(No Model.)

W. F. HOGAN.

METHOD OF TURNING JOURNALS OF CRANK SHAFTS.

No. 339,776. Patented Apr. 13, 1886.

FIG. 1

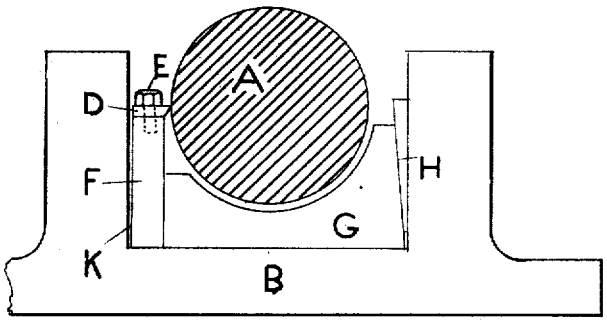


FIG. 2

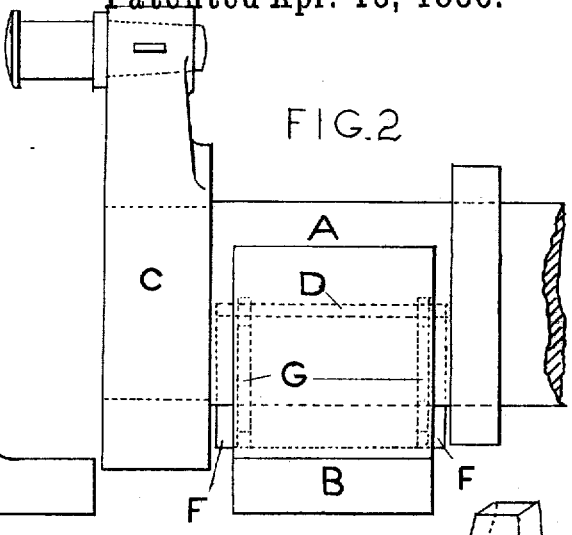


FIG. 3

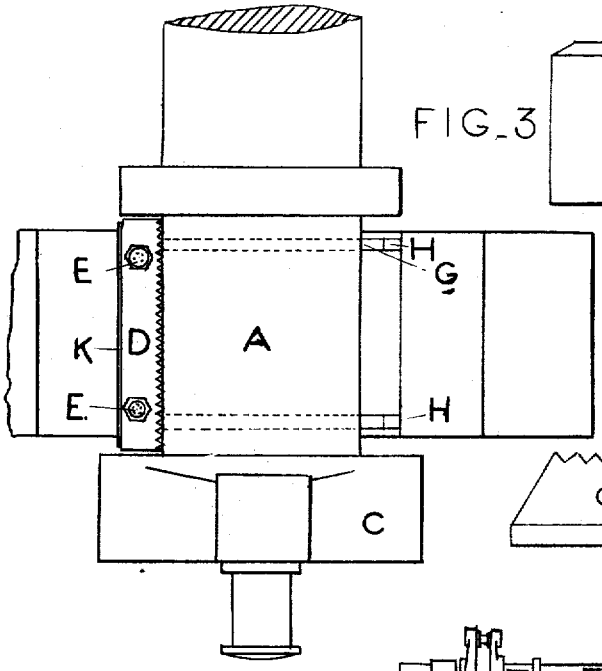


FIG. 5

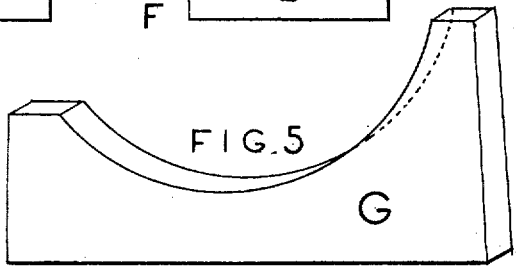
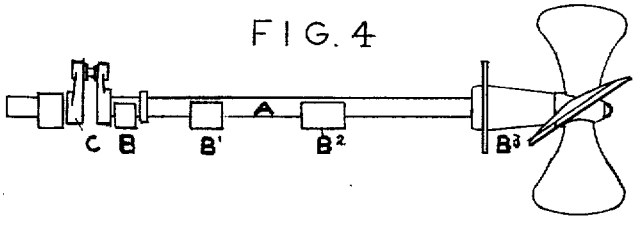


FIG. 6

FIG. 7

FIG. 4



WITNESSES
Chas. Housman
Saml. J. Britsall

INVENTOR
William F. Hogan
by Geo. Pardy
Atty

UNITED STATES PATENT OFFICE.

