Witte Engine Works
Kansas City, Missouri

In the 1916 Witte catalog, Ed H. Witte, President of the company, included a brief history of their operation as part of a personal letter to customers. From Witte's own pen it is learned that his father, August Witte, organized Witte Iron Works at Kansas City in 1870. Ed Witte served his apprenticeship in the foundry as a brass moulder, iron moulder, machinist, metallurgist, and finally as a steam engine designer. By the time August Witte retired in 1886, Ed Witte had already built a crude but workable gas engine using hot tube ignition. Company records indicate however, that actual production of the Witte standard and Star engines did not begin until August, 1894. In direct contradiction is a 1904 article in *The Gas Engine* indicating that production actually began in 1888. Some years later, in 1924, Witte received Trademark No. 197,975 as used on their internal combustion engines. In their application for said mark, Witte claimed first use on internal combustion engines in 1883. The Author leaves it to the reader to choose the correct data on this subject. Regardless of these apparent conflicts, Witte standard and Star engine styles were built until November, 1914. A 1900 catalog indicates that these impressive sideshaft engines were available in 4, 6, 8, 10, 12, 15, 20, 25, 30, and 40 horsepower sizes for stationary use. Portables could be supplied in any size up to and including 25 horsepower, and geared, single drum engine hoists were available in models up to 40 horsepower.

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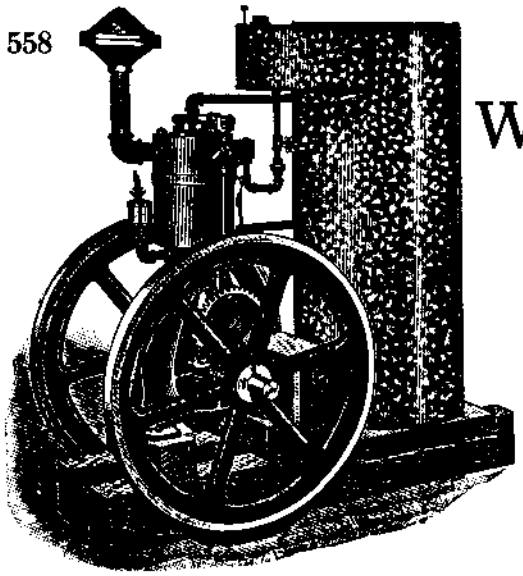
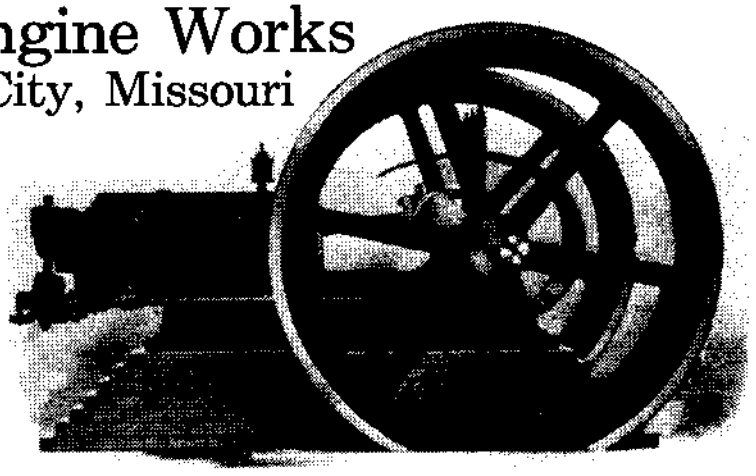
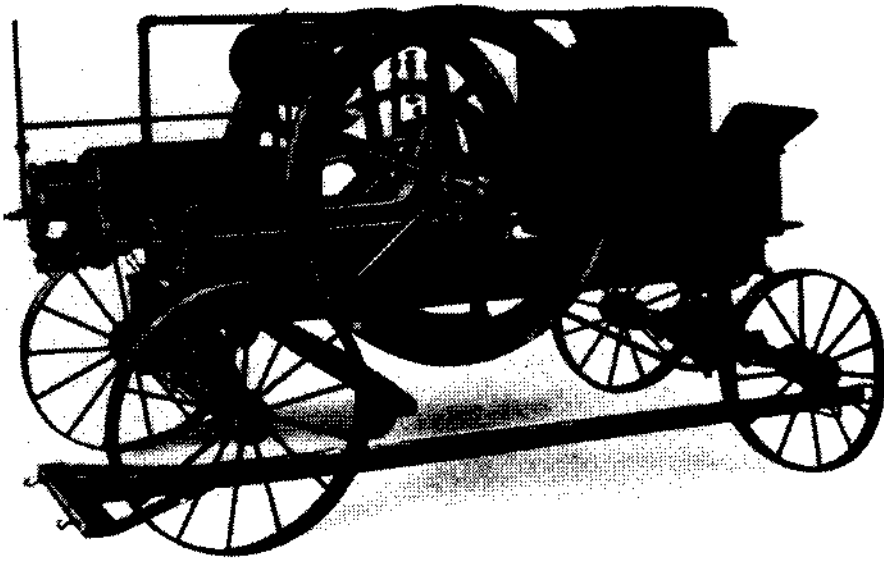


