



# The Froelich story

■ By Ian M. Johnston

## A tractor engine – with a difference

When I mention a tractor engine of 2155 cu. ins. capacity (35.313 litres), it usually conjures up mental images of super powerful Caterpillar or perhaps GM diesels, powering vast dump trucks or excavators, of the type commonly deployed by the mining industry.

Then when I add the fact that the tractor engine I have in mind possesses only one cylinder, such a statement is inevitably accompanied by gasps of astonishment.

But I keep the best for last, when I further add the fact that this massive power plant was only capable of producing a feeble 16 brake horse power! Such an astonishing revelation invariably initiates uncomplimentary exclamations such as – “Nonsense,” “Can’t be,” “He’s been at the whisky,” “He’s past it.” For a moment my credibility has gone into a steep decline.

But those who are regular readers of my tractor epistles know full well I am not given to producing false or erroneous facts (well not usually). Which leads to the question, what is this engine I am waffling on about?

I am referring to the engine which powered the first ever agriculture tractor.

## Froelich

Away back in 1892 (even I wasn’t around then) John Froelich, an agricultural contractor, wandered down to his local supermarket to purchase an engine. Well, to be honest, it wasn’t exactly a supermarket. Even Mr Aldi (like me), hadn’t been born



John Froelich 1849–1933.

yet. But surprisingly, there were reportedly no less than 50 makes of internal combustion engines in the USA at that time. In actual fact, most were never progressed beyond the experimental stage. Well let’s face it – using gunpowder as fuel, a common practice, was not conducive to the encouragement of potential buyers!

But in 1892 there were 10 petrol powered units on the American market that actually sort of worked. It is worthy of contemplation that most of the credit for the development of petrol powered engines is directed to the Europeans – Karl Benz, Gottlieb Daimler, Nikolaus Otto, etc. Actually, the first commercial liquid fuelled engine was designed in 1876 by an American named George Brayton. (My apologies to all my German soul mates).

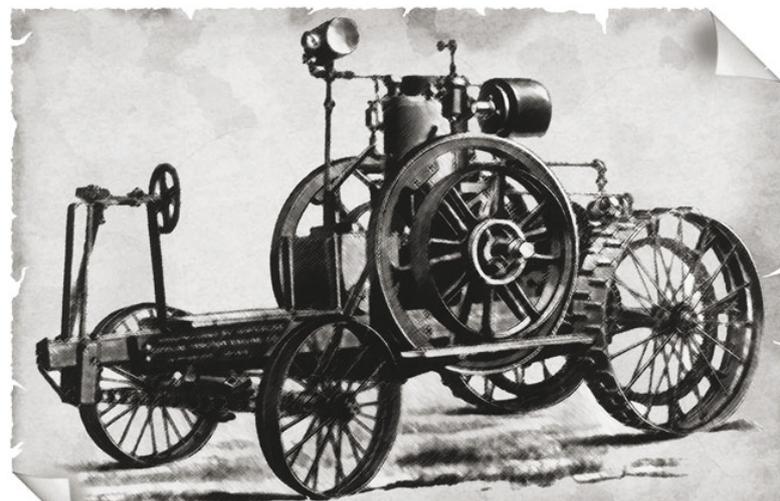
Anyway, back to Froelich. His activities as an agricultural contractor included dragging a threshing machine around farms in his local Ohio district. His tow vehicle was by necessity a cumbersome steam powered traction engine, which he disliked intensely. You see its heavy weight meant that it frequently bogged. It had a thirst like an Irish navy. He had to rise up from his matrimonial bed in the wee small hours to light its (the engine’s) boiler fire. Plus it had the irritating habit of shooting sparks into his customer’s wheat fields with disastrous results.

Tractors had not been invented yet, so John Froelich reckoned it was high time they were. Hence, his necessity to acquire an internal combustion engine.

