

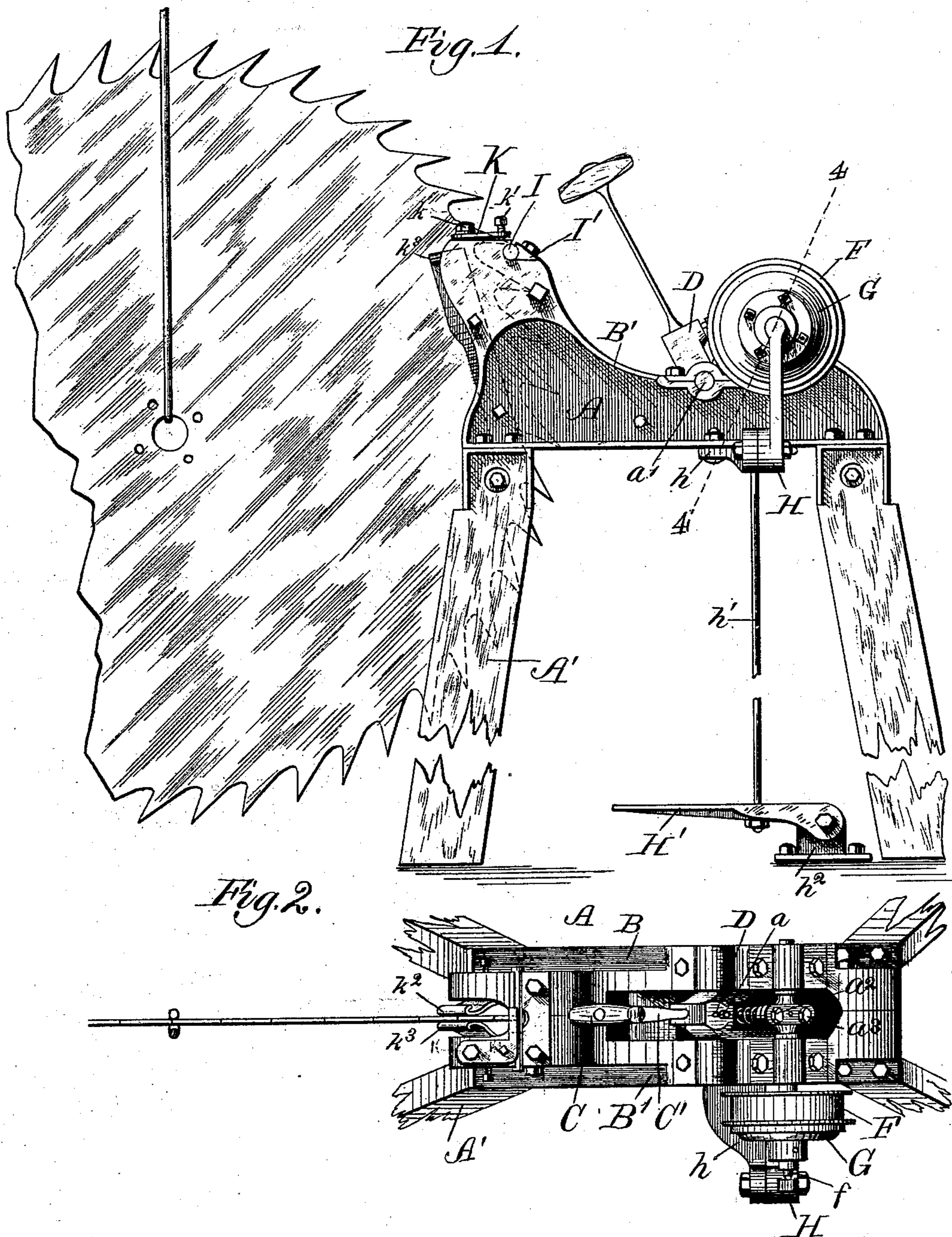
(No Model.)

2 Sheets—Sheet 1.

M. COVEL.  
SAW SWAGE.

No. 279,718.

Patented June 19, 1883.



Witnesses:  
C. C. Gaylord.  
L. M. Freeman.

