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Railway switches — Shapes and dimensions

ICS 45.080

Descriptors : railway track, point work, turnouts, shape, dimensions

Reference number : **JIS E 1305 : 1998 (E)**

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Transportation through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS E 1305**:1990 is replaced with **JIS E 1305**:1998.

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Railway switches — Shapes and dimensions

1 Scope This Standard specifies shape and dimensions of railway switches for 1 067 mm and 1 435 mm gauge turnouts (thereafter referred to as "switches"). This Standard does not apply to the switch of SINKANSEN railways based on the National SINKANSEN Network Law.

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards indicated below shall be applied.

JIS B 0205 *Metric coarse screw threads*

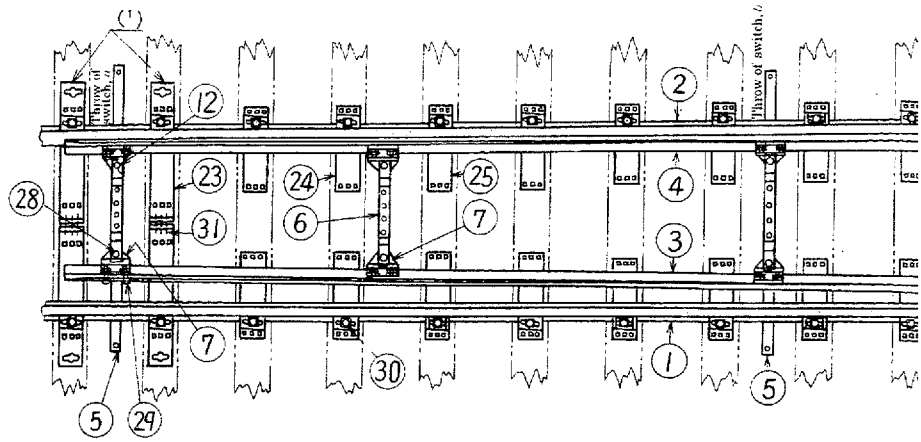
JIS E 1304 *Dimension of turnouts and crossings*

3 Classification, shape and dimensions of switches For the purposes of this Standard the classification of switches and their shape and dimensions shall be as given in Table 1.

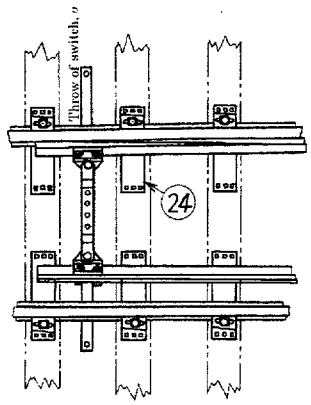
Those not given in Attached Figures shall be in accordance with **JIS E 1304**.