Virtually nothing is known of this Witte vertical engine, advertised in a 1905 issue of *Blacksmith & Wheelwright*. Apparently it was built only in a 4 horsepower size, and from the tenor of Witte's advertising pitch it was intended especially for blacksmith shops and similar duties. Some time prior to 1904, Witte had two separate organizations—Witte Iron Works at Kansas City, plus the Witte Gas & Gasoline Engine Company at Chicago. The latter firm was a marketing arm with headquarters at 43 South Canal Street. Regular features included a forged steel crankshaft, splash lubrication, and all accessories as shown in this illustration. In addition, Witte packed the necessary tools, oil cups, and instruction books with each order.

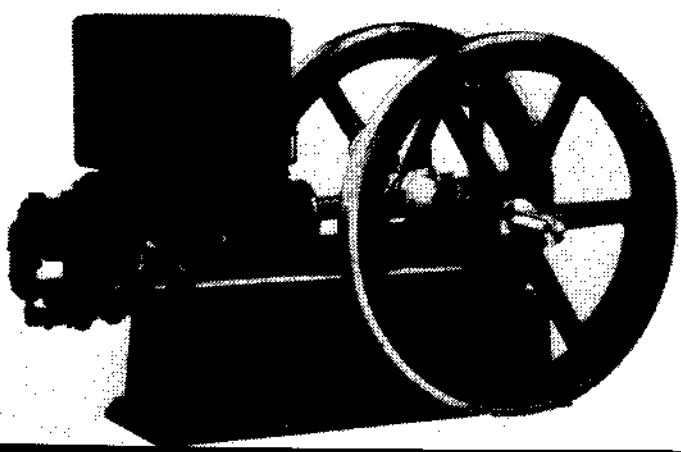


A 1913 Witte catalog indicates that only the 25, 30, and 40 horsepower engines were then available in the original sideshaft design. Even this engine was modified considerably from the early styles, although Witte still maintained an exceptionally long frame design. This was necessitated by Witte's use of a connecting rod averaging 2½ times the engine stroke. While this plan minimized excessive wear on both the cylinder and piston, it did of course make the engine somewhat longer than usual. Top speed of this big 40 horsepower model was 220 RPM. Shipping weight came to 8,500 pounds.

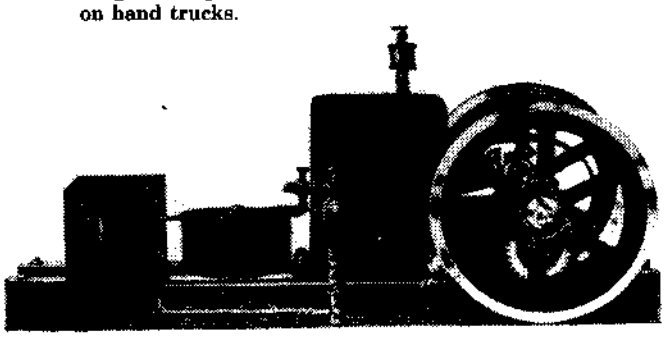


Witte portables of 1913 included this attractive sideshaft model in 25 and 30 horsepower sizes. Both models were equally impressive, both from the standpoint of attractiveness, as well as design. Exceptionally heavy trucks were used—a huge cast iron bolster is evident above the front axle. A water circulating pump came as standard equipment—in fact the package unit shown here included everything illustrated, plus the usual lubricators, wrenches, instructions, and other necessities for turnkey operation. Shipping weight of the 25 horsepower model came to 6,000 pounds—these 3 tons, plus another 400 pounds gave the shipping weight for the 30 horsepower model.

