

A  
modern-day



lathe  
ornamental



MADE.  
ORNAMENTAL ROSE ENGINE

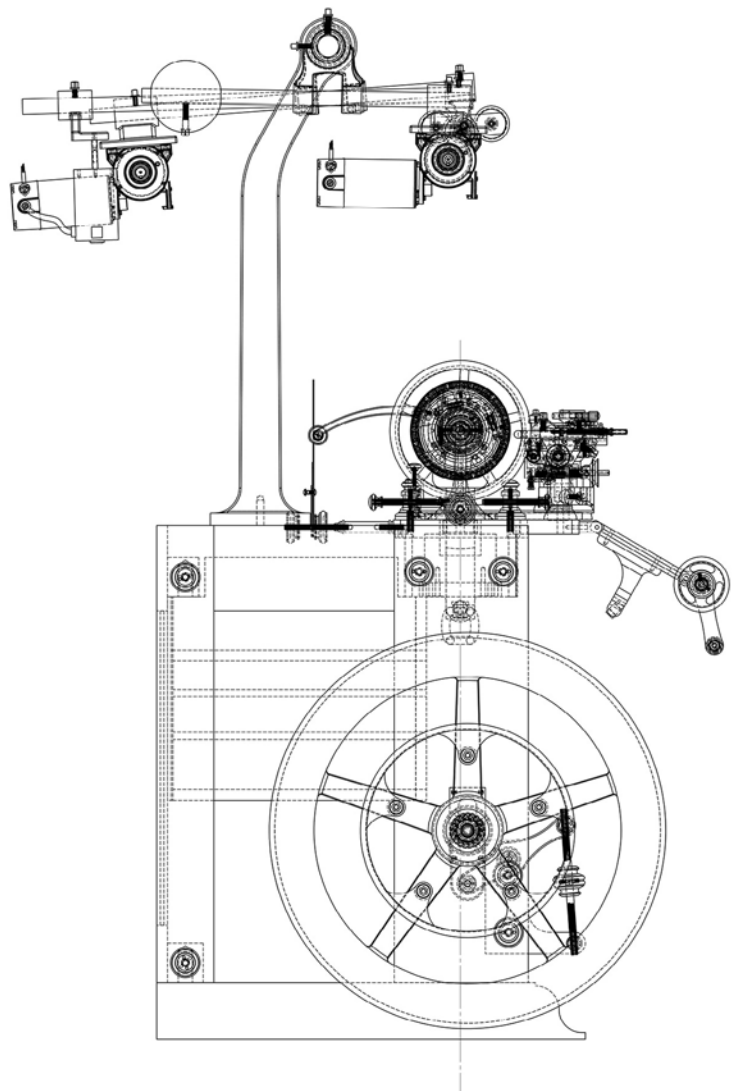
# *Introduction*

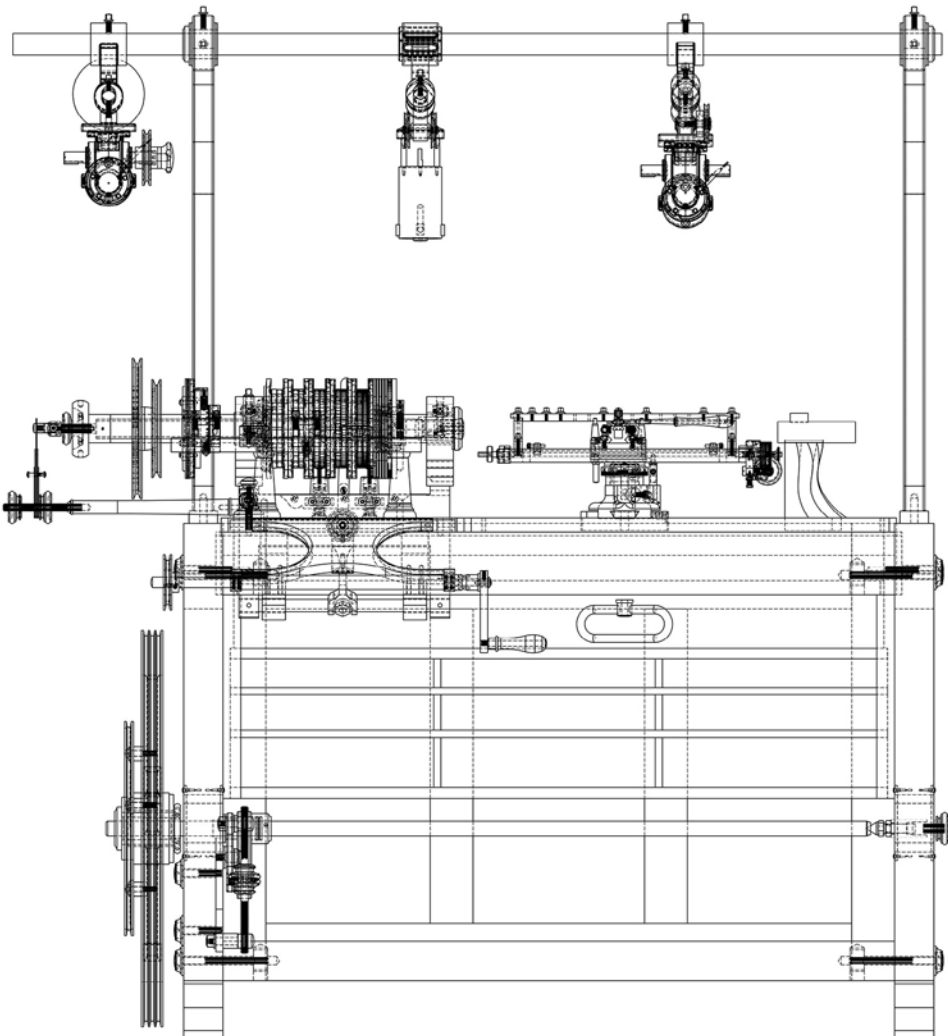
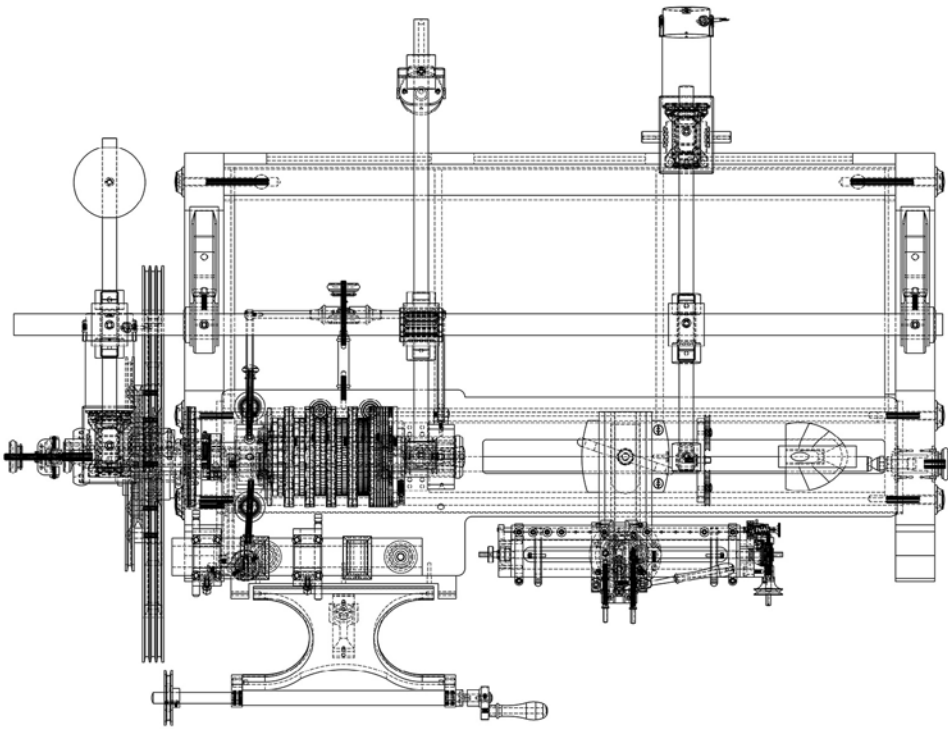
In a joint partnership, David Lindow of Lindow Machine Works and Mike Stacey of Columbus Machine Works, Inc. present a modern-day, ornamental lathe reminiscent of the machines of the Victorian-era, which we have come to refer to as the MADE Ornamental Rose Engine.

