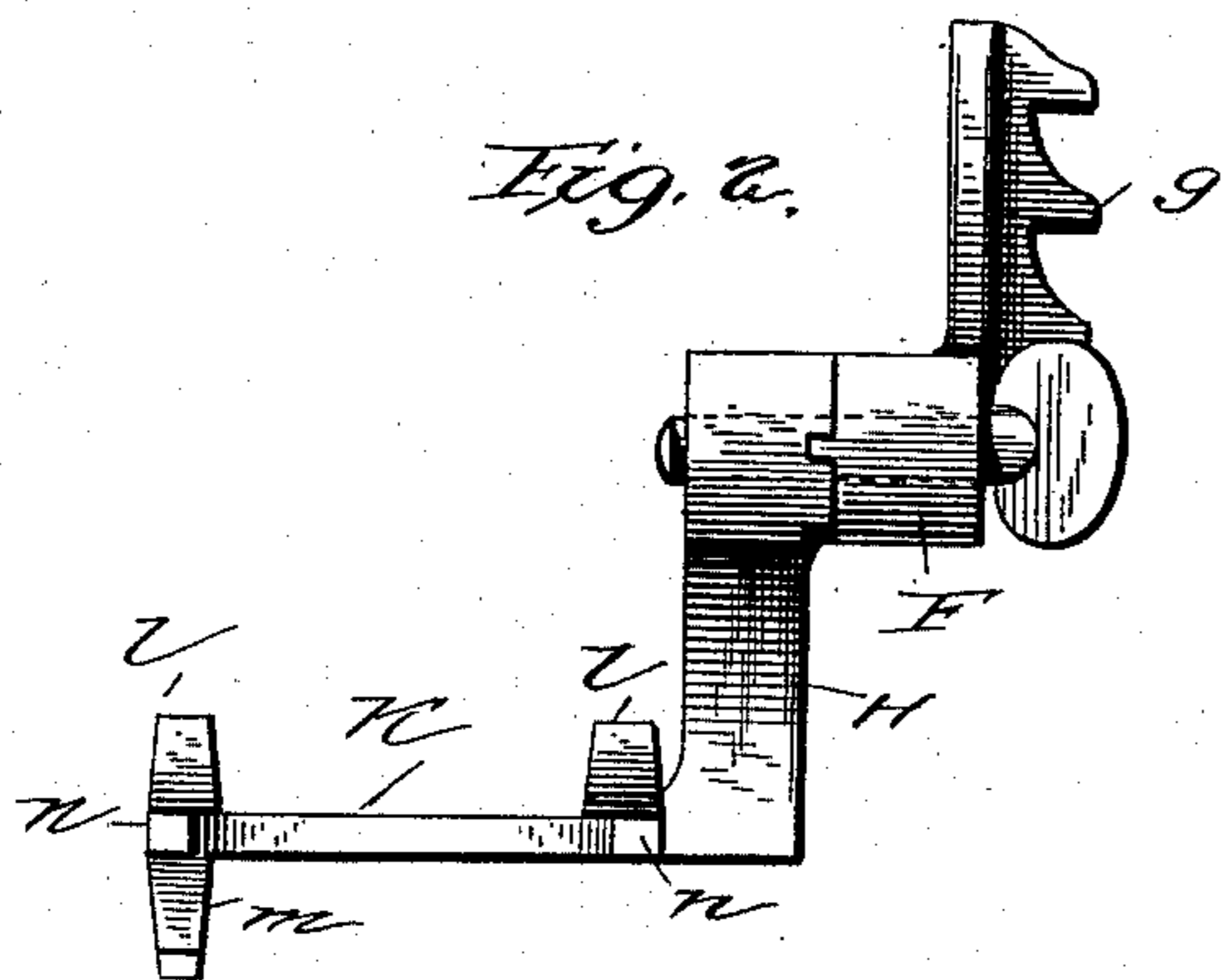