## The Van Duzen engine

The engine he purchased was a single cylinder Van Duzen 2155 cubic inch capacity unit, manufactured in Columbus, (later Cincinnati) Ohio, by Van Duzen Gas and Gasoline Engine Company. Its dimensions were such, that it was designed to operate in a horizontal position. Froelich then shopped around and acquired an assortment of gears, wheels, axles and other hardware, originally intended for steam traction engines.

He assembled the lot on a tired old timber chassis, sourced from an abandoned traction engine. But there was a



Early drawing of Froelich ‘tractor’.



Froelich 'tractor' created from original drawings, on display at Deere & Co. Corporate H.Q. Moline, Illinois. (Photo IMJ)



Waterloo Boy tractor.

problem! The resulting kinetic energy of the ponderous engine immediately broke the engine mounts, causing all sorts of complications.

Back to the drawing board, er – blacksmith's shop. Solid brackets were produced, well capable of restraining the errant engine. So instead of the engine flopping around on its chassis, the entire contraption alarmingly shot backwards and forward causing everyone to flee for their lives!

Third time lucky! The engine was mounted vertically this time, with accompanying reinforcements added to the chassis. It tried, but was unable to punch the machine through the floor.

With fingers and toes crossed, Froelich hitched his tractor to his threshing machine and ventured forth. (Although it should be noted that the term 'tractor' was not coined for another two decades, excepting back in Mediaeval times, when the term applied to a torture machine, designed to straighten the backs of unfortunates suffering from camptocormia – rickets).

The Van Duzen's 16 bhp struggled to pull the thresher on anything but a level road. Fortunately, in Ohio much of the country resembles a bowling green. But perish the thought of the contraption ever having sufficient power to pull a plough. So Froelich's 'thing' was destined to simply haul the thresher to a farm and then be hooked up to an endless belt for the purpose of driving the mechanism. But I guess that is all he desired in the first place.

To its considerable credit, over a two month period, Froelich's machine was responsible for threshing 70,000 bushels of wheat.

Froelich reputedly produced at least one other 'thing', which he sold to a friendly farmer, who proved to be decidedly unfriendly when it kept breaking down. He returned it and demanded his money back!

## Waterloo

In recognition of Froelich's inventiveness, he was invited to join The Waterloo Gasoline Traction Engine Company in the capacity of Chief Design Engineer. His prime assignment was to design a commercially viable petrol powered traction engine. The trouble was – his prototypes proved singularly unviable! He left (i.e. was sacked from) the firm in 1895, the same year the name was changed to Waterloo Gasoline Engine Company.

Waterloo stationary engines were well accepted throughout rural North America. A chap named H.W. Leavitt took over from Froelich and was able to produce, what proved to be, an

excellent capable tractor, which he sneakily modelled on a rival tractor known as The Big Chief, manufactured by The Waterloo Foundry Company. It so happened that Leavitt once worked for that company. Shades of shenanigans maybe? (Please note – this titillating piece of information is not widely known. Remember you heard it first from me, but I would deny any knowledge of it in court!)

Enter Deere and Company. For some years this giant agricultural machinery manufacturer had been experimenting with John Deere tractors of varying descriptions. Although from a historical aspect, these tractors were technically interesting, they were also technically abysmal!

Accordingly, Deere and Company made a successful offer to purchase The Waterloo Gasoline Engine Company in 1918. Voila, in one fell swoop, they had a range of creditable tractors, with which to challenge their opposition – International Harvester, Emerson-Brantingham, J.I. Case Threshing Machine Company, Avery Company and others.

## Conclusion

Although John Froelich's contribution to the development of the farm tractor is actually of little consequence, he should be remembered as the individual who first had the vision and was prepared to put his thoughts into action. He had no recourse to previous examples, as there were none. Metallurgy was in its infancy and he certainly had no computer with which to consult. ■

## IAN'S MYSTERY TRACTOR QUIZ

**Question:** an you identify this rare tractor?

**Clue:** It is VERY English.

**Degree of difficulty:** Tricky – to say the least.

**Answer:** See page 32.

