

SAW DICTIONARY

THE BUILDERS GUIDE

COMPLETE TREATISE
FULLY ILLUSTRATED

By CHARLES L. JOHNSON, SAW EXPERT



Price, One Dollar

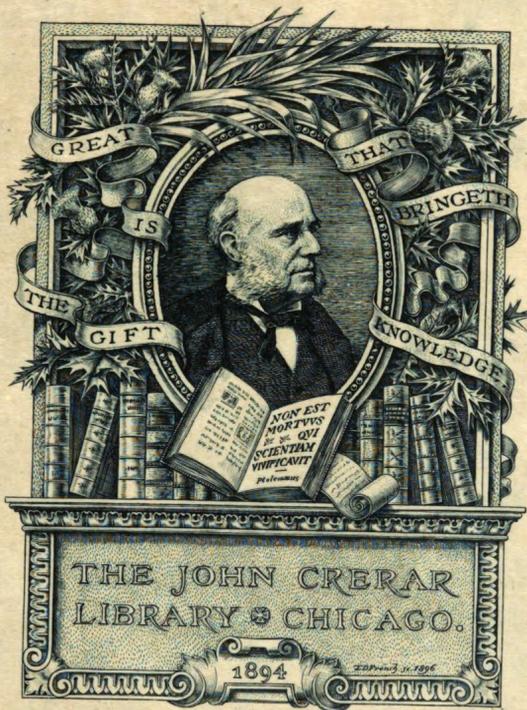
PAYS FOR ITSELF IN FILES, SAWS, LABOR AND
QUALITY OF WORK

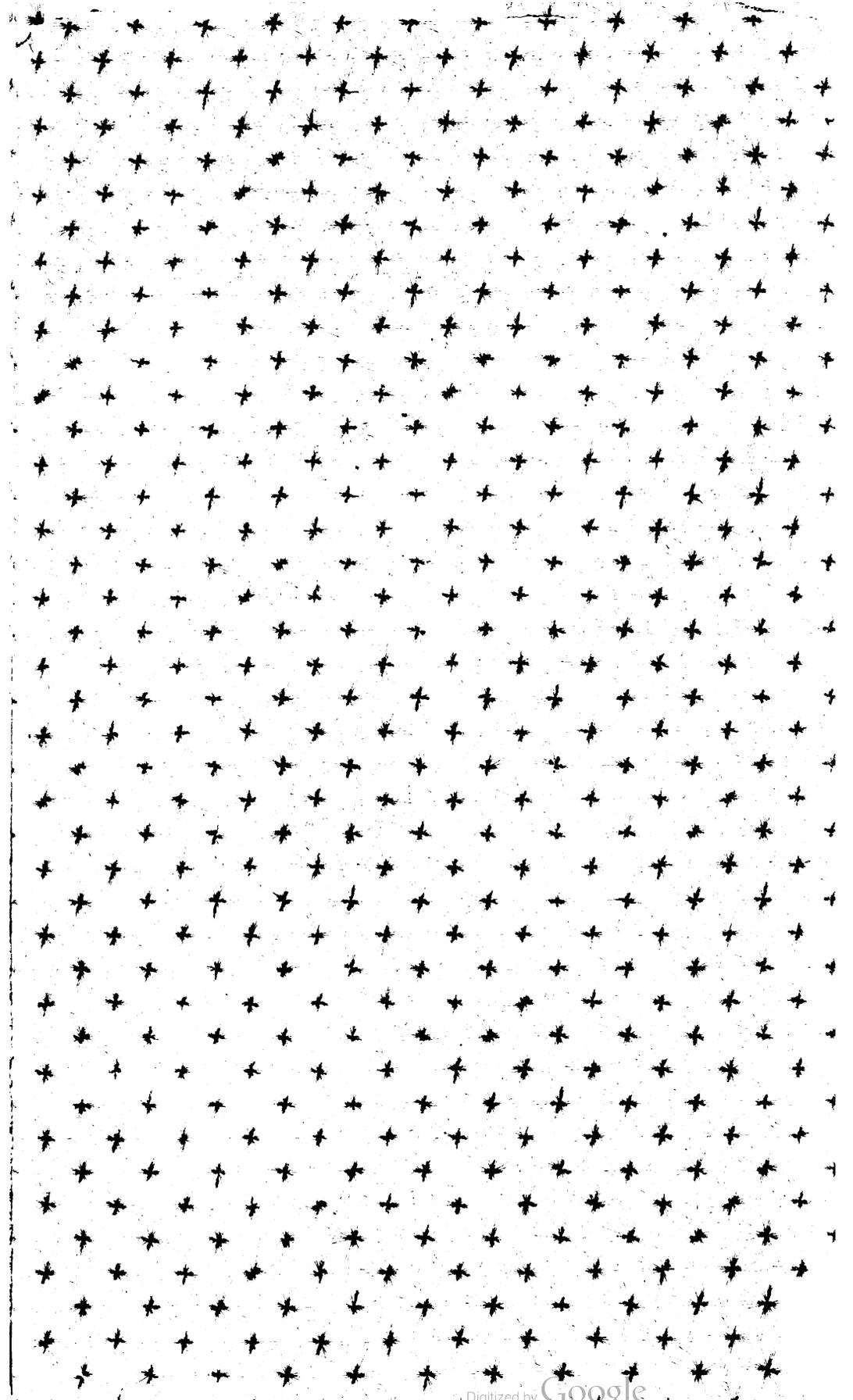
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SECOND EDITION REVISED

SAW DICTIONARY

THE BUILDERS GUIDE

HOW TO BUY GOOD SAWS AND SAW-FITTING TOOLS
HOW TO TAKE OUT BENDS, KINKS AND BUMPS

THE CARE, SELECTION AND PROPER FITTING OF HAND SAWS

A COMPLETE TREATISE
FULLY ILLUSTRATED
BY

Charles L. Johnson.

SAW EXPERT

INVENTOR OF FAST CUTTING SAWS, SAW-FITTING TOOLS AND
A SAW-FITTING SYSTEM WHEREBY SAWS ARE MADE
TO CUT TWICE AS FAST AND TO STAY SHARP TWICE
AS LONG AS SAWS FILED THE OLD STYLE

PRICE, ONE DOLLAR

PAYS FOR ITSELF IN FILES, SAWS, LABOR AND
QUALITY OF WORK

WRITTEN IN THE USUAL WAY THIS BOOK WOULD CONTAIN 1,000 PAGES

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BY CHARLES L. JOHNSON
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387
9A980 980L
Y8A9L

FREDRICK W KELLY
CIVIL ENGINEER
1305 FIRST AVE. SEATTLE U S A

May 27th. 1909.

During 1903 and 1904 the writer was Engineer for Porter Brothers of Spokane, on their contracts in connection with the construction of the Puget Sound Power Company's Plant at Electron, Washington.

One of the contracts called for the construction of a box flume 8 feet square. The work of building 8-1/2 miles of this flume was sublet to the Northwest Bridge Company of Tacoma.

The bottom of the flume was double, being made of 2 inch plank lined with 1 inch stuff. The flume was built on true circular curves, the sides being sprung to place. The last board on each side of the bottom, both of the main floor and the lining had to be scribed to fit the sides and then ripped. After several unsuccessful attempts to do this work with power saws it was decided to do it by hand.

The saws for this ripping as well as for much other work on this flume were filed by CHARLES L. JOHNSON, and it was largely due to his improved methods of filing that this work was done by hand at a lower cost than they were able to do it by power.

The floor of the 8-1/2 miles of flume for which he filed the saws called for the ripping of 17 miles of 2 inch and 17 miles of 1 inch lumber, or a saw scarf 34 miles in length, more than enough to reach from Seattle to Tacoma

Fred W. Kelly

For the Builder

The information contained herein is worth hundreds and thousands of dollars to contractors in wood construction. Obsolete saws, saw fitting tools and methods of filing and poor management in care of saws will waste more money than any other thing except work that has to be taken down because of mistakes in construction.

The best saws, saw tools and up-to-date filing are only a foundation for rapid work. Without proper care and management of the saws by the workmen, all is wasted. While many men with a little instruction will do well, it is certainly a fact that most carpenters should never be allowed to handle a five-foot framing saw except under the direct supervision of a competent man.

The contractor who would avoid bankruptcy will take much interest in this part of the work. The Author has often seen \$5.00 or \$6.00 spent for work that could easily be done for 50 cents with a good sharp cross-cut saw well managed. The use of dull saws, planes, and chisels is most expensive. Proper care and management is necessary to keep these tools in order. The workmen who handle these tools the same as hoes, shovels and picks will make more money for you by working at their old trade. See CARE OF SAWS, Page 33.

R. C. STREHLOW

AUG. FREESE

PETER PETERSEN

STREHLOW, FREESE & PETERSEN

GENERAL CONTRACTORS

A. Y. P. EXPOSITION GROUNDS

SEATTLE, WASH. May 26, 1909.....

This certifies that Chas. L. Johnson has been in our employ for the past two years. We find him an expert in the selection of saws for all kinds of work. His method of saw filing is what he claims for it, and in addition, he seems to be able to fit up any number of saws daily.

Yours very truly,

Richard Freese Petersen
Chas. L. Johnson

281353

for the Workman

The Author's success and work has been made possible by the aid of the capable, intelligent mechanic who tries to do right and to do his best. Without this individual no work can go forward to success, and in the future, as in the past, we depend on him for the successful prosecution of every enterprise. I am deeply indebted to the members of this class for what success I have attained and am to attain.

It is my duty and I am under obligation to assist any and every member to better his condition. It is the object of this work to bring unusual ability and experience to your aid in the selection of files, saws, saw tools, and to provide better tools and saws for your use than you heretofore have been able to obtain. I am glad to do this because you will get steady work and better pay. You will become the regular, dependable hand. The mechanic who has steady employment at top wages.

Seattle, Wash. April 29, '09.

Mr. Charles L. Johnson,
City,

To Whom This May Concern:-

This certifies that I am a carpenter and have worked at the trade for twenty five years, that Mr. Johnson's method of filing makes saws cut faster and stay sharp longer and run easier than any other method of filing I have ever had.

Yours respectfully,

Thos. R. Ellis

2716 Beacon Ave.

Preface

The Author, the only successful saw-filer on the largest works of wood construction in the great timber States of the Northwest, owes his success to the SYSTEM OF SAW FILING herein set forth.

THIS SYSTEM OF SAW FILING has enabled the Author to fit up, also to construct and design special saws for every kind of work and timber, and to keep a *standing challenge to anyone* to produce faster cutting saws or saws with more durable cutting points.

The Author has filed saws for mechanics from every State in the Union, and from every country of Europe; and without exception, this SYSTEM OF SAW FILING has been acknowledged to be superior, turning out the nicest running, fastest cutting saws with the most even teeth in length, size, spacing, pitch, and bevel.

The public is *cautioned to beware* of the man with the ready tongue and pen who claims his book or his filing is the same as mine. The files and my services have been furnished free to about ten thousand mechanics. No other man has had the talent, training, experience or the opportunities of fitting himself up so well for the production of this work or understands the art of saw design and saw cutting as well as myself. No other work shows the correct positions, methods and system shown by the copyrighted charts in this book. If so my position has been such that I would have been aware of it. Having cautioned you to beware of others, again I *caution* you to beware of yourself lest your ideas and opinions lead you astray to wander in your inexperience, lost in the countless combinations of erroneous ways and ideas that cluster about the saws.

With the utmost confidence, the Author sends out this TREATISE, knowing that more and better work will be turned out with less labor than heretofore.

The saws, files and tools advertised or recommended are tested personally and are known to be the very best, or they would not be mentioned in this book.

Respectfully,

THE AUTHOR.

The Selection of Hand Saws

requires the best judgment of the skilled and experienced expert in saws.

