

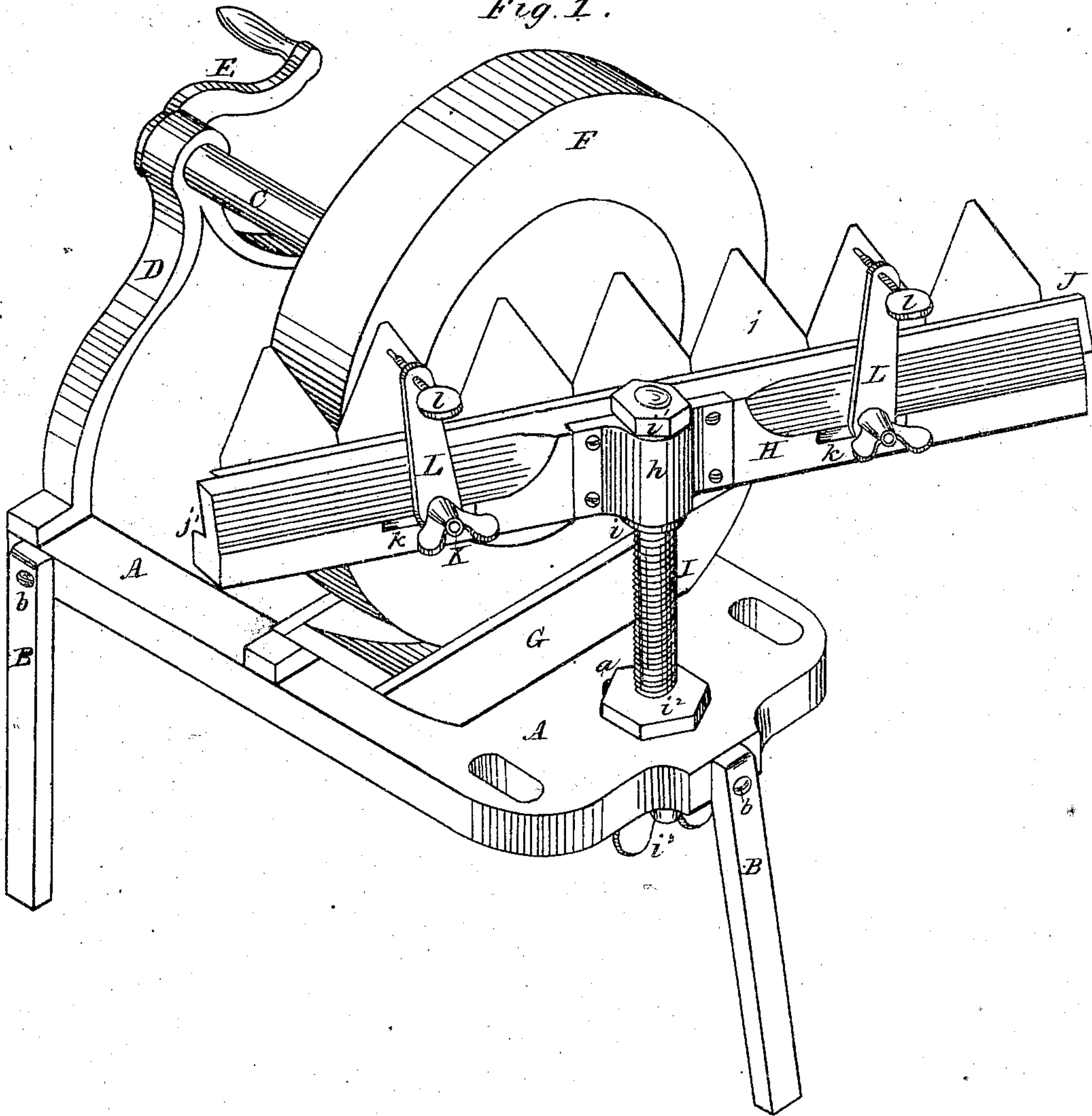
W. H. Stevenson.

Grinding the Cutters of Harvesting Mach.

N^o 74730

Patented Feb. 18, 1868.

Fig. 1.



