(No Model.)

# A. C. PHILLIPS.

## KNIFE HOLDING ATTACHMENT FOR GRINDING MACHINES.

No. 561,177 Patented June 2, 1896.

Fig. 1.

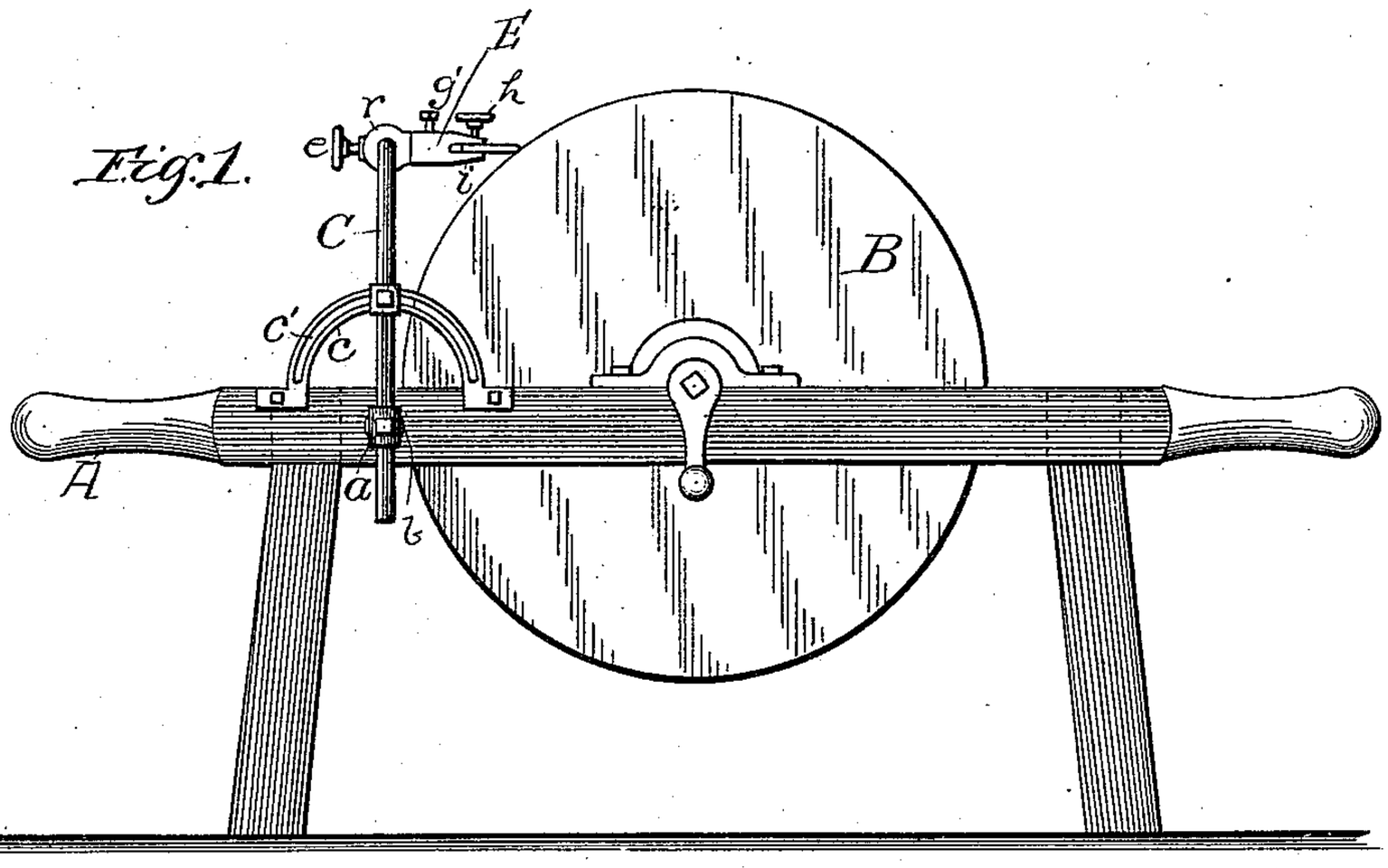



Fig. 2.

