(No Model.)

C. S. BEACH.

LATHE DOG.

No. 323,900. Patented Aug. 11, 1885.

FIG. 1.

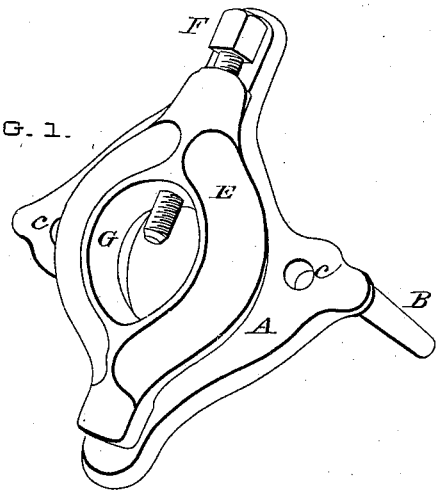


FIG. 2.

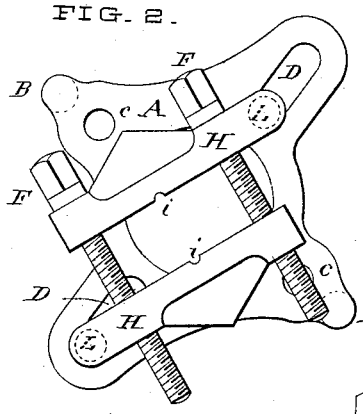


FIG. 3.

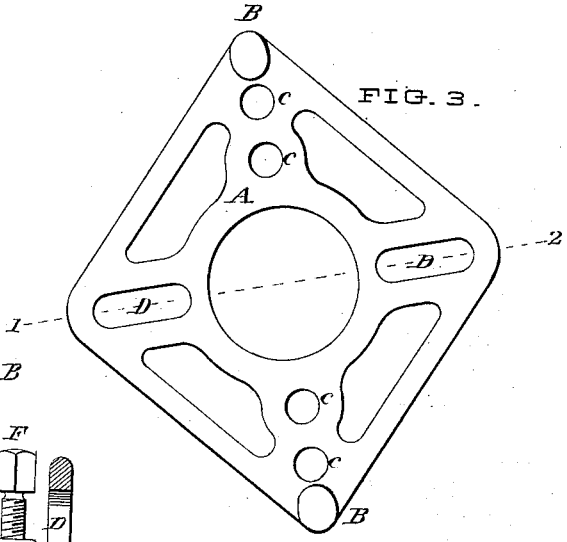
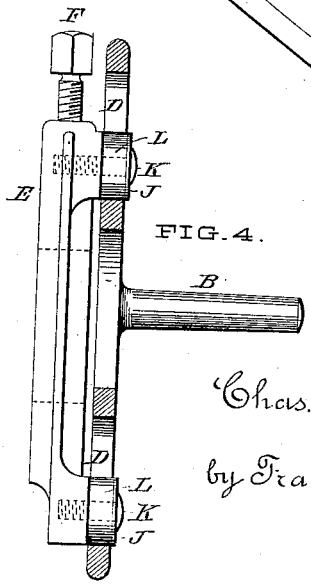


FIG. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES S. BEACH, OF GLOVERSVILLE, NEW YORK.

LATHE-DOG.

SPECIFICATION forming part of Letters Patent No. 323,900, dated August 11, 1885.

Application filed November 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. BEACH, of Gloversville, in the county of Fulton and State of New York, have invented certain Improvements in Lathe-Dogs, of which the following description, in connection with the accompanying single sheet of drawings, constitutes a specification.

This invention is designed to overcome certain difficulties encountered by machinists in turning metals on the ordinary engine-lathe. Prominent among these difficulities may be mentioned chattering of the tool and damage to the centers, resulting from the use of a driving-dog in which the power is applied only on one side of the center or axis of motion. Another difficulty which the use of this invention is designed to obviate occurs in turning on the end of a long slender piece of work next the dead-center, where the work is driven by a common dog with the usual crank-arm for a driver, the piece will bend and spring so much between centers by the crank-like power of the dog, that it will often run out of true.

My invention is fully shown in the drawings, wherein Figure 1 shows a perspective view of the face side of my device exhibiting a dog in which the work is held by a single clamping-screw. Fig. 2 is a plan or face view of the same invention, but showing a clamp for holding the work. Fig. 3 is a plan view of the rear side of that member of my combination which I term an "equalizing-plate;" and Fig. 4 is a longitudinal section taken on the line 1 2 of Fig. 3, and shows the connections between the equalizing-plate and the principal dog.

