

FISHER FAMILY SAWMILL HISTORY

At Christmas 2011, I wrote the original version of this history, and have updated it a couple of times since. At the time I included a CD-Rom disc, a business card, a photo of our memorial saw, and a small container of sawdust.

I am revising it again now as part of my Kenny's Stuff Archive work. It may be part of a computer disk

I'm not sure, but I gathered that sawdust in December 1984. A man named Melvin Cochenour brought his own cedar logs, and if I remember right, he took home movies of them being sawn. I'm not clear, but I'm pretty sure John did most of the sawing, and Dad may have done some. I gathered enough sawdust to fill a good sized box, and kept it for many years. Later I only kept enough to fill a coffee can, and even later, kept enough for a ziploc bag. I have in my possession Mom's rubber stamp for the name, address, and phone of FISCO lumber.

FISCO LUMBER
RT. 6 BOX 310 775-0704
Chillicothe, Ohio 45601

PHONE 775-0704

Fisher & Son
SAW MILLS

RUSSELL K. FISHER
JOHN R. FISHER

ROUTE #6
CHILLICOTHE, OHIO 45601

I made an imprint of the stamp on the back side of each of the business cards. For recording purposes, the stamp imprint and the card are reproduced above.

Our family has been involved off and on in sawmill work since Eli Fisher (Russ Fisher's Father) had a mill somewhere across the road from their later home (what would become Uncle Ralph's garage), and a short distance to the North. We are not sure, but it was sometime before WWII, maybe in mid or late thirties.

There was another sawmill on Spud Run. Sturgill Keaton had a mill below Kellough from late fifties into the seventies. I can remember waking up early in the morning to that unique sound reaching us way up on the left fork. That sound was not so much the log going through the saw, as it was the sound of the sawdust blower changing pitch as the log was cut.

Sometime around 1967 to 1969, our neighbor Junior Butterbaugh had bought a small sawmill, and came to Russell for help in getting it set up right. Thus began our journey into the sawmill business. At the time Dad was working at the State Highway Dept., and in the horse and tack business, and custom hay baling part time. Soon we bought our own sawmill (a two block Frick I think), from somewhere down in Vinton or Jackson county.

One of our first engines for powering the mill was a Cummins gasoline engine. Not long after, we bought a new Caterpillar diesel. At first we did our logging with two of our horses Bill and Lucky. They were strong and willing, but we knew they could not work out in the long haul.

Dad bought a couple of small crawlers (JD400 / 420 / 440?), and a bunch of parts. These were tiny little green monsters that were always breaking down, but we did log with them for a while. We were constantly rebuilding those final drives (gear assemblies on the rear quarters), just in time for the next breakdown.

We have always had some kind of straight truck around, and we used it to bring the logs in, and take the lumber out. We seemed to be constantly working on and rebuilding trucks, cutting them apart, and welding them back together, for the many needed uses.

Our first loader was a "LONG", basically an industrial tractor with hydraulic arms that could be fitted with forks, or a bucket. Later we got our workhorse "HOUGH" fork lift, that had a hydraulic vertical mast. We used it for many years, and it was still running at the time of Charles' passing; and we gave it to Ike Park.

Sometime in the mid seventies, we splurged for a new JD350 bulldozer, that took care of all our logging problems for many years. Much later we would get skidders (general purpose articulated rubber tired vehicles), and even one of those Prentice loaders that had those arms and jaws that could easily pick up and move logs.

Besides his ready made work force (my brothers), Dad also hired some men from time to time for off-bearing, and other work. These included Keith (Ricky) Congrove, Chuck Kellough, Ike Park, Ron Lovenshimer, our cousin Tony Bowler, Junior Howard, Jesse Blevins, Buddy (Gimp) Crowe, Mike Perry, John's girlfriend Donna Demnt's son Billy, and many others. The mill became very successful, with Mom taking care of the books and bills (and running endless errands). The original mill was about 100 to 200 feet west of our driveway, and about 200 feet North of the road, with the track oriented North and South. At one point it was moved further West about 200 feet.

We had dealings with many other mills including Don Barbee, Steve Gary, Haney family (actually had a sawmill on Renick Ave. on the East side of town), Poke Davis, Johnny Bobb, Blanton family, and many others.

Eventually Dad realized he would run out of room, and the mill was moved down to just West of US23 South, a little South of Massieville, in about 1980/81. A local family, the Blantons, were partners with us, having their own sawmill on the same property for the first year or so. Dad began building picnic tables at the Massieville site. Later the mill would be moved yet again to a little North of Massieville, at the end of Renick Road, on land owned by Ray DePugh (behind the Stardust Tavern).

Dad made several of his saw boxes by hand. The saw box was probably the most critical part of the mill. It had to be perfectly square, and tolerances very close. It was made of several large pieces of wood (maybe 4X16 or larger), and was about three feet by six feet. If there was a flaw in the box, the mill could never run straight or true.

Our earliest saw blades were solid toothed saws, but eventually we moved to inserted tooth saw blades. These saws had a "C" shaped device that you could rotate with a special tool, allowing the tooth to be replaced with a new one. Most saw blades were about 42-54 inches, and rotated at about 400 to 500 rpm, but Dad did not like to operate much above 400.

There had to be two maintenance chores done regularly to each tooth. With a hammer and a swage (pronounced like edge) tool that fit over the tooth, and hit with the hammer to slightly spread the tooth out to make it wider than the saw blade (making it easier to slice through a log). Then of course the teeth had to be sharpened with a file.

My brother John Robert became quite skilled at both tasks. Once in a while, the saw blade had to be hammered. This process restored the slight cup on one side of the blade, to insure stability. Dad could hammer a saw, if need be, but we only knew one man that could do a professional job, Johnny Allbright.

Some of the companies we sold our lumber products to included the Hamden tie yards, Adelman & Clark in McArthur, a couple of places in Washington CH, and many other places.

