

# THE CRANK & STOKE

T H E V O I C E O F T H E H I S T O R I C A L E N G I N E S O C I E T Y

Founded 1970

**Officers:**

President: Dean Kirby  
 Vice President: Adam Lang  
 Treasurer: RJ Frato  
 Secretary: Sandra Paterek  
 Membership: Penny Melkerson-Kirby

**Directors:**

David Anderson	2024/2024	Brian Baxter	2024/2025
Mark Menary	2023/2024	Jakob Baxter	2024/2025
Patrick Shelby	2023/2024	Adam Lang Jr.	2024/2025
Timothy Mansfield	2023/2024	Sam Paterek	2024/2025
Vincent Kibby	2023/2024		



INSIDE THIS ISSUE:	
Greatest Show on Earth!	1
A CASE of Traction Engine Flu	2
Engine Spotlight	3
Case—Continued	4
2024 Raffle	4
Boos—Continued	5
Safety Meeting	5
Membership Renewal Application	6



## G R E A T E S T S H O W O N E A R T H !

Polish up those tractors, oil up those engines and get all your toys ready for the show! It's time for The Greatest Show on Earth!

Just a quick reminder to all exhibitors, please see the map below on where to enter for this year's show. There will be a banner that says **VENDOR ENTRANCE**.

**Registration:** Please be sure to stop by the **yellow and white tent** to register during office hours:

- ◆ Thurs: 12-3pm
- ◆ Fri/Sat 8:30-4:30pm
- ◆ Sunday 8:30-3pm

This is also the time to renew your membership. Please check in at the office/registration **yellow and white tent** and renew during

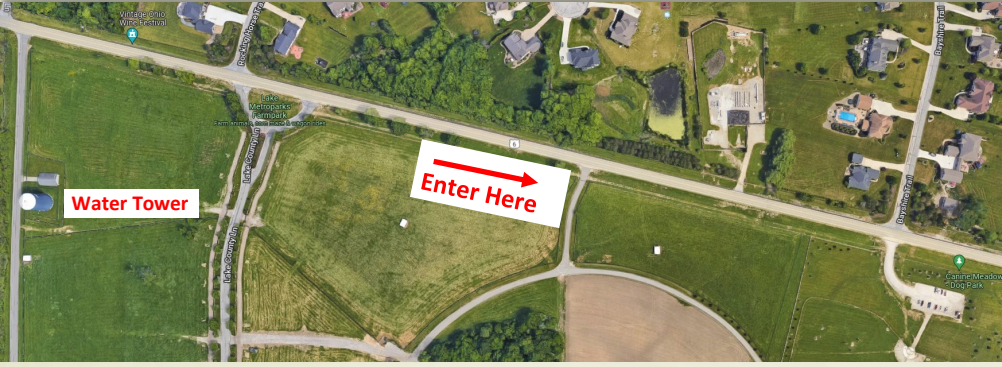
the show. Members are given until September 1st to renew their memberships. If you have not renewed by then, your name will be removed from the membership roster. If you are unable to attend the show, you may use the form in this newsletter and mail it in. Please bring your enclosed membership pass each day of the show.

**Picnic:** Don't forget about our Saturday evening picnic. We will be grilling hamburgers, hotdogs and corn in the pavilion near the firepit. This is for all members and exhibitors and not for the general public. The show ends at 5pm so give the crew time to get things ready. We will eat around 6pm. If you would like to help, please do!

**Safety Meeting:** See **Page 5** for important information on our **mandatory** Safety Meeting.

The 2024 shirts, hats and raffle tickets will be available for sale at the registration tent along with prior years shirts. Also available are the show buttons and plaques when you register your exhibit. We have some of our younger members offering tie dyeing during the show, bring a shirt you would like to tie dye and they will show you how. We will also have a limited number of hoodies available this year. Sandy would like your feedback on other clothing you would like to see offered, she will be in the office tent all weekend.

Have a great time!



**C A T C H I N G   A   C A S E   O F   T R A C T I O N   E N G I N E   F L U**

Contributed by Adam Lang Jr.

When it comes to collecting old iron, it does not matter if it is something that there were a million units produced or just one, each item presents its own challenges that adds to its story. This steam engine is no exception to that.

My interest in steam has always been present, though not always with traction engines. Steam locomotives were my primary interest for a long time. All throughout growing up, my dad and grandfather took me to several steam shows a year and that is what really ignited my interest in traction engines.

