Newsletter of the Horological Tool Chapter #173 of the NAWCC

Tool Enthusiasts' Round-Up

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Upcoming Chapter Activities and Classified Ads

A Display of Tools at the Greater Los Angles Regional

Spring 2014
No. 19

The Horological Tool Chapter of NAWCC

The Tool Enthusiasts' Round-Up is the newsletter of the Horological Tool Chapter #173 of the National Association of Watch and Clock Collectors Inc., a non-profit educational organization. This chapter and its newsletter are intended to foster interaction among NAWCC members who share a common interest in the use and collection of horological tools of all sorts. If you have an item you have researched, a book of interest, or notes on a project you have made, please consider sharing your knowledge with others through the newsletter.

The annual chapter dues of $10 will ensure that members receive the newsletter and are included in the Membership Directory when it is published. Members are also entitled to one classified ad in each issue.

Board of Directors

Regional Update

The NAWCC Greater Los Angeles Regional was held January 30 – February 1. We had two chapter members active in the planning and execution of this event. Ron Bechler and John Koepke were our front men and a Chapter 173 Meeting was held with a guest appearance by NAWCC Executive Director Steve Humphrey. (there apparently on other business)

The exposure from the GLA Regional added four new members to our roster: Sig Shonholtz, Tom Musselman, Larry Smith, and Randy Oma. All I believe are NAWCC members from the California area. Welcome one and all to Chapter 173!

Some wonderful tools were on display and Chapter 173 sold several CDs. The Becken tool Catalogue reprint sold extremely well and is still available … see details in this issue of TER. It is a great reference for tool collectors who have an interest in tools made at the turn of the last century.

Remember, the NAWCC National Convention will be in Milwaukee, this year. They will be having a craft competition as normal. If you have built a clock or an interesting horological tool, I encourage you to enter it in the craft competition. See you at the National!

Best Wishes, Bruce Forman

Researching Your Old Tool

There has been very little written about horological tool collecting over the last 100 years. The exception to this statement are the 3 tool books written by Ted Crom, now deceased. (see Tool Enthusiasts' Round-Up, Summer 2010) These books are a good starting point and can often help the tool collector identify the function of a strange looking tool he might find. Included in these books are several reprints of early tool catalogues that were published, starting in the 1700s.

As the horological tool industry grew, so did the size and scope of these horological tool catalogues. By the 1880s, some of these catalogues were as large a telephone book and it was impractical for Mr. Crom to publish them in their entirety. In most instances, he reprinted several pages as a representative sample of what they contained. Fortunately, for us, one of these turn of the last century catoluges has now been reprinted by Chapter 173. The Becken catalog is now available on CD (see classified ad section) and was like the Sears catalogue but for clock, jewelry, and watch making supplies.