We hope this beautiful machine will encourage inspiration and kindle new interest in this fascinating mechanical art and craft.

This package of information will provide background and basic information on the machine including the following sections:

- 1 History of the Conception
- 2 Background of the Partners
- 3 Summary Description
- 4 Design Direction and Features
- 5 Standard Equipment and pricing
- 6 Optional Equipment and pricing
- 7 Payment Terms/Early Order Discount
- 8 Delivery





# 1. History of the Conception

The machine's name evolved from an acronym used to refer to the machine during the development and prototype phase of the MADE lathe. The letters "M", "A", "D" and "E" are the initials of the first letters of the names of the four Principals involved, Mike (Stacey), Al (Collins), David (Lindow) and Eric (Spatt). The MADE name was kept to honor the individuals who made contributions to the completion of the project. The name also seemed appropriate, as it took many years to complete the lathe, so we can now call it "made".

There were over three years of design, development and prototyping. The machine was conceived in 2010 in a joint effort between Al Collins and David Lindow to produce a new and better ornamental turning rose engine than had previously existed for fixed tool work and amongst the most beautiful made throughout history. Al Collins is a renowned ornamental turner specializing in fixed tool work, and David Lindow is a fine craftsman, clockmaker and designer/builder of the Lindow Rose Engine. Together, they formulated the most basic design direction, identified constraints and requirements, and developed a vision for the machine. They began to layout and produce patterns for casting and piece together the logic of the machine's operation.

The story started in 2006 at the OTI symposium in Portsmouth, NH after a lecture on fixed tool by Jeremy Soulsby. Both David and Al were taken with the possibilities of fixed tool work. Al took off with his own attempts to accomplish it. Jeremy's big breakthrough had come when he discovered, from a Joseph Moxon lathe, that the headstock was let down into the rosette as the tool was fully fixed and not on a slide rest. Al recognized that when done manually, this is a cumbersome task and quite time-consuming, so he devised a mechanically-driven automatic headstock retractor.

In 2010, David and Ashley Lindow developed a prototype of an improved model which Al augmented and fit to his lathe. Al displayed it at the 2010 OTI Symposium in San Jose, CA. Al saw it as an improvement and shortly afterward contacted David in regard to making a heavier cast iron headstock for his lathe. David suggested simply making an entirely new lathe.

Mike Stacey had recently met David, and his company was successfully supplying parts for the Lindow Rose Engine. Fully-immersed in learning about, and becoming quickly addicted to ornamental turning, Mike needed little coaxing to become convinced that manufacturing such a machine was a great idea. In 2011, Mike began providing the degree of design engineering and manufacturing support necessary to successfully produce the prototypes. His involvement also made it feasible to consider future production quantities.

Needing a name for the lathe it was suggested the lathe be called the "DAM" lathe for David, Al, and Mike. Soon after, Eric Spatt, an ornamental rose engine collector, heard about the endeavor and wanted to be included in the project. Each of the four contributed their own specialty to the equation and worked together as a well-rounded and vastly experienced team that covered a broad spectrum of abilities. The project was on its way.

In 2013, four MADE prototypes were completed. The first prototype was displayed at the 2012 Ornamental Turners International Symposium, at a Lindow Rose Engine seminar in 2013, and at the North American Model Engineering Society's Expo in 2014. The enthusiastic response received at these events provided encouragement to pursue producing additional MADE lathes for sale.













## 2. Background of the Partners

*David Lindow and Mike Stacey, two of the original individuals involved in developing the MADE prototypes, have committed to producing a limited quantity of the MADE Ornamental Rose Engine to share with other enthusiasts.*

*Together, Lindow Machine Works and Columbus Machine Works join in a formidable strategic partnership, enabling production of the best and most beautiful ornamental turning rose engine possible.*



**Mike Stacey** is the President and founder of Columbus Machine Works, Inc., a full-service machine shop in Columbus, Ohio established in 1997. Columbus Machine's focus is supporting local manufacturing and industry with repairs, parts, machine, component, and assembly design, as well as mechanical problem solving. Columbus Machine currently employs 17 in a 10,000 sq. ft. facility. Columbus Machine Works is the optimum environment to efficiently produce a precision machine like the MADE lathe.



Mike's beginning in the machine industry was inspired by his time of employment as a machinist at a fourth generation family-owned company, once prominent in Central Ohio. While there, he began a lifelong, hands-on pursuit of restoration and conservation of antique and vintage machine tools. This activity naturally evolved into a profound interest in ornamental turning equipment. Ready to apply his company's manufacturing capacity to a beloved product, this was to become a perfect match.

Mike's educational background in Industrial Design, combined with 20 years of manufacturing leadership equip him with design and management techniques needed to guide the production of the MADE lathe to success.

**David Lindow** is the owner of Lindow Machine Works, the company which has successfully manufactured and marketed a compact, modern rose engine called the Lindow Rose Engine since 2007. The Lindow Rose Engine is a mid-sized machine that is loosely patterned off of traditional American machines meant to bring rose engine turning to a broader market by having a machine in the mid-price level. This allows anyone with a serious interest to be able to afford one. While the machine is beautiful in its own right, there is no attempt at beauty for beauty's sake, making it a simple and practical machine. It is a medium-duty machine allowing it to be used for a wide array of work, but on the light side for fixed tool work.



David's extensive background and experience with ornamental turning, engine turning, and rose engine work, as well as his experience with finishing and fitting, building and restoring mechanical devices and machines, provides him with exceptional insight in the creation of the MADE lathe. David's background as a clockmaker, and experience producing and marketing his Lindow tall clock movements, as well as performing 18th and early 19th century clock repair and restoration, provides him with unique and invaluable qualifications.



MADE.

### 3. Summary Description

The MADE Lathe is an Ornamental Turning Rose Engine capable of a swing of 12" and a 24" long work piece supported by a 2MT tailstock. The bed is made of cast iron and supported in a frame of twelve quarter mahogany secured together with ½" spanner bolts in escutcheons. Mounted below is a 9-drawer chest. The frame back board is a cover of ¾" mahogany ply simply sitting in the void behind the bed and is available for placing tools and other devices. The back is paneled construction so it's as beautiful from the back as the front.

The headstock is a 75 lb. machined solid iron casting. It extends up from its lower pivot securely fastened in fully adjustable steel plain bearings to the underside of the bed cross member.

The spindle is of hardened and ground tubing hand fitted to bronze, oil ported bearings in the headstock. The spindle employs 5C collets with a manual drawtube.

The overhead standards are machined cast iron and support a 1-1/2" diameter hardened and ground cross bar. Three cranes ride on the overhead bar, one to power the spindle with a slow turning gear motor, fixable for position and belt tension, one to power the cutting frame with a high speed DC motor riding on a linear bearing for traversing, and one to supply belt power for the slide rest auto-feed unit, fixable for position and belt tension. A safety bar is positioned and secured across the overhead to keep a crane from swinging in the event of mishandling or belt failure.

