What Really Happened in Wichita in 1907

By Bruce E. Babcock and Robert T. Rhode

The Wichita Convention - At Toler Auditorium, April 2, 1907.
American Thresherman for May 1907, Page 3

On the Cover

Marshall portable steam engine No. 46817, built in 1907. This engine is part of the collection of the Rahmi M. Koc Museum in Istanbul, Turkey. The museum is the first museum in Turkey dedicated to transport, industry and communications. See story on Page 14. Photo courtesy of the museum.

Inside this Issue

Events at the Haymarket in Wichita

The year was 1907. It was the afternoon of April 4th, the third (and final) day of the gathering of threshermen billed as "The Wichita Convention." Steam traction engines were on display at the Haymarket, an open area on South Water Street not far from the Arkansas River. Earlier, Wilson R. Balderson (who was born in 1873 near Toledo, Ohio, grew up in Ontario, Canada, and died in 1918 in Missoula, Montana) had run a 16 HP Baker engine belted to a five-foot fan that the A. D. Baker Company had built. Balderson had spun the fan 693 RPM. He and John W. Albeck (who was born in 1879 in Flat Rock, Ohio, and died in 1946 in nearby Swanton) challenged

MARKET SQUARE AT WICHITA, KANSAS, CONVENTION WEEK.
American Thresherman for May 1907, Page 4

representatives of other manufacturers to try to spin the fan faster with their engines. The final contestant was Charles Leroy Keller (who was born near Bucyrus, Ohio, in 1880 and died in 1963 in Kansas City). "C. Leroy," as he was known, ran a 16 HP Huber engine, which pulled the fan 660 RPM: good for second place. The next day, the Wichita *Eagle* mentioned the fan contest in the seventeenth paragraph of an eighteen-paragraph story on the sixth page of the paper: "Several of the 16-horse power thresher engines were connected to a five-foot fan constructed especially to make resistance to power. The A. D. Baker engine won in the contest by running the fan 693 revolutions per minute. The new Huber was next with 660 revolutions per minute."

That was the story of the contest, which was so unremarkable that it was buried in the penultimate paragraph of an article confined to the sixth page of the paper. That should have been the end of the story.

THE A. D. BAKER CO.'S EXHIBIT DURING PNEUMATIC FAN CONTEST, WICHITA, KANSAS.

American Thresherman for May 1907, Page 4 (Note the fan housing.)

THE THRESHERMEN'S ASSOCIATION OF WICHITA, THE MEN WHO MADE WICHITA THE THRESHERMEN'S MECCA.

American Thresherman for May 1907, Page 5

The Birth of the Controversy

Abner D. Baker (who was born near Fredericktown, Ohio, in 1861 and died in Swanton in 1953) and *American Thresherman* editor-in-chief Bascom B. Clarke (who was born in the mountains of Virginia north of Roanoke and died in Madison, Wisconsin, in 1929) had no intention of letting the story end. First, Clarke published a photograph of the 16 HP Huber engine on page 8 of the May 1907 issue of his magazine with the caption "The Record Breaking Sixteen-Horse Huber at Wichita." The ambiguous adjective "record breaking" implied that the Huber might have won the contest, despite what the Wichita *Eagle* reported. Next, on page 85 of the June 1907 issue of *American Thresherman*, Baker paid for a full-page advertisement quoting Huber documents that claimed the Huber engine had pulled the fan a whopping 730 RPM! Baker surrounded the Huber declaration with this context: "The real truth about the engine tests at Wichita proves the A. D. Baker engine the victor. Order a Baker engine and get the real thing."

On page 6 of the July 1907 issue of *American Thresherman* and on page 32 of the same issue of *Threshermen's Review*, a copy of a letter Keller wrote to the Huber headquarters in Marion, Ohio, was published. Here is part of the document: "I want to say that this engine was put to the test with just the same pressure as it has been carrying, 160 pounds, while using it here during the convention. … We took the speed of our engine, 210 revolutions per minute with a 40 inch band pulley belted to the fan pulley, 11 ½ inches, making a speed on the fan of 730 revolutions." It is not difficult to identify what might have motivated Keller to gild the lily by reporting to the company headquarters that the Huber had actually won but had not been given credit for the win. The truthful alternative would

TRAIN SHIPMENT OF CASE MACHINERY BOUND FOR WICHITA, KANSAS.
American Thresherman for May 1907, Page 5 (Case was known for its calliope that played throughout the convention.)

have taken greater courage and might have been less conducive to job security.

Page 210 of Charles E. Whelan's biography entitled *Bascom Clarke: Southern Refugee* (Madison: American Thresherman, 1913) describes Clarke in these glowing terms: "The filing, furbishing, smoothing and trimming which came to Clarke as a machinery salesman and afterwards as publisher of *The American Thresherman* is a story in itself. ... He was undaunted by failure and unchanged in nature by success. Positive in his conviction he was just as positive in acknowledging an error. Having opinions, he was not opinionated. Firm in his beliefs, he was tolerant. ... Thus he grew in strength and self-reliance and upon his shoulders leaned more than one he had found fainting and weary by the roadside."

THE RECORD BREAKING SIXTEEN-HORSE HUBER AT WICHITA.
American Thresherman for May 1907, Page 8

It comes as no surprise that the portrayal is so positive when it is understood that Clarke commissioned the biography and selected the author. It is no exaggeration to say that Clarke was the P. T. Barnum of threshing publications. In many key respects, he was the flamboyant opposite of the taciturn A. D. Baker, but the two of them, as dissimilar as they were, shared the perception of lucrative possibilities in Keller's letter. Smarting from longstanding accusations that his threshermen's conventions unduly favored the products of J. I. Case primarily and A. D. Baker secondarily, Clarke was ready to stir up controversy. (On page 13 of the April 1908 edition of *American Thresherman*, Clarke published a stinging rebuke against his detractors, whose allegations of favoritism had been gaining volume over the years.)

