

TRAVELING BACK TO THE INDIANA STATE FAIRS OF 1884 AND 1885

By Robert T. Rhode

By the time you read the next few words, you and I will wish for a time machine. The magnificent scenes and brilliant colors of the poster announcing the 1885 Indiana State Fair entice us back to the nineteenth century. The Indiana State Archives has graciously permitted us to view scans of the original poster. Noteworthy in the enlargement of the lower right corner are three steam engines. While we lack a machine for time travel, we have the next best thing, a book with the improbably long title of the *Thirty-Fourth Annual Report of the Indiana State Board of Agriculture, Volume XXVI, 1884, Including the Proceedings of the Annual Meeting, 1885, and Meetings of the Cattle Breeders, Swine Breeders, Wool Growers, Cane Growers, and Bee Keepers, 1885, to the Governor*. The book is available online. The artist that designed the 1885 poster most likely consulted photographs taken in 1884, and the *Report* identifies the builders of engines that were displayed at the State Fair in that year.

Eleven well-known manufacturers of farm steam engines brought exhibits to the 1884 Indiana State Fair. The *Report's* descriptions of the various builders' machines are presented in their entirety below. In the poster, the most prominent engine is belted to a bright red threshing machine. I believe that Gaar, Scott & Company of Richmond, Indiana, manufactured the steamer. Even though the engine in the poster is so small that it is necessarily imprecise, and despite the fact that Robinson (also of Richmond) and Eagle (of Indianapolis) produced engines that closely resembled those of the Gaar firm, the art features enough details to disqualify both Eagle and Robinson as the builder.

The engine hiding behind the stacks of vivid yellow straw might be a Frick. The illustration is too vague to make an exact identification, but the overall contours of the engine are reminiscent of the products of the Waynesboro, Pennsylvania, firm.

Arguably the least definite of the three, a third engine powers an orange thresher in the background behind a binder pulled

by a team of horses. The steamer has a return-flue boiler. The Northwestern Manufacturing and Car Company of Stillwater, Minnesota, had both a portable and a traction return-flue engine on the grounds in 1884.

Here are pages 135 through 140 of the *Report* (with typographical errors corrected):

Report of Committee
On Special Merits of Articles Entered in
Book A,
And
Exhibited at the Indiana State Fair for
1884,

On Which No Premiums Were Offered
Detached Portable Engine, by G. H. Zschech & Vinton Iron Works, Indianapolis, Ind. This is an 8½x10 engine, running at high speed; is very simple and compact in construction, and of excellent workmanship. It has a novel form of bed in which the material is unusually well distributed to give strength and steadiness to the engine without itself being very heavy. The boiler is of the usual locomotive style, and of first-class material and workmanship. The engine is so connected to the skids as to occupy very little space on the ground, and be conveniently handled. It was successfully driving one of their pony saw mills.

Portable Engine, by Springfield Engine and Thresher Co., Springfield, Ohio. This Company exhibit a ten-horse power engine, which they claim has some points of excellence over others, the more prominent being that it is lighter, and consequently easier to get about over the country. They also claim that it works steam with superior economy, requiring less to do a given amount of work, and thereby saves fuel. The engine is supplied with the usual pump, worked from the crosshead, and also with an independent steam pump of simple construction, which is reliable in its action, and furnishes ample means of keeping up a supply of water, whether the engine is running or not. All joints are scraped and ground, so that no packing is needed, and all parts are made interchangeable, so that any part that may be

needed to replace a broken or worn out piece may be had from the shop that will fit and work properly without sending the engine or any part of it there. The material and workmanship are good, and it is well mounted on truck with wood wheels.

Semi-portable Engine, by Deering & Co., Indianapolis. This is a four-horse power engine on skids, which occupies very little space, and has a return flue boiler of the usual form. It has the usual connections and fittings of larger engines, and is a desirable engine where only a small power is required.