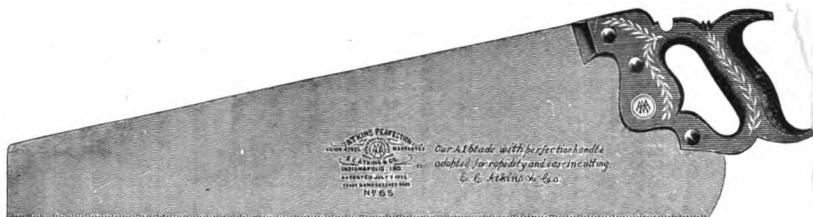
The best saw steel, the proper number of teeth, and style of blade, handle and filing, most suitable for the different kinds of timber and work, are not matters of opinion, but are indisputable facts, easily proved by actual test, by the man who knows.

The Material

comes first in our consideration. The best material is steel that is the most even-tempered, the most elastic and compact, fine grained, strong and stiff, hard and tough, taking a fine, durable cutting edge, and with the proper system of filing, and the proper selection of handle, tooth and blade, properly run, will cut timber with unequaled speed and ease.

Hand saws made of this steel hold their shape better, take "set" better, and stay sharp longer than any saw made of common steel.

Our first choice of model of hand-saw handles secure the best control of the saw. The lines of force are in direct line with the teeth and the sawing. Hence the saw runs smoother, easier and cuts faster. See cut 1.



Cut No. 1.

This saw is fitted with our Perfection Saw Handle, which is adjusted to the blade on scientific principles. It is very comfortable to the hand and makes the saw "hang" just right. Ask to see one.

Atkins No. 65.

OUR "STAR" STRAIGHT BACK SAW.

A High-Grade Saw.

Made expressly for those who know a good tool and cannot afford to use a poor one. No carpenter's kit is complete without one of these saws.

The Selection of Model.

Hand-saws should be 20 gage in thickness at the teeth, along the entire length and from two to three gages thinner at the back middle of the blade. The stronger and stiffer, the better, provided the saw will take "set." Thinner blades are too weak and do not hold their shape. Thicker blades run too hard and cut too slowly.

STRAIGHT BACK SAWS

GOOD MECHANICS and all who have a good knowledge of the natural philosophy of saws and saw-cutting, always select *straight back saws*, as those recommended are best in every point of beauty, strength, usefulness and durability; in rapidity and ease of cutting, they are unquestionably superior. By Straight Back saws the author does not mean wide, clumsy saws with a cheap, inferior handle stuck up on one corner of the blade, but the models illustrated in cuts Nos. 1 to 6⁴ inclusive.



SWAY BACK SAWS

There are mechanics who prefer sway-back saws. They have become accustomed to them. They like the way they hang, etc. indeed, they meet some requirements better than straight-back saws, for example: A skew-back saw that is worn down very narrow would be just right for sawing circles, for use in narrow spaces, etc. They are also most suitable for those who prefer them who have only occasional use for a saw at light work. But they cannot stand up to heavy work in the hands of a strong, ambitious man, or a man who is being rushed, neither is there the amount of service in them that there is in a straight-back saw. (See cut at top of this paragraph.) A light, narrow, limber blade will run when crowded. A stiff, straight-back blade will stand up to the work. This is the reason they are preferred by the most experienced mechanics. Good models of sway-back saws are Atkins' Nos. 51, 52, 53 and 68; 53 and 68 are especially suitable for bench work, also 65 and 69 straight-back saws.

Selection of Teeth and Model for Light Ripping, Long Mitre, and Combination Cutting.

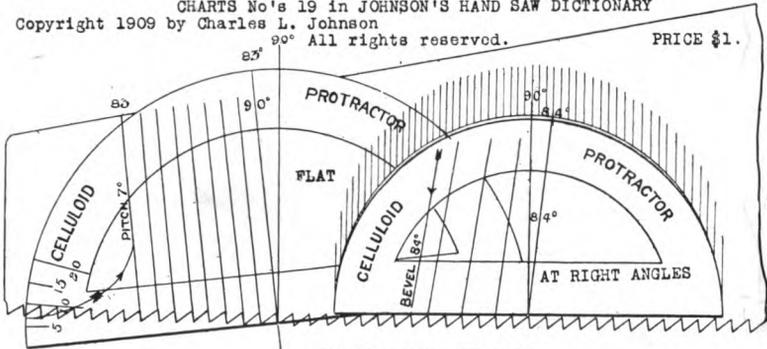
If you wish a light, narrow bladed saw for cutting circles, for use in narrow places, for *light finishings, ship-work, cabinet-work, etc.*, secure a *narrow width straight-back* 26-inch No. 65 or 69, 7, 8 or 9-point, as per cut No. 2.

The Celluloid Protractor

**HELD FLAT AGAINST THE BLADE INDICATES THE
PITCH AND AT RIGHT ANGLES GIVES THE BEVEL.**

See Charts Nos. 2, 3, 4, 5, 6, 18 and 19.

SAW CHART No. 2 Showing the Standard Rip Saw Pitch and Bevel for light fine work. For system of filing, See FILING CHARTS No's 19 in JOHNSON'S HAND SAW DICTIONARY
Copyright 1909 by Charles L. Johnson



GOOD at Hardware Stores when an ATKIN'S SAW is purchased FOR ONE
Composite Hand Saw Chart and Saw-fitting Tool No. 1 which shows
and its use gives proper Pitch and Bevel for all Saws and Work.

Cut No. 2.

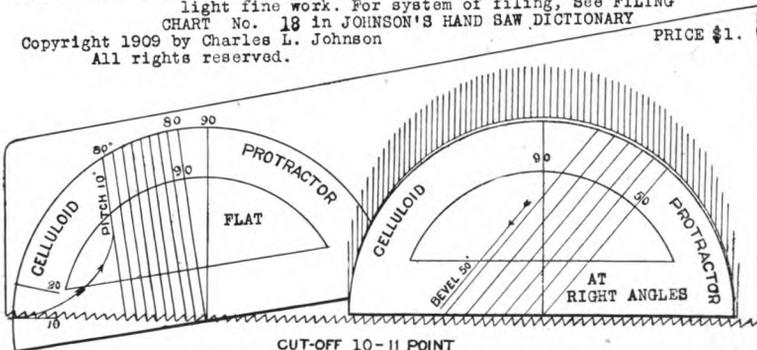
7-point width of the blade at the "toe," $1\frac{3}{4}$ inches directly forward of the handle, $5\frac{3}{8}$ inches. *A fine Rip and Long Miter Cutting Saw for all Light Fine Work.* Straight-Back our No. 54 and No. 65 have the preference.

Selection of Teeth and Model.

FOR FINE CUT-OFF COMBINATION AND SHORT MITER CUTTING

in light, fine work, light, fine finishing, ship-work, etc., secure a narrow width, straight-back, 26-inch No. 65 or 69, 10, 11 or 12-point saw, as the timber and work require. See Cut No. 3.

SAW CHART No. 3 Showing the Standard Cut-off Saw Pitch and Bevel for light fine work. For system of filing, See FILING CHART No. 18 in JOHNSON'S HAND SAW DICTIONARY
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GOOD at Hardware Stores when an ATKIN'S SAW is purchased FOR ONE Composite Hand Saw Chart and Saw-fitting Tool No. 1 which shows and its use gives proper Pitch and Bevel for all Saws and Work.

Cut No. 3.

11-point, width of blade at the "toe," $1\frac{3}{4}$ inches; directly forward of the handle, $5\frac{3}{8}$ inches.



Ship-point, Silver-Steel, Damaskeened, Carved and Polished
 Apple Handle.

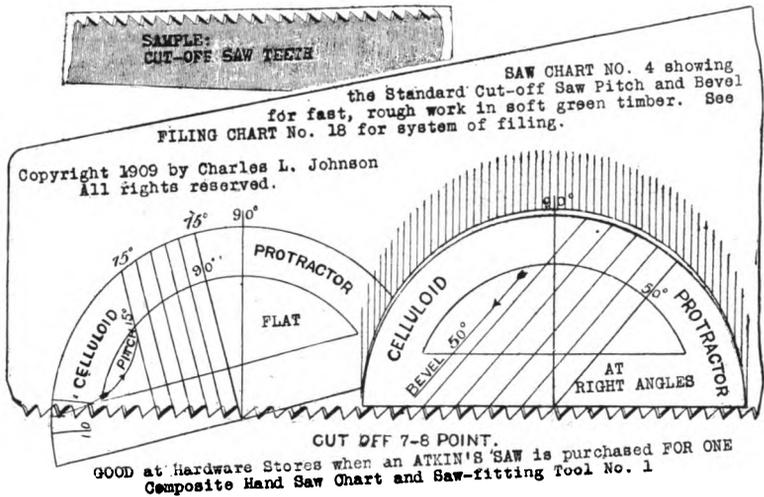
A Fine Cut-Off Combination and Short Miter Cutting Saw For All Light, Fine Work.

TWENTY-FOUR INCH SAWS are sometimes very suitable for *canoe, launch or boat-work, pattern-makers, cabinet-makers, store and bank fixtures, show-case work, etc.*

Selection of Teeth and Model.

CUT-OFF SAW.

For ordinary general work, cut-off and short-miter cutting, a No. 65 or 69, common width, 8 or 9-point saw, is the best. Second choice is a No. 54 or 64, common width, straight-back saw, as per Cut No. 4.



Cut No. 4.

7-point, width of blade at the "toe," $2\frac{3}{8}$ inches; directly forward of the handle, $6\frac{1}{4}$ inches.

**The Best Cut-Off Saw for Fast, Rough Work in Soft and
Also Green Timber.**

Try One.

FOR ORDINARY HOUSE HEAVY FINISHING, No. 64 or 69, 9, 10 or 11-point saws are the best. Common width, fine tooth saws are the fastest cutting in dry hard lumber, as per Cut No. 5.

SAW TABLE showing the best PITCH, BEVEL and number of teeth or POINTS to the inch for the different kinds of saws and sawing; for FILING POSITIONS and SYSTEMS giving absolute control of pitch and bevel, see JOHNSON'S HAND SAW DICTIONARY and Builder's Guide at book stores and hardwares, or address P.O. Box 1141 Seattle, Wash.

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PITCH TABLE		BEVEL TABLE		POINT
FINE CUT-OFF	10°	50°		10-11-12
COARSE CUT-OFF	15°	50°		7- 8- 9
BUCK SAW	20°	60°		5½- 6- 7
RIP SAW	3° to 7°	85° to 88°		5½- 6- 7
LONG MITER	5° * 7°	80° to 85°		5½- 6- 7
SHORT MITER	10°	80° to 70°		7-8-9-10-11-12

FINE SAWS take less Bevel and more Pitch and with an EVEN LENGTH of teeth will do COMBINATION CUTTING.

CHARLES L. JOHNSON

THE STANDARD SAW for FINISHING width of blade at the toe 2½ inches, directly forward of the handle 6½ inches.

Cut No. 5.

11-point, width of blade at the "toe," 2½ inches; directly forward of the handle, 6½ inches.

A Strong, Stiff, Fast Cutting Blade in Dry, Hard Timber.

You Get Full Value for Your Money When You Buy an Atkins Saw.

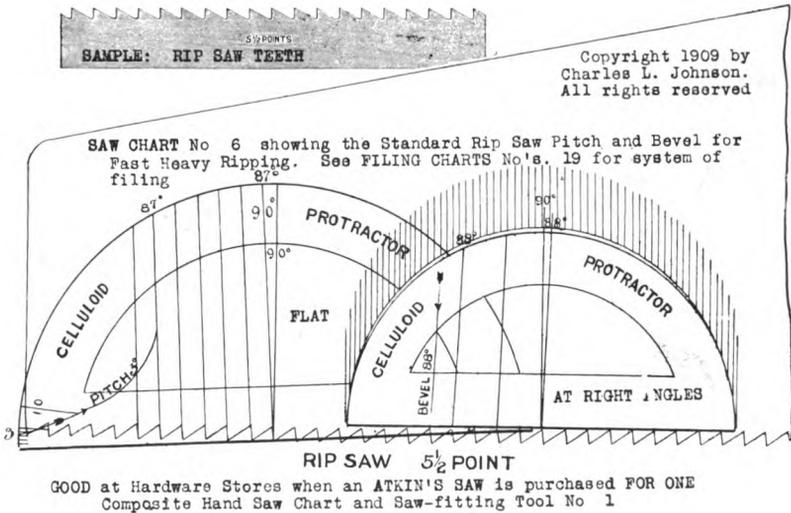
Cut-Off Saw For Heavy Work.

