

(No Model.)

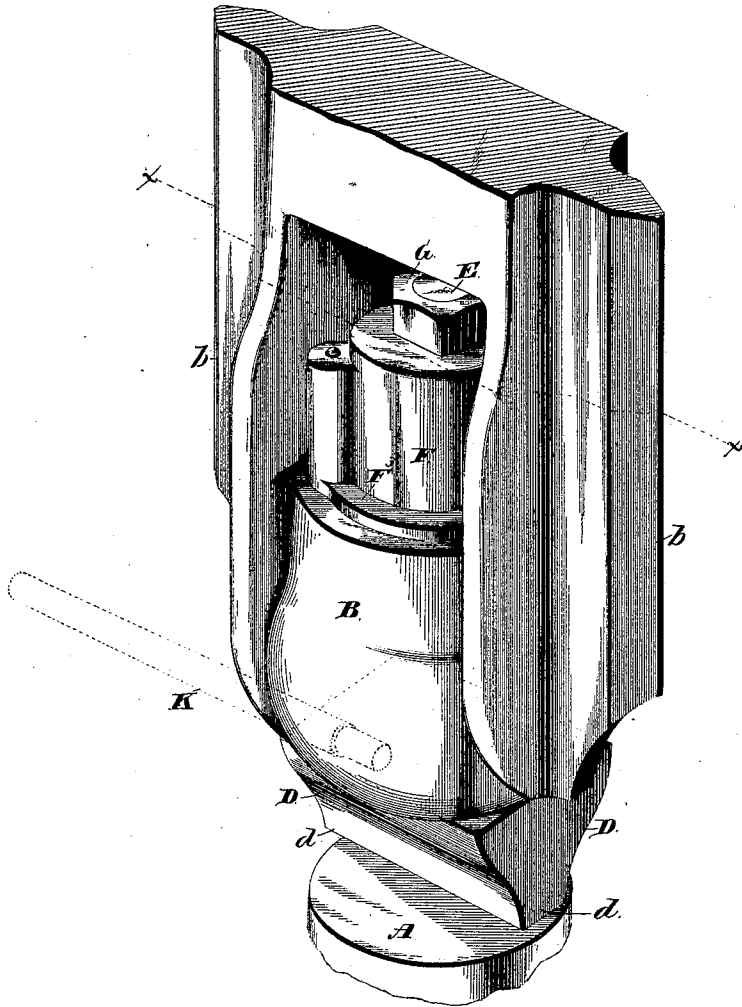
2 Sheets—Sheet 1.

D. SIMONDS.
APPARATUS FOR STRAIGHTENING SAWS.

No. 404,738.

Patented June 4, 1889.

Fig. 1.



Witnesses
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Henry C. Hazard.

Inventor
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Fig. 2.

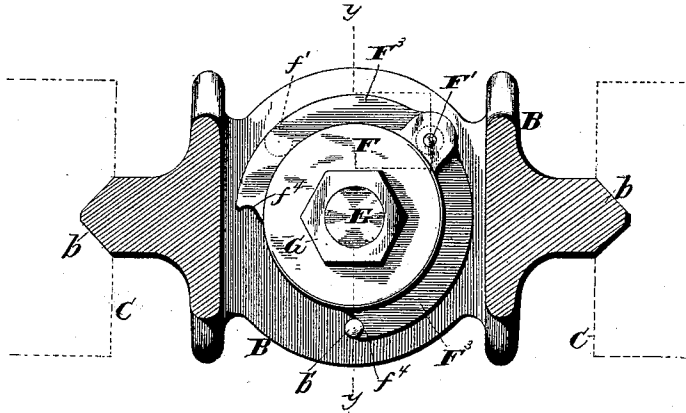
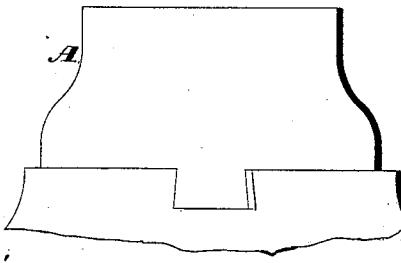
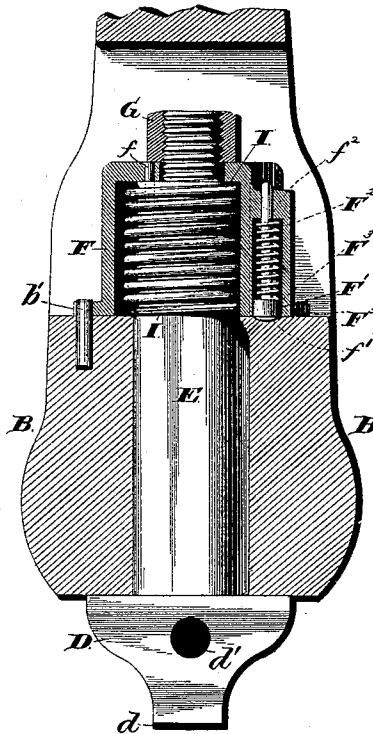


Fig. 3.



