No. 696,713. Patented Apr. 1, 1902.

J. J. BROWN.

DENTAL LATHE.

Application filed Dec. 18, 1901.)

(No Model.)

Fig. 3

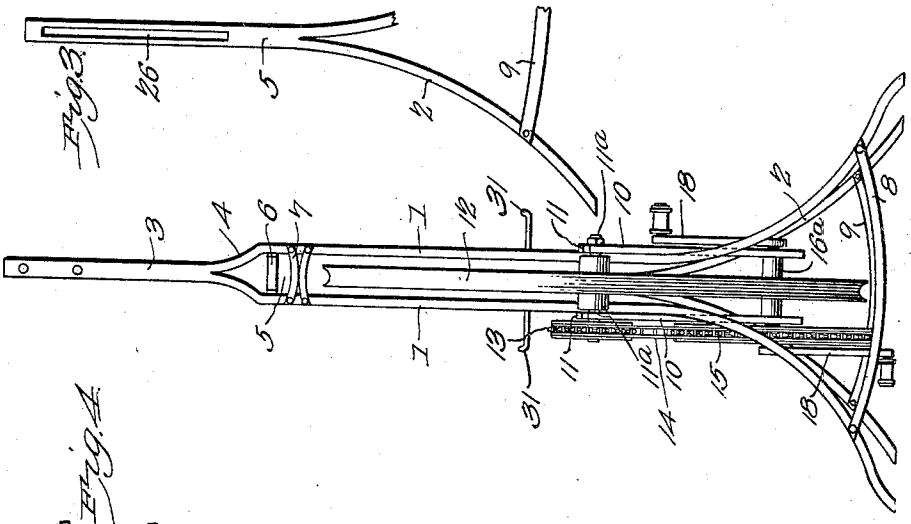


Fig. 2

Fig. 4

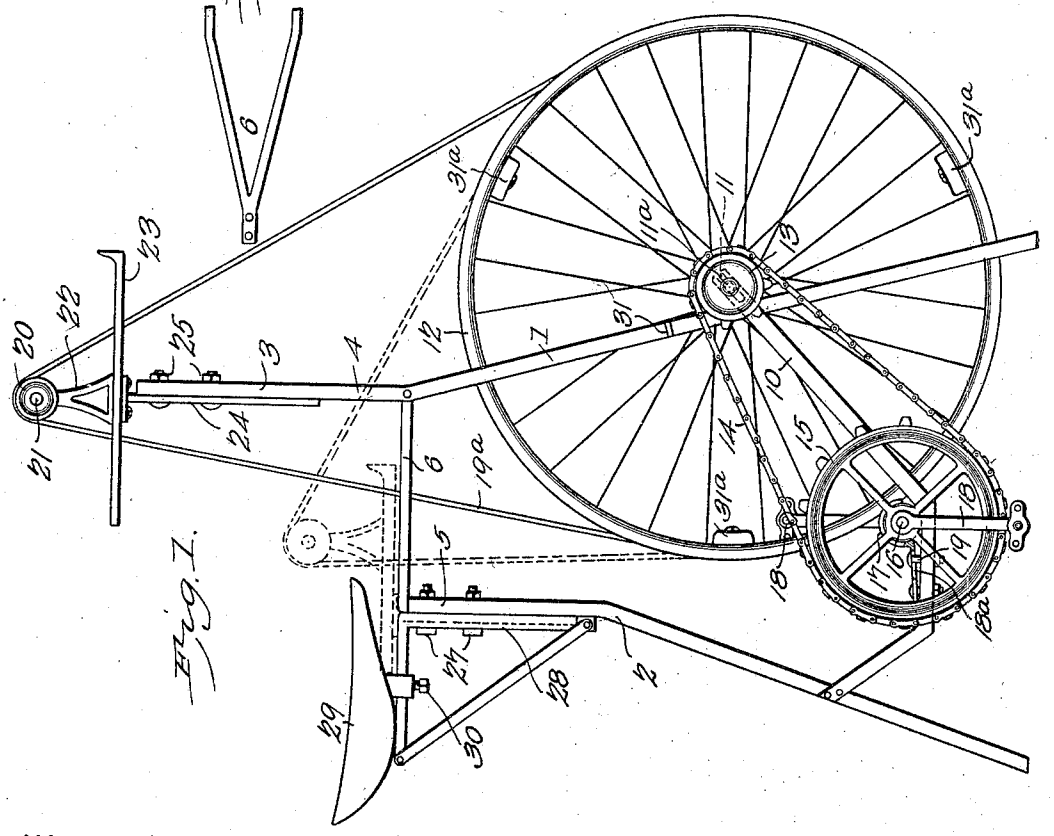


Fig. 1

Witnesses

E. F. Stewart

H. A. Riley

J. J. Brown Inventor.

by C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JESSE J. BROWN, OF MACON, MISSOURI.