Like Clarke, A. D. Baker saw great advertising potential in spinning a controversy around his fan. On page 93 of the August 1907 issue of *American Thresherman* and page 61 of the same issue of *Threshermen's Review*, he took out a full-page ad in which he republished Keller's letter in its entirety. Baker included another letter sent by an event organizer to the Huber firm to attest that the Huber engine's accomplishment was deliberately understated. (In the July issues of *American Thresherman* and *Threshermen's Review*,

this letter accompanied the Keller document.) Finally, Baker reprinted an item from the Port Huron Engine and Thresher Company's weekly newsletter that listed excuses in an attempt to explain why the Port Huron did not beat the Baker in the fan contest. At the bottom of the advertisement, Baker offered these statements: "Some little controversy, but we hope no serious hard feelings, having arisen between some of the contestants in our little 'Fan Fest' at the Wichita Convention on April 4, last, as may be inferred from reading the quotations printed above, the idea occurs to us that there is a very simple, very easy, and an entirely satisfactory method of settling all questions and quieting all disputes as to the relative merits of the various engines contesting. We hereby invite all participants in the event mentioned, as well as all other manufacturers of engines of similar type and rated horse power, to meet us in a friendly contest at the Ohio State Fair, Columbus, Ohio, at the Indiana State Fair, at Indianapolis, Indiana, or at the Kansas State Fair, at Hutchinson, Kansas--at any one or all of these great fairs--and there enter into a similar test, under precisely similar conditions--conditions that must be satisfactory to uninterested and unprejudiced men, capable of forming and rendering an intelligent verdict. We don't care who holds the watch! We don't care who holds the speed indicator! All we ask is a place to stake down--a fair field and no favor. Are you on? If you are coming in, speak quick. We'll expect to hear from you within ten days from the date of this issue."

On the surface, the tone of Baker's remarks is conciliatory and fair-minded, but, beneath the surface, the tone is taunting and gloating. It is as if Baker were saying, "Tsk! Tsk! Did our little fan fest upset you losers?" Together, Baker and Clarke concocted a controversy surrounding a contest that might otherwise have been forgotten over the years. Over half a century later, a handful of eyewitnesses contributed articles to *Engineers and Engines Magazine* and to the *Iron-Men Album Magazine* to record their contradictory impressions.

This controversy is over one hundred years old. What can be done today is to sort out the facts and present them in a way that helps explain the performance of the engines. Perhaps after the passing of a century, we can be permitted to indulge in speculation as to what steps might have been taken to achieve the remarkable results that were reported.

A. D. Baker's use of the fan at Wichita shows that he was not only on the cutting edge of the development of the steam traction engine but also one of the first to make use of a newly developed device known as a fan dynamometer. Baker did not invent the fan dynamometer, and he did not employ

AVERY PLOWING OUTFIT AT WICHITA, KANSAS.
American Thresherman for May 1907, Page 13

J. W. ALBECK.

W. R. BALDERSON.

American Thresherman for May 1907, Page 50 (These Baker engineers performed stunts.)

such a device to measure horsepower; rather, he adapted the fan dynanometer to serve as a fan brake. For centuries, fan brakes have been used to control the speed of mechanical devices. Salisbury Cathedral in England has a clock built in 1386 that controls the speed of the chimes by employing a fan brake. Baker's genius allowed him to apply the unique characteristics of a fan brake to control the speed of competitors' engines in a way that made his engines look superior.

A photograph on page 4 in the May 1907 issue of *American Thresherman* shows that the fan that was used in the tests at Wichita was much different in appearance from the fans that A. D. Baker used to "run in" newly assembled engines at his factory. The Wichita fan was enclosed, and the results of the tests indicate that baffles might well have been employed to control the flow of air through the fan. A distinct possibility is that the Wichita fan was a fan dynamometer, perhaps borrowed from a university's engineering department. In the early 1900s, colleges and universities were using fan dynamometers to conduct research on engines. Most of this research involved internal combustion engines, not steam engines. Fan dynanometers were used extensively to test early aircraft engines.

According to a 1911 article in *The Gasoline Motor*, the fan dynamometer was invented by Colonel Renard of France in 1902. Most illustrations of the earliest fan dynamometers show them constructed with only two blades. A typical example is the Walker dynamometer, which is presented in the illustration from a 1915 issue of the magazine *Flight*. We do not know the details of the construction of the fan that Baker used at Wichita.

Several factors might help us understand the outstanding performances of the engines that took part in the fan contest.

Diameters of the Flywheels

Baker carefully selected the diameters of the flywheels on his engines and the pulley on his fan in a way that allowed his engines to turn the fan faster than could any other. He was able to do this because he understood that the horsepower that is required to turn the fan increases as the cube of the speed. In other words, the amount of power that is required to double the speed of a fan is eight times the initial speed. If it takes 1.475 horsepower to turn a fan 200 revolutions per minute (Point 1), it will require 1.475 X 8, or 11.8 horsepower to double the speed to 400 revolutions per minute (Point 2). To double the speed again from 400 to 800 revolutions per minute will require 11.8 X 8, or 94.4 horsepower (Point 3). This is shown graphically by the bold lines in Figure 1.

The smaller flywheels on Baker engines allowed them to turn at higher speeds when belted to a fan and produce more horsepower than would a similar engine with a larger flywheel. This difference might explain why a Baker engine could often turn a fan faster than an identical engine with a larger flywheel, but it does not explain how two engines could possibly deliver 160 to 190 percent of their rated horsepower.

Table 1 shows the speeds that the various engines could have turned the fan, had it been equipped with pulleys that were sized to allow each engine to deliver its rated horsepower. It is assumed that a 11 1/2 inch pulley was installed on the fan for all of the tests.

