(No Model.) 2 Sheets—Sheet 1.

T. C. WALKER.

ATTACHMENT FOR LATHES.

No. 602,965. Patented Apr. 26, 1898.

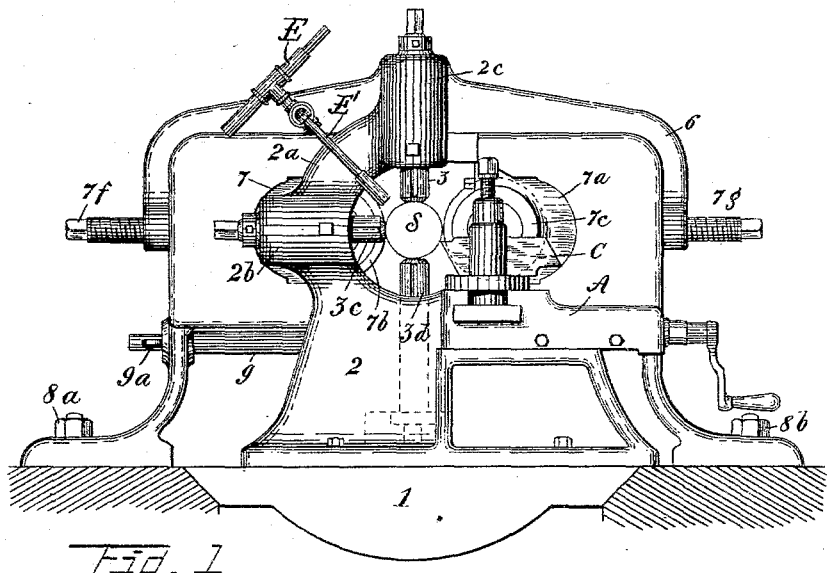

Fig. 1

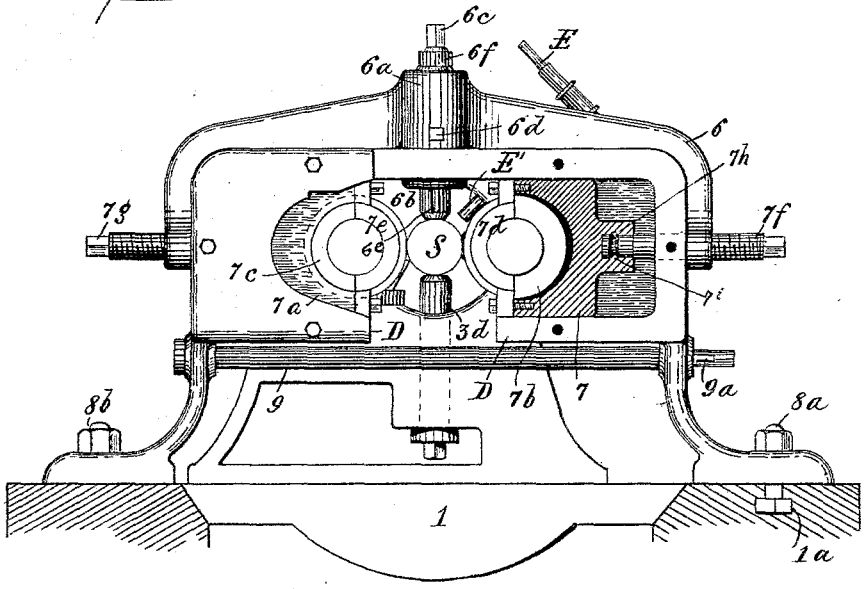

Fig. 2

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(No Model.) 2 Sheets—Sheet 2.

T. C. WALKER.

ATTACHMENT FOR LATHES.

