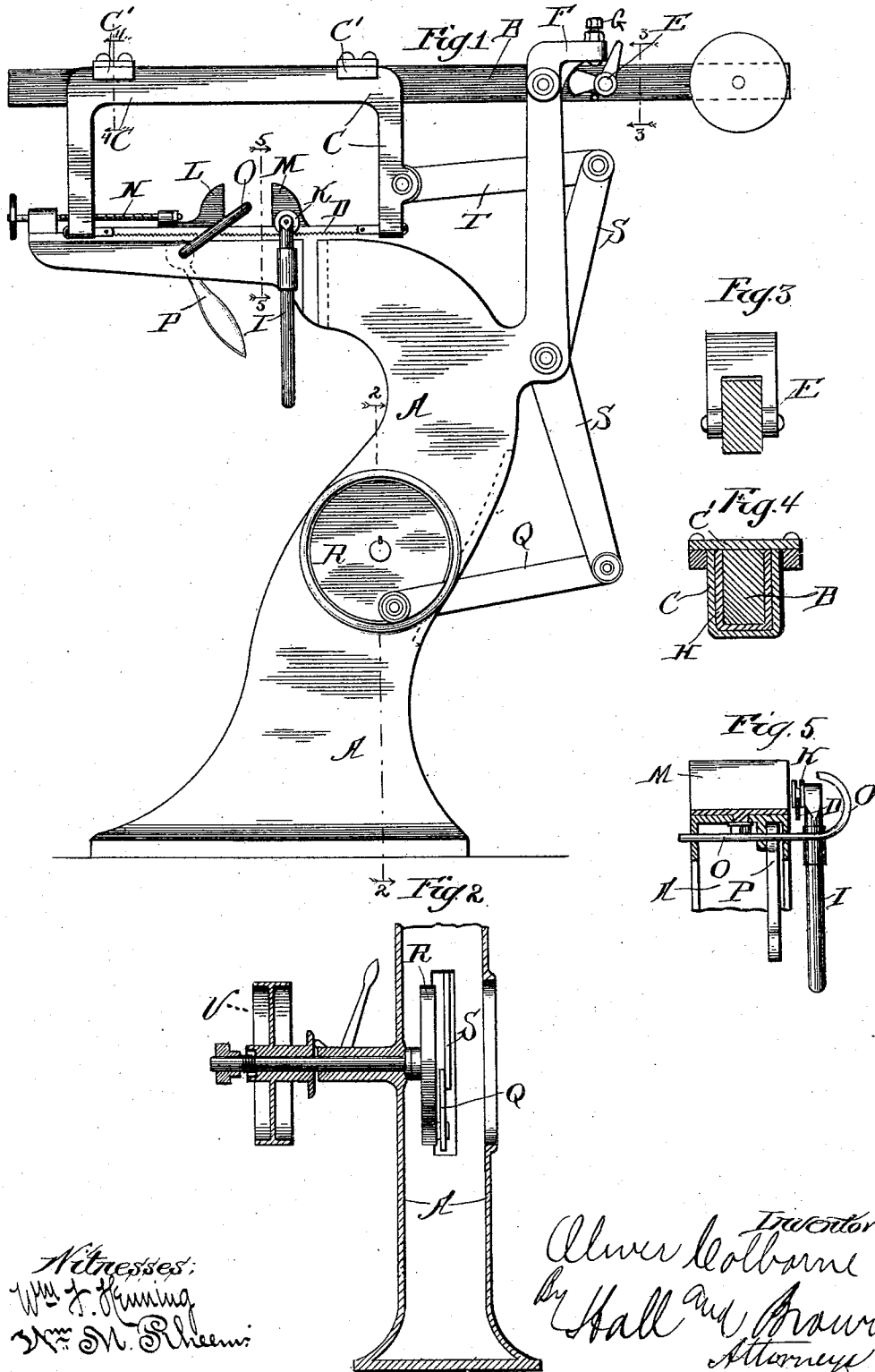


(No Model.)

O. COLBORNE.
POWER HACK SAWING MACHINE.

No. 479,399.

