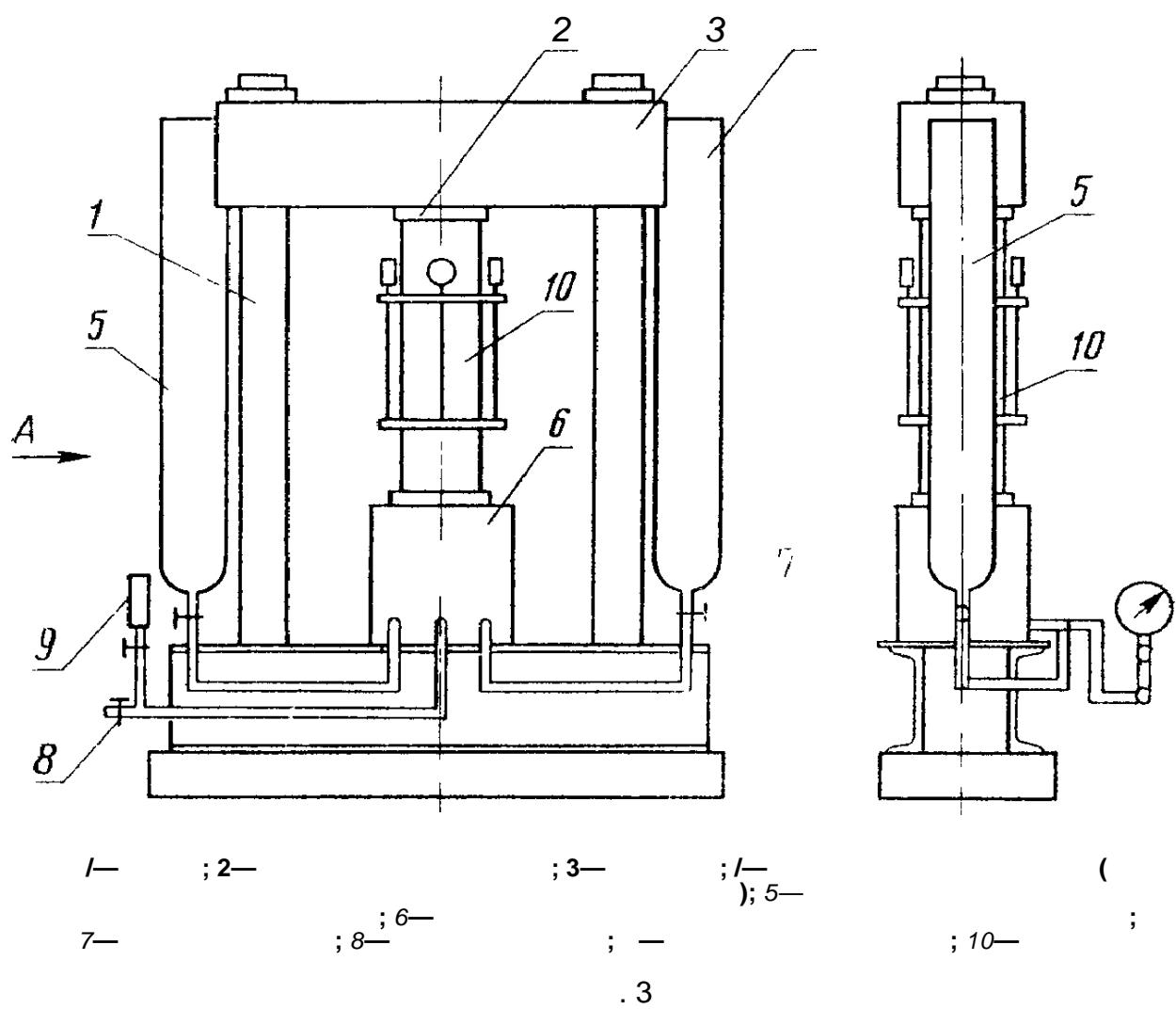
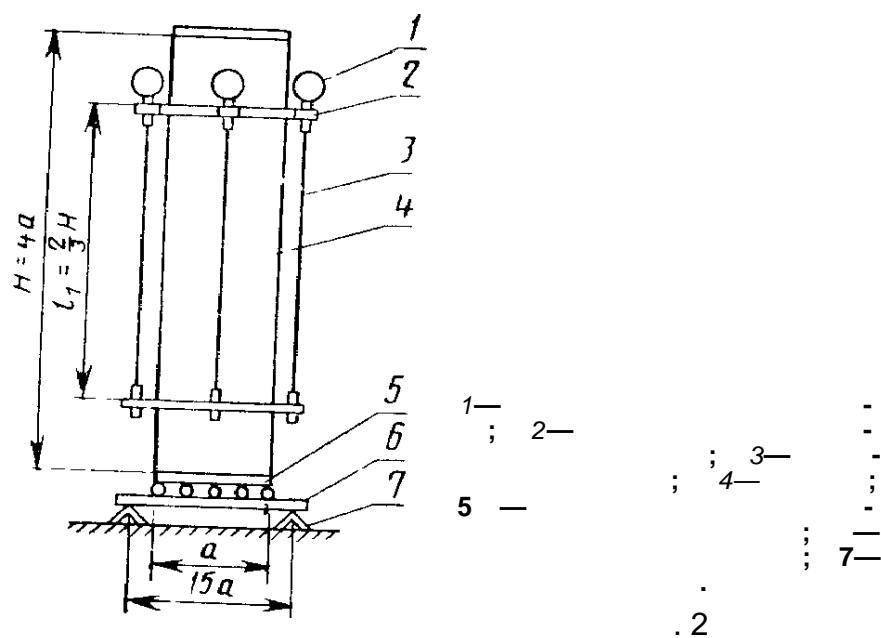
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