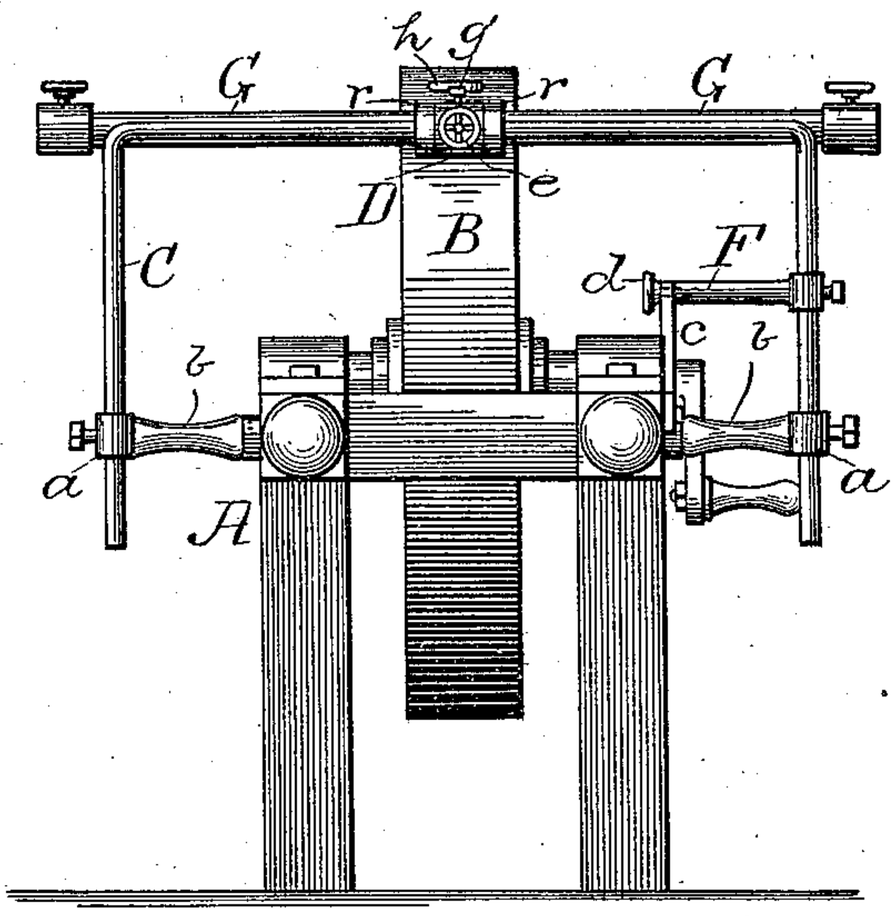



Fig. 3.