DENTAL LATHE.

SPECIFICATION forming part of Letters Patent No. 696,713, dated April 1, 1902.

Application filed December 18, 1901. Serial No. 86,424. (No model.)

To all whom it may concern:

Be it known that I, JESSE J. BROWN, a citizen of the United States, residing at Macon, in the county of Macon and State of Missouri, have invented a new and useful Dental Lathe, of which the following is a specification.

The invention relates to improvements in dental lathes.

The object of the present invention is to improve the construction of lathes and to provide a simple and inexpensive one of great strength and durability which will be light-running and capable of high speed to adapt it for the use of dentists, jewelers, and the like.

A further object of the invention is to reduce the labor of operating lathes to a minimum and to increase the speed and to provide a lathe which can be operated with the same ease and facility as an ordinary bicycle and which will admit of its operation by a person seated on it or in rear of it or standing at either side or in the rear.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a side elevation of a lathe constructed in accordance with this invention. Fig. 2 is a front elevation of the same. Fig. 3 is a detail view of a portion of the back of the frame of the machine. Fig. 4 is a detail view of the V-shaped connecting top piece of the frame.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 and 2 designate the front and rear legs of the frame of the machine, and the said legs have lower diverging portions, which are designed to be provided with suitable feet. The front legs, which are provided with parallel upper portions, are connected at their upper ends with a central vertical arm 3 by short upwardly-converging portions 4, formed by forking or spreading the lower ends of the vertical arm, as clearly shown in Fig. 2. The rear legs 2 diverge downwardly from a vertical stem or upper portion 5, which is connected with the parallel upper portions of the front legs by an approximately V-shaped top connecting-piece 6, secured at its apex by suitable fastening devices to the upper end of the stem of the rear legs and similarly connected at the front terminals of the sides to the parallel portions of the front legs. The parallel portions of the front legs are connected adjacent to the top connecting-piece by short transverse braces or bars 7, which are oppositely curved and which may, if desired, consist of a single piece of metal. The lower diverging portions of the front and rear legs are connected by transverse bars or braces 8 and 9, which are bowed downward, as shown in Fig. 2, and which are suitably secured at their terminals to the legs. The front and rear legs are also connected by lower side bars 10, having depressed intermediate horizontal portions and provided with upwardly-extending inclined portions secured at their upper terminals to the front and rear legs. The side bars are extended forward in advance of the front legs and are provided with bearing-slots 11, receiving journals 11^a of a shaft or hub extension of a large wheel 12. The hub or shaft extends across the space between the front terminals of the bars 10, and one of the journals 11^a is extended and has a sprocket-pinion 13 mounted upon it. The sprocket-pinion 13, which is keyed or otherwise secured to the extension or journal, is connected by a sprocket-chain 14 with a sprocket-wheel 15, mounted upon a crank-shaft 16. The crank-shaft 16 is designed to be mounted within a suitable barrel or casing and to be provided with ball-bearings substantially the same as the ball-bearings of a bicycle; but any form of bearing may be employed for this purpose, and the crank-shaft, with its barrel or casing, is held by adjustable clamps 17. The cranks 18 are provided with pedals similar to the cranks of an ordinary bicycle, and the machine is adapted to be operated in a manner similar to a bicycle, the operator being seated upon the machine at a point above the sprocket-wheel.

The adjustable clamps are provided with curved arms or bearings to conform to the configuration of the barrel or casing 16^a, and it is provided with a slot 18^a to receive fastening devices 19 for securing the clamp at the desired adjustment. By moving the

clamps backward and forward the sprocket-chain may be adjusted to arrange the belt or sprocket-chain 14 at the desired tension.

The belt or sprocket-chain 14 is arranged on the exterior of the machine, and the large wheel 12, which is preferably constructed similar to a bicycle-wheel in order to render the lathe light-running and at the same time strong and durable, is connected by a belt 19ª with a small pulley or wheel 20, mounted on a shaft or spindle 21, and the latter is designed to be provided with suitable grinding-wheels, chucks, and other tool-holding devices (not shown) similar to an ordinary lathe shaft or spindle. The shaft 21 is journaled in suitable bearings of a support 22, which extends upward from a table 23, and the latter is also provided with a depending arm or shank 24, which is secured by bolts 25 or other suitable fastening devices to the upwardly-extending arm 3 of the front leg. The bolts detachably secure the depending shank 24 to the arm 3 and enable the same to be readily removed for a purpose hereinafter described.