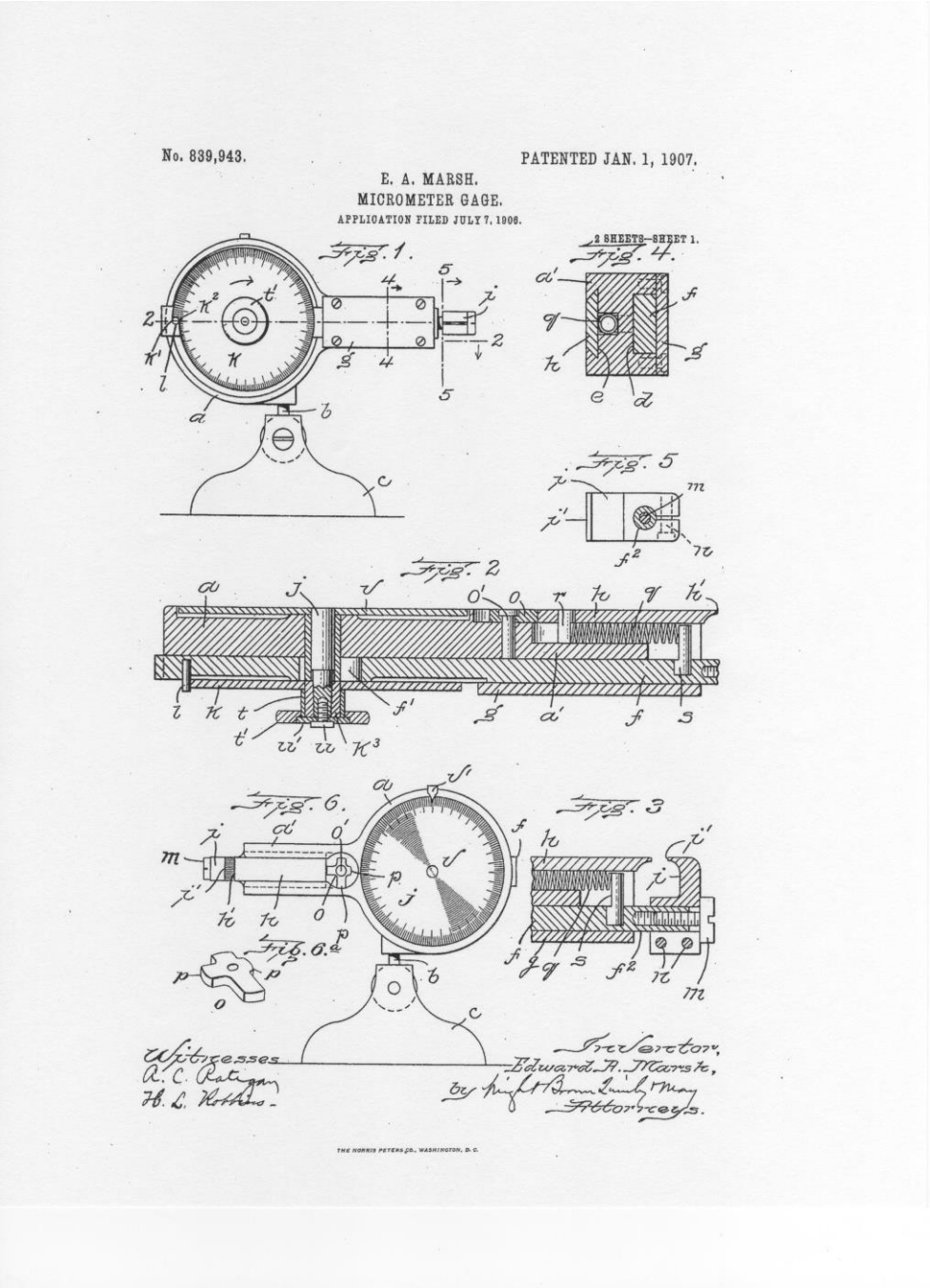
If you have a tool that dates from the turn of the last century, there is a good chance you will find it there along with the original price. A set of the Ted Crom books could cost you several hundred dollars where as the Becken CD reprint is only $13. For the novice or advanced collector, the Becken CD is a good investment.

