(No Model.) 2 Sheets—Sheet 1.

J. G. CONNELLY.

SCROLL SAW.

No. 598,362. Patented Feb. 1, 1898.

Fig. 1.

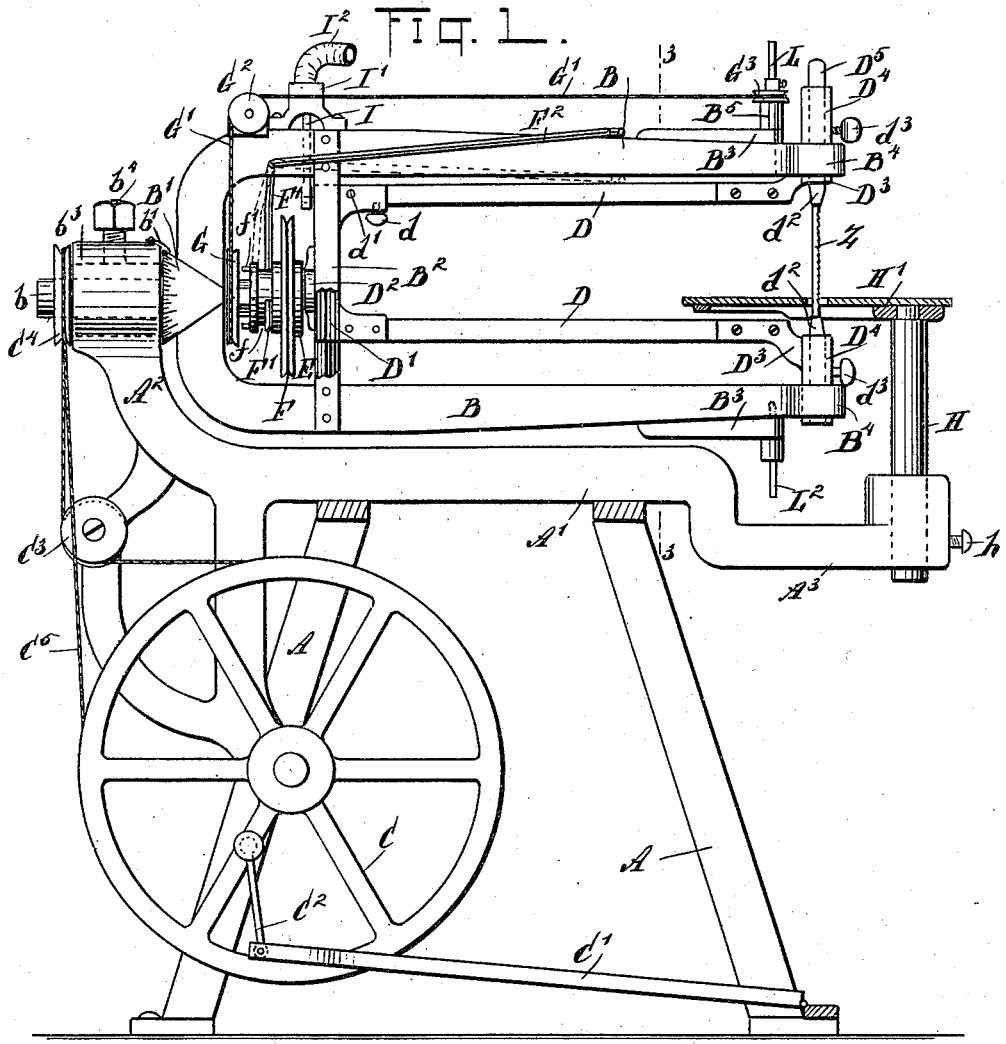
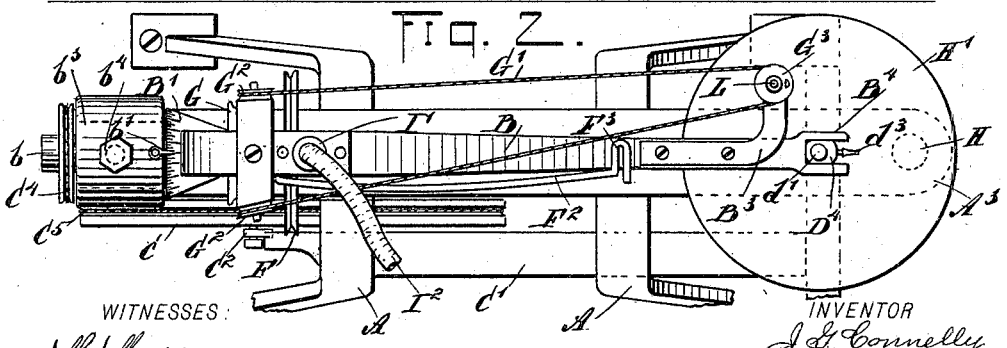


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

J. G. CONNELLY.

SCROLL SAW.