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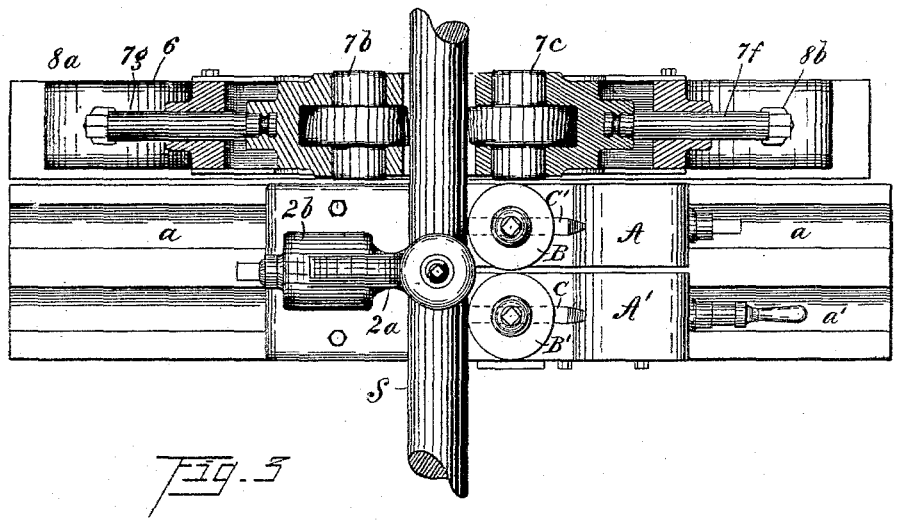

Fig. 5

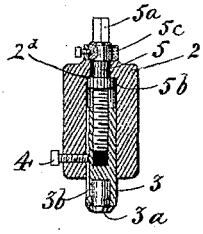

Fig. 4

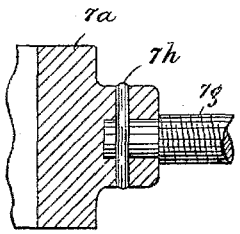

Fig. 5

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UNITED STATES PATENT OFFICE.

THOMAS CORNELIUS WALKER, OF DENVER, COLORADO, ASSIGNOR TO THE MIDLAND FOUNDRY AND MACHINE WORKS COMPANY, OF SAME PLACE.

ATTACHMENT FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 602,965, dated April 26, 1898.

Application filed June 5, 1897. Serial No. 639,626. (No model.)

To all whom it may concern:

Be it known that I, THOMAS CORNELIUS WALKER, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Attachments for Lathes, of which the following, with the accompanying drawings, is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same.

My invention relates to slide-lathes used for turning, sizing, and finishing shafting and other similar work, and particularly to following or back steady-rests of such lathes.

The lathe back-rests heretofore in use do not hold the work with that firmness that prevents vibration and resiliency of the work, and at the same time they leave the work poorly finished and marred in parts, causing defects that sometimes injuriously affect the turned shafting for its intended use and in all cases mar its appearance and lessen its merchantability.

One of the objects of my invention is an improved self-contained back steady-rest for lathes.

A second object is to prevent all vibration and resiliency of the work.

A third object is to improve the work by turning it true to gage and giving to it a fine and uniform finish.

A fourth object is to facilitate the traverse of the lathe saddle, tools, and their connections; and a fifth object is to make the said improved means adjustable to the sizes and character of the work to be done.

My invention consists in the improved self-contained back steady-rest herein described and in providing as a part of said rest a roller-frame carrying rolls of a peculiar shape to cooperate with the steady-pins to prevent vibration and resiliency of the work and at the same time to give to the work a fine uniform finish and to aid the traverse of the saddle.

My invention further consists in the adjustability of the means herein described for adapting my improved rest to the size and the character of the work to be done.

Reference is here made to the claims for a detailed statement of my invention.

In the drawings, Figures 1 and 2 are elevations of the two sides of my improved lathe attachment, Fig. 2 being partly in section. Fig. 3 is a plan view of one part of the attachment and a central horizontal section of the other part thereof. Fig. 4 is a vertical section through one of the barrels and steadying-pins, and Fig. 5 is an enlarged cross-section through that part of one of the adjustable roller-carriers with which the adjusting-screws are connected for the purpose of illustrating the manner of connecting said parts.

Similar characters of reference designate similar parts in the drawings and specification.