Witnesses
J. S. Peyton.
Baltis DeLong

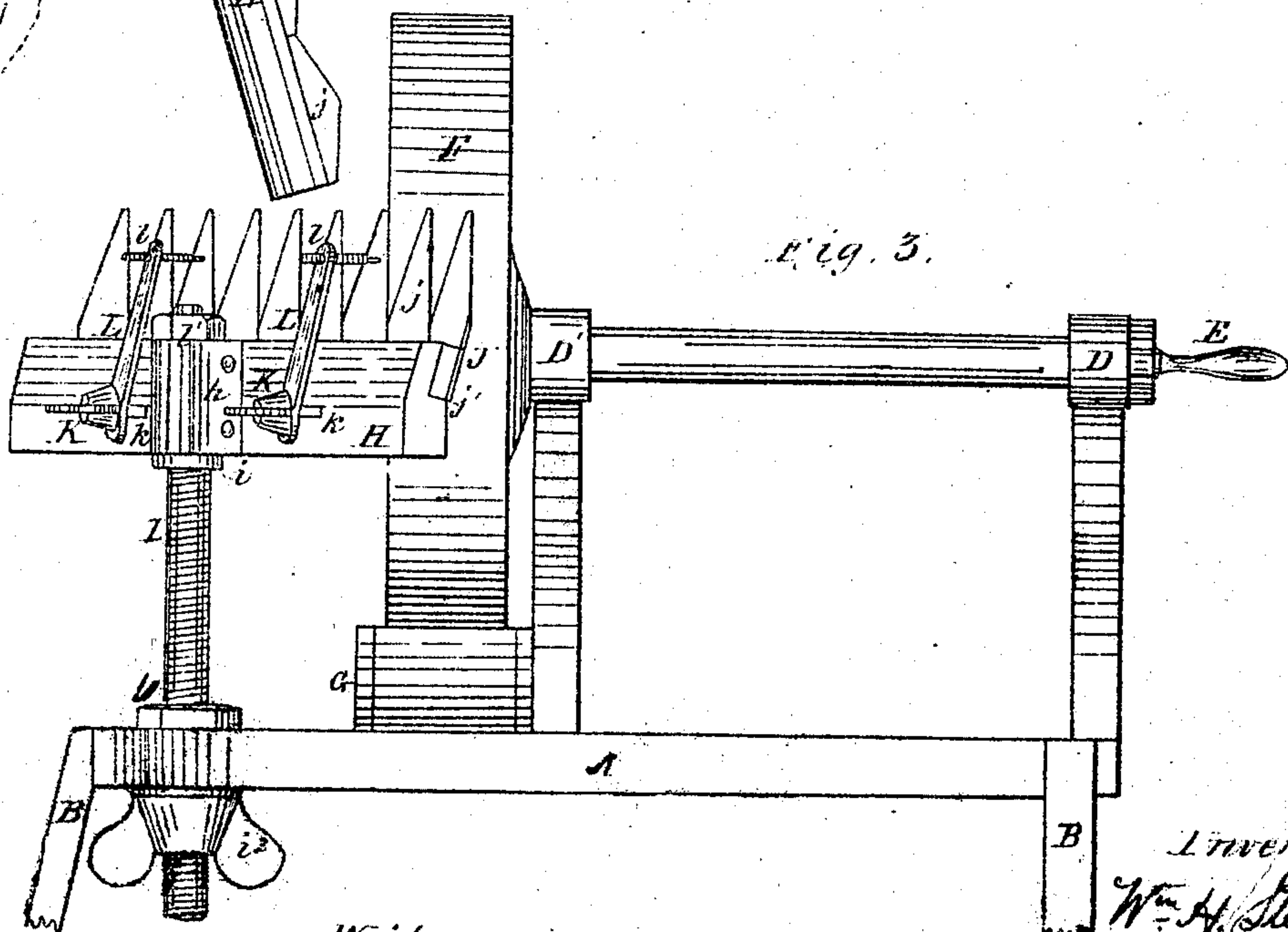
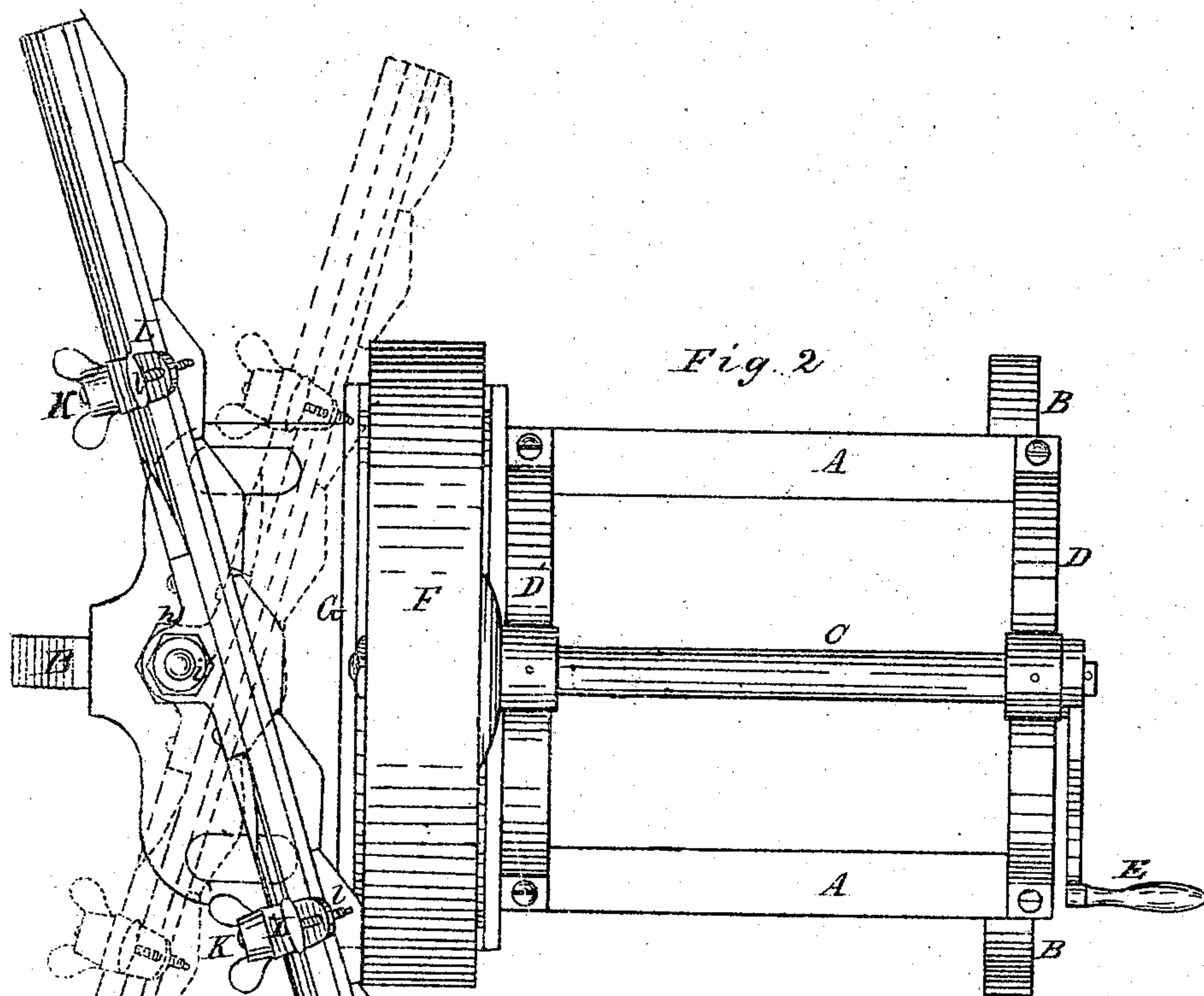
Inventor
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by his Atty^y
Baldwin & Son
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United States Patent Office.