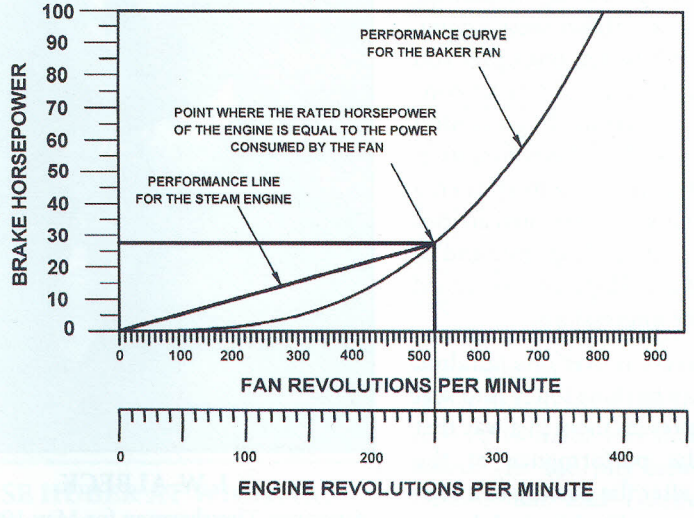
Volume of Air Admitted to the Fan

The fan that was used at Wichita was not a typical Baker fan as we see at so many engine shows today. The Wichita fan was

ENGINE	MAXIMUM RPM OF THE FAN WITH AN OPTIMAL PULLEY AND THE ENGINE OPERATING WITHIN ITS SPECIFICATIONS	RPM OF THE FAN AS RECORDED AT WICHITA
24 PORT HURON	**734**	615
25 RUSSELL	**697**	716
20 RUSSELL	**642**	596
16 BAKER	**591**	692
16 HUBER	**496**	660

THIS CHART SHOWS HOW FAST THE FAN TURNS IF IT IS EQUIPPED WITH A PULLEY THAT ALLOWS THE ENGINE TO TURN AT ITS RATED RPM WHEN IT IS PRODUCING ITS RATED HORSEPOWER.

THIS CONDITION IS SHOWN GRAPHICALLY BELOW. THIS IS A GENERIC CHART THAT DOES NOT APPLY TO ANY SPECIFIC ENGINE.



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enclosed in a housing so that the flow of air onto the blades was restricted. Restricting the flow of air has the same effect on the horsepower requirements as does installing a larger pulley. The advantage of the enclosure was that the characteristics of the fan could be changed by merely opening or closing a baffle to allow more or less air into the housing. The broken lines in Figure 1 show how varying the flow of air would affect the characteristic of the fan. According to Line A – B on the chart, it would require 61.13 HP to turn the fan 692 RPM. Line A – D shows how allowing more air into the fan would increase the amount of power required to spin the fan at that same speed to 92 HP. Line A – E shows how decreasing the flow of air into the fan would reduce the load to about 46 HP. All three curves are based on the fact that it takes eight times the HP to double the speed.

Pressure in the Boiler

The horsepower of an engine is determined by two factors, torque and RPM. The torque of the engine is determined by two factors, the bore of the cylinder and the pressure. The speed of an engine of a specific bore and operating at a specified pressure is controlled by the characteristics of the fan. The only factor affecting the speed of an engine that is under the control of the operator when it is belted to a fan is the pressure in the boiler.

One way to look at the question of the pressure in the boiler is to look at the discrepancy between the amount of steam that the boiler can produce and the amount that is required to spin the fan at 690 RPM.

The amount of steam that would have been needed from the 16 HP Baker can be calculated:

61.13 IHP X 23.6 lbs of steam/IHP/hour = 1442.7 pounds of steam per hour (23.6 is from Table 9 in Baker catalog; it appears to have been unrealistically low)

This can also be expressed as lbs/hr/sq ft of heating surface:

Heating surface of 16 HP Baker = 192 square ft. (from catalog)

$$\frac{1442.7 \text{ lbs/hr}}{192 \text{ sq ft}} = 7.5 \text{ lbs/hr/sq ft}$$

Table 44 *Guide for Estimating Capacity Based on Heating Surface* in Section I of the *ASME Boiler and Pressure Vessel Code* says that a value of 5 pounds of steam per hour per square foot of heating surface is to be used when sizing safety valves for hand-fired firetube boilers. These figures indicate that, to produce the amount of steam required for the fan tests, a boiler with 288.5 square feet of heating surface would have been required.

The amount of steam that the boiler was capable of producing can be determined:

192 square feet X 5 lbs/sq. ft./ hr = 960 pounds per hour.

The amount of steam that the engine would have been consuming can be calculated:

61.13 IHP X 23.6 lbs steam/IHP/hour = 1442.7 lbs per hour.

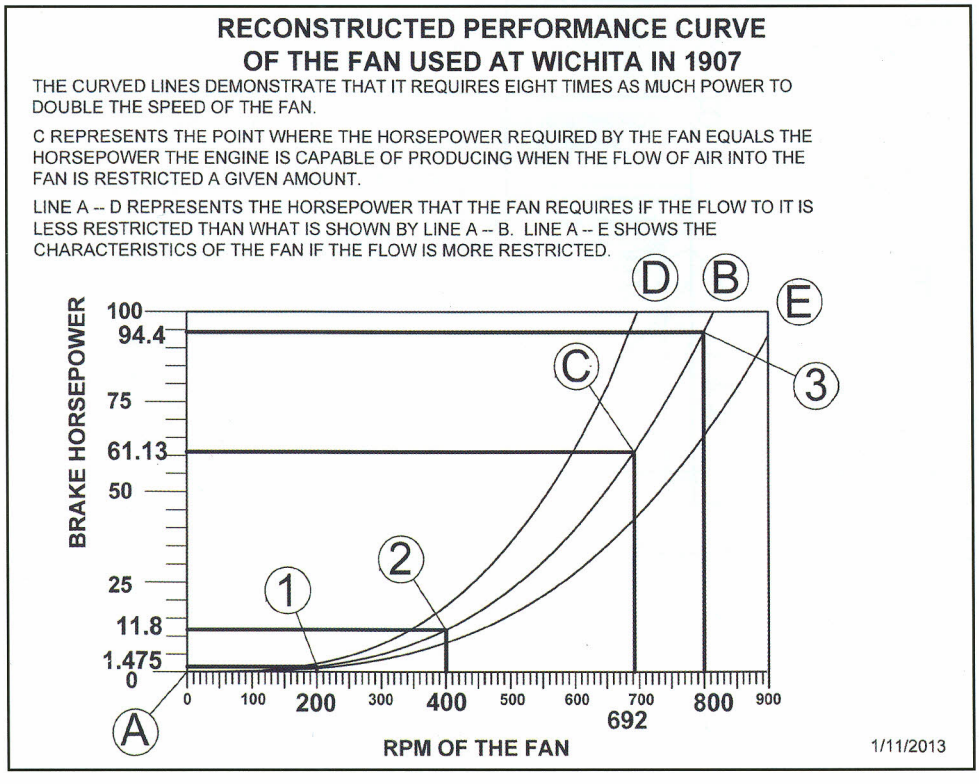
These figures indicate that this boiler could not have produced the amount of steam that would have been needed to maintain the speeds that were recorded. This seems to validate the Port Huron Company's claim that the tests were limited to just one minute.

To have been able to attain 692 RPM on the fan, the operator would probably have needed to run the water as low as he dared, so that there would be a maximum volume of steam in the boiler. He would then have raised the pressure to the maximum amount that he dared, definitely well above the maximum allowable working pressure, or MAWP. The momentary surge of power that was available in the pressurized steam, combined with the steam that the boiler could produce in those few moments, would have propelled the fan to a speed of 692 RPM. The pressure in the boiler would have started to drop as soon as the throttle was opened. What relevance could such an exercise have had to the ability of this engine to power a sawmill, a thresher, or for any other purpose?

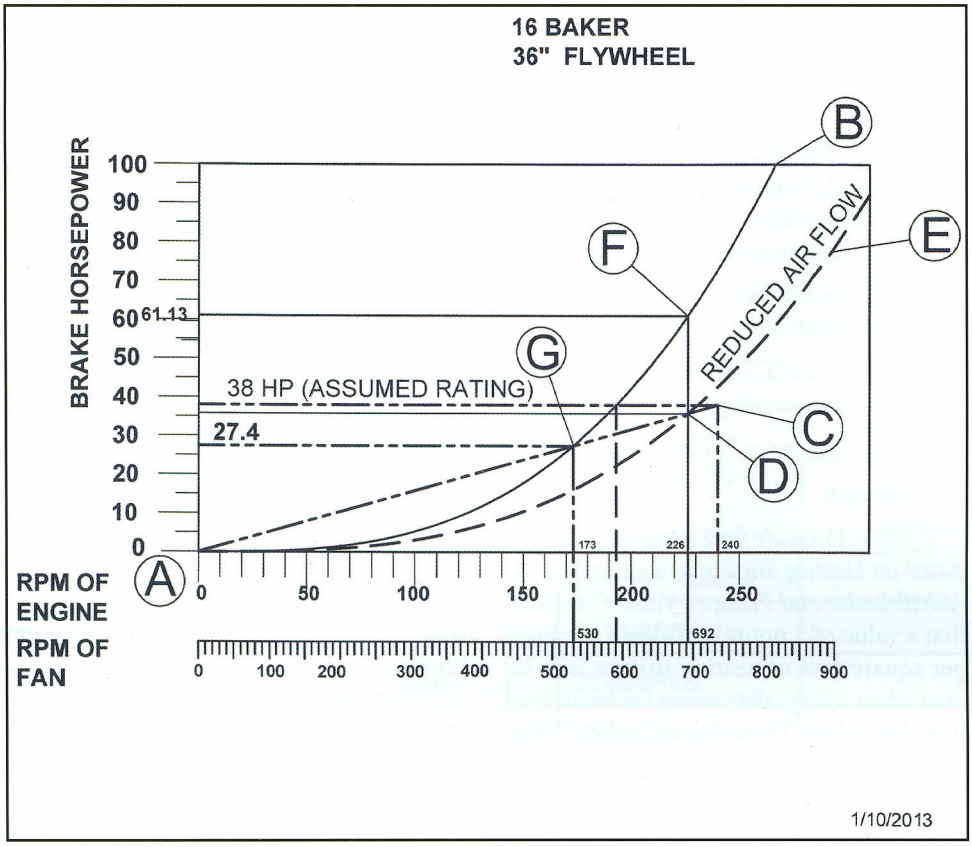
The operating conditions for the Huber engine would have been much the same, except that Keller seems to have been more willing to push the limits of his equipment farther than was Balderson.