In 2022 enough interest had generated between myself and a few others within the club. Thanks to my dad (Adam Lang) and director Sam Paterek, a steam licensing school was coordinated with The Boss Steam School. After the class, I was in hot pursuit to not only start running engines to accumulate license hours, but also to find an engine for myself. With the average survival rate of each brand of engine being around 1%, engines are rather hard to come by on the open market. Without being part of the actual steam community yet, a public sale was looking like the only option to purchase an engine. After striking out on several auctions, we thought we found the one to buy. On a cold December Friday a group of us traveled to Cumberland, Ohio to try to buy a 16hp Aultman Taylor. We thought for sure that at this in-person only auction on a cold December morning we would be coming home with an engine...only for it to sell for almost double what we had anticipated on paying.

At about this same time, things were getting heated up at the Ederville Excess Auction down in Carthage, North Carolina. I had looked through the sale bill a bunch of times but didn't think I would buy anything since Aumann Auctions tend to bring high prices. From when they released the first set of pictures for this auction, I knew I would want one of the two Case engines in the sale.

On the day the sale was supposed to close I was staring at the bid page. The 50hp Case had been way out of my price range for a couple weeks at this point. The 60hp was still very reasonably priced. After seeing what other engines were selling for, I assumed the boiler to be junk (which I was certainly right), but the rest of the engine looked very complete. While sitting in Uncle Tito's Mexican Restaurant, I decided to place a bid. I couldn't believe that nobody else was bidding against me, so I was messaging my friend and club member Nick Reynolds to see if he was seeing anything different.

At 8:59 on January 9th the auction closed, and I had the high bid on the 1911 60hp Case traction engine. Then the reality of "How in the heck are we going to get that thing home?" hit. On January 19th the crew left Ohio on the journey to North Carolina. Dad was in the semi with a lowboy, while Nick Reynolds, Eric Nichols, and I were in Nick's pickup truck with every tool and supply we could possibly think we needed. We were roughly 30-minutes ahead of Dad, which was just enough for him to get caught right in the biggest snowstorm we had all winter. After battling down the interstate, we met up in Wytheville, Virginia for the night. We were up with the sun the next morning to make it to Carthage by our load time. When we got to Ederville I went to the office and paid my bill. They told us to pull into a spot and that we were next in line to get loaded. This was not true as we watched several trucks and trailers go around us to get loaded. After a couple hours our patience was running thin, so Dad and Eric went to assess the engine to see what we needed to do to get it ready for the ride home. It was instantly decided the canopy and smokestack needed to come off. Even after removing the stack and most of the bolts out of the canopy they were STILL not ready to load us. Therefore, we took matters into our own hands and hooked Nick's pickup to the front of it. We towed it with a chain roughly 1/8 of a mile from where it was, over to the truck. It was interesting crossing the road with no brakes! Dragging it by ourselves caught the attention of the loading crew, who immediately came to help load us. First using a push bar, they used a telehandler to push it right onto the trailer. Trying to shove an engine onto a trailer with chain steering is no easy task, especially in reverse.

Continued on page 4



# ENGINE SPOTLIGHT

Contributed by Donald Kuhl



## THE BOOS OIL ENGINE CO.

St. Marys, Ohio

*To Diesel or not to Diesel, that is the question. What is a HVID (pronounced 'Veed') engine?*

To properly explain a HVID engine and how these came into existence one must begin with one of the pioneers of early engine design, Rudolf Christian Karl Diesel (b.1858). Diesel was a German inventor and mechanical engineer who is famous for having invented the Diesel engine which burns Diesel fuel. Both are named after him.

Diesel understood thermodynamics and practical constraints on fuel efficiency. He knew that as much as 90% of the energy available in the fuel is wasted in a steam engine. His work in engine design was driven by the goal of better efficiency ratios.

From 1893 to 1897, Heinrich von Buz, director of Maschinenfabrik Augsburg in Augsburg, Germany gave Diesel the opportunity to test and develop his ideas. Strong castings were required to achieve the combustion pressures for the diesel engine. This was a hard-earned lesson that left Diesel injured on several occasions due to explosions.

His first successful Diesel engine, Motor 250/400, was officially tested in 1897. This engine is currently on display at the German Technical Museum in Munich. The Motor 250/400 engine formed the basis for his US patent #608845 awarded in 1898. This was his second US patent on his unique engine design. This patent gave Diesel and his investors in Germany undisputed ownership of a compression ignition engine with a pressurized injector (known as an 'air blast'). Note: that second part re: the pressurized injector is an important detail of how HVID's came to be.

Diesel died in 1913 while on a ship traveling from Dresden to London. It's worth a note that there are various theories behind Diesel's death. In Germany, he was an important industrialist and 1913 was a year of extreme social reform with the build up to WW1. One account shows that he met with British Royal Navy Officers prior to boarding the ship which sank on route.