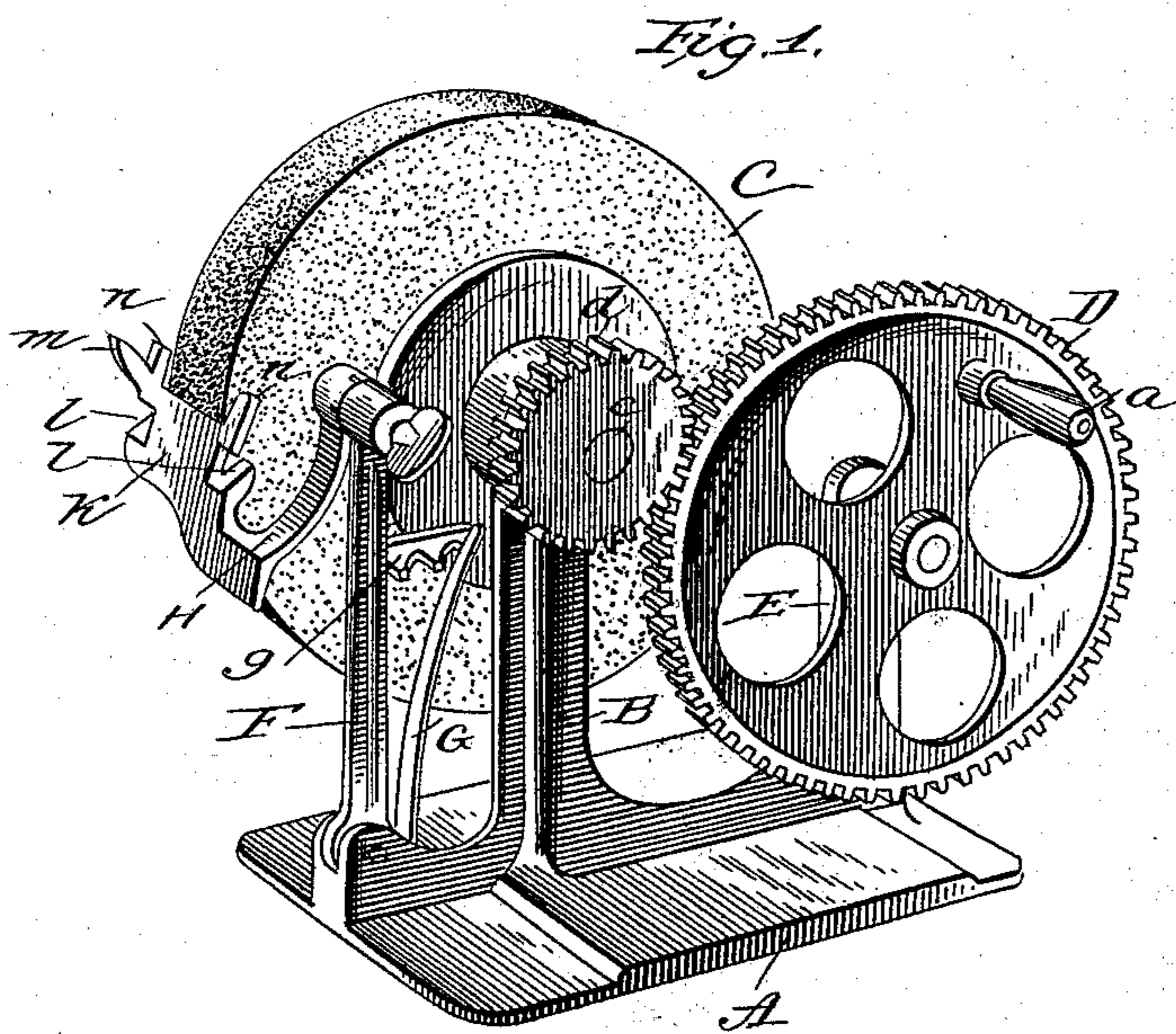