Shipman Engine, by Thos. Reber, Agent, Louisville, Ky. This is a new and novel engine, occupying very little space, and uses coal oil, which is sprayed by a jet of steam from the boiler, as fuel. It has a tubular boiler in which the supply of water is automatically regulated by means of a copper ball floating in the water, which regulates the supply from the pump. It is supplied with a safety valve, but over-pressure in the boiler and waste of fuel are guarded against by an arrangement that closes the jet and stops the atomizer when steam pressure is up to 120 pounds. In the engine two single acting cylinders are used, and steam is admitted to them alternately by means of a rocking valve. The motion is kept regular by a governor on main shaft. All the working parts are encased, protecting them from dust, and avoiding any danger to careless persons. It is self-oiling and requires very little attention in running. It is claimed that it is absolutely free from danger, either from fire or explosion, and if these claims are well founded, as they seem to be, it is peculiarly adapted to use in numberless places where only a light power may be needed.

Portable Engine, by Stillwater Manufacturing and Car Co., J. B. Parker, Agent, Indianapolis. This engine differs from others in general use mainly in the construction of the boiler, which has a fire-box and a large, direct flue, 20 to 22 inches in diameter, through the lower part of the cylindrical part of the boiler, and the upper part is filled with 2½-inch return

flues. It is claimed that this arrangement gives better steaming capacity to the boiler, making it easier to raise and maintain a head of steam, and adapts it to the use of all kinds of fuel, either coal, wood or straw. It is supported on a good truck, the rear axle extending around under the fire-box. The engine is a good one in all respects, and is furnished with an independent steam pump, which may be worked by hand when necessary.

Traction Engine, Peerless, by Geiser Manufacturing Company, Waynesboro, Pa.; A. C. Hamilton, Agent, Indianapolis. This engine is stylish and attractive in appearance, and has some peculiarities worthy of special notice. The boiler is of the usual locomotive style, with open bottom fire-box; but a notable feature in it is that it has an attachment to the crown-sheet that retains a quantity of water that cannot run off of it in going down grades. This is regarded as a very important addition, as any exposure of fire surface not covered with water is at least very injurious, if not immediately dangerous. The engine is gotten up in the best style of workmanship, with all parts made interchangeable. Among noticeable points are that the cylinder, with one head, and the steam chest, are cast in one piece, leaving only two joints to make. There is also a new device for reversing, using only one eccentric. The driving wheels are very large, giving a large surface in contact with the ground; and, as it is intended to be used also for plowing, two additions to the wheels are provided which are readily attached or detached that make, when attached, a very wide faced wheel,

adapted to pulling heavy loads on soft ground. Spur gearing is used in the compensating gear instead of bevel, as is usual. A gang of plows intended to be operated by this engine was detained on the road, and were not received in time to be exhibited.

Portable Engine, by Nichols, Shepard & Co., Battle Creek, Mich.; W. S. McMillen, Manager,

Indianapolis. This engine has a locomotive boiler, with water front and bottom to fire-box, and extra heavy flue sheets, and all made of the best quality of iron, with first-class workmanship. Copper thimbles are used at the flue ends in the fire-box, which, with the extra thickness of sheet, it is claimed, reduces their liability to leak to a minimum, and, consequently, avoids the deterioration



Proclaiming the pageantry of the Indiana State Fair, this colorful poster was printed in 1885. Reproductions were made in 1966 and are occasionally sold online. Scan of the 1885 poster courtesy Indiana State Archives

that takes place so rapidly from corrosion on leaky surfaces. The engine is well constructed of the best material, and is placed on the side of the boiler, on a good bed, in a convenient position for handling and caring for. It has a good pump, worked from the cross-head, and is provided with all necessary fittings of the best quality.

Kriebel Engine, by Rice, Whitacre & Co., Chicago, Ill. This is a new style of vertical engine, very simple in construction, and has few parts to look after and keep in order. The cylinder is supported on trunnions, on which it vibrates. The piston rod is connected directly to the crank, without the intervention of cross-head or connecting rod, and has no eccentric or rod. The admission and exhaust of steam is effected by the vibration of the cylinder by means of a valve which is connected to lower end of cylinder, which has a curved convex face, which is a segment of a circle concentric with the trunnions, and has openings, or ports, through it that communicate with either end of the cylinder. A sort of steam-chest has a concave face, and makes a joint with the valve, and is held up to its place against it by springs, and has a pipe, or opening, through it for admission of steam, while an annular opening around the steam pipe allows the passage of exhaust steam. In operation, the rotation of the crank vibrates the valve on the end of the cylinder until, at the proper time, a port is over the steam pipe, or opening, and steam is admitted to one end of the cylinder, at the same time bringing the port of the other end over the exhaust opening, which movement is alternated between the two sides of the piston-head as the crank rotates.

