

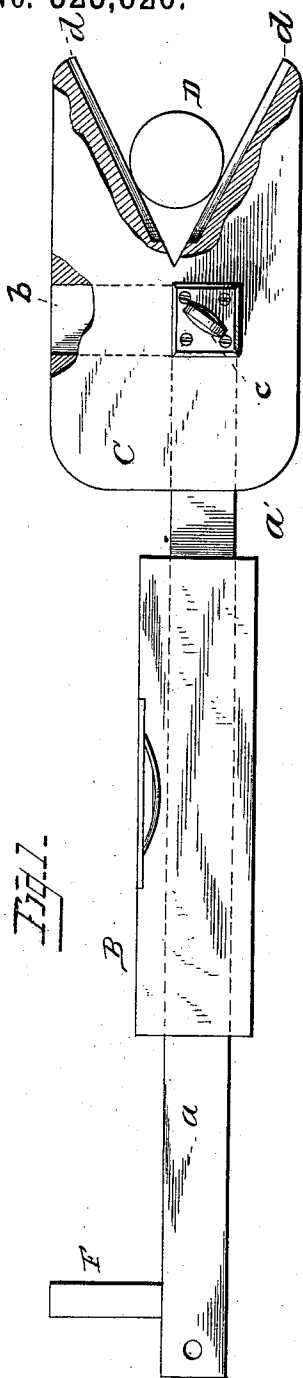
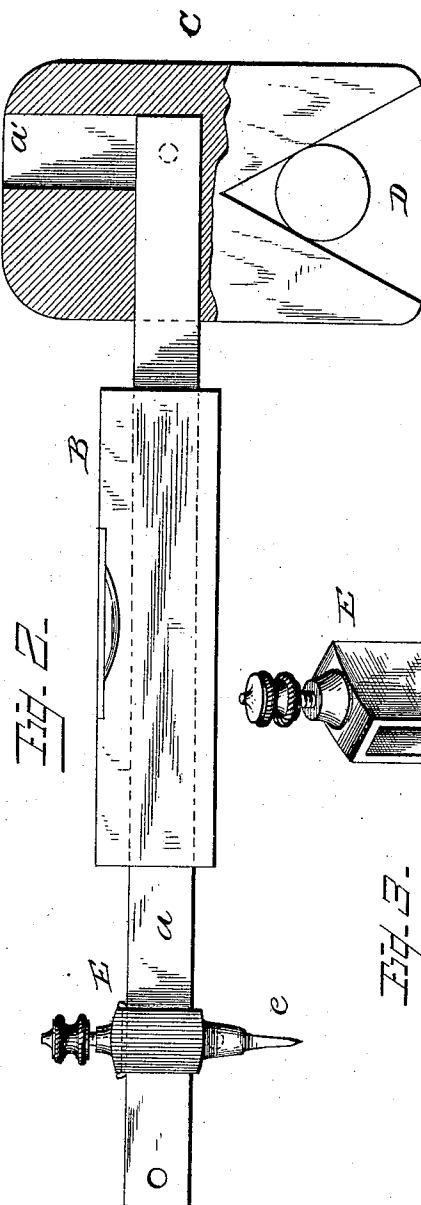
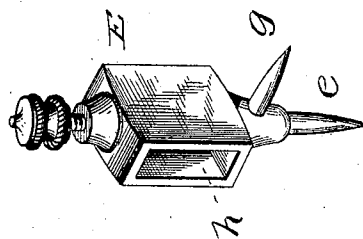
(No Model.)

W. J. S. OSBORN & J. MADDEN.

SHAFT LINER.

No. 323,826.

Patented Aug. 4, 1885.



Witnesses:
"Wm. L. Spedden.
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UNITED STATES PATENT OFFICE.

WALTER J. S. OSBORN AND JAMES MADDEN, OF SHELBY, OHIO.

SHAFT-LINER.

SPECIFICATION forming part of Letters Patent No. 323,826, dated August 4, 1885.

Application filed July 25, 1884. (No model.)

To all whom it may concern:

Be it known that we, WALTER J. S. OSBORN and JAMES MADDEN, citizens of the United States, residing at Shelby, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Devices for Aligning and Truing Shafts, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to a device for aligning and truing shafts; and the novelty consists in the construction, arrangement, and adaptation of parts, as will be more fully hereinafter set forth, and specifically pointed out in the claims.

