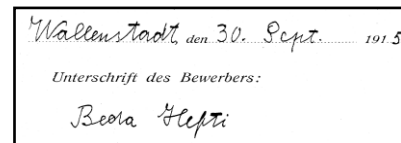


## *Beda Hefti, a Swiss ski lift pioneer*



Beda Hefti (from Luchsingen, Glarus) was born March 23, 1897 at Walenstadt, SG and died January 27, 1981 in Fribourg at the age of 84. He married July 27, 1925 Irene Hildegard Daniel von Trossingen, born July 2, 1902 (Tuttlingen, Württemberg, Germany). They had a son as well as an adopted girl but no grandchildren. They divorced February 22, 1957 in Geneva.

Hefti enrolled 1915 at the Swiss Federal Institute of Technology of Zürich where he acquired a civil engineer diploma in 1920.



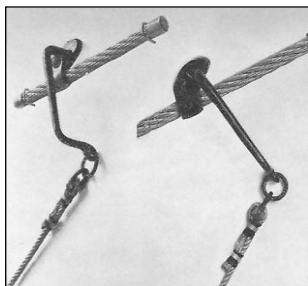
In 1920, at the age of 23, Beda Hefti opened his own engineering office in the town of Fribourg. He worked together with architects following the neoclassical style before ad-opting "International Style" (Neues Bauen) around 1930. He was also a pioneer of the movement for health, hygiene and sport. In view of his know-how, he was invited in 1932 to lecture at an international congress in Rouen, France, regarding all aspects of lidos, indoor and outside swimming pool constructions.

His first lido was built in Fribourg (Motta 1923). Many others followed such as lidos in Fribourg (1924), Vulpera (1925), Gstaad (1927), Burgdorf (1929), Murten (1929), Engel-berg (1930 with the architect Robert Omlin), Interlaken (in 1930, in collaboration with the architects Urfer, Stähli & Mühlemann), Adelboden (1931), Basel Eglisee (1931 with the architect Julius Maurizio), Wengen (1931) and Heiden in 1932. He also designed the sports stadium in Fribourg (1931), the closed swimming pool/skating ring in Lucerne (1931) and the closed pool of the Palais de la Conférence du Désarmement in Geneva (1932). Later he also engineered water supplies, bridges, roads, industrial buildings and silos.

As a sports promoter, excellent skier engaging in races and military patrols, he was a driving force founding in his home town. He was the initiator of the Ski Club (1928), the Athletic Club (1932), the Parachute Club (1952) as well as the Murten to Fribourg running race over 17.7 km (1933).

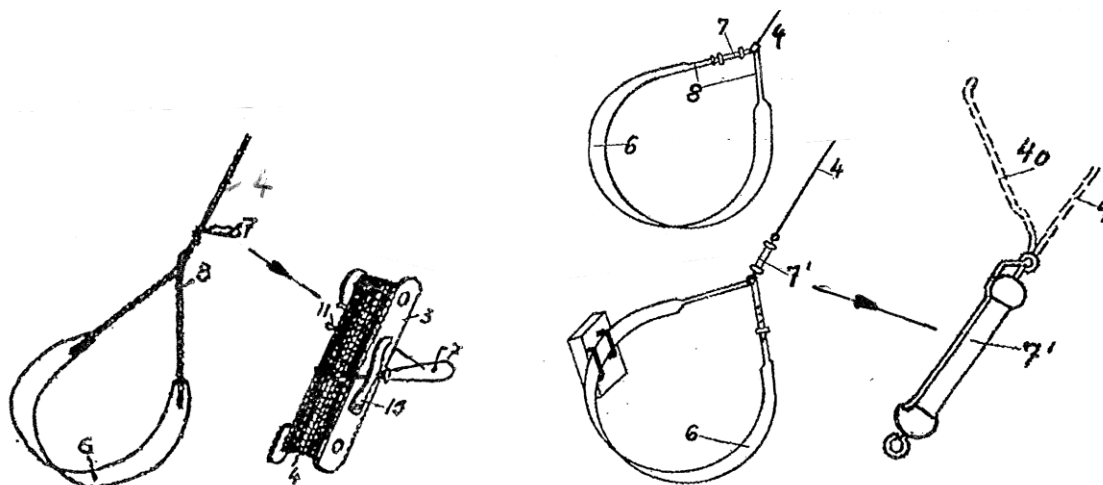
At the age of 38, Hefti invented a ski lift (patent CH201814; filed November 27, 1935, registered in 1938, published in 1939).