Traction Engine, by the Birdsall Company, Auburn, N. Y., C. E. Merrifield, Agent, Indianapolis. This engine differs from others in many respects. The first to arrest attention is the driving wheels, which are large, and made almost entirely of wrought iron, being very strong and light; and a distinctive feature, not found in any other, is that there are openings through the tire, or face, which, it is claimed, enables it to hold better in slippery mud, wet grass or weeds, without extra attachment. The entire weight of the boiler is supported on springs, which break the force of shocks received in going over rough places. The engine is well gotten up, and is placed at the extreme forward end of the boiler, and has two steam pipes, one taking steam from the forward end, the other from the dome, enabling it to get dry steam from one or the other, with water fresh in the boiler, going either

up or down hills. By a simple arrangement of a single eccentric a reliable reverse movement is secured, avoiding the wear and complications of the link. The whole rig is well designed, is of good material and workmanship, and as light as is consistent with the rough, hard service required of it.

Traction Engine, by Nichols, Shepard & Co., W. S. McMillen, Agent, Indianapolis. This engine is handsome in its design and finish, and has many points of merit in its arrangement. The boiler is supported on six spiral springs, two on either side and two under the fire-box, and is made of only two sheets of iron, double riveted. The crown sheet is about four inches lower at the back end, over the fire door, than over the flues, and has a fusible plug at the highest point. This slope of the crown sheet gives so great a depth of the water at the back end that it will not be likely to become bare of water in going down any reasonable grade. The

flue sheet is half inch thick, and copper thimbles are used at flue ends. It has water front and bottom, and both pump and injector are furnished for supplying water. The engine is a first-class one in all respects, and uses the Hoag reverse pinion movement. It is furnished with all necessary fixtures, conveniently placed for use. The stack has an improved bonnet that guards very effectually against danger from fire.

Portable Engine, by Springfield Engine and Thresher Company, Springfield, Ohio. This is a good engine in all its appointments. It is mounted on a frame, and is not supported by the boiler, as is usual. The driving wheels are entirely of wrought iron, except the hub, and are so connected to the axle that one or both may be fastened to it, and all turn together, as in a locomotive, or either or both may be detached, and used as a portable. The forward wheels are pushed by the frame from the rear and not by the boiler. Steel springs



This detail of the original 1885 poster depicts three steam engines; the artist probably received inspiration from photographs taken the previous year. Scan courtesy Indiana State Archives

are used in the compensating gear, which allows them to yield a little when the wheel strikes an obstruction or has unusual strain from any cause, lessening the danger of breaking the gearing. The link motion is used for reversing the engine, which has all its parts conveniently arranged for handling or being cared for in running.

Traction Engine, by M. and J. Rumely, La Porte, Ind. In this engine great care is taken to secure the best material and workmanship. The boiler is made of a superior quality of iron, with a very large dome from which steam is taken through a dry pipe, which secures dry steam under all ordinary circumstances. It has water front and bottom, and large flues, through which a better draft is secured than through smaller ones. The engine is placed well back to give weight over the driving wheels. Uses the link for reversing, with an extra long phosphor-bronze block, thus securing the best possible wearing properties in this kind of reversing rig. Uses the usual cross-head pump for supplying water. The driving wheels are large, and are driven by a straight train of gearing, with the usual compensating gear on counter shaft. The front wheels have an elevated ring or ridge around the center to prevent lateral slipping. A good spark arrester guards against fire. It is conveniently handled by the engineer, whether at regular work or running on the road. As geared it will travel about four miles an hour.