Table 1

Classification	Applicable tongue rail	Attached Fig. No.				Remarks
		Switch	Stock rail	Tongue rail and elevated rail	Components	
Articulated switch	Tangential curved tongue rail	1	—	**1.1**	**1.2** to **1.28**	Tongue rail used, to be 50S for 40 kgN rail, and 70S for 50 kgN rail
	Intersecting curved tongue rail	2	—	**2.1**	**1.2**, **1.3**, **1.5**, **1.8** to **1.23**, **1.26** to **1.28**	Tongue rail used, to be 70S rail
Flexible switch	Tangential curved tongue rail	3	**3.1**, **3.2**, **3.5**, **3.6**	**3.3**, **3.4**, **3.7** to **3.9**	**1.2**, **1.4**, **1.8**, **1.13**, **1.14**, **1.19** to **1.21**, **1.26** to **1.28**, **1.30**, **3.10** to **3.54**	Tongue rail used, to be 70S for 50 kgN rail, and 80S, 90S or 70S for 60 kg rail
	Intersecting curved tongue rail	4	**4.1**	**4.2** to **4.5**	**1.13**, **1.20**, **1.30**, **3.10**, **3.12**, **3.14** to **3.17**, **3.19** to **3.25**, **3.28**, **3.33**, **3.34**, **3.36**, **3.39**, **3.44**, **3.45**, **3.47**	Tongue rail used, to be 80S or 90S
Flexible switch reduced slack type	Tangential curved tongue rail	5	**5.1** to **5.3**, **5.6** to **5.8**	**5.4**, **5.5**, **5.9** to **5.14**	**1.2**, **1.8**, **1.13**, **1.19**, **1.20**, **1.26**, **1.27**, **1.30**, **3.10** to **3.31**, **3.33** to **3.54**	Tongue rail used, to be 70S for 50 kgN rail, and 80S, 90S or 70S for 60 kg rail
Loose heel switch	Straight tongue rail	6	—	**6.1**	**1.2**, **1.3**, **1.5**, **1.9**, **1.13** to **1.16**, **1.18**, **1.21** to **1.25**, **1.27**, **1.28**, **6.2** to **6.6**	Tongue rail used, to be 40 kgN for 40 kgN rail, and 50 kgN for 50 kgN rail
		7	—	**6.1**	**7.1** to **7.23**	Tongue rail used, to be 30 kg for 30 kg rail, 37 kg for 37 kg rail, and 50 kg for 50 kg rail
Run-over type switch	—	8	—	**8.1**, **8.2**	**8.3** to **8.17**	Tongue rail and elevated rail used, to be 40 kgN for 40 kgN rail, and 50 kgN for 50 kgN rail
	—	9	—	**9.1**, **9.2**	**1.20**, **1.30**, **3.26**, **3.35**, **8.5**, **8.6**, **8.9** to **8.11**, **9.3** to **9.9**	Tongue rail and elevated rail used, to be 50 kgN rail



Note (1) For the base plate at the toe of switch, code (23) may be replaced with (24) according to the working condition.

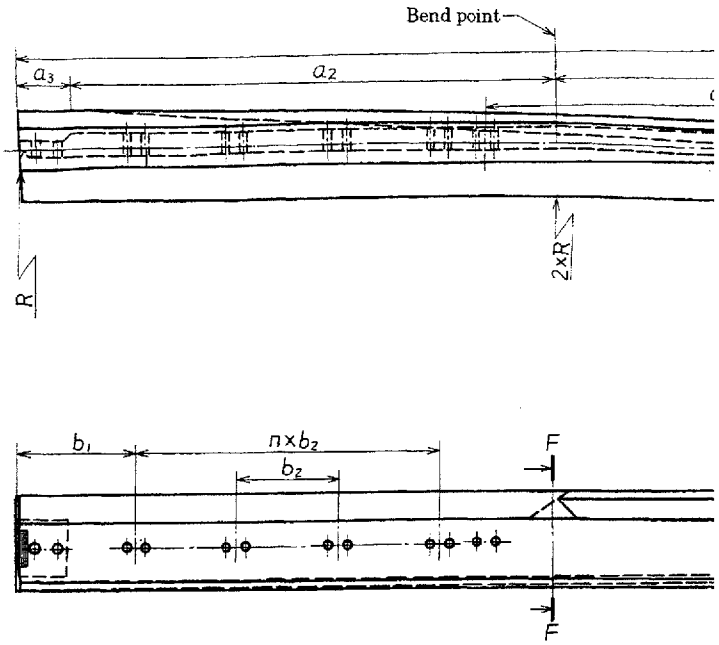


Remarks 1. The shape drawn shows the case of 1 067 mm gauge 50 kgN rail purpose No. 20 simple turnout.