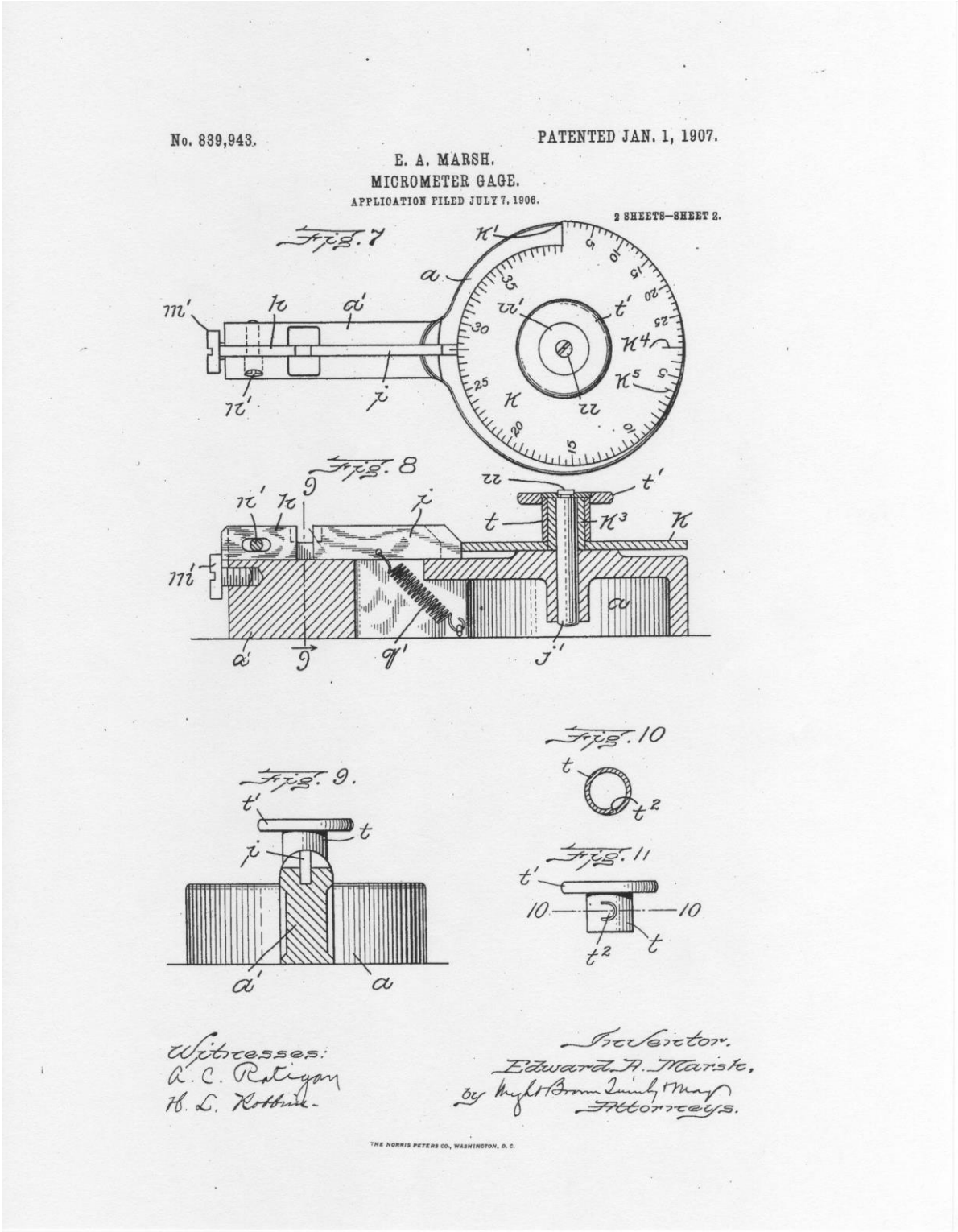
Another source for tool information can be the USA Patent Office. If your tool is marked with a patent date, number, or inventor …a description might reside in their on-line data base. Unfortunately, the on-line data base is not complete and some older patents may not be available or the records might have been destroyed. However, if you are lucky, you may be able to quickly establish the who, what, and when, related to your tool and details of how to use it. An example of a USA patent for a Marsh micrometer gauge is shown at the end of this article and was submitted by one of our members.

A fourth source of information are the past issues of The Tool Enthusiasts' Round-Up. Yes, not every issue hits a home run but, there have been many good articles published and they are indexed. Some notable examples are the articles on jeweling tools, screw head polishing tools, and uprighting tools. Let us not forget that The Tool Enthusiasts' Round-Up also publishes requests from members who are trying to learn more about a tool they own! The past issues of TER are available on CD for only $25. Still, getting to know fellow members is another way of

learning. Do not hesitate to introduce yourself at a Regional when you see a Mart table with a tool of interest. You might meet one of our members! Happy tool hunting.

Bruce Forman




No. 839,943.
PATENTED JAN. 1, 1907.
E. A. MARSH.
MICROMETER GAGE.
APPLICATION FILED JULY 7, 1906.
2 SHEETS—SHEET 2.
Fig. 7
Fig. 8
Fig. 9.
Fig. 10
Fig. 11
Witnesses:
A. C. Rathjen
H. L. Rothwell
Inventor.
Edward A. Marsh,
by Wright Brown Quinby & May
Attorneys.
THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD A. MARSH, OF NEWTON, MASSACHUSETTS.

MICROMETER-GAGE.

No. 839,943. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed July 7, 1906. Serial No. 325,143.

To all whom it may concern:

Be it known that I, EDWARD A. MARSH, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Micrometric Gages, of which the following is a specification.

This invention relates to micrometric measuring-instruments, and is designed to provide an improved form of caliper or gage by which minute differences in the dimensions of small mechanical parts may be detected.

In the manufacture of large numbers of parts of mechanisms which must be as nearly uniform as possible to secure interchangeability, such as in the parts of watch-movements, it is essential to provide instruments of sufficient delicacy to detect exceedingly slight variations from the standard dimensions.

My object has been to secure such an instrument, and by the present invention I have provided one which is capable of measuring small dimensions with accuracy and is of convenient form and size and simple and durable in construction and accordingly capable of being made and sold at a small price.