To thread the entire story of HVID engines, we need to give recognition to a Dutchman named Jan Brons (b.1865). Brons was a successful car ('autobus') builder in the Netherlands. He designed and built his own engines that ran on petrol. Brons knew of Diesel's engine designs and found them to be too complicated. He developed a simplified injector system called the 'verstuiverbak'. It translates to 'spray cup'. Brons 'spray cup' injector design was never patented in the US. It's widely felt that his injector design was the basis for the HVID injector. His contribution is worth an honorable mention.

Let's jump now to Battle Creek, Michigan and introduce a new player. I know this jumps a little but stick with me. Let us meet a Dutch immigrant named Rasmus Hvid (pronounced 'Veed'). Hvid was a director at the Advance Thresher Co. that made steam traction engines along with a wide line of farm equipment. He was given the boot along with a bunch of other officers when Rumely bought the company in 1912. He formed the R.M. HVID Co. and focused on acquiring patents and living off of licensing rights. In 1915, Hvid was granted a US patent on a spray cup style fuel injector for oil (compression ignition) engines. It's widely agreed that he used the Brons design as the basis for his patent.

Background Note: Patents way back when had much more teeth to them than they do in today's age. US Courts would defend patented ideas fiercely with extreme fines and penalties. The patent holder was given a wide berth in the definitions of the patent to protect idealistic property.

By 1913, casting technology had advanced to the point where compression ignition engines were more viable. Existing engine builders such as St. Marys Machine, Hercules Gas Engine, Cummins Machine Works and others all bought licensing rights from Hvid to incorporate in their engine designs. The addition of the Hvid injector works around the greatly defended Diesel patents because it's not pressurized. This injector is gravity feed.

# CASE – CONTINUED

Once it was on the trailer, we took the rest of the bolts out of the canopy and used the telehandler to pick it up off the engine. From there we chained and blocked the engine and started the 515-mile journey home. It was a long ride home, but we had our fair share of CB radio chatter and snacks to keep us going!

The next morning we were up with the sun again to get it off the trailer. A tow bar was fabricated in order to remove the engine from the trailer, as well maintain control of the engine as it came off the trailer. Thanks to the previously mentioned snowstorm, it took the combined effort of my John Deere A, my pickup and Eric's pickup with a snowplow pushing it from the rear to get it up the driveway. We had a solid crew for this task as well, including Sam Paterek, Eric Nichols, Nick Reynolds, Dad, and even my Mom who took pictures the whole time. This quickly became the event of the day for the neighborhood, with many of our neighbors coming out to watch us pull it off. This is just the start of this long journey. This engine needs a complete overhaul before we see it at our show at Farmpark, but it will certainly come with time. Progress updates will come as we embark on the project of a lifetime!



First sight of the engine in NC



Eric, Nick & AJ removing the stack



Removing the canopy



Unloading with Sam, Eric & AJ



Dragging up driveway in snow

## 2024 RAFFLE

Don't forget to get your raffle tickets at the show to win this beautiful 1958 Cockshutt 540.

We are again on-track for selling out this year so don't wait until the last minute to get your tickets. When we are out of tickets, we are finished selling. Don't miss your chance to win this tractor or three other prizes!

Second Prize is a Cockshutt 70 pedal tractor, third prize is a Cockshutt 570 1/16 scale model tractor and fourth

prize is a tool kit donated by Peggy Harper and Bob Rankin.

This tractor was purchased at the S.C.R.A.P. show in Gibsonburg, Ohio and was already restored giving the crew a year off.

It produces 26hp at the drawbar and 31hp at the belt. It weighs about 4,300 lbs. and is equipped with a 2.7L 4-cylinder gas Continental engine.

Tickets are available for \$1.00 each or 6 for \$5.00.



## BOOS - CONTINUED

How does it work?...well, poorly at best. There is small cup designed into the head beneath the injector. The HVID injector (if you can call it that) has a valve in the bottom that is mechanically operated. It opens in during the intake stroke. The injector valve drools fuel into the cup and closes at the bottom of the intake stroke. When the piston comes up, the mixture is heated to 1,400 degrees by 500 psi. Hot engines run better because the residual heat helps to vaporize the mixture. Cold engines can be a challenge.

In summary, let's get back to the original question....is a HVID engine a Diesel engine or something else? That's up for debate based on how you interpret the patents. By the letter of the patents both are Compression Ignition engines where HVID's and Diesels are separate sub-categories based on the injector design. It's all about getting around patents.