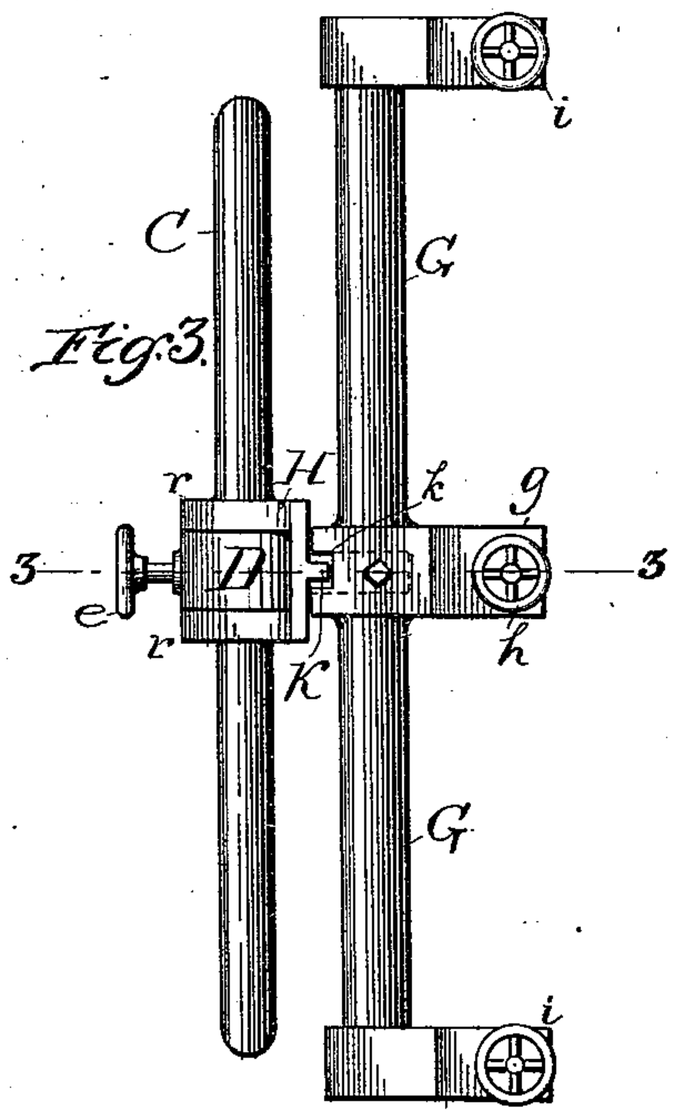



Fig. 4.

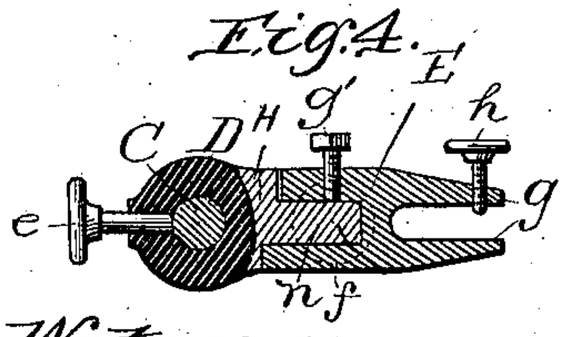



Fig. 5.

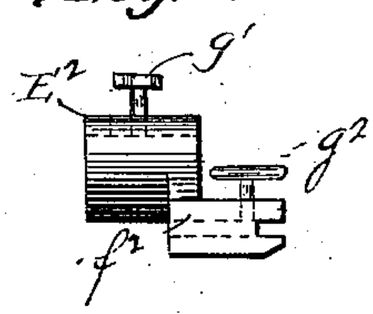
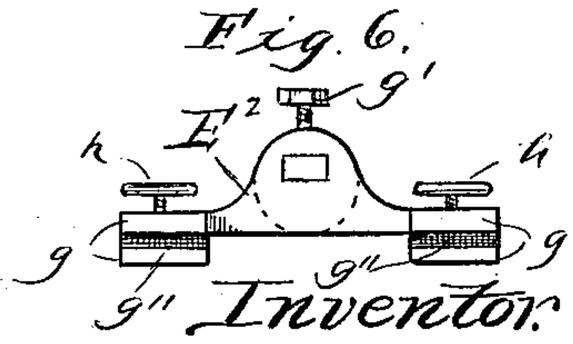



Fig. 6.

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# UNITED STATES PATENT OFFICE.

ALEXANDER C. PHILLIPS, OF AUSTIN, ILLINOIS.

## KNIFE-HOLDING ATTACHMENT FOR GRINDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 561,177, dated June 2, 1896.

Application filed August 1, 1891. Serial No. 401,398. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER CABLE PHILLIPS, of Austin, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Knife-Holding Attachments for Grinding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The object of my invention is to enable the operator, when sharpening knives or the knife-bars of harvesters, to hold and apply the knife to the sharpening-stone at any angle and at any point either of the knife edge or of the sharpening-stone itself desired, which is simple and cheap in construction, and which can be applied either to the support of old or new grinding-stones with equal facility, substantially as hereinafter fully described, and as illustrated in the drawings, in which—

Figure 1 is a side elevation of my invention. Fig. 2 is a rear end elevation of the same. Fig. 3 is a plan view of a knife-bar holder. Fig. 4 is a vertical section of the same, taken on dotted line 3 3, Fig. 3; and Fig. 5 is a side view of a modified form of the work-holder. Fig. 6 is an end view of the modification shown in Fig. 5.

In the drawings, A represents the horse or frame for journaling and supporting the grinding-stone B.

C represents a suitable U-shaped frame consisting, preferably, of a suitable length of cylindrical rod-iron with the ends bent downward at right angles to its middle portion. The ends of this U-frame pass through suitable openings in the ends of suitable bosses *a a*, which are journaled on lateral studs *b*, projecting from the sides of the horse A at a point removed from the revolving center of the grinding-stone a distance not less than the radius of said stone. The horizontal part of frame C is thus brought contiguous to the grinding-surface of the stone at such a plane above the horse as is deemed convenient by the operator. In order to hold the frame C stationary at any angle desired, I can secure to one side of the horse A a segmental plate *c*, which has a segmental slot *c'* made therein, or, what would be its equivalent, a series of holes segmentally arranged therein. Carried by and secured to one of the vertical parts of said U-frame adjacent to said segmental frame is a block F of a length sufficient to be placed between the said vertical end of the frame C and the segmental frame *c*. I plant the U-frame at any angle desired by means of a thumb-screw *d*, which passes from the inner side of the said segmental frame through the slot or screw-holes therein and is tapped longitudinally into the said block.

