ALBERT PRIES & HENRY ARND.

Improvement in Wood Lathes.

No. 121,417. Patented Nov. 28, 1871.

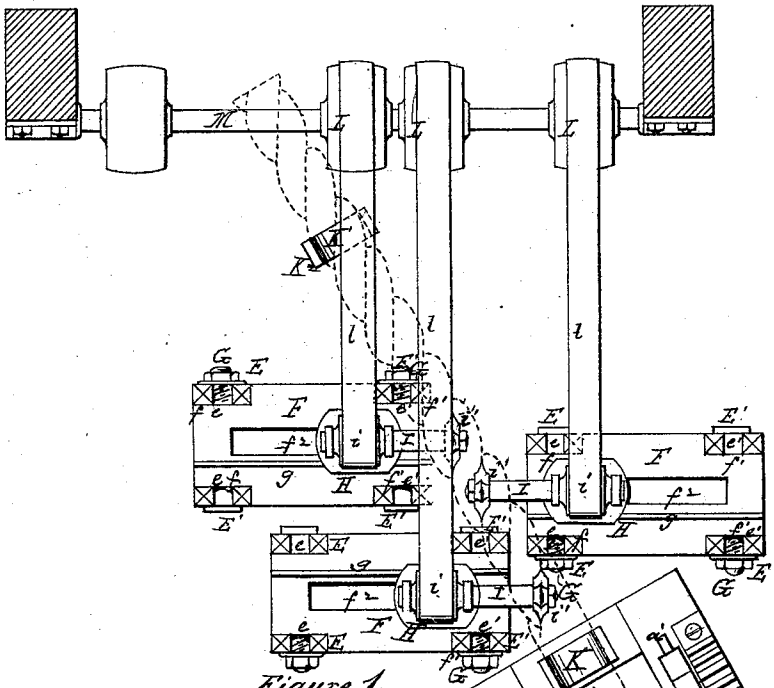

Figure 1.

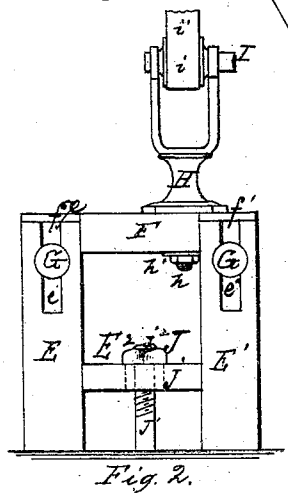

Fig. 2.

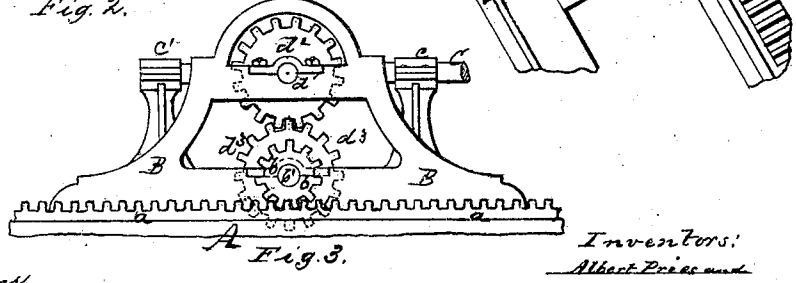

Fig. 3.

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UNITED STATES PATENT OFFICE.

ALBERT PRIES AND HENRY ARND, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN WOOD-LATHES.

Specification forming part of Letters Patent No. 121,417, dated November 28, 1871.

To all whom it may concern:

Be it known that we, ALBERT PRIES and HENRY ARND, both of St. Louis, county of St. Louis and State of Missouri, have made certain new and useful Improvements in Machines for Cutting Rope-Moldings and Turning Irregular Forms; and we do hereby declare that the following is a full and true description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The improvements here presented relate, first, to the peculiar adjustable construction and arrangement of frames supporting operating parts, forming lathes, in such a manner that the cutter-tools shall cut obliquely to the material fed and also be adjusted to cut the various pitch and diameter of moldings to be formed; secondly, in combination with said lathes and their parts, the arrangement of a slide-carriage having its gearing devices so constructed as to feed the material right or left by a rotary longitudinal movement to the cutter-tools; and lastly, to certain detail construction of parts, all of which will now be more fully described.

To enable those herein skilled to make and use our said improvements, we will now more fully describe the same, referring to—

Figure 1 as a top plan of feed-carriage, lathes, and belting connections; to Fig. 2 as a front elevation of lathes; and to Fig. 3 as a detail part of slide-carriage, showing feed-gearing.