In its essential elements my improved measuring instrument consists of two jaws or gage members, one of which is relatively stationary, while the other is movable and is actuated by a spiral or snail-shaped cam having a large extent of angular movement to produce a very slight rectilinear movement in the measuring-jaw. The cam is provided with a circular series of graduation-marks, which are proportional to the eccentricity of the cam at corresponding points and serve to measure on a greatly enlarged scale the movement of the measuring-jaw. These elements and other features are illustrated in detail in the accompanying drawings and hereinafter described and claimed.

In the drawings, Figure 1 represents an elevation of a measuring instrument embodying the principles of my invention. Fig. 2 represents a section, on an enlarged scale, on line 2 2 of Fig. 1, showing all but the extreme right-hand end of the instrument. Fig. 3 represents a sectional view showing the parts omitted in Fig. 2. Fig. 4 represents a cross-section on line 4 4 of Fig. 1. Fig. 5 represents a section on line 5 5 of Fig. 1. Fig. 6 represents an elevation as seen from the rear of Fig. 1. Fig. 6^a represents a perspective view of the stop member shown in Fig. 6. Fig. 7 represents a view similar to Fig. 1 of a modification of the instrument designed for special work. Fig. 8 represents a longitudinal section of Fig. 7. Fig. 9 represents a cross-sectional view on line 9 9 of Fig. 8 looking toward the right. Figs. 10 and 11 represent a section and an elevation, respectively, of the frictional actuator for the cam.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, Figs. 1 to 6, inclusive, show a form of the instrument designed for general work. This consists of a body portion or holder a, which may be held in the hand of the user or set upon a pin b, which is pivotally mounted in a base c, upon which it may be held in any position.

The body portion is provided with an outwardly-extending arm a', in the opposite sides of which are formed guideways d and e, respectively. In the guideway d is set a slidable bar f, which is held in place by a cover-plate g, screwed to the arm a', while in the guideway e is set a slide h, held in place by the overhanging sides of the guideway e. The slide h is normally held stationary and has a square edge h', Fig. 6, on its outer end, which serves as a normally stationary caliper jaw or abutment, while the bar f carries upon its end a coöperating movable caliper jaw or gage member i. The member i has a square edge i', which is adapted to abut against the edge h' of the abutment h.

Secured upon a stud j is a disk k, which has an eccentric periphery no two parts of which are at the same distance from the axis of the stud. Beginning with the most extended portion k' each successive point of the periphery of the cam is nearer the axis, so that the periphery has the form of an involute curve or spiral beginning at k' and ending at k^2 on the same radius. The stud j is journaled in the body portion a and passes through a slot f' in the slide-bar f. This bar extends entirely across the cam and has a pin l engaging the periphery of the cam. When the cam is in the position shown in Fig. 1, with its shoulder between the points k' and k^2 in engagement with pin l, the movable jaw i is in its most remote position from the abutment h, and rotation of the cam in the direction of the arrow moves it toward the abutment. On the face of the cam k

adjacent its periphery are put radial graduation-marks, which are arranged to represent fractions of any desired unit, such as a millimeter, &c., and by reference to the pin l serve to show the distance by which the measuring-jaws are separated. As pin l moves only from k^2 to k^7 in a complete rotation of the cam while a large number of graduations spaced sufficiently far apart to be easily read may be placed upon the disk, it is evident that minute fractions of the distance through which the jaw moves are determinable.

The movable jaw is adjusted to regulate its distance from the abutment by a screw m, threaded into a reduced extension f^2 of the slide f, and is clamped in any position of adjustment by screws n, extending through a split portion of the jaw which embraces the extension f^2. The abutment h is also adjustable to permit of objects having a large range of size being measured. It is to permit of such adjustment that the abutment is mounted slidably in the guideway e. It is held normally in one position by means of a stop o, pivoted at o' and having several arms p, which are of different lengths. The stop member is movable, so that any one of the stop-arms may be brought into engagement with the end of the abutment, and the distance of the latter from the movable jaw depends on which of the stop-arms engages it. Preferably when the longest arm p engages the abutment the jaws may be brought into contact. The difference between the successive stop-arms is preferably one unit, or the amount of movement effected by a complete revolution of the graduated disk, so that by moving successive arms adjacent the abutment additional units may be added to the range of movement of the jaws. The stop limits the movement of the abutment from the movable jaw, while a spring q, bearing against a stud r on the abutment, retains it against the stop. This spring also bears against a stud s on the slide f and holds the pin l of the latter against the cam, and thus normally tends to separate the jaws.