The installation consisted of a drive mechanism installed in the lower station, a continuous steel cable circulating over the skiers, traction ropes of hemp and leather belts. The cable was supported by pulleys attached to pylons and driven by an around 3 m diameter bull-wheel coupled to a gearbox and an electric or gasoline engine. The cable had every 15 m or so, small steel clamps to secure the hooking devices to slip along the cable. The ropes were approximately 10 m long, had a steel ring of about 4 cm diameter at one end and a hook on the other.



*The continuous cable, the hooking device and upper end of the rope*

The belts were fitted with a coupling and security grip. Below on the left, the sketches of the 1935 patent. The ski lift attendant wrapped the lower end of the rope (4) several times around the grip before pushing the lever (7) in the position the rope could not unfold. The grip and the lever had to be held tight in one hand until the skiers had reached the top or wanted to get loose – or had to because they fell.



1935

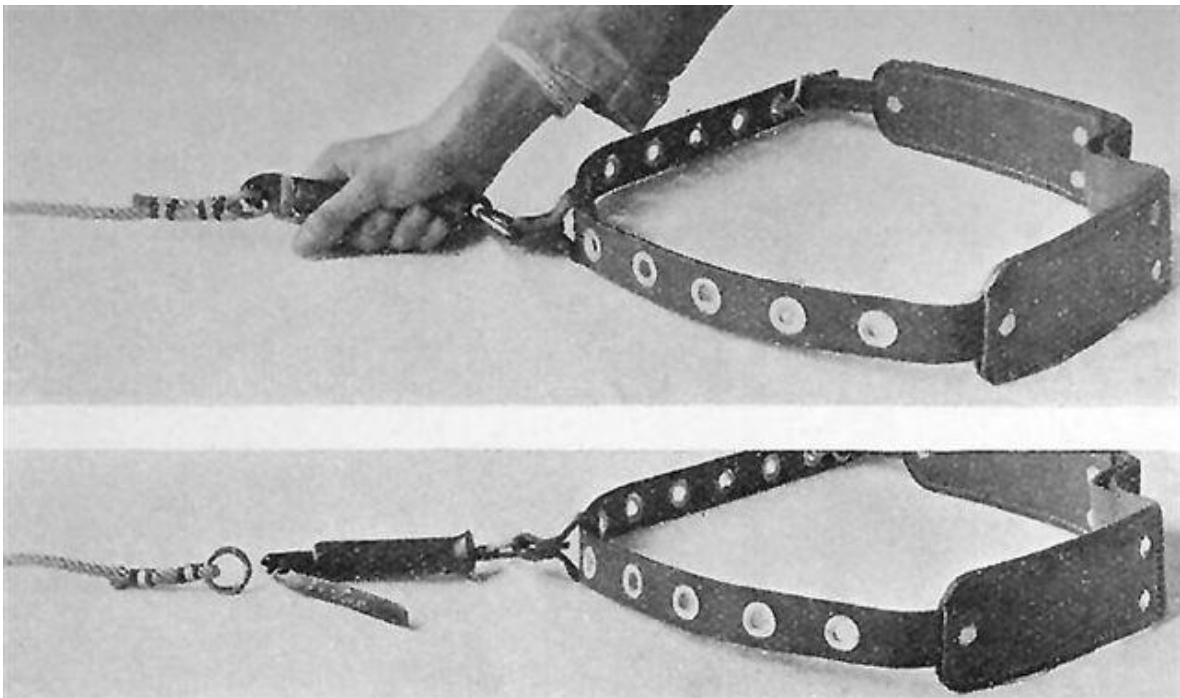
1936

Above on the right, Hefti's improved grip as sketched in the French (814094) and Austrian patents. Attached to the belt (6), the grip (7) had a moveable lever (40). In its open position, the attendant inserted the ring of the rope before closing the lever. The skiers had to hold the grip and the lever tight. This invention permitted a faster starting cycle resulting in a higher capacity of the lift; it was also safer and more convenient for the skiers.