While Dad did all the sawing (manning the stick) in the early days, he eventually taught John and Danny (Doodle). Of the three, probably John had the most skill. The logs were loaded on the skids, and rolled by cant hooks up onto the blocks of the carriage, and secured by sliding pointed dogs. The carriage set works allowed the sawyer to set the precise depth of the cut. A slab would be cut off, then one or two more cuts were made before the log would be turned down onto that flat cut face, for more cuts. Those intermediate cuts behind the slab required painstaking effort to cut the strips from each side to make a board.

Sometime about the time of the move to Massieville, Custer came up with the name FISCO LUMBER for the company. I think Dad, John, Danny, and even Mom had shares. Later, Dad created a division called FISCO NOVELTY and VENEER. The novelty part referred to Dad's increasing business in picnic tables and other carpentry products.

This came about for a couple of reasons. My brothers had the sawmill business down to an art by then, and Dad thought about semi-retirement (it never happened). The biggest reason for expanding into other areas, was due to the fickle nature of lumber prices. When prices dropped further and further, Dad just began building picnic tables, and became quite well known in several counties for his tables. He even got several write ups in local newspapers. Later he added dog houses, little wishing wells, gazebos, and storage sheds.

Dad had an extraordinary knack in designing and building those novelties. I had marveled years earlier watching him carve wooden propellers for weather vanes. He would just get in a comfortable position, and in a kind of zen state, slowly, but effectively carve it. He did such a good job, that the propeller would run too fast and free, wearing a hole where the bolt or nail went through the center, eventually falling off.

He built his tables using 30 and 60 degree angles, insuring stability, and always finished them off with diagonal trims on each corner. He also used a fixed vertical distance from seat to top of 19 inches which helped with stability. Oddly the last table he made, has one corner of the top not trimmed. It was up in the top of Custer's barn for years, but my sister Amy has it now.

He somehow knew how to mix his own special stain to paint them with. He poured gasoline in a bucket with scraps of shingle roofing. The gas would leach out and mix with the tar (asphalt) from the roofing tiles, to produce a dark matte brown finish, that also looked like it had weathered twenty years or more, after it dried. It was quite remarkable, and I don't know where he picked up that little skill.

When they moved up to the DePugh property, they switched from diesel engine to electric powered motors. There was easy access to three phase power, and in true Fisher ingenuity, Danny delved into three phase electricity, and soon became it's master..

In 1981, I came home from one of my many stays in Columbus, and by about 1982 (Massieville site), I began helping Dad build picnic tables and dog houses. I'm afraid I never got very good at carpentry, and my first few dog boxes were a sight to behold!

I was back in Columbus in 1985, but returned in 1987, and began working in carpentry again. Dad would be so frustrated by my lack of progress in learning the skills, but he paid me a complement once (very out of character for him). He said I was like a mule in harness, that no matter how the lines got tangled up, I would still pull all I could!

At one point the price of lumber got so bad, that my brothers put the mill on hold, and entered the construction trade full time. They continued Dad's many smaller products like sheds, but also built large metal pole barns on site, even building two or three houses.

After the passing of Dad (91) and John (92), Danny and Charles returned to sawmill work in addition to the construction. Something wonderful happened. I don't know if it was their growing maturity, their shared loss, or whatever, they began working together like never before. They had always been close, but now they began working together in harmony, efficiency, and passion.

All of a sudden they were more successful than ever before. I remember one time going down to visit the mill, and was overwhelmed by what I saw. They were taking advantage of newer technology like pneumatics, computers, and electronics. There was an energy, purpose, and passion about their work both in mill and construction, that just took my breath away. One of the best showcases of their construction is the large storage barn next to the old Mt. Logan riding club building on Charleston Pk. just across the river from East Main Street.

Charles' skills at carpentry and construction are legendary. He had an ability to conceive, plan, and execute a project like no one I have ever known. It was something to see Danny and Charles experience such success. They were a fine oiled, fine tuned, working machine. Their extremely even partnership and exceptional closeness was a blessing to all who experienced it.

In the 1990's the next generation of Fishers began making their contribution. Danny's two sons Damian and Jacob; and Amy's son Russ began working at the mill. This makes four generations of our family involved in some way or another in sawmill and lumber business. Damian went to the same lumber grading school in Memphis that Danny had gone to. When Danny passed in 2000, I think it was difficult for Damian and Jacob to continue working there, but Russ continued, and Charles trained him as a sawyer, and he stayed with it up until Charles' passing in 2008.

There the story ends (or possibly put on hold). The last family member working in the business was Damian. He worked (now retired) for a lumber exporter in McArthur, and who knows, someday he, Jacob, and cousins might get the bug, and we may once again see a Fisher sawmill. So there you have it, a short history of our involvement with sawmills.

In 2016, we were able to finally get Custer's DVD (The old mill with Danny, Damian, and Billy [John's girlfriend Donna's son] in 1992) to play, and it inspired me to add some more information about how the belts and pulleys did their amazing work.

Then again I discovered a VHS tape (nearly an hour long) of the sawmill in action, with Danny and Charles in 1993 and 1994). I found it when going through Mom's house after her passing. Custer got it converted into an MP4 video, and it is an incredible video of the mill during a time of massive changes and great success.

Added to those two videos is a very short video I shot in 2005, when the mill was at its most advanced.

RUSS & EDITH FISHER'S PERSONALITIES

I cannot put into words how different Dad could be. He was as individualistic as a person could be. He was also stubborn, contrary, and hard headed. He had an unusual combination of strengths, skills, and abilities. And of course he had his faults, and weaknesses, as we all have.

No one could ever say he was an arrogant and conceited person, that just was not part of his makeup. He did however have a confidence, sureness, and a kind of self knowledge, that was both as infuriating to us, as it was a vital foundation to his life.

He used profanity more than anyone I have ever known. It was both sad and humorous to witness his mastery of this form of communication. When on rare times he would run out of steam, and swear words would not give him the needed outlet, he would just go silent and tremble in frustration.