Inventor:  
Milo Covell  
By G. B. Coupland & Co  
attys

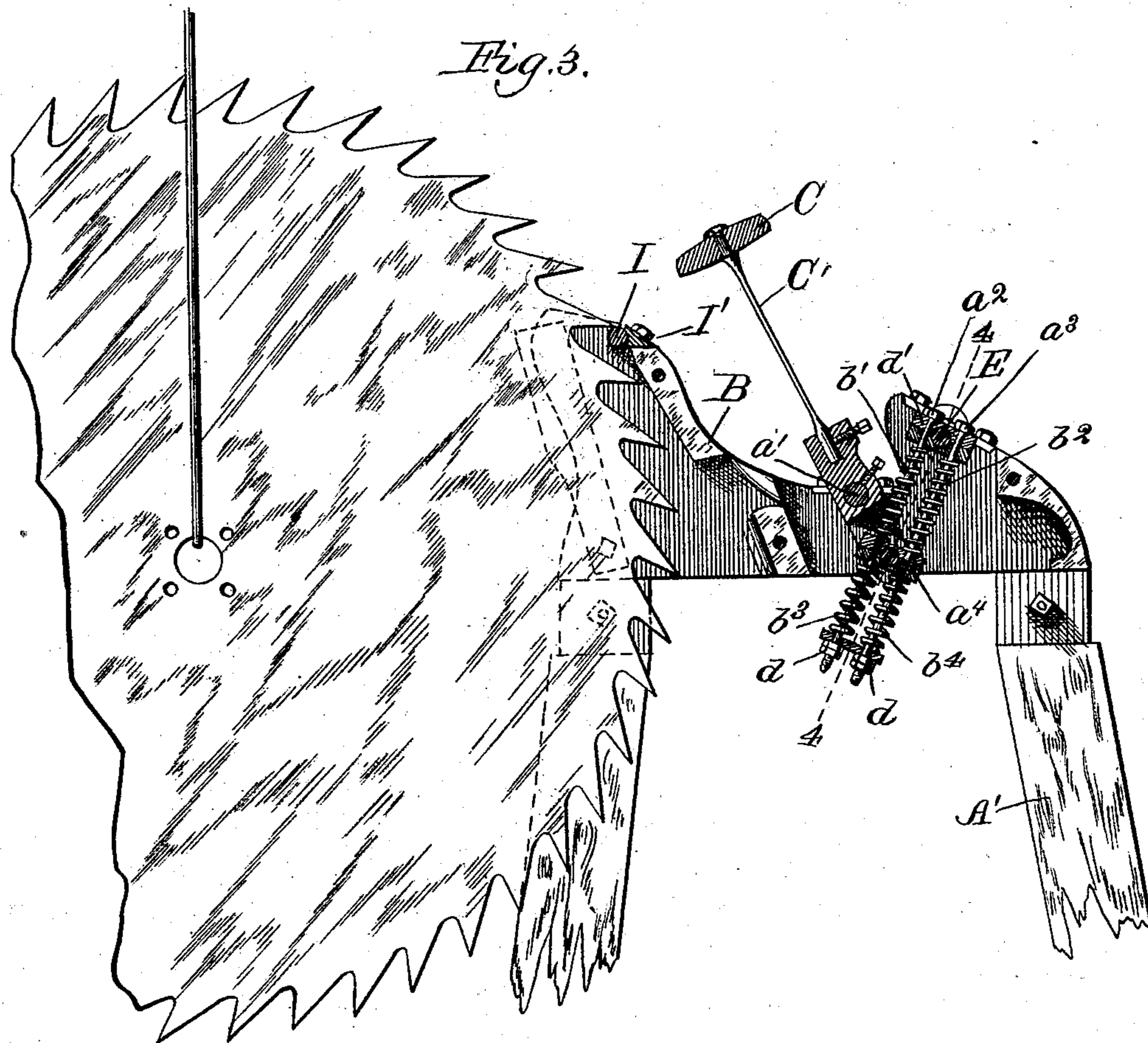
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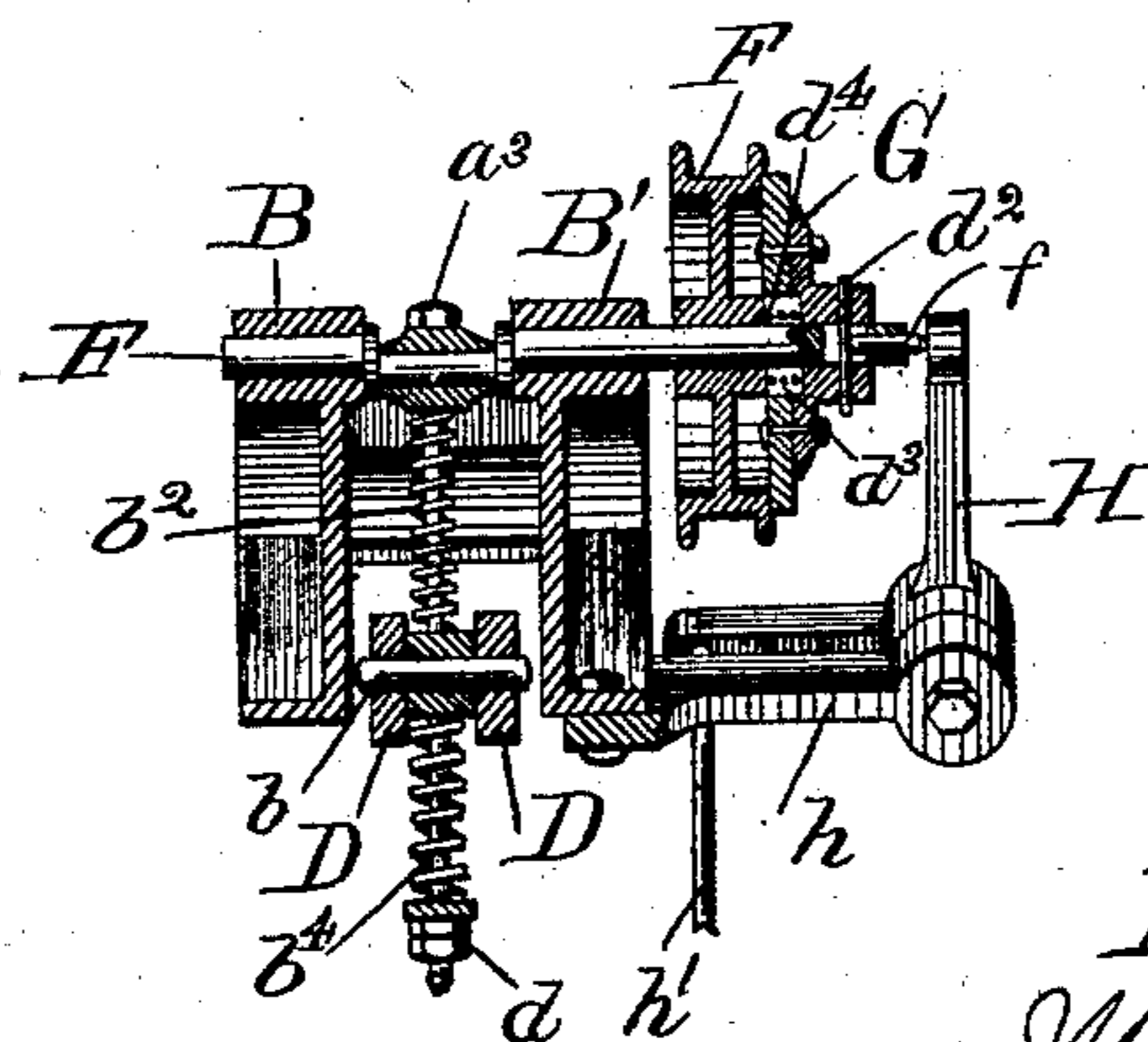
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*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

