



The Line Shaft

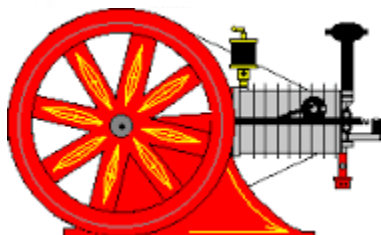
The Official Newsletter of the

NORTH JERSEY ANTIQUE ENGINE & MACHINE CLUB

June 2020



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973/903-3583



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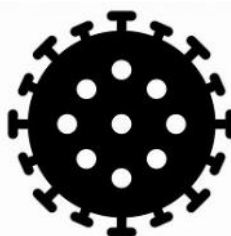
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Founded on October 15th, 1979 by: Arthur Goble, Fred W. Westbrook, John Snook, Roy Bischoff & Lewis Quince



**2020 NJ State Fair Sussex County Farm & Horse Show
Canceled amid COVID-19 Public Health Concerns!**



***All club events: including meetings, parades,
Fairground participation, etc. are canceled for
the immediate future!***

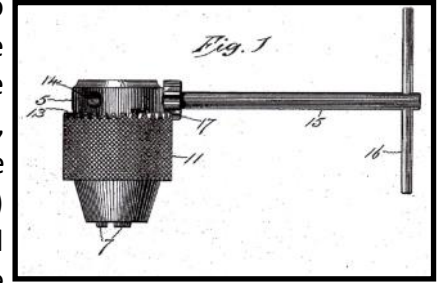
Take care of you and yours and be SAFE!

Our Web Address: njaemc.org

67 Branchville Lawson Rd., Newton NJ 07860

Drill Chuck

HISTORY: Prior to the 20th century, work holding devices for lathes, milling machines and drill presses were often called CHOCKS. In the early part of the 19th century the word evolved to chuck and the adjustable jaw 3 and 4-jaw chucks for lathes appeared. At the start of the 20th century, an American, **Arthur Jacobs**...with an eye toward the newly developing portable hand-held power drill, invented a 3-jaw chuck, which was the grand daddy of “all” drill chucks as we know them. The 3-piece jaws moved axially in inclined slots, tightly held the drill (or other rotary tool) and it quickly replaced all earlier types of chucks then in use. Jacobs received his patent in 1902 and the “keyed drill chuck” was born. The invention of the pistol grip electric power drill, by Black & Decker in 1916 (see 100th anniversary article in the July 2016 NJAE&MC newsletter), made the Jacobs Chuck an industrial house-hold word and the *Jacobs Chuck Manufacturing Co.* became a major industrial player. The keyed chuck (whoever it is built by...the patent has long ago run out) is still referred to as a Jacobs Chuck today...and you can still buy a Jacobs “branded” keyed or keyless chuck....manufactured by a major tool manufacturer, the *Apex Tool Group*.



In 1932 the German company **Albrecht** patented the KEYLESS self-tightening drill chuck. The concept had been around for decades, but they finally got it right...and yes, it does get tighter as you drill! Note: in some limited industrial circles (machinist), all brands of keyless chucks are called Albrecht Chucks and you can purchase both keyed & keyless chucks branded Albrecht and manufactured by *Albrecht Präzision GmbH & Co. KG*.

Note: there are chucks available that can be tightened with Allen-type hex wrenches or spanner wrenches. These are actually standard keyless styles that allow for “additional” tightening if required...they are generally used on drill presses and in industrial or manufacturing applications and tend to be quite expensive.

See picture page 4!



WHICH IS BETTER...KEYED OR KEYLESS: neither, they are both different animals, meant for different jobs, work patterns, materials and work procedures. The keyed chuck is generally considered heavy duty, while the keyless is considered medium or light duty. The chucks must naturally be of comparable quality, as a \$900.00 keyless will certainly be heavier duty than a \$15.00 keyed chuck. And yes...both styles, when used in machine