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UNITED STATES PATENT OFFICE.

DANIEL SIMONDS, OF FITCHBURG, MASSACHUSETTS.

APPARATUS FOR STRAIGHTENING SAWS.

SPECIFICATION forming part of Letters Patent No. 404,738, dated June 4, 1889.

Application filed July 23, 1888. Serial No. 281,321. (No model.)

To all whom it may concern:

Be it known that I, DANIEL SIMONDS, of Fitchburg, in the county of Worcester, and in the State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Straightening Saws; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my improved hammer; Fig. 2, a horizontal section of the same on line *xx* of Fig. 1; Fig. 3, a vertical section on line *yy* of Fig. 2.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide an improved apparatus for straightening or taking the twist out of saws; and to this end my invention consists in the apparatus and in the construction, arrangement, and combination of the parts thereof, as hereinafter specified.

Heretofore saw-makers have used to straighten or take the twist out of saws a hammer having peens on it opposite ends running in directions at angles to each other. Sometimes the peen on one end has been made to run in the direction of the hammer-handle, while the other peen was at a right angle thereto. The hammers have also been made and used having the peen on one end running at an angle of forty-five degrees to the direction of the hammer-handle and that on the other end at right angles to the handle. The object of thus making the hammers with the peens running in different directions is that with one hammer the different twists can be taken out of a saw. I am aware that it has been tried to make a power-hammer adapted to do this same thing by making the hammer a dog-head one, with a rounded face about two inches in diameter. Such a hammer has, however, been found not to be so efficient and thorough in taking out the different twists in saws as one which, like the above-described double-ended hammers heretofore used, could strike blows on the saw with contact faces extending on lines running in different directions.

By my invention, as set forth hereinafter, a power-hammer is provided having a die or

contact face, which can be made to strike the saw on a line running in any desired direction.

In the drawings, A designates the anvil of the hammer, and B the head guided in the way usual in power-hammers by ribs *b b* on the head engaging suitable guides C C on the frame of the hammer. Such hammer-head can be of any desired form and construction and be operated by any desired means. Its form, means of actuating it, and the guiding devices for it can be varied indefinitely without departure from my invention. Against the lower face of the hammer-head, which face is preferably flat, as shown, rests the upper side of the die D, having its narrow elongated face *d* parallel with the top of anvil A. A central stem E on this die extends up through a central opening in the hammer-head, so as to hold the die centrally in place on the lower side of the hammer-head, while allowing it to be rotated in a plane parallel with the hammer-face. On the upper end of the stem E is a cap or bonnet F, surrounding the stem and fastened thereon by a nut G, as shown in Fig. 3. Within this cap and surrounding the stem is the spiral spring I, with its end engaging the top of the cap, and at its lower end resting on a flat surface on the hammer-head around the upper end of the stem-receiving opening in the head. Such spring, forcing the cap and attached stem E upward, holds the die D closely up against the flat bottom face of the hammer-head, so that it would normally be held by friction in any position into which it is turned with reference to the head. I do not, however, intend to rely upon friction alone to hold the die from turning until its rotation is desired.

The cap or bonnet F, which is, as shown, fixed from rotation with reference to the stem by means of a pin *f* passing through the cap-top into the stem, is provided with a pin or pawl F' at one side adapted to engage suitable recesses or depressions *f' f'* on the hammer-head. This pin or pawl is situated within a socket F² on the bonnet or cap, and is forced downward by means of a spring *f*², surrounding its stem and engaging a shoulder *f*³ near the lower end or head of the pin, as shown best in Fig. 3. This end of the pin is preferably made rounded, as are also the depres-

sions $f' f'$ which it is to engage, so that when the pin is in engagement with one of such depressions the cap F, and consequently stem E and die D, will be held securely against accidental turning, but can be turned, if desired, by the application of power enough to cause the rounded pin end to ride up out of the engaged depression or recess.