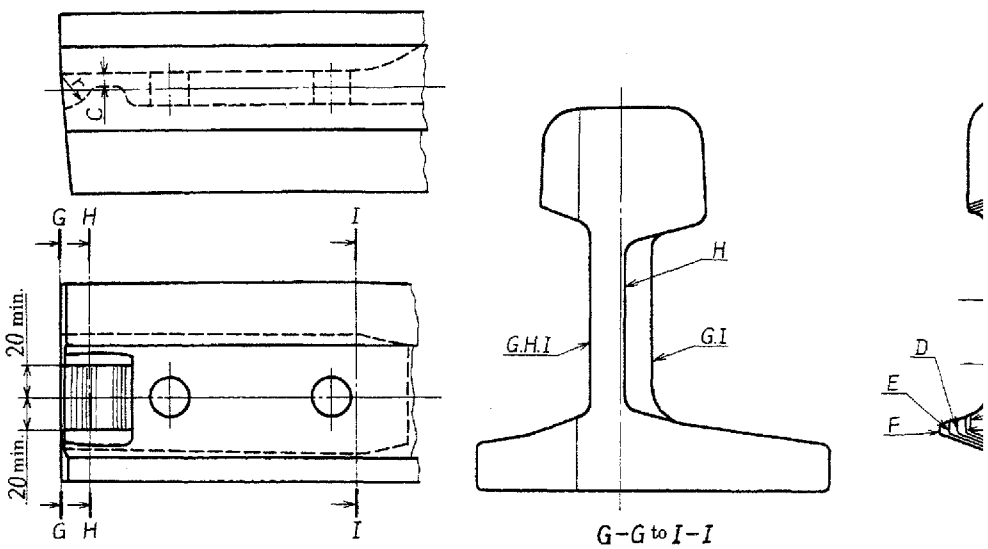
2. The throw of switch, *a* and *b*, may be changed depending on the working condition.

Code	Name	Reference
1	Stock rail	Omitt
2	Stock rail	
3	Tongue rail	1.1 (
4	Tongue rail	1.1 (
5	Switch rod	1.2 t
6	Strecher bar	1.6,
7	Bearing clip	1.8
8	Stud	1.9
9	Filler	1.10
10	Filler	1.11
11	Fish plate	1.12
12	Collar	1.13
13	Washer	1.14
14	Washer	1.15
15	Washer	1.16
16	Washer	1.18
17	Washer	1.19
18	Washer	1.17
19	Washer	Omitt
20	Rail brace	1.21
21	Base plate	1.22,
22	Base plate	1.23,
23	Base plate	1.26
24	Base plate	1.27
25	Base plate	1.28
26	Bolt	Omitt
27	Bolt	
28	Bolt	
29	Bolt	
30	Bolt	
31	Bolt	

Attached Fig. 1 Articulated switch (w



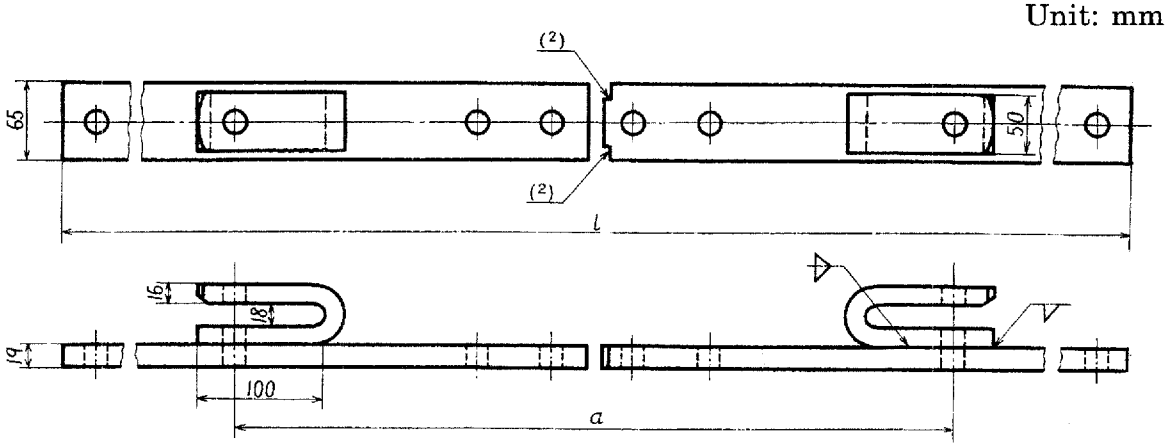
Gauge	Rail type	No.	P	a_1	a_2	a_3	a_4	a_5	a_6	a_7	b_1	b_2
1 067	40 N	6	3 700	2 205	845	650	1 610	—	—	—	800	0
		8	4 800	2 822	1 118	860	1 970	—	—	—	760	610
		10	5 800	3 474	1 389	937	2 420	—	—	—	870	720
		12	6 800	4 185	1 686	929	2 900	—	—	—	770	620
		14	8 000	4 997	2 023	980	3 450	3 290	—	—	860	710
		16	9 100	5 715	2 322	1 063	3 940	4 100	—	—	980	800
	50 N	6	3 700	2 218	1 192	290	1 610	—	—	—	800	0
		8	4 900	2 924	1 593	383	2 030	—	—	—	760	610
		10	6 000	3 632	1 998	370	2 510	—	—	—	880	740
		12	7 000	4 337	2 399	263	2 980	—	—	—	770	630
		14	8 000	5 029	2 792	179	3 450	3 290	—	—	850	700
		16	9 100	5 751	3 205	144	3 940	4 100	—	—	960	800
		20	11 300	7 129	3 995	176	4 870	2 110	2 500	3 040	960	800



