



THE MAN WHO PIONEERED for the tank and the tractor was Henry T. Stith, who, 71 years ago, made the model with which he is shown. His patent of seven years later is reproduced at the right. Besides being an ingenious mechanic and inventor, Stith was a clever ventriloquist and a successful Kansas farmer

## The Tank Tread Was His Baby

But he invented it away back in the '70's before the internal-combustion engine and tractor had been developed. First applications were to a streetcar and his son's bicycle.

SEVENTY-ONE years ago this summer, a Kansas farmer patented a wheel that carried its own track. This was an idea comparable to the invention of the chariot. Placing soldiers on wheels made blitz attacks possible; providing them with caterpillar treads has empowered them to go anywhere, with heavy guns and armor. But, like the inventor of the chariot, the Kansas farmer-inventor has been forgotten.

He was Henry T. Stith, a Civil War veteran and a ventriloquist and sleight-of-hand performer as well as a Kansas pioneer and ingenious mechanic. He put his track-toting wheel assembly on a horse-drawn streetcar and exhibited it at a Kansas City fair in 1879. He also built a crawler tread for his son's bicycle.

But Stith had his big idea too soon. He designed his first "elliptical wheel with an endless supporting track" three years before the granddaddy of the modern automotive gasoline engine was built. And his new kind of wheel was not widely appre-

ciated until the internal-combustion engine had been perfected.

In 1904, when Stith was 65 years old, Benjamin Holt, a California tractor manufacturer, designed a sectional, track-laying wheel that was used on farm machinery. And in 1916, the year after Stith died, the British started the first tanks rumbling across no man's land in France. Such traction has since caused revolutionary changes in both agriculture and warfare.

Many of the big prime movers of the world's armies travel now on caterpillar treads. They have made possible such feats as the rapid clearing of jungles for airports, the tapping of new resources in Russia, and the quick construction of the Alaska highway. Countless hours of labor have been saved by these big machines. A sure-footed bulldozer is likely to be the first vehicle ashore in every invasion now. And machines that carry their own tracks can move heavy guns across soft, sandy shores and over hitherto impassable roads, despite a hail of bullets, to shove cannon on self-propelled mounts right up to the foe's nose.

Moving tracks similar to those that Stith built long ago not only compensate for unevenness of the ground, as he intended, but also make it possible for a mighty machine to walk nearly as lightly as a man. The pressure on the ground from a 30-ton caterpillar tank is less than 13 pounds per square inch. And a tank, gripping the earth with many cleats, can roll through muck and mire in which ordinary wheels would spin and sink.



## HE TRIED IT ON A BICYCLE

WORSE THINGS can happen to a boy than being an inventor's son. Stith fitted his lad's bicycle (patent drawing at left) with a crawler tread when U. S. Grant was U. S. President. Even with its speed limitations, it would still be the envy of every war-conscious boy in the neighborhood

Henry Stith did not foresee all the uses to which the world has put such an improvement on wheels. But he turned down \$50,000 for the rights to the brightly painted red-and-yellow Patent Traction Street Railway that he took to a fair, because he thought it was worth millions. It was his favorite among his many inventions.

As a boy, born in Tennessee in 1839 and growing up near Springfield, Ill., he had learned ventriloquism. To enlarge his repertoire as an entertainer, he then began inventing sleight-of-hand tricks. He continued to perfect such tricks and give shows, to bolster his income in lean years, after settling down to farm near Ottawa, Kans.

Stith built a new kind of rat trap, which is still widely used, and swapped the rights to it for 120 acres of land. He also patented roller bearings, invented a puzzle-purse, and made himself a typewriter. His neighbors laughed when he sat down to type, but he wrote with his homemade machine for many years.

He patented his elliptical wheel three times; in 1873, 1880, and 1900. The last patent dealt with its application to a bicycle. (His son still has the bicycle that Stith provided with crawler traction.) But the inventor's friends discouraged him. He became engrossed in farming and was disinclined to risk more money on his elliptical wheel. And his comfortable financial condition when he died was a consequence of his acquisition of a thousand acres of farm land rather than his most portentous idea.

He thought of his invention as a contribution to constructive enterprise rather than as an aid to warfare. But his children believe that, if the use of caterpillar treads now hastens the overthrow of the foes of human progress, their father would be proud to be known as the man whose idea made tanks possible.

## ON MODERN BATTLEFIELDS



TRACKED MOTORCYCLE captured from the Nazis in Africa carries a driver with two passengers or an equivalent load in light weapons or ammunition. The steering wheel can be shed in swampy terrain

LUSTY GRANDCHILD of Stith's invention of a lifetime ago is this tank of World War II—the fire-belching, hard-hitting mobile fortress that is manned by modern American rough riders