On top of the lift, the ropes were automatically disengaged. The lift attendant bundled the ropes together with the belts and sent them in lots by means of the overhead cable back to the lower station. By the way, skiers who returned abandoned ropes or belts lying along were often offered a free ride.

In later years, most lifts were improved by:

- Hand grips which permitted an even faster starting cycle besides being more secure and comfortable. They were invented by Jean Firmann (Patent CH 201159 titled “Dispositif d'accrochage de sûreté, notamment destiné aux monte-pentes pour skieurs”, filed November 1935, registered in 1938, published in 1939).
- Belts with an elastic part and two small wooden boards, thus more comfortable.
- Double-ropes allowing two skiers to be drawn side by side. This increased again the capacity of the lifts and was appreciated by most skiers.
- Short ropes permitting to attach children to the belts of adults.
- Clamps which made the clamps on the overhead cable unnecessary.



### *Firmann's safety grip*

**Top:** belt with safety hand grip held in close position with inserted ring of rope

**Bottom:** hand grip open, ring with rope.

In 1943, the firm of Eisen- & Stahlwerke Oehler & Co (which had 1937 acquired the licenses of the Hefti patents) patented still another hand grip (CH 238082). The ski lift operators preferred however the Firman “pliers”.

The photographs on the next page illustrate the process.



*Left: the skier arrives with the belt on, holding the hand grip open, ready to be hooked to the pulling rope. The board warns: “In case of fall, let the hand grip loose. It is forbidden to tie-up the grip or to put it out of function”*

*Right: the attendant inserts the rope ring into the hand grip*



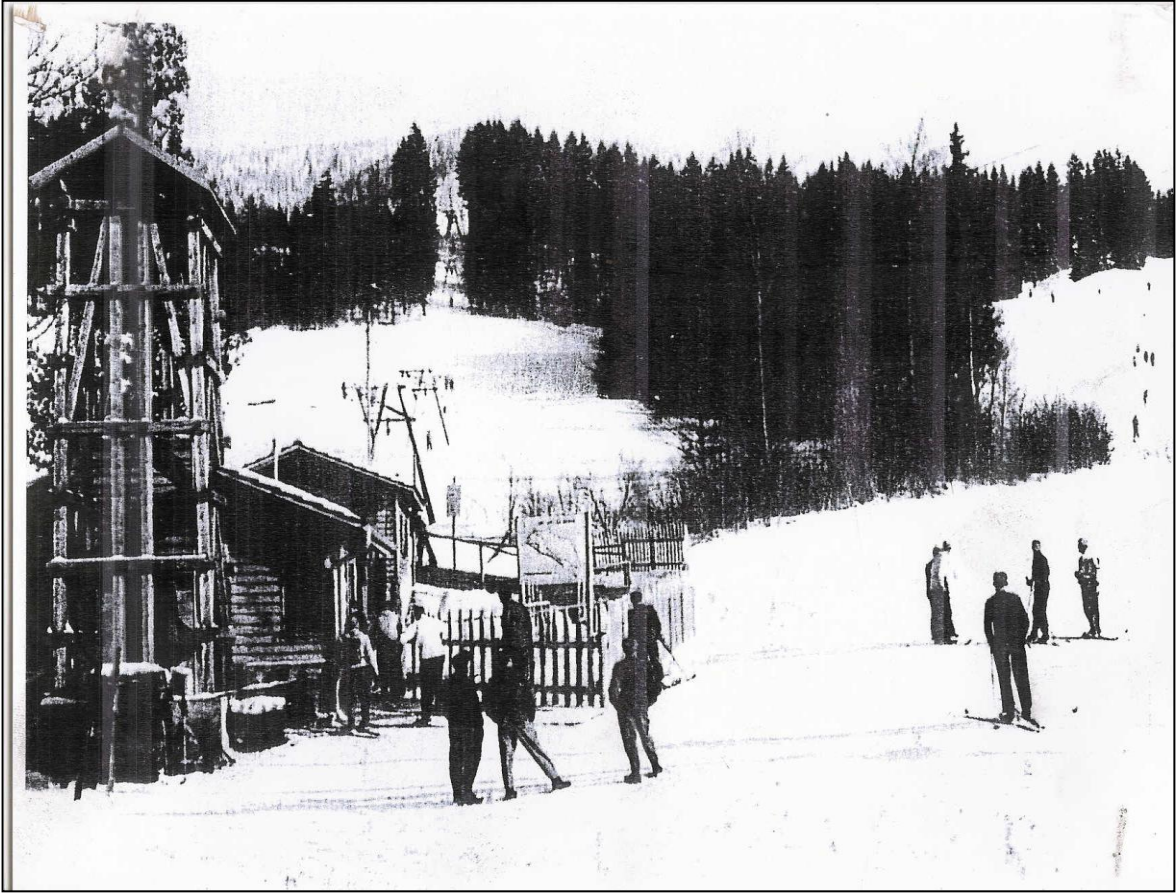
*The attendant prepares to hook the rope to the circulating steel cable*