Details of tongue rail heel area

Attached Fig. 1.1 (1) Tong

Unit: mm

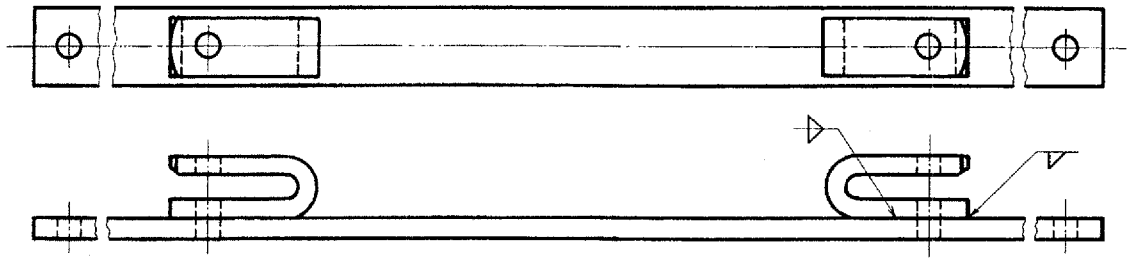


Gauge	a	l
1 067	570	1 825
1 435	938	2 195

Note (2) These notches need not be made depending on the shape of insulator.

Remarks: Dimensions of a and l may be changed according to the working condition.

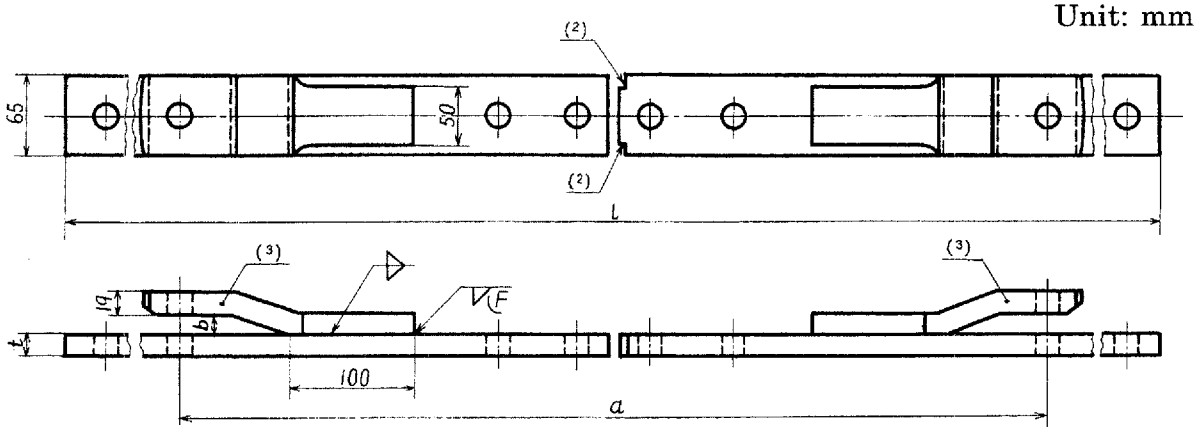
Attached Fig. 1.2 Switch rod



Remarks: The dimensions are identical with Attached Fig. 1.2.