In most lathe-dogs in present use the dog is clamped or screwed to the piece of work undergoing manipulation in the lathe, and is driven by some lug, tail, or projection therefrom, (usually on one side only of the lathe-center,) which engages with some slot, mortise, or other suitable device of the face-plate or an arm of the cross-head. When so arranged, the work is driven or rotated by power applied crank fashion on one side of the center or axis of rotation, and as a natural consequence the relations existing between the application of the power as the work revolves and the resistance offered by the cutting-tool which is fixed, (or vice versa, when such relations are reversed and the tool revolves,) are constantly changing, and frequently chattering of the tool against the work ensues, as well as a varying wear and strain on the lathe-centers, which is sometimes so great as to wear the centers out of true.

To obviate these evils I interpose between the face-plate or driver on the end of the spindle and the dog or clamp which is attached to the work a supplemental or intermediate plate having two driving lugs or tails projecting rearwardly therefrom, arranged on opposite sides of its center of rotation, which are adapted to engage with slots in the face-plate or arms of the cross-head on opposite sides of the spindle, and also having two perforations or elongated slots, one on each side of the central perforation therein, which slots are disposed on a line substantially at right angles with the line of the two driving-tails, in which projections or lugs on the dog or clamp are adapted to freely slide or work, as hereinafter more fully described. This interposed plate, in ordinary turning, may freely accommodate itself to the constantly-varying conditions of contact betwwen the face-plate or cross-head and the driving-tails thereon, and also between itself and the dog or clamp with which it is connected. Therefore my invention resolves itself into two elements—viz., a clamp for receiving and gripping the work, and an equalizing-plate for transmitting and equalizing the power and motion from the driver connected with the lathe-spindle, whatever it may be.

I have shown two modifications of clamp in the drawings. That shown in Fig. 1 is much like the common lathe-dog, except it has two lugs, L L, (seen in Fig. 4,) which are adapted to slide in slots D D of the equalizing-plate, as seen in Fig. 3. This clamp holds or grips the work by a single screw, F. The other clamp is seen in Fig. 2, and consists of two jaws, H H, united by the clamping-bolts F F, each of which jaws is provided with a lug, L, on its rear side to slide in slot D of the equalizing plate. The lugs L L pass through and are secured in slots D D by means of a washer, J, and a screw, K, as shown in Fig. 4. The adjustment between the clamp and plate is so that the clamp may have free play in the slots D D.

The equalizing-plate has the driving-tails B B projecting from its rear side to engage

with the driver on the spindle, and is slotted at D D, as shown. It may also have any number of perforations, *c c*, conveniently arranged as a provision for fastening the equalizing-plate to the face-plate, if desired. My complete dog is so constructed that by bolting the equalizing-plate to the face-plate or cross-head the work may be held on the live-center while the opposite end is held in the center rest or cone-plate—as, for instance, in drilling in the end of a shaft. No hook-bolts are required for this use, as common bolts are suitable and much more convenient.

This invention is used by centering the piece to be turned or the mandrel in the usual way and clamping one end thereof in one or the other of the clamps, E or H H, by tightening up the screws F. The piece is then hung in the lathe upon the lathe-centers, at the same time arranging for the tails B B to find engagement with the driving face-plate or cross-head by insertion through the slots or holes of the former or against the arms of the latter. So hung and adjusted, the equalizing-plate will have freedom for slight movement to accommodate itself to the varying and shifting relations of driving contact between the several parts of the apparatus as the turning progresses, the design being at all times to maintain constant contact of the driver against both opposite driving-tails B B of the equalizing-plate; hence

I claim—

1. An equalizing plate or device, substantially as described, attached to and forming a part of a lathe-dog, having provisions, substantially as shown, through which power and motion may be transmitted to two opposing points of driving contact of that member of the device attached to the work, substantially as described, for the purposes set forth.

2. The described lathe dog or clamp, in combination with the described equalizing-plate, having holes for the reception of common bolts, as a provision for attaching said plate to the face-plate of the lathe, substantially as specified.

3. The combination, in one tool, of a driving-dog, and a device attached thereto for equalizing the power and motion transmitted through the same to the work on its opposite sides, substantially in the manner described and set forth.

In testimony whereof I have hereto subscribed my name this 3d day of November, A. D. 1884.

CHAS. S. BEACH.

In presence of—
FRANKLIN SCOTT,
R. B. CARTER.