WILLIAM H. STEVENSON, OF AUBURN, NEW YORK.

Letters Patent No. 74,730, dated February 18, 1868.

IMPROVEMENT IN MACHINE FOR GRINDING THE CUTTERS OF HARVESTING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM H. STEVENSON, of Auburn, in the county of Cayuga, and State of New York, have invented certain new and useful Improvements in Machinery for Grinding Harvester-Cutters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a view in perspective of my improved machine.

Figure 2 represents a plan or top view of the same; and

Figure 3, a view in elevation of the same, as seen from one side.

The cutter now almost universally used in harvesters consists of a series of triangular steel blades, secured side by side upon an iron or steel bar, in advance of which their points project. These cutters are, moreover, generally bevelled on one side, and flush on the other, and usually riveted to the bar. As the sharpening-instrument must be introduced between the forks, where the space is very limited, it will be perceived that the problem to be solved, namely, that of producing a machine which will rapidly and effectively sharpen the cutters, is one of no small difficulty.

Now, the object of my invention is to supply such a machine, and the improvements herein claimed consist—

First, in a novel method of mounting a grindstone on an overhanging shaft, supported in bearings on one side of the stone only, so as to allow the cutters to be applied to the side of the grindstone, instead of to its periphery.

Second, in a novel method of constructing an oscillating clamp-bar or frame to hold the cutters, whereby both edges of the cutters may be sharpened without removing them from the clamp-frame.

Third, in a novel method of combining, with an oscillating clamp-bar, in which the cutters are held, adjustable supports, which hold the cutters firmly against the stone while being sharpened.

