

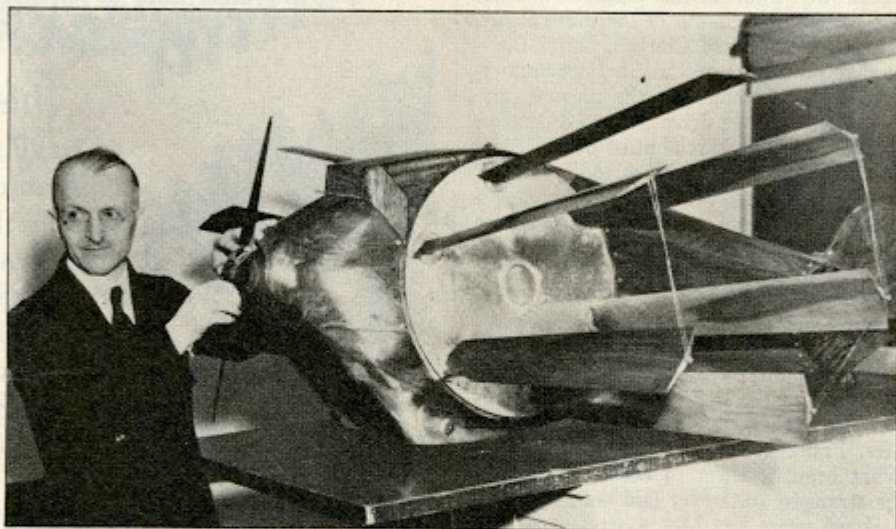
Bed, Pipe, Propeller

Last week news of a remarkable invention came out of Seattle. The invention: an air-conditioned bed, adjustable for god-like slumber in winter as well as in summer.

The bed's frame is a sheet-metal box, its "mattress" a cushion of air enclosed by the frame and a sheet of fabric stretched across its top. The fabric is treated so that it is almost, but not quite, impermeable to air. Thus the air in the cushion, though supporting the sleeper, slowly escapes from the bed and envelops him. The mattress does not collapse because more air is delivered to the bed from

name—a standard briar bowl mounted on a non-absorbing, easily cleaned duralumin stem. The stem is built large enough to act as a radiator, cooling the smoke.

Professor Kirsten's cycloidal propeller, as used for boats, has four to eight parallel blades projecting vertically downward, like fingers from a revolving hand. Driven by a vertical shaft the blades on one side move backward while those on the other move forward. Propulsion is obtained by a rhythmical automatic shift in the pitch of the blades so that those moving backward push flatwise against the water, while those moving forward are "feathered" to slip sidewise through it with little resistance. One advantage of this



INVENTOR KIRSTEN AND CYCLOIDAL PLANE
If it works no wings will be needed.

Wide World

pressure tanks and, since air under pressure is cooled by expansion when it escapes, it reaches the bed at 52°. This is fine for hot nights. For cold nights the air in the "mattress" can be heated to any desired point by electric grids in the frame.

No less remarkable than this gadget is the small, grey man who thought it up—Professor Frederick Kurt Kirsten of the University of Washington. Born in Saxon Germany 55 years ago, Frederick Kirsten once terrified the town of Grossenhain by enveloping it in a smoke screen, ran away to sea at 17 in a three-masted windjammer, jumped ship in Tacoma with \$1.50 in his pocket. He first sought shelter with a farmer whose daughter he eventually married. Someone persuaded him to enter the University of Washington. He worked his way through the school of electrical engineering, putting in eight hours a day as a power station operator, graduated at the top of his class, became an assistant professor.

A devout pipe smoker, Professor Kirsten became dissatisfied with existing pipes. He wanted a pipe which would deliver cool smoke. He did not like filters so he invented the pipe which bears his

arrangement is that quick stops and reverses can be accomplished without altering the speed or direction of the drive shaft—simply reversing the pitch of the blades. Professor Kirsten also claims that the feathering action of the blades stabilizes small craft in rough weather, and that fast, sharp turns are possible.

In 1921-22 Kirsten submitted his propeller to the U. S. Navy, which turned it down. Subsequently Kirsten disposed of the manufacturing rights in Germany. The professor has figures to show that small craft of a half-dozen nations, totaling 495,000 h.p., operated last year with cycloidal propellers manufactured in Germany. He believes that German torpedo boats now fighting in the English Channel are equipped with cycloidals, and he wishes they weren't because he is a rabid Hitler-hater. But he observed last week that there is still time for the U. S. to use cycloidal propulsion for airplanes. Two cycloidals mounted on either side of the fuselage with blades projecting laterally would make possible a wingless, almost noiseless plane capable of short landings and take-offs like an autogiro (*see cut*). Professor Kirsten believes it could fly 500 m.p.h.