No. 598,362. Patented Feb. 1, 1898.

Fig. 3.

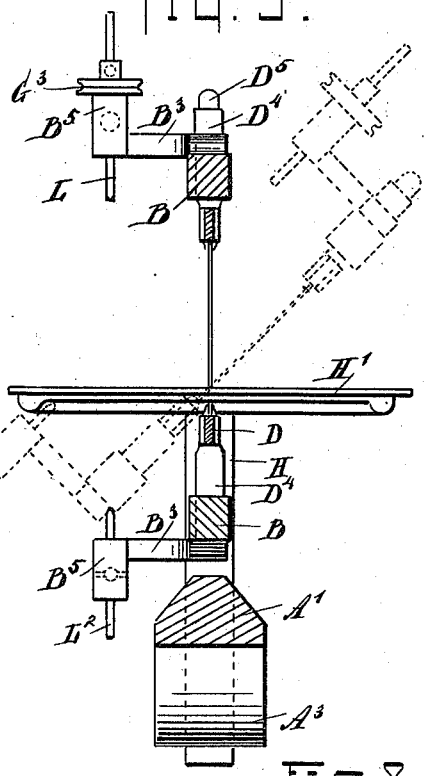


Fig. 5.

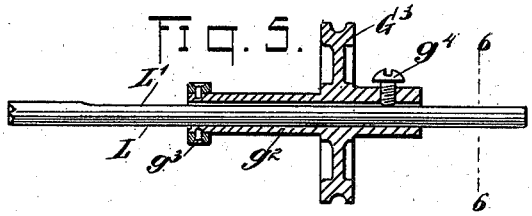


Fig. 4.

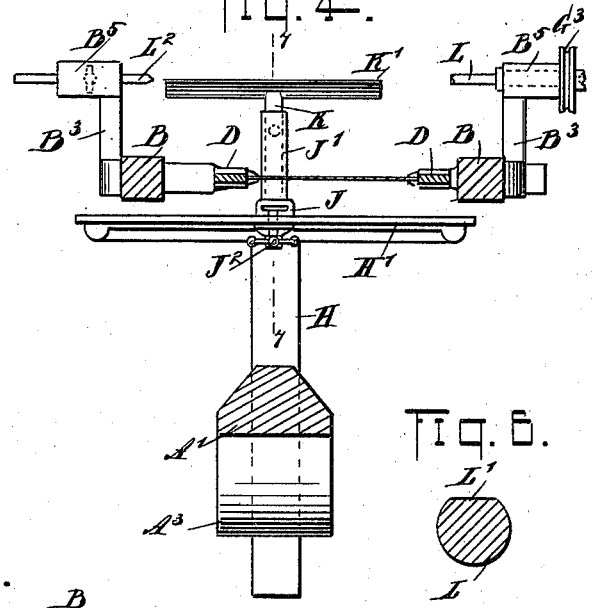


Fig. 6.

Fig. 8.

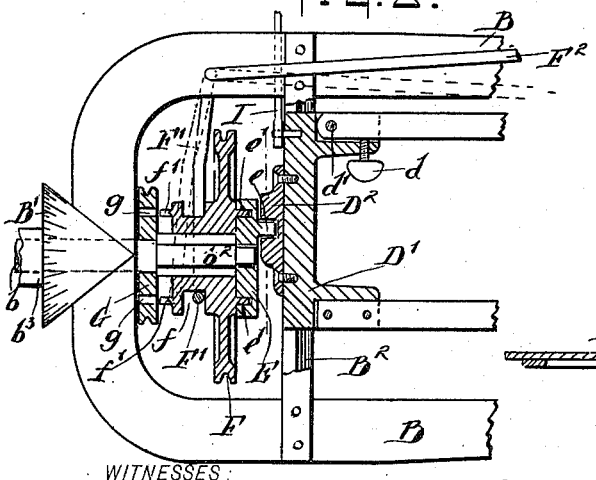


Fig. 7.