Fourth, in a novel method of combining, with a grindstone, a clamp-bar for holding the cutters while being sharpened, whereby the clamp-bar is rendered adjustable, vertically, laterally, and longitudinally, thus adapting it to cutters of different sizes and of different angles of bevelling.

Fifth, in a novel method of combining, with the adjustable clamp-bar, holding-clamps which are adjustable longitudinally to compensate for the adjustments of the clamp-bar.

Sixth, in a novel method of constructing the frame which sustains the mechanism.

In the accompanying drawings, which show one convenient way of carrying out the objects of my invention, a frame or bed-plate, A, is shown as formed in a U-shape, and as supported upon legs, B. These legs are pivoted to the frame at *b*, so as to permit them to be turned up when the machine is to be moved, and thus diminishes its bulk, and may be braced in any well-known way, so that they may support the frame firmly. A shaft, C, is mounted in arched or V-shaped bearings, D D', bolted to or forming part of the frame. The grindstone, F, is supported on the shaft by bearings on one side only. The shaft may be rotated by a crank, E, or by a pulley or drum, driven by a band in the usual way. A water-trough, G, is arranged on the frame beneath the grindstone. A clamping-bar or rack, H, is pivoted at or near its centre, *h*, so as to oscillate longitudinally on a vertical spindle, I, being held in place by a shoulder, *i*, and a nut, *i'*. This spindle has a male screw cut on it, and passes through a slot, *a*, in the frame, to which it is clamped by a nut, *i''*, above the frame, and a jaw-nut, *i'''*, below.

It will be observed that there are three of these slots shown in the drawing, all running at an angle to the grindstone, but parallel with each other. By shifting the spindle from one slot to the other its relation to the grindstone is varied, as well as the angle at which the cutters are presented. The spindle can also be adjusted nearer to or farther from the grindstone, in its slot, and held firmly by the jaw-nut. The rack can also be raised or lowered by screwing the spindle up or down in the nut *i''*.

The cutters *j*, attached to the cutter-bar J, rest on a flange, *j'*, on the bar H, and can be moved freely endwise therein, to adjust them to the proper position for grinding. When so adjusted, they are held by hooked clamps, K, passing through slots, *k*, in the bar H. These slots allow the clamps to be adjusted nearer to or

farther from the spindle I. Radius-bars, E, are pivoted to these clamp-screws, and are provided, at their outer ends, with set-screws I, which press against the cutter-teeth, and hold them firmly while being ground.

It will thus be seen that the cutters can be adjusted vertically, laterally, and longitudinally, and also have a swinging motion to and from, and a traversing motion across the side of the stone, by which means, in combination with the revolving motion of the stone, the cutters can be sharpened by grinding away their bevelled edges close up to the forks. For want of such a device it has heretofore generally been the custom to grind away the flush side of the blade, which is undesirable for many reasons. The value and importance of my invention will thus be obvious. The frame A may be of metal, and cast in one piece.

In operation, the cutters are placed in the clamp-bar or rack H, which is adjusted at the proper distance from the stone to suit the bevel of the cutters. The cutter-bar is moved endwise in the clamp until the edge of the section to be sharpened is in proper position to be acted upon by the grindstone. The clamps, K, are then moved into their slots, until in proper position, when they are screwed up to clamp themselves, as well as the cutters, in place. The radius-bars are then adjusted with their set-screws opposite the points of the teeth. The cutters are then swung in horizontally against the face of the grindstone, and sharpened by moving them endwise, until each in succession has been sharpened on one side. The rack is then swung round, as shown in fig. 2, and the same process repeated with the other edge of each tooth.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, substantially as described, of the U shaped frame A and the V-shaped bearings D D' with the grindstone, mounted on the overhanging shaft, for the purposes set forth.
2. The oscillating clamping-frame or holding-rack H, operating substantially as described.
3. The combination, substantially as described, with the oscillating clamp-bar, of the adjustable supports L I, for the purpose set forth.
4. The combination, substantially as described, of a grindstone, mounted on one end of an overhanging shaft, with a vertically, laterally, and longitudinally adjustable swinging clamping-bar, for the purposes set forth.
5. The combination, substantially as described, of the clamping-bar H, adjustable clamps K, radius-bars and set-screws I, for the purpose set forth.
6. The U-shaped frame A, constructed as described.

In testimony whereof, I have hereunto subscribed my name.

WM. H. STEVENSON.

Witnesses:

HORACE T. COOK,
SYLVESTER W. STEVENSON.