As previously noted, Witte continued production of the sideshaft design until November, 1914. By the time production ended, Witte was offering the sideshaft model in an open jacket, hopper cooled design as an alternative to the usual closed jacket style. Witte simplicity is evident, even in this high quality engine. Rather than use a complicated series of linkages, Witte mounted the governor directly on the sideshaft—it worked directly on the detent with a single arm. Even the company records remain unclear as to whether a few of these engines might have been built after production ended in 1914. Since Witte no doubt still had the necessary patterns and jigs to manufacture these engines, it is entirely possible that a limited number might have been built on special order.



In January, 1911 Witte embarked on an entirely new engine line. The model of simplicity, these engines were the first Witte models to carry the walking beam valve mechanism that characterized the entire Witte line until November, 1923. The little 1½ horsepower Witte Junior shown here remained in production for only a couple of years. Apparently Witte concluded that the 2 horsepower model was sufficient to handle the bottom end of the line. This attractive little engine had a rated speed of 675 RPM and weighed 300 pounds. It was also available from the factory on hand trucks.



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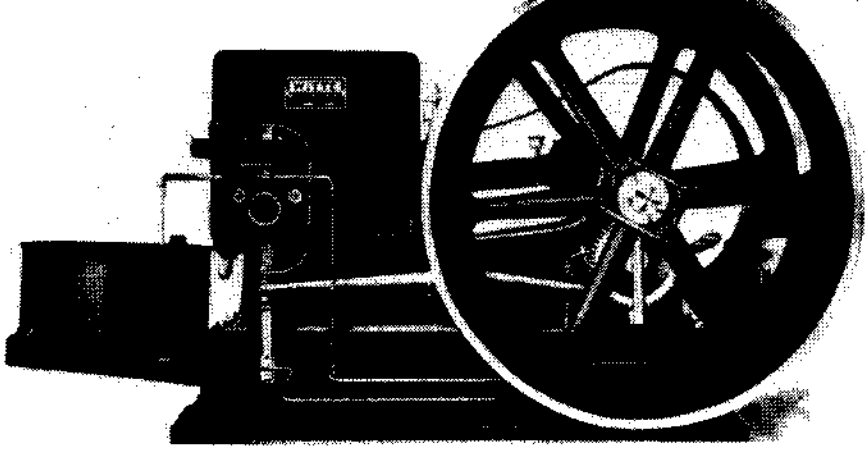
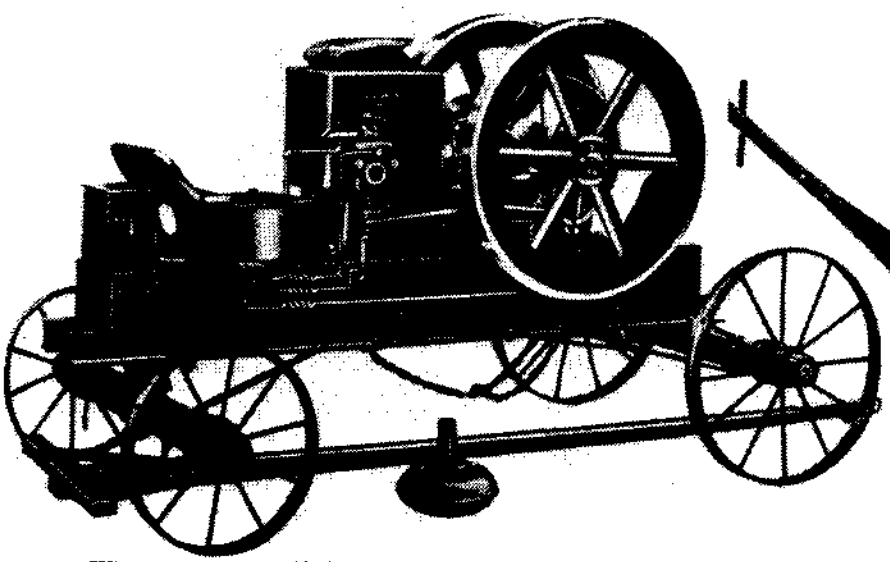
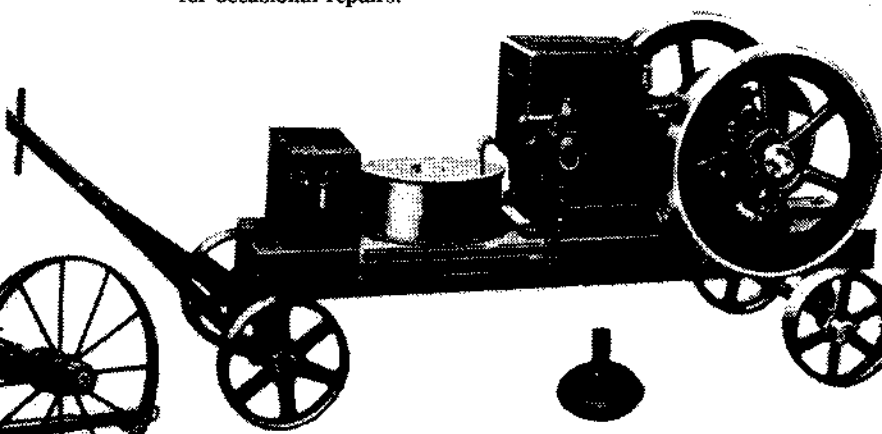