*Under the pull, the clamping effect on the circulating steel cable is achieved: off they go!*

The first Hefti lift, the “La Berra” was built in 1935 and inaugurated on the second of January in 1936. The lower station was located in Les Communs, close to the village of La Roche, about 15 km south of Fribourg. The upper station was below the peak of the La Berra mountain. The length of the lift was 560 m with a vertical rise of 156 m and an average slope of 28 % with a maximum of 62 %. The lift was driven by a Diesel engine of 25 HP which allowed a speed of approximately 2 m/s. The cable of 12 mm diameter was endless and supported by 5 pylons.

The installation was initiated by the Ski Club of Fribourg of which Hefti was president. Already in 1934 the Club had built the lodge “Gîte d’Allières” in the pastures beneath La Berra.



*Lower station of the La Berra lift, around 1936*



*Upper station*

*On the right, La Berra mountain*



*Gîte d'Allières*

*In the background, Le Moléson (in white)*

The La Berra lift was the third one built in Switzerland and at the time the longest. As a matter of fact, it started operation only one year after the first one (Bolgen at Davos – the first bar lift worldwide – engineered and patented by Ernst Constan of Zürich). Before that time, there were only few ropeways without belts or bars. However, already in 1906 a ski and sledge lift with hand grips operated for some

years in Schollach, Schwarzwald (Germany). The inventor and operator was Robert Winterhalder.

Compared to the Constam design, the Hefti one could cope with curves and the investment was lower. On the other hand, the capacity of skiers per hour was less. Further, putting on the belts and holding the safety grip firm was not as convenient to skiers as the Constam J- or T-bars. Last but not least, the ropes could unhook in case of insufficient pull. Belt type lifts were nonetheless built until the beginning of the 50ies.

The company of Eisen- & Stahlwerke Oehler & Co in Aarau, a manufacturer of steel and transport equipment, acquired the license of the Hefti patent in 1937. It was founded by Alfred Oehler and Robert Zschokke in 1881 as Oehler & Zschokke. As a matter of fact, they already built their first aerial cableway in 1904. Their factory was initially located in Wildeggen before transferred to Aarau in 1894. Robert Zschokke died in 1883, Alfred in 1900. Alfred's son, Alfred junior took over from 1907 to 1955. Same as his father, he was a colonel in the Swiss Army and during World War II, head of the aerial cableway section. The company was taken over by Georg Fischer (GF) in Schaffhausen in 1970. Already the same year, GF sold the ski lift section to Habegger in Thun, an innovative aerial cableway manufacturer.

#### **List of known Hefti and Oehler lifts**

- ⇒ location
- ⇒ year of inauguration
- ⇒ length/vertical rise in meters
- ⇒ capacity of skiers per hour (initially/future)
- ⇒ ski/chair lift
- ⇒ source of the information (LS = Revue Le SKI, October 1947, OP = Oehler advertising, 1960, OL = Oehler list, probably edited in 1963)

#### **Hefti belt-lifts in Switzerland (6)**

- La Berra, FR (January 2st, 1936 - 72): Communs - Gîte d'Allières; 560/156; LS
- Montana, VS (1936 - 43): Arnouvaz - Cry d'Er; 1955/556; LS
- Rochers de Naye, VD (17.11.1936 - 1960): Tunnel de Naye - Rochers de Naye; 340/110; LS
- Villars sur Bex, VD (13.12.1936 - 55): Bretaye - Chaux Ronde; 600/300; LS
- Adelboden, BE (1944 - ??): Adelboden - Gildbach; 340/90; LS (replaced the self made one of Alfred Amschwand of 1937; Hefti or Oehler?)
- La Roche, FR (1946 - 72): Montsoflo - La Berra; 2581/694 (lift with the highest vertical rise); LS (Hefti or Oehler?)