He could also lose his temper with incredible swiftness. The amazing thing was, he would get it off his chest, and then he would be perfectly calm and peaceful. It served as a type of catharsis for him. The rest of us, like most normal people, couldn't change gears that fast, but would harbor bad feelings, and take some time to get back to normal.

I think the biggest irony in his life is the different way he interacted with his family, and with his friends and acquaintances. With other people, he was positive, outgoing, and people thought there was no one like Russ Fisher. With his family he was quite reserved, introverted, and could be quite moody and dark at times.

He tried his hand at just about everything in his life. These included working at a gas station, foreman of a crew trimming trees on power lines, selling pulpwood to the Mead, selling firewood, Land Surveying, Custom hay baling, operating at least two family grocery stores, operating a tack room that did a brisk business on the weekend, keeping and raising cattle, hogs, horses, and once even ducks. He was never afraid to fail, even though he did a few times. I think he was a dreamer at heart, and could be subject to flights of fantasy. He was lucky that his wife was just the opposite. Edith's down to earth approach to life, and her storehouse of wisdom and common sense probably kept him out of trouble (on the exceedingly rare times he listened to her).

He had a way of doing business in the community that was very unique. He was on first name basis with many of the business owners. While both Edith and Russ were greatly respected by many people, Dad was held in high esteem by many businessmen, professional leaders, and government leaders.

I think people responded to the way he treated them equally. Business men and other leaders enjoyed the opportunity to step out of their heavy roles, and just be treated as a person. He got along well with most people, but he did have a sensitive part that could be offended, and his feelings could be hurt.

I remember well on our few trips to the county fair, how he would find himself a comfortable spot, sit down, and all night would talk and talk to people he knew. He was in his element, and as long as someone kept bringing him coffee and a sandwich, once in a while, he was fine and dandy. He would stay put, and allow people to come to him.

Our friends and relatives were surprised by the fact he just expected someone to get him food or a cup of coffee, and carry it to him, where he was sitting comfortably.. Even a couple of hours after supper, he would sometimes say "Ede, fix me a couple of eggs". Whatever she felt about it, she went and made his eggs.

Speaking of food, I have never known anyone who loved to eat as much as Dad did. His favorite food (besides coffee) was biscuits and gravy. After their separation, when Dad used to go stay overnight at her trailer, Mom would make gravy and seven biscuits. Mom would eat the one in the center, and Dad ate all the res!. He loved eating at certain restaurants, like HiWay and SchoolHouse truck stops, Senate Grill, Odell's in Richmondale, and many others. He had a way of finding out of the way places that put out great food.

He had many, many strange ideas about things. For example, he detested ice water, preferring instead to drink tepid coffee or water on a very hot work day. He really thought that he would die if he sneezed seven times in a row. He was so certain about the things he believed or stated. I sure would like to know where that certainty came from.

One of his favorite sayings was "I think you'll find". It was his way of saying, yes, you have a right to your opinion and belief on the matter, but in the end, you would come to agree with him. Of course he was not always right, but he was right many, many times! Another was "I never saw a saw, saw like that saw saws"!

He had a strange fear of baseballs. When we played ball, it was always with a softball. He could get very upset and angry when anyone around him wanted to play with a real baseball.

John Robert and Dad had a very unusual relationship. It began when John was allowed to call him Russ at an early age. John was about the only one who would argue with him. In fact he loved it! They could get into the worst melees that you can imagine (over nothing). I remember during the gulf war in 1991, they were arguing over the difference between a mission and a sortie!

While many people respected him evenly, Dad made quite a distinction between people he liked and disliked. Let someone he disliked interrupt his work, and he would say "What in the he** does he want?". He would help them with what they wanted, then quickly got rid of them. On the other hand, if someone he liked came, he might just close up shop, and spend the rest of the day with them at a restaurant or bar.

I was always struck by his drive to be doing something, building something. As a kid I was pretty lazy, and I couldn't imagine why anyone would choose to be as busy doing things as he usually did. He loved to be building something (especially a new project). I even remember many times being out in blowing snow, cold, and dark; holding a flashlight as he worked on a building or a fence. Something drove him so fiercely, it is difficult to comprehend.

With that obsession for constantly building something, he never finished anything to its conclusion. He was much happier dreaming up his next grand project, than waste time adding finishing touches to his last project. Mom had to finish much of the trim work in the house, because he went so far, and then stopped.

Outside of work, he had two hobbies, music and coon hunting. He said he learned how to play the mandolin in his mind, before he ever laid hands on one. In the late 40's and early 50's he played fiddle at a lot of square dances and other local events. Every weekend, neighbors would come over and they would play music and drink beer most of the night. Some of these include Ike Neighborline, Noah Sparks, our cousins Herb Bush and Clarence Garnes, and many others. Dad could play the guitar, banjo, fiddle, and mandolin.

Even after a hard days work, he would go out any dark night in the fall and winter, for several hours to hunt with his dog(s) Of course if he was going, he would get as many of us boys as he could to go with him. We would get our lanterns, flashlights, coats, guns, and dogs, and trample through the woods after raccoons and opossums.

I didn't care much for it, but I did learn to shoot pretty well. I was always impressed though that Dad never got lost. He always knew where he was, and which way home was. He was an expert dog trainer, and had many great coon dogs, including Walkers, Black & Tans, and some others.

I'll have to hand it to him. He could rest and sleep; with as much efficiency as his work. He could take a break, and make a bed out of a board, wheelbarrow, or whatever was handy, and take a nap. He would sleep ten to twenty minutes, get up and go again.

Once you got him in the mood, he was a great story and joke teller. My favorite stories were of when he was probably in his mid to late teens, of fights with his Spud Run neighbors (oddly on their way to and from church activities)!