The Witte Junior line of 1913 included 2, 4, 6, 8, and 11 horsepower sizes. With their initial announcement in October, 1911, Witte did not include the 11 horsepower engine—it was obviously added within the next year. Various Witte catalogs present nothing in the way of detailed specifications such as the bore and stroke of various models, thus it is difficult to determine whether subsequently re-rated engines were actually a new model, or simply an upward revision of previous styles. Witte's Junior engine series included the cylinder and base in a single casting. Likewise the cylinder head was integral, eliminating problems from leaky gaskets and lowering production costs. Both valves were located in a single casting that was easily removed from the cylinder for occasional repairs.



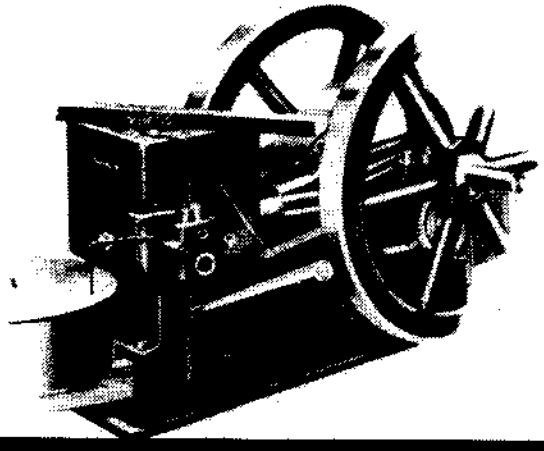
Witte portables for 1916 were also available in 6, 8, 12, 16, and 22 horsepower sizes. Shown here is the engine style for the three smallest models. Although the engine itself was set on heavy wooden skids, this unit was then attached to steel channels on the truck itself. An elaborate wiring job from the coil box to the engine is evident, and in a curious move, Witte mounted the driver's seat on top of the water hopper. While the 6 horsepower portable listed at $127.75, the 8 horsepower model sold at $175—Witte asked $237 for the 12 horsepower portable. In addition, Witte's 1916 offering included portable sawing outfits in 4, 6, 8, and 12 horsepower models with prices ranging from $125 to $267.

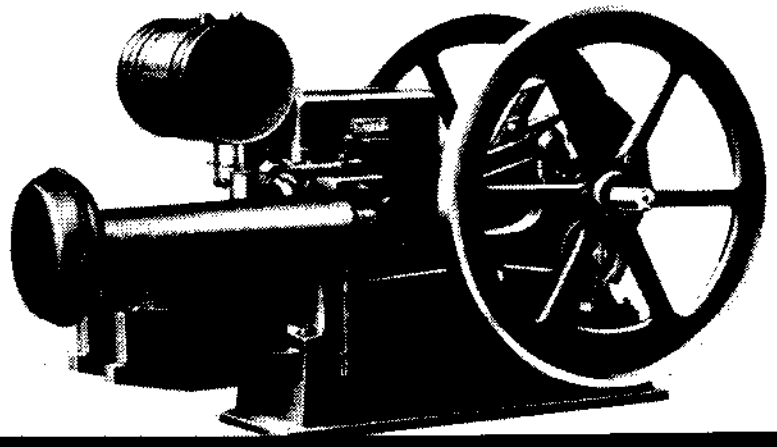
Witte's 1916 catalog attempted to allay the fears of prospective customers by noting that anyone could be his own mechanic, just by reading the Witte instruction manual. To illustrate the point, a catalog illustration depicts the method of checking ignition timing. By using any available scantling for a straight edge, it was quite simple to line up the flywheel mark with the top of the water hopper. Precisely at this time, ignition was to occur, and by removing the spark plug and laying it on top of the engine, anyone could easily determine whether the ignition timing was properly adjusted. Similar explanations were included for valve and carburetor adjustments.

