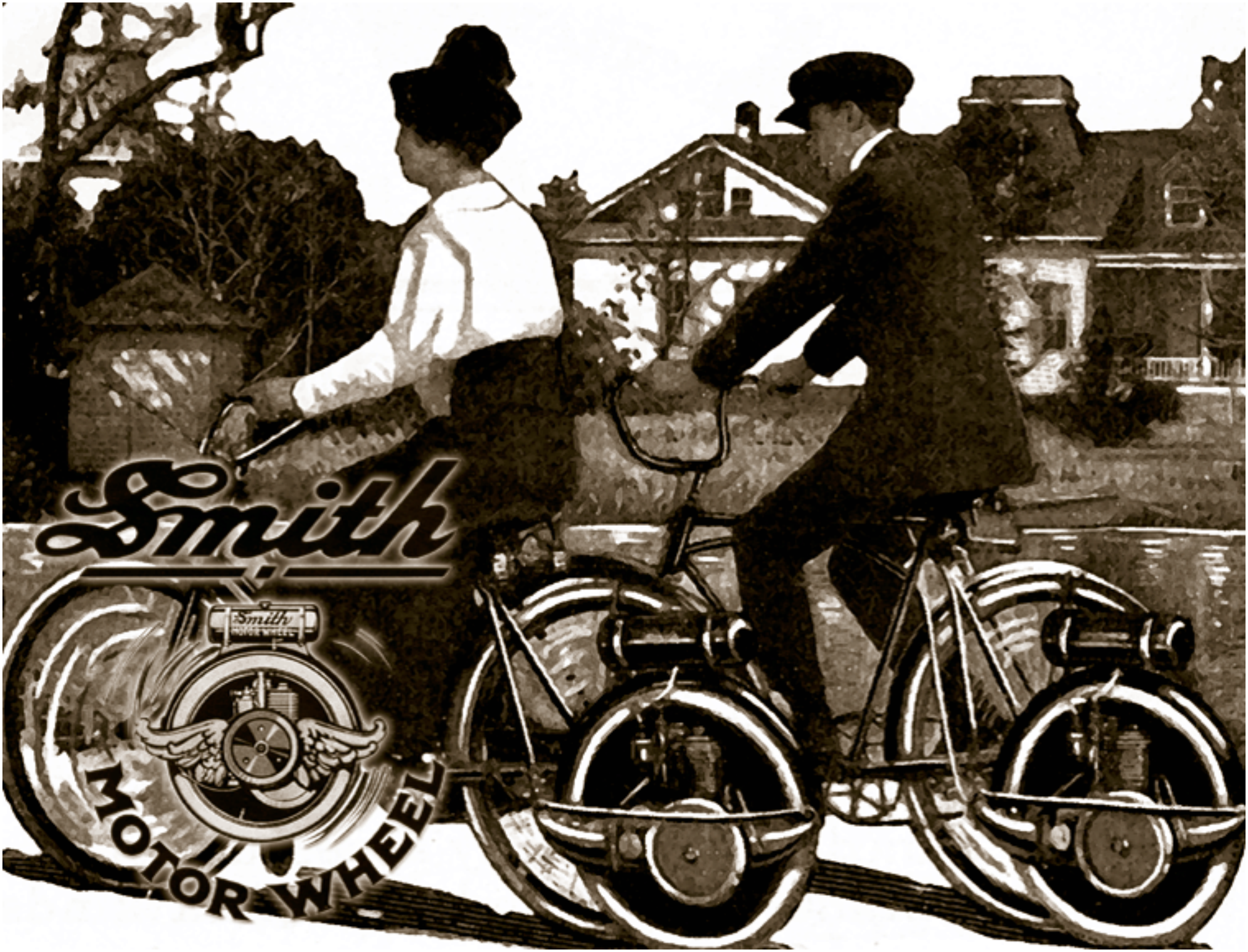

Smith
Smith
MOTOR WHEEL

Riders on a Flyer and a bicycle, both equipped with Smith Motor Wheels, hail each other in passing. 1918 photo from the John H. Jackson Collection.

THE MOTOR WHEEL

By Jim Altman

The first powered wheel was conceived by a man named Wall in England around 1910-11, and its sole purpose was to propel bicycles. Called the Wall Auto Wheel after its inventor, the device became very popular in Great Britain and many were made and sold. The manufacturer was International Auto Wheel Co., Ltd.