The barrel, as standard-equipped, contains 10 rosettes arranged for rocking and pumping, as well as 10 "rosette spacers" that contain low amplitude features designed for engine turning. The barrel is hand-fitted to the spindle and thrust is taken up by a radial roller thrust bearing. Thrust load is constantly applied to the barrel by fastening the barrel tight on the spindle using a clamp collar behind a spring washer pocketed in the back of the barrel. Work can be phased coarsely by way of a standard pattern crossing plate and lever for divisions of 48, 72, 96, 120, 192 & 288. For finer phasing, a winding key operated worm and worm wheel system is used that produces 3 degrees per revolution. A four row simple indexing ring is included on the barrel with 96, 120, 144 & 180 division circles. A rubber holder-mounted spring pin detent is provided for indexing.

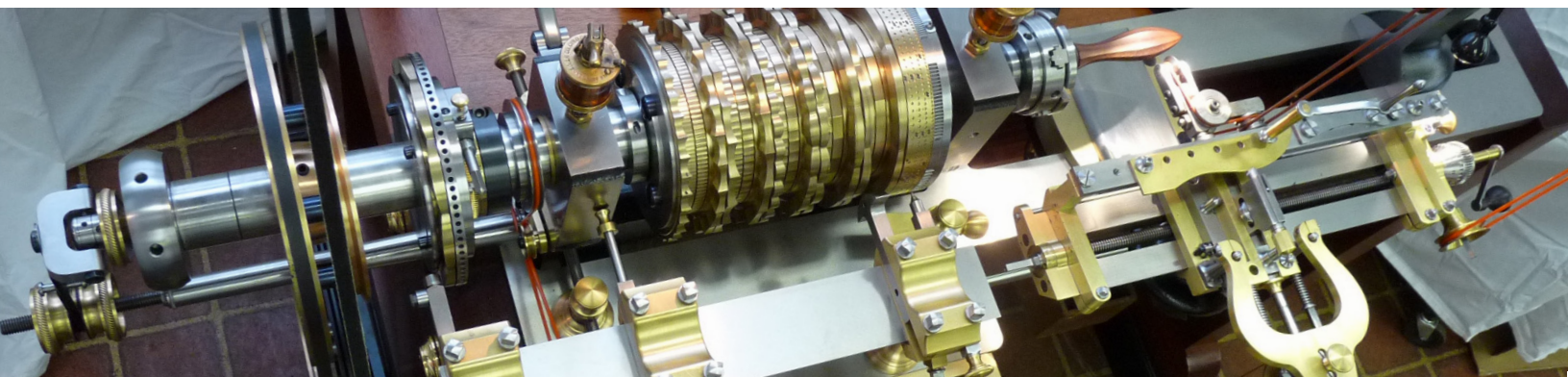
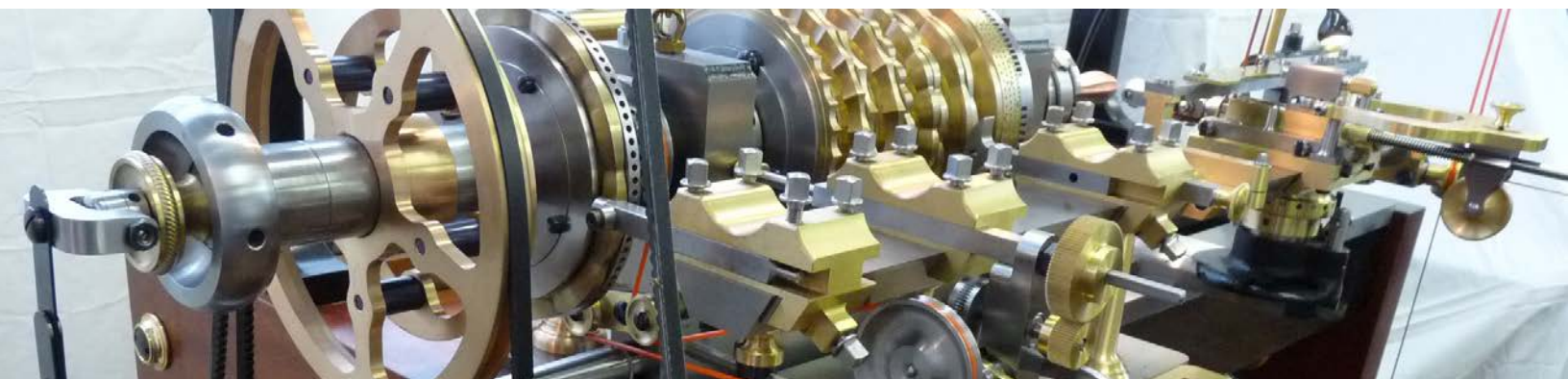
The headstock rocks and pumps exclusively or simultaneously by way of specially designed leaf springs and mounting rods. For added control of rocking, coil springs attached to the headstock can be brought into operation by simple means. The pumping spring unit, drawtube-hand wheel and drive pulley can be readily removed for easily changing rosettes or other devices on the auxiliary rosette holder.

The drive train of the lathe consists of a 50 rpm forward and reverse variable speed, clutch controlled gear motor on a counterbalanced crane, supplying power to the flywheel, which in turn supplies rotational power to the spindle by way of a conventional V belt. The flywheel is of solid cast iron and machined construction weighing 120 lbs. supported on a cross shaft fully adjustable for belt tension to the spindle pulley. A hand crank and shaft housed on an adjustable bracket can be used for setting up or turning the spindle manually.

Cuts are taken using one of two slide rest / tool holding methods. One is a curvilinear slide rest of our design and manufacture with the auto-feed and auto-stop mechanism carrying a conventional ornamental turning toolbox accommodating standard 9/16" square cutting frames. The other method is by employing a dovetail tool holder on a Hardinge compound slide rest, mounted on a base specifically designed for the MADE lathe bed and cradle.