No. 64 or 69, 7 or 8-point, 28-inch, straight-back saws, common width, with enough pitch and set, are the best.

Selection of Teeth and Model.

Ripping and Long-Miter Cutting.

For this class of work, $5\frac{1}{2}$ and 6-point, straight-back, common width, 28-inch rip saws are the best. Six (6) point is better for *light ripping*, while for *heavy ripping* use a $5\frac{1}{2}$ point, No. 65 or 69; or for second choice use No. 54 or 64. See Cuts 6, 6², 6³



Cut No. 6.

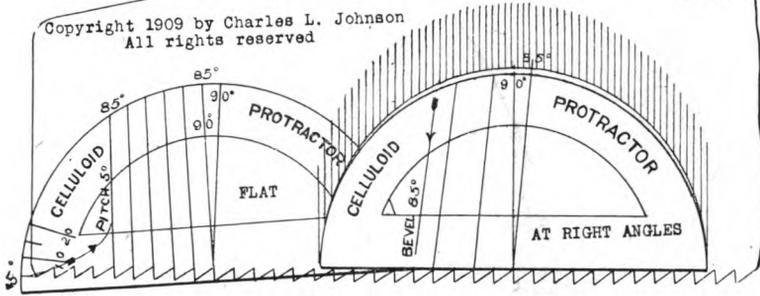
$5\frac{1}{2}$ -point, width of blade at the "toe," $2\frac{7}{8}$ inches; directly forward of the handle, $7\frac{1}{8}$ inches.

The Standard Saw for Fast, Heavy Ripping.

GOOD at Hardware Stores when an ATKIN'S SAW is purchased
 FOR ONE Composite Hand Saw Chart and Saw-fitting
 Tool No. 1

SAW CHART No. 6²
 showing the Standard Rip Saw
 Pitch and Bevel for Medium Light Ripp-
 ing. See FILING CHARTS No's. 19 for system of
 filing

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RIPSAW 6 POINT

CUT No. 6²

6-point, width of blade at the "toe," 2½ inches; directly forward of the handle, 6¾ inches.

The Standard Saw for Medium Light Ripping.

The Atkins "Unexcelled."

No. 64

THE MOST DESIRABLE AND FINEST SAW MADE.



Cut No. 6³

London Spring, Silver Nickel Steel, Damaskeened, Carved and Polished Apple Handle.

Never Buy Coarse-Tooth Saws.

They cut slowly, run hard and rough, and do not hold edge and "set" so well, as there is more strain and wear on the cutting points. A seven (7) point cut-off saw and a five (5) point rip saw are the very coarsest saws a good mechanic will ever buy. Neither will he have much use for a common tooth, 30-inch saw.

Filing of Hand-Saws.

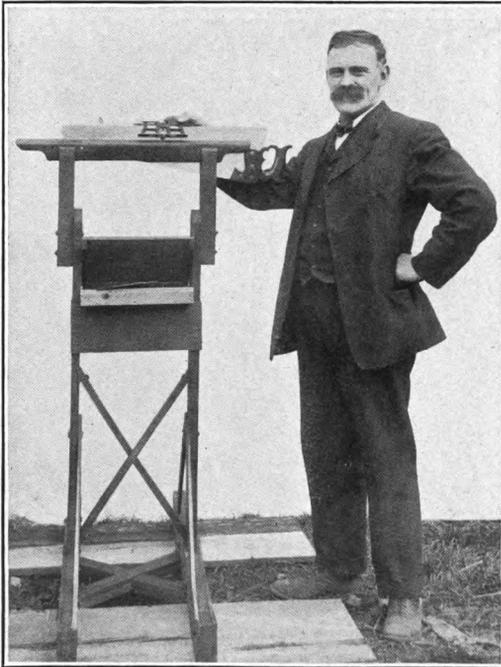
The filing of hand saws is little understood. The author has seen several hundred different methods, but it is needless to say there is only one SYSTEM that is just exactly right.

This is not a matter of opinion or conjecture, but of fact, easy of proof.

The first thing, if the saw is not kinked or sprung, is the JOINTING.

Jointing of Hand-Saws.

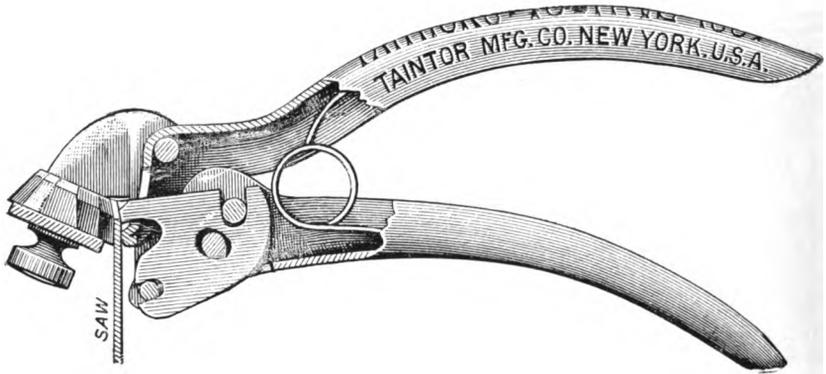
To properly joint a hand-saw, take a hard 8-inch file, place it on a large true-faced carborundum whetstone, and grind one face only, until it is nearly smooth. Place either side of the file, as needed into the saw jointer No. 2, shown on Page 13, which will give you a light or heavy jointer, as desired. JOINT the saw until every tooth, at least, nearly every tooth, is the same length. ALWAYS JOINT VERY LIGHTLY, at least, with the light or smooth jointer, every time it is filed, keeping the breast of the saw slightly crowning or convex. See Cuts 7, and Saw-Fitting Tools.



Cut No. 7.

Jointing, Always From "Heel to Toe."

The Taintor Positive Saw Set



This Set is self-adjusting except the turning of the anvil to change the setting.

The anvil is the only gauge to set and when set cannot slip.

The Saw Set will not slip on the tooth.

Setting is absolutely uniform.

Teeth will not spring back after being set.

Saw Set will not curl, break, cut, crease or otherwise mar the teeth.

Any setting may be returned to.

It is made entirely of steel.

It is light, strong and durable.

Parts are interchangeable.

The Saw Set is fully guaranteed.

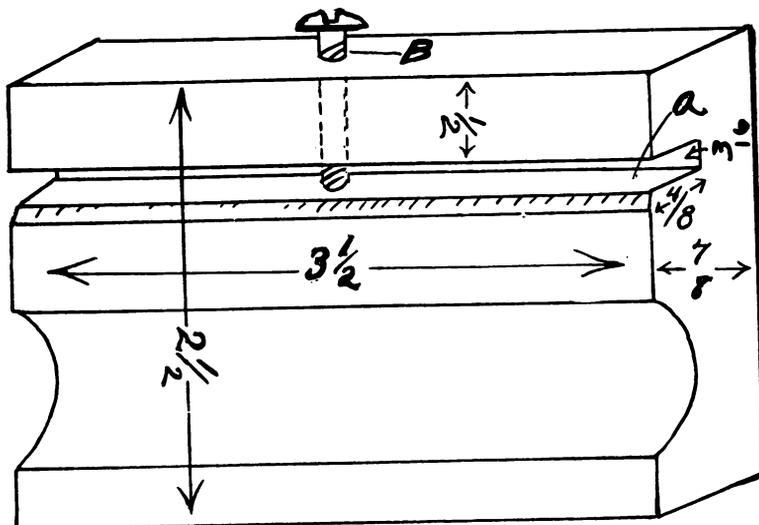
See Page 17 for directions for use.

Ask your Hardware Merchant to show
you the Taintor Positive Saw Set.

TAINTOR MANUFACTURING CO.

113 Chambers St., New York.

Saw Jointer No. 2



For handsaws, compass, keyhole and small band saws. Any mechanic can make this jointer. All the dimensions and details of construction are shown in the cut. It should be true and carefully made. Taking care to have the jointing face of the file very near to right angles to the side of the main body. It should be made of mahogany, oak, or some well-seasoned, tough, locky, hard-splitting wood. Sometimes it is advisable to take a hard 8-inch file, place it on a large true-faced Carborundum whetstone or the side of a wheel and grind one face until it is nearly smooth. This file placed in the jointer will give you a light or a heavy jointer as desired. JOINT THE SAW until every tooth, or at least nearly every tooth, is the same length. This jointer, well made and handled will answer the purpose as well as any on the market. You may be too lazy to have one. No one is too poor. Immerse the jointer for a long time in boiled linseed oil and rub dry. Send 20c to Postoffice Box 1141, Seattle, Washington, and get one by mail, postpaid.



Cut No. 11.

Setting the Saw.

Setting of Hand-Saws.

Our first choice selected thin-back saws, in thoroughly seasoned lumber, do not need setting, if at all, only very slightly for all kinds of light fine work, and at any time only just enough to free the saw. There are, however, certain sets for different kinds of work and timber, including a wide set for long miter cutting in heavy green timber, which is apt to break the teeth of a hard saw, unless care and a proper set is used.

Some hard saws will not take set enough for this kind of work. Improper saw-sets, improper use of saw-sets, and trying to give a saw too much set, is what breaks the teeth in setting saws. The saws, ninety-nine times out of a hundred are correct, if properly handled in setting. If the teeth set hard and spring back, danger is indicated, and in this case you must use care and judgment in setting the saw or you will break the teeth.

Side Filing.

The hardened, smooth polished sides of the saw eventually forms the cutting edge of the saw points, and is the most durable part of the saw. SIDE FILING OR GRINDING with a fine stone wears away this hard, durable, polished surface which forms the cutting edges, rounds or knocks the points of the cutting teeth, making them unequal in length, and makes the saw TIMBER BOUND, or the saw will become so with little use. A timber bound saw runs very heavily and cuts crookedly.

SIDE FILING may partially even the set, but it never puts the teeth exactly to a certain pre-determined gage of set, as needed; and this can only be done with a proper saw set. To say the least, it makes the saw run hard, cut crooked and require more frequent filing. In sawing, the timber strops the teeth, removes the feather edge, and in time even this wears or rounds the cutting edge in from the extreme outside, thus it becomes timber bound and dull from the continued stropping of the wood.

The saw must be lightly jointed and so filed as to again place the edge of the cutting points to *the extreme outside*, making a *free, easy running, fast cutting saw*.

The Essentials.

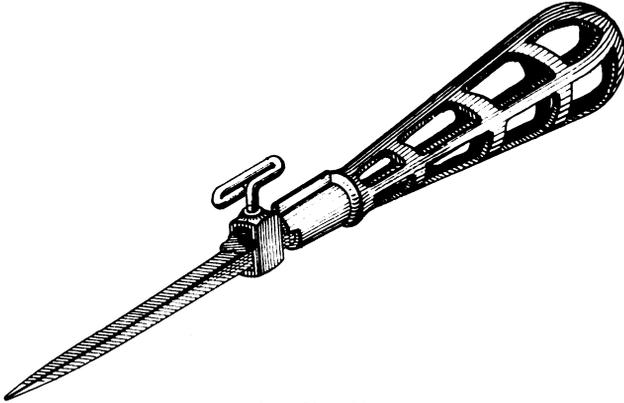
GOOD LIGHT.

With the saw free from bumps, kinks and bends, properly jointed and every tooth properly set, it is ready to file.