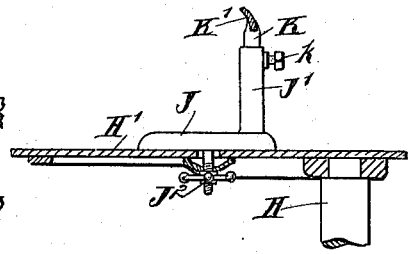
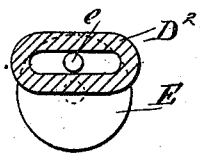


Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES GRANT CONNELLY, OF VERDON, SOUTH DAKOTA.

SCROLL-SAW.

SPECIFICATION forming part of Letters Patent No. 598,362, dated February 1, 1898.

Application filed September 7, 1897. Serial No. 650,778. (No model.)

To all whom it may concern:

Be it known that I, JAMES GRANT CONNELLY, of Verdon, in the county of Brown and State of South Dakota, have invented new and useful Improvements in Scroll-Saws, of which the following is a full, clear, and exact description.

My invention relates to an improvement in scroll-saws, and comprises novel means for adjusting and operating the saw, and combines with the scroll-saw a lathe which may be operated at will.

The invention comprises the novel features which will be hereinafter particularly described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the device. Fig. 2 is a top plan view of the same. Fig. 3 is a section taken on the line 3 3 of Fig. 1. Fig. 4 is a section taken upon the same line, showing the parts differently adjusted. Fig. 5 is a detail view showing the construction of the head-center of the lathe. Fig. 6 is a cross-section on the line 6 6 in Fig. 5. Fig. 7 is a sectional elevation on the line 7 7 in Fig. 4, showing the lathe-rest on the frame. Fig. 8 is a partial sectional elevation of the rear end of the yoke and saw-frame, showing the pulleys and clutch in section; and Fig. 9 is a detail elevation showing the manner of connecting one of the pulleys to the saw-frame to reciprocate the same.

The object of my invention is to produce a scroll-saw in which the saw-table remains level, and a saw-frame is mounted in a yoke and is adjustable, so that the saw may reciprocate at any angle desired; also, to combine with the saw a head and a tail center of a lathe, and to so connect these parts that the lathe or the saw may be operated independently, and either one may be thrown into or out of operation, as desired.

My device is mounted upon any suitable frame. In the drawings this frame is designated by the letter A. This frame carries a main drive-wheel C, which may be operated in any suitable manner. As shown, the method of operation consists of a treadle C′, connected to the wheel by a link C^2 and at its opposite end pivoted to the frame. (See Fig. 1.) In the drawings the wheel C is shown as occupying a plane parallel to the normal plane of the saw-frame. Said wheel may, however, be mounted in a plane at right angles to that shown in the drawings and be directly connected to the drive-shaft by means of a belt or cord passed over the wheel and engaging a pulley F, (shown in Figs. 1 and 8,) as hereinafter described.

The supporting-frame has an upwardly and rearwardly extending arm A^2, which at its upper end furnishes support for the pivot of the yoke B. This yoke comprises two horizontal arms united at their rear end and having at this rear end a pivot b^3, entering the arm A^2 and clamped therein by a set-screw b^4. The arms of this yoke are sufficiently separated to receive the saw-frame between them and to permit its reciprocation between them.

The saw-frame comprises the two arms D, connected at their rear ends by a vertical member D′. The upper arm is preferably pivoted at d' to the vertical member D′, and is adjustable in order to tighten the saw by means of a set-screw d. The rear end of the saw-frame, consisting of the vertical member D′, slides between guides, consisting of bars B^2, extending across the yoke members B and connecting the same. The outer ends of the saw-frame are provided with outwardly-extending or offset arms D^3, which have guides D^4 extending in the direction of the reciprocation of the bar and engaging forks B^4 upon the outer ends of the yoke B. These guides constrain the saw-frame to reciprocate in the same plane as that occupied by the yoke B.

The pivot at the rear end of the yoke B is hollow and contains a shaft b, which extends through the same. Upon the outer end of this shaft is mounted a pulley C^4, which is connected by a cord or belt C^5 with the main drive-wheel C. In order to make this connection, an intermediate pulley or idler C^3 is mounted upon the frame. The shaft b extends inward from the yoke and has its inner end made of non-circular section, or otherwise provided with means by which a clutch may be mounted to reciprocate thereon, but to be rotated by the shaft. This clutch is shown in the drawings as formed by the hub of the pulley F. The rim of this pulley may,

however, be entirely omitted, if desired. It, however, forms a convenient hand-wheel.