## 4. Design Direction and Features

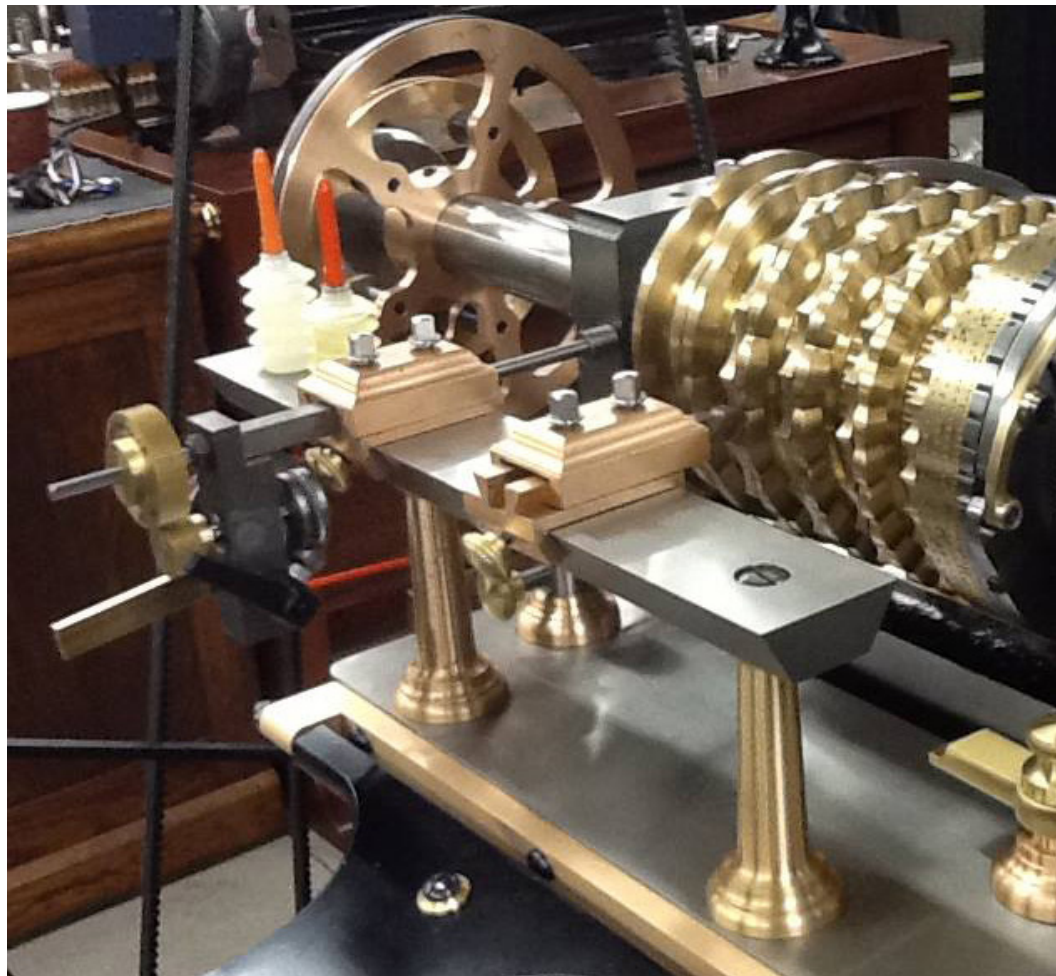
The primary guiding principle during the conception and planning of the MADE Ornamental Rose Engine was for the machine to stand out by being specifically designed for FIXED TOOL rose engine work. This consideration is what sets the MADE Ornamental Rose Engine apart from any and every other ornamental lathe or rose engine, and puts it in a class of its own. In order to achieve fixed tool cuts in exotic hardwoods, the mass and rigidity of the bed and headstock, as well as the strength of the rubber-tower and spring system, must be of significant magnitude. Additionally, the proper construction and sharpening of cutting tools for fixed tool OT work is crucial, and cannot be overemphasized. The extension to the art and craft of ornamental turning that fixed tool cutting provides, can quickly be seen with a little research and is utterly astounding.

For today's turners who are already knowledgeable and successfully practicing ornamental turning, the ability to easily include fixed tool cuts to ornamental work is one of the premiere reasons to be excited about owning a MADE lathe. Our purpose is to expound on, demonstrate and support this overarching intent of the MADE lathe and offer the machine ready to perform this type of work and the technical support necessary to carry you along. Focusing on this has lowered significantly the barrier to entry into fixed tool work and aided in the ease by which it can be successfully performed.

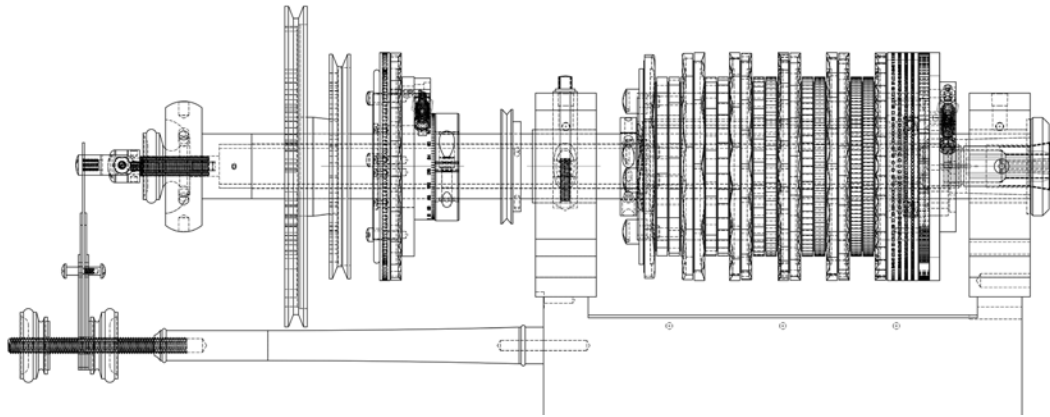
The secondary principle of the MADE lathe is simple practicality. The simple concept of the ability to operate the machine easily was considered at each step, before, during and throughout the

development of the machine. If a machine is not conducive to ease of use, it will gather dust. A machine that is easily used, is a pleasure to operate. A machine that is a pleasure to operate, will be used, and then will be a pleasure to own. Simple practicality provided the fundamental basis for development of the MADE lathe. Your machine will have had every last detail considered and designed with this in mind.

The specifications of the particular features grew out of the philosophical direction outlined above. Iron castings were used for the major lathe components including the bed, headstock, tailstock, and fly-wheel. Iron is the traditional material for machine construction because of its ability to absorb vibration. The MADE lathe incorporates a 250 lb. bed casting, a 75 lb headstock casting, and a 120 lb. flywheel casting providing the mass necessary to carry out fixed tool work.



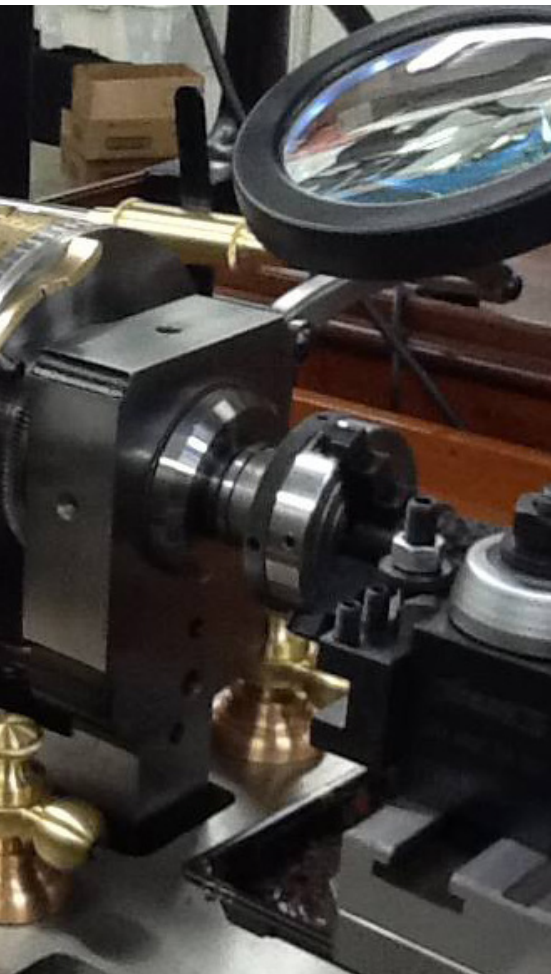




In fixed tool work, the headstock must be slowly set into the tool to result in a clean cut, which is free of vibration. Manually this is a tedious process. The headstock retractor not only mechanically automates the process, but does so with simplicity. Change gears are provided to give three different speeds of advance, and the retractor can be reset for subsequent cuts in seconds.