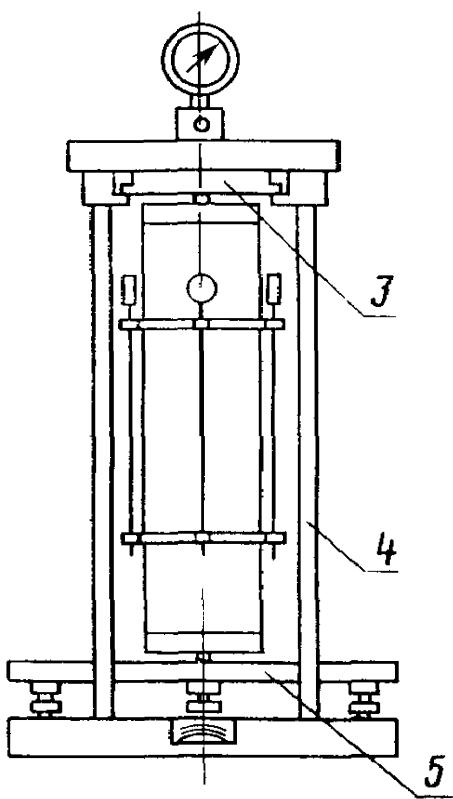
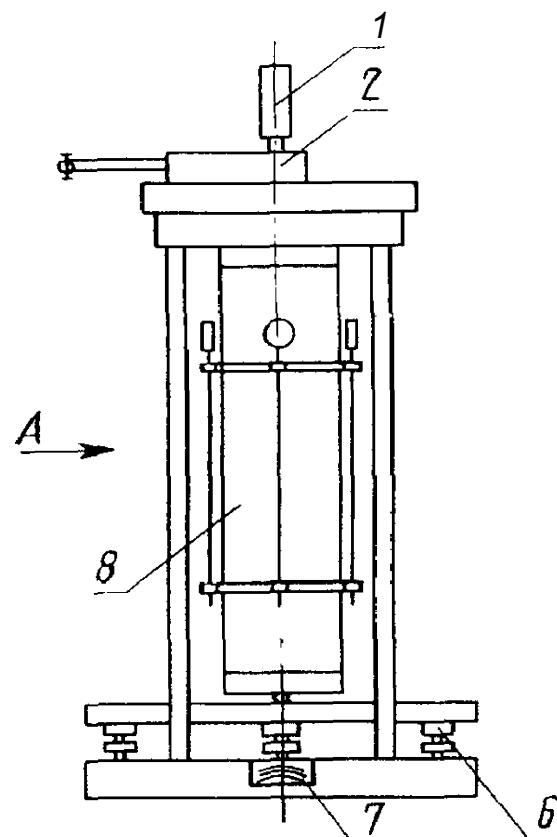
2.3.