Patented July 26, 1892.



UNITED STATES PATENT OFFICE.

OLIVER COLBORNE, OF CHICAGO, ILLINOIS.

POWER HACK-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 479,399, dated July 26, 1892.

Application filed March 28, 1892. Serial No. 426,832. (No model.)

To all whom it may concern:

Be it known that I, OLIVER COLBORNE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Power Hack-Saws, of which the following is a specification.

This invention relates to an improvement in power hack-sawing machines; and its object is to increase the efficiency and simplify the construction of such machines.

The invention consists in the construction, substantially as hereinafter described, and illustrated in the accompanying drawings, and more particularly pointed out in the claims.

Like letters refer to the same parts in the several figures of the drawings, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a vertical and transverse section of the lower half of such machine. Fig. 3 is a detail view, partly in section, of the connection between the lever supporting the yoke for the saw and the frame of the machine. Fig. 4 is a detail cross-section of the yoke and pivoted lever for carrying the same; and Fig. 5 is a detailed view, partly in section, of the adjustable limiting-stop for the object to be operated upon.

I prefer to mount the operating mechanism of the machine upon a frame of tubular form, such as is indicated in Fig. 2, which may be provided with suitable arms or brackets for supporting the several parts and may be cast all in one piece or otherwise formed. This frame I designate by the letter A. Upon a vertical bracket or extension of such frame I pivot a lever B, which is weighted at its outer end and supports at its inner end a yoke C, through the lower portion of which latter is secured the saw D. I prefer to provide the vertical extension of the frame to which the lever B is pivoted with a lateral lug at its upper end, (designated by the letter F,) which provides a bearing for a set-screw G. On one side of the lever B, back of its pivot, but adjacent to and underneath the horizontal lug F, I pivot an elbow-lever E, one arm of which is normally in an approximately horizontal position under the angular projection at the top of the frame and out of contact with the small pin placed just underneath the same and secured to the counterweighted lever.

The other end normally projects upwardly outside of the outer end of the angular projection of the frame and above the lower surface of the frame. When the pressure is taken off of the end of the counterweighted lever carrying the saw, the counter-weight overbalances the saw and frame and depresses the outer end of such counterweighted lever, and at the same time the little elbow-lever drops by gravity until its horizontal arm rests upon the pin underneath the same and until its vertical arm bears against the under side of the angular projection from the frame, which will cause the counterweighted lever and saw to be locked in such position until they are manually released by manipulating the little elbow-lever. The set-screw G passes through the angular portion of the frame just mentioned and normally bears against the upper surface of the short arm of the counterweighted lever, and by adjusting the set-screw the distance to which the saw may descend can be regulated and the lower end of the set-screw may serve as a stop or abutment, against which the vertical arm of the little elbow-lever may contact when the saw has been lifted. The yoke which carries the saw is preferably mounted on the lever in the manner shown in Fig. 4, in which the upper portion of such yoke is shown as formed into a rectangular socket, across the open top of which is secured cleats C', and through which socket the lever passes.

The yoke as a whole is designated by the letter C. The saw D is detachably secured to the lower ends of the arms of the yoke in the usual way. By this construction it will be seen that the lever affords a bearing or guideway upon which the yoke carrying the saw may be caused to slide or reciprocate, and I prefer to interpose between the lever and the socket of the yoke a lining of soft metal, as shown at H, Fig. 4, or some other lubricating substance.

I have illustrated in Figs. 1 and 5 a device for assisting in holding the saw in position upon the material, which device consists of a rod I, having a bearing in the frame, so as to have a free vertical movement therein, and carrying at its upper end a friction-roller K, which normally rests upon the saw D and by the gravity of the rod and roller is kept

in place thereon and serves to prevent lateral displacement of the saw. Manifestly other means might be used to accomplish the same purpose.

