

**Zeitschrift:** IABSE congress report = Rapport du congrès AIPC = IVBH  
Kongressbericht

**Band:** 2 (1936)

**Artikel:** Steel dams

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**DOI:** <https://doi.org/10.5169/seals-3354>

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# VIIb 4

## Steel Dams.

## Stahldamm.

## Barrages d'acier.

Prof. G. Krivochéine,

Ing., General-Major, Prag.

A field of application which offers great scope for the use of steel as a constructional material is that of dams. It is known that in North America there are thousands of dams constructed in masonry, concrete and reinforced concrete, but only four or five steel dams; but whereas dams built of stone, concrete or reinforced concrete are not completely watertight, steel dams can be made completely so.

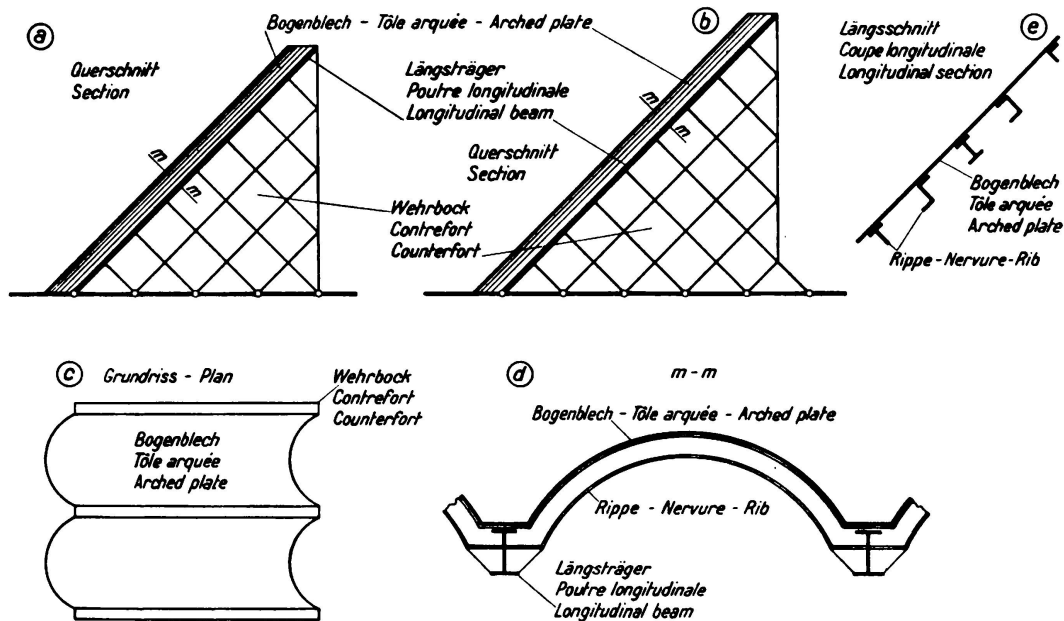


Fig. 1.

The system of dam construction patented<sup>1</sup> by Eng. *Fultner*, Dr. *Sekla* and Professor *Krivochéine* (Figs. 1a, b, c, d) consists of a series of curved and inclined steel plates of wide span (8 to 15 m) strengthened by ribs. The arched steel plates formed in this way are carried on inclined longitudinal girders without any cross girders, and supported directly on counterforts of open frame

<sup>1</sup> Amer. patent, U.S.A. N° 2, 033.027.

construction. The latter are built in an original shape, being made triangular without diagonals; a form of structure which possesses theoretical hinges at the intersections, and which is both rigid and statically determinate.

An arched form of dam in accordance with this invention is completely elastic, and allows expansion to take place under variations in temperatures although no gaps are left. Another very important advantage, from a technical point of view, is the reduction in width of the base.

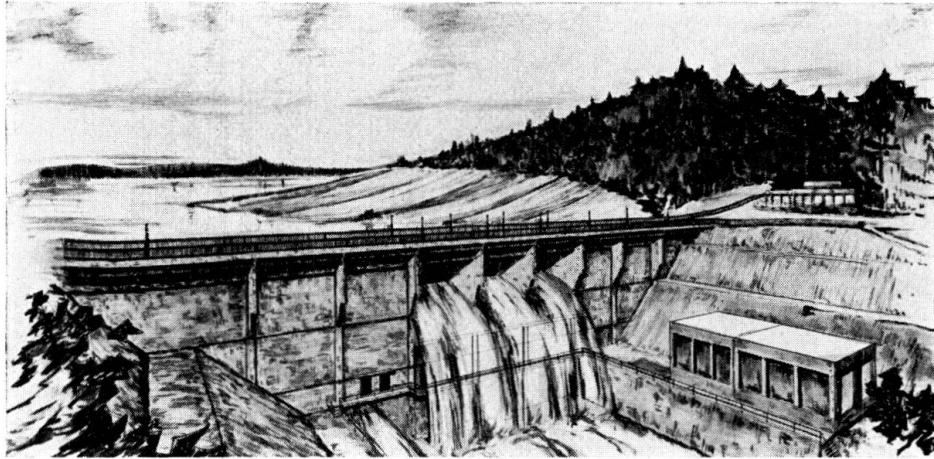


Fig. 2.

Design of steel multiple-arch dam on the Svatka River at Kniničky, Czechoslovakia.

Patented by J. Fultner, Prof. G. Krivochéine and Dr. J. Sekla.

In a competition in Czechoslovakia the author had an opportunity of proposing a steel dam of this kind for Kninicky in the neighbourhood of Brno (Fig. 2)<sup>2</sup> and the tender put forward by the Witkowitz works, according to the patent mentioned, worked out some 22 to 53 % lower than the respective fifteen tenders for masonry or concrete dams.

<sup>2</sup> The steel dam at Brno was covered with Monier reinforced concrete slabs.