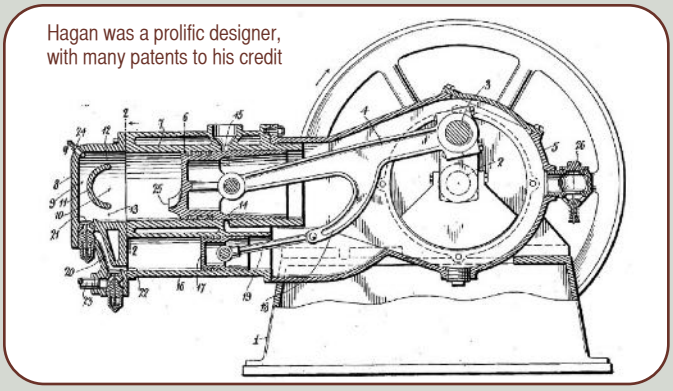
December 2010

HIT & MISS

Journal of the Western Antique Power Associates



Hagan was a prolific designer, with many patents to his credit

THE HAGAN GAS ENGINE COMPANY

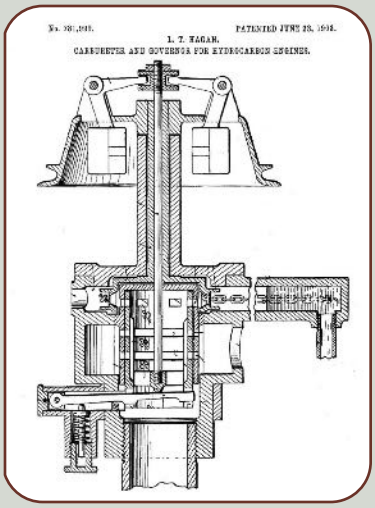
By Tommy Turner

A definitive history for the Hagan Gas Engine Company is very difficult to construct. Unlike the larger engine builders such as IHC, Otto, etc. whose companies and records survived many years beyond their engine construction efforts, Hagan was mostly a small regional player in the engine construction and sales field.

Louis T. and Charles Hagan began their machine shop business in Winchester, KY sometime in the late 1800's. While it is not believed that they were in the actual engine construction business, they were already in the engine-rebuilding field in 1891 as evidenced by the shop work list dated Nov. 6, 1891. The brothers apparently had a "better idea" as to how engines, and in particular engine carburetion, should be constructed. Their engine construction efforts began sometime in the late 1890's with evidence that 1898 was the first year. The initial Hagan engines, while similar to the more familiar ones now seen from time to time at shows, contained a carburetor that is unlike the chain drive fuel pump model. The one depicted in their earliest known promotional brochure shows a strange cylindrical carburetor and a plunger type fuel pump. Only one of the carburetors and pumps are known to exist, it being owned by Tommy Turner, Magnolia, Kentucky and acquired with the remnants of the Hagan Gas Engine Company, purchased by Turner in 1982.

The chain drive fuel pump carburetor was patented in 1903. The carburetor is unique in that it contains a well in which gasoline is allowed to accumulate. A brass chain dips in the fuel and acts a "fuel pump" to bring the fuel to top of the carburetor. The fuel is dumped over the end of a slide valve, which is used for speed and fuel regulation.

Hagan, unique in its design, used a "rockshaft". A double lobe cam, located at the rear of the engine, drives rollers located on the



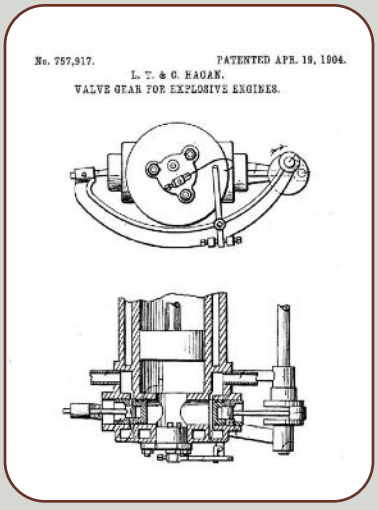
Patent drawing of Hagan's carburetor/governor and a close up of the assembly on Turner's engine

end of a shaft. The valves are located at the 5 o'clock and 7 o'clock position (looking directly at the end of the cylinder). The shaft simply "rocks" back and forth between the valves. Using a manually operated intake valve was not the norm in the early engine construction era.

