F. ARBEY.

CARVING ATTACHMENT FOR LATHES.

No. 186,702. Patented Jan. 30, 1877.

Fig: 1.

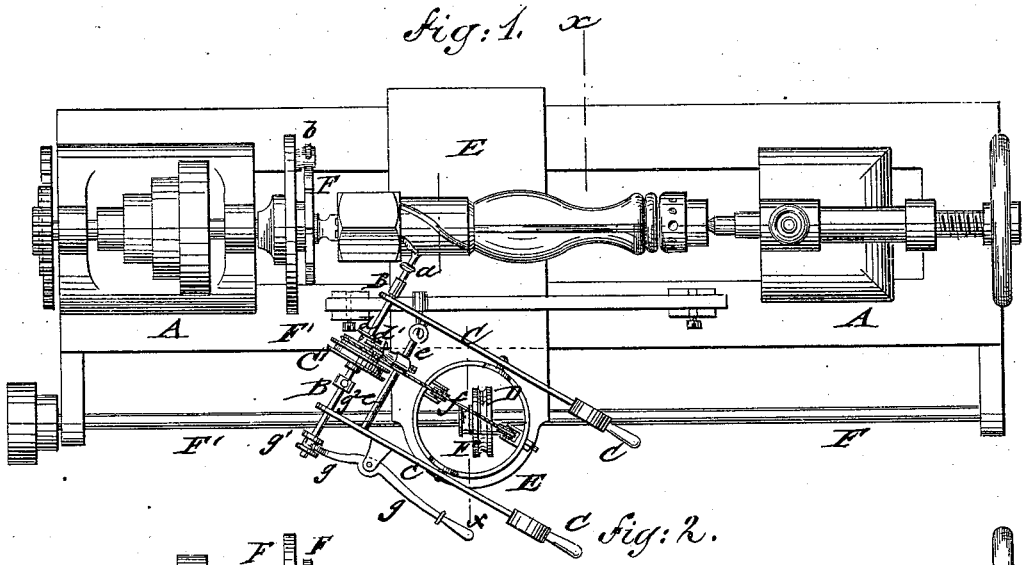


Fig: 2.

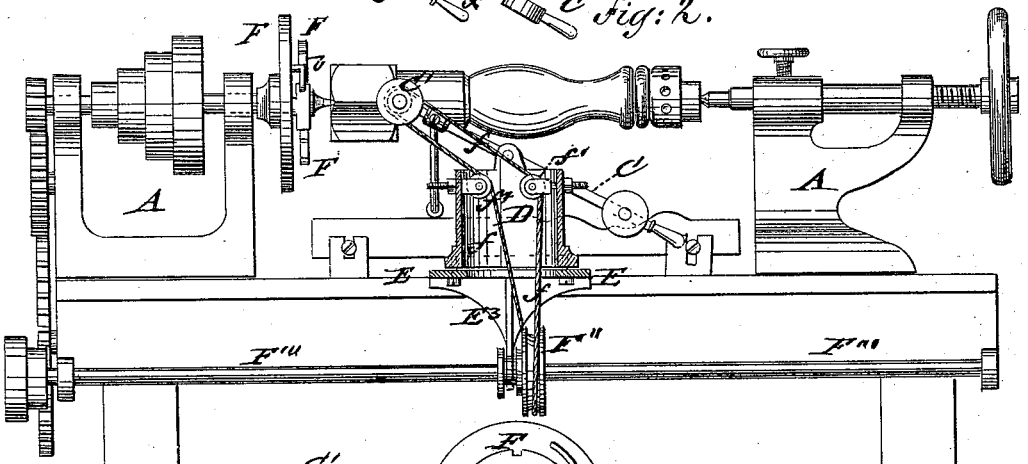
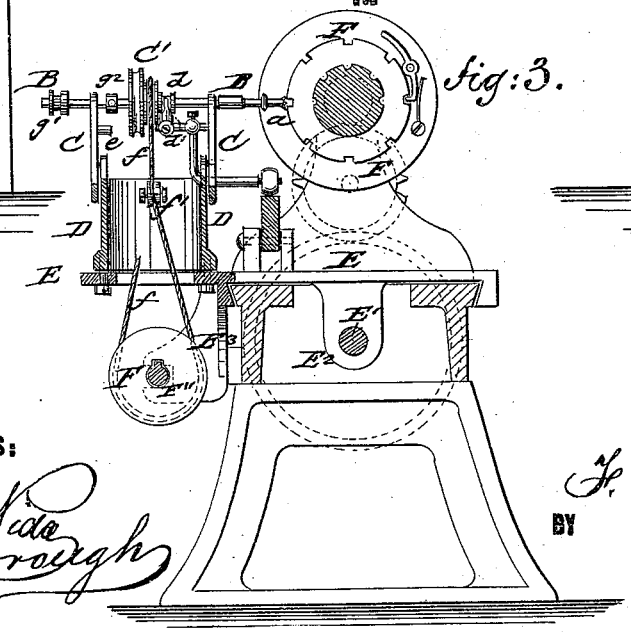


Fig: 3.



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IMPROVEMENT IN CARVING ATTACHMENTS FOR LATHES.

Specification forming part of Letters Patent No. **186,702**, dated January 30, 1877; application filed November 25, 1876.

