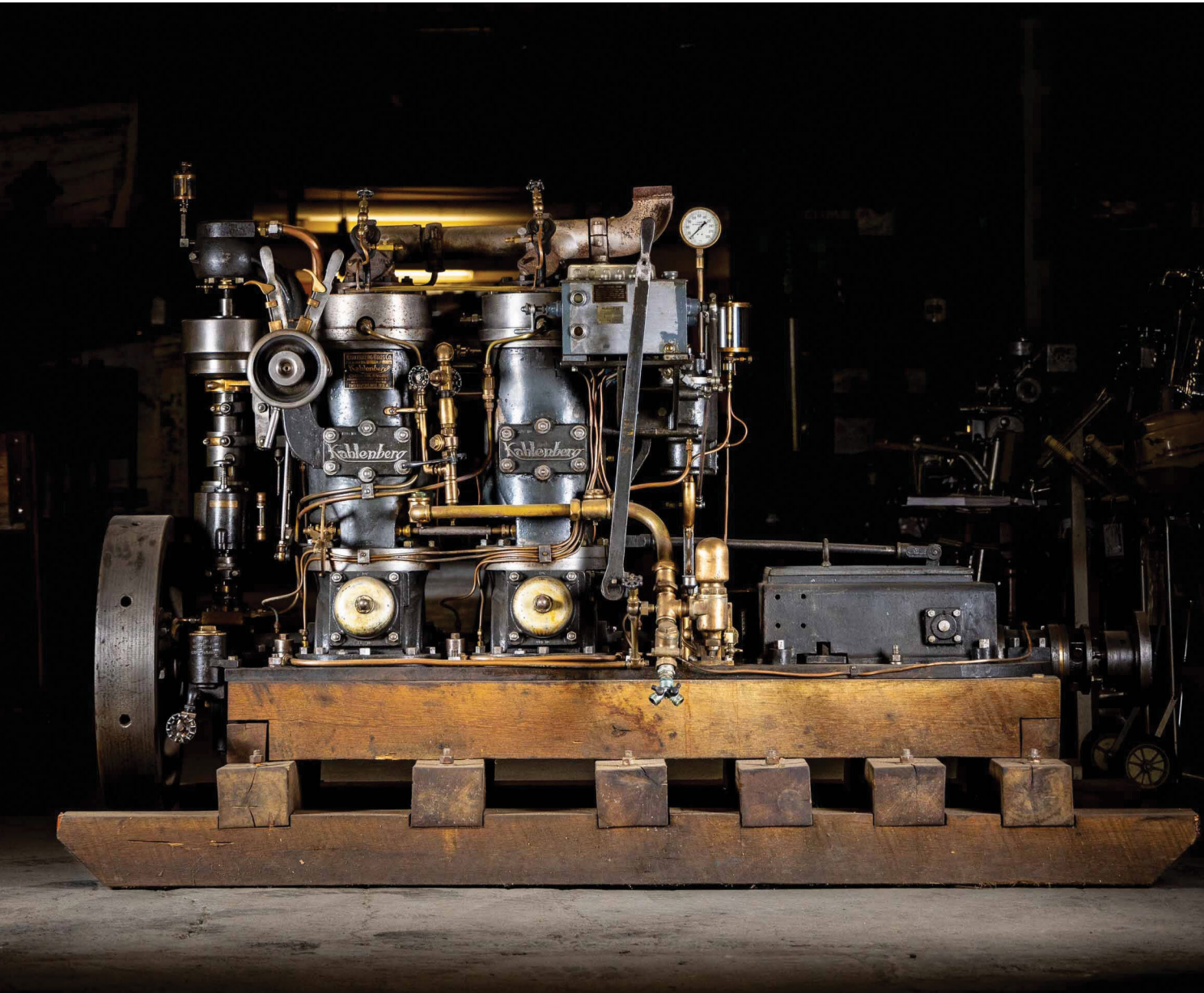




The 1930 Kahlenberg Marine Oil Engine weighs about 1,800 pounds. Mystic Seaport Museum, 2018.38

