(No Model.)

W. D. HERSCHEL.

Scroll Sawing Machine.

No. 233,752. Patented Oct. 26, 1880.

Fig. 2

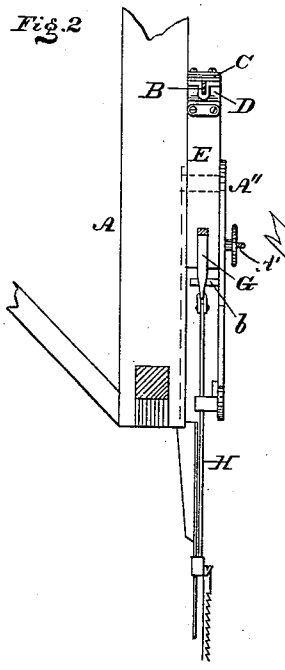


Fig. 1.

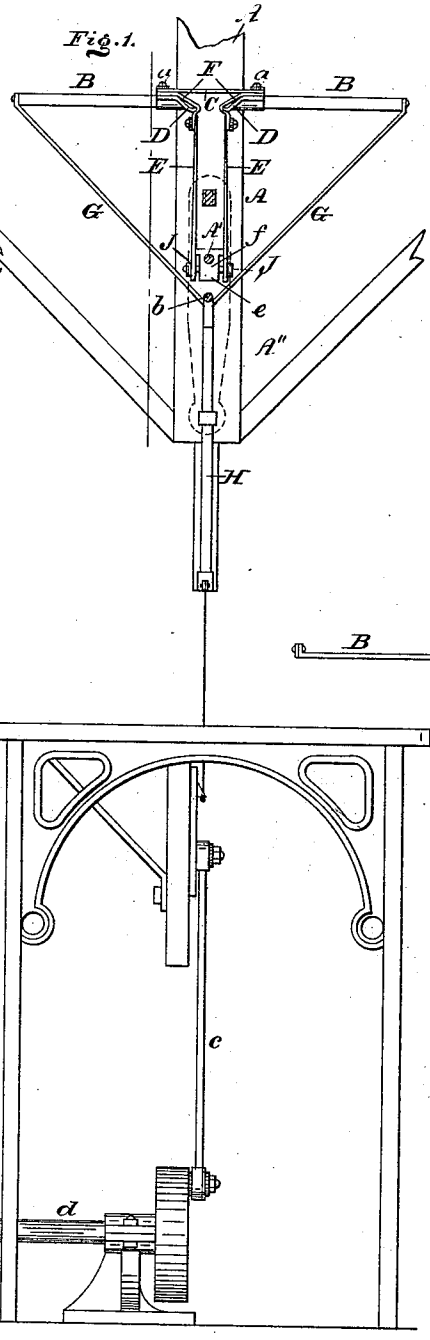
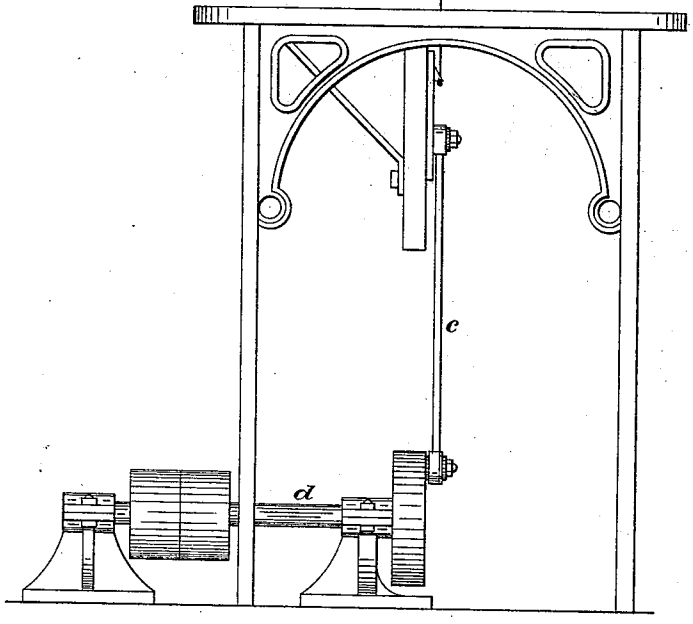


Fig. 3.



