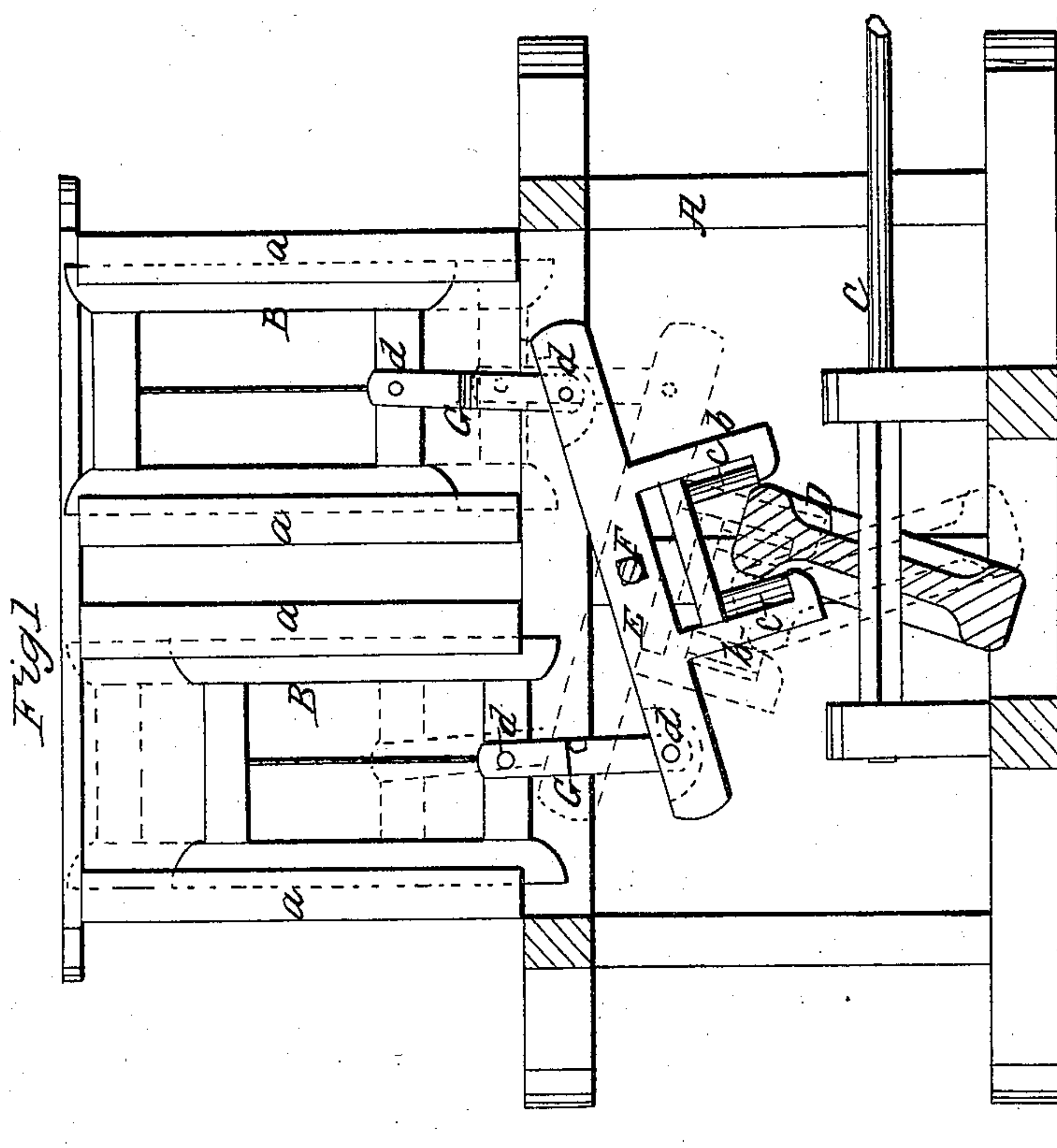
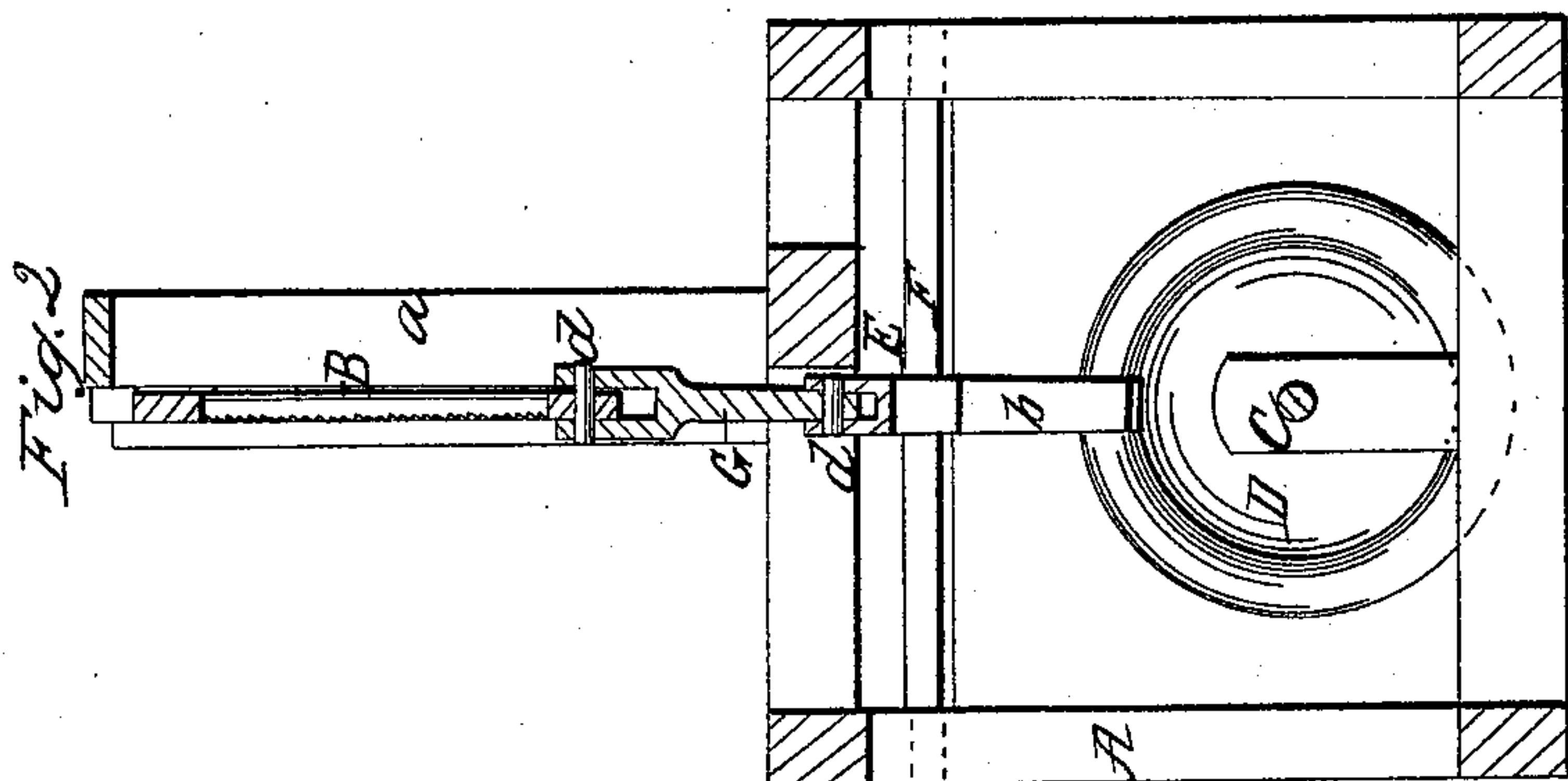