Hagan was awarded 1st prize as the most efficient and outstanding engine at the Atlanta Exposition at the turn of the century. Outside of its regional sales in Kentucky, Hagan's main distribution was in Florida. The J.P Campbell Company of Jacksonville sold many Hagan engines in that area. In fact, Campbell actually tagged the Hagan engines with its own company tag stating "J.P. Campbell, Jacksonville, Florida". One such engine is known to exist, a 2 HP owned by Turner.

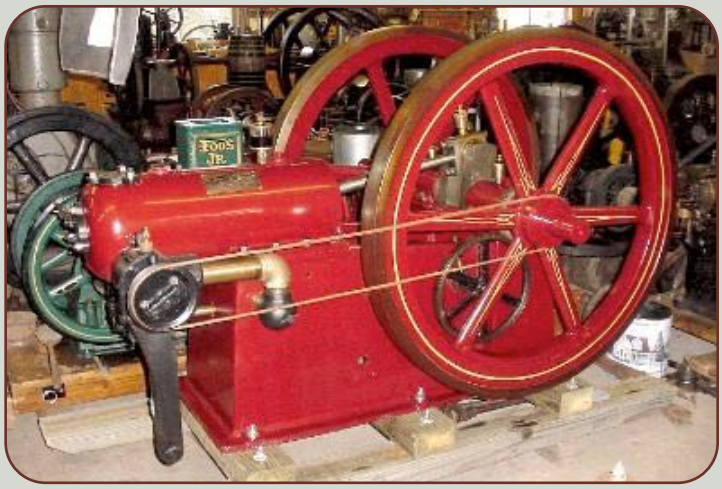
Hagan used an alphabetical system to differentiate between sizes. The Size A was rated at 2 HP, B at 3.5, C at 6, D at 9 (later at 10), E at 14, and F at 25. Hagan also built 2, 3 and 4 cylinder engines, which were multiple cylinders identical to the single cylinder, mounted on a common base. Three 2 cylinder Hagan's are known to exist. A DD (20 HP), an EE (30 HP) and an FF (50 HP). No 3 or 4 cylinder Hagan's are known left.

Hagan was one of the first engine manufacturers to enable dual fuel carburetion. By use on an ingenious valve that could be added to the carburetor, Hagan engines could



Close up and patent drawing of Hagan's unique rocker arm mechanism

be switched from gasoline to natural gas without ever missing a power stroke of the engine. Hagan also cut keyways with a "V" cut (found on all but the earliest examples of Hagan engines) rather than square cut. The angled keyways proved to be a very good engineering practice. Hagan connecting rods were tapered from the center of the rod to each end. The weakest portion of the rod, if everything else is equal, is that furthest from the bearing surfaces. By making the center of the rod larger than at each end, Hagan connecting rods proved to be very



Ed Laginess' Hagan

strong and durable. Hagan engines were headless and all joints were ground to fit. Therefore, no packing or gaskets were used on their engines. Bearings receiving the most wear were fitted with automatic grease cups meaning the engine could be started and ran for extensive periods of time without a necessary lubrication shutdown. While Hagan had ideas of merit, their salesmanship apparently was lacking. Hagan never produced more than possible a few thousand engines with the peak of production, according to a few of the original workers now deceased, coming around 1910 to the early teens. Just as Henry Fords Model T was enjoying success basically unchanged for many years, Hagan engines produced from the early part of the century until production ceased in the late teens remained basically the same. Nearly all were tank cooled with 3 examples of hopper-cooled engines remaining. Sadly, the success of Henry's T was never realized by Hagan.

Several theories exist about the demise of the Hagan Gas Engine Works. One, and probably the most likely, is that Hagan simply did not change with the times. While its engines were high quality, they still could not compete with the simplicity and cost of the Hercules built products or other mass producers. Hagan and many of the other small manufactures simply could not overcome the sales network of IHC, Fairbanks Morse and others. Hagan's veiled attempt to keep pace with competitors also possibly caused the company financial troubles. Hagan introduced a single cylinder tractor mounted on a Morton type truck. Very few were produced and only one is known to exist. By virtue of using the chain for fuel pickup, it was important to have the engine level and stationary to prevent the chain from dragging the side of the carburetor well and pulling fuel off the chain prior to reaching the slide valve at the top. The tractor, with its swaying, rocking motion, especially over rough Kentucky ground, proved to be a terrible runner with the fuel delivery being very inefficient in this setting. Hagan also engineered a multi cylinder tractor, which used one large drive wheel. Apparently, an experimental model was built but on the first test run became stuck in the soil due to the great amount of weight place primarily in one location. Nothing more is heard from their tractor construction effort.