For turning the cam I provide a finger member consisting of a sleeve t, having a flange t', adapted to be grasped and rolled between the thumb and finger of the user. This sleeve fits upon a hub k^3 of the disk and is held thereon by a screw u and washer u'. There is a certain amount of friction between the sleeve and hub, so that the disk may be turned by the former when the resistance is not great; but the friction is so slight that the sleeve will slip as soon as any considerable resistance is encountered. Thereby when an article being measured is grasped between the jaws the movement of the latter will be stopped before any pressure sufficient to indent the object and vitiate the result or to injure either jaw or the cam can be applied. Friction is produced by a spring-tongue t^2, formed on the sleeve, as shown in Figs. 10 and 11.

An additional dial v is secured upon the stud j on the opposite side of the body portion from the cam k, this dial having graduations which by reference to a fixed pointer v' serve to indicate the size of the object being measured when a reading on the cam-dial k cannot conveniently be obtained.

It will be noted from Figs. 2 and 3 that the dial v and stop member o are set into recesses in the body, so that their outer surfaces, as well as the surfaces of the measuring-jaws and the body portion, are all in the same plane without any part except the pointer v' projecting beyond such plane. This permits the instrument to be used in occasional special conditions where the parts to be measured consist of a small projection extending from a piece of large area.

If desired, the instrument may be made with provisions for varying degrees of sensitiveness—that is, the rate of change of eccentricity may be made different in different parts of the cam, so that in certain positions of the cam more minute differences of size may be detected. In Fig. 7, which is on a somewhat enlarged scale, the cam is shown as having the part between the points k' and the mark k^4 with less rapidly diminishing radii of curvature than the remaining portion of the cam. Thus this quadrant of the cam from k' to k^4 measures in hundredths of a unit, while on the other portions of the cam the figures read in tenths, and the recession of the periphery in passing from k' to k^4 is no greater than going from k^4 to k^5—that is, three-tenths of a unit. This is to enable the instrument to be used readily for two different classes of measurement, such as measuring the thicknesses and widths of watch-mainsprings. The form of the invention shown in Fig. 7 is particularly designed for the special work of measuring mainsprings of which the thicknesses do not exceed three-tenths of a millimeter, and when the movable gage member i is within three-tenths of a millimeter of the abutment h some part of the cam portion k' k^4 is in contact with the part i. When this part of the cam is operated, its movement by one of the divisions will move the member i one-hundredth of a millimeter, and when the other portion of the cam is adjacent member i the jaws may be separated enough to permit the insertion of a mainspring flatwise, so that its width may be measured. The main divisions of this part of the scale denote tenths of a millimeter and are sufficient for the purpose of measuring widths, while the thicknesses in which great accuracy is required are cared for by the finer divisions. In this form of device the stationary abutment is clamped in a groove of the arm a' by a screw

n' and is adjusted by a screw m'. The movable jaw i travels in the same groove and is held against the cam k by means of a spring q'. The disk is provided with a hub portion k^3, which turns about a stud j', fixed in the body a instead of being rotatable therein, as in Fig. 2. The frictional sleeve t, mounted upon the hub k^3, is the same as that already described.

Although with this device very fine measurements can be secured with great accuracy, the device is yet very simple and inexpensive.

I claim—

1. A micrometric measuring instrument comprising relatively fixed and movable jaws, and a graduated disk having an eccentric cam-shaped perimeter engaged with the movable jaw.

2. A micrometric measuring instrument comprising relatively fixed and movable jaws, and a graduated disk having a cam-shaped perimeter engaged with the movable jaw, said cam portion being of constantly varying eccentricity proportional to the graduations of the disk.

3. A micrometric measuring instrument comprising relatively fixed and movable jaws, and a graduated disk having a spiral cam portion in one plane engaged with the movable jaw.

4. A micrometric measuring instrument comprising a relatively fixed abutment, a jaw movable toward and from said abutment, and a graduated flat disk having its periphery formed as a cam engaged with the jaw, the abutment being adjustable to vary its distance from the jaw.

5. In a micrometric measuring instrument, a spiral cam having a plurality of portions of regularly-changing eccentricity, the rates of variation in the eccentricities of the several portions being different, and the cam having reference graduations on each of the different portions, which represent different units proportional to the various changes of eccentricity.

6. In a micrometric measuring instrument, a spiral cam having a plurality of portions of regularly-changing eccentricity, the rates of variation in the eccentricities of the several portions being different, and the cam having separate sets of graduations reading in terms of the various differences in eccentricity.