Witnesses:

A. P. Grant,

W. F. Kircher

Inventor:

Wm. D. Herschel,

by John A. Wiedersheim

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM D. HERSCHEL, OF PHILADELPHIA, ASSIGNOR TO JOSEPH O. COLLADAY, OF BRYN MAWR, PENNSYLVANIA.

SCROLL-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 233,752, dated October 26, 1880.

Application filed August 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. HERSCHEL, a citizen of the United States, residing in the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Scroll-Sawing Machines, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front view of the jig-saw embodying my invention. Fig. 2 is a side elevation thereof, partly sectional. Fig. 3 is a top or plan view thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of horizontal levers, connected at their inner ends to each other and to upright supporting-springs in such manner that the saw-blade attached to said levers is caused to move with ease, rapidity, and uniformity, and with comparatively no noise, and prevented from buckling. It also consists of means for adjusting the tension of the springs.

Referring to the drawings, A represents a hanger or hanger-post, to which is adjustably connected, by a bolt, A′, an upright head, A″. B represents two levers, which are arranged horizontally above the head A″, and separated from each other, their inner ends being connected by a strap, C, forming, as it were, a continuous lever. To the inner end of each lever is secured an arm, D, which may, however, be a continuation of the lever, the two arms extending diagonally, their lower ends approaching each other. Rising from the sides of the head A″ are springs or spring-plates E, bolted at their lower ends to said head, and to the upper end of each spring E is rigidly attached a strap, F, which bends around the lower end of the arm D, extends parallel, or nearly parallel, with the inner face thereof, and is fixed to the top of the same or to the inner end of the lever, as at *a*, the levers and connections being supported by the springs, whose lower ends are attached to the head A″, as has been stated.

Attached to the outer ends of the levers B is a strap, G, which may be a continuous strap, or two straps properly connected, the center or angle of the strap being below the springs E, where it is restrained or limited in its upward motion by a stud, *b*, projecting from the head A″. Attached to the lower portion or angle of said strap G is a guided strap, H, from which the upper end of the saw-blade is hung, the lower end thereof being connected to the pitman *c*, the operating crank-wheel shaft *d* receiving power in any suitable manner. When the blade is properly hung in position the strap G is well stretched and clears the stud *b*. When the saw is set in motion the pitman *c* lowers it. This tightly draws the strap C downward, and exerts great pressure on the outer ends of the levers B, which, being held apart by the strap C, are caused to turn on the ends of said strap as fulcra. This moves the lower ends of the arms D toward each other, and as said ends describe the arc of a circle they press against the straps F and force them toward each other. As the upper ends of the springs E are connected to said straps F they are drawn together, and it will be seen that, owing to the great leverage of the arms D, the power of the springs is easily overcome, and while the saw-blade is held tight and properly strained the action of the pitman in lowering the blade is not severely restricted. As soon, however, as the saw is caused to rise the straps G, levers B, and arms D are relieved, and the springs E immediately exert their full power and prevent any slack of the connected parts, said power being transmitted to the saw-blade so as to assist it in rising. The blade is thus strained as it rises, and thus in its reciprocations moves with ease, rapidity, and uniformity and almost noiselessly, and buckling of the same is prevented.

The lower ends of the springs E are bolted to the head A″, as has been stated, the part *e* below the pieces *f* of the head against which the springs are in contact being narrowed or cut away. By tightening the bolts J the lower ends of the springs E are caused to approach, and the upper ends thereof separate, thus increasing the power or tension of the springs. By loosening the bolts the contrary action is occasioned, and the tension or power of the springs is decreased.

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

1. The combination, with the saw-blade, of the separated horizontal levers B, which at their inner ends are joined by the strap C, and sustained on and connected to the upright springs E, the latter being supported on the head A″, substantially as set forth.

2. The horizontal levers B, having diagonal ends D, and the upright springs E, in combination with the connecting-straps C F, substantially as and for the purpose set forth.

3. The levers B and springs E, in combination with the head A″, having a narrow portion, *e*, and the bolt or bolts J, substantially as and for the purpose set forth.

WM. D. HERSCHEL.

Witnesses:
JOHN A. WIEDERSHEIM,
W. F. KIRCHER.