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– "Collinox"

"Societe de Prospection et d'Inventi Techniques"
(), "SPIT" –

("Collinox", "BatInox" "Petzl" ()).

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"Black Diamond".



5-

$$Q = \frac{N_{2i} \cdot (c_i + f \cdot b_i)}{b_i - a_i} \quad (2)$$

$$\sum F_x = 0; N_{1i} - N_{2i} = 0; N_{1i} = N_{2i} = N_i \quad (3)$$

$$\sum F_y = 0; F_{1i} + F_{2i} - Q = 0; f \cdot (N_{1i} + N_{2i}) - Q = 0; Q = 2 \cdot f \cdot N_i \quad (4)$$

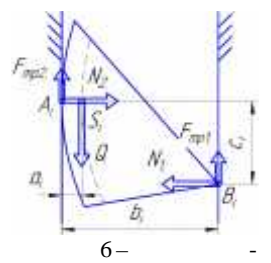
(2), (4) ; (3)

$$\frac{N_i \cdot (c_i + f \cdot b_i)}{b_i - a_i} = 2 \cdot f \cdot N_i; c_i = f \cdot (b_i - 2 \cdot a_i) \quad (5)$$

(5) ;) $a_i = const$
 b_i , c_i (a_{min} ,
 (b_{max}) , $\frac{c_i}{b_i}$,

TRI-CAM

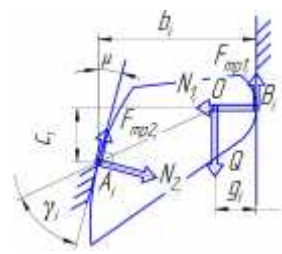
(
 Q - ; N_{1i}, N_{2i} -
 B_i A_i ; F_{1i}, F_{2i} -
 c_i - B_i A_i
 a_i -)



6-

B_i :
 $\sum M_{B_i} = 0; Q \cdot (b_i - a_i) - N_{2i} \cdot c_i - F_{2i} \cdot b_i = 0. \quad (1)$

, $F_{2i} = N_{2i} \cdot f$, f - , Q :



7-

(7,
 N_{1i}, N_{2i} - B_i A_i ; F_{1i}, F_{2i}

B_i A_i ; b_i -
 (A_i)

$$; c_i - \frac{B_i}{O} \cdot A_i ; g_i - \quad (8)$$

(8-12). OA_i ; \sim $K_i K_{i+1}$, $A_{i+1} \cdot K_i$, $p_i - p_i$, $A_i \cdot A_{i+1}$, K_i

$$\sum M_{B_i} = 0;$$

$$Q \cdot g_i + b_i \cdot N_{2_i} \cdot \sin(\sim) + c_i \cdot N_{2_i} \cdot \cos(\sim) + c_i \cdot N_{2_i} \cdot f \cdot \sin(\sim) - b_i \cdot N_{2_i} \cdot f \cdot \cos(\sim) = 0. \quad (6)$$

$$N_{2_i} = \frac{Q \cdot g_i}{b_i \cdot f \cdot \cos(\sim) - b_i \cdot \sin(\sim) - c_i \cdot \cos(\sim) - c_i \cdot f \cdot \sin(\sim)}. \quad (7)$$

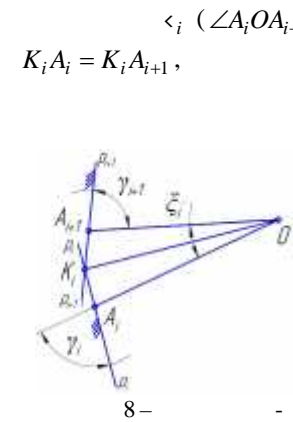
$$\sum F_x = 0; N_{1_i} - N_{2_i} \cdot \cos(\sim) - N_{2_i} \cdot f \cdot \sin(\sim) = 0. \quad (8)$$