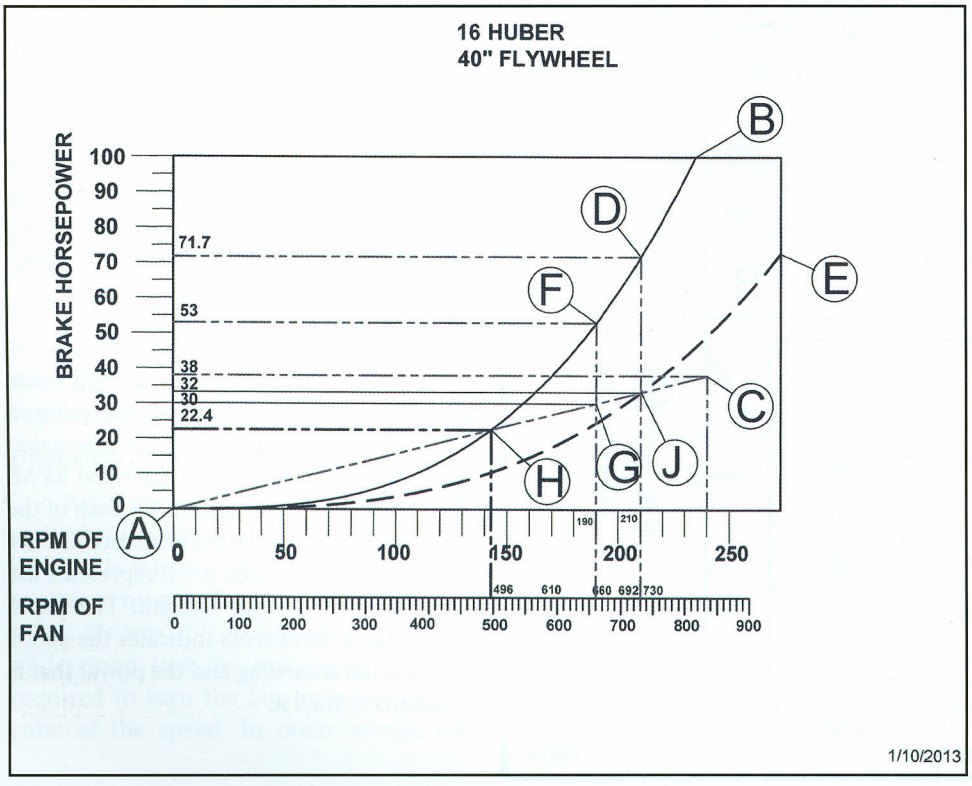
Performance Lines

The power that a steam engine can produce at any specific speed can be found by constructing a performance line using the rated horsepower and the rated RPM. The line A – C in the graphs for each of the engines represents the performance line for the engine and the line A – B represents the performance line for the fan. The point where these lines cross indicates the speed that the fan is turning and the power that is required to turn it.



As no record has been found of the performance characteristics of the fan that was used at Wichita, it was necessary to reconstruct a performance curve from available data. The curve used in this study was developed by scaling a parabolic curve so that it passes through Point A, zero RPM and zero HP, and also through Point C which corresponds with 692 RPM and 61.13 HP. This point was chosen because it represents the performance of the 16 HP Baker engine in the tests at Wichita in 1907. As it was reported that the Baker was producing 61.13 indicated horsepower (IHP) when the fan was turning 692 RPM, 61.13 HP was used. Indicated horsepower is measured by an instrument that is attached to the cylinder of the engine. No similar figures were reported for the other engines. The reconstructed curve is shown in Figure 1. For the purpose of this study, it is not necessary to know the physical dimensions of the fan.





A Closer Look at the Performance of Each Engine

To get a better understanding of the performance of each engine, a graph was drawn for each one. These graphs show the performance curve of the fan, as described above, and the performance line for each engine. The horsepower that a steam engine will produce is directly proportional to the speed of the engine. If the speed is reduced to one half from its rating, the horsepower will likewise be reduced by one half.

The decision was made to look at how closely each engine approached the specifications in the manufacturers' catalogs, rather than to compare their performance to those of the 16 Huber or the 16 Baker.

There was sufficient information on only five of the engines that participated in the tests.