I remember an incident when my brothers had some disagreements with some people over a business deal, and Charles (not Dad), called some woman an IMITATION S.O.B.! Like most Fisher men, Charles had a severe dislike and disgust for people who pretended to be one kind of person, who was found to be someone else in actuality. Dad was so proud of him, he bragged on Charles for months to anyone who would listen.

He was certainly a unique person. With all his skills and abilities, self confidence, and his faults, he was still a great mystery to us. I think I learned two great lessons from him. One, don't ever be fearful or ashamed to be yourself (no matter how strange you may seem to others). And two, you can do anything you can SET your mind and will to accomplish.

Edith had her own unique combination of skills, talents, and abilities (and of course faults as we all have). For many years she served as a notary public, and an election worker. She has a way with bookkeeping and finances that are just fantastic. She is down to earth, full of wisdom, and has an ability to press through the tough things, and enjoy the good things. With Dad's mercurial temper, she had to carefully choose her battles with him.

One huge thing I learned from her is the importance of posture, appearance, and an overall appreciation of the simple things of life. When we were younger, she would harp constantly to us - "stand up straight, comb that hair, tuck in that shirt tail, tie those shoes, fold that collar down, stop mumbling, don't say huh" and so forth. I used to wonder what is her problem? I really didn't see it's significance then of course, but she was preparing us for life. Thank you Mom for riding our butts!

Of course being the mother of seven children, she was an excellent cook. She often made fresh bread, and the smell filled the house. She would make several loaves of bread, along with large dinner rolls, and cinnamon rolls made with the scraps. It was similar to Grandma Meeker's bread, but different. Her Mom's bread was coarser, and had a different texture. On my visits in the summertime, I learned to love hot tea at breakfast, with Grandma's wonderful home made toast.

At holidays Mom would make about 8 to 10 pies, mostly pumpkin and apple, but some chocolate and others as well. I remember her frying pancakes on the stove, using three and four skillet, and we ate them up as fast as they came out! She learned a trick from her Mom, of turning leftover rice (none of us cared a lot for rice), into chocolate rice, that we just loved. Our friends and relatives couldn't get over this unique dish that we were all used to having on a regular basis.

Of course her meat loaf is legendary. Custer always said its best quality is that it never tasted the same way twice. Another item I was very fond of was salmon cakes (baked I think). Of course it was really mackerel, but I thought it was delicious. She rarely measured anything, she just mixed what amounts she thought was right by instinct and experience. One of our favorite deserts was cake with hot chocolate pudding poured over it. If I remember right, the cake was some kind of spice cake with a glazed surface. The combination of the cake and pudding was just heavenly. Some times she used angel's food cake instead. Thanks so much Mom for all the great grub!

Sometime around 1981, she decided on a separation from Dad. She lived with Aunt Teen for a while, then moved into a trailer at Carousel Court. She went through some very tough times. I think she feared she was losing her mind, like her Grandmother Ivy Hess was reported to have suffered.

One personal note here, and it is just my own subjective observation. About the time Custer bought the Seymour property, and she moved in, I noticed something very unique about her. She had been through some pretty rough times with her and Dad's separation, and for a time she was a little lost and floundering. But suddenly, I sensed that she experienced perfect peace.

This is a rather difficult concept to put into words, and again it is a very personal and subjective perspective. I was only then beginning to mature myself in my late thirties! For whatever reason, I sensed in her a comfort, security, confidence, and PEACE! It was something amazing to experience. I later sensed the same thing in Danny.

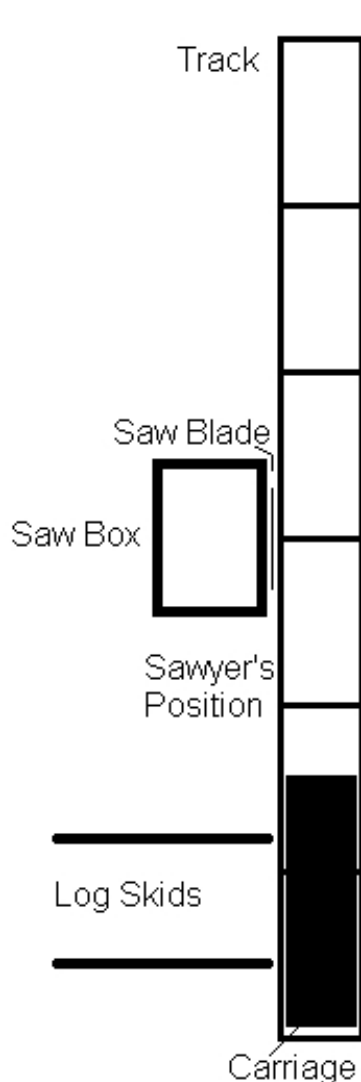
She has such an amazing attitude. Even through the terrible ordeal of the separation, she never let it defeat her, or steal her joy. The only time I have ever heard defeat in her voice, was with her terrible shingles illness; but she didn't let it get her down for long.

She finally had her second knee replacement a few years ago, but caught some strange cellulose disease in her lower legs and feet., She had a very strange and dangerous urinary tract infection that nearly killed her around 2017, but since then her health has been excellent. I am as grateful for my unique parents, as I am thankful for being raised in the country, with all its blessings and curses.

SAWMILL ELEMENTS AND OPERATIONS

A sawmill has long been an important part of our society. I think they were invented by Germans around the 1600's. In the beginning they were powered by water wheels that drove a crosscut type of saw up and down in a saw pit.

The kind of sawmill Dad knew about became common in the US in the late 1800's and early 1900's, and was powered by steam engines before internal combustion engines became common. They consisted of a carriage that held the log, traveling back and forth on a track, while a circular saw made the needed slices. The description that follows is in general terms, more specific details come later.



On the left is a simple diagram of a modern sawmill. The gas / diesel engine or electric motor would sit at the left of the saw box, and transferred power to the main axle (mandrel) and saw blade via pulleys and belts. Most sawmills use a number of small V belts, instead of the single flat belt, for improved friction, between the engine / motor and the mandrel axle.