Financial problems of another type possibly helped bring the Hagan Brothers' shop to a close. The Hagan's were from German decent and apparently had numerous

family members in their native homeland. It is rumored that the Hagan Company was commissioned to build war materials during WWII and that the company balked rather than be involved in a conflict with their homeland. No factual evidence is available to support this claim. However, it is very conceivable that some of the financiers of the Hagan enterprises were possibly family or acquaintances from Germany and the WWII effort eliminated the flow of funds necessary to maintain the operation. In any event, the Hagan Gas Engine and Manufacturing Company was sold around 1918 to Saunier Brothers Iron Works of Lexington, KY. The story of Hagan engines does not end here however.

Saunier Brothers was primarily a metal work fabricator. It is not believed that they ever entered the foundry business, but possibly contracted for this work to be done. The inventory of parts and materials from Hagan also provided a ready supply of materials necessary to continue to construct engines. Saunier Brothers rebuilt, repaired, and assembled Hagan engines for the next few years. One mail order house, Banks Miller Supply Company, listed Hagan engines for sale as late as 1925. Again, looking at the artwork provided in the catalog, the engine was virtually unchanged from the ones built a quarter century earlier. Nothing is found on the company after this date.

For the most part, Hagan Gas Engine and Manufacturing remained silent for many years. Engine enthusiasts visited the Saunier Brothers Iron Works, which remains in business today, periodically to attempt to find remnants of the former company. Occasionally, a part or Hagan related item would turn up. Saunier Brothers is a compilation of several aging turn of the century buildings. In 1982, Tommy Turner was given permission by the owner to search each building for materials and parts related to Hagan. Many of the areas he had access to had not been open for public inspection in over half a century. The search turned up a wealth of Hagan parts, over 1000 original shop drawings, and original Hagan patterns. Sadly, Turner learned that only 4 years earlier one building containing hundreds of the original patterns had been cleared by one of the employees with the majority of the patterns used for firewood. The employee told of one part in particular that was a large wheel about 5 feet in diameter with big spokes (presumably a flywheel pattern). He said it took longer for him to chop it into stove length pieces than it did to burn. Considering how dry the 90 year wood must have been, this is not unusual.

Turner purchased the Hagan Gas Engine and Manufacturing Company from Saunier Brothers for $200. In all, 4 pickup truck loads of parts, patterns, drawings, and Hagan related items were salvaged.

About 35 Hagan engines are known to exist ranging from one example of a salesman sample to the large 50 HP twin cylinder.

Upcoming Events

December 4, Saturday
Victorian Christmas
11 a.m. – 3 p.m.

This is the last WAPA show of the year. Don't miss this last opportunity to run your engines before storing them away for the winter (which here in SoCal usually lasts from December 22 through the first week of January).

Heritage Hill Historical Park is located at 25151 Serrano Road. Enter through the shopping center parking lot at the corner of Serrano Road and Lake Forest Drive. Setup starts at 8:00.

December 5, Sunday
Gunther's Yard
10 a.m. – 4 p.m.

In memory of George Gunther, Betty Gunther and family would like to invite you all to their yard in Long Beach.

Come ride on a rail car, sit in the S.P. caboose, kick the tires on an old truck or two, lean on some old tractors, and see all kinds of neat rusty stuff.

The location is 2380 Curry Street, Long Beach. Exit the 91 at Cherry and go south ½ mile.

December 10
NO BOARD MEETING THIS MONTH

January 8, 2011
Fun Day, Gas Up, Swap, Lunch at Larry Madole's
8:00 a.m. – 1:00 p.m.

Bring an engine to show, stuff to sell, money to buy. Lunch will be served. More details in next month's Hit & Miss.

The Hit & Miss is the monthly publication of the Western Antique Power Associates. Visit us at www.wapa.us.