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40X40



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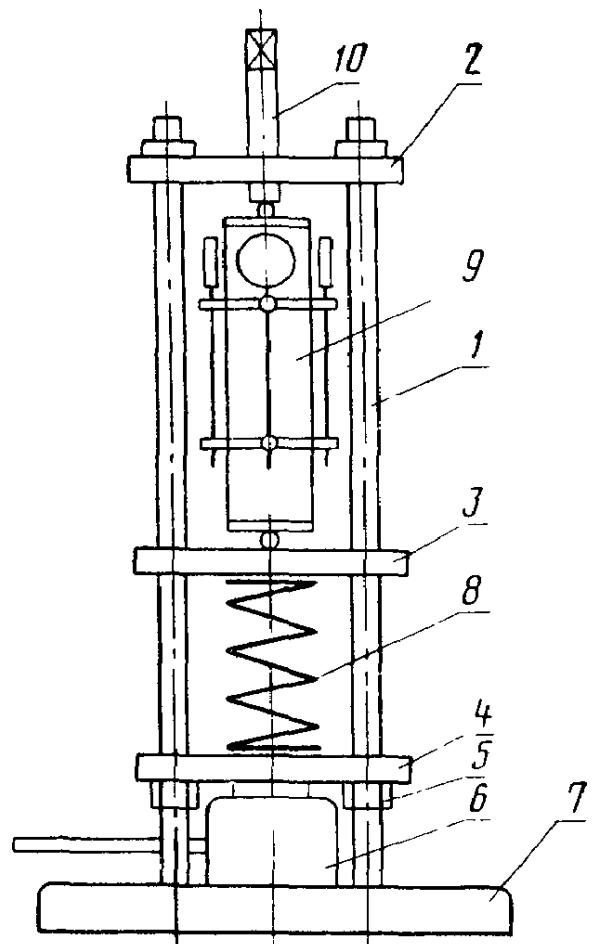
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1— ; 2— ; 3— ; 4— ; 5— ; 6— ; 7— ; 8— ; 9— ; 10—

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2.5.

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24452—80.

2.6.

35—37 ,

10180—78.

2.7.

10180—78  
— 12730.1—78,  
12730.2—78.

2.8.

24452—80.

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2.10.

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10180—78.

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3.3.

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3.4.                (                )

24452—80.

3.5.

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12730.1—78,  
12730.2—78

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(60±5)    %.

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1.6.

3, 7, 14

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4.4.

**0,3 ±0,005**

( . . 1.3).

**24452—80.**

4.5.

$$\frac{1}{, \quad 10, \quad \begin{matrix} 3, & 7, & 14 \\ - \\ 4 \end{matrix}, \quad , \quad 2} \quad ( \quad )$$

6

$$\frac{180}{-} \quad , \quad 60$$

4.6.

2 3.

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5.1.

$$( \quad )$$
**£i(l)**

$${}^e i(O) \quad h, \quad (1)$$

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5.2.

(t).

5.3.

 $\epsilon_1(\xi)$ 

$$\epsilon_1(?) = \epsilon_1 - \epsilon_1 + \epsilon_i W - \epsilon (0) \quad (2)$$

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24452—80;

(t) —

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5.4.

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5.6.

 $\epsilon_1( )$ 

$$\overline{\underset{*}{(0)}} \quad (4)$$

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**5.7.** . 5.6

(6)  
 $(0^{\circ\circ} (°°) + ; ^*)$

$\epsilon_{in}(0 = em(O^3)j^{\wedge}+\wedge)$  (7)

**5.8.**

( . 1.1)  
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	$Kt$	
7	0,90	0,83
10	0,95	0,90
15	1,0	1,0
20	1,05	1,10

**5.9.**

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**5.10.**

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6.2.