With a good light striking at the proper angle, so that as the light strikes the points of the teeth, the teeth sparkle like diamonds, saw filing is not much more difficult or hard on the eyes than reading; without this bright glistening from the saw points, filing should not be attempted, that is, if eyes and good work are to be considered.

File Handles and Files.

A VENTILATED IRON FILE HANDLE should be used always, thus securing a good grip and command or control of the file; the set screw, together with the index finger of the hand form a fine pitch indicator and are of great assistance in securing uniform filing. See Cuts 13, 14 and 15.



Cut No. 13.

The Proper Saw Set.

First, securely and solidly clamp the saw just below the point of "set," as in a vice, one jaw having an automatic stop, rotatable face with three or more series of set-determining surfaces. A setting lever oppositely mounted bends and "sets" the point of the tooth upon the "set" determining surface, crushing the grain of the steel, so there can be no recoil. *Setting every tooth from about the middle to the point, exactly the same, to any gage of "set" needed for any one of the different kinds of work and timber.*

Directions for Use of the Taintor Positive Saw Set

From TAINTOR'S SUGGESTIONS on the CARE of SAWS, with additional suggestions by the Author of this book.

To set fine saws, 10 to 16 points, use face No. 1. If this sets too much put the washer under the anvil and use Face No. 3. If not enough use face No. 2 without the washer. This will give a short bend near the point like the set of most new saws.

To set medium saws for ordinary work in soft woods, use face No. 4. No. 3 will set less, No. 5 more and No. 6 still more. If it is desired to bend the tooth farther from the point use faces in division C. To set rip saws for fine work use face No. 7. For coarse work face No. 8. No. 9 will give more set than No. 8.

Never use the face that reaches below the root of the tooth.

The anvil should be screwed tightly down with the face selected for use accurately in line with the clamping jaw. In use bring the handles together with sufficient force to press the tooth hard against the face of the anvil, but not hard enough to crush it or draw it out of shape.

To change the plunger drive out the pin that holds the lower handle. The plunger will then come out with the handle. Put the new plunger in place of the one removed, file the burr off the pin, drive it back to its place and rivet it lightly.

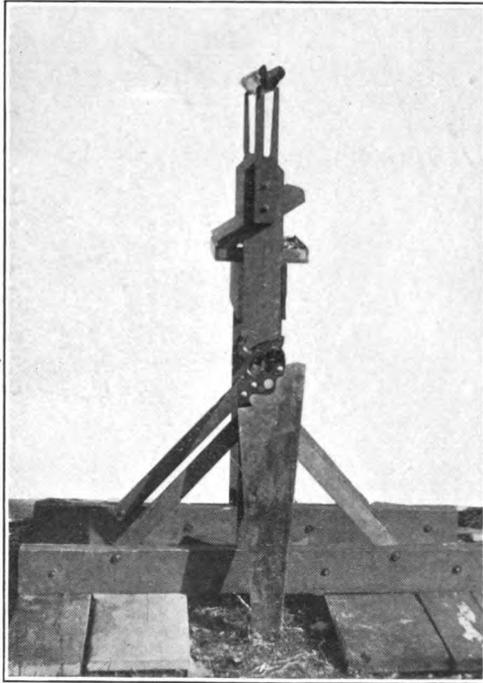
The pin should be driven from the right hand side of the saw set, and with a punch small enough to go in the cup of the pin.

While the TAINTOR POSITIVE SAW SET meets the requirements of general use and is as good as the price called for, a saw set costing more money is sometimes needed.

The setting of many thousands of saws compels me to use the best quality of light oil on the wearing parts. I also had to harden the pins and the ends of the handles where the pins pass through, which is done by throwing them into water while heated at a cherry red. As the handles usually close up too much for the hand, as a remedy, I would heat and bend the upper handle outward just back of the rivet hole or draw and lengthen out the plunger and harden it to stand the wear of excessive use. The ears or supports of the saw set coming in contact with the teeth should be trued and smoothed up and then hardened to prevent wear, which changes the setting. This hardening of the supports causes the saw set to slide over the saw like slipping over smooth ice. A better support is made by filing away the ears the thickness of the hardened plate to be inserted, which may be a wedge-shaped piece of thin handsaw blade of suitable length and width, sharpened on the sides and driven in place. It will cut its way into the soft steel, which will hold it securely.

This improved saw set will probably be placed on the market and can be obtained by addressing the author.

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9A930 0H0L
V9A9AU



Cut No. 12.

THE FILING CLAMP AND STAND.

The filing clamp *should be of wood, and upon a stand, adjustable* as to height, and portable, so as to readily be moved about to secure the necessary light at the proper angle, thus saving your eyes and enabling you to see to bring *all teeth exactly to a proper point*. This filing stand should bring the clamp as high as the arm-pit of the filer, in order that the filing operation shall be *directly in front of the eyes, so every detail may be seen*. At the base of this filing stand should be a platform, so placed and constructed that the filer's weight will hold the clamp perfectly *steady and solid*, as per Cut No. 12.

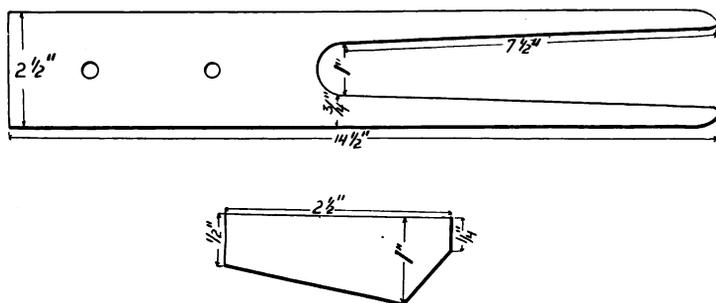
PLATFORMS 52 inches long with a block 1x3x3 under each outside corner, 18 to 20 inches wide each side of the standards. See Cut 12. *Height* from bottom of the sills to top of saw clamps, 54 inches for persons 6 feet tall.

PLATFORM SILLS, 52 inches long, 2½x5 built up, 1½ inch center, ½ inch sides nailed around the edges with small nails, 4s, and bolted. See Cut 12.

STANDARDS, 46½ inches long, 1½x5 braced to each other and to the sills as per cut.

Standards and Sills, distance apart, center to center, 15 inches.

THE TOOL SHELF may be used as the cover and locked to a tool box beneath with little extra work, as the standards must be tied together at this point in addition to the bracing to secure solid steadiness.



SPECIFICATIONS FOR WOODEN SPRING VISES FOR SAW CLAMP.

See measurements on the drawing. Thickness, 2 inches. *A dry, tough, strong, springy, hard splitting piece of timber* fastened to the standards so as to make them adjustable in height.

CLAMPS, 30 inches long, outline shown in the Cuts 12 to 17.

MEASUREMENTS shown on sectional drawing.

Timber *a dry, hard, stiff stick*. Soft or green, springy timber will not do.

If the clamps slip or jump out of the wooden vises, rub some damp clay or earth on the clamps and jaws of the vises and they will hold just right. Clamp, vises and stand made and used as directed will be solid and work exactly right.

Files

Use NICHOLSON'S SLIM TAPER FILES, as follows:

8-inch for 6/8, 7/8 and 1-inch band-saws.

7-inch for 1/2 and 5/8-inch band-saws.

6, 7 and 8-inch on the rakers of crosscut saws and American and Tenon Tooth framing saws.

6-inch for 5, 5 1/2 and 6-point rip saws and 3/8-inch band-saws.

5 1/2-inch for 6, 7 and 8-point rip and cutoff saws.

4 1/2-inch for 8, 9 and 10-point rip and cutoff saws.

4-inch for 10 and 11-point cutoff saws.

Extra slim 4-inch for 11 and 12-point cutoff and meat saws, and 8-inch mill bastard on small circular and lance-tooth cross-cut saws.

NICHOLSON SLIM TAPER or EXTRA SLIM TAPER FILES are the strongest and each size is better shaped for hand-saw filing than any other make of files. The teeth of these files are pitched, sized and spaced exactly right for easy, rapid work, and in connection with the superior quality of the steel, make a file that cuts from two to ten times faster and lasts from two to ten times longer than many files on the market. Stub files, back files, and files of queer, strange shapes are simply a waste of time and money.

The SLIM TAPER FILE is the fastest cutting and the EXTRA SLIM TAPER does smoother work and lasts longer.

Use new files carefully. Don't file hard saws with them until they have been well worn on soft or medium hard saws. Do not bear on too hard or let them slip. Do not bear down or file on the backward stroke. Avoid case-hardened spots and you will get twice the service out of them.

Run the file level, which will prevent irregular formation of the saw teeth, and when a file wears smooth so you can not control it, throw it away.

Positions Hand-Saw Filing.

Running the file level, giving proper pitch to the teeth, and at proper angle, gives the right bevel to the front and back of the teeth, and makes the most durable, strongest, fastest cutting points and the saw teeth of a regular even size. For illustration, see Cuts Nos. 14, 15, 16 and 17 for POSITIONS, Pitch and Bevel Charts, Nos. 2, 3, 4, 5, 6 and 6².

Bevel Charts Nos. 18 and 19 for Systems of Filing.

These *Positions* are on the same principles and similar to those taken by expert rifle and revolver shots and give extreme steadiness, accuracy and command of the file and also bring the filing up before the eyes where every detail is easily seen, thus giving perfect control of bevel, pitch, sizing and spacing. With these positions the *Author* can surpass any machine for accurate work, and also in amount where a variety is required.

In each position as the filer works over the saw the left arm soon obtains support on the saw clamp which greatly assists in securing steadiness and control of the file.

When the muscles become trained and you become accustomed to filing in these *positions*, filing becomes as natural as walking and almost as easy as breathing.

Portable Saw Clamps

are many in number and design. They are a necessity. The invention or selection of one that meets the requirements of the mechanic is one of the problems that remain to be solved by the author.

Cut-off Saw—First Filing.

Always begin at the "heel" of the cut-off saw, filing on two teeth, running the file level and straight, giving the bevel and pitch most suitable for the work and timber. See saw charts. File with the front of the tooth, giving it the feather edge, and against the back of the tooth, giving it the smooth inferior cutting edge. Care should be taken to file the large teeth as much, and the small teeth as little as necessary; and not to file too much. Sometimes leaving the most of the points dull and sometimes bringing most of them to a point, whichever way the size of the teeth and the spacing requires to even them. For illustration, see Cuts Nos. 14, First Filing for Position; Pitch and Bevel Charts, Nos. 3, 4 and 5, and Chart No. 18 for System of Cut-off Saw Filing.



Cut No. 14.

Cut-off Saw, First Filing.

Running from the "heel" toward the "toe," as per directions and Cut-off Saw Charts, Nos. 3, 4 and 5, and Chart 18 for System of Filing. Copyright 1908 by Charles L. Johnson. All Rights Reserved.

Cut-Off Saw—Second Filing.

Then file back on the other side of the saw *from the "toe" to the "heel,"* taking care not to file too little or too much, *filing the large teeth as much and the small teeth as little as necessary, to make the teeth and spacing even sized, bringing out most of the teeth sharp and to an even size.* This is easily done as the saw is directly in front of the eyes, and the grip of the iron file handle and the sharp file give perfect control of the pitch, bevel, sizing and spacing of the teeth. For illustration, see Cuts No. 15, for *Position; Pitch and Bevel Charts 3, 4 and 5 and Bevel Chart 18 for System of Filing.*



Cut No. 15.

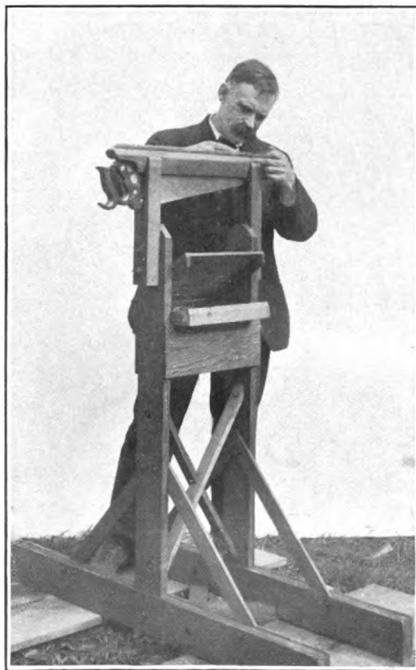
Cut-off Saw, Second Filing.