Adding to the heft of the machine is the pivot system. The pivots are set low, below the bed, so as to minimize the amount of deflection from center that occurs as the headstock rocks back and forth. The pivots are set into pillow blocks and are made of a 1" solid piece of ground stock, again adding to the rigidity needed for fixed tool work. The pillow blocks are fully adjustable in all directions to facilitate accurate alignment with the bed as well as the tailstock.

undisturbed while changing rosettes on the auxiliary rosette holder. The pumping spring attachment is also designed in such a way, as to allow the pumping spring to be activated in either direction, and to be changed from one direction to the other easily. The 5C spindle adds to the ease-of-operation, while it also opens the door to many different work holding options that are readily available. Not only can you change collets in various sizes quickly, but a 1"-8 or any other thread can be added as well as a #2 Morse Taper. In addition, specialized collets (such as expanding collets) and chucks (such as three and four jaw chucks) can be utilized as well.

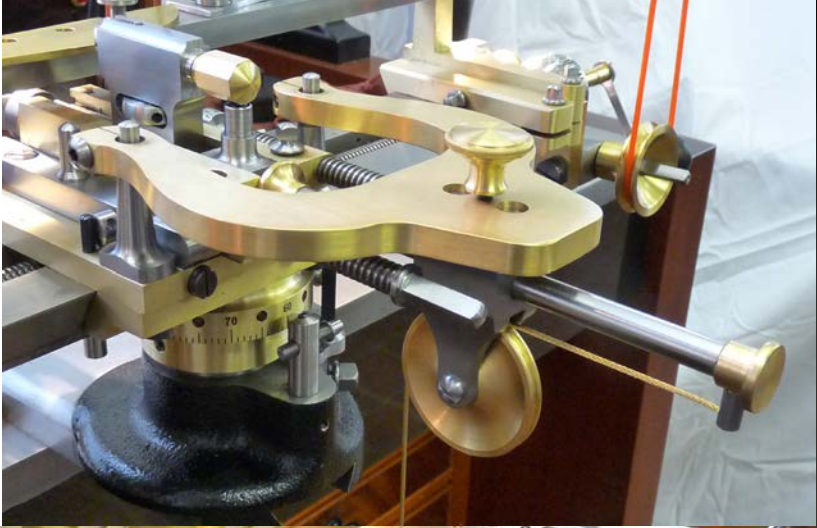
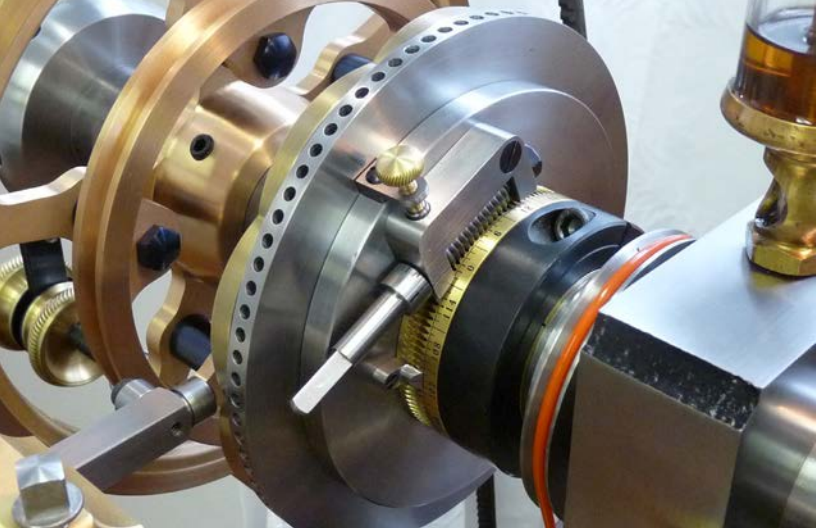
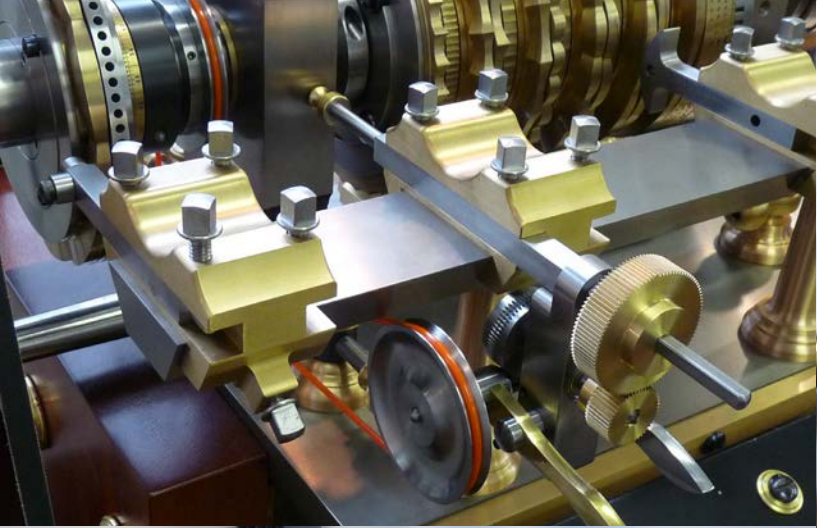


The barrel carries ten (10) high amplitude rosettes, with both pumping and rocking faces. They pump in the traditional manner, which allows for very quick tool changes from pumping to rocking and back again. Rubbers are exchanged quickly and with ease due to the fact that they are loaded from the side. The spacers between the high amplitude rosettes were made into low amplitude rosettes for engine turning or guilloche work. The conversion from one type of work to the other is as fast as changing a rubber, and the engine-turning rosettes take up no extra space on the barrel. The auxiliary rosette holder allows for additional rosettes to be added with ease, as well with the changeover taking only a couple of minutes. The auxiliary rosette holder also allows for two rosettes to be used simultaneously while being phased independently from the barrel.

