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W. F. & J. BARNES.

SAWING-MACHINE.

No. 189,681. Patented April 17, 1877.

Fig 1

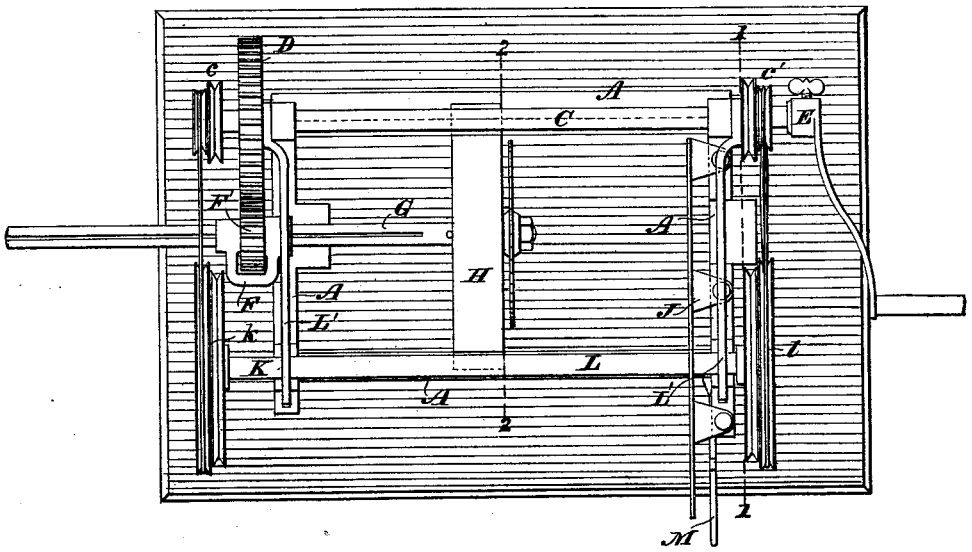
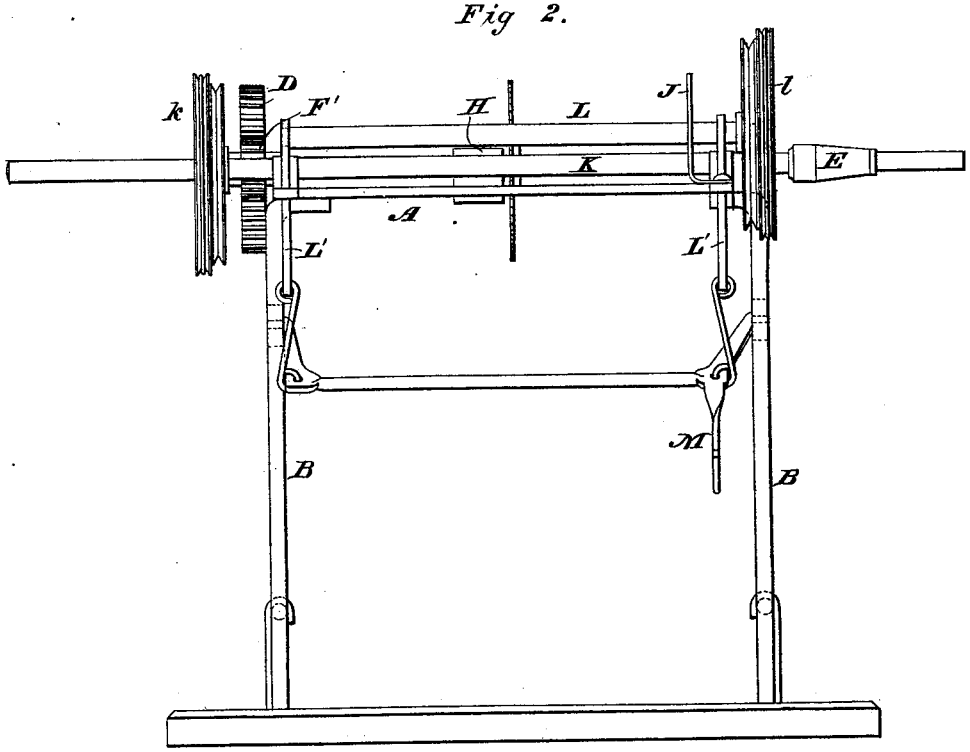


Fig 2.



WITNESSES

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2 Sheets—Sheet 2.