When the shaft *b* is driven by the pulley C^4, as shown in the drawings, the pulley F will not be used, but the hub thereof will be retained as a clutch. This hub is provided with a peripheral groove *f*, which receives the lower end F′ of a shifting lever F^2, which lever is bent and extends through the upper arm of the yoke B, thus forming a pivot. The other arm of the lever F^2 extends horizontally and at its outer end has a side bend F^3, adapted to engage the upper or lower side of the upper member of the yoke B to hold the clutch in either operative or inoperative position. This clutch at either end is provided with longitudinally-extending pins *e′* and *f′*, the latter engaging a loose pulley G upon the shaft *b* by means of holes *g*, which receive the pins *f′*. The pins *e′* enter corresponding holes in the disk or pulley E. This disk or pulley has a crank-pin *e*, located eccentrically thereon and engaging a horizontal slot in the block D^2, which is secured to the rear side of the vertical member D′ of the saw-frame. This forms the common substitute for a connecting-rod. As the disk or pulley E is revolved the crank-pin *e*, connected therewith, will engage the block D^2 and thus reciprocate the saw-frame.

In the position of the shifting lever shown in full lines in Fig. 8 the clutch or wheel F is engaging the disk E and the saw will be reciprocated when the shaft *b* is revolved. In the position of the shifting lever shown by the dotted lines in Fig. 8 the clutch or wheel F will be moved to the left, which will disconnect the pins *e′* from the disk E and engage the pins *f′* with the pulley G. The pulley G is connected by means of a cord or belt G′ with the head-center of the lathe.

The head and tail centers of the lathe are mounted in side projecting arms B^3, fixed to the outer ends of the yoke B. These arms have cylinders B^5, extending in the same direction as the saw and forming bearings for the lathe-centers. The head-center is formed as shown in detail in Fig. 5, and comprises a pulley G^3, having a hollow axle g^2, which axle enters the cylinder B^5. This axle is secured in place after insertion by the ring g^3, which slips over the outer end of the axle g^2 and is secured thereto by screws. The center L is preferably made with one side slightly flattened, as shown at L′, Figs. 5 and 6. This flattened side is engaged by a set-screw g^4, extending through the axle of the pulley G^3. The pulley G^3 is connected to the pulley G by means of the cord or belt G′, which extends over intermediate idlers G^2, pivoted upon the yoke in such a position that they are in line with the pulleys G and G^3.

The frame A has an arm A^3, extending forward and dropping down to a position where it will clear the forward end of the yoke and the lathe-centers. At its outer end this arm has a socket which receives the stem H of a saw-table H′. This stem is secured in position by means of a set-screw *h*, which may be adjusted in elevation and at the same time be swung upon its axis, so as to throw the saw-table between the arms of the saw-frame or so as to entirely clear the same, said stem H being attached at one edge of the table. The normal position for the saw-table will be on a level with the pivots of the yoke B. By reason of the manner in which the driving of the saw-frame and also of the lathe is accomplished through the pivot of the same the yoke may be adjusted at any angle desired, the saw working as well at one angle as at another. This enables the saw-table to be maintained level and thus facilitates handling the material thereon while the saw is tilted at any angle at which it is desired to saw.

A blower I′ is provided and is mounted upon the upper half of the yoke B. This blower consists of a pump of any suitable form, which is operated by means of a rod I, connected to the rear end of the reciprocating saw-frame. This blower may be provided with a tube I^2, which extends to any point desired. The rear end of the yoke is also provided with a cone or cylinder B′, concentric with the pivot of the yoke and provided with a scale by which the normal position of the yoke may be accurately determined. The upper end of the arm A^2 carries a pointer *b′*, by which the adjustment is read. By reason of this the position of the yoke, and consequently the angle at which the saw is operating, may be quickly and accurately adjusted.

In Fig. 3 the saw is shown by dotted lines as occupying an angular position, and in Fig. 4 the yoke is shown as turned so as to be parallel with the saw-table. This is a position in which it would be placed when the lathe is to be used. This brings the lathe-centers level. When the lathe is to be used, a tool-rest is fastened upon the saw-table. This rest comprises a base J, to which is secured a bolt and clamping-nut J^2, extending through a hole in the center of the table. The base J has a hollow standard J′, which receives the stem K of the tool-rest K′, which is clamped in position in the standard by means of the set-screw *k*. By means of this lathe small objects may be turned. By reason of the hollow head-center, as shown in Fig. 5, small rods or other pieces of considerable length may be inserted and held therein while operated upon. By means of this also the lathe may be used as a drill, the drill-rod being flattened, as shown in Fig. 6, and pushed down by hand.

