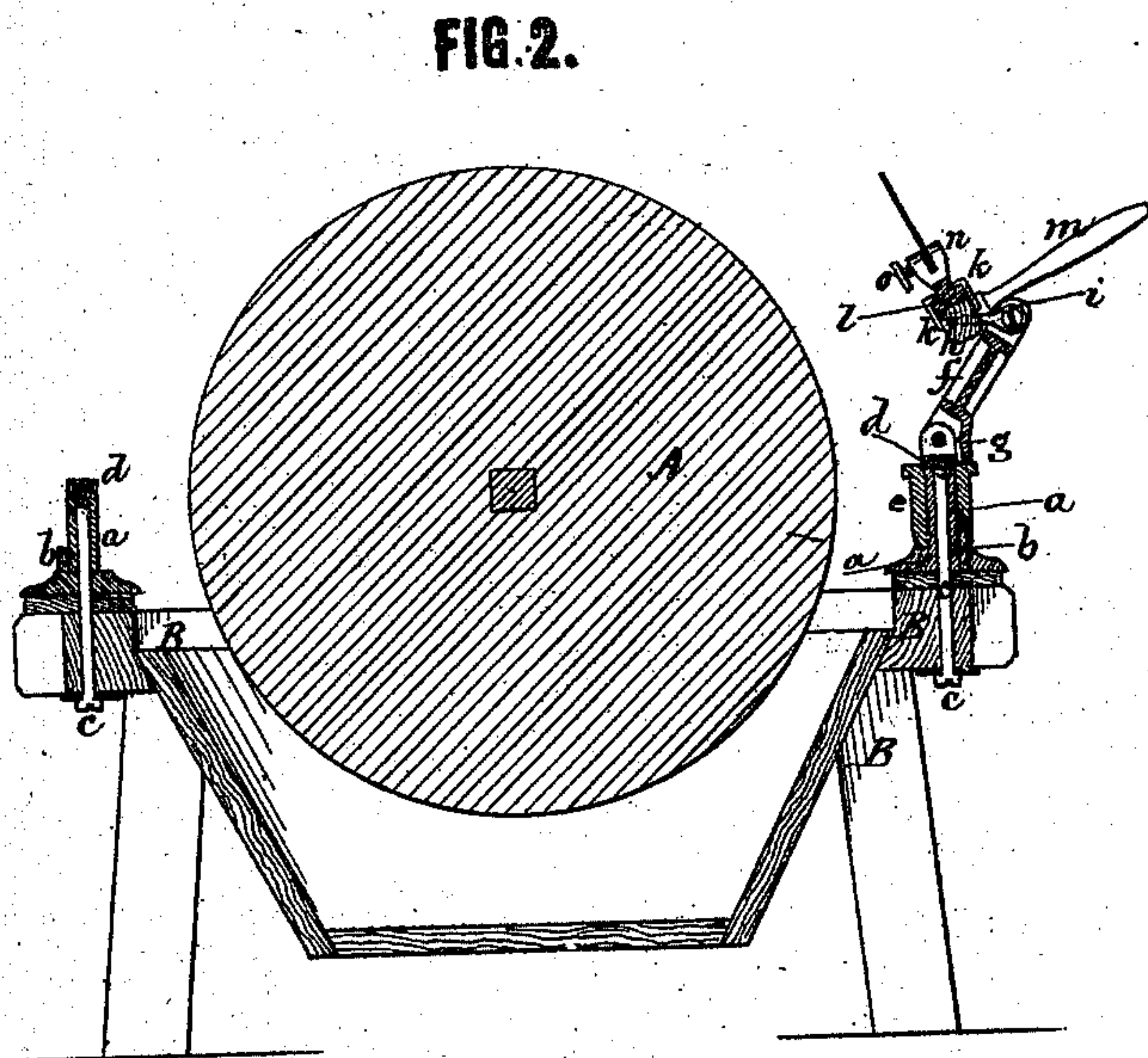
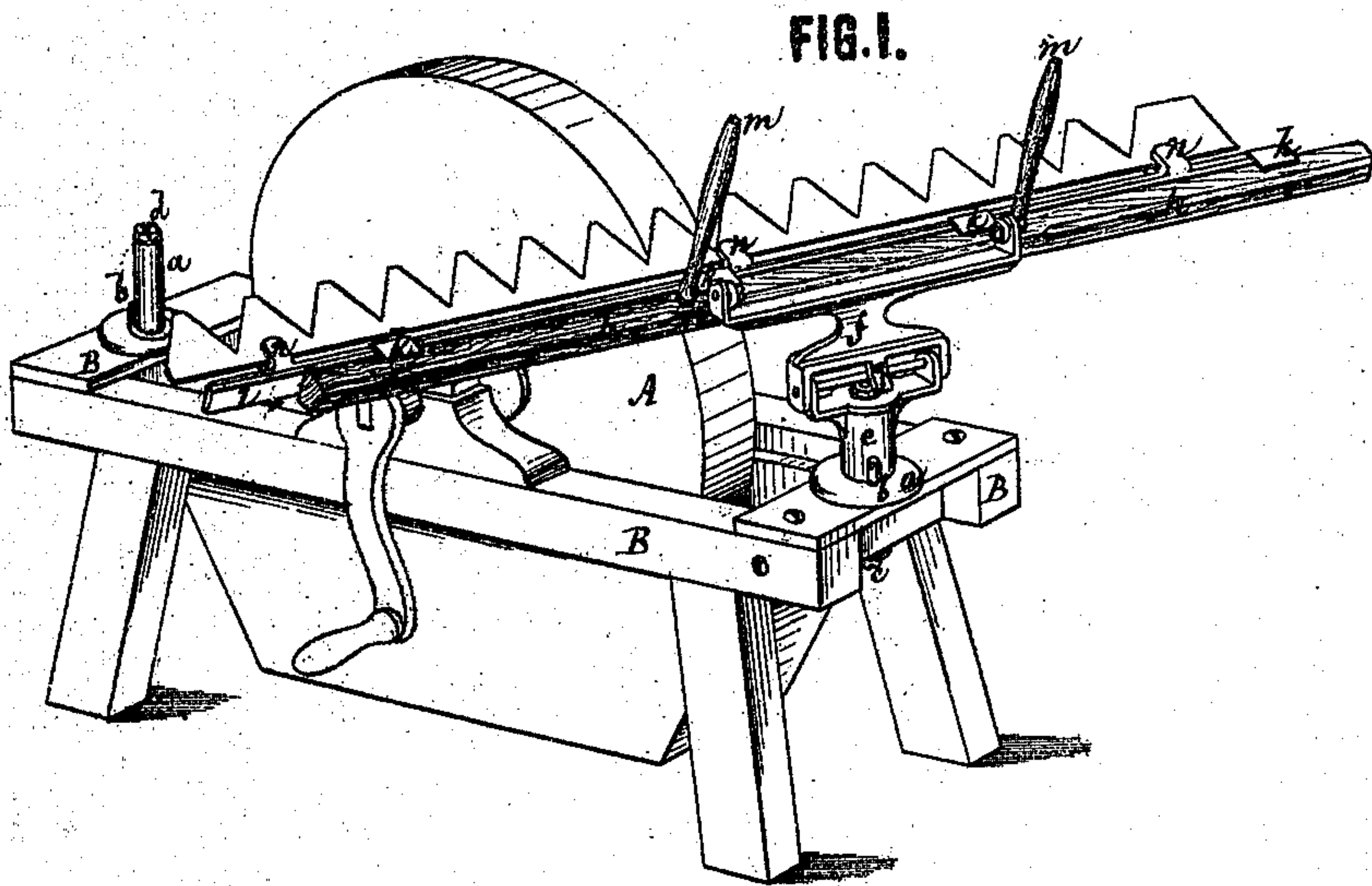