Running from the "toe" to "heel," as per directions and Cut-off Saw Charts, Nos. 3, 4 and 5, and Chart 18 for System of Filing

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Rip Saw—First Filing.

Rip saws are filed on a DIFFERENT SYSTEM. Always begin at the "toe," filing toward the "heel," running the file perfectly level and straight and almost at right angle with the front of the cutting tooth, giving it a feather edge and a pitch and bevel (see Charts) to suit the work and timber, and against the back of the tooth, making it flat and giving it the smooth, inferior cutting edge. Care should be taken to file the large teeth as much and the small teeth as little as necessary, and not to file too much, usually leaving many of the points slightly dull, as the size and spacing of the teeth require. For illustration, see Cut No. 16, First Filing for Position, and Pitch and Bevel Charts, Nos. 2, 5, 6 and 6², and Bevel Chart No. 19 for System of Filing.



Cut No. 16.

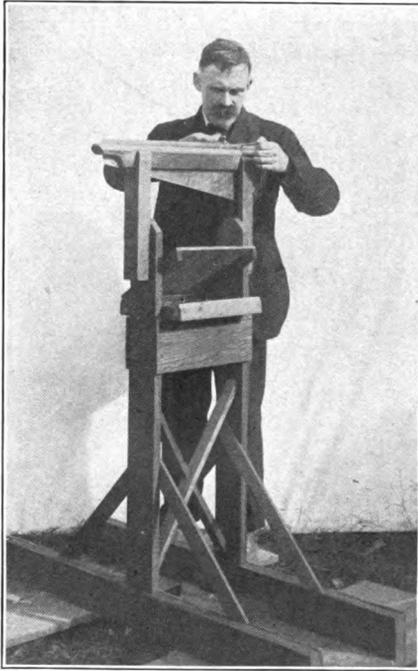
Rip Saw, First Filing.

Going from "toe" to "heel," as per directions, Rip Saw Charts, Nos. 2, 5, 6 and 6², and Chart 19 for System of Filing.

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Rip Saw—Second Filing.

Now file back on the other side of the saw from the "heel" to the "toe," keeping pitch and bevel uniform, taking care not to file the large teeth too little, or the small teeth too much. This will bring out most of the teeth sharp and to an even size and pitch with the back of the teeth level and the very smallest bevel on the front of the tooth. This is easily done, as the saw is directly before the eyes, everything is easily seen, and having a perfect control of a sharp file and a good light, you can always file just where needed. For illustration, see Cuts No. 17, Rip Saw, Second Filing, for *Proper Position; Pitch and Bevel Charts, Nos. 2, 5, 6 and 6², and Chart No. 19 for System of Filing.*



Cut No. 17.

Rip Saw, Second Filing.

From heel to toe as per rip saw Charts Nos. 2, 5, 6 and 6², directions and Chart No. 19 for System of Filing.

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Cut-Off Saw—Third Filing.

If, as is usually the case, some of the large teeth have not become sharp, file again *from the "heel" to "toe," as at first, sharpening the dull points only*, and you will find, if you have followed instructions, that the teeth have even size, pitch, bevel, length, and "set," and that you have a nice running saw that will cut twice as fast, and stay sharp twice as long, if properly run and cared for, as the saw filed in the old way.

See Cut No. 14, First Filing for *Correct Position and Bevel Chart 18 for System of Filing*.

Rip Saw—Third Filing.

THE AUTOMATIC SIZER AND SPACER.

CUT-OFF AND RIP SAW, THIRD FILING.

Go over the saw again, from the "toe" to the "heel" sharpening only the dull points, which are those on the large teeth. The saw should be gone over three times, as directed, using a high clamp, a portable stand, with a good light at the proper angle, and sharp files, which are controlled by the famous grip of the iron file handle, said operations acting as an AUTOMATIC SIZER AND SPACER.

If you have followed instructions, the teeth have *even size, pitch, bevel, length and "set"; and you have the nicest running, fastest cutting rip saw in the world*. If there is any defect in either the cut-off saw or the rip saw, you have failed to understand or follow the SYSTEM or METHOD OF FILING explained in this Treatise. With careful attention, try again and again, until you secure the proper cutting saw, and the muscles, hand, eye, and brain become skilled in filing. See first cuts of rip and cut-off saw filing, Nos. 14 and 16, for *Positions* and cut-off and rip saw *Charts, Nos. 18 and 19, for Systems of Filing*.

Hand-Saw Filing.

PITCH.

A pitch of three degrees (3°) back from the perpendicular or right angle is the most that should ever be given hand-saw teeth. It is the usual pitch for the front of the rip saw tooth and is sometimes given to the cut-off saw tooth for heavy work; also when it is used for miter cutting. When too much pitch for the work and timber is given, the saw will catch, jump, run hard, and behave badly. When not enough pitch is given, the saw will run easily and cut slowly. A pitch of 3 to 10 degrees backward for rip saws and 5 to 15 degrees for cut-off saws is usually about right. *When pitch and bevel are correct, the saw feeds, digs or takes hold of the timber properly to cut fast, without catching, jumping or running hard. Never pitch a hand-saw tooth forward.* See Charts, Nos. 2, 3, 4, 5, 6 and 6² for proper pitch suitable for different kinds of work and timber.

Cut-Off Saws.

BEVEL.

Forty-five (45) degrees is the greatest bevel that should ever be given hand-saw teeth. *Fifty to sixty degrees is the usual bevel for cut-off saw teeth and should be the same on the back and front of the tooth.*

Too much bevel makes the teeth points bend and break. It detracts, rather than adds to the speed of the sawing. For illustration, see Charts, Nos. 3, 4 and 5, for *Proper Pitch and Bevels* suitable for the different kinds of timber and work, and Chart No. 18, *Cut-off Saw, Bevel and System of Filing*, and Cuts 14 and 15 for *Positions*.

Rip Saws.

BEVEL.

No bevel should be given to the back of a rip saw tooth, and only the very slightest from 3 to 5 degrees to the front side, to give clearance. This gives the very fastest cutting saw for straight ripping. For illustration, see Charts, Nos. 2, 5, 6 and 6², for *Proper Pitch and Bevels*, suitable for the different kinds of timber and work, and Chart No. 19 for *Rip Saw, Bevel and System of Filing*, and Cuts 16 and 17 for *Positions*.

Cut-Off Saws.

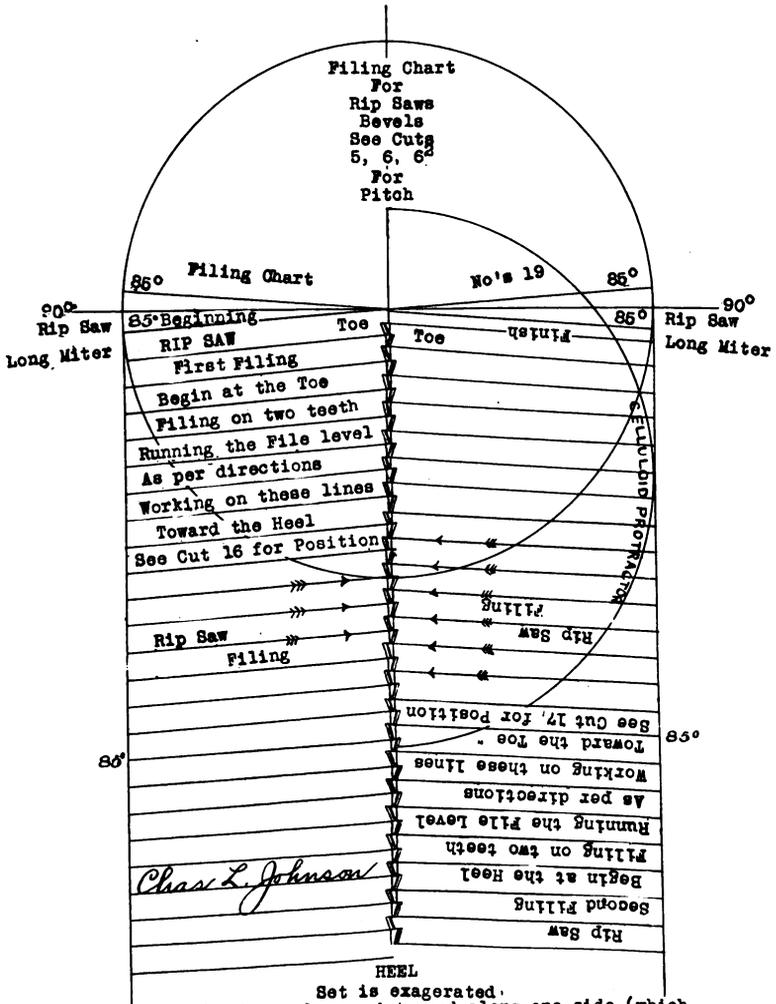
SHORT-MITER CUTTING

Is given cut-off saws by slightly increasing the pitch of the teeth and taking out a little of the bevel. Thus fitted up, you can cut short miters much faster. It is very useful for cutting, bridging, or joist braces, and all braces having short bevels and all short miter cutting. See Chart 5 for *Pitch and Bevel* and Cuts 14 and 15 for *Positions* and Chart 18 for the *System of Filing and Proper Bevel*.

Rip Saws.

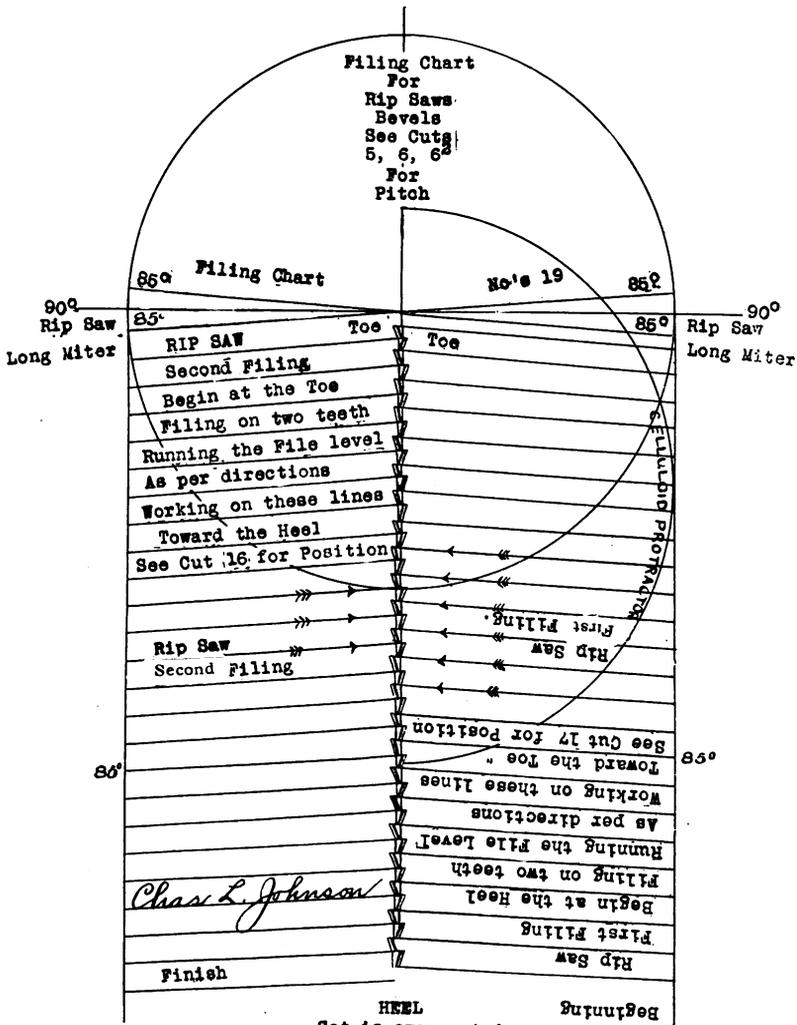
LONG-MITER CUTTING

Is given rip saws, by slightly increasing the bevel on the front of the tooth, and sometimes dropping a little of the pitch. It is very useful, as it *cuts much faster in all stair stringers, the foot of low pitched rafters, and all long angles or miters*. The saw usually requires a heavy "set" for this class of work. See Charts Nos. 5, 6 and 6² for *Pitch and Bevel*; suitable for different kinds of work and timber, Cuts Nos. 16 and 17 for *Positions* and Chart No. 19 for *System of Filing*.