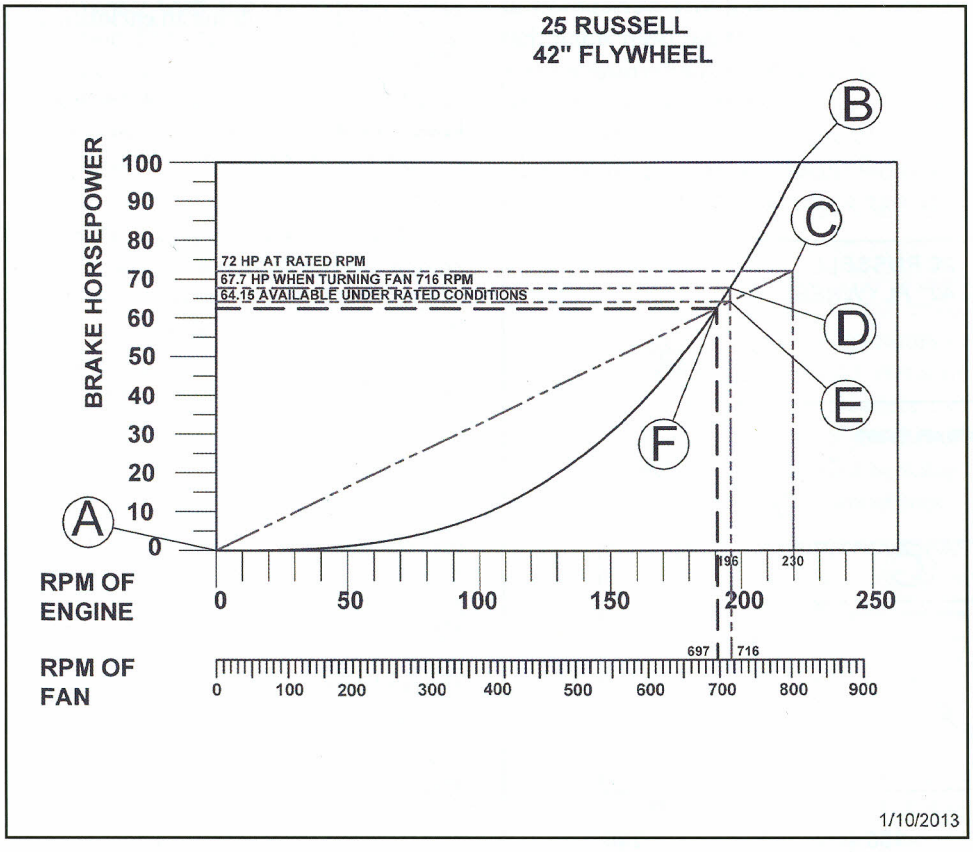
The 16 Baker

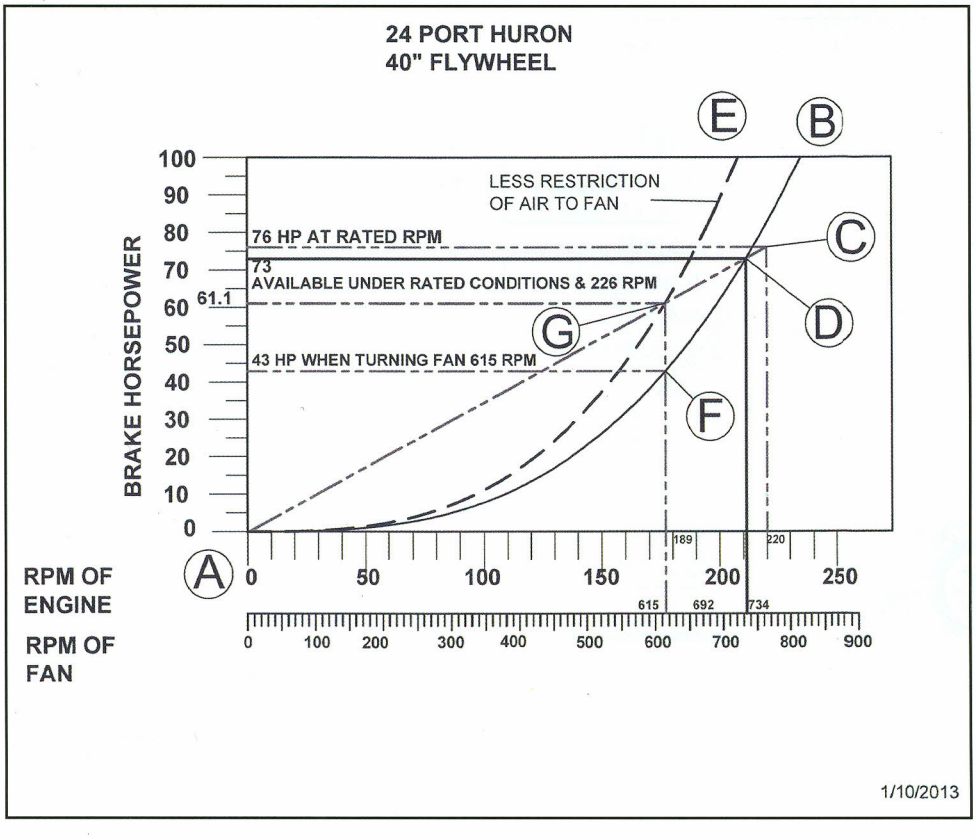
The company's specs do not indicate the rated horsepower. For the purpose of this article, it is assumed that it was rated at 38 HP, the same as the Huber. The catalogs show that it was rated at 220 RPM. These figures are shown as Point C on the graph. At Wichita, this engine turned the fan at 692 RPM, which means that the engine would have been turning at 236 RPM and producing 61.13 HP. This is represented by Point F on the graph. Point G on the graph shows that this engine, under its rated conditions, would have been able to turn the fan at 530 RPM when the engine was turning 173 RPM and producing 27.4 HP. If the 11 1/2 inch pulley was used on the fan, the only ways that this engine could have turned the fan at 692 RPM were if the air to the fan was restricted (Point D on Line A – E) or the boiler was operating well above its MAWP. Nothing has been found in the old sources that might indicate that any attempt was made to manipulate the flow

of air through the fan to bias the results in Baker's favor, but no rationale has been found for fabricating and installing the enclosure.

The 16 Huber

The company's specs show that this engine is rated for 38 HP when it is turning 240 RPM, Point C. At Wichita, it was reported to have turned the fan at 660 and 730 RPM. With the fan turning at 630 RPM, the engine would have been producing 53 HP at 190 RPM, Point E. With the fan at 730 RPM, it would have been producing 71.7 HP at 210 RPM, Point D. These figures are in sharp contrast to those derived from the performance line for this engine. At 210 RPM, the engine is rated at 32 HP, Point F: at 190 RPM, it is rated at 30 HP, Point G. The graph shows that, under its rated conditions, this engine should have turned the fan at 496 RPM while it was producing 22.4 HP at 142 RPM, Point H. If the flow of air through the fan was not restricted, this engine must have been operated at a pressure far above its MAWP. As allegations arose during the controversy that came after the contest, there were claims that this engine might have been operating at as much as 250 PSI. The Port Huron weekly newsletter article that Baker reprinted in his ad in the August 1907 *American Thresherman* enshrined what became a notorious rumor: "The Huber engine was said to be leaking at every bolt when it pulled away from the fan." On page 15 of the July–August 1958 issue of *The Iron-Men Album Magazine*, Hary Trego of Halstead, Kansas, wrote, "Only the Huber men knew how much pressure was on the Huber." Trego continued to report that five men still living in 1958 were in attendance at Wichita in 1907 and "do not recall the Huber boiler leaking anywhere. The Huber men were not foolish enough to put pressure enough on that boiler to make it leak."





If the flow of air to the fan had been restricted, as shown by line A – E, the fan could have been turned 730 RPM with the engine producing only 32 HP, Point J.

The 20 Russell

At various times during the convention, engines other than the 16 HP models took turns at spinning the fan. The company's specs show that this engine is rated for 64 HP when it is turning 230 RPM, Point C on the graph. This engine turned the fan at 596 RPM, with the engine running at 163 RPM and producing 39 HP, Point F. Under rated conditions, this engine is capable of producing 45.7 HP at this speed, Point G. This appears to indicate that this engine was running at less than full throttle during the test. Another explanation for this difference is that there might

have been more air admitted to the fan causing the horsepower to rise to Point G. If no additional air had been admitted, this engine, according to the chart, could have turned the fan at 642 RPM, Point D.