I have shown two depressions $f' f'$ so situated as to be engaged by spring-pin F' when the cap and die have been turned to one end or the other of a quarter-turn; but I contemplate varying the number and location of the depressions, so as to secure the holding of the die at any desired point or points of its possible rotation with reference to the hammer-head. In order to limit the rotation of the die to one-quarter of a turn, I have shown the hammer-head in the drawings as provided with a stop-pin b' and the cap F as having stop-shoulders $f^1 f^1$ at the end of a flange F³, extending three-quarters around the edge of the cap. I do not, however, intend to limit myself to the use of such flange or its arrangement.

The stops on the cap for engaging pin b' can be pins or lugs, and can be situated at any point around the cap, according to the extent of rotation to be allowed or provided for.

The stops with pin b' are not a necessity, but simply aid in securing a certain definite amount of rotation, and no more, even if the die should be turned quickly during use.

For rotating the die to cause its elongated face to extend in one direction or another across the head and anvil-faces, a handle K can be used, consisting of a bar with its end engaging a socket d in one end of the die D.

With my hammer provided with its rotatable die I can, without turning the hammer-head, the lower die or anvil, or the saw being straightened, strike the latter on any desired line to take out any twist.

Any desired change in the direction in which the striking-face of the hammer-die shall run when it strikes the saw can be made at will without checking or stopping the movements of the hammer-head.

Having thus described my invention; what I claim is—

1. In combination with a hammer-head, a rotatable die adapted to be rotated in a plane at right angles to the hammer-head, and the pivot-stem thereon connecting it with the head, substantially as and for the purpose shown.

2. In combination with a hammer-head, the rotatable die pivotally attached thereto having a narrow elongated striking-surface extending in a plane parallel to the plane of rotation of the die on the hammer, substantially as and for the purpose described.

3. In combination with a hammer-head, the rotatable die connected with the hammer-head by means of a pivot-stem and having an elongated striking-surface at right angles to the pivot-stem, substantially as and for the purpose described.

4. In combination with a hammer-head and the rotatable die, a handle for rotating the die, substantially as and for the purpose described.

5. In an apparatus for straightening saws, in combination with an anvil or support for a saw and the hammer-head, the rotatable die pivotally attached to the head, so as to be rotatable in a plane at right angles to the travel of the hammer, provided with an elongated striking-surface whose direction with reference to the anvil-surface is changed by the rotation of the die on the hammer-head, substantially as and for the purpose described.

6. In combination with the hammer-head and the rotatable die carried thereby, a movable pawl carried with the die, and a recess in the hammer-head to be engaged by the pawl to lock the die from accidental rotation, substantially as and for the purpose described.

7. In combination with the hammer-head and the rotatable die connected with the head by a stem, a spring acting upon such stem to hold the die up against the hammer-face, substantially as and for the purpose specified.

8. In combination with the hammer-head, the rotatable die having a stem engaging an opening in the head, the cap on the stem, and the spring around the stem within the cap, substantially as and for the purpose described.

9. In combination with the hammer-head, the rotatable die thereon provided with a stem extending up through an opening in the head, the cap rigidly connected with the stem, and the spring-actuated pin carried by the cap and adapted to engage suitable depressions in the head, substantially as and for the purpose specified.

10. In combination with the hammer-head and the rotatable die, a spring-actuated pin connected with the die, so as to be moved as the die rotates, and suitable depressions on the hammer-head to be engaged by the pin, substantially as and for the purpose shown.

11. In combination with the hammer-head provided with one or more depressions, the rotatable die having the stem for connecting it with the head; the cap on the stem, the spring-pin carried by the cap, and the spring around the stem within the cap, substantially as and for the purpose set forth.

12. In combination with the hammer-head provided with a stop-pin, the rotatable die with its stem, and suitable stops rigidly connected with the stem for limiting the rotation of the die, substantially as and for the purpose described.

13. In combination with the hammer-head and the rotatable die carried thereby, a movable pawl carried with the die in its rotation, and suitable depressions in the hammer-head to be engaged by the pawl when the die has been rotated to different positions with refer-

ence to the hammer-head, substantially as and for the purpose shown.

14. In combination with the hammer-head and the rotatable die carried thereby, suitable stop devices for limiting the rotation of the die in opposite directions, a pawl on the die, and the two pawl-engaging recesses or depressions on the hammer so situated as to engage the pawl and lock the die at opposite

ends of its movement, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of July, 1888.

DANIEL SIMONDS.

Witnesses:

C. H. JOHNSON,
H. B. EATON.