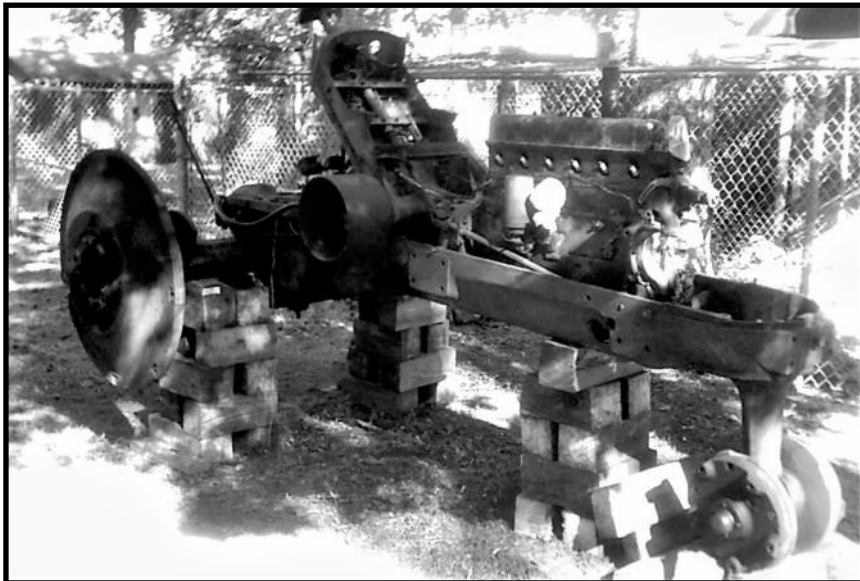
shop operations and for tight clearance and high tech manufacturing can cost as much as \$1000.00 each ...with the keyless being the pricier of the two. For wood working, automotive and home-hand-y-man applications, under \$50.00 is the norm, again with the keyless being the more popular and expensive of the two. The keyless is tops in ease of use...hand tighten and your ready to go...however, it produces a less precision product (hole), but again...is fine for most light work in light materials. The keyed chuck is more precise, grips the drill/tool tighter, works better on harder tougher materials and importantly, can drill in reverse. Reverse “left-hand/counter-clockwise” drilling is significant when drilling a pilot hole for easy-out or torch removal of broken bolts, as the broken bolt will often “unscrew” itself in the drilling operation.

The keyless chuck will generally spit-out the drill , wire brush, etc. if operated in reverse!

Both types take maintenance and you have to periodically oil them!

This article was born while your editor was servicing his (5) power drills: (4) with Jacobs keyed chucks and (1) with a DeWALT keyless chuck...the “service” went well beyond the oil can and included complete disassembly of a vintage Millers Falls 1/4” drill for commutator cleaning and the replacement of (2) chipped chuck keys!

Blace Flatt's reconditioned 1954 Oliver Super 77



The unit started it's 2nd life in rough shape...see picture at left. Bill Castimore and Chuck Klim assisted Blace with the engine rear seal and clutch replacement and Blace's grandson, Kiel Dallmo, did the sheet metal work. The balance of the refurbishment, including the paint, was accomplished by Blace himself!

The machine is "parade ready", if we could find a parade to go to!



Above...Blace



Above: Gale Flatt

*To the right...Bill Castimore and
"the top" of Chuck Klim's head!*



NJAE&MC—Upcoming Events

Check your email!

As a follow-up on the Jacob's Company...and of particular interest to members in trucking related businesses, we have a short article on the JAKE BRAKE. In the mid-1950s the now "retired" Clessy Cummins, co-founder and name-sake of the *Cummins Engine Co.*, and his son Lyle were basement tinkers. Understanding that a diesel engine was a "free breather" and, unlike its gasoline counterpart, had no throttle and little to no compression or vacuum braking and that trucks equipped with a diesel engine were almost totally dependent on their service brakes for stopping power...they developed a "simple and practical" engine retarder retrofit. It employed the opening of the exhaust valve at the end of the compression stroke. This system produced compression braking without the countering (and canceling) power-stroke "push" and was a perfect fit for both the predominant Cummins & Detroit engines of the period. Unfortunately, no one was interested in an engine that "burped" loudly (including his former company) and he had to look for a less traditional partner. He found it in Jacobs and in 1961 they put together the *Clessie Cummins Division* of the *Jacobs Manufacturing Company* and the JAKE BRAKE was born.



Note: the "burp" sounds more like a machine gun or jack hammer and prompted many municipalities to BAN their use in residential areas!

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