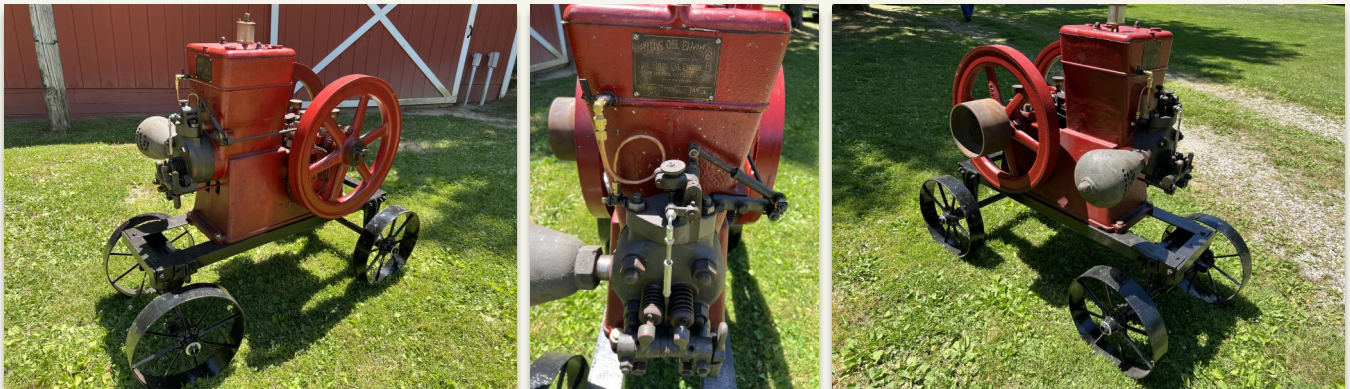
### Finally. Getting to the Engine Spotlight!

#### **Boos Oil Engine (at a Glance):**

The example engine shown below is a 3hp Boos Oil (HVID Patent) compression ignition engine owned by the Kuhl family. The Boos Oil Engine Company was based out of St. Marys, Ohio. The BOE Co. began in about 1916 as a spin-off of the engine division of the St. Marys Machine Company. Several business divisions of St. Marys Machine Co. were sold off including their foundry.

The St. Marys Foundry Co. is still in business today. The current owner of the foundry has a family legacy dating back to her grandfather who was a partner under St. Marys Machine (he made engines as well as other machinery back in his day). This engine was acquired from the owner of St. Marys Foundry Co. It was in her family for at least two generations as she can remember. Her foundry made the castings way back when.

Boos had a run of about 10 years (1916 - 1926). There is evidence of at least three sizes being made. This 3hp was the smallest. With such little information available, it's any guess on the year of manufacture in that range.



### **SATURDAY SAFETY MEETING 09:00**



Contributed by Adam Lang

Sometime around 1736 Benjamin Franklin famously stated "An ounce of prevention is worth a pound of cure". Of course, many of us are familiar with this old adage and in many ways it applies today. For our third year we will be holding a morning safety meeting at the HES tent to discuss safety measures during the show, going over club rules and identifying hazards related to operating antique equipment. Not only is this a great opportunity to gather as a group, but we can also take a moment to expose risks and discuss how to properly engage in the operation of equipment that has little or no modern safety devices. It also gives us a chance to discuss the proper action to take should an accident or emergency occur during our show. If we all work together to prevent an accident, it will ensure our ability to enjoy this hobby for years to come! If you are planning on running equipment this year, please plan on attending this meeting. I'll see you at 9am on Saturday morning at the HES tent!



THE VOICE OF  
THE HISTORICAL  
ENGINE SOCIETY

PO Box 892  
Chardon, OH 44024  
Phone: 440-669-2578  
Email: info@historicalengine.org

Meetings will be held the 2nd Thursday of the month  
(except December, January and February) at 7:30pm  
in the Theater at Lake Metroparks Farmpark  
8800 Euclid Chardon Rd. (Route 6)  
Kirtland, OH 44094

The Historical Engine Society is a non-profit organization whose purpose is to provide a focal point for people interested in the machinery of a bygone era. We encourage the collection, preservation, restoration, and exhibition of power producing devices and the machinery driven by these units.

Society fellowship consists in the sharing of knowledge, ideas and educational programs. Work parties, picnics and field trips make this a truly family oriented organization. The annual show is a year-round effort, culminating in a gathering of people and their machines. Visitors are treated to the sights, sounds and demonstrations of the power of the past.



### Membership Renewal Application

Single \$25.00

Family which includes 2 adults with children under 18 yr. old \$40.00

Name(s): \_\_\_\_\_ No. of Children: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Make checks payable to: The Historical Engine Society

Mail To:  
The Historical Engine Society  
P.O. Box 892  
Chardon, OH 44024