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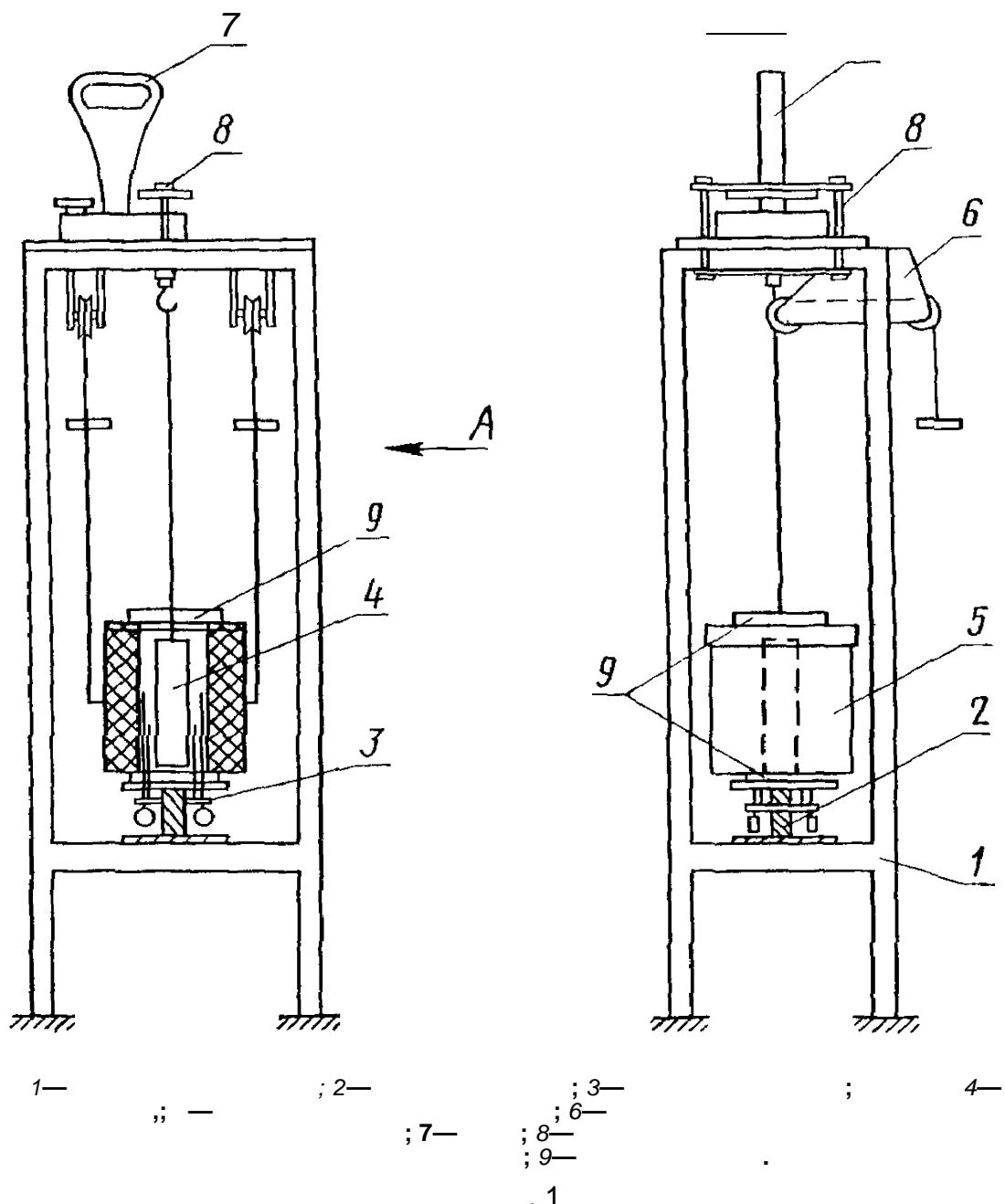
10—15

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1/10—1/15.