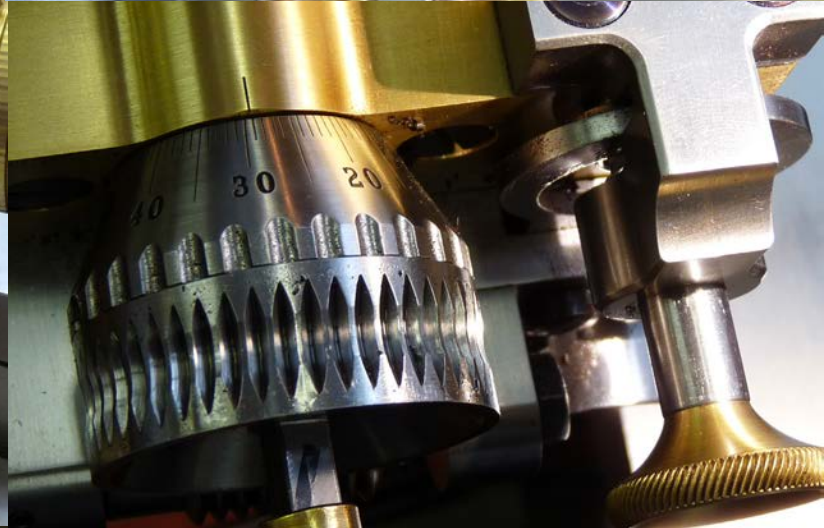
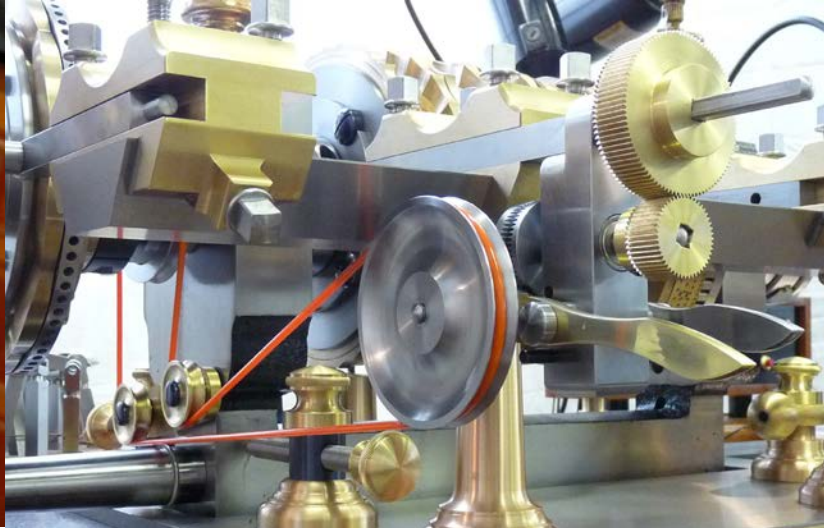
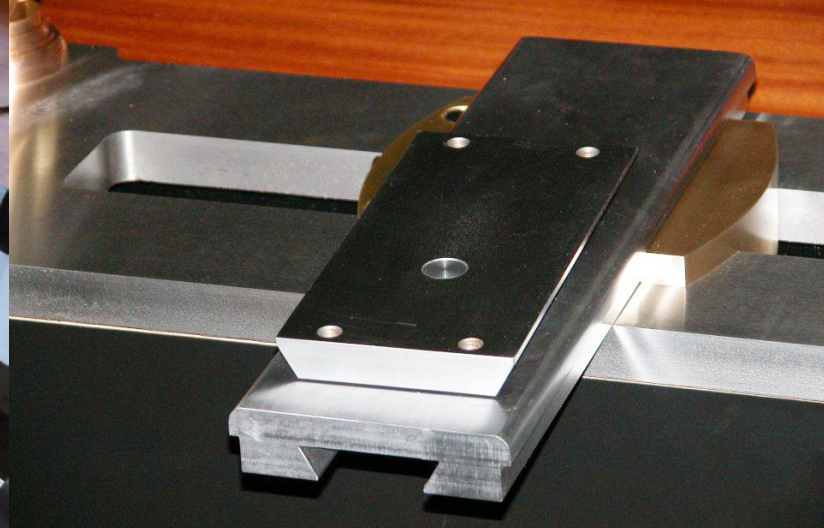
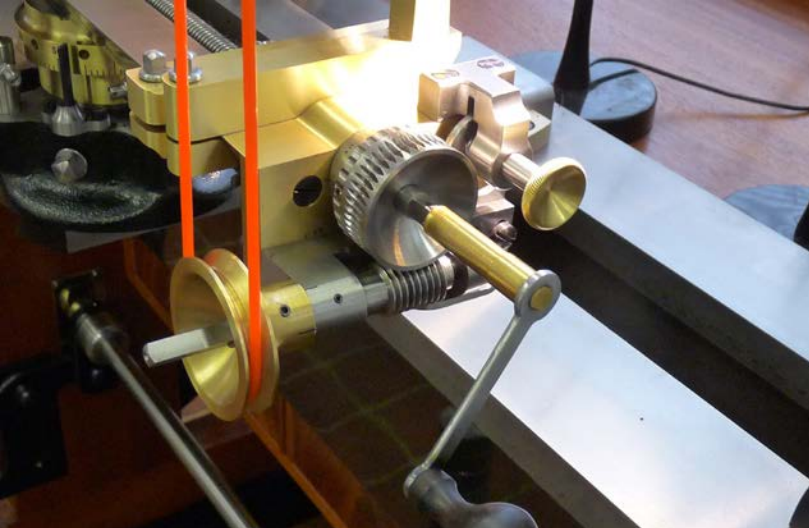
Following Fred Armbruster's idea of using a 5C spindle on the rose engine, the MADE lathe incorporates a 2" hardened spindle with a 5C collet nose and draw bar. The tightening wheel can be removed from the drawbar without loosening the collet, leaving the work

With any well-made machine "form follows function;" however, great care has been given to ensure the MADE lathe is aesthetically pleasing, while maintaining the goal of functionality. When these two directives combine and are achieved, a great result ensues. Not only have the shapes of the various components been considered with this in mind, even the hand polishes and finishes applied to each piece reflect the serious attention-to-detail. From the hand-finished mahogany frame to the contrasting application of steel and brass components, which have been thoughtfully inserted to complement each other, the MADE lathe has evolved to be a pleasure to the eye. Even the slotted screws have been custom-made, polished and blued.... not only does this detail enhance the appearance of a machine, but remaining true to the application of the practical philosophy, it also helps prevent rust.











# 5. *Standard Equipment*

## **MADE Ornamental Rose Engine, Basic Machine**

### **Basic Machine Components**

- MADE Ornamental Rose Engine on mahogany frame
- Chest of drawers, nine (9) drawers
- Hand-crank power train and flywheel
- Crane overhead units (3) with
  - High speed motor for cutting frame
  - Gear motor to drive curvilinear slide rest
  - Gear motor to drive headstock
- 110v motor control console for back panel
- MADE Lathe curvilinear slide rest with cradle and clamp assembly
  - Roller-type rubber tower
  - Weight power bracket
  - Hand feed Lever
  - Worm feed unit with auto-stop
- Headstock retractor attachment
- Rubber holders (3)
- Rocking rubbers (3)
- Pumping rubbers (3)
- Indexing ring spring pin detent
- 5C spindle w/ drawtube
- 2MT tailstock
- Bronze rocking and pumping rosettes (10)
  - Convex: 6, 8, 10, 16, 20 and 30 (.120" amplitude) rocking and pumping
  - Concave: 18, 20, 24 and 36 (.120" amplitude) rocking and pumping
- Engine turning spacers (10)
  - Counts: 12, 18, 24, 36, 48, 60, 72, 96, 120, 144, amplitudes vary
- Auxiliary rosette holder with worm phasing
- Cutting frames (3)
  - Drilling Frame, Fly cutting UCF, Flying Saucer UCF
- Segment stop, ring and pegs
- Hand tools
  - 3/8" square wrench
  - 1/4" square key
  - 1/4" square crank handle
  - slotted screwdriver





# 6. *Optional Equipment*

## **Attachments**

Hardinge slide ratchet feed attachment  
Reciprocator and reciprocator chuck  
Rocking tailstock attachment  
Spiral attachment\* (operates thru auxiliary rosette holder)  
Straight-line attachment\*  
Thread chasing set-up for pitches: 4, 8, 12, and 16

## **Chucks**

Dome chuck  
Double eccentric chuck  
Leveling chuck  
Oval chuck  
Paper chuck and pen

## **Curvilinear**

Curvilinear rubber tip, extended set  
Curvilinear pattern, set of 10 standard  
Curvilinear pattern, set of 4 Gorst  
Curvilinear pattern, set of 10 Holtzapffel-style