Upon a frame, A, is arranged a slide-carriage, B, of the constructive form shown in detail, Fig. 3. To slide said carriage the frame A is provided with a rack-bar, *a*, on top, in which a spur-gear, *b*, meshes, and which is secured to a transverse driving-shaft, *b'*, carrying at its one end a balance-wheel, B', and operated at its opposite end by a proper hand-crank. By turning said hand-crank the carriage B is made to slide on proper rails *a'* of the frame A. The carriage B is further provided with a horizontal feed-shaft, C, operating in journal-bearings *c c'* on proper standards secured to said carriage. (See Fig. 2.) At its end said shaft is provided with a clamp or clutch device suitable to gripe and hold fast the wooden material. In order that the longitudinal feed motion thus achieved may also at the same time impart a rotary motion to feed-shaft C, the same has a bevel-gear, D, meshing with a second bevel-gear, D', which is keyed to a projecting shaft, *d*, supported by a bearing, d^1, and secured to the side of the carriage B, as shown in Fig. 1. Also, said small shaft *d* carries a spur-gear, d^2, fitted to mesh with a lower spur-gear, d^3, but secured to shaft *b'* of the carriage. (See Fig. 1 and detail, Fig. 3.) As soon, therefore, as the carriage B is operated to slide the material is fed by a "right-rotary-feed" motion to the cutter-tools of the lathes. A "left-rotary-feed" motion to produce "left" molding is readily obtained by reversing the position of the bevel-wheel D on shaft C in gear with bevel-gear D'. The material to be worked is thus fed usually to three separate lathes, (more or less can be used,) and constructed and arranged as follows: Each of said lathes consists of the upright frames E E^1, of wood or iron, united by a central cross-piece, E^2. (See Figs. 1 and 2.) On top of said frames E E^1 is arranged a top piece or "bridge-tree," F, mortised at its corner ends *f* f^1 so as to fit and be raised or lowered in the similar mortised part of frames E E^1, as indicated in Fig. 1. The bridge-trees F, when raised or lowered, are retained in adjusted position by passing suitable screws G G', secured by proper nuts, through vertical slots *e e'*, Fig. 2. The adjustability of said bridge-trees supporting the operating parts now to be described enables us to position the cutter-tools as required in accordance with the different diameters of molding. Each bridge-tree supports the operating devices as follows: We provide each bridge-tree F with an elongated slot or mortise, f^2, in which a cutter-standard, H, by its screw *h*, is adjustably arranged. A nut, *h'*, secures said cutter-standard to any adjusted position in the slot f^2. A rail, *g*, guides said standard along bridge-tree. (See Fig. 1.) Each cutter-standard H forms bearings in which a projecting arbor, I, turns freely by its pulley *i*, operated by belting connections from power-source. To the end of each arbor I are attached cutter-tools *i'*, of any ordinary form for cutting stuff to a circular section, and as usually employed in machines of this nature. It will be noticed that by unscrewing nut *h'* of the cutter-standards H the cutters *i'* can be adjusted to and from the center, or to cut in central line of any size or diameter of molding, as the bridge-trees F can readily be raised or lowered to suit irregular forms of any diameter to be produced. In order that the cutters can be arranged to cut obliquely to the material fed, said lathes are adjusted to

any angular position by a screw-bolt, J, passing through a slot, *j*, in the cross-piece E^2, and secured in position by a nut, j^2. (See detail, Fig. 2.) By means of said screw-bolt J each lathe may be secured to a bed-plate or to the floor direct, as preferred. Thus, by simply arranging each lathe in proper angular position the cutters perform their cutting action obliquely. Any pitch of rope-molding or spiral form can be cut; or, by the varied adjustment of the cutters, the various moldings, framing, or turning work can be produced. The material is placed in suitable cylindrical rests or bearings, K K^1, that of K being secured to end of carriage-frame A, that of K^1 being secured to a proper standard, K^2, attached to the floor. In order to avoid any deflection or depression of the material arising from the cutting action of the several tools acting at the same time, a suitable bridge support may be arranged to span the standard K^2 and end of frame A. Upon said bridge the material can rest as it is fed to the action of the cutters. To operate the arbor and cutting-tools of each lathe each pulley *i* is connected by proper belting *l l l*, and separate pulleys L L L on a shaft, M, arranged to operate in proper journal-bearings in a separate or portable frame. We prefer to arrange said driving and belting devices in a separate frame, so as to be adjustable in accordance with the positions required to operate the adjustable lathes. Said frame and its driving parts are then made to connect with the power-source as usual.

Our said improvements are simple, cheap, and durable in construction, compact, direct-acting, and certain in their operation; also portable in parts for transportation purposes.

Having thus described our said invention, what we claim is—

The combination of feed-carriage B, having gearing devices constructed as described, with a series of adjustable frames, E E^1, each pivoted by a screw-bolt, J, provided with an adjustable slotted bridge-tree, F, and supporting an adjustable pulley, arbor, and cutter, the whole being constructed and arranged in the manner and for the purpose set forth.

In testimony of said invention we have hereunto set our hands.

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