The sawyer's position is indicated. With his left hand he controls the stick, and with his right hand controls the carriage's set works. More about these terms later. He also often with the help of another person, loads the logs from the skids onto the carriage blocks.

The sawmill carriage holds the logs, and transports them through the saw. There must be enough track on each end to take care of longer logs. Our mills could usually handle sixteen foot logs, but we rarely took advantage of it. Most of our logs were 8-12 feet long. The logs were loaded onto the skids by a loader, then rolled up onto the carriage.

A sawmill carriage has heavy steel members called blocks, that support the weight of the log. Our first mill was a two block Frick, but there are four block mills. The log was secured to the carriage block with sliding mechanisms called dogs.

These dogs had a sharp end that pierced into the log, through the bark, and slid up and down on vertical steel members, that had notches that allowed them to be positioned and clamped into place.

The carriage set works are a complicated gear and mechanical system that allows the sawyer to adjust the exposure of the log to the saw. It had a long handle that came to within reach of the sawyer's right hand. The handle could be twisted left or right for two different operations. One way allowed the blocks to move slowly and accurately forward to set the exact position where the saw would cut through the log. The other setting, allowed the blocks to be quickly moved back to prepare for another log.

The sawyer's left hand controls the stick, which directs the carriage forward and backward. The pulleys in the saw box (connected to the stick) have springs that keep the pulleys in a neutral position, with the carriage is at rest.

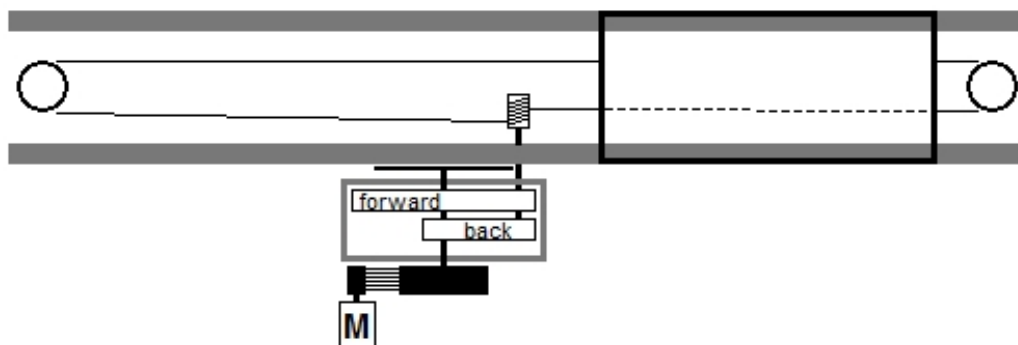
On the following pages are some diagrams of the saw box, pulleys, and belts. The mechanics of the sawbox, pulleys, belts, cables, and carriage is a very unique combination of elements that allow the sawyer to easily direct the movements of the carriage. There are two belt and pulley systems within the saw box. The set closest to the saw is for normal forward (sawing) motion. The other set close to the drive pulleys controls the reverse movement. Key to these two sets of belts and pulleys are two moveable pulleys that are connected to the motion of the sawyers stick through a linkage.

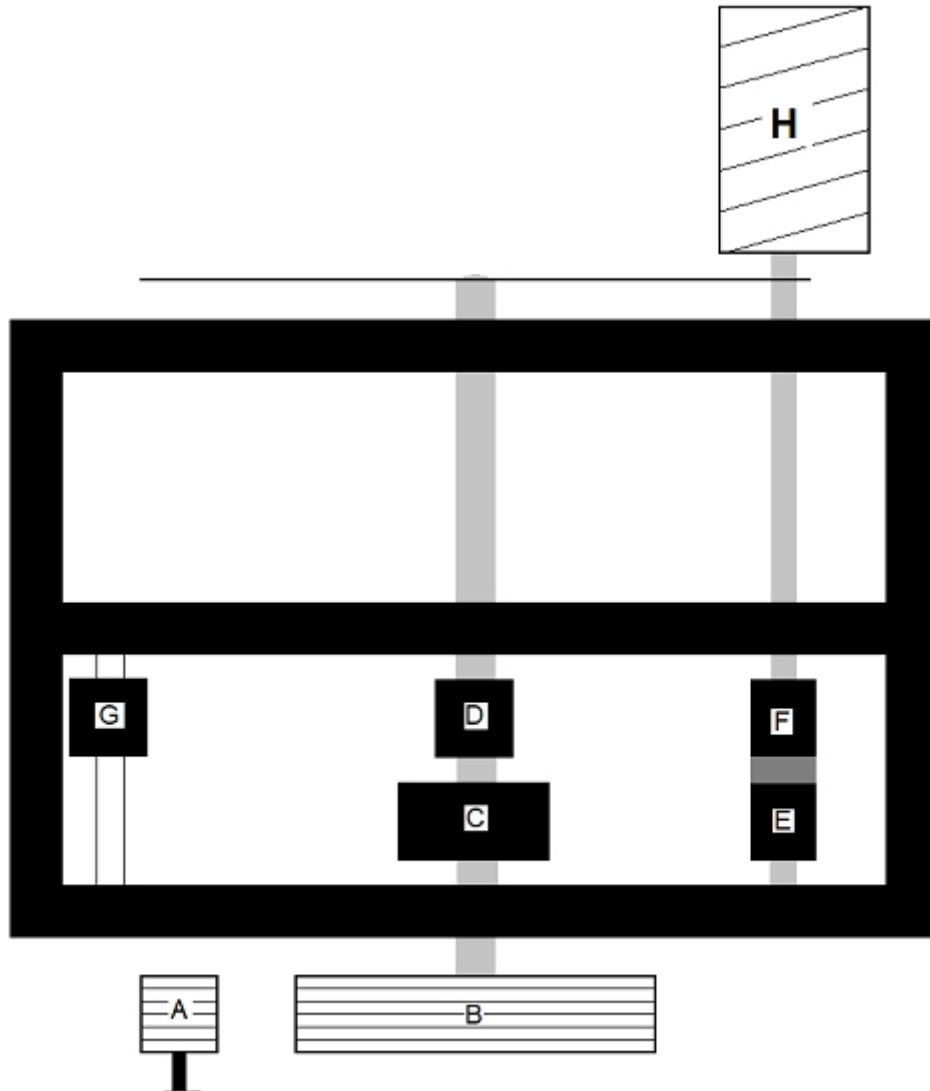
Pulley **A** is off the electric motor, and drives pulley **B** through several separate V belts. Pulley **B** is connected to the axle (mandrel), which is also connected to pulleys **C** & **D**, and of course the saw itself. There is another axle that has a special double pulley (**E** & **F**), and carriage drive drum **H**. Finally pulley **G** is attached on top of the saw box, and plays a part in the reverse belt pulley system. **I** & **J** are the two moveable pulleys, **I** for reverse and **J** for forward.