Attached Fig. 1.3 Switch rod

Unit: mm



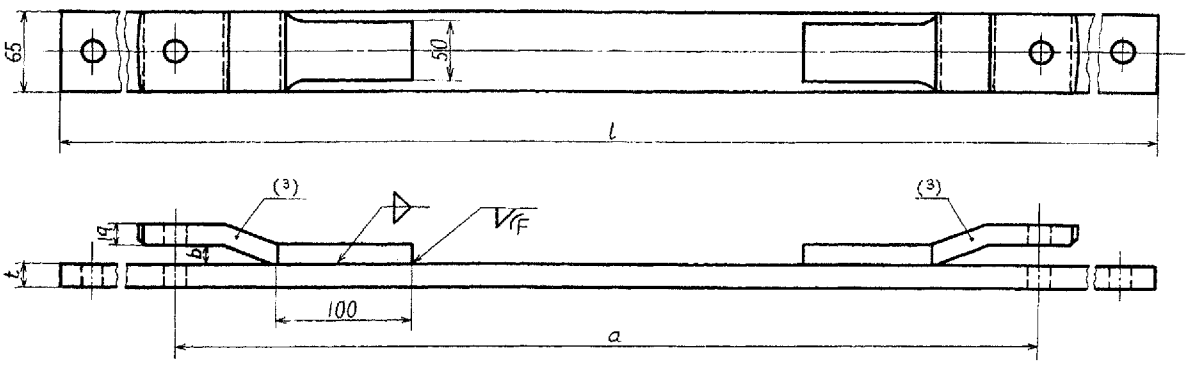
Gauge	a	b	t	l
1 435	884	18	19	2 195

Note (3) The width of 65 mm may be changed into 50 mm by the working condition.

Remarks: Dimensions of a, b, t and l may be changed according to the working condition.

Attached Fig. 1.4 Switch rod

Unit: mm

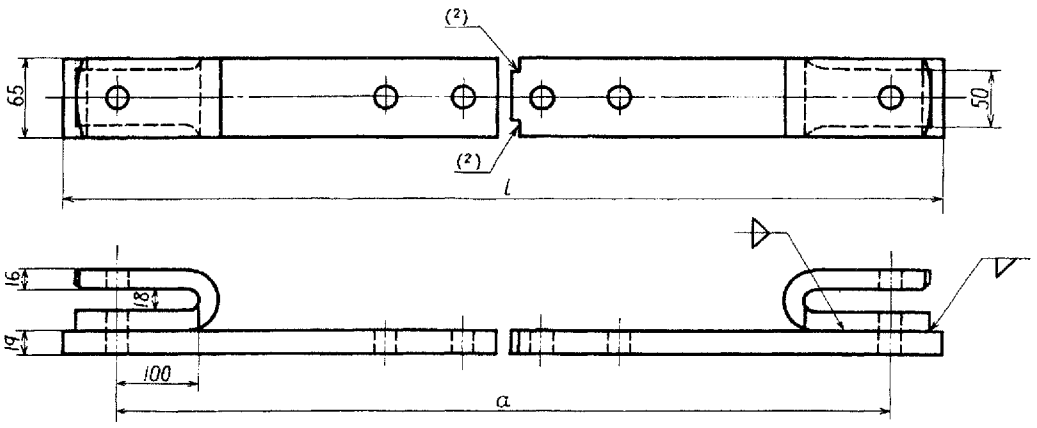


Gauge	a	b	t	l
1 067	516	18	19	1 825
1 435	884			2 190

Remarks: Dimensions of a, b, t and l may be changed according to the working condition.

Attached Fig. 1.5 Switch rod

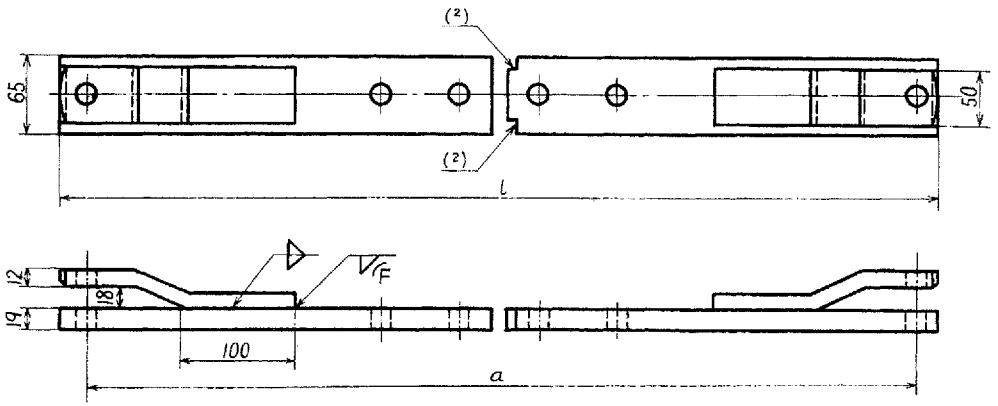
Unit: mm



Remarks: Dimensions of a and l shall be determined by the working position.