1 represents the saddle of a lathe, to which the steady-rest and the roller attachment are attached.

While necessarily coöperating in the accomplishment of the objects of my invention, the within-described roller device constituting a part of my improved rest is embodied in a separate housing for the sake of convenience in handling.

To simplify the description of my improved rest, I refer herein to one part as a "steady-rest" and to the other as a "roller device," though they together constitute my improved rest. I will first describe the part referred to as a "steady-rest," then the roller device, and afterward explain their joint action.

The steady-rest is constructed as follows: The bracket 2, bolted to the saddle 1 of the slide-rest, is provided with a yoke 2^a, in which is a horizontal barrel 2^b and a vertical barrel 2^c. In the barrel 2^c is a steady-pin 3. I prefer to have inserted in the inner end of the pin 3 and extending out a little distance therefrom a piece of non-abrasing material, such as lignum-vitæ 3^a. A keyway 3^b receives the end of a set-screw 4, and thus prevents the pin from turning in the barrel 2^c. A screw 5, having its outer end 5^a squared to receive a wrench, passes through the outer end of the barrel 2^c and is threaded into the pin 3. On the screw 5, inside of the barrel 2^c, is a collar 5^b, which bears against the shoulder 2^d of the barrel. A collar 5^c on the screw 5 bears against the outside of the barrel 2^c. The two collars 5^b and 5^c prevent any vertical movement of the screw 5, and the screw 4, enter-

ing the keyway 3^b, prevents the revolving of the pin in the barrel. By the turning of the screw 5 a vertical adjustment is given to the pin 3. In the barrel 2^b is a pin 3^c, constructed and adjusted the same as the pin 3, and a pin 3^d, protruding from the under part of yoke opposite the pin 3, is also constructed and adjusted the same. The said three steady-pins protrude from said yoke toward its center. As the construction and adjustment of the three steady-pins 3, 3^c, and 3^d are identical, it is not deemed necessary to describe each one separately. The description of one applies to the others, excepting that the adjustment of two of the steady-pins is vertical, while that of the other is lateral.

In operation the shaft S is placed in the lathe in the desired position relative to the tools, and the three steady-pins 3, 3^c, and 3^d are adjusted so as to bear on the shaft, and thus steady it during the operation of turning, sizing, and finishing. The bearing-faces of the pins being of lignum-vitæ or other non-abrasing material will not in any way deface or mar the shaft.

The frame constituting a part of the steady-rest also carries two tool-holders B and B', carrying tools C C' and their rests A and A'. The tool-holder rests A and A' slide in guide-ways a and a', formed in the bracket 2.

Bolted to the saddle or carriage 1 is a housing or roller-frame 6, in which are roller-carriers 7 7^a. These carriers have rollers 7^b and 7^c journaled therein in suitable bearings and are held in place by the caps 7^d and 7^e. The rollers are adjustable toward and from each other by the adjusting-screws 7^f and 7^g. The inner ends of the adjusting-screws 7^f and 7^g enter cylindrical recesses in the outer ends of the roller-carriers and are secured therein by pins 7^h, that pass through the roller-carriers and engage a groove 7^i in the screws 7^f and 7^g. These pins connect the adjusting-screws and the roller-carriers and cause the carriers to follow the screws when turned. The face of the rollers is slightly tapered, approximating the form of a truncated cone whose sides are slightly convexed, as shown in Fig. 3. The higher edges of the opposite rollers are placed in opposite directions relatively to their traverse. In order to change the inclination of the faces of the rollers relative to the shaft, the roller-frame 6 is rendered adjustable on the carriage 1 by the bolt 8^b, acting as a pivot, and the bolt 8^a, sliding in a channel 1^a in the carriage. Not much movement is provided for here, as only a slight adjustment is necessary.

The shape of the rollers described and their arrangement allows a longitudinal slippage of the work between them while the rollers turn horizontally to the work, thus giving to the work a finish not to be had by any other form of rollers. The adjustment of the roller-frame as described adjusts the angle of the faces of the rollers to the work and relatively increases or diminishes the extent of contact and slippage surface between the work and the rollers.