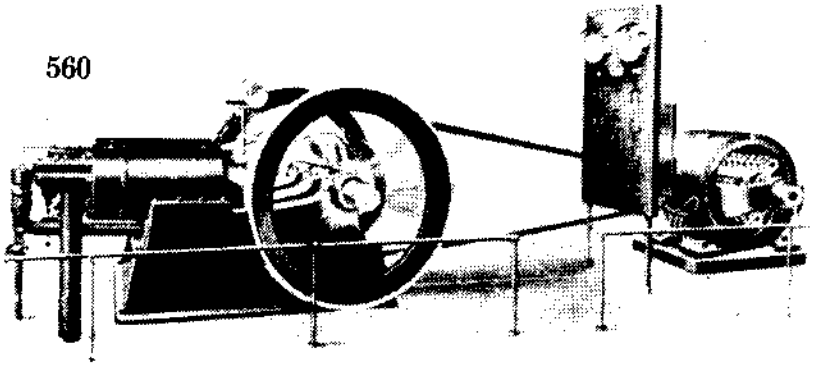


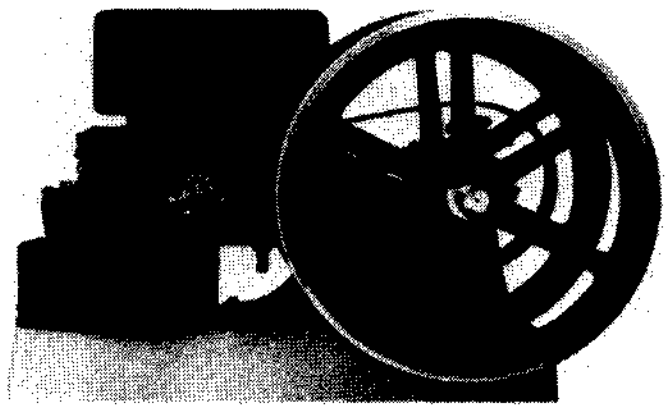
As a mailorder merchant, Ed Witte had few equals. His catalogs rank among some of the most colorful and explicit in the entire engine industry. Sumptuous three-color illustrations of the engines certainly were a boost to sales, and the technical data was written in the language of the farmer. In noting the guaranteed horsepower output of their engines, plus a reserve capacity of 30 to 50%, Witte asked his customers to appreciate the extra measure received when buying one of his engines. In a 1916 catalog he went on to say: "Short measure in selling never brings success. The grocer who sells a small (short measure) bushel of potatoes at a few cents reduction is not liberal with you. So it is with engines." Shown here are the 2, 3, and 4 horsepower Witte Junior engines of 1916. When set on portable trucks as shown here, these engines carried respective prices of $39.95, $60.50, and $82.75.

Regardless of size, Witte Junior engines were virtually identical except for physical size. This big 22 horsepower stationary model was priced at only $359 compared to $279 for the 16 horsepower stationary style. Although many of the Witte engine features were embodied in competitive makes, the company nevertheless cited "thirty distinctive points of superiority" for their 1916 line. One of the most noticeable points was the single rocker side lever valve operating mechanism, also known as a walking beam system. The Witte design also preheated the incoming air-fuel mixture by passing it over the exhaust valve. This principle was later enhanced in Witte's volume governed engines. The Witte Junior line featured hit-and-miss governing along with spark plug ignition.









