

961,155.

J. M. PALMER.
LATHE DOG.
APPLICATION FILED OCT. 30, 1905.

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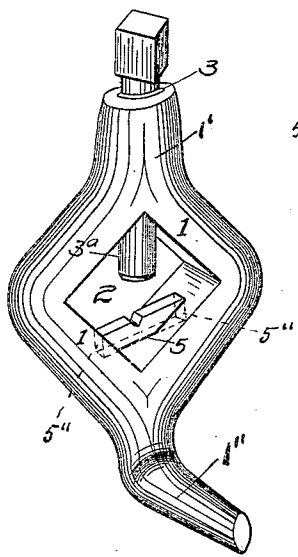


Fig. 1.

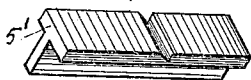


Fig. 4.

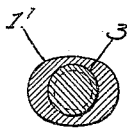


Fig. 3.

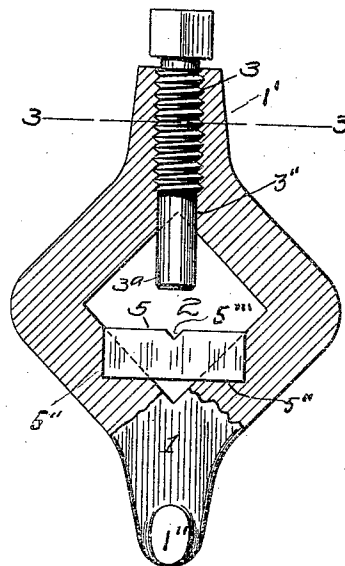


Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN M. PALMER, OF CHICAGO, ILLINOIS, ASSIGNOR TO UNIVERSAL TOOL COMPANY,
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LATHE-DOG.

961,155.

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To all whom it may concern:

Be it known that I, JOHN M. PALMER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lathe-Dogs, of which the following is a specification.

My invention relates to clamp or clutch devices arranged to cooperate with the chuck of a lathe to hold or turn the work held therein, and its object is to enlarge the range of utility of a lathe-dog of given size and of ordinary approved form, in a simple, durable and effective manner.

Another object of the invention is to protect the screw against breakage through lateral strains, by confining the same, or threaded portion thereof, within the boss or crown of the dog and either equipping the screw itself with a compression or clamping bolt or bar having a smooth outer surface movable in a smooth bore.

Stated more specifically, the object of my invention is to provide means for contracting the normal work-opening in a lathe-dog in the direction of the screw or driving bolt; to shorten the projection of the latter within the work-opening and to obviate threading the bolt or bar-opening at its inner end, or that part where the greatest strain is imposed; to provide a brace upon the screw adapted to relieve the latter from undue lateral strain and practically take up all the wear due thereto.

With the above general objects in view, my invention consists in the novel construction and combinations of parts hereinafter described in detail, illustrated in the drawings and incorporated in the claims.

In the drawing—Figure 1 is a perspective view of the preferred form of lathe-dog constructed in accordance with my invention. Fig. 2 is a face view of the same dog shown partly in section. Fig. 3 is a section taken substantially on line 3—3 of Fig. 2. Fig. 4 is a perspective view of a modified form of bridge or reducer.

Referring to the drawing in detail, 1 represents the body of the dog which has substantially the form of a rectangular loop provided with the screw boss, or crown, 1' and horn 1". In these respects the dog is of usual construction. Instead of forming threads upon the screw 3 up to the lower end

and projecting said end into the opening 2 for the work, I limit the length of the screw to less than the length of the opening through the boss and also limit the screw-threads in the walls of said opening so that they do not extend to the inner end thereof. This inner or bearing end 3" of the opening is a plain bore into which is fitted snugly a plain, smooth or unthreaded plunger or clamping bolt 3^a which forms an extension of the screw 3.

The part 3^a is usually the weakest point in a lathe dog and when same has the usual form of a screw or bolt, the threads are the chief source of weakness, as it is well known that threads or indentations in a solid piece of metal act under lateral strains as initial fractures, and it is also well known that in tempering the plunger portion 3^a the grooves between the threads are often extended into the body of the metal in the forms of flaws or complete fractures. By providing a smooth bore 3" and a smooth plunger 3^a this difficulty is not only obviated but the plunger or bolt 3^a is given firm support by reason of the contacting surfaces of the bore and plunger lying against each other on parallel lines at right angles to the direction of strain, and the screw itself is relieved of the lateral strain entirely.

As means for reducing the size of the work-opening 2 I provide a bar, bridge, or reducer 5 or 5', the former being a plain bar rectangular in cross section while the latter is T-shaped in cross section. As shown in Figs. 1 and 2 recesses 5" are formed in the opposite lower walls of the opening 2 for the ends of the bar or bridge 5 and the latter is preferably held loosely, and always removably, in said recesses. In the edge or face of the bar or bridge 5 adjacent to the plunger or bolt 3^a is a notch 5'" which takes the place of the V-shaped lower corner of the opening 2 in holding the work, especially when round in cross-section, against lateral movement over the edge or face of the bridge. In the form of bridge shown in Fig. 4 this face is made to extend the full thickness of the loop or body 1, or laterally of the openings 5" and thus provides a greater area of bearing surface for the work to rest against.

I claim as my invention—

1. In a lathe dog, the combination with a

loop member, of a clamping screw passing through an opening in the side of said loop member, the inner end of said screw having a plain cylindrical surface fitting closely in
 5 a corresponding surface at the inner end of the opening through the side of the loop member.

2. In a lathe dog, the combination with a loop member, of a clamping screw passing
 10 through an opening in one side of the loop member, the inner end of said screw having a plain cylindrical surface engaging a corresponding smooth cylindrical surface at the inner end of the opening through the loop
 15 member, the said clamping screw having threaded engagement with the opening through the loop member at its outer end, and a removable bridge piece adapted to reduce the effective size of the opening in the
 20 loop member.

3. In a lathe dog, the combination with a loop member, of a clamping screw passing through said loop member at a point substantially opposite the rectangular junction
 25 of two substantially rectilinear sides of the loop member, and a rectilinear bridge piece of T-shaped cross section extending across the loop member and engaging in channels formed in the sides of the loop member, substantially as described.
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4. In a lathe dog, the combination with a

loop member, of a clamping screw passing through the loop member at a point substantially opposite the rectangular junction of two sides of the loop member, and a rectilinear bridge piece extending across the
 35 loop member and leaving an opening between the bridge piece and the clamping screw for the reception of work to be clamped in the dog.
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5. In a lathe dog, the combination with a loop member, of a driving tail on said loop member, a head on said loop member, a clamping screw passing through the head of the loop member in the direction of the
 45 angular junction of two sides of the loop member, the inner end of the said screw having a plain cylindrical surface fitting closely in a corresponding surface at the inner end of the opening through the head,
 50 the opening through the head being screw-threaded at its outer end to engage the threads of the clamping screw, and a removable bridge piece within the opening in the loop member.
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In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN M. PALMER.

Witnesses:

WM. B. AYER,

J. W. BECKSTROM.