Traction Engine, by Eagle Machine Works, Indianapolis. This company have one of their traction engines on exhibition, which is a well-made, light, and yet substantial machine, well adapted to the work it is intended to do. The boiler is well made of the best quality of iron, with water front and bottom, and is hand-riveted. The engine is mounted high on the boiler, getting the band-wheel well up out of the way of the front wheels. It has a novel arrangement for reversing, which is effected by means of a spiral feather in the main shaft over which the eccentric slips and is revolved by it sufficiently for the purpose. It is easily operated. Water is supplied by the usual arrangement of pump under the cylinder. The wheels are all iron, the driving wheels having an internal spur wheel attached to lugs from their rims, by which they are driven. Has compensating gear.

Traction Engine, by Northwestern Manufacturing and Car Co., Stillwater, Minn., J. B. Parker, Agent, Indianapolis. This engine is of the same style as their

portable in all respects, except in having traction attachments. The boiler has a fire-box with water bottom and cast iron front, which may be removed to facilitate repairs in the fire-box, when needed. It is claimed that the large direct flue and smaller return flues give this boiler the best steaming capacity with any fuel, and enables it to burn straw advantageously, which others cannot do at all. The engine is well constructed, and is different in some of its arrangements from others, the most noticeable being the friction clutch, or pulley, by means of which the engine may be instantly connected or disconnected from the traction wheels, enabling the engine to get under headway after being stopped in a difficult place, and thus enable it to move its load, which it might not be able to do otherwise. One of these friction pulleys carries a sprocket chain which drives a counter shaft carrying the compensating gear, and pinions that engage in spur wheels that are fast on traction wheels. There is also a novel arrangement of the eccentric for reversing, that is claimed to effect all that can be accomplished with the link in a very simple manner, and is not affected by wear as is the link.

Traction Engine, by Frick & Co., Waynesboro, Pa. This engine is so well gotten up in all respects as to arrest the attention of the most casual observer. The boiler is well made of good material, with waterfront and bottom, and has a large heating surface for the work it is intended to do. The main frame of the engine consists of two wrought iron sills, which extend from the front axle back of rear end far enough to support engineer's platform and water-tank. They are not rigidly connected to the boiler, though the rear end is supported from them by a wrought band passing around under the fire-box. The engine frame is also supported at the back end by these sills on vertical plates, which are riveted to them, while the forward end rests on the boiler, but is not rigidly connected to it. By the arrangement of these sills and engine frame, all strains from unequal expansion and contraction of boiler and other parts are avoided. Uses the link reverse on engine, and has an elastic compensating gear in its propelling gearing that serves a valuable purpose in breaking the force of shocks from sudden starting, striking obstructions or other cause.

Traction Engine, by Gaar, Scott & Co., Richmond, Ind. This establishment exhibits one of their traction engines, in which the design, material and workmanship are

excellent. The boiler has the water front and bottom, and is well made of the best iron. The truck wheels are all iron, the drivers having an internal gear wheel, by which they are driven, attached to their rims, relieving the spokes of any strain. A spiral groove or corrugation in the roller on which the guiding chains wind causes them to always wind alike, saving time in taking up slack in guiding, and holding it steadily in its course. The engine is compact and convenient, and is claimed to work with the greatest economy, and to develop unusual power in the field or on the road, being ample to go with its train through plowed fields or rough roads wherever desired. It is also claimed that it will go down any ordinary hill with safety to the crown sheet if water is carried flush. For reversing, the regular locomotive link motion is used.

Traction Engine, by Robinson & Co., Richmond, Ind. This firm exhibits their traction engine, which has many points of merit. Among these may be noticed that it is very readily put out of gear, so as to be moved as a portable by horses when necessary. The boiler is supported on springs over the rear axle, which break the force of shocks that are so destructive to heavy machines passing over rough places. The regular locomotive link is used for reversing, and the two eccentrics are cast together, so that when one is right the other must be. The arm of the rock-shaft is one and a half inches above the center of the shaft when the valve is on half stroke, by which arrangement it is claimed there is much less wear of parts, as the engine is always run in one direction in doing regular work. The general arrangement makes it very convenient to handle, and the material and workmanship are superior.

Contact steam historian Robert T. Rhode at 990 W. Lower Springboro Rd., Springboro, OH 45066; e-mail: case65@earthlink.net

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Robert T. Rhode will be available to sign Steam Tractor Encyclopedias at National Threshers Show at Wauseon, OH June 22 and 23rd. Bring your books and look for him under the Grandstand.