The early Wall Auto Wheel was made from a 20" wire spoke wheel in a tubular frame that held a one-horsepower air-cooled engine. This was chain driven off the two-lobe camshaft for lifting the exhaust valve. Gearing of the camshaft to the crankshaft was 4 to 1.

The Auto Wheel made its appearance on the American scene when the U. S. manufacturing rights were acquired by the A. O. Smith Company* of Milwaukee, Wisconsin. October 1914 saw the first Smith Motor Wheel produced and advertised for sale. The handsome new Smith model, painted bright red, promptly hit pay dirt. The company opened a separate plant on Park Street, Milwaukee to manufacture Smith Motor Wheels and had offices on 27th Street.

**Later changed to "A. O. Smith Corporation."*

The Smith Wheel was quite advanced in comparison with the Wall machine. The chain drive and wire spoke wheel were eliminated. By using a four-lobe camshaft to lift the exhaust valve, the gearing was 8 to 1, thereby attaching a 20" disc wheel directly to the camshaft.

The main frame structure was the two "horns" attached to the crankcase which held the fender and gas tank. This motor had an orifice type oil system for the rod and bearings.

The 1914 and 1915 Smith Motor Wheels were known as "A" models and, with one exception, were identical. The flywheel of the 1914 model was plain; the 1915 flywheel was embossed with the name "Smith Motor Wheel."

In the years 1914 to 1918, many thousands of Smith Motor Wheels were made and sold. At times when employees were going to and from work, hundreds of the powered bicycles could be seen coming along the roads, the riders' dinner pails hanging by straps from their shoulders.

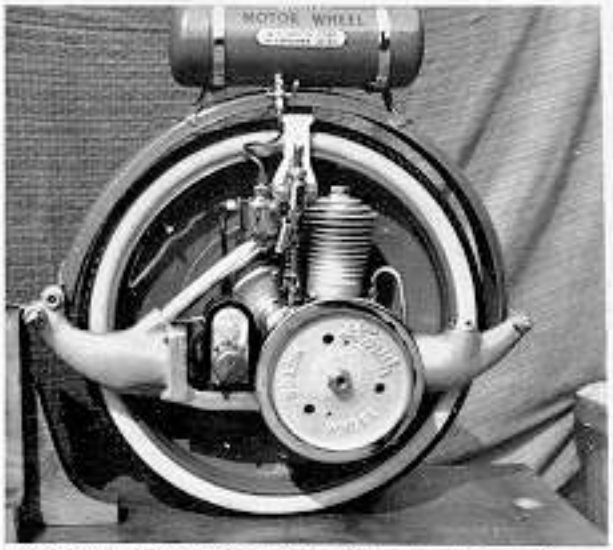
Although the Smith Motor Wheel remained basically the same, there were minor improvements through the years. It is possible to tell the year of the Motor Wheel by these changes:

The 1914-15 model A's had a shallow crankcase and no oil sight gauge. In model B, 1916, the Motor Wheel became more dependable when the crankcase was made deeper and a spring-loaded oil pump and round glass oil sight gauge were added. (There were no oil drain plugs). Also, since 1916 was a World War I year, the roller bearings were replaced by bronze bearings. This worked well with only a slight power loss.

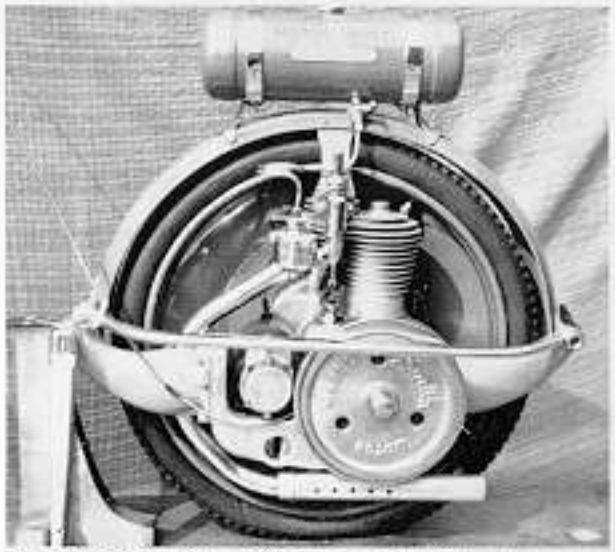
In the BA model of late 1916 and 1917, roller bearings were used again and a drain plug was added under the glass oil sight gauge. Then came the 1918 model C which was destined to be the last model of the Smith Motor Wheel. The only change was the intake cage which was held in place by a "C" clamp instead of the older screw-in cages.