25

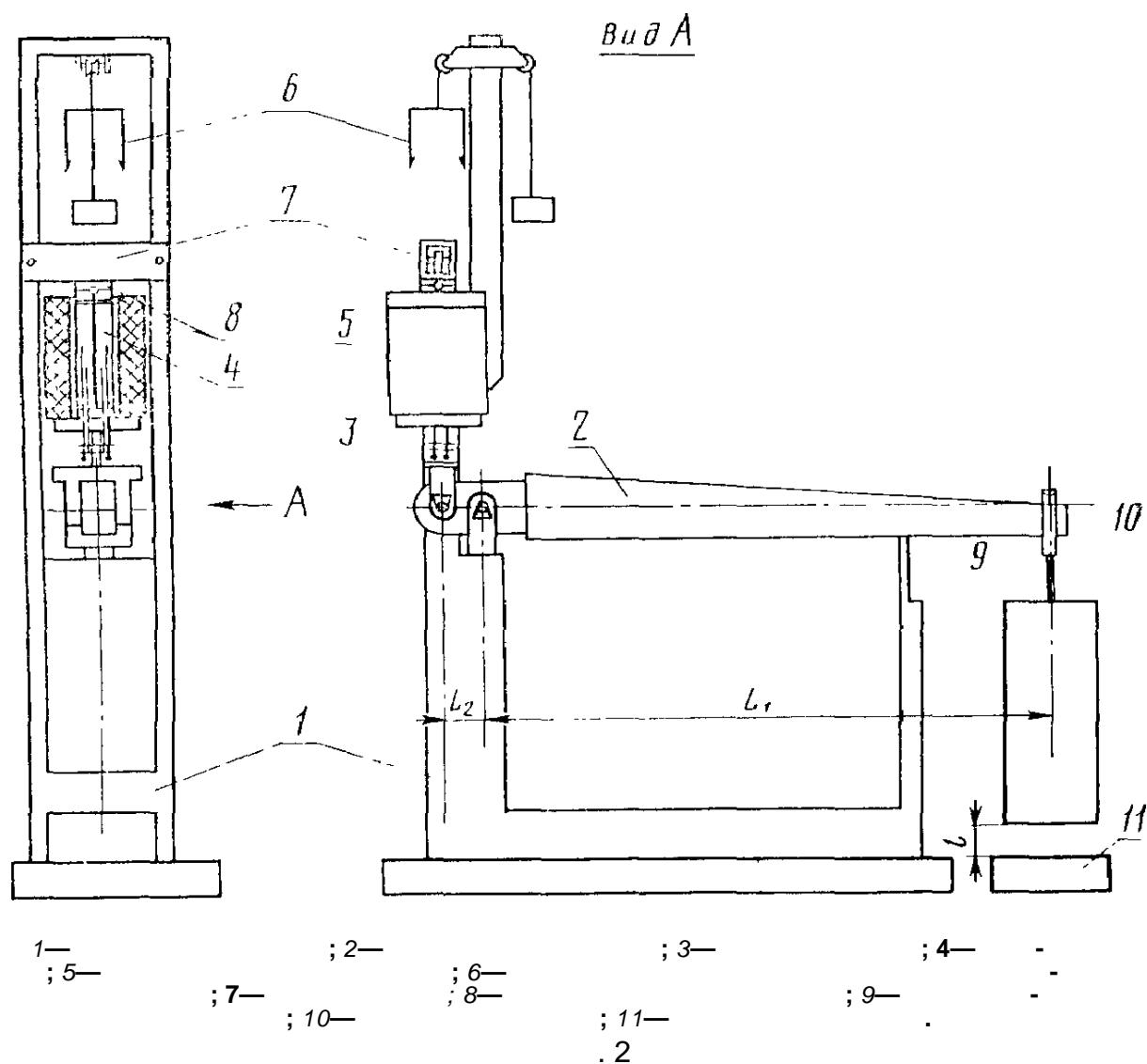
$$\frac{L_2}{L_1} \quad L_2$$

(10)

(II)

4

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638 —17 71—93—75.  
200°

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200°

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24452—80.

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24452—80.

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10180—78.

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24452—80.

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0,48 - 10<sup>-6</sup> ° “1

1000°

100° —1,9-10<sup>-6</sup> ° ~<sup>-36</sup>200° —5\* 10<sup>-6</sup> ° ~<sup>(</sup>20° —1,2-10<sup>-6</sup> ° “1,

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 $e_p t$ 

et,

 $e_{pt}$ 

18

5.3

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UiHcbD

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**10<sup>5</sup>**

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10181 4—81

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310.4—81

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310.2—76

9552—76

8269—87

8735—75

(

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9758—86



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		50	60	75	100	125	150	175	180
,	-	81,5	80	98,5	112	124	134	141	145

$$|-----^* ; At \\ ,,(t)$$

At  
Bi<sub>3</sub>(I)

$$\mathbf{x}_j = \mathbf{A}\mathbf{f}.$$

At

2

Xj~At,	50	60	75	100	125	150	175	180
'::('()'105' 1	0,614	0,674	0,761	0,889	1,008	1,119	1,241	1,241

$$\begin{array}{ccccccccc} . & 2 & & & & & : & & \\ & - & 1 & & & & -1 & & \\ & Y = * \pm -2 & ; & = & & & & & \\ & & & & & & & & \\ & & & & & & & & \end{array}$$