G. P. Ketcham,
Reciprocating Saw Mill,
No 12,412, *Patented Feb. 20, 1855.*



UNITED STATES PATENT OFFICE.

G. P. KETCHAM, OF BEDFORD, INDIANA.

METHOD OF DRIVING PAIRS OF RECIPROCATING SAWS.

Specification of Letters Patent No. 12,412, dated February 20, 1855.

To all whom it may concern:

Be it known that I, G. P. KETCHAM, of Bedford, in the county of Lawrence and State of Indiana, have invented a new and
5 Improved Mode of Driving Reciprocating Saws or other Parts of Machinery Having a Reciprocating Motion; and I do hereby declare that the following is a full, clear, and exact description of the same, reference be-
10 ing had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a front view of two reciprocating saws operated by my improved mode the frame and inclined wheel or cam being
15 bisected through their centers. Fig. 2, is a transverse vertical section of ditto.

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

This invention relates to a new and im-
20 proved mode of driving reciprocating saws and other portions of machinery in which two parts have an opposite reciprocating motion working simultaneously in opposite directions.

25 The nature of the invention consists in giving a vibratory motion to a lever by means of an inclined wheel or cam as will be hereafter fully explained, the saws or other parts to be operated being connected
30 to the ends of the lever above mentioned.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A Figs. 1 and 2 represents a frame to the
35 upper part of which are attached four vertical guides (a) (a) (a) (a) between which two saw sashes B, B, are placed, see Fig. 1.

C represents a driving shaft at the lower part of the frame A having upon it an inclined wheel or cam D. This cam or wheel
40 is made perfectly true or round and of equal width or breadth throughout, and is placed in an inclined or oblique position on the shaft C, as clearly shown in Fig. 1.

45 Directly over the cam or wheel D there is placed a lever E, through the center of which a shaft F passes, said shaft having its bearing in the front and back of the frame A as shown in Fig. 2. The lever E
50 is permanently attached to the shaft F and works or moves with it.

To the under side of the lever E there are attached two pendants or projections (b) (b) at equal distances each side of the center of the lever E or the shaft F, see Fig. 1, 55 and the edge of the wheel or cam D works between the pendants or projections, (b) (b) which have friction rollers (c) (c) on their inner sides, one to each, see Fig. 1.

G, G, are connecting rods or pitmen 60 which are secured by pivots (d) to the lower ends of the saw sashes B, and the ends of the lever E.

As the driving shaft C is turned the edges of the wheel or cam D, will, owing to its 65 inclination or obliquity, act alternately against the friction rollers (c) (c) on the inner sides of the pendants or projections (b), (b), and give a vibratory motion to the lever E, and as the saw sashes B are 70 connected to the ends of the lever E by the rods or pitmen G, the sashes will work simultaneously with an opposite reciprocating motion, or one ascends while the other descends and the sashes are balanced, the 75 descending sash by its gravity assisting the ascending sash. The inclination or obliquity of the wheel or cam D should be such as to give the desired length of stroke to the sashes B. 80

The above improvement may be applied to any parts of machinery having the same motion as the saw sashes, as herein shown. It possesses many advantages over the usual crank motion, there is less friction, the 85 power is applied vertically or nearly so to the sashes, and one sash balances the other causing the motion to be regular or even.

Having thus described my invention what I claim as new and desire to secure by Let- 90 ters Patent, is,

Operating the saw sashes B, B, by means of the inclined wheel or cam D and lever E with its pendants or projections (b), (b) the parts to be operated being connected to 95 the ends of the lever E by rods or pitmen G. The above parts being constructed and arranged substantially as herein shown.

GEO. P. KETCHAM.

Witnesses:

ISAAC DENSON,
P. T. VISTAL.