Bob Smith sent these pictures from the show at Flabob Airport

Minutes of the Board of Directors Meeting Held November 12, 2010

Board Members Present: Dan Kato, Tom Millett, Bob Smith, Jack Jonson, Bob Swan, Jim Davis & Leroy Overstreet.

Board Members excused: Kelley Garcia, Joe Siddons & Craig Maxwell.

Members present: Rex McCleary, David Paul, Margaret Swan, Dave Ruhland, Klaus Duebbert, Cody Johnson and Gus Lukrofka.

Visitors: Sue Kijomura

Meeting called to order at 6:40p.m. by President Dan Kato.

Flag Salute led by Bob Smith.

REPORTS:

President: Dan Kato welcomed everyone to the meeting.

Vice President: Bob Swan had nothing to report.

Secretary: On a motion by Tom Millett and seconded by Jack Johnson, the minutes of the October 8, 2010 were approved.

Treasurer: Treasurer Kelley Garcia absent. She will e-mail the treasurer's report to the President and Secretary.

Membership: Jim Davis reported one new member, Randy Bohse, who lives in Hesperia. He was sponsored by Beverly Helm, as he is a good friend of her late husband, Bob. Also, Bruce Byram reports a new address, 3194 Castlewood CA, Pollock Pines, CA 95726. Phone 530-644-2592. Jim stated member Harold Camphas requested that he be removed from the roles as a member.

Purchasing: Leroy Overstreet announced that we have one bag of corn left over from our shows at the end of the season. We sold $71 in corn meal at Flabob Airport. The Cal Poly Lo Boy Cub tractor radiator is repaired and ready to be installed. The club tractors have been serviced and run. The 10-20, however, has deposits in the gas tank sediment bowl and is being cleaned.

Shows: Bob Smith reported that we had 16 members showed up with machines at the Flabob Airport show. David Paul presented a letter of appreciation from Flabob Chairman of the Board, Jon Goldenbaum, thanking WAPA for helping them honor our veterans with the great showing of machines and tractors.

Bob announced that the last show of the year at Lake Forest will be on December 4. Bob received an e-mail from Tracy Kirby, who is putting the event together this year stating they want us there this year. On a motion by Smith, seconded by Bob Swan, the Victorian Xmas at Lake Forest was sanctioned. New hours are from 11 a.m. to 3 p.m.

The Gunther's Yard Show will be on Sunday, December 5 from 10 a.m. to 4 p.m.

Library: Jack Johnson hasn't made it to the library.

Safety: Joe Siddons absent.

Museum: Craig Maxwell absent.

Glendora Castle: Nothing new.

Cal Poly Restoration Project: Bob Smith gave a report on the progress of the assembly of the Bean sprayer & Novo engine at Cal Poly. The engine cam gear has arrived and with it installed, the Novo should be operational. The pump is being assembled. A1966 International Cub LoBoy that was donated to the college by the Dodgers will be back in service with a new radiator core installed. The 1930 John Deere D is awaiting service of the magneto.

Editor Report: Rob Skinner absent.

Unfinished Business: Nominations for directors and officers for the 2011 calendar year were opened. Jim Davis presented the report from the Nomination Committee. All nominees composed entirely of members of the present board with no other members expressing an interest in serving. With that, President Dan Kato opened up nominations from the floor for each of the ten positions on the board. There were no names placed in nomination, at which time Smith made motion to close nominations from the floor, seconded by Millett. Motion carried. In accord with by-law Article VII, Section 3, Smith made a motion that the secretary cast one ballot to declare all current board members be elected to serve during the calendar year 2011. Motion was seconded by Dan Kato. Motion carried unanimously. Secretary Millett did so cast that ballot.

New Business: Secretary Millett announced that the meeting facility will not be available in December for a board meeting. The park has a holiday event taking place on December 10 in the Depot meeting room. It was a consensus of the board members that there will be no Board of Directors meeting for the month of December.

In other business, Millett suggested that out of respect to Ron Haskell, who has stored numerous items belonging to WAPA for a long time, the president should appoint a committee of three to conduct an investigation for removal and disposal of the property and report back to the board with recommendations. President Kato appointed Jack Johnson, Cody Johnson and David Paul to the committee. Jack Johnson was selected by the committee to be the Chairperson. The committee is to report back to the board at the January 2011 meeting.

Announcements: None
Adjournment: 7:55 p.m.