$$\dots = \sum_{k=1}^7 S^{(*,-)}(, -);$$

$$r \sim S, s_2'$$

2

$$0,943 * 10^5 ; = 114,4 ;$$

$$52 = 2603,1^2;$$

$$5i = 51,01 ;$$

$$= 0,0613(10^5)^2;$$

$$5_2 = 0,2476 \cdot 10^5 ;$$

$$1_{12} = 12,614 \cdot 10^5$$

$$== \frac{12,614 \cdot 10^5}{51,01 - 0,2476 \cdot 10^5} \text{ ``o'' } 999*$$

$$A = Y - BX;$$

$$= 485;$$

$$- 0,389 \cdot 10^5$$

$$\frac{At}{(0)} = (0,389 + 0,00485 - 0 \cdot 10^5)$$

5.6

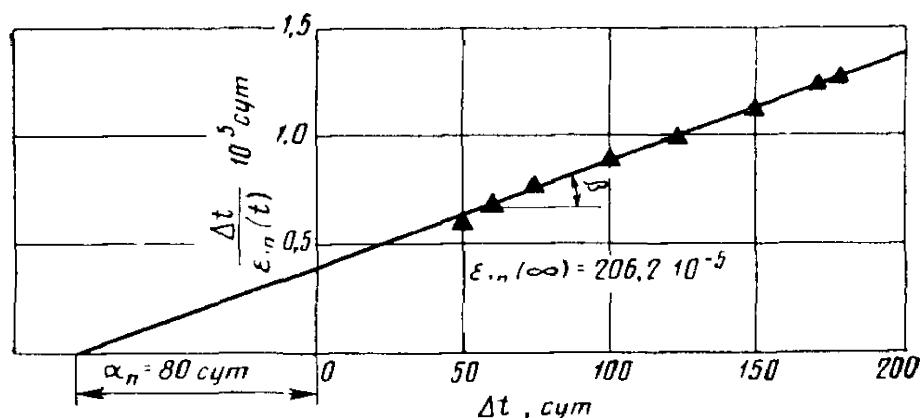
$$\operatorname{ctg} P = \operatorname{ein}(oo) 0,00485 \cdot 10^5 - 206,2 \cdot 10^5$$

$$(1), \quad \frac{\frac{At}{(0)}}{6 \ln(1)} \quad .5.6$$

$$0,389 \cdot 10^5 \\ - 0,00485 \cdot 10^5 - 80$$

$$_1( ) = 206,2 \cdot 10^{-5}$$

(7) 5.7



5

,	-	
-	(t)	-
-	),	(
-	<b>Ey t</b>	-
-	<b>Ep t</b>	-
-	<b>Et</b>	-
-	<b>CIn(t)</b>	-

39

1

$$\begin{aligned}
 & 2, \quad \pm 2\% \\
 & 3, \quad t_x ( ) = 32 \\
 & 4. \quad (i - 1.6) \\
 & \quad [ \ln_e_{IT} ( /i); 1^{\wedge} ] - \quad [ \wedge ( ); \ln_L ]^* \\
 & 5. \quad [ \ln_e_{IT} ( /i); 1^{\wedge} ] - \quad [ \wedge ( ); \ln_L ]^* \\
 & \quad = 0.577 \ln \frac{| \cdot |}{\text{Lei}_{\wedge}( /i)} \quad \frac{\text{Pin}(7) - 81(1)}{\text{Bin}( \wedge ) - \text{Bln}(0)} \quad (1) \\
 & m 6i \quad (tb) \quad \frac{-1(1)}{e^2_1 n(0)} \frac{(\theta - ( ))}{\text{Bin}( \wedge )} \quad [ 7_1 ( ) - \wedge 1(7) ] \quad (2) \\
 & a = \frac{y_m}{\text{Ein}( \wedge )} \quad (3) \\
 & e_{in}( ) \quad em(\wedge e) = ( = 1 ) \quad (7_6 = 32) \\
 & (0) - \quad ; \\
 & \quad [ ( / ) = 0.2672 \ln e_{in}( /i) - 0.3 [ 1( / ) + 1( / ) ] ]. \quad (4)
 \end{aligned}$$

6.

$$\text{Ein}(0) = \frac{fr}{a+f}, \quad (5)$$

$$K_m = \frac{1}{t!} \quad (1) - (3);$$

7.

$\beta = (24 \pm 1)$ , —, 0, 1  
 ,  
 ;

$$\frac{2}{111} t N \bullet \ln | \frac{m}{1 - (\ )} | = \frac{\ln ( \frac{m}{1 - (\ )} )}{j \cdot ( ^6) \ln (t)} \quad (6)$$

$$77 \quad ^1 \quad ( ^N ) [ \quad ( 0 \quad | \quad ( ^1 ) J_E ln( ^i ) [ - 1 = ( ^N ) - 1 \quad ( 0 ) \\ ? \quad ( 0 \cdot , " ( ) , ( ^ ) ) \quad ( 7 )$$

(8)

8| (/,0—  
£in (/)