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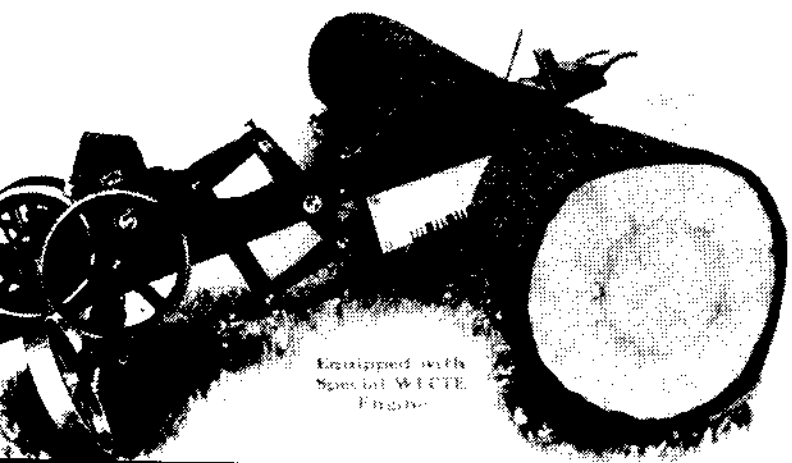
Whether Witte built any more than this single 200 horsepower engine remains unknown. Several Witte catalogs illustrate this particular specimen operating as the prime mover in the Witte factory. Possibly it was built for this utilitarian duty, along with being a marvel to prospective customers visiting the Witte factory. Obviously the Witte factory had the capability of erecting large engines, although there is no indication that they did so. As Witte pointed out, this engine required no boiler, engineer, smokestack, or license. Also of note, the Meco engines sold by Manufacturers Engine Company were built in the Witte factory from September, 1915 until April, 1920. These engines began with Serial Number A-1000 and ended with No. A-5950. Witte and Meco engines appear interchangeably in the company shipping records. The Meco engine is illustrated on Page 290.

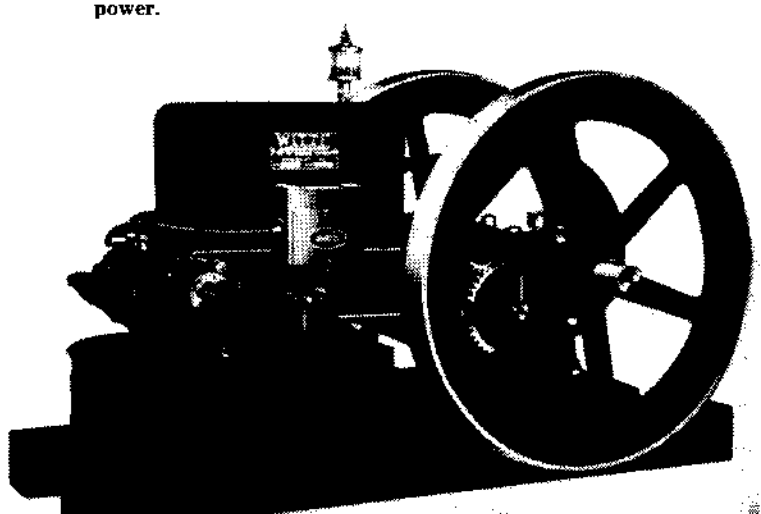
An entirely new volume governed engine was introduced by Witte in 1922. Although the first few were equipped with battery ignition, it is apparent that Bosch high tension magnetos were adapted soon after production began. This unit was standard equipment until November, 1923 when the Wico EK high tension magneto was adopted as standard equipment, and remained so for many years. Like their predecessors, these engines were finished in a dark green enamel comparable to DuPont Dulux No. 93-5800. Although this is considered to be reasonably close to the original finish, no claims are made concerning absolute accuracy.