$$\sum F_y = 0; Q - N_{1_i} \cdot f - N_{2_i} \cdot f \cdot \cos(\sim) + N_{2_i} \cdot \sin(\sim) = 0. \quad (9)$$

$$N_{2_i} = \frac{Q}{f \cdot (f \cdot \sin(\sim) + \cos(\sim)) + f \cdot \cos(\sim) - \sin(\sim)}. \quad (10)$$

$$c_i = \frac{b_i \cdot f \cdot \cos(\sim) - b_i \cdot \sin(\sim) - g \cdot (f \cdot \sin(\sim) + \cos(\sim)) + f \cdot \cos(\sim) - \sin(\sim)}{f \cdot \sin(\sim) + \cos(\sim)}. \quad (11)$$

(11) $g \sim$, b_i , c_i . OA_i x_i (OA), $\sim = 10^\circ$ ($\Delta b = 0,1$), Mathcad.



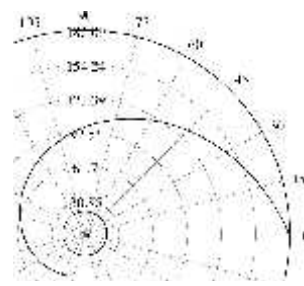
8-

$$\alpha_i = \arccos\left(\frac{(OA_i)^2 + (OK_i)^2 - (K_i A_i)^2}{2 \cdot OA_i \cdot OK_i}\right) + \arccos\left(\frac{(OA_{i+1})^2 + (OK_i)^2 - (K_i A_i)^2}{2 \cdot OA_{i+1} \cdot OK_i}\right). \quad (12)$$

$$K_i A_i = \frac{(OA_{i+1})^2 - (OA_i)^2}{2 \cdot OA_{i+1} \cdot \cos(180 - \alpha_i) - 2 \cdot OA_i \cdot \cos(\alpha_i)};$$

$$OK_i = \sqrt{(K_i A_i)^2 + (OA_i)^2 - 2 \cdot K_i A_i \cdot OA_i \cdot \cos(\alpha_i)}.$$

, Mathcad.



9-

$$b_{\max} = 200$$

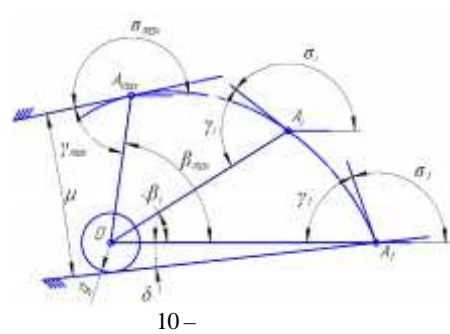
$$b_{\max} = 60 ; g_i = const = 20$$

$$B_i \cdot O$$

$$\Delta b = 0,1$$

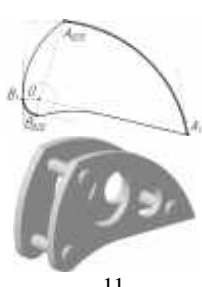
Mathcad.

10. $S_i = A_i O$, $s_i = \sum_{i=1}^n \langle_i$; $\tau_i = 180^\circ - (x_i - s_i)$; $u = \arccos(g / A_i O)$.



11. $\tau_i = \tau_{\max} \geq (180^\circ + \dots + u)$, $S_i = S_{\max}$.

(max): $u = 6,203^\circ$, $\tau_1 = 113,598^\circ$, $S_1 = 0^\circ$,
 $x_1 = 66,401^\circ$, $b_1 = 200$, $s_1 = 43,54$, $x_1 = 185,191$, $\tau_{820} = 196,621^\circ$,
 $S_{820} = 85,559^\circ$, $x_{820} = 68,937^\circ$, $b_{820} = 118,1$, $s_{820} = 19,179$, $x_{820} = 99,957$.
 $b_1 / b_{820} = 1,6934$.



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