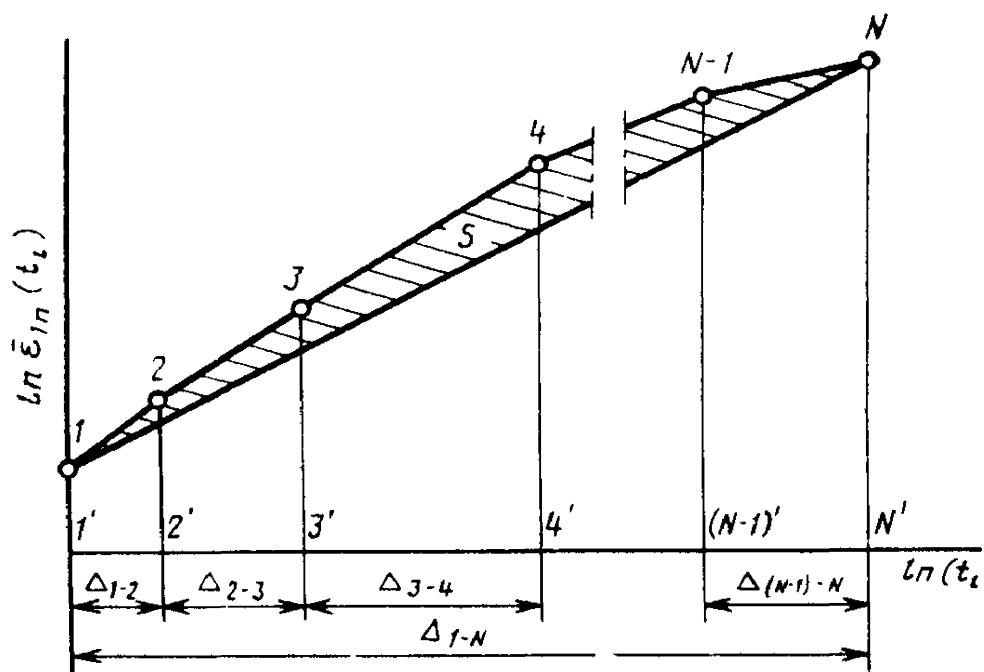
$$Inei,(0 = \frac{Inem( ) + InEin(^N)}{2} + \frac{4}{3} \frac{5}{\ln(t_N)}, \quad (9)$$

$$.5 - 2(\text{AS}_i) - S_{i,N_i} \quad (10)$$

$$2(\text{ASi}) - \text{S1} \xrightarrow{\left( \begin{array}{c} 2 \\ 3 \end{array} \right)} \dots ; \quad | - 2 - 2' - (\text{AS}]_2) . \quad 2 - 3 - 3'^* - 2' \\ 1 - W - W' - .$$

$$S1-IS \quad \frac{1 \quad ( ) \sim 1 \quad 1 (^{^{\wedge}})}{2} * Aj-N- \quad ( )$$