These two moveable pulleys (**I** & **J**) interact with the fixed belt pulley systems. As the sawyer pushes the stick **forward**, pulley **I** increases its tension with the reverse belt pulley system, to move the carriage backward. As the sawyer pulls **back** on the stick, pulley **J** is in contact with the forward belt pulley system to move the carriage forward. More about pulleys **I** and **J** is found on a later page.

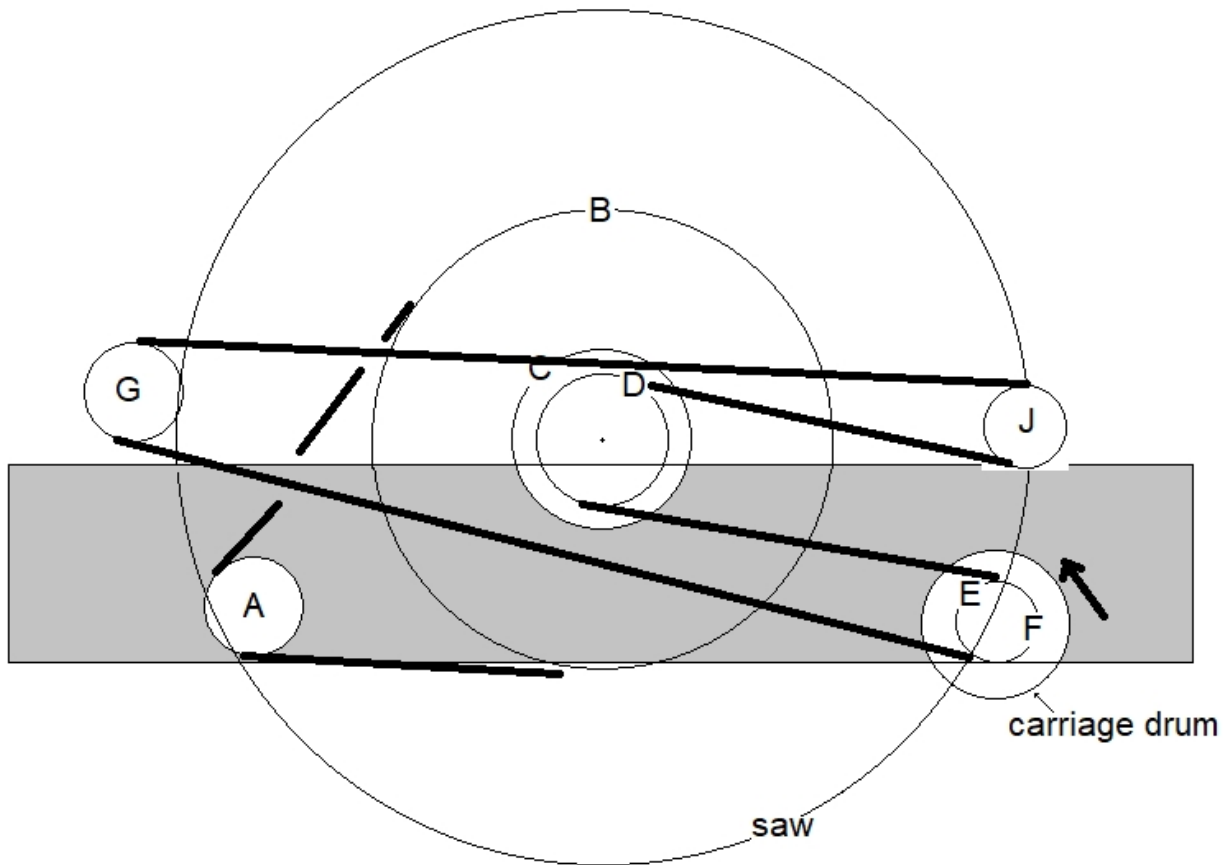
Pulleys **E** and **F** are actually one single pulley with two halves. It is on the same axle as the drum (**H**). Whichever belt has tension, controls the rotation of the drum, and of course when both belts are slack, there is no rotation.

There is just enough slack in the belts, so that the carriage is able to stay in one position, when needed. There are springs connected to the system that ensure the carriage does not move, when it is still. Below is a graphic showing the entire sawmill. At the carriage drive drum, the cable from the left chev wheel winds the drum from the bottom, while the cable from the top of the drum goes to the right chev wheel.