MILO COVEL, OF CHICAGO, ILLINOIS.

## SAW-SWAGE.

SPECIFICATION forming part of Letters Patent No. 279,718, dated June 19, 1883.

Application filed November 11, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, MILO COVEL, of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in an Automatic Power Saw-Swage, of which the following is a full, clear, and exact description, that will enable others skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, forming a part of this specification.

This invention relates to improvements in a saw-swage operated by any suitable motive power, the swaging process being accomplished by a hammer adapted to have a reciprocating movement, the power being applied and regulated by means of a foot-treadle, the intensity of the stroke or blows of the hammer being varied by a series of adjustable springs and the pressure and relaxation of pressure upon the foot-treadle.

Figure 1 is a side elevation; Fig. 2, a top view. Fig. 3 is an elevation, partly in section, looking outward from the inside, one side of the supporting-body being removed; and Fig. 4 is a section in the plane 4 4, Figs. 1 and 3.

Referring to the drawings, A represents the body of the device, supported by the legs A'. The body consists of the two parts B B', which are bolted together and cut away on the two inner sides, so as to provide a recess for the reception of a part of the operating mechanism, as shown in Fig. 2 of the drawings.

The swaging-hammer C is provided with the spring-handle C', which serves to impart a certain elasticity to the hammer. The lower end of the handle is inserted in the socket-piece D and secured in place by the set-screw *a*. This socket oscillates on the rock-shaft *a'*, journaled in the top of the body A. The lower end of this socket-piece is bifurcated, so as to engage with each side of the spring-rods *a'' a'''*, as shown in Figs. 2, 3, and 4 of the drawings. These ends of the socket D are secured to the sliding block *a<sup>4</sup>* by means of the pin *b*, as shown in Fig. 4 of the drawings. The spring-rods *a'' a'''* are provided with the spiral springs *b' b''*, placed above the sliding block *b*, and the springs *b<sup>3</sup> b<sup>4</sup>*, placed below, as shown in Fig. 3 of the drawings. The lower ends of the spring-rods