#### **Oehler belt-lifts in Switzerland (21)**

- Andermatt, UR (1937 - ??): Nättschen - Gütsch; 800/230; LS
- Arosa, GR (1938 - 70): Mittlere Hütte - Weissshornsattel; 1700/375; LS
- Châtel-St-Denis, FR (January 8th, 1938 - 64): Les Paccots - Mont Corbetta; 1100/325; 500; LS/OP (replaced in 1964 by an Oehler T-bar)
- Unterwasser, SG (1939 - 62): Itios - Stöfeli; 1350/360; LS



- Bulle, FR (1941 - 68): La Perrausaz - La Chiaz; 1120/328; LS
- Lenzerheide, GR (1942 - 61): Val Sporz -Tgantieni; 1256/230; LS (replaced the ski-sledge of 1936, converted to ski/chair in 1961) Lenzerheide, GR (1942 - 62): Tgantieni - Piz Scalottas; 1646/600; LS (converted to ski/chair in 1962)
- Rigi, SZ (1942 - 64): Rigi Staffel - Rotstock; 350/82; LS
- Le Brassus, JU (31.12.1943-66): Les Mollards; 340/90, 300-350 p/h, 40 HP. in 1966 repaced by a Bühler T-bar lift, 1989 by a Leitner, also a T-bar lift. Info from Roland Pesenti (Télé ski Le Brassus
- Châtel-St-Denis, FR (1943 - 69) : Les Paccots, Rosaly - Grevella; 1346/360; 500; LS (replaced in 1969 by a POMA disk lift 1969)
- Montana, VS (? .12.1943 - ??): Arnouvaz - Cry d'Er); 1960/557 ; 3-400
- Château d'Oex, VD (1944 - ??): Les Coullayes (Les Moulins) - Monts Chevreuils; 2510/700; 350/450; LS/OP
- Oeschseite, BE: (1944 - 89): Oeschseite - Rinderberg; 1110/306; LS (converted to T-bars in the 60ies)
- St. Moritz, GR (1945 - 59): Corviglia - Plateau Nair; 836/165; LS (with a 70 m long wooden gallery to protect against snow accumulations; replaced the ski-sledge of 1938)
- Arosa, GR (1945 - 63): Im Grundji - Hörnligrat; **2680**/682 (longest lift); 500/850; LS/OP (converted to ski/chair as of 1948)
- Beckenried, NW: (1945? - 58): Klevenalp – Ergglen
- Stoos, SZ, BE: (1945 - 61): Sternegg - Höhe Sonnegg (1948 extended to the Skihaus Ski-Klub Zürich)
- Ennetbühl, SG (1946 - 66): Hotel Rietbad - Zielmüslen
- Wildhaus, SG (12.1.1946 - 58): Oberdorf - Gamsalp (Gamserugg); 2012/528; OP (converted to T-bars in 1958, to ski/chair in 1962)
- Flumserberg, SG (1946 - 60): Tannenboden – Kreuz (besides belts, equipped with wooden discs)
- Hasle, LU (1946 - 70): Heiligkreuz - First; 870/333; LS
- Ibergereg, SZ (1947 - 69): Handgruobi – Brünelistock
- Cari Croce, TI (1950? -?)