In May 1919, the manufacturing rights of the Smith Motor Wheel were purchased by the Briggs & Stratton Corporation of Milwaukee, a company which needs no introduction to ANTIQUE AUTOMOBILE readers. Upon acquisition of the Motor Wheel, Briggs & Stratton made some major changes in it. A larger (2½") bore cylinder was used, along with an all-steel connecting rod with bronze inserts and a flywheel magneto. This motor was a good runner, developing about two horsepower. Briggs & Stratton continued to manufacture the Motor Wheel until 1924. Early in 1924, the Motor Wheel and

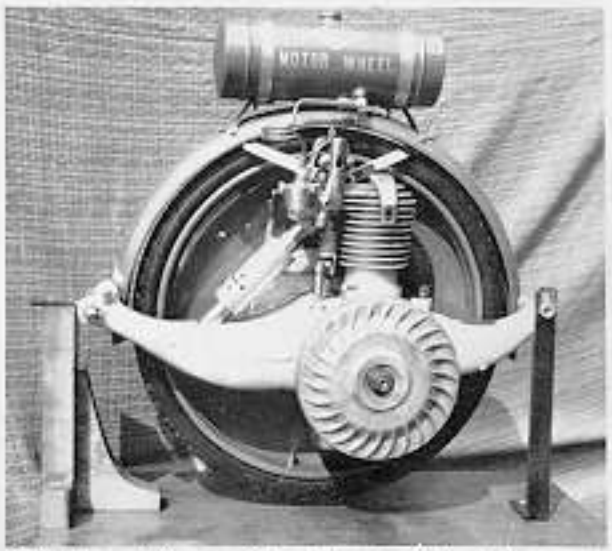
1912 Wall Auto Wheel with chain drive and wire wheel. Photo from the Montagu Motor Museum collection in England.



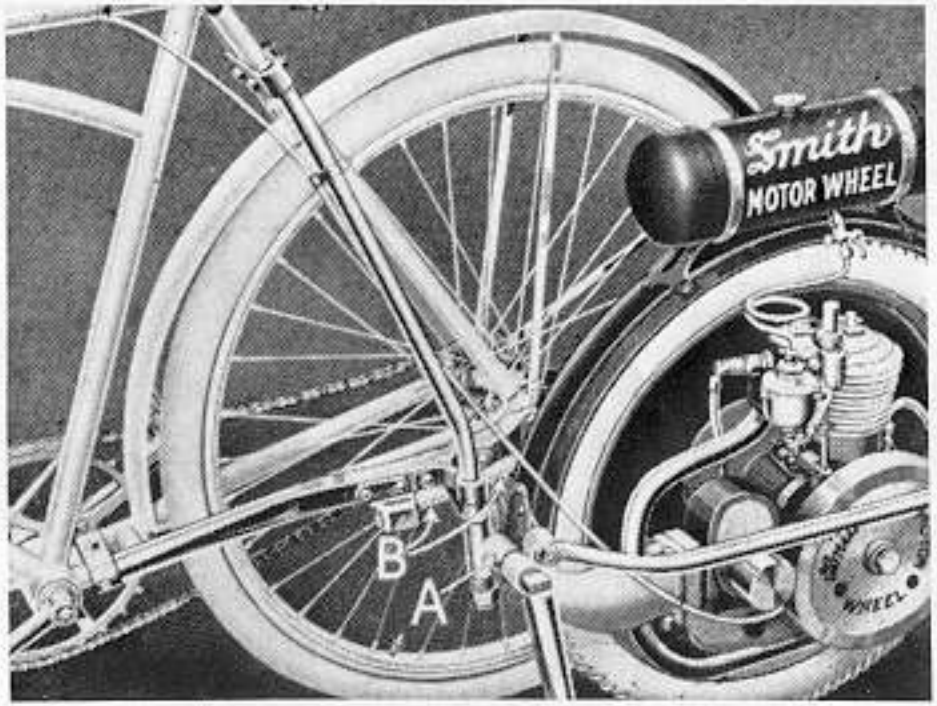
1915 Smith Motor Wheel. Note short exhaust pipe. There is no sight oil level gauge. Photo from the Altman Collection.



The 1916 Smith Motor Wheel had a sight oil level gauge and a long exhaust pipe with muffler. Photo from the Altman Collection.



1920 Briggs & Stratton Motor Wheel with flywheel magneto. Photo from the Altman Collection.



Smith Motor Wheel mounted on the rear wheel of a bicycle. From a 1916 A. O. Smith Company catalog. Photo from the Automotive History Collection, Detroit Public Library.