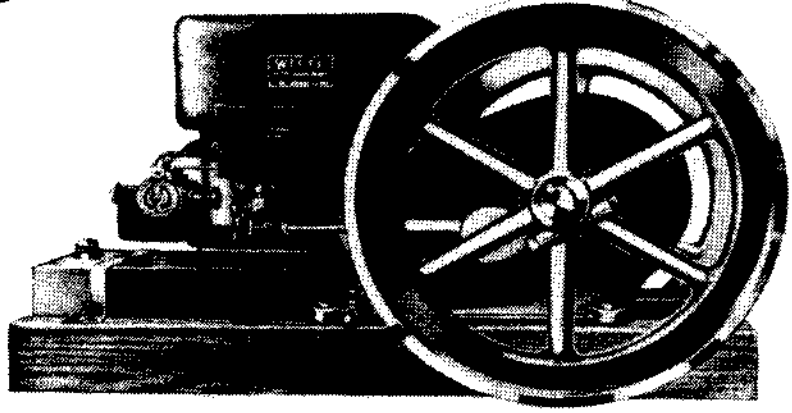
Witte log sawing outfits apparently went into production concurrently with the company's 1922 introduction of an entirely new engine line. This early example shows a 2 horsepower engine equipped with a Bosch high tension magneto. Since company records indicate that Wico ignition was used after November, 1923 this outfit was obviously one of the first log saws that Witte marketed. Although many features of this unit were unchanged in following years, the engine is noticeably different than those that followed. In fact, this particular engine was still of the early hit-and-miss variety, or possibly was converted into a volume governed design. Notable by its absence is the water hopper extension that characterized subsequent models.

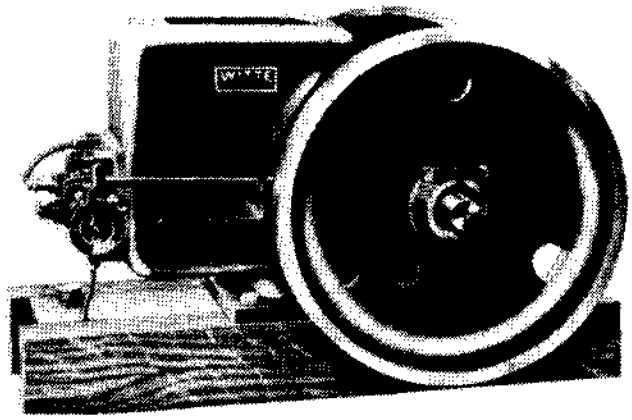
Log saws required a certain amount of work, but compared to the hand saw, it was not work at all to buck logs into firewood lengths. To further hasten the process, Witte also provided a circular sawing attachment at slight extra cost. With it, the operator could saw stove wood into short lengths while the log saw was busy on the other end. A 32 page instruction manual supplied with each log saw gave explicit instructions regarding not only the engine but also explained proper sawing techniques, filing the saw, and other necessary information. The scope of Witte's operation by 1923 was so great that authorized distributors were represented at Pittsburgh and San Francisco, in addition to the home office at Kansas City. Witte also maintained export warehouse stocks at New York City, New Orleans, and Laredo, Texas. Authorized Witte distributors were represented in 44 different countries from Albania to Venezuela.

Witte Type B and Type C engines were built from January, 1922 until September, 1927. This line was characterized by a one-piece cylinder and water hopper. At this juncture Witte catalogs began including detailed engine specifications, including the bore and stroke of each size. The 2 horsepower model carried a 3¾ x 5 inch dimension, with the 3, 5, and 7 horsepower engines carrying respective bore and stroke figures of 4¼ x 6, 5 x 6½, and 6 x 7½ inches. Type C hopper cooled engines of 10, 15, and 25 horsepower carried respective dimensions of 6½ x 9, 8½ x 11, and 10 x 14 inches. While Witte catalogs of earlier years had proclaimed their hit-and-miss governing system to be the logical choice, the 1924 catalog was just as emphatic in its endorsement of the throttling governor. Also included among the major features were a brand new all-fuel carburetor with an integral speed regulator. Due to the special cylinder head design, Witte claimed perfect fuel vaporization by use of their "hot spot" system. Actual horsepower ratings and model designations of the Type B engines varied from year to year. At one point, the Type B series included engines from 1½ to 12 horsepower.