Attached Fig. 1.6 Stretch bar

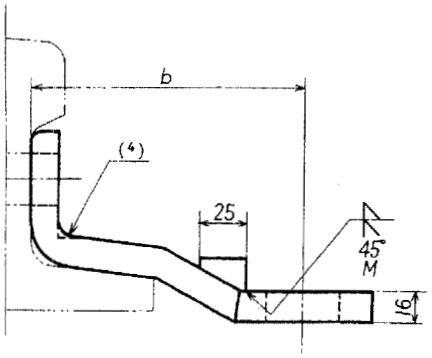
Unit: mm

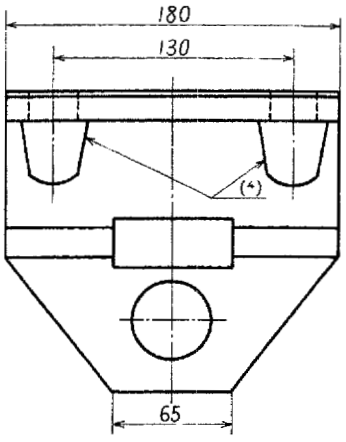


Remarks: Dimensions of a and l shall be determined by the working position.

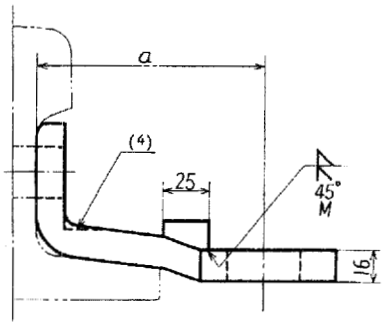
Attached Fig. 1.7 Stretch bar

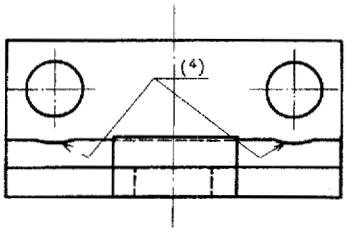
Unit: mm





Side view of the case where the switch rod and stretcher bar of Attached Figs. 1.4 or 1.5 and 1.7 are to be used respectively.





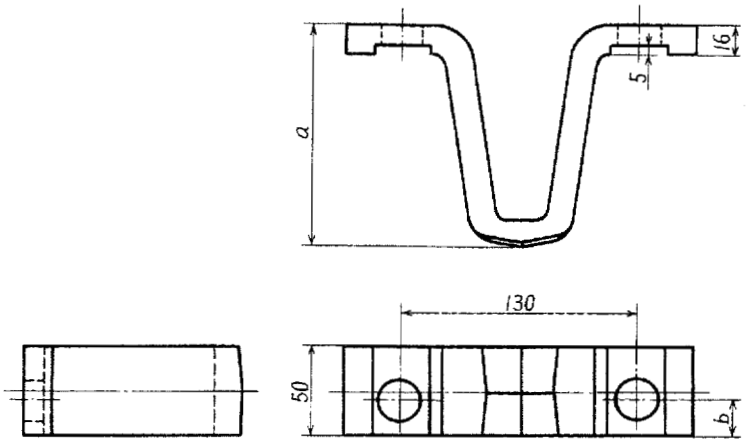
Side view of the case where the switch rod and stretcher bar of Attached Figs. 1.2 or 1.3 and 1.6 are to be used respectively.

Note (4) These recessions apply only to the case of 40 kgN rail purpose.

Remarks: Dimensions of *a* and *b* shall be determined by the working position.