WILLIAM F. HOGAN, OF SAN FRANCISCO, CALIFORNIA.

METHOD OF TURNING JOURNALS OF CRANK-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 339,776, dated April 13, 1886.

Application filed August 13, 1885. Serial No. 174,349. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HOGAN, of San Francisco, California, have invented a new and Improved Method of Turning Off the Journals of Crank-Shafts, of which the following is a specification.

The invention relates to a method of turning off the journals of such shafts as, having become sprung from any cause, it would be inconvenient and costly to remove from their position to place in a lathe for the purpose of truing up.

In the accompanying drawings, forming a part of this specification, Figure 1 is a transverse sectional elevation of a shaft, its pedestal for journal-bearing, and the tools used in carrying out my method. Fig. 2 is a side view of the same. Fig. 3 is a plan. Fig. 4 is a view of the shaft, showing all its supports. Figs. 5, 6, and 7 give isometrical perspective views of the tools used. In Fig. 7 two forms of cutting-tools are illustrated.

In the several figures the same letters of reference are used to indicate the same parts.

A is the shaft, which in the present case is the propeller-shaft of a steamship. B is the pedestal of the bearing next the crank C. B′ B^2 are the intermediate bearings, and B^3 is the stern-bearing.

Now, from some cause or other—as, for instance, original bad workmanship, or from the effects of shrinking in a new crank-pin in double crank-shafts—let us suppose the crank-journal is untrue and eccentric with the other journals of the long shaft, to the effect of causing great friction and heating in the bearing, and it is necessary to true up this journal. The ordinary practice has been to take the shaft out of the ship to a workshop to be trued up in a lathe.

The method of the present invention avoids this heavy expense and inconvenience, and the work is well done while the shaft remains in position, as follows: First, I remove the cap of the bearing and take out the brasses from the pedestal B, leaving this journal free from all support, the shaft being supported alone by the intermediate and stern bearings in single-crank shafts. I then take a roughing-tool, D, made of tempered steel, having a series of saw-teeth cutting-points, let us say, one-quarter of an inch apart. This tool is as long as the journal to be turned off less one pitch of the teeth, or one-quarter of an inch. The width will be, say, two inches and a quarter, and the thickness five eighths of an inch, more or less. This tool I fasten with two or more bolts, E, to the block F, a metal piece the same length and width as the tool D, and as deep as will allow it to rest on the bottom of the pedestal, while the cutting-points of the tool are about level with the center of the shaft, as shown in Fig. 1. I then place this block with its attached cutting-tool against the interior of the side of the pedestal and shim it up behind until the tool-points just touch the shaft at the point of its circumference least distant from the axis, which point can be determined by revolving the shaft slowly around and measuring to some fixed mark from different points in the circumference, as is commonly practiced in such cases. When the tool is properly set, I put in the shore-blocks G, or they may have been loosely placed before, and drive the wedges H until the tool-block is firmly secured. Care must be taken to set the tool parallel with the axis of the shaft, or the journal will be turned tapering.

When one cut is made, say, one-sixteenth of an inch wide by each tooth of the cutting-tool, I slack up the wedges and advance the tool longitudinally a sixteenth of an inch, and then, after tightening the wedges, make another cut, repeating the operation until the fourth cut is made, which will complete the first cut over the entire journal. If, now, another cut be necessary, I slack up the wedges, move the tool back to its first position, and shim up the tool-block from behind with the shim K of thin metal, then tighten the wedges, and proceed as before. Finally, after making as many cuts with the roughing-tool as may be necessary to take out the eccentricity of the journal, I change the tool for one, D′, having square teeth, as shown in half of Fig. 7, and go through the operation as before, taking, however, only a light smoothing-cut for the last.

Any suitable means may be employed for turning the shaft around, either by hand or machinery.

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

The method of turning off a journal of a shaft while in position after removing the support from that journal, consisting in firmly securing to the pedestal of the bearing of the journal a tool having a series of cutting-teeth, then rotating the shaft in its remaining bearings against the cutting-tool, and in adjusting the cutting-tool longitudinally and transversely after each rotation of the shaft, substantially as described.

WM. F. HOGAN.

Witnesses:
WM. M. FARRELL,
JOHN V. B. PERRY.