### ***Oehler T-bar lifts in Switzerland (28)***

- Tschierschen, GR (1952 - ??): Tschierschen - Waldstaffel; 1256/236
- Flums, SG (1954 - ??): Prodalp - Prodkamm; 1771/368; 400/935; OP (converted to chair: 120)
- Klosters, GR (1957 - ??): Churer Staffel - Mähder; 1192/329; 600/800; OP
- Davos, GR (1958 - ??): Clavadeleralp - Jakobshorn; 1805/462; 600; OP
- Wildhaus, SG (1958 - 82): Oberdorf - Gamserugg; 1977/525; 600/800; OP (converted to ski/chair in 1962: 95)
- Beckenried, NW (1959 - ??): Klevenalp - Ergglen; 445/136; 685/1000; LS /OP (replaced the exiting one)
- Flums, SG (1959 - ??): Tannenheim - Prodalp; 1482/350; 800/1000; OP/OL (converted to chair in 1962: 120)
- Klosters, GR (1959 - ??): Parsennhütte - Parsennfurka; 1360/330; 400/800/1000; OL

- Wengen, BE (1959 - ??): Salzegg - Eigergletscher; 1028/331; 500/750; OP/OL
- Arosa, GR (1960 - ??): Prätschli - Tschuggen; 670/110; 800/1000; OL
- Kerns, OW (1960 - ??): Melchsee - Balmeregghorn; 1345/318; 600/800; OL (converted to chair in 1962: 125)
- Davos, GR (1961 - ??): Jatzhorn; 1350/411; 600/800; OL
- Davos, GR (1961 - ??): Ischalp - Brämabüel; 1520/550; 600; OL
- Engelberg, OW (1961 - ??): Jochpass - Jochstock; 739/205; 600/1000; OL (converted to chair: 125)
- Davos, GR (1961 - ??): Kreuzweghütte - Furka; 370/100; 450/900; OL
- Davos, GR (1961 - ??): Kreuzweghütte - Furka; 520/90; 800; OL
- Schwägalp, SG (1961 - ??): Schwägalp; 404/ 75; 1000; OL
- Châtel-St-Denis, FR (1962 - 86): Les Paccots - Corbetta; 1060/312; 800/1000; OP ; 3,5 m/s (replaced the existing one of 1937 and was replaced by a Baco disk lift in 1986)
- Tschiertchen, GR (1962 - ??): Tschiertchen - Hühnerköpfe; 2010/660; 500; OL
- Einsiedeln, SW (1962 - ??): Bennau; 870/174; 800; OL
- Davos, GR (1963 - ??): Bünda; 566/147; 800/1000; OL
- Arosa, GR (1963 - ??): Schönboden - Hörnli; 1270/350; 800/1000; OL
- Einsiedeln, SZ (1963 - ??): Bennau I; 840/174; 1000
- Einsiedeln, SZ (1963 - ??): Rechts; 625/188; 1000
- Oberägeri, ZG (1965 - 70): Raten; 840/112; 870/970
- Einsiedeln, SZ (1967 - ??): Bennau II ; 840/174; 1200
- Schwendi, BE (1967 - ??): Gimmialp - Stierengrimmi; 1223/475; 720
- Hemberg, SG (1969 - ??): 1020/243; 900

#### **Oehler belt-lift outside Switzerland**

- La Feclaz, Savoie, France (1936? - 1948?): Près Coin du Feu; 300/135; LS
- Strbske Pleso, Slovakia, 1943

#### **Oehler T-bar lifts outside Switzerland**

- Winterpark, Colorado, US (1957 - ??): section I; 753/190; 1000/1150; OP
- Winterpark, Colorado, US (1957 - ??): section II; 124/358; 1000/1150; OP

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10. La Liberté, 14.1.1936 (journal)

**Patents:**

They can be viewed and printed at <http://ep.espacenet.com>

**Internet sites:**

[www.laberra.ch](http://www.laberra.ch)

[www.seilbahn-nostalgie.ch](http://www.seilbahn-nostalgie.ch) (History of ropeways including ski lifts in Switzerland)

[www.jacomet.ch/themen/skilift](http://www.jacomet.ch/themen/skilift) (Historic and actual images)

[www.skilift-nostalgie.ch](http://www.skilift-nostalgie.ch) (Collection of Ropeways including ski lifts)

<http://jwalker.ch/gamsalp/gamsalp1-d.html> (History of mountain railways, ropeways of the Toggenburg with images and video clips from Oehler ski lifts as well as ski-sledge)

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*\* Switzerland.*