The vertical stem 5 of the rear legs is provided with a longitudinal slot 26, receiving fastening devices 27 of a triangular seat-supporting bracket 28, which is detachably secured to the rear leg. The bracket 28 consists of a vertical bar, a horizontal seat-supporting bar, and an inclined brace extending upward from the lower end of the vertical bar to the outer end of the seat-supporting bar. A seat or saddle 29 is detachably mounted upon the bracket and is designed to be constructed similar to an ordinary bicycle saddle or seat, and it is provided with a clamp 30, receiving the horizontal seat-supporting bar of the bracket and preferably consisting of an eye or sleeve and a clamping-screw. The saddle or seat is adapted to be adjusted backward and forward to arrange it in proper position to suit the operator, and it is adapted to be detached to permit the table 23 to be transferred from the arm of the front legs to the stem of the rear legs, as illustrated in dotted lines in Fig. 1 of the accompanying drawings. When the table is mounted on the rear legs, it is brought into convenient reach of a person standing at the rear or either side of the machine or seated upon a stool or chair. This will enable the operator to use either a saddle or a chair and to operate the lathe in a variety of positions.

The large wheel 12 may be provided with one or more weights 31ª, adapted to be secured to the inner side of the rim between the spokes, as clearly shown in Fig. 1. By this construction the wheel 12, which is of the lightest possible construction, may be weighted to suit any operator. Ball-bearings or other suitable devices may be employed for reducing the friction to a minimum, and the diameters of the wheels may be varied to obtain the desired speed.

The machine is provided at opposite sides of its front portion with foot-rests 31, mounted on the front legs and adapted to receive the feet of the operator, so that either or both feet may be removed from the cranks of the machine.

It will be seen that the lathe is exceedingly simple and inexpensive in construction, that it is strong and durable, and that at the same time it is light-running and is capable of being readily driven at a high rate of speed; also, it will be apparent that the table may be readily transferred from the vertical arm 3 of the front legs to the vertical stem 5 of the rear legs and that when the table is in the latter position the belt extends through the open portions of the frame. Furthermore, it will be clear that the machine is adapted to be operated from a variety of positions, that the operator may stand at either side or the back of the machine or be seated upon the machine, and that the main drive-wheel, which is constructed as light as and substantially the same as a bicycle-wheel, may be weighted, if desired.

What I claim is—

1. In a machine of the class described, the combination of a frame, a table detachably mounted on the front of the frame and capable of also being mounted on the back of the latter and provided with a shaft having a pulley or wheel, a seat detachably mounted on the frame at the back thereof and adapted to be removed when the table is to be arranged at the back, cranks arranged at opposite sides of the machine, a large wheel or pulley, a belt connecting said wheels or pulleys, and gearing for communicating motion from the cranks to the large pulley or wheel.

2. In a machine of the class described, the combination of a frame provided at its front with an arm, a table having a depending shank or bar detachably secured to the arm, a shaft or spindle mounted on and carried by the table, a seat-supporting bracket detachably secured to the back of the frame and adapted to be removed to permit the table to be applied at that point, a seat mounted on the bracket, cranks arranged at opposite sides of the frame, and gearing for communicating motion from the cranks to the shaft or spindle, substantially as described.

3. In a machine of the class described, the combination of a frame comprising front legs provided with a vertical arm, rear legs having a vertical stem, a top piece connecting the stem of the rear legs with the front legs, means for connecting the lower portions of the legs, a table having a depending shank detachably secured to the arm of the front legs, a seat-supporting bracket detachably secured to the stem of the rear legs and having a seat-supporting bar, a seat secured to the latter, a shaft or spindle carried by the table, and means for driving the shaft or spindle, substantially as described.

4. In a machine of the class described, the combination of a frame comprising front legs provided with a vertical arm, rear legs hav-

ing an upright stem at the top, a top piece connecting the stem with the front legs, the side bars connecting the lower portions of the legs and extended beyond the front legs and provided with bearings, and transverse braces connecting the legs, a shaft mounted in the bearings of the side bars, a large drive-pulley mounted on the shaft, a sprocket-wheel also mounted on the shaft, the sprocket-wheel 15 adjustably mounted on the side bars, a chain connecting the sprocket-wheels, cranks connected with the sprocket-wheel 15, a table mounted on the arm of the front legs, a shaft or spindle carried by the table and provided with a small pulley, a belt connecting the said pulleys, a seat-supporting bracket secured to the stem of the rear legs, and a seat mounted on the bracket, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JESSE J. BROWN.

Witnesses:
J. E. TURNER,
L. M. PAYNE.