Attached Fig. 1.8 Bearing clip

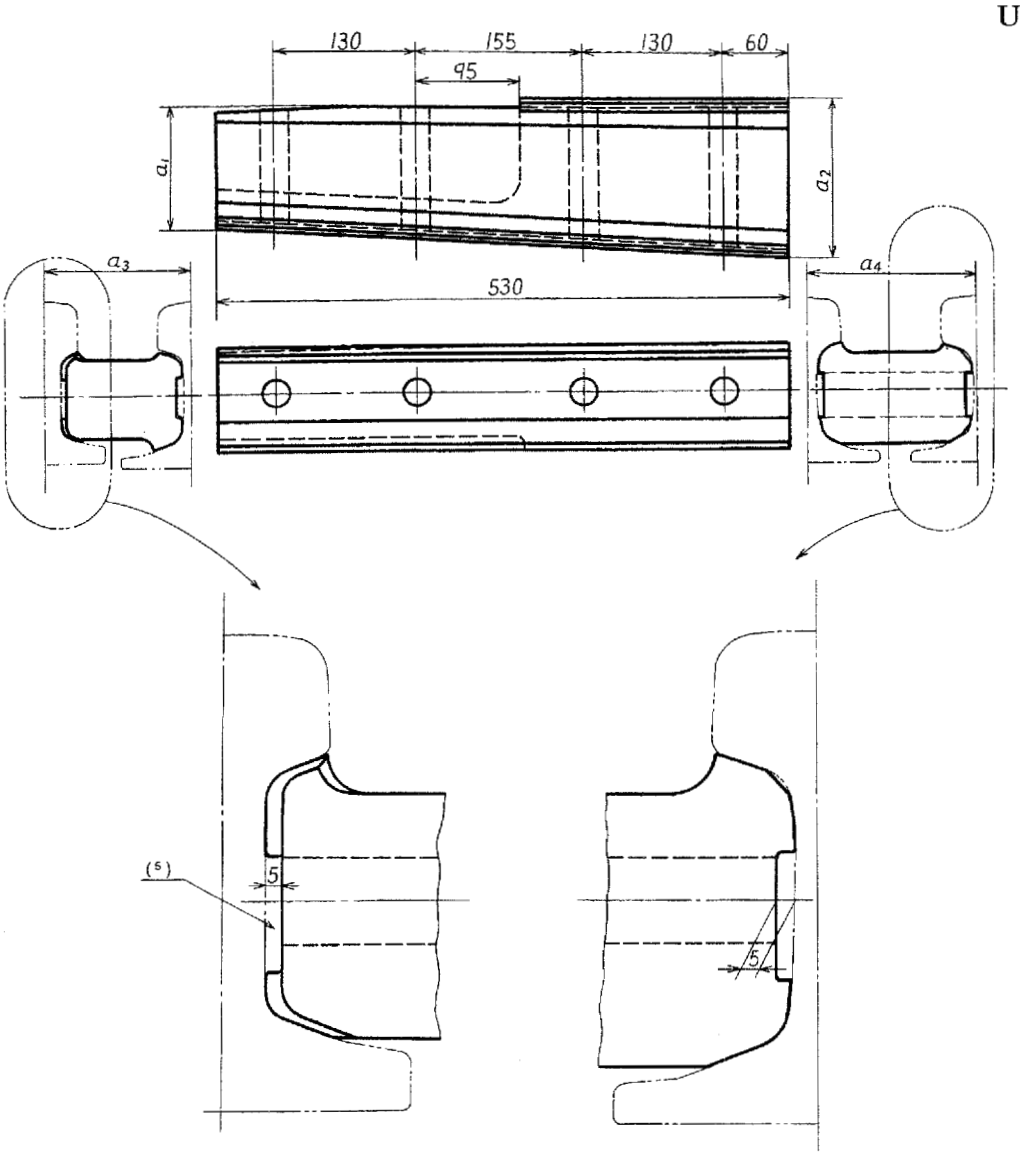
Unit: mm



Remarks: Dimensions of *a* and *b* shall be determined by the working position.

Attached Fig. 1.9 Stud

Unit: mm



Note (5) This recess applies only to the case of 40 kgN rail purpose.

Remarks: Dimensions of a_1, a_2, a_3 and a_4 shall be determined by the working position.

Attached Fig. 1.10 Filler

Omitted the drawings, which are symmetrical shape to those shown in Attached Fig. 1.10.

Attached Fig. 1.11 Filler