## **Slide Rests**

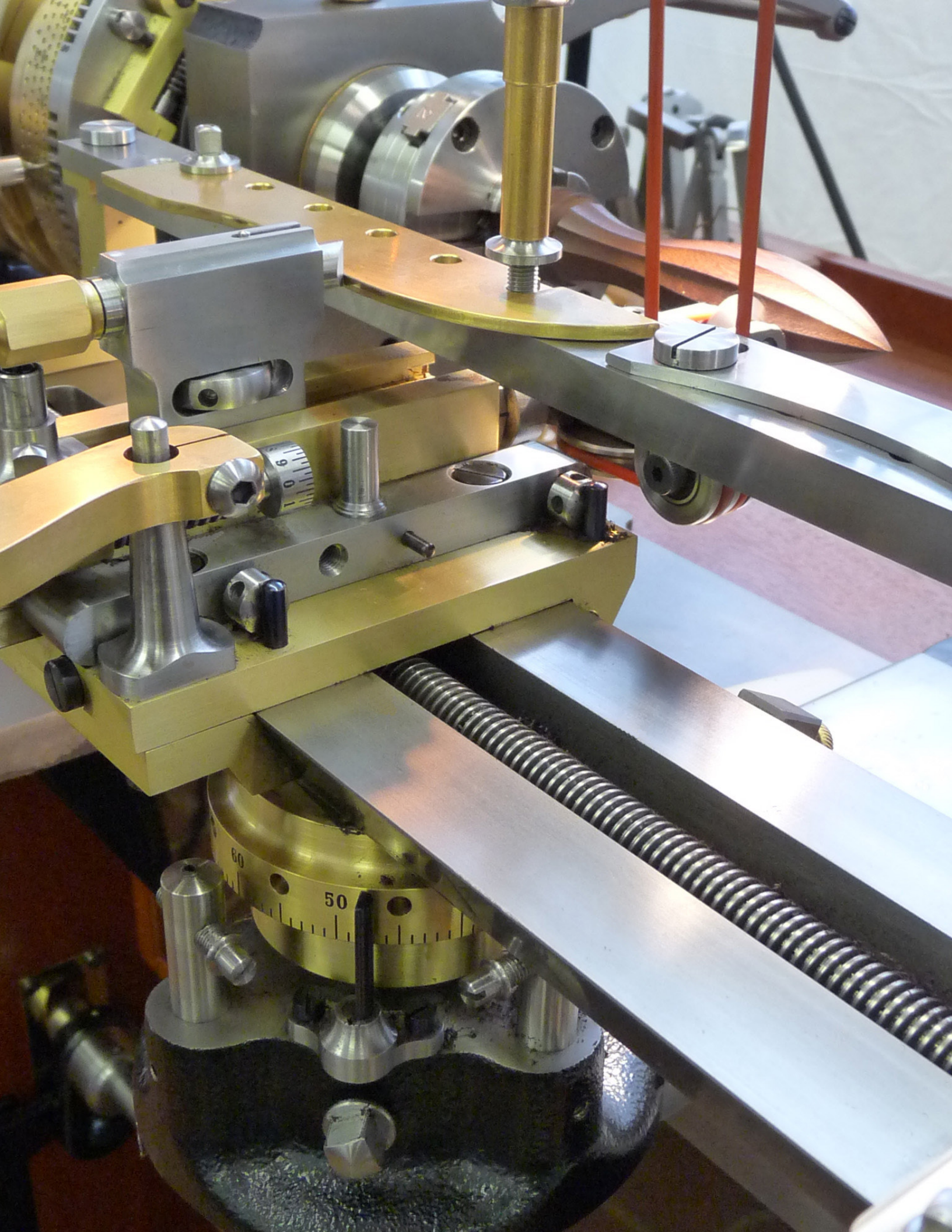
Hardinge slide rest on adapter  
Spherical slide rest

## **Rosettes**

Custom bronze rocking/pumping rosettes  
Additional stock rosettes  
Presently available:  
-Archie 4, 6, 6-12, .125" amp  
-F4, F6, .125" amp  
-Sine wave, 6-.051" A, 8-.045" A, 12-.038" A, 12-.125" A, 18-.032" A  
-Convex, 12, 24, 30, 48, 4-8, 6-18, L16

## **Miscellaneous**

Cutter box for backpanel  
Extended cutting frame  
Fixed tool cutter – numerous shapes available  
Offset toolbox  
Rubbers  
Rubber holder  
5C / 1"-8 and #2 MT bore  
Extra in-line, or side-by-side jockey pulley assembly





# 7. *Payment Terms*

## **Early Order Discount**

Early order discount pricing included in this material represents 10% discounted pricing. This pricing is being offered for a limited time to encourage pre-orders. This opportunity will expire November 30, 2014 and all pricing will revert to standard retail pricing.

## **Payment Structure and Terms**

Your MADE Ornamental Rose Engine construction is expected to take 18-24 months. An 18-month period is being offered to complete payment.

Payment 1 – 30% of order total, deposit to secure your MADE Ornamental Rose Engine  
Payment 2 – 15% of order total, 6 mo. after deposit date  
Payment 3 – 15% of order total, 9 mo. from deposit date  
Payment 4 – 15% of order total, 12 mo. from deposit date  
Payment 5 – 15% of order total, 15 mo. from deposit date  
Payment 6 – 10% balance due, upon completion and prior to delivery

Payments may be made by check or bank transfer to Columbus Machine Works, Inc. If your machine is completed early, final balance will be due prior to delivery. Failure to make timely payments will result in work being stopped or delayed on your MADE lathe. Failure to make payments will result in Buyer cancellation of order, subject to refund as set out below.

## **Cancellation**

If Columbus Machine Works is unable to fulfill delivery within a reasonable time, payments will be refunded in full.

If the Buyer cancels the order, Buyer will be refunded less a fee as follows:

Cancellation between Payments 1 and 2 – 80% refunded

Cancellation between Payments 2 and 3 – 70% refunded

Cancellation between Payments 3 and 4 – 50% refunded

There will be no refunds after 12 months from deposit date unless Columbus Machine Works is unable to fulfill delivery. The Buyer may sell its interest in the machine to another party (see Transferability)

## **Transferability**

Ownership and the payment plan may be transferred. Columbus Machine Works must be made aware of any reassignment in writing. The new owner must sign a new contract accepting ownership and responsibility for the balance due before the original purchaser will be released of obligation for payment.