The Port Huron

The company's specs show that this engine is rated for 76 HP when it is turning 220 RPM. The graph for the Port Huron indicates that at the maximum speed achieved by the fan was 615 RPM. At this speed, the engine would have been turning 189 RPM. The performance curve for the fan indicates that 43 HP would be required to achieve this speed. The performance line for the engine shows that it would have been capable of producing 61.1 horsepower at that speed. Had nothing been done that would have affected the performance curve for the fan, this graph indicates that the engine was only producing 43 HP and was not at full throttle. This is highly unlikely. One way to explain the discrepancy is to assume that additional air was allowed to flow through the fan enclosure. The effect of this additional load is shown by the second performance curve (dashed line).

Would Baker have gone to the expense of designing and building an enclosure if he did not intend to use it?

Another possible explanation might be that a smaller pulley was installed on the fan for this test. There is no indication in the old sources that this was done.

The company claimed that their engine did not do better because the one-minute duration of the test did not allow time to warm it up properly. It seems that there would have been a dangerous amount of water in the engine, if it had been condensing 18 HP worth of steam. (61.1 HP - 43 HP = 18.1 HP).

The performance curve for the fan, if no additional air was allowed into the enclosure, shows that this engine should have been capable of turning the fan at 734 RPM, while developing 73 HP.

The 25 Russell

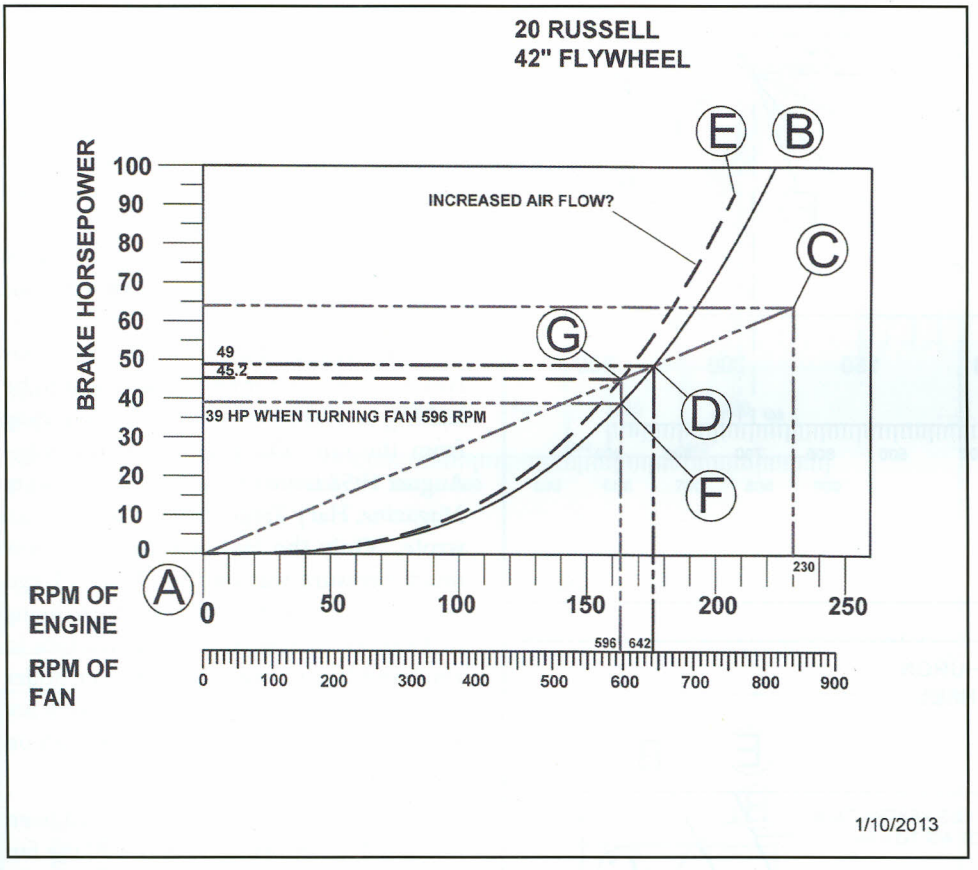
The company's specs show that this engine is rated for 72 HP when it is turning 230 RPM. This is shown at Point C in the graph. This engine was able to spin the fan at 716 RPM. The graph shows that it would have been producing 67.7 HP on the fan while turning 196 RPM. The performance line for the engine shows that it would only be capable of 64 HP at that speed. The difference can probably be explained by the accuracy of the measurements. This engine was operating well within the specifications in the Russell catalog.