5 In Fig. 1 of the drawings there is shown a clamp for holding the material in position, which may consist of a rigid jaw M, secured to the frame, and a movable jaw L, adjustable upon such frame by a bolt N. The
10 length of the pieces of material cut by the saw may be regulated by the adjustment of a bent limiting-stop O, the curved end of which projects into the path of longitudinal movement of the material, as shown in Figs. 1 and
15 5, and the longer straight portion of which has a bearing in the frame below the saw and may be longitudinally adjusted in such bearing and held at any predetermined point by any suitable device, which in this instance I
20 have illustrated as a cam P, journaled on the stop O and bearing against the under side of the frame.

I will next describe the simple and effective mechanism for reciprocating the saw. A
25 bell-crank lever S is pivoted, preferably in a vertical position, in the frame, and has its ends connected by pivoted links or pitmen Q T, respectively, with the crank R and the yoke C. The crank R is mounted upon the
30 inner end of a shaft which has bearings in the frame and is suitably driven by a pulley V or other mechanism. It will be seen that the crank imparts motion to the link Q and that the latter gives movement to the bell-
35 crank S, which in turn gives movement to the lever or pitman T, and thereby reciprocates the yoke and saw. Inasmuch as the links or pitmen Q T are pivotally connected at each of their ends, the effect is that a reciprocating
40 movement in a rectilinear direction is always given instead of a movement in the arc of a circle, which latter has heretofore been found objectionable.

It is obvious that many modifications may be made in the details of this invention without departing from the principle thereof, and I therefore do not wish to be understood as confining myself to the exact construction shown and described.

50 What I claim, and desire to secure by Letters Patent, is—

1. In a power hack-sawing machine, the combination of a main frame, a lever pivoted therein counterweighted at one end and serving at its other end as a guide and support for the yoke which carries the saw-blade, and an elbow-lever pivoted to the counterweighted lever and abutting against a projection from the main frame for co-operation therewith in
60 order to sustain the saw-blade in an elevated position, substantially as and for the purpose set forth.

2. In a power hack-sawing machine, the combination, with the saw proper, of a curved
65 limiting-stop having bearings in the main

frame and a cam mounted thereon for clamping it in such bearings and having its end projecting into the path of the material to be operated upon, substantially as and for the purpose set forth.

3. In a power hack-sawing machine, the combination of the main frame, a driving-crank having bearings therein, a bell-crank lever pivoted to the main frame and connected pivotally by links or pitmen with such
75 crank and with a yoke carrying the saw-blade, and a pivoted counterweighted lever affording a support and guide for such yoke, substantially as and for the purpose set forth.

4. In a power hack-sawing machine, the combination of a main frame, a driving-crank having bearings therein, a bell-crank lever pivoted to the main frame and connected pivotally by links or pitmen with such crank and with a yoke carrying the saw-blade, another lever independently pivoted in the main frame and carrying a yoke for the saw-blade at one end and a counter-weight at the other end, and an elbow-lever pivoted to the weighted lever and acting in conjunction with a set-screw in the main frame in order to sustain the blade in an elevated position, substantially as and for the purpose set forth.

5. In a power hack-sawing machine, the combination of a main frame, a lever pivoted therein and carrying the movable saw-frame at one end and a counter-weight at the other end, a set-screw having a bearing in the main frame and acting against the counterweighted lever to adjust the downward movement of the saw-frame, and the locking device carried by the counterweighted lever and operating against the main frame to retain the saw-blade in an elevated position while the material to be operated upon is being placed, substantially as and for the purpose set forth.

6. In a power hack-sawing machine, the combination of a main frame, supporting mechanism for driving the saw, a lever pivoted to the main frame and having a bearing at one end for the movable frame of the saw and a counter-weight at its other end, a set-screw journaled in the main frame and normally bearing upon the upper surface of the counterweighted lever, an elbow-lever pivoted to the counterweighted lever, having approximately horizontal and vertical arms, and a stationary pin secured to the counterweighted lever underneath the horizontal arm of the elbow-lever, whereby the counterweighted lever is normally held at a determinate position when it is depressed at either end, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

OLIVER COLBORNE.

Witnesses:

FRANK T. BROWN,

J. LAWRENCE GERRY.