## **Sales Tax**

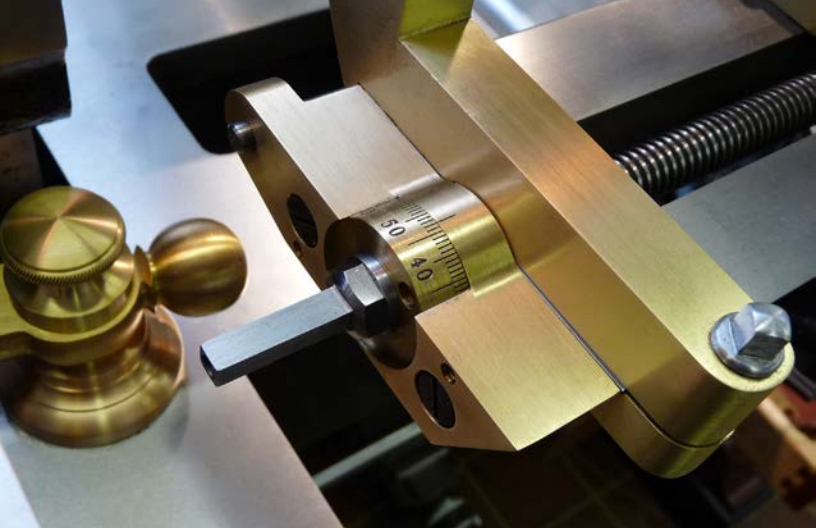
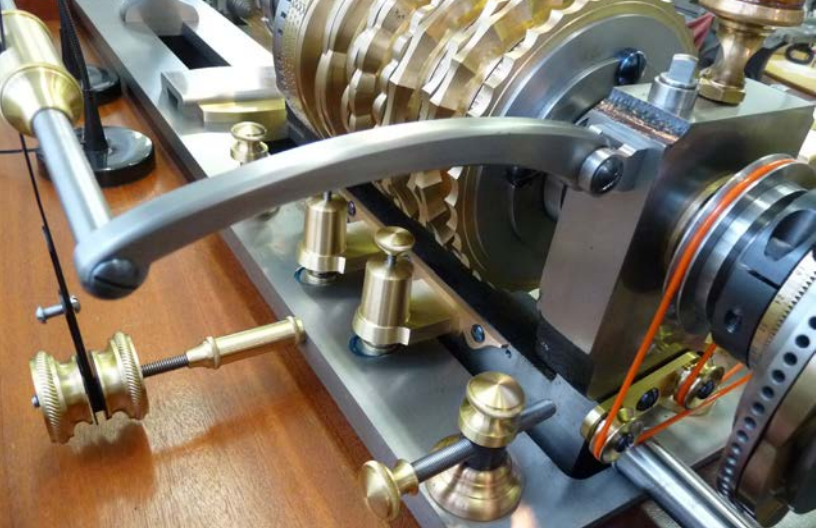
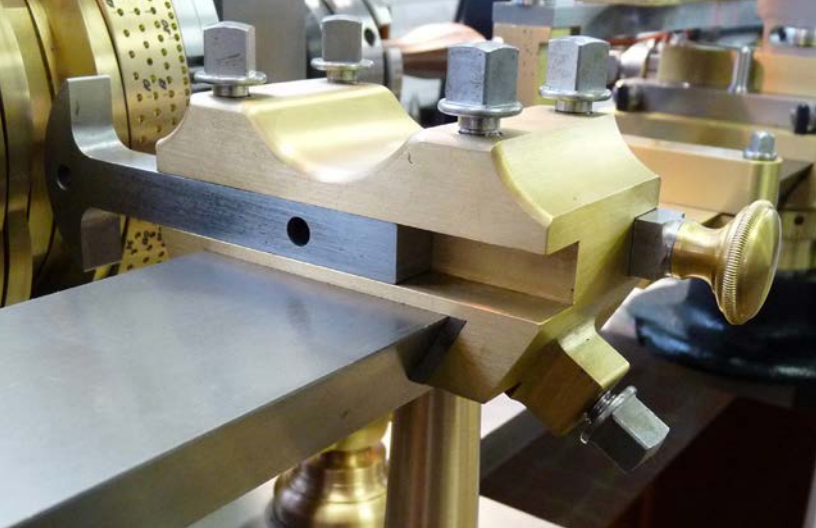
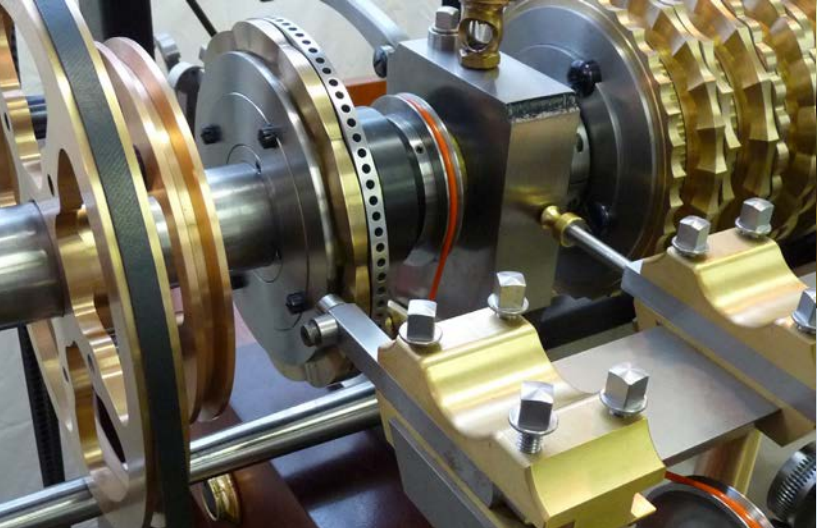
State of Ohio sales tax must be collected for machines delivered in Ohio unless a valid State of Ohio Sales Tax Exemption Certificate is provided with initial deposit.

## **Other Terms**

Additionally, the sale of the MADE Ornamental Rose Engine is subject to Columbus Machine Works' Terms and Conditions of Sale, with the exception of the special payment terms outlined in this document. The Terms and Conditions of Sale are available for review upon request prior to entering into a purchase contract and will be a part of any purchase contract for the MADE Ornamental Rose Engine.









## 8. Delivery

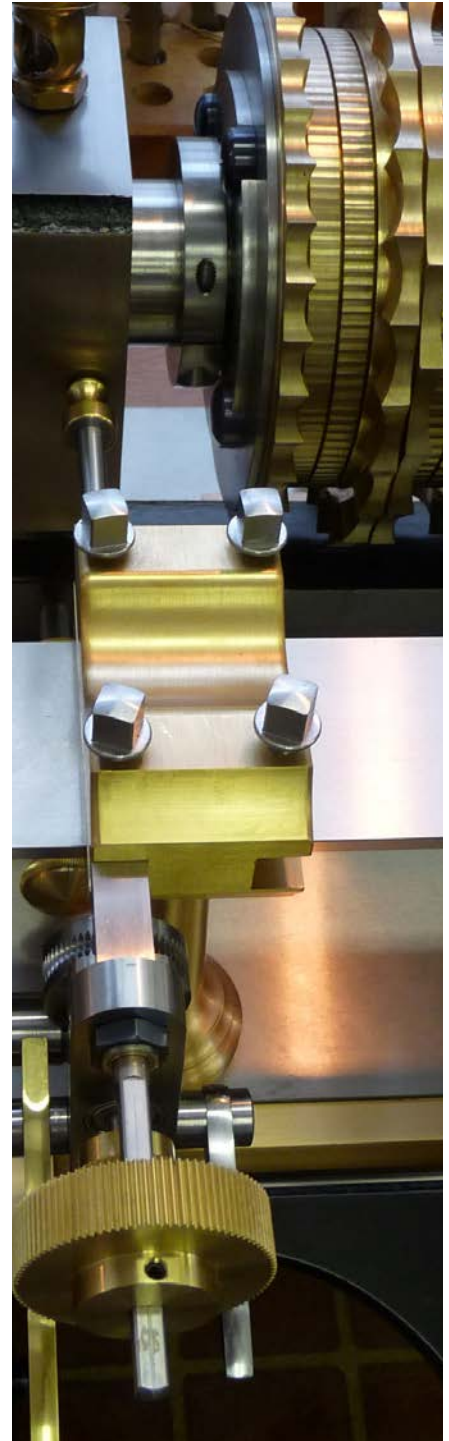
Delivery and setup is included in the price if you live in the Continental U.S. A free and clear path to a first floor installation site will be required. (Minimum 31" wide doorways, and approximately 36" wide or greater, cleared path is necessary to accommodate carts and dollies around turns.)

David and Mike will personally deliver your machine, help install and set it up. This is offered for locations with ground-level access. If upon arrival, your machine needs to be disassembled due to the desired location of the machine, there may be an additional charge depending on what is required.

If your machine needs to be taken up or down stairs, there will be a minimum \$600 fee for a one-level elevation move. Additional flights of stairs or unusual circumstances will need to be assessed to determine whether there will be additional fees.

The first machine is projected to be ready for delivery approximately mid-2016. Machines are expected to be delivered as they are completed thereafter. Delivery will be made in the order in which orders were received. Due to the nature of personally delivering the machines, we may be subject to unanticipated schedule changes and circumstances beyond our control, therefore Columbus Machine cannot guarantee exact delivery schedule.





*Inspiring the revival of lost mechanical art ...  
through machines honoring past traditions.*

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