Schulz Brake Contest

Bicycle Quarterly's brake contest (Vol. 7, No. 2) caused considerable head-scratching: How does the 1935 Schulz brake work?

Mark Petry wrote, tongue firmly in cheek: "Rider squeezes the handle, the cable pushes the brake arms apart, pads contact rim, bike slows down. When do I get my prize?"

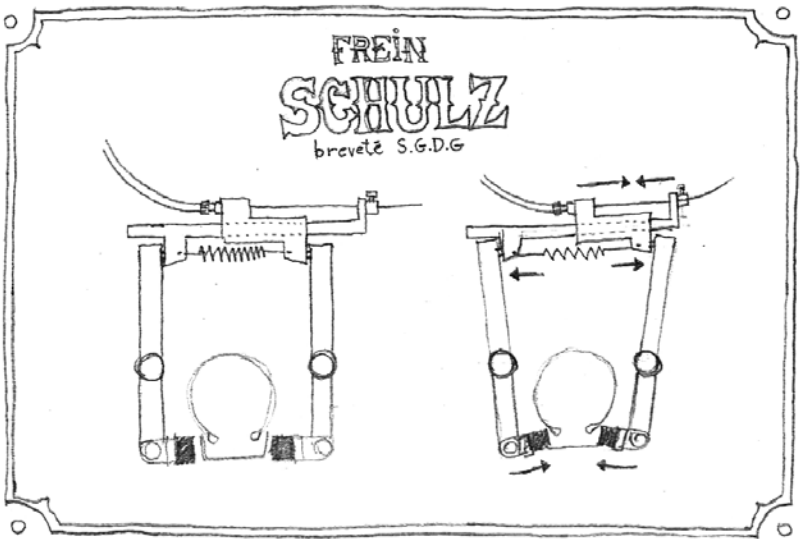
Several readers thought it was a fail-safe mechanism similar to railroad brakes. Pulling the cable would open the brake, and the spring would close it. Fortunately, that answer is not correct, as it would make the bike hard to ride: As soon as the rider lets go of the brake lever, the bike would go into emergency stop mode!

Many readers figured out the general principle of the telescoping tubes, but Jim Gourgoutis wins the prize for the first complete reply, including the way brake power is transferred from the cross arms to the vertical arms. He was helped by additional photos he found online at *www.reneherse.com*. Doing research is part of the game... Here is his explanation:

- When the rider pulls the brake lever, the transverse link telescopes and shortens, as the side with the cable anchor slides through the part with the barrel adjuster. This means that the overall length of the transverse link **increases**, even though the cable anchor points move together.
- The transverse arms are fastened to the vertical brake arms by two pins on the inside-top of each brake arm, which fit into mating holes in the round stubs that stick down from the bottom of the transverse arms. The transverse arms intertwine with the miters on the top of the brake arms themselves, dovetail-style, to keep everything in place. The pins are kept in the holes by the tension of the coil spring.
- As the transverse link grows in length, the vertical brake arms rotate around their studs, moving the brake pads together.
- The coil spring retracts the brake after the cable tension is removed.

Congratulations! Your copy of *The Competition Bicycle* is on its way. Joel Traunecker contributed the drawing above, showing the principle of the Schulz brake. He will receive an extension to his *Bicycle Quarterly* subscription as a consolation prize.

For those looking for another riddle, try figuring out how the rear brake of the Schulz bicycle works. No prizes this time, I'm afraid.
—*JH*



Draving: Joël Traunecker

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Photo: Alexander March

◁ **The Schulz front brake is a direct-pull centerpull brake. The two transverse arms slide inside each other (above). They are not connected to the fork crown, and there are no pivots connecting the transverse and vertical arms. Instead, pins on the transverse arms engage in the hollow vertical arms (left). The brake is brazed from pieces of tubing. It is very powerful.**

The Schulz rear brake is entirely different from the front brake. It is another centerpull brake, but it has two brake cables and no conventional pivots at all. ▷

Photo: Alexander March