For the purpose of removing the roller-frame 6 from the carriage without taking the work out of the lathe the lower part of the frame is open, as at D, and the weakening of the frame caused thereby is overcome by the collar-bolt 9, passing through the frame and provided with a wedge 9^a, thus binding the frame together and resisting any lateral strain. To remove the roller-frame from the carriage, the roller-carriers 7 and 7^a are receded from each other by means of the adjusting-screws 7^f and 7^g, the nuts 8^a and 8^b are unscrewed, the wedge 9^a is then driven out, and the collar-bolt 9 removed. The roller-frame may then be lifted free from the carriage without disturbing the shaft.

By making the rest separable, as described, it is easier to handle, and it provides for adjusting the rolls without disturbing the steady-pins.

The roller-frame 6 is provided with a vertical barrel 6^a, having therein a pin 6^b, provided with a non-abrasive end. Said pin is constructed in all respects like those in the yoke-frame, is prevented from turning by a set-screw 6^d, that enters a groove 6^e, and is adjusted by a screw 6^c, held by a collar 6^f, in all respects like the pins previously described, and illustrated in Fig. 4. This pin further steadies the shaft S, and with the other pins and the rollers prevents all vibration of the work. The rollers coöperate with the steady-pins to prevent vibration and resiliency of the shaft, they give a finish to the work, and they also facilitate the traverse of the saddle or carriage.

It will thus be seen that my improvement accomplishes all the aforementioned objects of the invention and not only produces a better and more uniform quality of work, but also increases the capacity of the lathe by the action of the rollers in facilitating the traverse of the saddle or carriage, as well as giving a superior finish to the work.

E and E' are pipes through which oil or fluid is carried to the shaft. These do not enter into the invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lathe, in combination with the saddle, a housing attached to said saddle, adjustable roller-carriers within said housing, tapered rollers journaled to said carriers, and tool-holders, substantially as described.

2. In a lathe, in combination with the saddle, a housing adjustably and removably attached to said saddle, adjustable roller-carriers carried by said housing, and rollers journaled to said carriers, substantially as described.

3. In a lathe for turning, sizing and finishing shafting, a housing pivoted at one end to the carriage of the lathe and adjustably attached to said carriage at the opposite side, adjustable roller-carriers mounted on said

housing, and tapered rollers journaled in said carriers, substantially as described.

4. In a lathe for finishing shafting, a housing adjustably attached to the saddle of the lathe, in combination with two adjustable roller-carriers mounted in said housing, and rollers having taper-faces journaled in said carriers, substantially as described.

5. In a lathe, the combination of a housing having an opening below and adjustably attached to the lathe-carriage and provided with two adjustable roller-carriers mounted therein, tapered rollers journaled in said carriers at their inner ends, and a collar-bolt passing through said housing in proximity to the said opening, substantially as described.

6. In a lathe, the combination, with the tool-holders and tools, of a yoke carrying adjustable steady-pins, and tapering rollers adapted to finish stock between them and facilitate the traverse of the lathe-saddle, substantially as described.

7. In a lathe, the combination, with a yoke carrying adjustable steadying-pins having non-abrasing ends, of a housing having therein adjustable roller-carriers, and tapering rollers carried by said carriers, substantially as described.

8. The combination of a bracket with yoke secured to the saddle of a lathe, steady-pins protruding inwardly from the yoke, and a roller-frame pivoted upon the saddle, said roller-frame carrying rollers having adjustment toward and from each other, substantially as described.

9. The combination of a bracket with a yoke secured to the saddle of a lathe, steady-pins projecting from the yoke toward its center, and a roller-frame pivoted upon the saddle, said roller-frame carrying rollers having adjustment toward and from each other, and a steady-pin carried by the roller-frame, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

THOMAS CORNELIUS WALKER.

Witnesses:
ARTHUR A. SELLECK,
THOS. C. WALKER, Jr.