*C. C. Hardy,*  
*Sharpening Machine.*  
*No. 105,802.                      Patented July 26, 1870.*



*Charles C. Hardy*  
*by J. H. Collier*  
*att'y.*

**WITNESSES.**

*W. Bailey*  
*Wm. H. M. Cabot*  
 11



# United States Patent Office.

CHARLES C. HARDY, OF RUTLAND, NEW YORK.

Letters Patent No. 105,802, dated July 26, 1870.

## IMPROVEMENT IN MACHINES FOR SHARPENING REAPER-KNIVES.

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

To whom it may concern:

Be it known that I, CHARLES C. HARDY, of Rutland, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Machines for Grinding and Sharpening Mower and Reaper-Knives, and for other purposes, of which the following is a specification.

The object of my invention is to produce a machine for sharpening the sections of mower and reaper-knives, in which the mechanism for holding the knives shall be simple, easily operated, and not likely to get out of order, and yet adapted to grind the sections at any angle desired, to allow the knife to be slipped along and adjusted longitudinally to bring any section opposite the grindstone, and to admit of the knife being pressed toward or drawn back, and held away from contact with the stone with facility. To this end,

My invention consists—

First, in the combination with a tubular post or socket-piece, attached to the knife-holding mechanism, of an adjustable upright spindle, which fits in the socket, and is provided with a spline or stud to engage with a corresponding recess or groove in the socket-piece, the spindle being capable of turning upon its axis, so as to present the knife to the grindstone at any angle desired.

Second, in the combination with the tubular post or socket of a frame for supporting the knife-holding devices, hinged to the post so as to be capable of an oscillatory movement toward and away from the grindstone, and provided with a projecting finger or stop, by which, when it is turned back a suitable distance from the machine, it and the knife-holding devices may be supported and upheld.