Set is exaggerated.
Filing a hand saw from end to end along one side (which may be either side) called the **FIRST FILING** and back on the other side called the **SECOND FILING**, in this book with a touch up called the **THIRD FILING** to catch any dull points that may remain, complete the filing of a hand saw. Sometimes certain objects are gained by starting on one side or the other. It is emphatically understood that the **PLACE OF BEGINNING** and the **CORRECT POSITION** for the sides never change in my **SYSTEM OF FILING**.

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Set is exaggerated.

This CHART is a reversal of the one on the opposite page, and gives the better view of the teeth points on the second filing, and is best adapted for rapid work, while the one on the opposite page gives the better view for accurate sizing of the teeth. When this is mastered, using the latter chart is better.

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Cut No. 19.
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Cut-Off Saws.

COMBINATION CUTTING

Rips and cuts off equally well and cuts a "miter" to perfection. *It is the accurately regulated balance of bevel and pitch, and an EVEN LENGTH OF TEETH, which can be given to advantage only to 8, 9, 10 and 11 point saws by the finished experienced expert filer.* It is very useful for work where two or more thicknesses of lumber lie differently, and are to be cut at once, some on a miter, a cut-off and a rip. It cuts through easily and rapidly. It is also useful for sawing circles, for compass saws and hand saws. Small circular saws, in construction work, for sawing bridging, braces, short cut-off stuff, and ripping strips all on one saw, alternately, and without change. For one and two-inch material, the teeth should have 4-inch pitch, and measure 1 inch from point to point. For thinner material, finer teeth cut smoother and faster. See Pitch and Bevel Charts Nos. 2, 5 and 6² for proper *Pitch and Bevel* and Chart No. 19 for *System of Filing* and Cuts 16 and 17 for *Positions*.

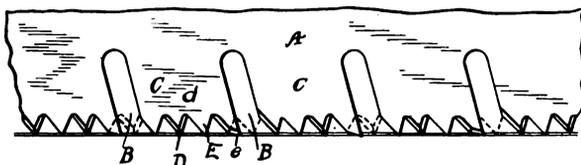
DON'T FORGET that this TREATISE explains a System of Filing Saws, and that if you make any change in any step, or fail to understand or practice its teachings, the effect will usually result in an entire change or failure.

For instance, if you fail to run the file level, or start in filing on the wrong end of the saw, the teeth can not be made to come out even in spacing, size, pitch and bevel; or if you neglect the jointer, the "set," the high clamp, the good light, or the iron file handle, the pitch or the bevel, you turn out an altogether different cutting saw.

THE COMMON SAW works well in the thin sizes of soft, easy splitting timber as the curf breaks out easily, but in knots and tough splitting lumber of the thick sizes, especially in miter cutting, it does not work well.

The preceding paragraph shows how difficult it is to fit up the common saw for combination cutting which is successful in the thin sizes of lumber only.

SINGLE RAKER COMBINATION CUTTING SAW.



Cut No. 20.

THE PERFECT SAW in cutting bevels, and miters, rips and cuts off equally well in knots and hard tough cross-grained lumber where the common saw will not work at all; it cuts with perfect ease.

It will be seen by Cut 20 that the bevels, cutting points and rakers in each projection not only reverse but exactly correspond, changing sides in order, rotation and perfect unison with the teeth of a common saw. It is perfectly balanced, thus wearing and cutting *true*, easily and much more rapidly than the common saw in any kind of timber.

The RAKERS are not "set" but are jointed shorter than the *cutting teeth* which are jointed, set and filed exactly the same as a common cut-off saw, *pitch* 5 to 15 degrees. See Cuts 3, 4 and 5. See Chart 18 for *System of Filing* and Cuts 14 and 15 for *Position*.

Johnson's Reversible Sliding Raker Gaging Jointer and Saw Fitting Tool No. 1 will automatically keep the cutting teeth and rakers in proper shape. For sale by the trade, or write to P. O. Box 1141, Seattle, Washington, who will supply you.

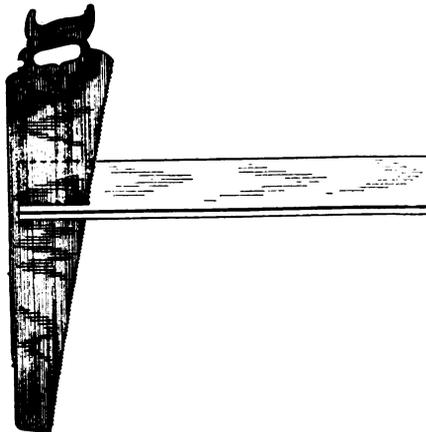
The Care of Saws.

Sharp saw teeth should never touch tools, saws or any kind of metal, sand or grit. They should always be handled with care. They should never be thrown or be left to fall down, and never twisted or used as a pry. As a rule, HANDLE SHARP SAWS AS CAREFULLY AS YOU WOULD A RAZOR.

Always keep the saws well oiled with a light oil; where there is pitch mix with coal oil. Never allow the saw to rust, and never side file or use emery dust or cloth, sand-paper, whetstones, or otherwise grind, scratch, mar or mark the sides of a saw, except to remove heavy rust, in which case, the disease is worse than the remedy.

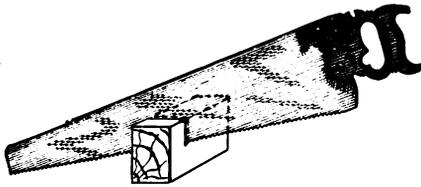
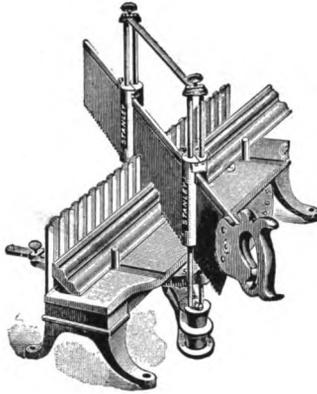
Fast Cutting.

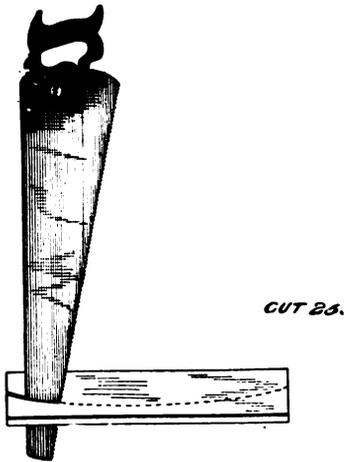
A saw in good condition cuts straight. If you run a saw almost straight up and down, keeping your arm rigid, and a heavy pressure against the timber, the 8, 9 and 10 point saws will just wade through inch lumber, one, two or three inches to the thrust being possible where the timber lies solid.



Accurate, Smooth Cutting.

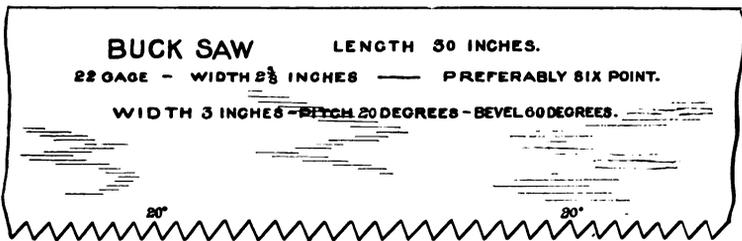
Take a sharp, well oiled, polished, thin-back saw, without set, or with very little set, that has been run awhile, and run it lightly, using a miter box, or start the saw straight, run it lightly, evenly and steadily, and allow the saw to go, it will run straightly and cut smoothly, without a miter box, if you do not grip, twist or wobble the handle. The timber should lie solidly.





Circle Cutting.

Run the saw straight up and down, or nearly so, the same as for fast cutting, using a narrow bladed saw, having wide "set" for medium sized circles, an ordinary saw for large circles, a compass saw for small circles, and a coping saw for extra fine work, key-holes, etc. Always have a good, solid horse or place to saw upon, as you can not control your saw, cut fast or smooth and accurately when the lumber is springing about.



Use thin-back, fine-tooth saws, without set, for CUTTING METAL, NAILS, IVORY, BONE, ETC. JOINT and file same as for straight ripping. See Cut 6 for *pitch and bevel*, Cuts 16 and 17 for *position*, and Chart 19 for *System of Filing*.

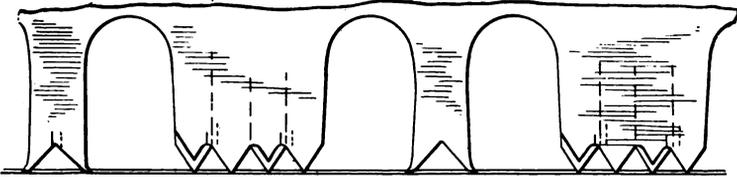
MEAT SAWS the same except *set them*.

STAFF AND PLASTER.—Use cheap, coarse tooth saws; give plenty of set and pitch. See Chart 19 for *System of Filing*.

Heavy Framing.

The most accurate and rapid sawing of heavy rafters, jack rafters, stair stringers, plumb and batter posts, sills, braces, trimming of built up circles, columns, trusses, cords, planks, etc., is done with the 5-foot, double raker, cross-cut saw. If properly fitted up, two men skilled in the art of running these saws can easily follow a straight knife mark in

Ripping Cut-off and Miter Cutting.



This class of saws are fully treated in my CROSS-CUT SAW TREATISE. However, my DOUBLE RAKER CROSS-CUT SAW is treated here, as it is filed the same as a cut-off hand-saw using a *Slim Taper* 6, 7, or 8 inch Nicholson file and the iron file handle. *First Swedging* the rakers with a 12-oz., large flat-faced *Heller Bros. horse shoeing hammer*. See Cut 26, of hammer, proper rakers and saw. The rakers are always a trifle long after proper swedging.

Second Jointing the rakers and cutting teeth with Johnson's Raker Gaging Jointer No. 1, leaves them exactly right for filing.

Third Setting and Filing as for cut-off hand-saws. See Cuts 14 and 15 for *Position* and Chart 18 for SYSTEM OF FILING; *Pitch 45 degrees, Bevel 45 degrees.*

This is the strongest, smoothest running, fastest cutting, double raker saw made. It is the easiest, quickest filed and set. It has no narrow spaces to gather pitch, sap or sawdust. It has open gullets. It throws sawdust freely.

This saw will not chatter, catch and jump like a lance tooth saw will in miter cuts. It will, however, take longer to fit it up than the lance tooth until my Compound Lever Saw Set is on the market. You can assist in this by sending your order to Post-office Box 1141, Seattle, Washington.

"B" shows full size and shape of Hammer Face.

"C" shows how the file shapes the bevels and bottom of the Vees and teeth.