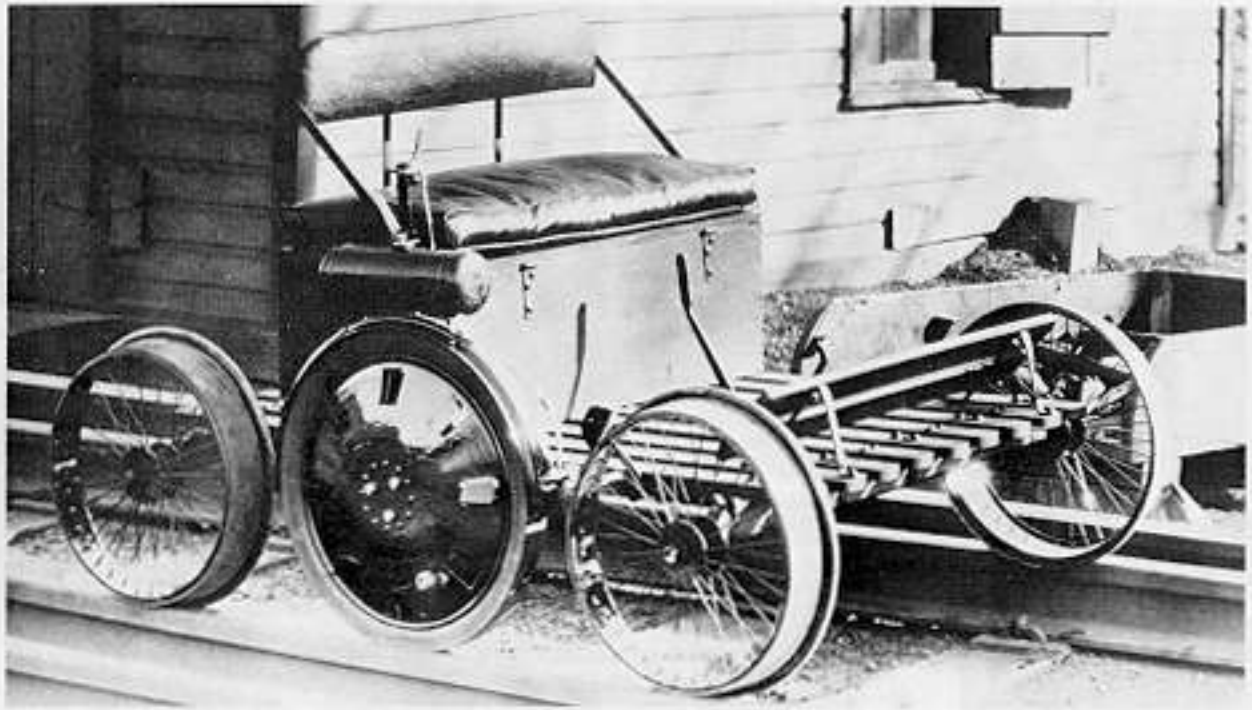
related items were sold to the Automotive Electric Service Corporation.

Meantime, at Briggs & Stratton, the Motor Wheel became the "father" of the B & S motor as it is known today. Using an engine similar to the Motor Wheel, Briggs & Stratton Corporation started to manufacture stationary engines for cultivators and other small equipment. Today, countless thousands of B & S motors are in use on cultivators, lawn mowers, snow blowers, etc.

The Buckboard and Other Motor Wheel Applications

Although the Motor Wheel was originally designed for use on bicycles, it was adapted in several interesting applications for other vehicles, notably the appealing little buckboard.

In 1916, the Automotive Electric Service Corporation of North Bergen, N. J. designed for A. O. Smith Company a small, low-slung vehicle called the buckboard which was to become known more familiarly as the Smith Flyer. The buckboard-Flyer consisted of a wooden platform, a seat, steering wheel



Another unusual use of the Motor Wheel was on this railway inspection car. Briggs & Stratton photo.

An interesting application of the Briggs & Stratton Motor Wheel - used here as a towing device for ice-skaters. Briggs & Stratton photo.

Two bicycles equipped with Smith Motor Wheels, around 1917-18. Photo from the Automotive History Collection, Detroit Public Library.

