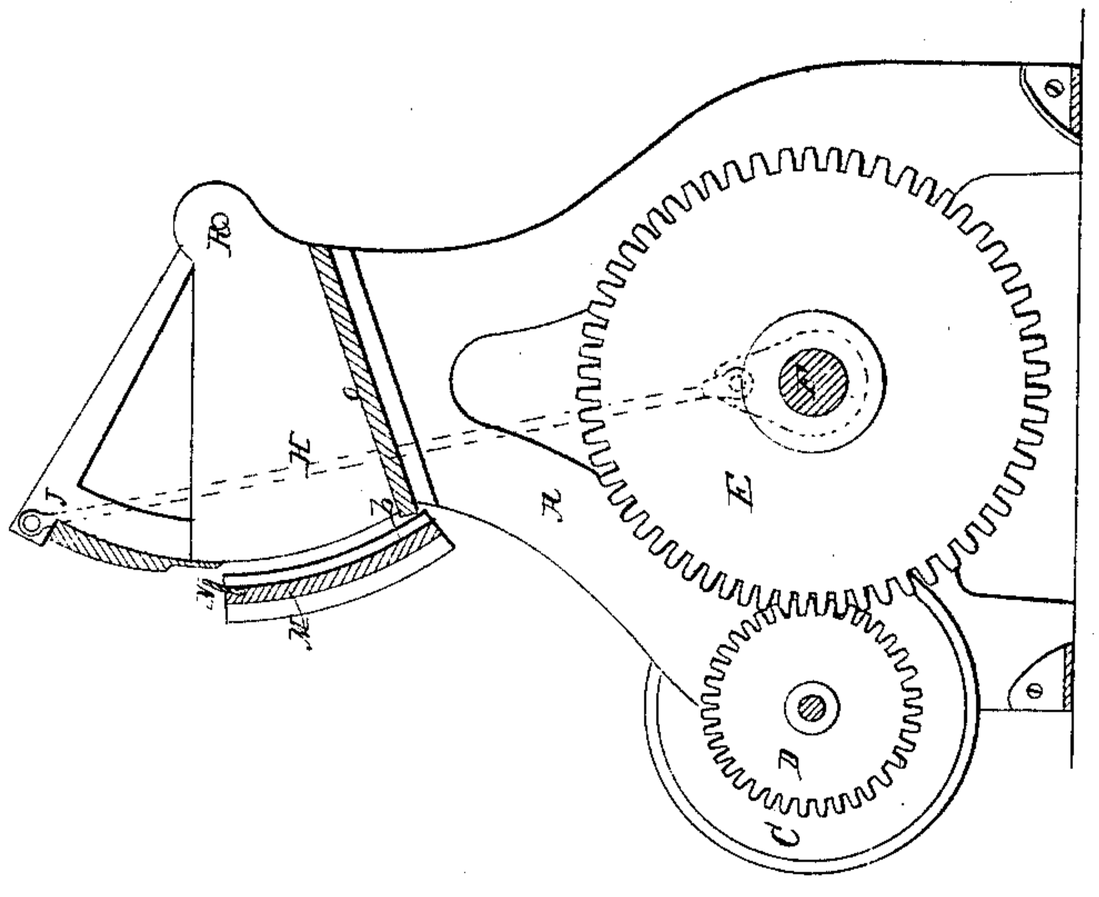
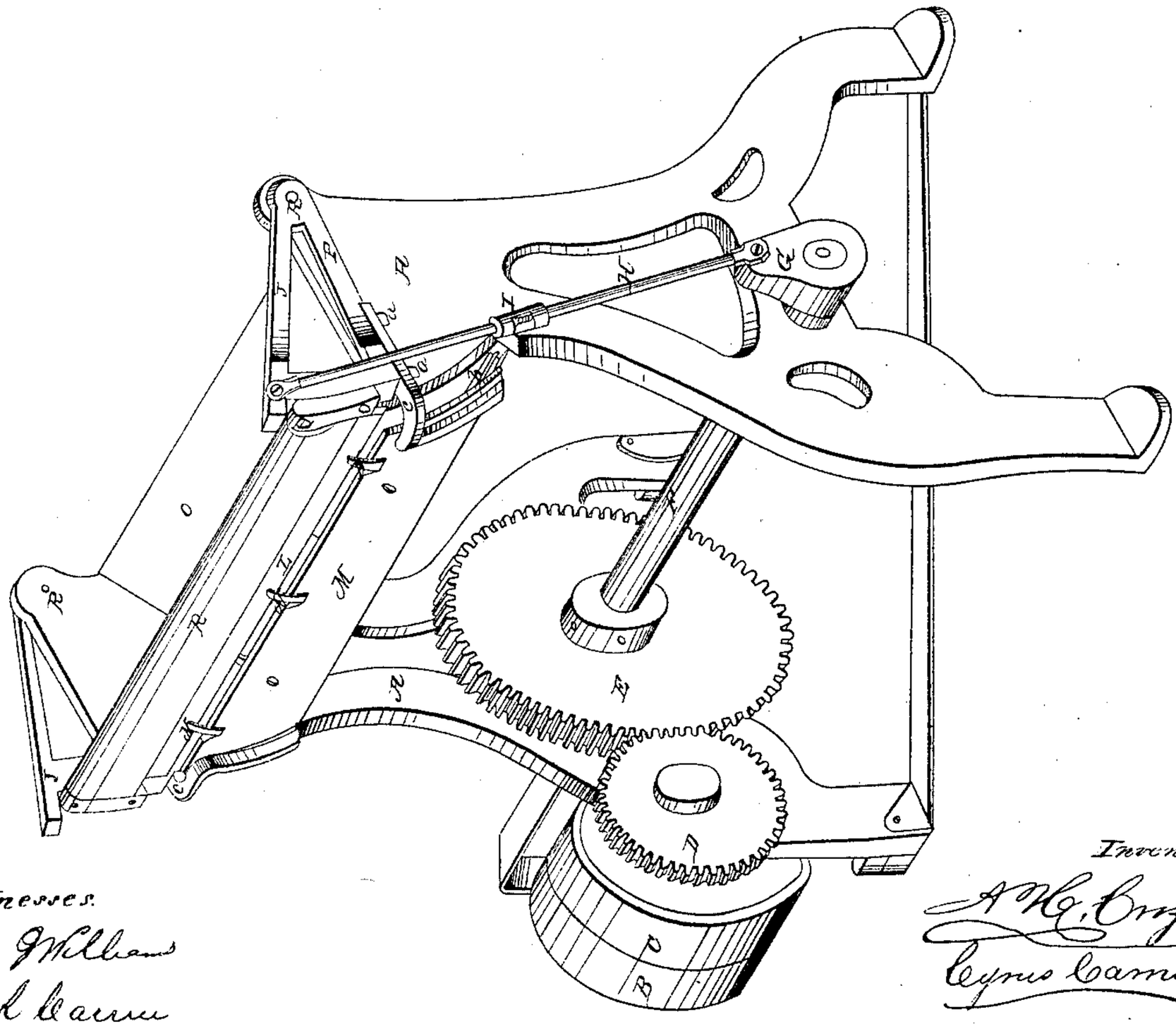
Crozier & Carrier,