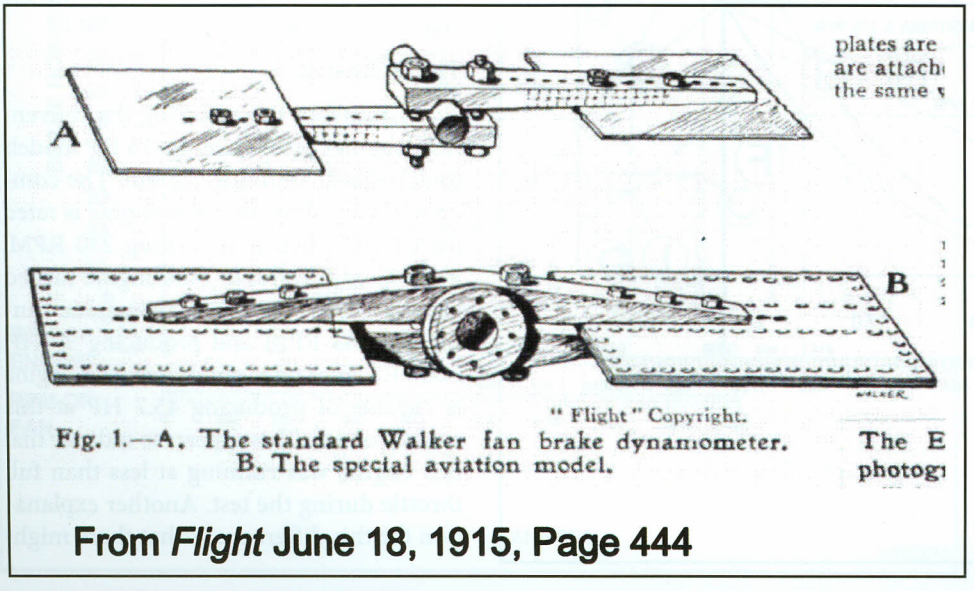
At the Heart of the Controversy

It is plausible that the differences between the results at Wichita were more of a measure of the operators' willingness to push the limits of their equipment than a measure of the characteristics of their engines.

It is also possible that the results of the tests might have been affected by differences in the amount of air that was allowed to pass through the fan.

On page 50 of the May 1907 *American Thresherman*, Clarke published studio portraits of Baker engineers Balderson and Albeck with the caption "experts with the A. D. Baker Company, of Swanton, Ohio, two





rising young men in their profession." Clarke felt justified in presenting photographs of Albeck and Balderson because they had given an address as part of the program of the threshermen's school that ran concurrently with the exhibitions at the convention. Even so, singling out the Baker representatives for such one-sided publicity was enough to inspire envy on the part of competitors and may have helped satisfy Clarke's penchant for obstinacy in the face of mounting criticism that he played favorites in praising the products of Baker and Case. As page 16 of the same issue of *Threshermen's Review* included the identical portraits of Balderson and Albeck, it is likely that Baker was behind the effort to promote the extraordinary abilities of the Baker engineers. Echoing the word "experts," which must have come from a "talking points" memo distributed by the Baker firm, the *Threshermen's Review* said, "Among the notable attractions at the convention was the contest with the A. D. Baker engines, the particular feature of which was the fine handling of the engines by Messrs. Albeck and Balderson, experts for the A. D. Baker Company. What these two bright fellows don't know about putting an engine through its paces is hardly worth knowing and the numerous difficult 'stunts' they successfully pulled off were the subject of much admiring comment." On page 5 of the May 1907 *American Thresherman*, Clarke wrote, "Tuesday, Wednesday and Thursday during the day time the threshermen visited the various headquarters where the different makes of machinery were on exhibition and watched the many stunts performed. It is safe to say that the sale of threshing machinery and all kindred lines on this occasion was far greater than ever before in the history of these conventions."

Obviously, the convention was all about "the sale of threshing machinery," but what may have been forgotten in the years since 1907 is the fact that everyone expected "stunts" as part of the sales pitch. Manipulating the flow of air through the fan brake without being detected by the operators or the throng of spectators would certainly qualify as a difficult stunt. Readers can almost hear within the pages of the threshing magazines the snickering and backslapping behind the backs of the competitors.

None of this challenging reconstruction of what took place on that April day in 1907 would have been necessary, had Clarke and Baker not seized the opportunity to stir up a controversy over the contest that the Wichita *Eagle* reported as almost an afterthought toward the end of an article that was not on the front page. Baker and Clarke magnified the importance of the grumblings of competitors after Baker won the fan contest. Perhaps Clarke and Baker were determined to make headlines and felt miffed that the Wichita paper had taken such little notice of the "Fan Fest." Whatever their reasoning, soon after the threshermen had left Wichita, Clarke and Baker began a campaign to make the Wichita contest so memorable that we are still examining it today.

Acknowledgments

We want to thank Ann Miller Carr for genealogical work, Joe Kramer for seeking information about fans owned by A. D. Baker, David Schramm for specifications of the National Threshers Association fan that came from A. D. Baker, Brenda Stant for scans of an article in *Engineers and Engines Magazine*, Erin Smith of the Extended Collections and SourceFinder Divisions of the W. Frank Steely Library of Northern Kentucky University for locating the *American Thresherman* photographs through the New York Public Library, and Robert Tucker of the Lawrence & Lucile Wulfmeyer Genealogy / Special Collections Center at the Wichita Public Library for scans of articles from the 1907 Wichita *Eagle*.

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Table of Data

Fan Competitive Tests
In Wichita, Kansas on April 4, 1907
Arranged from Highest to Lowest RPM on the Fan
Combining Occasionally Contradictory Information
Found on Page 85 in *The American Thresherman* for June 1907
And Details from Annual Catalogs by Builders of Engines That Participated in the Competition

Make	HP	Year of Catalog	Cyl. Diam.	High Press. Cyl. Diam.	Low Press. Cyl. Diam.	Stroke	Usual RPM	Brake Load	Flywheel Diam.	Usual Press. PSI	Press. at Wichita	Fan RPM
Baker	20	1912	10			10	240		38	140	140	735
Huber	16	1904	8 1/2			10	240	38	40		160 or 200	660 or 730
Russell	25*	1908	10			13	230	72	42		175	716
Baker	16	1912	8 3/4			10 1/4	240		36	140	160	693
Buffalo Pitts	22	1905, 1908	7 & 7			10 & 10	250		46	140	175	650
Avery	18	1914	6 & 6			10 & 10	250		40 1/4	150	135	620
Port Huron	24	1908		7 1/2	11	10	220	76	40		175	610 or 620
Russell maybe**	20	1908		7 1/4	11	12	230	64	42		185	596
Peerless	18	1905	8 3/4			10	260		42		140	570 or 573

*The Medford *Star* lists the Russell as 20 HP but with the same results that H. C. Miller lists for the 25 HP Russell.
**H. C. Miller lists a 20 HP compound but does not name the builder. There were 20 HP Russell engines in Wichita.