7. A micrometric measuring instrument comprising a graduated disk having its periphery formed as a spiral or snail, a fixed abutment, a member movable in a straight line toward and from said abutment, and engaged with the periphery of said disk, and a spring tending to hold said movable member against the disk.

8. A micrometric measuring instrument comprising a graduated disk having its periphery formed as a spiral or snail, a fixed abutment, a member movable in a straight line toward and from said abutment, and engaged with the periphery of said disk, and a spring tending to hold said movable member against the disk, the abutment being adjustable in the line of movement of the member.

9. In a micrometric measuring instrument, a rotary disk having graduations and formed with its periphery gradually approaching the pivot from the most extended point, in an involute curve, and a caliper-jaw or gage member rectilinearly operable by said disk; one portion of the disk periphery being of less abrupt curvature than the rest, whereby a corresponding angular movement of this portion of the disk will produce less motion of the gage member.

10. In a micrometric measuring instrument, a stationary abutment, a gage member movable toward and from said abutment, a cam-disk for moving said member and having a scale for indicating the distance thereof from the abutment, and a finger-piece for moving said disk, having a frictional engagement therewith and adapted to slip when a resistance is encountered of greater force than the friction.

11. In a micrometric measuring instrument, a stationary abutment, a gage member movable toward and from said abutment, a cam-disk for moving said member and having a scale for indicating the distance thereof from the abutment, a coaxial projection on said disk at the pivot thereof, and an operating member frictionally engaged with said projection for turning the disk, adapted to slip when a resistance of greater force than the friction is encountered and prevent injury to the parts and to insure uniform and safe pressure.

12. In a micrometric measuring instrument, a stationary abutment, a gage member movable toward and from said abutment, a cam-disk for moving said member and having a scale for indicating the distance thereof from the abutment, a hub on the disk, and a sleeve mounted on said hub with a frictional engagement, adapted to be grasped and turned manually for revolving the disk, and to slip when the movable member is arrested.

13. A micrometric measuring instrument comprising a support or body, a normally stationary abutment, a movable gage member, a rotary cam-disk engaged with said gage member for moving it relatively to said abutment and having graduations for measuring the amount of such movement, and a graduated dial connected to said disk and movable therewith.

14. A micrometric measuring instrument comprising a support or body, a normally stationary abutment, a movable gage member, a rotary cam-disk on one side of the body engaged with said gage member for

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moving it relatively to said abutment and having graduations for measuring the amount of such movement, and a graduated dial connected to said disk on the opposite side of the body from the disk and movable therewith.

15. A micrometric measuring instrument comprising a support or body, a normally stationary adjustable abutment, a movable gage member, a rotary cam-disk engaged with said gage member for moving it relatively to said abutment and having graduations for measuring the amount of such movement, and a stop, against which said abutment is adapted to bear, displaceable to permit shifting of said abutment.

16. A micrometric measuring instrument comprising a support or body, a normally stationary adjustable abutment, a movable gage member, a rotary cam-disk engaged with said gage member for moving it relatively to said abutment and having graduations for measuring the amount of such movement, a plurality of stops displaceable to permit each to engage separately with the abutment and adapted to sustain the abutment in different positions, and means tending to hold the abutment in engagement with the nearest stop.

17. A micrometric measuring instrument comprising a support or body, a normally stationary adjustable abutment, a movable gage member, a rotary cam-disk engaged with said gage member for moving it relatively to said abutment and having graduations for measuring the amount of such movement, a pivoted member having a plurality of stop-arms of different lengths movable to bring any single arm adjacent the abutment, and yielding means tending to hold the abutment against the nearest stop-arm.

18. A micrometric measuring instrument comprising a movable jaw, a normally stationary jaw or abutment adjustable toward and from said movable jaw, a cam engaging said movable jaw for moving it toward the abutment, a stop for limiting the movement of the abutment away from the movable jaw, and a spring tending to hold the jaws separated, with the abutment in contact with said stop and the movable jaw in engagement with the disk.

In testimony whereof I have affixed my signature in presence of two witnesses.

EDWARD A. MARSH.

Witnesses:
A. C. RATIGAN,
H. L. ROBBINS.