Kahlenberg Semi-Diesel Marine Engine

Barry Thorp, Volunteer, Mystic Seaport Museum, with editing by **Pieter Roos**, Curator of the Wells Boat Hall Exhibition, Mystic Seaport Museum

For many of us, an engine is a lump of iron and steel hidden belowdecks, merely the thing under the hatch that makes the vessel go. Other than basic care and feeding, it is something most boat owners pay someone else to take care of. And then there are the engine enthusiasts for whom the powerplant is the beating heart of the vessel—the center of everything, around which is wrapped a bit of boat. We should all have a touch of the engine enthusiast in us—these beasts deserve our interest.

The engine represents not only a revolution in marine mobility; its history is also a revelation about innovation and ingenuity. Mystic Seaport Museum has over 450 engines in its Marine Engine Collection. We are fortunate to have this working example of an early Kahlenberg semi-diesel engine (designed 1922, built 1930), which illustrates a piece of the transition in marine propulsion from steam to internal combustion.

At 24 horsepower and 1,800 pounds, this heavy-duty engine is suitable for use on commercial vessels and is a remarkable example of the early development of marine diesels. Ours was installed in the vessel *Owenee* in Wisconsin; we have been able to learn nothing of the vessel itself.

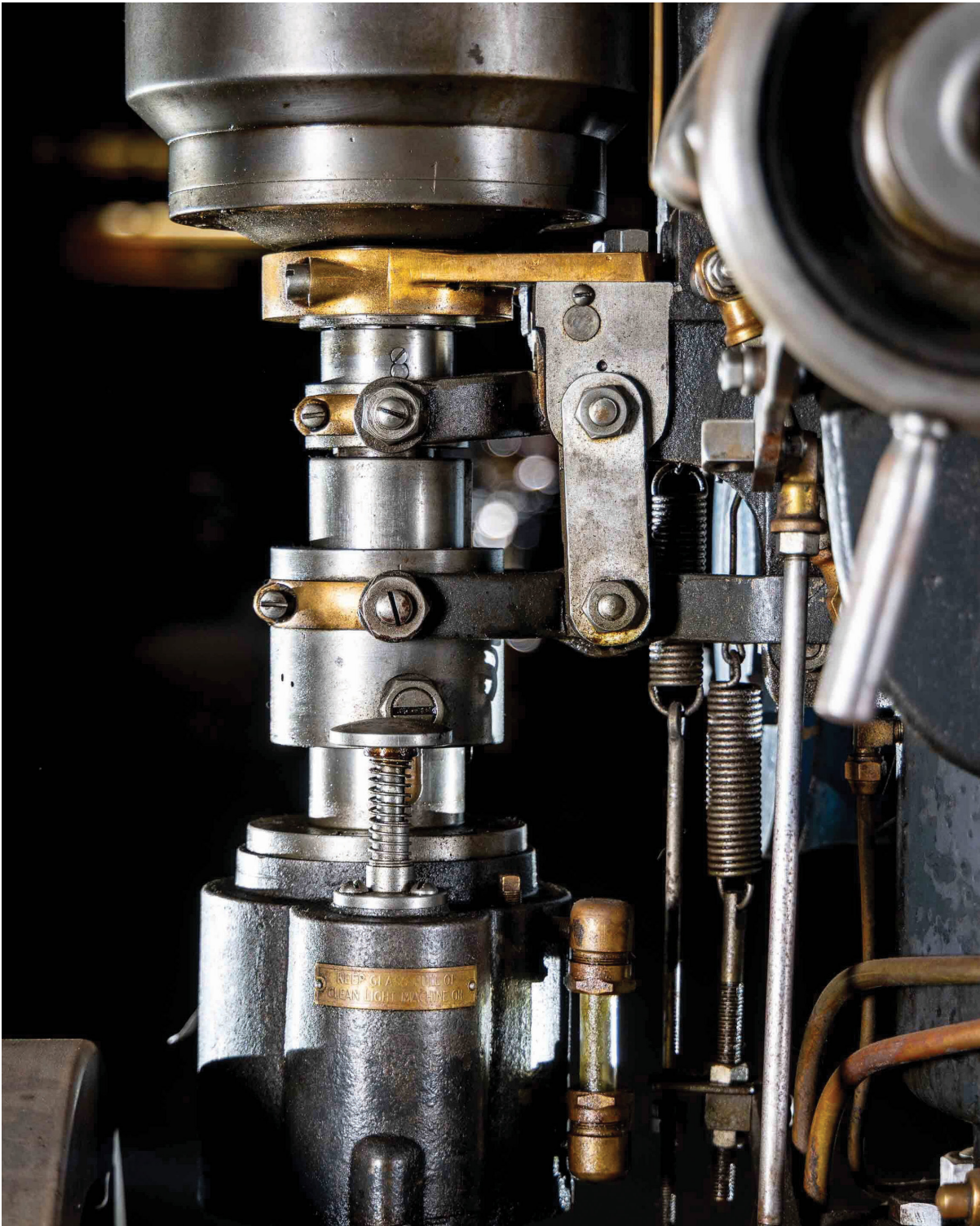
The manufacturer was Kahlenberg Brothers Company, located in Two Rivers, Wisconsin. Founded in 1895 by three brothers, Otto, Wil-