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Fig 3

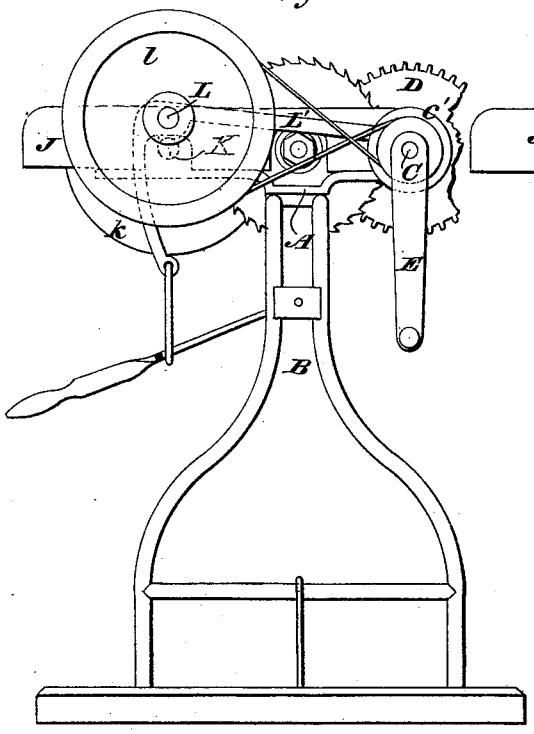


Fig 5

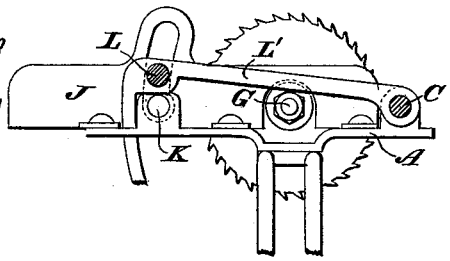


Fig 6

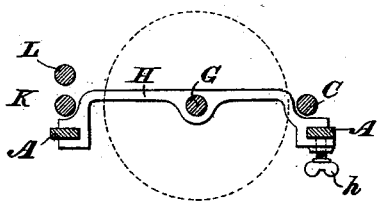
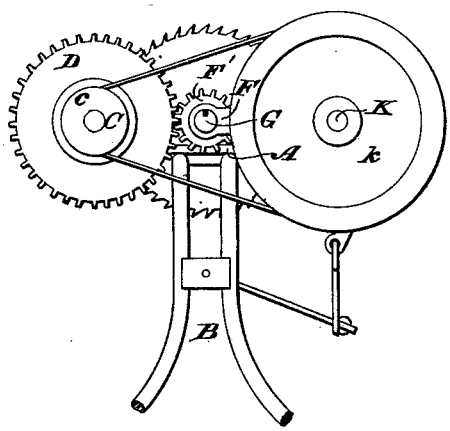


Fig 4



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM F. BARNES AND JOHN BARNES, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN SAWING-MACHINES.

Specification forming part of Letters Patent No. 189,681, dated April 17, 1877; application filed September 9, 1876.

To all whom it may concern:

Be it known that we, WILLIAM FLETCHER BARNES and JOHN BARNES, both of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Sawing-Machines, of which the following is a specification:

Our invention relates to a sawing-machine of that class employed for "ripping" or cutting lengthwise of the material, and is designed to be driven by hand or manual power.

The object of our invention is to render the saw readily adjusted toward or from a stationary gage or guide to regulate the width of strip to be cut, which end we attain by a longitudinally-grooved saw-shaft passing through and movable freely endwise in a feathered pinion-wheel turning in a suitable yoke, the end of the shaft carrying the saw being supported in a sliding head adjustable toward and from the stationary gage.

Our invention further has for its object to improve the feed, and to provide a compact, cheap, and portable machine; which ends we attain by the construction and arrangement of parts hereinafter specifically designated.

In the accompanying drawings, which represent our improvements as embodied in the best way now known to us, Figure 1 is a top or plan view of the apparatus; Fig. 2, a front elevation thereof; Fig. 3, a side elevation, part of the main gear-wheel being broken away; Fig. 4, a similar view from the opposite side of the machine, showing the grooved saw-shaft as passing through the feathered pinion-wheel; Fig. 5, a detached view of a portion of the frame, showing the stationary gage toward or from which the saw is adjustable; and Fig. 6, a view, partly in section, showing the adjustable head supporting the saw-shaft as moving upon suitable ways, and capable of being clamped thereon by set-screws.

An open rectangular frame, A, preferably of metal cast in a single piece, is mounted upon suitable standards B B, and supports the operative parts of the device. Upon the rear corners of this frame, in suitable bearings, is mounted a driving-shaft, C, carrying cone-pulleys *c c'*, and also a large spur-gear, D, near one end. The end of the shaft opposite to that carrying the spur-gear is adapted to receive a suitable crank or handle, E, by which motion is communicated to the shaft by hand or manual labor.