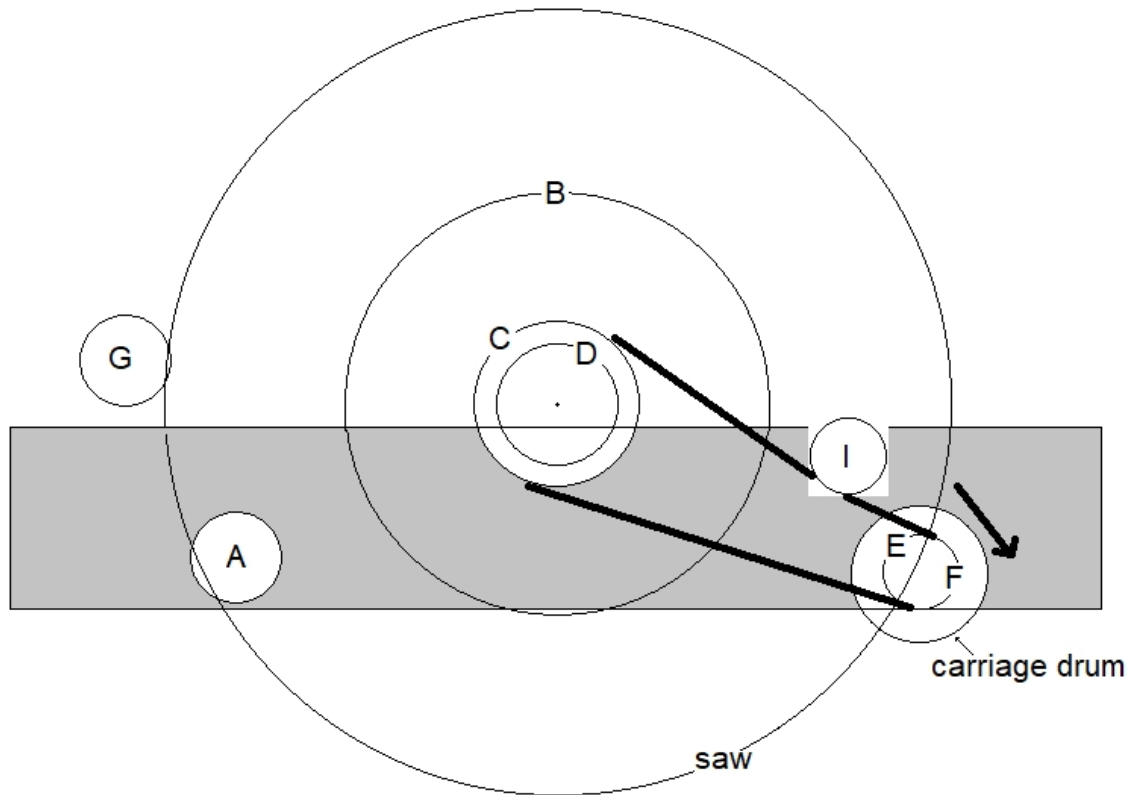


This is a top view of the saw box. Pulley **A** comes off the three phase electric motor, and several separate V belts connect to pully **B** which drives the main axle, called the mandrel. That mandrel also drives pulleys **C** and **D**, and of course the saw. A secondary axle is tied to pulleys **E**, **F**, and the carriage drive pulley, called a drum (**H**). That drum is drawn a little larger to scale to show the spiral grooves that carry the drive cable. Not shown is the moveable pulley system, with pulleys **I** and **J**.



Carrage Forward - stick back

This diagram from the side shows the pulleys. Pulley **J** is shown (**I** is not). The dark lines are belt locations. Notice that pulley **A** drives the sawmill through pulley **B**. As the sawyer pulls back on the stick, tension develops on pulleys **D** and **E**, causing the drum to turn in direction indicated by the arrow.

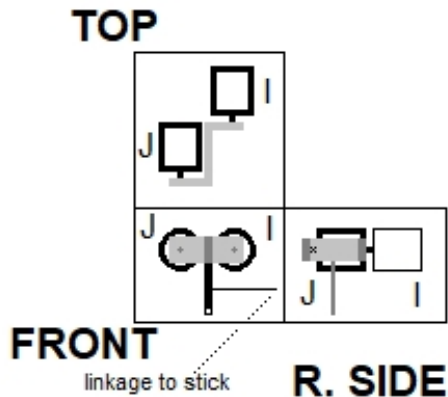


Carraige Reverse - stick forward

This is almost identical with the last chart. The drive belts from A to B are not shown, neither is pulley J shown. Here, the sawyer pushes the stick forward, allowing pulley I press against the belt, causing pulleys E and drum (H) to turn, pulling the carriage backward. Since pulley C is somewhat larger than D, the reverse speed is a little faster than the forward carriage speed.

Movable Pulley System and Stick

In addition to all the other pulleys which are fixed in place, Pulleys **I** and **J** are on a structure that moves with the motion of the sawyer's stick. This diagram may be difficult to fully comprehend, just give it some time. It is not exact, but pretty close to



what I remember, and clues from videos. There are three different views to allow you to figure out what it looks like in reality. The front view is looking towards the saw, with the sawyer to the right. This assembly is a key part in the movement operations of the carriage as it rolls forward and back. Pulley **I** (the one closer to the motor, works with pulleys **C** and **E** to move the carriage in reverse. Pulley **J**, closest to the saw works with pulleys **D**, **F**, and **G** to move the carriage forward. The bracket in grey has a part that goes down to a pivot point, and a link arm connected to the sawyer's stick. If you have access to the videos, the oldest one with Danny

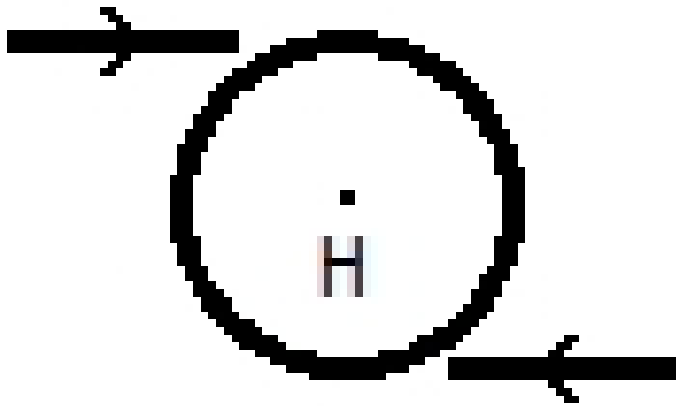
sawing, shows how this pulley assembly moves, as Danny moves the stick. In later videos either the saw box is covered over, or the technology is different.