Making Stares.

No. 23,356. Patented Mar. 29, 1859.





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UNITED STATES PATENT OFFICE.

A. H. CROZIER AND CYRUS CARRIER, OF OSWEGO, NEW YORK.

CHOPPING-BLOCK FOR STAVE-MACHINES.

Specification of Letters Patent No. 23,356, dated March 29, 1859.

To all whom it may concern:

Be it known that we, A. H. CROZIER and CYRUS CARRIER, both of Oswego, in the State of New York, have invented certain Improvements in Stave-Cutting Machines; and we do hereby declare the following to be a correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the machine complete, and Fig. 2 is a vertical transverse section of the same.

Our invention consists in improvements in the form and adjustments of the knife and gage; the material and construction of the chopping block; and in the mode of holding and delivering the stave when cut all as hereinafter more particularly set forth and shown. We have devised these improvements for the purpose of remedying defects which exist more or less, in all the stave cutting machines now in use. In none of them, so far as we are aware, is the knife so shaped as to form a segment of the cylinder described by its edge. In many cases the thickness of the stave to be cut is regulated by set screws, in the back of a flat knife, which throw the edge of the knife out or in as may be required for cutting a thicker or a thinner stave, thus producing a continuous strain upon the knife edge and making it liable to break as well as to cut the stave of uneven thickness.