We do not wish to be understood as limiting ourselves to hand-power alone, as any other suitable prime mover may be employed for imparting motion to the driving-shaft; but our machine is especially adapted to be driven by hand, and to that end it will be described.

Upon one of the side bars of the frame, and directly in front of the spur gear carried by the driving-shaft, is mounted a yoke, F, through which and a pinion-wheel, F', located therein, which meshes with the spur-wheel above mentioned, passes a longitudinally-grooved shaft, G. This pinion-wheel F' is provided with a spline or feather, which engages with the groove in the shaft G, by which means said shaft is rendered capable of free endwise movement through the pinion, while it is compelled to rotate therewith when motion is communicated by the driving-shaft.

The inner end of shaft G also passes through and projects slightly beyond a head or supporting bar, H, sliding freely between and upon suitable ways, consisting in this instance of the front and rear bars of the frame A, and the shaft, while capable of turning freely, is keyed against endwise movement therein, the effect of which construction is such that when the shaft is adjusted endwise in the pinion F' the sliding head is likewise adjusted, and always affords a firm and substantial bearing to the end of the shaft, which carries a saw-disk, I, of any approved kind.

To enable us to use our machine to advantage when working or ripping heavy material, we have so organized the mechanism that the outer end of the saw-shaft is adapted for the reception of a driving-crank.

A gage or guide, J, for the material is firmly fixed to the side bar opposite that which supports the yoke and pinion, and toward and from which the saw is adjusted to regulate the width of strip to be cut, the saw being firmly held in its adjusted position by set-screws *h*, carried by the sliding head H, or in any other well-known way.

Upon the front corners of the frame A, directly in front of the saw-disk, is journaled a

roller, K, carrying upon one end a double cone-pulley, *k*, of larger diameter, but corresponding in position to the pulley *c* on the driving-shaft, from which a belt passes to impart motion to the roller. Immediately above this roller is another roller, L, journaled in a swinging frame, L′, which extends rearward, and is pivoted upon the driving-shaft, its front portion being curved downward and passed through slots in the frame A, below which it is connected by suitable link connections with a pivoted lever-frame, M, by which means the upper roller may be raised to permit of the passage between it and the lower roller of the material to be fed to the saw, the gage J, through which the upper roller passes, being slotted to permit of this free vertical movement.

This upper roller is also provided with a cone-pulley, *l*, (of a diameter equal to that of the pulley *k*,) on its end opposite the pulley C′ on the driving-shaft, from which a belt passes to impart the required motion.

By the rotation of the driving-shaft it will be observed that motion is imparted to the rollers, which positively feeds the material carried between them to the saw, and the speed with which such material is fed may be varied by shifting the belts to the different grooves of the pulleys in a well-known way.

The requisite degree of pressure by the upper feed-roller L upon the material to cause a proper feed may be given by bearing upon the lever, or by means of a spring or weight acting thereon.

The operation and advantages of our improvements will be obvious without further explanation.

We claim as our invention—

1. The combination, substantially as hereinbefore set forth, of the frame, the driving-shaft, its gear, the pinion-wheel, the saw-shaft capable of endwise movement through said pinion, the sliding head supporting the inner end of the saw-shaft, and a stationary gage or guide located at one side of the frame toward and from which the saw is adjustable, for the purpose specified.

2. The combination, substantially as hereinbefore set forth, of the frame of the machine, the driving-shaft, the pulleys carried by said shaft, the feed-rollers provided with pulleys, and both positively driven from the driving-shaft, and the frame swinging around the driving-shaft and supporting one of said rollers, for the purposes specified.

3. The combination of the driving-shaft, the frame mounted upon and free to swing around said shaft, the upper swinging frame and feed-roller driven from the driving-shaft and mounted in said swinging frame, and the lever-frame for adjusting and controlling said feed-roller, these members being constructed and operating substantially as set forth.

4. The improved sawing-machine, constructed substantially as hereinbefore set forth, consisting of the following instrumentalities, to wit: the frame, the driving-shaft mounted thereon, its cone-pulleys and gear-wheel, the feathered pinion, the grooved saw-shaft adjustable endwise therethrough, the stationary gage, toward and from which the saw is adjustable, the feed-rollers, between which and the driving-shaft the saw is located, the cone-pulleys on the feed-rollers, and the swinging frame carrying the upper feed-roller.

In testimony whereof we have hereunto subscribed our names.

W. F. BARNES.
JOHN BARNES.

Witnesses to signature of W. F. Barnes:
JOSEPH I. PEYTON,
E. C. DAVIDSON.

Witnesses to signature of John Barnes:
GEORGE E. KING,
CASSIUS C. JONES.