That pretty much covers the sawbox and its belts and pulleys. Now I will go on to describe the carriage and how it moves. The carriage is like a wagon on small steel wheels. Smaller ones had four wheels (two axles), but the larger ones had six wheels (three axles). Most of our mills were three block mills. A block is a heavy steel assembly that helps hold the log tight on the carriage. Each one had a sliding dog with a sharp end that pierced the log. Each block also had a set-out lever that could be used with bent or odd shaped logs, to help with stability.

All of the blocks were tied to a complicated piece of machinery called a setworks. When the sawyer used the setworks handle to move the blocks back and forth, all blocks moved in unison.

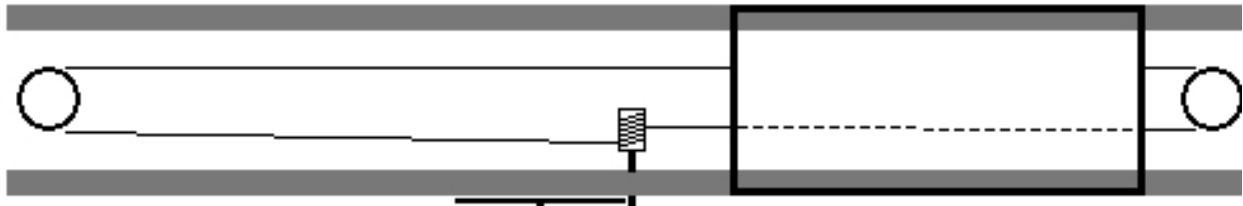
Key to the operation of the mill was a solid stable, level, and square track. On the far side (from the sawyer's perspective) the track was flat steel strips screwed down on the wooden members. On the near side, the track was not flat, but like an inverted V, more like 'Λ'. The wheels (more like pulleys) rode on that upraised portion. I don't remember if the far side wheels were also like pulleys, or were flat, but the carriage got its accurate positioning from those near rails.

The carriage was moved by a cable, drum, and pulley system. A small graphic on a previous page showed how the sawbox, track, and carriage worked together. Below is a graphic of that carriage drive drum, and how the cable is attached.



The arrows show direction of cables when the carriage is moving forward. In the forward mode, the cable is pulled towards the top of the drum, taking up the slack from the system on the bottom of the drum. Remember the drum has spiral grooves guiding the cable as it moves. In the backward mode cable is pulled towards the bottom of the drum, and slack taken up on the top of the drum. The cable to the left leads to a strange pulley,

called a chev wheel, then to the front of the carriage. A cable from the back of the carriage leads to another chev wheel, then back to the bottom of the drum. Here is part of that diagram I spoke of before. It just amazes me how innovative the sawmill is.



It took two to four people to run a mill. Of course you had to have a sawyer, and an off-bearer that carries the slabs, strips, and lumber away. When there was just the two, the off-bearer would often run around to help the sawyer, when he had to roll up a large log with cant hooks. These amazing tools had a long handle, with metal fittings on the other end, allowing you to grab the log, and turn it with the handle. The cant hook (**can't** do without it!) bit into the bark, and with the extra leverage of the handle, roll the log along the skid onto the blocks.

If possible, extra men could be used, one or two helping the sawyer with rolling the logs, and one or two additional off-bearers or lumber stackers. Then of course someone had to keep a loader busy bringing logs to the skids, and carrying away stacks of lumber, slabs, and strips.

Since most of our logs were green (not dried out), finer quality lumber had to be put in stacks with small strips between each layer of boards. Once the stack was high enough, they were secured with thin steel bands, and moved to a place where they could continue to dry. We also used those same bands for bundles of slabs and strips.

There is one more vital piece of equipment, the sawdust blower. The sawdust piled up extremely fast, and had to go somewhere. The blower (powered by a small electric motor and belt) had strong blades that rotated, creating a vacuum in the center. A pipe is attached to this center, and runs beneath the saw pit, sucking up the sawdust, pulling it into the blower, then out another pipe to a sawdust pile, or into a semi trailer. As I said earlier, this was the loudest noise of the sawmill.

Well there you have the basic structure and operation of our early mills. Once Danny and Charles began experiencing increased success, they began making additions and modifications to take advantage of newer improvements.

They replaced the old carriage with one fitted with pneumatic set works (controlled by air pressure). The carriage also had a special electronic sensor that could read the position of the set works, and the old stick was replaced by a booth with computer / pneumatic / electronic controls to position the set works. Also they added a power receder that allowed the set works to be receded by the power of its own movement at the control of the sawyer, and a mechanism to kick out the final piece of lumber.

The skids were assisted with a live deck, motorized log roller, and special automated tools that could be operated to turn the log around on the blocks. Also the logs were cleaned by a de-barker, to lessen wear on the saw teeth from mud and debris on the outside of the log.

Instead of piling the sawdust into piles, they began blowing it into trailers that could be trucked away to be sold. Also slabs and strips were shredded by a chipper and blown into another trailer.

The transformation from the old to the new was fantastic and unbelievable. There were other changes in addition to equipment and operations. I think they began finally to listen and take to heart all the great advice Mom was giving them in their morning coffee meetings. Whatever the source of the change, it was inspiring to see.

Here are some maps showing locations of sawmills. **A** is Eli Fisher's mill, **B** is Sturgill Keaton's, **C** is our Spud Run mill, **D** is the Massieville mill, and **E** is the one just South of Chillicothe. The first map is an overview. You can see tiny ABC at the top right between Mooresville and Tucson; and DE North and South of Massieville. The second map is Spud Run, and the third is the one for Massieville. The maps did not print as clear as I would have liked, and the letters are a little small, but I think you should be able to see the locations generally.