The knife of our machine is in transverse vertical section the arc of a circle, and the gage which regulates the thickness of the stave is, in similar section, the arc of a circle concentric with that of the knife.

In most other machines the knife is stationary and the bolt of timber is forced against it to cut the stave requiring, of course great power. In our machine, the bolt is stationary, and the knife moves through the timber, requiring much less power than the converse arrangement.

In all other machines, we believe, a man is employed to take the staves out by hand,—an expensive and dangerous mode of operation. We use springs at the back of the gage, to receive and hold the stave when cut, thus saving the expense of one man besides securing superior convenience and speed, and avoiding accidents.

In other machines, a wooden chopping block is employed, which is soon cut to pieces and requires renewal. We use a metallic chopping block having a groove, corresponding with the path of the knife, for the reception of its edge. This block we make of steel, and it wears at least as long as any other part of the machine.

In other machines the power is usually applied by means of a connecting rod or pitman from a crank on the engine shaft. Hence strong foundations are required, and in case of accident to the machine—not an infrequent occurrence—the action of the crank and rod is apt to demolish the machine before the engine can be stopped. In our machine, all the strain in laboring, is within itself. Our machine, moreover works all kinds of timber with equal facility, and operates equally well upon split or sawed bolts.

To enable others, properly skilled, to construct and use our machine, we will now proceed to describe its structure and operation, referring to the accompanying drawings in which the same part is marked in both figures by the same letter of reference.

A marks the frame of the machine; B the loose pulley; C the fast pulley; D driving pinion; E driven spur wheel on main shaft; F, main shaft; G, crank; H, connecting rods; I, double nut on rods H; J arms of knife stock; K, knife stock; L, knife; M, gage; N springs; O, stationary bed plate; P arm of gage; R, common center of motion of arms J and P; *a*, adjusting set screws of gage; *b* grooved chopping block; *c*, slotted bar by which gage M is attached to arm P.

The frame A is made of iron. The power is applied to the machine by means of a band from any suitable prime mover, driving fast pulley C. On the same shaft with C, is cogged pinion D, which mashes into spur wheel E, on the main shaft F, of the machine. On each end of shaft F is a crank G working rods H, connected to arm J of knife stock K. These arms are capable of being shortened or lengthened by means of the double nuts I, which have a right hand thread cut at one end, and a left hand thread cut at the other end, said nuts receiving the screws on the ends of the two rods forming when united together the connecting rod H. When the nuts I are turned in one direction, they draw the two parts of rod H together,

and when turned in the opposite direction, they force them apart, to shorten or lengthen the rod as required. The object of this arrangement is to compensate for the wear of the knife, by bringing it fully up to its work whenever it has been worn away by use. Attached to the same center, R, as arm J, and forming part of the same system, is the arm P of the gage M, which rises and falls simultaneously with the knife stock K. The gage is attached to the arm P by bars *c*, *c*, having slots in them through which screw bolts *a*, *a*, pass. These bolts hold the bar in contact with arm P at any desired position of the gage M. The knife is attached to the knife stock so as to be adjustable and detachable at pleasure for grinding or renewal. On the upper edge of gage M are placed three or more springs N, which hold the stave when cut until it is pushed out by the succeeding stave.

O is the bed plate of the machine, on the lower edge of which is placed the grooved metallic chopping block *b*, which receives the edge of the knife on its descent.

The operation of the machine is as follows:—Motion being given by means of the band, as before described, the bolt of timber to be cut is placed on bed plate O, and, when the knife is at the highest point, the lower edge of the bolt is placed against the gage M. The knife then descends and cuts off a stave which is forced up and held between knife stock K and springs N. As each successive stave is cut, it forces out the preceding one which falls into any proper receptacle.

What we claim is—

The grooved metallic chopping block constructed and operating as described.

A. H. CROZIER.
CYRUS CARRIER.

Witnesses:
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