Carried upon the horizontal part of frame C is a collar D, which has a set-screw *e* tapped laterally through one side of it, which can be tightened, so as to bite against frame C and hold said collar in any desired position. Surrounding and hinging on the frame C on either side of said collar are the knuckles *r r* of the boss H, which has projecting from it in a direction toward the grinding-stone a suitable stud *n*, over which the shank *f* of the work-holder E is slipped and secured by a set-nut *g'*, as shown. Thus the operator can lift the work-holder from or lower it toward the grinding-stone, so as to grind the work as desired; but its lateral adjustment is fully under control, as explained. The work-holder $E^2$ may consist simply of the said shank $f^2$, with two lips projecting toward the grinding-stone therefrom and with a thumb-nut or set-screw $g^2$ tapped through the uppermost one of these lips, so as to bite against and clamp the work between the two, substantially as shown in Fig. 5, and is placed upon the stud *n* in the same manner as the work-holder E, (shown in Fig. 4,) and secured thereupon by set-screw *g'*. This modified form is more clearly shown in Fig. 6. Or, as I prefer, especially when using the same for holding the knife-bar of a harvesting-machine or reaper, it may consist of the two lips *g' g'*, projecting toward the grinding-stone, with a thumb-screw *b'* tapped through the uppermost lip, so as to clamp the work placed between them, and it has the arms G G projecting horizontally from the sides of the said boss in diametrically opposite directions, said arms being of the same length and having projecting from their extremities in the same direction as the lips *g'* the lips *i i*, with a thumb or set screw tapped vertically through one of said lips, so as to bite against the work and clamp the same.

When the rear edge of the knife-bar of a harvester or reaper is secured between the lips $g'$ and the lips $i$ and clamped by the thumb or set screws passing therethrough, it is held solidly and firmly thereby while being presented to the sharpening-stone.

In sharpening harvester or reaper knife-bars I do not lock the boss D in any given position upon the horizontal part of frame C, but leave it so that it can be shifted from side to side, if need be, the entire length of the said horizontal portion of frame D. It is desirable to incline the knife-bar of the reaper or harvester so that it will be lower at one end than at the other in order to give its cutting edge the proper bevel. This it would be quite difficult to do, so as to get the bevel of the cutting edge of each tooth the same in every instance, were it left to the judgment of the operator. I have therefore constructed a very simple arrangement for accomplishing this purpose which removes the responsibility from the operator and makes the grinding action more positive in every case. This consists of a recess $k$ in the rear edge of the upper portion of the shank of a knife-holder and a projection or stop K, which extends from the shoulder of the boss caused by the projecting stud of the boss D. This recess is about twice the width of the stop K, which enters it when the shank of the tool-holder is slipped over the stud, and consequently the said tool-holder may be turned laterally on the stud to an extent permissible by reason of the width of the recess $k$ over that of the stop K, the socket of the tang adapted to be engaged by the stud $n$ of boss H being made somewhat larger than is necessary to tightly fit said stud $n$, thereby allowing sufficient side play of said tool-holder and permitting the same to take a slight angle.

What I claim as new is—

1. The combination with a revolving grinding-stone, of an inverted-U-shaped frame having its horizontal part parallel to the plane of the grinding edge of said stone, a block secured to one of the vertical sides of said U-frame, a segmental frame and a thumb-screw for securing said U-frame at any angle within the limits of said segmental frame, and a work-holder movable longitudinally on the horizontal part of said U-frame, as set forth.

2. In a revolving grinding-stone, the combination with the U-shaped frame the collar D, secured upon said U-frame stud $n$ on said collar, boss H having stud $n$, work-holder E adapted to engage said stud $n$ on said boss H, recess in said work-holder engaging said stud on collar D, arms G, G extending outwardly from said work-holder, and tool-holder I on the end of said arms, substantially as set forth.

ALEXANDER C. PHILLIPS.

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