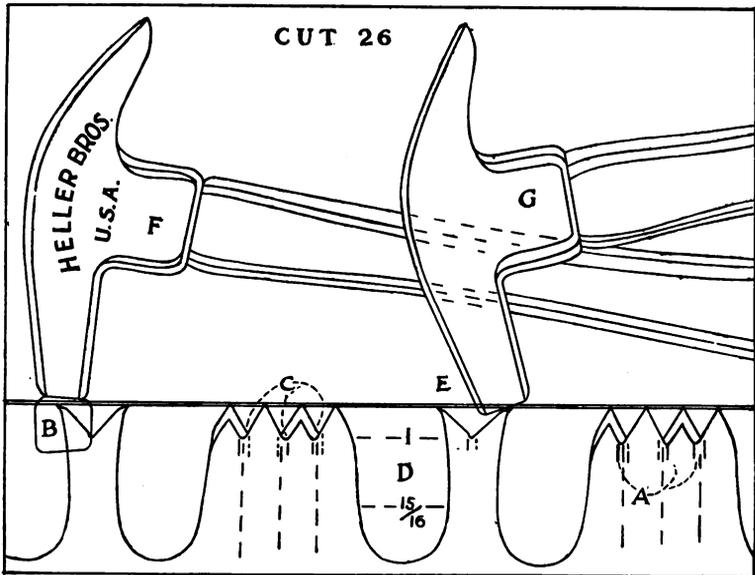
"D," open gullets.

"E." Properly shaped Raker Prong or Planer.

"F," "G," proper Model of Swedging Hammer. It should hang in.

"F," "G," proper position of Swedging Hammer in use.

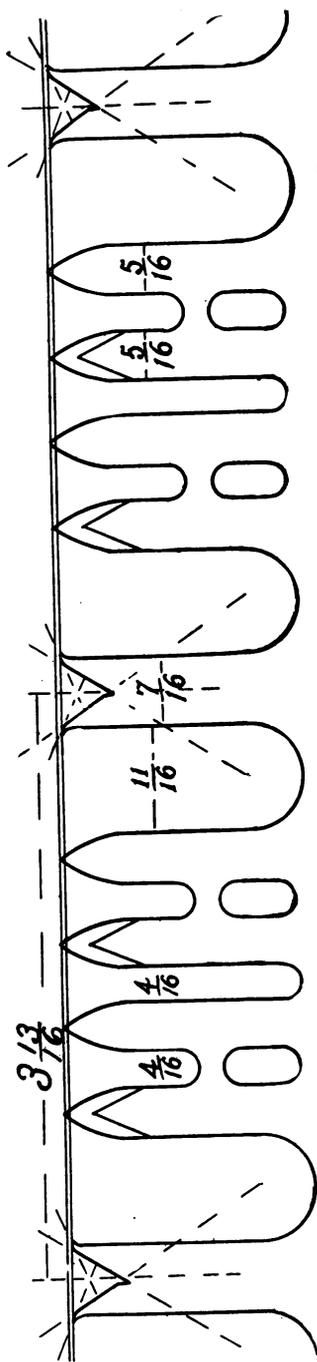
Proper weight of swedging hammer, 12 oz. Proper weight of setting hammer, 9 oz. A carefully fitted up iron set gauge should be carefully used for setting crosscut saw teeth.



Scale $\frac{1}{2}$ full size.

Cut No. 26.

DRAWING THE TEMPER—When the rakers do not swedge readily, it is best to draw the temper by heating the ends of two rods from three-fourths to an inch and a half in diameter, and from sixteen to twenty-four inches long, as hot as possible, batter the ends level, secure one rod hot end up in an upright position, place a raker upon it, place the hot end of the other rod upon the raker. As soon as the raker turns black blue, treat another raker in the same way, until all have been treated. Swedging hardens the raker and makes it just right. Do not heat the body of the blade or you will buckle it.

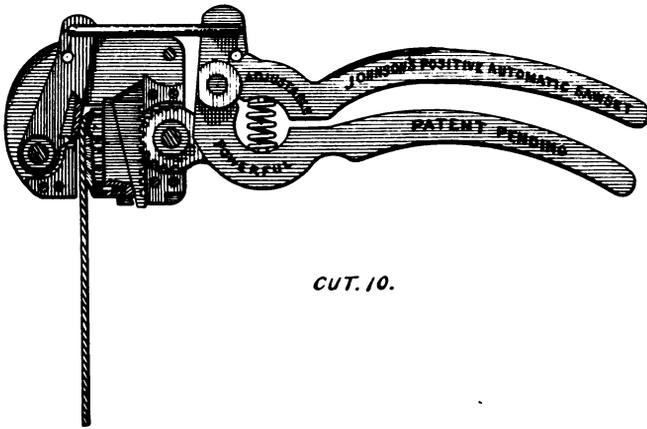


The cut is a tracing of an ATKINS VICTOR LANCE TOOTH FIVE-FOOT FRAMING SAW. It has a very thin, stiff blade and should be fitted up as shown in the cut. The cutting teeth extending to the upper line and the rakers to the lower line showing how much shorter they should be. Cut 26, page 37, shows the same thing with the swedging hammer in proper position for swedging.

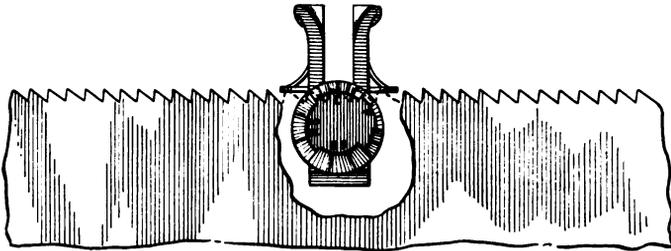
If the rakers have never been swedged the saw should: **FIRST**, be jointed until all the teeth and rakers are the same length. **SECOND**—Every cutting tooth should be given exactly the same set (about one forty-eighth of an inch). **THIRD**—The rakers should then be swedged. See cut on page 36. **FOURTH**—Jointed off with an up-to-date raker jointer that will make the raker the right length (about one forty-eighth of an inch) shorter than the cutting teeth. **FIFTH**—The teeth and rakers are now ready to be carefully sharpened. Carefully avoid making any of them any shorter as they are now all exactly the right length. The dotted lines about the rakers show the best method of filing them. Give the cutting teeth what I call the Oval Self-Sharpening Needle Point, which should be made strong enough to stand knots or anything except iron and grit. **THE MAIN THING IS** to get every cutting tooth and raker exactly the right length and to have them strong enough to stay the right length. Each pair of cutting teeth in this saw are tied together, which tends to prevent them from bending and following the grain of the wood in miter cuts. These saws should be fitted out with ATKIN'S No. 6, a very light handle that brings the sawyers up close to the lumber so the lines can be easily seen. These saws were used exclusively in framing the Government Buildings of the Exposition at Portland and Seattle.

Johnson's Adjustable Automatic Rotatable Face Compound Vise and Lever Set (Patented)

is the only saw set which does the work positively and accurately and in a proper manner.



CUT. 10.



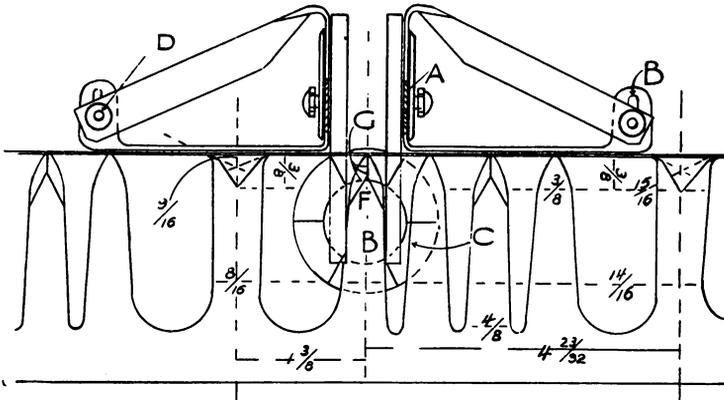
CUT. 10.^a

**It is the most powerful, adjustable, accurate, automatic
"Saw Set."**

The setting lever moves in a circle exactly the same as the saw tooth does in being "set," thus it will not break the teeth nor mar the face of the saw. There is only one gage to set an automatic stop rotatable face of my set determining surfaces. For sale by the hardware trade. If your dealer does not supply you, write to Postoffice Box 1141. Will place your order on file.

JOHNSON'S AUTOMATIC ADJUSTABLE REVOLVABLE FACE COM-
POUND VISE AND LEVER SAW SET, WITH ADJUSTABLE SPRING
SUPPORTS.

For heavy saws, X cuts circulars, etc. This Saw Set is exactly
the same as the hand saw set. See cut 10, page 39, except the
Spring Support. See cut below. It is, of course, much larger and is
the most powerful saw set ever invented.



A, B. Slots for adjustment. D. Jamb nuts. C. Adjustable re-
volvable face. G. Point of "set." F. Sets suitable for Felling Saws.
B. Sets for Bucking Saws.

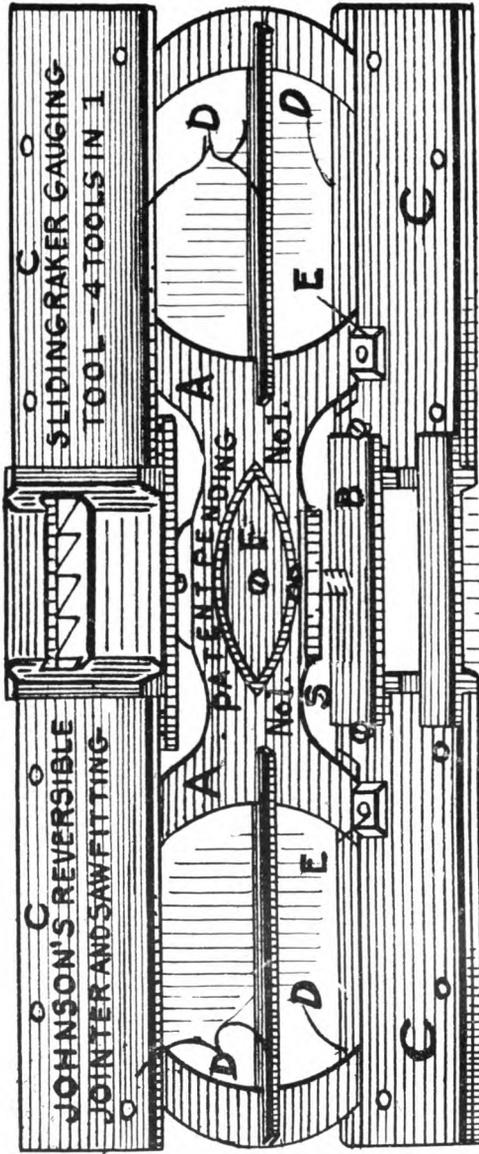
IT GRIPS the saw below the point of set as in a vise.

IT "SETS" THE TEETH EXACTLY ALIKE to any gage of set needed
for the work and timber, *preventing any recoil* by crushing the
grain of the steel at the point of "set."

IT DOES NOT BREAK THE TEETH because there are no blows, pry-
ing or other useless strains and as the amount of "set" is always
known there is no danger of giving a saw too much "set," as
any "set" is positively reproduced.

IT HAS SPRING SUPPORT, adjustable to the curve of any saw.

COMPOUND PURCHASE. It is powerful enough to "set" any saw,
cross-cuts, circulars, etc. Advance orders taken by the author.
P. O. Box 1141, Seattle, Wash.

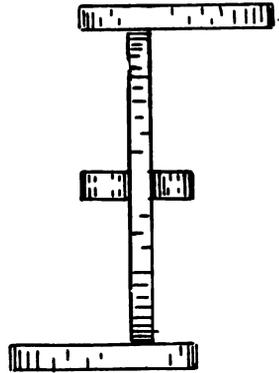


For Hand Saw, Cross Cut and Raker Saws.

Will joint any saw with or without any kind or size of rakers. It is the most durable, accurate and complete saw-fitting tool made. AUTOMATICALLY it will keep both rakers and cutting teeth just exactly right. It has the lightest touch of any jointer made.