are threaded for the reception of the screw-nuts *d*, which serve to regulate the tension on the springs. By screwing up on these nuts the springs are shortened and at the same time the sliding block *a<sup>4</sup>* moved upward, increasing the tension on the series of springs and shortening the stroke of the hammer, and also increasing the weight of the blow. These springs also act as a cushion to ease the concussion and cause the hammer to rebound from the anvil. The upper ends of the spring-rods *a'' a'''* are headed, and pass through the journal-box *d'*, placed upon the main or crank shaft E, which, at this point, is out of line with the two larger ends of the shaft, for the purpose of imparting a reciprocating movement to the hammer. The rotating crank-shaft E is journaled in the top of the body A, the projecting end of the shaft carrying the loose band-pulley F and the friction-disk G, which is rigidly secured to the shaft by the pin *d''*. The inside of the friction-pulley is provided with the recess *d<sup>3</sup>* for the reception of the spiral spring *d<sup>4</sup>*, which serves the purpose of forcing the friction-disk away from the band-pulley when the foot of the operator is removed from the treadle-board. This end of the shaft E is recessed for the reception of the loose center or bearing pin *f*, provided with a conical bearing-point, which centers in the vertical end of the bell-crank H, having a fulcrum-bearing in the outer end of the arm *h*, bolted to the under side of the body A. The horizontal end of the bell-crank has a connection with the treadle H' by means of the rod *h'*, the treadle being secured to the bracket *h<sup>2</sup>*, bolted to the floor. Now, by pressing on the loose end of the treadle-board the horizontal end of the bell-crank is brought downward, and at the same time the vertical end thrown inward and against the loose bearing-pin *f*, which movement has the effect of forcing the friction-disk G against the loose band-pulley F and causing the crank-shaft E to revolve; and when the pressure on the treadle is relaxed the spring *d<sup>4</sup>* automatically throws the friction-disk back from contact with the band-pulley, and the hammer is brought to a rest.

In Fig. 4 of the drawings the projecting end of the crank-shaft is broken away, so as to show the recess in the end of the same.

I represents a cylindrical die or anvil, upon

which the tooth of the saw rests to receive the blows of the hammer during the swaging process. This round form of the shaping-anvil presents a smaller surface and gives the exact shape or hook required to the under side of the tooth. This cylindrical die is recessed into the top of the body A, and held in place by the dovetailed clamp I', and may be rotated or adjusted endwise, so as to present a new swaging-surface as may be required.

The right-angled guide-plate K is secured to the top of the body A by means of the tap-bolt *k*, as shown in Fig. 2 of the drawings, the opposite end projecting over the line of the saw. The set-screw *k'* has a threaded engagement with the guide-plate, the lower end having a bearing on the top of the body A, the loose end of the guide-plate being raised or lowered in accordance with the direction in which the set-screw is rotated, as shown in Fig. 1 of the drawings, for the purpose of gaging the distance that the point of the tooth passes under the hammer.

The spring-clamps *k<sup>2</sup> k<sup>3</sup>* serve to hold the saw in the line of the hammer. The saw being operated upon, either straight or circular, should be suspended as indicated in the drawings, which will allow the saw to be easily swung into proper position.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a saw-swaging mechanism as described, the combination, with a swaging-hammer

adapted to have an automatic reciprocating movement, of the adjustable cylindrical die or anvil I, substantially as described.

2. The combination, with the hammer C, provided with the spring-handle C', of the bifurcated socket-piece, substantially as described.

3. The combination, with the hammer C, of the bifurcated socket-piece D, the sliding block *a<sup>1</sup>*, the spring-rods *a<sup>2</sup> a<sup>3</sup>*, and the springs *b<sup>1</sup> b<sup>2</sup> b<sup>3</sup> b<sup>4</sup>*, substantially as described.

4. The combination, with the crank-shaft E, of the spring-rods *a<sup>2</sup> a<sup>3</sup>* and the springs placed thereon, the bifurcated socket-piece D, and the hammer C, substantially as described.

5. The combination, with the crank-shaft E, of the loose band-pulley F, the friction-disk G, and the spring *a<sup>4</sup>*, substantially as described.

6. The combination, with the crank-shaft E, of the band-pulley F, the friction-disk G, the bearing-pin *f*, the bell-crank H, the connecting-rod *h'*, and the treadle-board H', substantially as described.

7. The combination, with the right-angled guide-plate K, of the spring-clamps *k<sup>2</sup> k<sup>3</sup>*, substantially as described.

8. The combination, with the body A, consisting of the parts B B', of the cylindrical die I and the dovetailed clamp I', substantially as described.

MILO COVEL.

Witnesses:

L. M. FREEMAN,  
L. B. COUPLAND.