Request for Wolf Jahn & Company Information

Roger F. Karl has just finished restoring/customizing his WW lathe. It is a typical American style WW lathe pattern. The overall bed length is 11 3/16 inches and the "D" bed is 45 mm in diameter. The center height of the head stock is 50 mm and originally took 8 mm long collects (Mosely, etc.). The lathe is marked Wolf Jahn &Co., Frankfurt A/M, and a serial number or model number 52 appears on all the major parts. Roger would like to know if any of the members could date the lathe or give specifics about the company who made it. Please respond to the editor with information. (see photo on next page)

Roger's Wolf Jahn Lathe

Classified Advertisements

Wanted

Levin and Derbyshire headstock and tailstocks (lever feed) in 10 mm sizes, any condition, running or not. Also 10 mm Levin collets and other related equipment. M. L. Shetler, Watchmaker, 7676 Route 62, South Dayton, N. Y. 14138

Deckel, Aciera, Rivett, Schaublin, Lorch, Hardinge, Levin, lathe or mill accessories wanted. Will trade, or sell if I have duplicates. Mark Fulmer
(330) 877-2021, Markusfu@hotmail.com

Derbyshire Elect model lathe attachments- pivot polisher, screw cutting attachment, roller file rest, and screw feed tailstock - will trade - for sale: tools from the Elgin watch factory, lathes, grinders, millers, etc…some made by American Watch Tool. J. Dill, 2117 22nd St. Road, Greeley, Co. 80631, Tel: 970-353-8561, jimdle@yahoo.com.

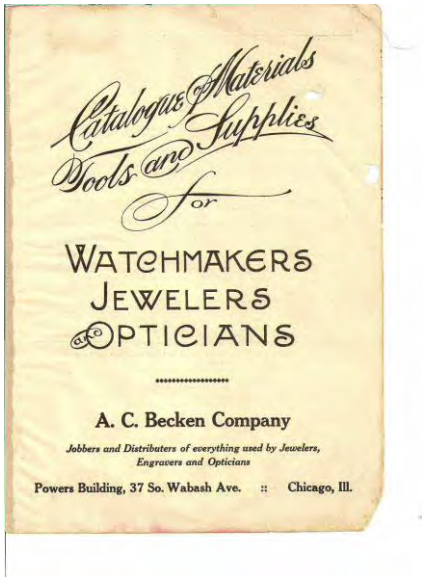
Clock pinion leaf polishing machine, Bruce Forman, 234 Eagle Ridge Drive, Valparaiso, IN 46385, (219) 763-4748, email: forman21@netzero.net will buy or trade.

For Sale

NOW AVAILABLE ONCE AGAIN "THE WATCHMAKERS STAKING TOOL" BY PERKINS & LUCCINA, $35.00 Postpaid, send remittance to, Ronald G. Bechler, 726 Royal Glen Drive, San Jose, CA 95133-1446, (408) 926-3212