The invention is illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of the device in one of its operative positions. Fig. 2 is a side elevation in another position, and Fig. 3 a perspective detail.

Referring to the drawings, *a* designates the body of the device. It comprises a bar having parallel sides and of a neat finish.

B designates a spirit-level, which slides loosely on the body *a*, and which may be readily put in place or removed at will. The socket in the level and the body *a* are so constructed as to make a snug joint and allow no play except in a direct line.

C designates a removable head having sockets *a'* *b*, arranged at right angles to each other, and adapted to receive one end of the body. At the junction of these sockets *a'* *b* a set-screw, *c*, is located, and it serves to lock the head and body together, as the body may be engaged with either socket. The head *C* has fixed jaws, the junction of whose sides *d* is on a line with the upper edge of the socket *a'*, and consequently the line of upper edge of socket *a'* will intersect the center of a shaft when said shaft is engaged by those jaws. Said edges *d* are equally inclined to the line of the upper edge of socket *a'*, the combined deviation being preferably about sixty degrees, and the jaws thus formed are adapted to embrace the shaft, and to bring its center on a line with said upper edge of socket *a'*, whatever the diameter of the shaft.

E designates a sliding marker or pointer.

It has a socket, *h*, which receives snugly the body *a*, and is provided with an ordinary set-screw, by which it may be fixed or locked to said body at any desired point. It has two points, *e* and *g*, arranged at right angles to each other, and both arranged at right angles to the body. One of these points extending vertically and the other horizontally allows a point to be compared with a line in different positions of the device.

F designates a straight edge forming a square with the body.

The mechanical features of the device will be understood from the foregoing description, taken in connection with the drawings.

In bringing the revolving shafts of mills and manufactories to a true bearing, horizontal or vertical, this device has many advantages. We will briefly indicate some of its uses. We will imagine that a true horizontal line has been obtained at a proper distance from the position which the shaft is to occupy. By this device the shaft may be leveled to agree with that imaginary line, by causing the horizontal point *g* to traverse said line, the device exactly locating the center of the shaft, whatever its diameter. Now, the shaft thus leveled with the true line may not be parallel therewith; hence by changing the head to the position shown in Fig. 2, and keeping the shaft embraced by the jaws and the pointer *e* upon the line, we can detect and correct any deviation in that direction. To true a vertical shaft after a horizontal shaft has been properly aligned, we drop two plumb-lines, and by keeping the pointer *g* on one of the lines and the shaft engaged with the inclines *d*, the position of the shaft may be readily made to agree with the vertical line drawn, and then repeating the operation for the other plumb-line the shaft will be trued vertically. By this device we are enabled to discover deviations in shafting and to correct the same without removing pulleys, belts, or journals. The shaft being trued, it is only necessary to make its bearings correspond, and this may be accomplished without disturbing the other parts of the machinery. In aligning vertical shafts of course the level *B* is not used and may be removed.

Instead of a horizontal imaginary line, as

hereinbefore mentioned, a shaft may be trued to a line inclined at any angle to the horizon.

What we claim as new is—

1. In a device for aligning and truing shafts, the combination, with a body and a leveling device, of a V-shaped notch adapted to receive the shaft and to locate its center, as set forth.
2. The combination, with the body and adjustable head having angular jaws, of a pointer, as E, having points perpendicular to each other, as and for the purposes set forth.
3. The combination, with the body and sliding level, of the head having sockets, as $a' b$, arranged at right angles to each other, and having the angular jaws to receive the shaft, as set forth.
4. The combination, with the body and sliding level, of the head having a V-shaped notch whose apex is on a line with upper side of the body, and adapted to engage shafts of various diameters and locate their centers, as set forth.
5. The combination, with the body and level,

of the head having sockets, as $a' b$, arranged at right angles to each other, and the set-screw c' , arranged at the junction of the two sockets, as set forth.

6. The combination, with the body, sliding level, and adjustable head, of the pointer E, having socket h and set-screw, and having points e and g , arranged at right angles to each other and to the body, as and for the purposes set forth.

7. The body a , having square F and the sliding level B, combined with the head C, having sockets $a' b$ and inclined jaws, the pointer E, having points $e g$, and the set-screws, as and for the purposes set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WALTER J. S. OSBORN.
JAMES MADDEN.

Witnesses:

WILLIAM OWINGS,
SAM D. OWINGS.