S



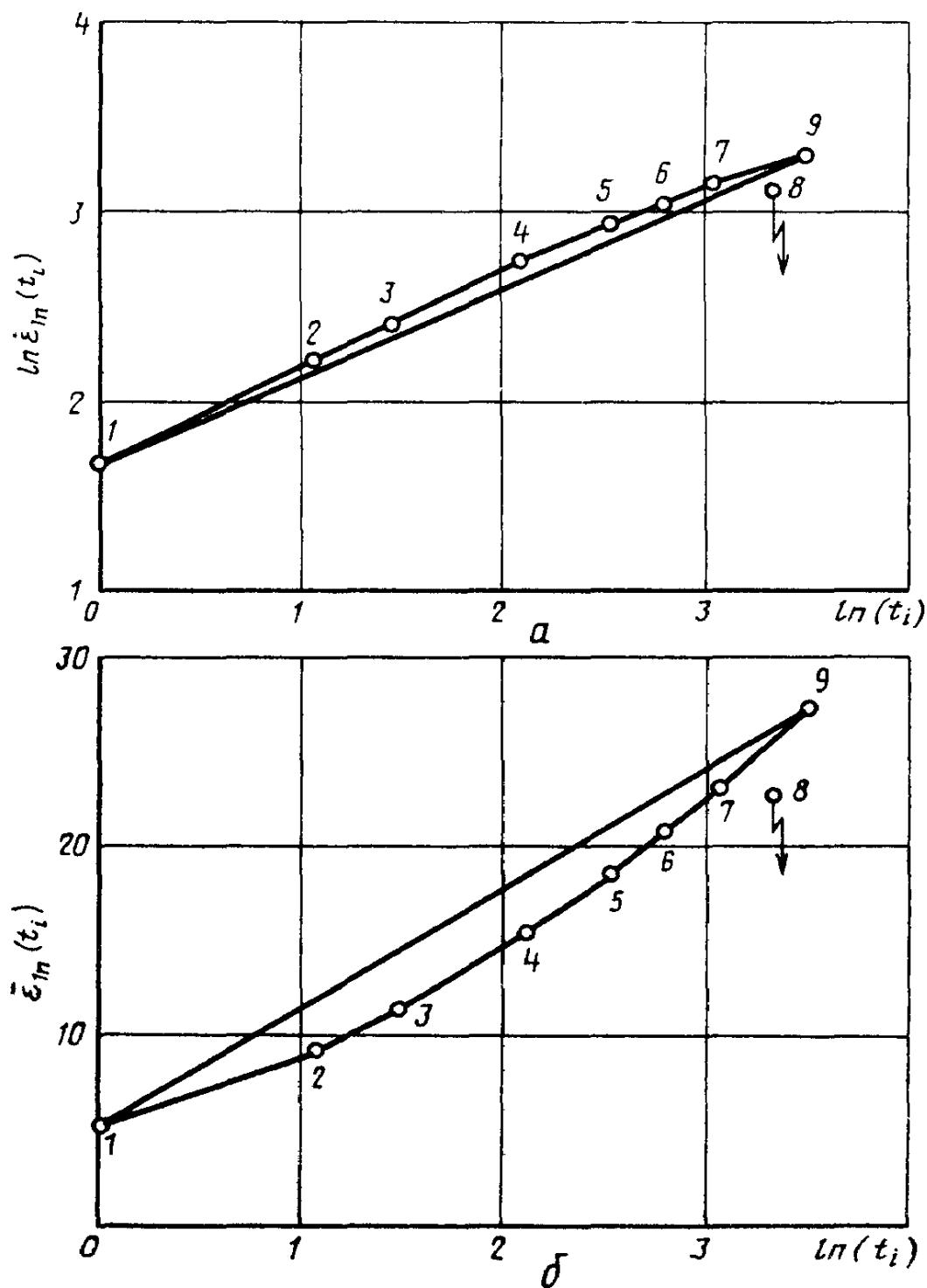
Черт. 1

t<sub>u</sub> 720

1

	t-ro								
	1	2	1	1 *	5	6	7	8	1
t <sub>i</sub> ,	1.0	2,8	4.2	8,0	12,3	16,0	21,0	28,0	32,0
7m(i) - <sup>5</sup>	5.4	9,3	11,4	15,5	18,5	29,7	23,0	22,5	27,2
Infi	0	1,03	1,44	2,08	2,51	2,77	3,04	3,33	3,47
in[7n(i) - <sup>5</sup> ]	1,69	2,23	2,44	2,74	2,92	3,03	3,14	3,11	3,30

, 4, , 8, , 2, , , ,  
, , Y<sub>m</sub>, , 2. , , ,  
, , , , , , , ,  
(6), (7), (8).



. 2

	Aj	A
1—2	$, -2 = 1,03 - 0 = 1,03$	$5, -2 = -(2,23 + 1,69) \frac{1,03}{2} = 2,02$
2—3	$2 = 1,44 - 1,03 = 0,41$	$AS_2-3 = -(2,44 + 2,23) 0,41 = 0,96$
3 4	$-4 = 2,08 - 1,44 = 0,64$	$AS_{3-4} = -(2,74 + 2,44) \frac{-0,64}{2} = 1,66$
4—5	$4-5 = 2,51 - 2,08 = 0,43$	$AS_{4-5} = -(2,92 + 2,74) \frac{-0,43}{2} = 1,22$
5—6	$5-6 = 2,77 - 2,51 = 0,26$	$AS_{5-6} = J \frac{(3,03 + 2,92) - 0,26}{2} = 0,77$
6—7	$6-7 = 3,04 - 2,77 = 0,27$	$AS_{6-7} = \frac{(3,14 + 3,03) - 0,27}{2} = 0,83$
7—9	$7 - 9 = 3,47 - 3,04 = 0,43$	$AS_{7-9} = J \frac{(3,30 + 3,14) - 0,43}{2} = 1,38$
1—9	$, -9 = 3,47 - 0 = 3,47$	$AS_{1-9} = L \frac{(3,30 + 1,69) - 3,47}{2} = 8,66$

5

(10)

$$S = Z(A\$) - AS, -^* = 8,84 - 8,66 = 0,18$$

(1)

(9)

$$\ln \frac{1}{(0)} = 2,495 + " \cdot " \frac{4}{47} = 0,18$$

$$1 (1 = 2,56 = 12,9 \cdot 10^5.$$

(6) — (8)

 $, Y_m$  :

$$2 . \underline{\underline{222}} \quad \underline{12,9-5},$$

$$32 L 5,4 \underline{L 5,4} \quad 27,2-12 ] " 561:$$

$$27,2(12,9-5,4)-5,4(28,2-12,9)$$

$$Fm=12,9 \quad 12,9^2-5,4-27,2 \quad 80,2 \cdot 10^5;$$

$$80,2-5,4 \quad 5,4 " 13,85 .$$

720

(5)

$$- 7200,561$$

$$( / ) = 80,2 \cdot 13,85 + 720 \cdot 561 \wedge 5 = 59,6 \cdot 10^{-5}.$$

(

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