liam, and John Kahlenberg, the firm initially produced small marine steam and stationary engines. With the success of their first engines, the brothers launched into a market for larger, heavy-duty engines for commercial fishing and large work vessels, and in 1898 they produced their first gasoline design. It was installed in a Mackinaw fishing boat, and this large engine started the firm's reputation for tough, highly reliable products.

By 1914, Kahlenberg was building something new and even more innovative—a semi-diesel design that featured a white gasoline-fueled start, but whose operation switched to diesel fuel once running. This early stop-gap arrangement solved the problem of cold starting in harsh winters, an early impediment for diesel engines that limited their usefulness—if you can't start it, it will never take you anywhere.

After that initial 1914 design, Kahlenberg sought further solutions to improve reliability and starting. In 1922, the company finalized the design for a range of engines that were fundamentally similar to the engine in our collection.

Specifically, our engine is a Kahlenberg hot-tube, semi-diesel design that mostly operates on marine oil (coal or fuel oil), but can burn a range of fuels, a big advantage in the resource-deprived era of the early Depression years. The hot tube refers to the need to preheat the cold combustion



Detail of the Kahlenberg engine



Detail of the Kahlenberg engine

chamber before igniting the fuel. This brings the engine up to a temperature that allows the diesel fuel to ignite without full compression of the air-fuel mixture. Those familiar with diesels will know the term glow plug, and the hot tube works like an early glow plug.

A hot tube accomplishes the preheating of the cylinder through a small built-in kerosene torch for each cylinder that is manually fired by lighting a match during the starting sequence. Once started, the engine runs on its marine fuel oil without any further external heating by the kerosene torches. Because of this hot-tube design, this Kahlenberg is a rugged engine that was widely known for its reliability, power, and ability to start in all conditions.

Another innovation was that Kahlenberg engines were based on a modular concept, so they were available in two-, four-, and six-cylinder models, with piston sizes that ranged from a relatively small 7-inch bore by 7½-inch stroke, up

to a 12½-inch bore by 14-inch stroke in the largest models. Their engines developed a worldwide reputation as fine heavy-duty machines, whether in smaller configurations, like our two-cylinder model, or up to the largest, a six-cylinder, 200+ horsepower monster.

The Kahlenberg company is still in business under the original family ownership in Wisconsin, although it now produces other marine products. The last Kahlenberg engine was built in 1964. Under the leadership of Erick and Steve Kahlenberg, the company's product line diversified to its current production of propellers, signaling horns, and related marine equipment for a world market.

The Kahlenberg in the Mystic Seaport Museum collection was donated in 2018 and restored to operating condition in the following year by volunteer Nate Rosebrook and Engine Collections Curator Scott Noseworthy.