Third, in the combination with the oscillatory frame of a guide-bar, hinged to said frame, and a knife-holder bar held and arranged to slide longitudinally upon said guide-bar.

Fourth, in the construction of the guide and holder-bars, as hereinafter described.

Fifth, in the combination with the grindstone of a knife-holding mechanism, constructed and operating as hereinafter set forth.

The manner in which my invention is or may be carried into effect will be readily understood by reference to the accompanying drawing, in which—

Figure 1 is a perspective view of a machine made in accordance with my invention.

Figure 2 is a longitudinal vertical section of the same.

The grindstone A is supported in the frame B of the machine, in any ordinary or suitable manner, and is rotated by means of a handle or other device usually employed for the purpose.

To support the knife-holding devices hereinafter described, I employ a spindle, *a*, placed opposite the face of the stone, and in order that the knives may be readily reversed, so as to grind both edges, I employ two spindles, one at each end of the machine, to one or the other of which the knife-holding devices may be applied, according to the circumstances of the case.

Each spindle is provided with a spline or stud, *b*, as shown in the drawing, and is held in place by a bolt, *c*, which passes up through it and the frame of the machine, and has formed on its upper end, which projects above the spindle, a screw-thread, upon which is screwed a nut, *d*. When this nut is loosened, the spindle can be turned and adjusted, and by tightening up the nut it will be again held immovable.

The spindle is designed to fit in a socket-piece or tubular post, *e*, which has formed in it a slot or groove, to receive the stud *b*, as shown in fig. 1, so that the position of the socket-piece depends upon that of the spindle and stud, and by turning the latter, the socket-piece, together with the knife-holding mechanism which it carries, may be set at a greater or lesser angle to the stone, in order to grind the knife at a corresponding angle.

The tubular post *e*, at its upper end, is provided with ears, to which the oscillatory frame *f* is hinged, as shown clearly in fig. 1. This frame is provided at its lower part with a downwardly-projecting finger or stop, *g*, which, when the frame is swung back a certain distance, as shown in fig. 2, comes in contact with the top of the tubular post *e*, preventing any further back movement of the frame, and upholding it and the devices which it carries.

The upper part of the frame *f* is considerably wider than the lower part, in order to afford a suitable support and bearing for the knife-holding and guide-bars.

The guide-bar *h* is made preferably of wood, and is hinged to the frame by means of eye-bolts *i*, fitting upon studs or journals projecting from the inner faces of ears formed on the top of the frame *f*.

This guide-bar is provided with metallic guides or clasps *k*, four in number in this instance, which clasp and hold the metallic holder-bar *l* upon the bar *h*, so as to keep the two together, while they still allow the holder-bar *l* to slide longitudinally to and fro upon the guide-bar. By this means, that is to say, by moving the holder-bar, any section of the knife may be brought in proper position to be operated on by the stone.

The guide-bar is also provided with handles *m*, by means of which the knives are held in position for grinding, or are turned back, away from the grindstone, as desired.

The holder-bar *l* is provided with jaws for holding



he knives, the latter, when placed between the jaws, being held by means of a clamp-screw, *c*, with which each jaw is provided.

The operation of the devices herein described will be readily understood without further description.

The mechanism is simple, cheap, and not liable to get out of order, and at the same time it admirably serves the purpose for which it is designed.

The two joints at the upper and lower ends of the oscillatory frame allow the operator to apply the knives to the stone with great facility and precision; the sliding holder-bar gives the longitudinal adjustments needed to present each section in turn to the stone; the adjustable supporting spindle allows the knife to be placed at any desired angle to the grindstone; and by the use of the two spindles, one at each end of the machine, the position of the knives may be quickly reversed, so as to grind both edges.

Having now described my invention, and the manner in which the same is or may be carried into effect,

What I claim, and desire to secure by Letters Patent, is--

1. The combination of the adjustable spindle and the stud or spline upon the same, with the recessed or slotted socket-piece or tubular post which carries the knife-holding mechanism, substantially as and for the purpose set forth.

2. The combination with the tubular post or socket-piece of the oscillatory frame which carries the knife-holding and guide-bars, said frame being hinged to the post and provided with a finger or stop to operate in connection therewith substantially as shown and described.

3. The guide-bar carrying the sliding knife-holder bar, and hinged to the oscillatory frame, so that it may be moved back and forth by the handles with which it is provided, substantially as shown and set forth.

4. The combination with the tubular post and the knife-holder and guide-bars of an intermediate frame, united by a hinged connection with both the post and the said bars, substantially as and for the purposes shown and set forth.

5. A machine for grinding the sections of mower and reaper-knives, the parts of which are constructed and arranged for joint operation, as shown and set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

CHAS. C. HARDY.

Witnesses:

WM. J. SIKES,  
JOSEPH W. PECK.