(No Model.)

F. C. HALL.  
GRINDING MACHINE.

No. 388,672.

Patented Aug. 28, 1888.



Attest:  
*Walter Donaldson*  
J. L. Middleton.

Inventor,  
*Frank C. Hall,*  
by *Eli Spear,*  
Atty.

# UNITED STATES PATENT OFFICE.

FRANK C. HALL, OF PHILADELPHIA, PENNSYLVANIA.

## GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 388,672, dated August 28, 1888.

Application filed February 21, 1888. Serial No. 264,741. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK C. HALL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Grinding-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved grinder for knives, scissors, and similar articles.

It is designed mainly for domestic use, but is also adapted to the use of butchers, grocers, and the like, or for small shops where tools are required to be sharpened.

The invention relates to the gage for holding the work to the exact level for the grinding of an implement.

The object of this invention is to make the tool-holder as simple and as nearly as possible automatic and accurate in its adjustment. The proper grinding of knives and scissors requires considerable skill, and with the grinders ordinarily in use for domestic purposes, by reason of the inability of the operator to hold them accurately and steadily at the proper angle, knives and scissors are not properly ground. It is essential, in order to fully adapt a grinder to domestic use, that it should be provided with a holding device for the implement to be ground, capable of adjustment to different positions or angles, so as to present the various angles to the grinding-surface required for knives, shears, and scissors. It is desirable, also, that the adjustment of the bevel should not interfere with the pressure, and I have sought to provide for the adjustment of the gage or holder necessary to give the required bevel to the tool without interfering with the mechanism designed to apply the pressure, so that the pressure of the tool upon the periphery of the grinding-wheel may be uniform, whatever angle may be given to the holder.

In the accompanying drawings, Figure 1 shows a perspective view of my improved grinder. Fig. 2 is a plan view of the gage and supporting-arm and its bracket.

In the drawings, A represents a suitable base, which is fitted to be clamped to a table, or to be permanently secured to a bench. On a central standard, B, is journaled an emery-wheel, C, fixed to a shaft, c, which turns in

bearings in the top of the standard. On the end of the shaft is a pinion, d, which meshes with a gear-wheel, D, mounted upon another standard, E, on the base. The gear-wheel may be turned by means of the handle, as a, or by a treadle, (not shown,) as may be preferred. On the same base is pivoted an arm, F, extending upwardly by the side of the grinding-wheel, it being parallel with the supporting-post of that wheel. To the base is fixed a spring, G, which bears upon any one of a series of pins, g, or studs on a horizontal spur of the arm F. The spring is preferably a flat one, and the amount of pressure which it exerts varies according to the stud on which it is set; but while it is upon any one pin it exerts a uniform force upon the pivoted arm F. To the upper part of the arm F is attached an arm, H, which I have shown in Fig. 1 as bent. The upper ends of the arms F and H have heads perforated to receive a bolt which connects them together, the bolt, when in place, being parallel with the axis of the wheel. The contiguous faces of the heads of the arms F and H are provided, respectively, with a projection and notches, into which the projection fits, by means of which the arm H may be held adjustably at any desired angle in relation to the arm F; or the inner faces of these heads may be formed with radial serrations fitted to each other; but I prefer the stud on one face and a single notch for each position, as this secures accuracy and certainty in the setting of the gage. The bolt may be provided with a thumb-nut, by means of which it may be loosened to adjust the parts; or, as shown, the bolt itself may be threaded through the head of the arm H. On the outer end of the arm H is fixed the gage or holder K. It will be understood this arm H extends alongside and a little beyond the edge of the grinding-wheel. The gage K extends laterally from the end of the arm and is parallel with the face of the grinding-wheel. It is in the form of a plate. The inner face has spurs l l—one on each side—projecting upward at a slight angle and adapted to support the blade of a knife, the back of which, when in place, bears on the spurs, while one side bears against the inner face of the plate. On the outer face of the plate K, on one side and near the upper or in-

ner edge, is another inclined spur, *m*. This is adapted to receive the blade of scissors or shears. The upper edge of the plate *K* is cut away, leaving projections *n n*, one on each side. This space allows the points of the scissors to be brought to the wheel and to be ground finely.

The precise form of the spurs or supporting devices for the blades is not material. The arm and plate are so pivoted and arranged that as the arm *H* is turned the edge of the plate *K* always maintains the same proper relation to the grinding-face of the wheel.

The arm *F* may be varied in position and form. It represents a simple form of a movable support for the arm *H*.

I claim as my invention—

1. In combination with a grinding-wheel, a pivoted standard, and a spring connected thereto, an arm pivoted adjustably to the upper end of the standard, and a laterally-extending plate on the end of said arm, having lugs for holding the blade to be ground, all substantially as described.

2. In combination with a grinding-wheel, a pivoted standard, and a spring engaging there-

with, an arm, *H*, pivoted adjustably to the standard, and a laterally-extending plate on the end of the arm *H*, having inwardly-projecting spurs *l l*, projecting upwardly at a slight angle, all as described.

3. In combination with a grinding-wheel, an arm, as *H*, carrying a gage or blade-holder pivoted adjustably to an arm, *F*, said arm having studs, and a spring bearing on one of the studs, all substantially as described.

4. In combination with the grinding-wheel and the adjustably-pivoted arm, as *H*, the gage consisting of a plate, *K*, cut away on its upper edge, forming projections *n n* on either side, and having a spur, *m*, on its outer face, said spur and projections forming a notch for holding scissor-blades, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK C. HALL.

Witnesses:

FRANK H. MASSEY,

CHAS. F. THOMAS.