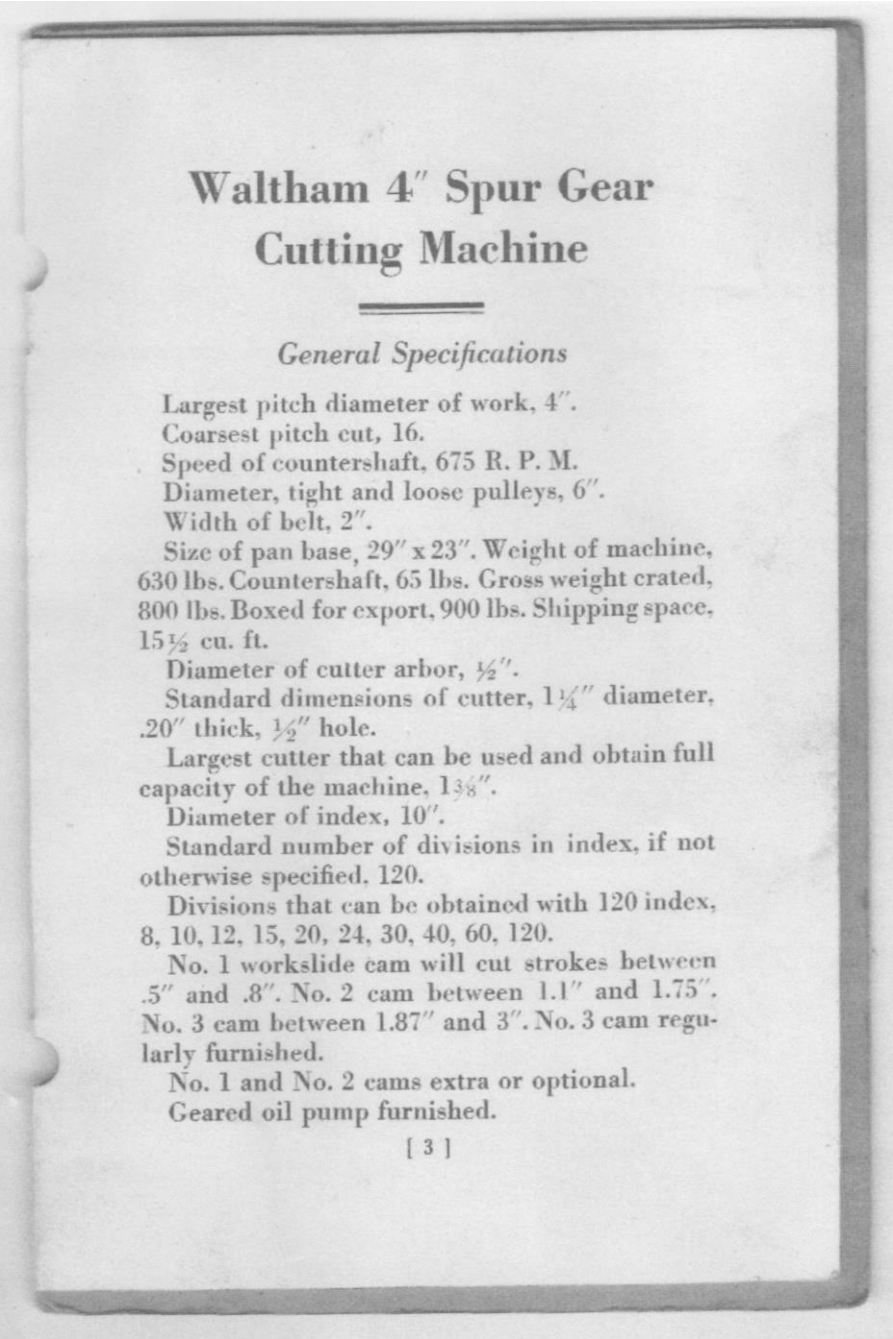
Watch Pivot Polishing Machine, from Bulova Watch Factory, $450, Bruce Forman, 234 Eagle Ridge Drive, Valparaiso, IN 46385, (219) 763-4748, email: forman21@netzero.net will sell or trade for antique tools I want but do not need.

Derbyshire Lathe, 8mm lathe, good chrome, t rest may be from another lathe, no tail stock, motor and jack shaft, motor needs rewiring, one pulley looks bent. Bruce Forman, 234 Eagle Ridge Drive, Valparaiso, IN 46385, (219) 763-4748, email: forman21@netzero.net will sell or trade for antique tools. SOLD



Now available on CD is a partial reprint of the A. C. Becken Company Catalogue. This catalogue is undated but is believed to have been printed in the early part of the 1900s. There is a lot of detailed information on watch and clockmaking tools. Please send a check for $13 to Chapter #173 Secretary/Treasurer: Dave Kern, 5 Hilltop Drive, Manhasset, NY 11030

For Sale Waltham Thread Mill, $900 and Waltham Spur Gear Cutter, $1,000 (see the gear cutter specifications below). Mark Fulmer (330) 877-2021, Markusfu@hotmail.com



Waltham 4″ Spur Gear Cutting Machine

General Specifications

Largest pitch diameter of work, 4″.
Coarsest pitch cut, 16.
Speed of countershaft, 675 R. P. M.
Diameter, tight and loose pulleys, 6″.
Width of belt, 2″.
Size of pan base, 29″ x 23″. Weight of machine, 630 lbs. Countershaft, 65 lbs. Gross weight crated, 800 lbs. Boxed for export, 900 lbs. Shipping space, 15½ cu. ft.
Diameter of cutter arbor, ½″.
Standard dimensions of cutter, 1¼″ diameter, .20″ thick, ½″ hole.
Largest cutter that can be used and obtain full capacity of the machine, 1⅜″.
Diameter of index, 10″.
Standard number of divisions in index, if not otherwise specified, 120.
Divisions that can be obtained with 120 index, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120.
No. 1 workslide cam will cut strokes between .5″ and .8″. No. 2 cam between 1.1″ and 1.75″. No. 3 cam between 1.87″ and 3″. No. 3 cam regularly furnished.
No. 1 and No. 2 cams extra or optional.
Geared oil pump furnished.

[3]