Rods D^5 are inserted in the guides D^4 and in the outer ends of the arms D of the saw-frame. The rods D^5 are provided at their inner ends d^2 with clamping and holding devices for a saw Z. The rods may be adjusted in the guides D^4 so as to accommodate saws of different lengths and are held in their adjusted position by set-screws d^3.

The scroll-saw herein shown and described constitutes one which has many points of

advantage over the ordinary scroll-saw and makes it possible to have in connection therewith a small lathe, and either the saw or the lathe may be used at will.

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

1. In a scroll or fret saw, the combination with a U-shaped yoke having a longitudinally-disposed pivot at its rear end and lateral guides adjacent said end, of a U-shaped saw-frame mounted to reciprocate within said guides, means for reciprocating said frame, and a work-support independent of said yoke, substantially as described.

2. In a scroll or fret saw, the combination with a yoke having a longitudinally-disposed pivot at its rear end, and lateral guides, of a saw-frame mounted to reciprocate in said guides, a shaft journaled in the pivot of the yoke, and cranked connection from said shaft to the saw-frame, and means for reciprocating said frame.

3. In a scroll-saw, the combination with a U-shaped yoke having a longitudinally-disposed pivot at its rear end, a suitable bearing-support therefor, a graduated circle upon the yoke and surrounding its pivot, and a fixed pointer on the bearing-support, of a U-shaped saw-frame, lateral guides upon the yoke receiving the saw-frame, means for reciprocating the saw-frame and a work-supporting table independent of said yoke.

4. In a scroll-saw, the combination with a U-shaped yoke having a longitudinally-disposed pivot at its rear end, a suitable bearing-support therefor carrying a pointer, a graduated circle upon the yoke and surrounding its pivot, of a yoke-shaped saw-frame having guides upon both the rear and the saw ends thereof, and extending in the direction of the saw, guideways in the yoke for said guides, and means for reciprocating the saw-frame with the yoke in an angular position and a work-supporting table independent of said yoke.

5. The combination with a yoke having a longitudinally-disposed pivot at its base, a shaft journaled in said pivot and means for rotating said shaft, of a saw-frame mounted in lateral guides to reciprocate within said yoke, reciprocating connections between the shaft and saw-frame, shafts journaled upon the opposite outer ends of the yoke and adapted to be used as head and tail centers of a lathe, and rotating connection from the shaft in the pivot of the yoke to the head-center.

6. The combination with a yoke having a longitudinally-disposed pivot at its base, a shaft journaled in said pivot and means for rotating said shaft, of a saw-frame mounted in lateral guides to reciprocate within said yoke, reciprocating connections between the shaft and saw-frame, shafts journaled upon the opposite outer ends of the yoke and adapted to be used as head and tail centers of a lathe, pulleys upon the shaft in the pivot of the yoke and upon the head-center, intermediate guide-pulleys, and a belt connecting the same.

7. The combination with a yoke having a longitudinally-disposed pivot at its base, a shaft journaled in said pivot, and means for rotating said shaft, of a saw-frame mounted in lateral guideways to reciprocate in said yoke, reciprocating connections between the shaft and saw-frame, shafts journaled upon the opposite outer ends of the yoke, and adapted to be used as head and tail centers of a lathe, and means for connecting or disconnecting the lathe and the saw-frame with or from the driving-shaft.

8. A scroll or fret saw, comprising a yoke having a longitudinally-disposed pivot at its base, a saw-frame mounted to reciprocate within the yoke, lathe-centers upon the outer ends of the yoke, and means for reciprocating the saw-frame, or revolving a lathe-center, at will.

9. A scroll-saw, comprising a yoke having a longitudinally-disposed pivot at its rear end, a saw-frame mounted to reciprocate laterally in said yoke, a table supported independently of the yoke and on the line of its pivot, side projecting arms at the outer ends of the yoke, lathe-centers mounted thereon, and means for rotating one of said centers.

10. A scroll-saw, comprising a yoke having a longitudinally-disposed pivot at its rear end, a shaft journaled in said pivot, a pulley and crank-disk loosely mounted on said shaft, a clutch mounted on the shaft and engageable with said pulley or crank-disk at will, a saw-frame mounted to reciprocate within said yoke, cranked connection from the saw-frame to one of said pulleys, side projecting arms at the outer ends of the yoke, lathe-centers mounted therein, a pulley upon one center, guide-pulleys mounted on the yoke, and belt connection from the lathe-pulley to the other of the pulleys upon the pivot-shaft.

JAMES GRANT CONNELLY.

Witnesses:
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DARWIN L. CONNELLY.