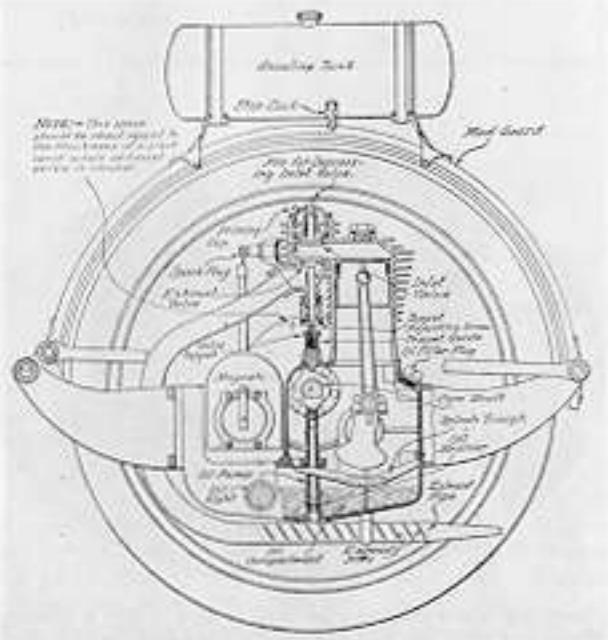
Picture of a 1918 Smith Flyer which appeared in MOTOR WHEELING MAGAZINE. Photo from the John H. Jackson Collection.

About the Author

Author and AACA member Jim (James F.) Altman is the owner of Altman's of New Kensington, Pa., restorers of sports, classic and antique automobiles. He is well-versed on the subject of Motor Wheels since he has what is believed to be the largest collection of Motor Wheel literature in existence. In addition, Jim has completed the restoration of some fourteen Motor Wheels for owners, plus four buckboard-Flyers. Among these, three won Junior Firsts and one a Senior award at AACA meets.

S. F. Briggs (at the wheel) and H. M. Stratton took a ride in a Briggs & Stratton Flyer, about 1920. Briggs & Stratton photo.

and four conventional wheels plus a Smith Motor Wheel mounted at the center back to supply the motive power. Two seats accommodated the driver and a passenger. Price of the vehicle in 1917 was



Factory cutaway diagram of 1917 Smith Motor Wheel. Photo from the Altman Collection.

$135.00 including the Motor Wheel.

One model of the buckboard-Flyer was used as a delivery vehicle with the right seat removed and a box attached in its place. Another version had flanged wheels, a raised seat and a Smith Motor Wheel mounted on the side. It was used as a railway inspection car.

In 1917, the Dayton Sewing Machine Company experimented with a motorcycle, using the Smith Motor Wheel in specially made front forks. The disc wheel was a little larger than usual, about 24", and had fins for better cooling.

When Briggs & Stratton acquired the Motor Wheel manufacturing rights in 1919, they continued

In this photograph, a Motor Wheel powers a Briggs & Stratton Scooter.

A smiling young lady poses with a bicycle equipped with a Smith Motor Wheel at the A. O. Smith Corporation's museum. Photo from Briggs & Stratton Corporation.

to market the buckboard as the Briggs & Stratton Flyer. It was also marketed for a time as the Auto Red Bug. A 1920-23 B & S catalog shows a picture of a buckboard identified by the Auto Red Bug name. The firm also made a scooter with a B & S Motor Wheel at the rear. The scooter had a bicycle seat, was steered by handlebars and had a low platform between the front and back wheels. The brake was a pad with lining attached and this rubbed the flywheel of the scooter.

In another adaptation, the Motor Wheel was used as a towing device for ice skaters. F. P. Stratton, vice president of Briggs & Stratton Corporation, also recalls that, as a boy, his 12-passenger Flexible Flyer sled was driven by two Motor Wheels.

Although A. O. Smith Corporation and Briggs & Stratton long ago gave up the manufacture of Motor Wheels, buckboards and related items, both continued to flourish in other lines of manufacture and are today, as is well known, thriving members of the U. S. industrial complex.

From the "antiquer's" standpoint, Motor Wheel-equipped bicycles and the buckboard-Flyers may be small in size but their appeal for collectors is very big. Since they take up little storage room, many have been saved from a junkyard fate and await discovery by alert restorers. The collector who uncovers one of these interesting vehicles can have a lot of fun restoring it — and showing it at AACA meets.

Credits

My thanks to the Lebau Museum of England, to Ted Hodgdon, F. P. Stratton and others who generously supplied me with Motor Wheel information.

Jim Altman

These two ladies in what is believed to be a Briggs & Stratton Flyer circa 1920 were winners in the "Red Bug Race" at Palm Beach, Florida. Photo from the Automotive History Collection, Detroit Public Library.