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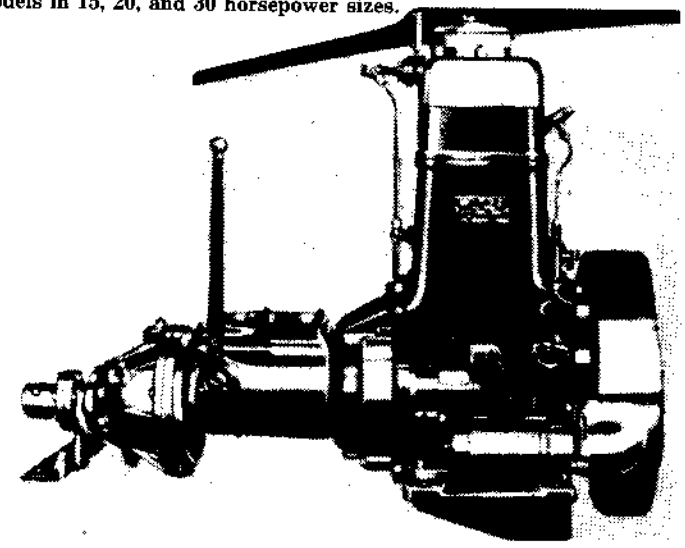
Type F and Type H Witte engines were introduced in September, 1927. They differed little from the earlier Type B and Type C engines except that those after 1927 used a two-piece cylinder and water hopper. Following this line came the Type J and Type K engines, similar to the earlier models except that an enclosed crankcase was featured. A 1936 price list indicates that all four models, F, H, J, and K were available in 2, 3, 4, 6, 8, and 10 horsepower sizes. The Type F was mounted on wood skids, while the Type H was equipped with an iron base. Type J engines were totally enclosed but used plain bearings, while the Type K engine was totally enclosed but carried Timken roller bearings for the mains. In addition, the 1936 Witte line also included heavy duty, closed jacket models in 15, 20, and 30 horsepower sizes.

For small jobs, Witte offered this Type U, 1½ horsepower engine. Carrying a 3¼ x 4 inch bore and stroke, this model only weighed 185 pounds. Since it was intended for light duty, an air cooled head was featured. The Wico high tension magneto remained as standard equipment. Although this engine was part of the Witte line during the late 1930s no definite production dates have yet emerged. Existing Witte records indicate that the company had an extremely complicated serial number system which seems to have no continuity whatever. As an example, two different engines shipped on the same day may have serial numbers that vary by several thousand, and an engine shipped on a given date may have a much higher serial number than another leaving the factory several years later. Given this type of data, establishing accurate production dates has been nearly impossible.



Witte Engine Works ventured into the diesel engine business during the early 1930s. Initially a 6 horsepower Type K engine was converted into a 5 horsepower horizontal diesel. Its success prompted the company to add a 10 horsepower model to the series, finally completing the horizontal line with a 7½ horsepower size. The Witte vertical diesel followed in 1938. Bosch injection equipment was featured using a differential needle valve directly into the combustion chamber. A tubular air cell in the piston head provided the necessary turbulence and insured complete combustion. Vertical models featured a special air cell, replacing the tubular style of the horizontal series. This modification greatly reduced combustion knock. Despite the Author's attempts to secure a useable cut of the Witte horizontal diesel, none were available for inclusion in this work. For purposes of identification, an example of the Witte horizontal diesel is pictured on page 6 of the November-December, 1977 issue of *Gas Engine Magazine.*

During the 1940s, Witte added this 36 horsepower, four cylinder diesel to the line. Shown here operating a 30 KW electric generator, it was yet another extension of the Witte Dieselectric line that began with the horizontal series. The exceptional ruggedness and stamina of Witte diesel engines eventually brought them to the attention of railroad officials for use on refrigerator cars. Eventually, thousands of Witte engines saw this duty, peaking during the 1950s. Typical examples are the Model 100 and Model 120 twin opposed engines with respective ratings of 19 and 27 horsepower. Although these could be shipped as plain engines, many thousands were equipped at the factory with direct-connected generators. Regular features included special automatic shutdown equipment in case of low oil pressure or high water temperature.

Witte single cylinder Model BD and CD engines of 1970 differed little from the Dieselectric horizontals introduced in the 1930s. With a maximum of 10 horsepower, the Model BD engine shown here was equipped with a 5.4KW generator as standard equipment. The slightly larger CD engine was capable of a 9 KW generator and a maximum output of 16 horsepower. Other 1970 models included the AD series, vertical engines of virtually identical design as the 1938 version. These could be supplied in four different models with ratings of 2.4 and 3 kilowatts. Witte Engine Company was purchased by United States Steel Company in 1944. The company began its new, privately owned operation in 1966 and in February, 1970, moved to its new location in Olathe, Kansas, just 25 miles south of Kansas City.