To all whom it may concern:

Be it known that I, FERDINAND ARBEY, of Paris, France, have invented an Improvement in Carving Attachment for Lathes, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a plan view of a lathe with my improved carving attachment; Fig. 2, a sectional side elevation; and Fig. 3, a vertical transverse section of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide an improved carving attachment to common lathes for the purpose of grooving, channeling, pearling, and ornamenting balusters, table-legs, and similar articles of irregular shape, in perfect, quick, and convenient manner; and the invention consists of a wood-working lathe, with a carving attachment, which is placed on a traveling carriage, and supported on an adjustable cylindrical standard, to which the balanced arms of the cutter-shaft are pivoted, the cutter-shaft being revolved by a pulley-and-belt connection with a traveling pulley of the cutter-actuating shaft, the cutter-shaft being movable in its bearings by a lever-handle, while the pulley is retained by clutch-connection with a fixed brace of the weighted arms. The cutter-shaft is raised or lowered by means of a curved arm and guide-roller passing along the pattern or form.

In the drawing, A represents a lathe of the customary construction, on which table-legs, balusters, and other bodies of any desired profile, are turned, either in the usual manner, by the hand, or by a cutter placed on a traveling carriage in connection with a model, pattern, or otherwise. The articles are securely fastened to the lathe-centers, and exposed to the action of the carving-tool for being channeled in straight or helical form, or arranged with pearls or other ornamentation of uniform depth. This is accomplished by a cutting-tool of any desired shape, that is secured to the end of a cutter-shaft, B. The cutter-shaft revolves in bearings at the ends of swinging arms C, which are pivoted to a cylindrical standard or support, D, and weighted so as to properly balance the cutter-shaft. The hollow standard D is supported on a traveling carriage, E, that is carried forward or back on the lathe in the customary manner by means of a longitudinal screw-shaft, E^1, engaging a vertical plate, E^2, of the carriage. The screw-shaft E^1 is revolved by suitable gear-connection with the lathe-shaft whenever the carriage is desired to be used jointly with the lathe or revolve directly by belt-and-pulley connection with the driving-shaft, when the cutter-tool is intended to be used for carving purposes. The fixed lathe-head is provided with a dividing-disk, F, having equidistant recesses at the circumference, into which a spring-pawl, *b*, of a disk, F′, of the lathe-shaft is fitted for the purpose of turning the article in equal distances toward the cutting-tool. The cutter-shaft B slides in the bearings of the balanced arms C, and in the center sleeve *d* of a pulley, C′, that is retained in fixed position by a clutch-fork, *d′*, seated in a collar of the pulley-sleeve *d*, and secured firmly to a lateral brace-rod, *e*, of the arms C. The cross-rod *e* is provided with a downward-extending arm, *e′*, that may pass by a roller along a pattern or guide of the latter, for raising or lowering the cutter-tool. The pulley C′ of the cutter-shaft is revolved by an endless rope, *f*, that passes over stretching-pulleys *f′*, at opposite points of standard D, through the interior of the same, and a bottom opening of carriage, E, to a driving-pulley, F″, of a revolving shaft, F‴, placed parallel to the screw-shaft E^1. The pulley F″ revolves axially with shaft F‴, but slides at the same time in longitudinal direction by means of a bottom arm or standard, E^3, of carriage E, engaging the center sleeve of pulley F″. In this manner rotary motion is imparted to the cutter-shaft simultaneously with the traversing motion imparted by the screw-shaft E^1. The supporting-standard D is axially adjustable on the carriage E by slots and clamp-screws, so that the cutter may be set at right angles or at any other angle to the work. The pulley C′ is applied so as to revolve the cutter-shaft and admit the sliding motion of the same for bringing the cutting-tool nearer to the work. This is accomplished by a lever-handle, *g*, that engages by its forked end a collar, g^1, of the cutter-shaft, the extent of forward motion be-

ing controlled by an adjustable collar, g^2, of the cutter-shaft.

When the table-leg or other object is held in position of rest in the lathe, the cutting-tool passes longitudinally along the same, and works out the grooves or channels in the same, the dividing-disk being turned for the distance of one subdivision, after each channel, is completed to produce the next channel by the return motion of the carriage. By turning slowly the object on the lathe, simultaneously with the revolving and traversing motion of the cutter, helicoidal channels or grooves are formed. For grooving conical parts, the cutter-shaft is guided along an inclined guide-pattern, or the axis of the same is placed at an angle to the longitudinal axis of the lathe. The cutter adjusts itself to the shape of the object, and carves, by its uniform forward motion, an ornamental groove of equal depth throughout the entire length. For the purpose of pearling or other ornamental carving, the cutting-tool is guided by the handle to the work, while the object is turned in regular manner by the dividing-disk for the purpose of getting the pearls at uniform distances.

The adjustability of the cylindrical standard, in connection with the balanced cutter-shaft and handle, admits the convenient and accurate handling of the carving attachment, so that a large variety of ornamental work may be accomplished on the lathe in quick, economical, and superior manner.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with cutter-shaft B, movable in arms C and sleeve *d*, of the pulley C′, held by a fork seated in the collar of sleeve *d*, as and for the purpose described.

2. The combination of a sliding and revolving cutter-shaft, turning in bearings upon balanced swinging arms and intermediate guide-pulleys, of cylindrical standard D, and a revolving pulley traversing on an actuating-shaft, substantially as and for the purpose described.

3. The combination of the revolving cutter-shaft B, having an end collar and a forked lever-handle, of the balanced and swinging arms C, substantially as set forth.

4. The combination of the swinging and balanced cutter-carrying arms, provided with cross-rod *e*, of the downward-extending arm and friction-roller, for raising or lowering the tool by means of a profiled pattern or guide of the lathe, substantially as specified.

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Witnesses:

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