Plates "C. C." are saw-proof. Plates "B. B." are file-proof. It gives two lengths of rakers just right for hard or soft, dry or green timber and for felling or for bucking saws. It has a box "F" of gaging strips for adjusting the gaging Plates "B." "D. D." Ribs, "S." Set Screw, "E. E." Bases.

For sale by the hardware trade. If your dealer does not furnish you, send his name to P. O. Box 1141, Seattle, who will supply you. Price, \$1.25. Postage 20c.



END VIEW

Bends and Long Kinks.

Bends and long kinks should first be exactly and correctly located by sighting the said bends or kinks and marking them with pencil, chalk or oil. By this means, the exact nature of the trouble is located and determined. A long, gradual bend is taken out by bending the saw in the opposite direction, being careful not to bend too much at first, and to get the strain at exactly the right spot. Examine and again strain a little harder, examine again by sighting, and if there is no improvement or only a slight one, again bend harder, and you will soon be able to ascertain the amount of strain necessary to bring the bend out. If you put on too much strain and a little more than straighten the saw, it will come out very easily.

Short Bends and Long Kinks.

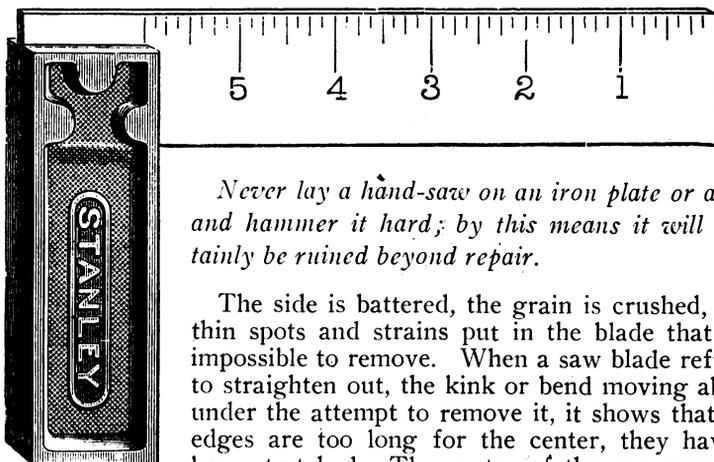
These come out by the same manner of straining and bending in the opposite direction, being careful to bend exactly where the bend or kink is located. Under a sufficient strain, the saw will straighten out as good as new.

Great caution, care and judgment must be exercised in the hammering if you **HAMMER A SAW FOR THESE TROUBLES, OR YOU WILL DO MORE HARM THAN GOOD.**

Use a light oval-faced carpenter's hammer (12-oz. or less), the smooth, level end of a block of hard wood or anvil upon which a piece of cardboard has been laid. It must be level and the saw must lay level on the same. Evenly cover the convex surface of the bend or kink with a great number of light blows and the saw will straighten out as good as new. Each blow of itself must not be heavy enough to mar, dent, bend or render uneven the surface of the saw. In the case of bumps and short kinks, a blow is often sufficient to straighten out the saw.

Short Kinks and Bumps.

These should be located correctly, while the saw is placed upon a smooth, level surface, using a true 6-inch iron-handled Stanley try-square. When the kinks or bumps are located, use pencil, chalk or oil as a marking agent. The saw should be laid upon the smooth, true end of a block of hard wood or an anvil upon which a piece of cardboard has been placed. It must be level and true and the saw must lay level on the block. With a 12-oz. hammer having a light oval face, strike directly on the high part of the kink or bump, the long way it runs. Every light blow will have an effect. Note carefully and gage your blows by the effect they produce, and you will bring the saw out as good as new. To ascertain when you have straightened the kinks or bumps, use a 6-inch, iron-handled try-square as a straight edge.



Never lay a hand-saw on an iron plate or anvil and hammer it hard; by this means it will certainly be ruined beyond repair.

The side is battered, the grain is crushed, and thin spots and strains put in the blade that are impossible to remove. When a saw blade refuses to straighten out, the kink or bend moving about under the attempt to remove it, it shows that the edges are too long for the center, they having been stretched. The center of the saw must be stretched accordingly by hammering on the smooth, perfectly true surface of an anvil with a very light, bell-faced carpenter's hammer, using many light blows evenly distributed over the central portion of the blade on both sides; these blows should not be hard enough to dent or otherwise affect the blade will be found to have stretched the central portion of the saw and when stretched enough the blade can easily be straightened.

This condition must not be confounded with a simple bend or kink which does not require this treatment, and oftentimes may be removed in two seconds by a light pressure of the hand applied just right.

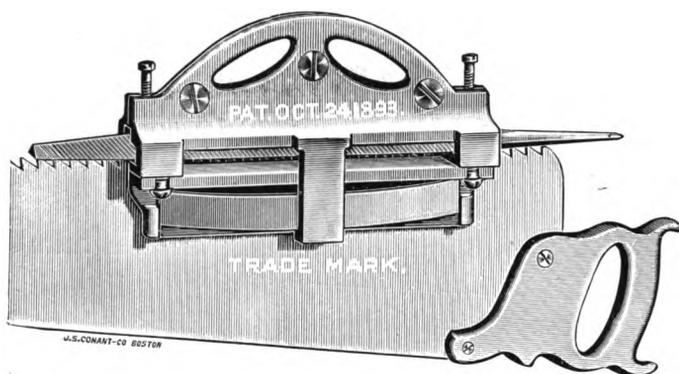
Conclusion.

SAWS filed by this SYSTEM *cut faster because every tooth has the same length and the right pitch, bevel, and "set" for the timber and class of work. Every tooth is doing full cutting duty, and remains sharp longer because every tooth takes its share of the wear and strain, and every cutting point has the greatest possible strength; it is braced equally in every way. A section of the cut-off saw point is a true triangle. The rip saw point is equally strong, having no slender points or edges to give way or break, because the sides of the saw and teeth are never ground, scratched, marred or marked in any way, and there are no rounded edges or points.*

This is accomplished because every means is taken to place each cutting point at the extreme outside in the strongest possible manner. The saw will run more than twice as long before becoming dull or timber bound.

AS A MATTER OF FACT, WITH PROPER CARE, SAWING STROPS AND SHARPENS THE SAW AND MAKES IT CUT BETTER FOR A LONG TIME AFTER IT HAS BEEN FILED ACCORDING TO MY SYSTEM AND METHOD.

Pike Perfect Saw Jointer.
THE ONLY PRACTICAL JOINTER.



For Compass, Keyhole, Meat and Small Band Saws.
Adjustable to any thickness of blade.

Atkins Compass Saws.

No. 2.



Silver-Steel, Apple Handle, Two Saw Screws.
Furnished 10 to 18 inches in length. Blade is ground very thin on back, and requires very little set.

Witer-Box Saws.

No. 1.



Silver-Steel, Apple Handle, Polished Edge.

Blued steel back. Blade 4, 5 and 6 inches under back. Furnished any length 18 to 32 inches.

Back Saws.

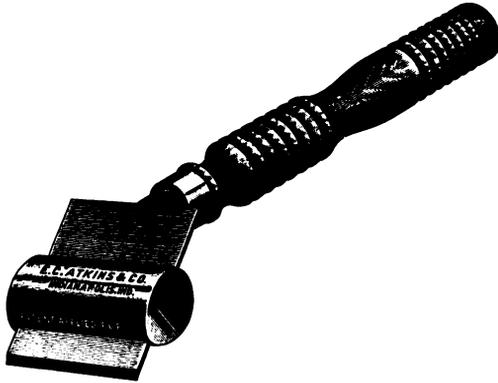
No. 2.



Silver-Steel, Apple Handle, Blued Steel Back.

Every saw fully warranted. Furnished any length 8 to 18 inches.

Atkins Perfection Floor Scraper.



Most perfect tool of the kind made. Especially adapted for cabinet work, hardwood floors, scraping off paint and varnish, etc.

Atkins Cabinet Scrapers.

Silver-Steel.



Scrapers bearing the Atkins Brand may be a trifle higher in price, but you get the difference in quality. These scrapers are made with great care, are perfect in temper, and are ground absolutely even to gage. The edges are all ground sharp and true.

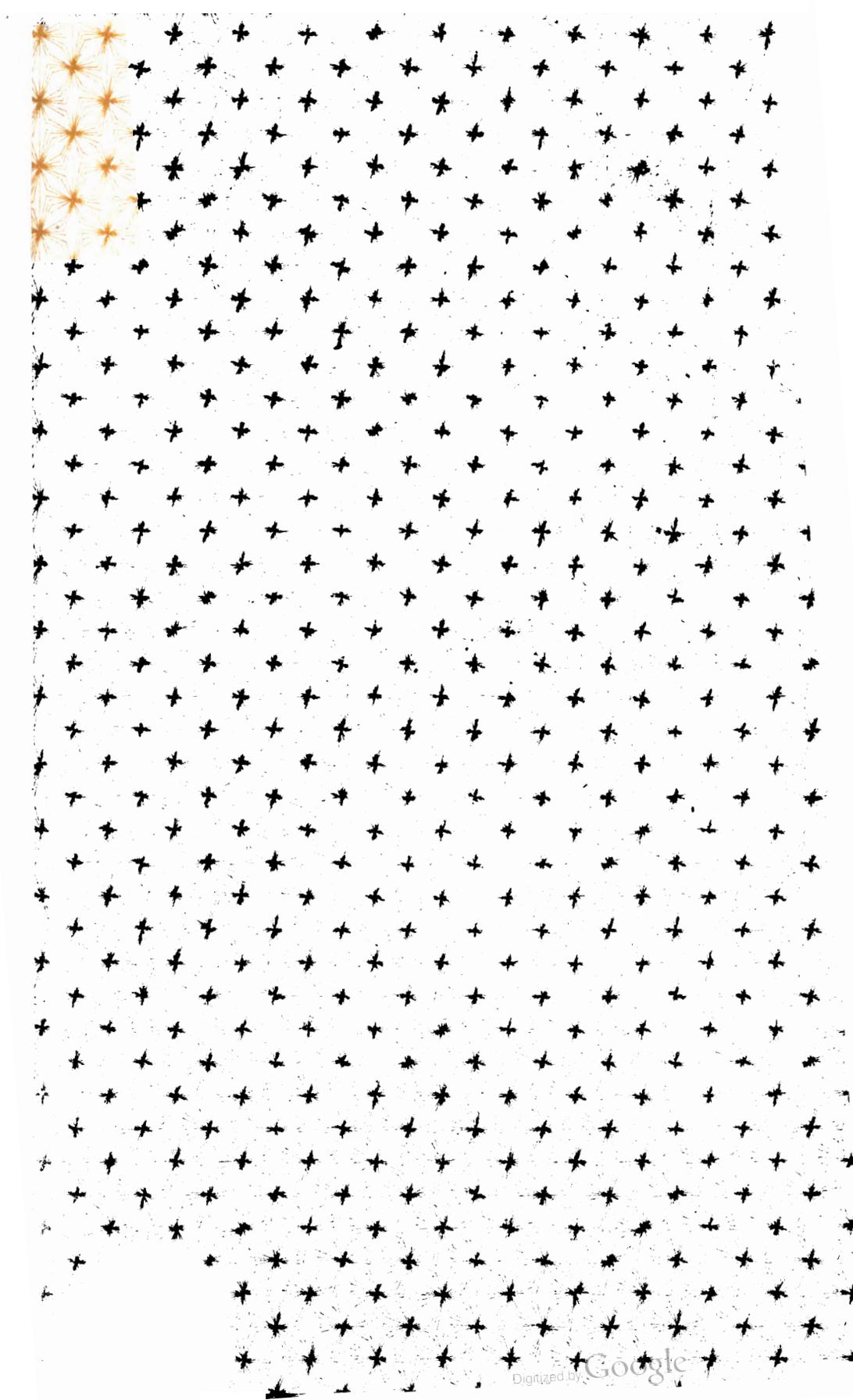
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