

No. 702,885.

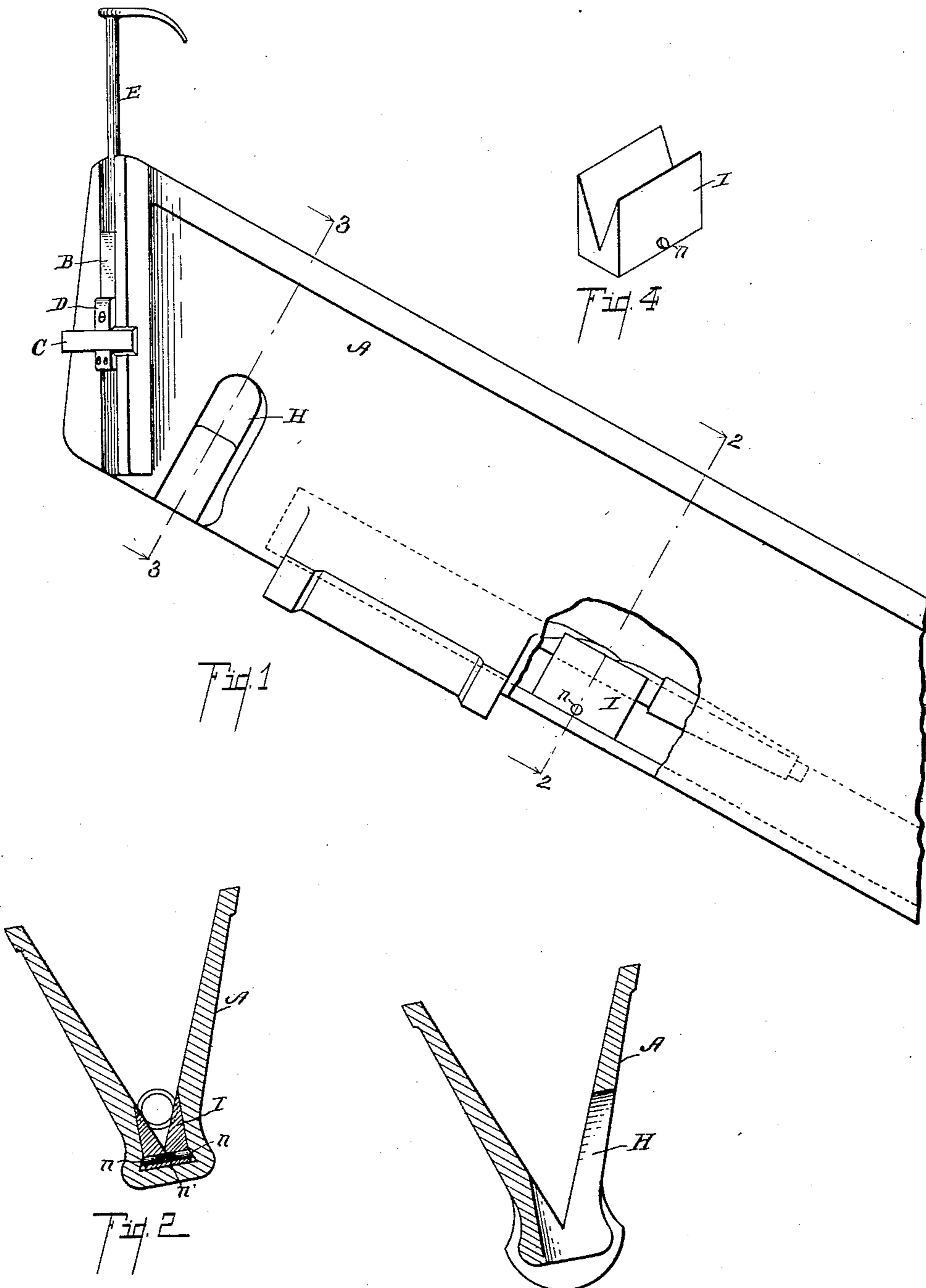
Patented June 17, 1902.

C. RIDDERHOF.
DRILL GRINDING MACHINE.

(Application filed Jan. 23, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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Inventor,

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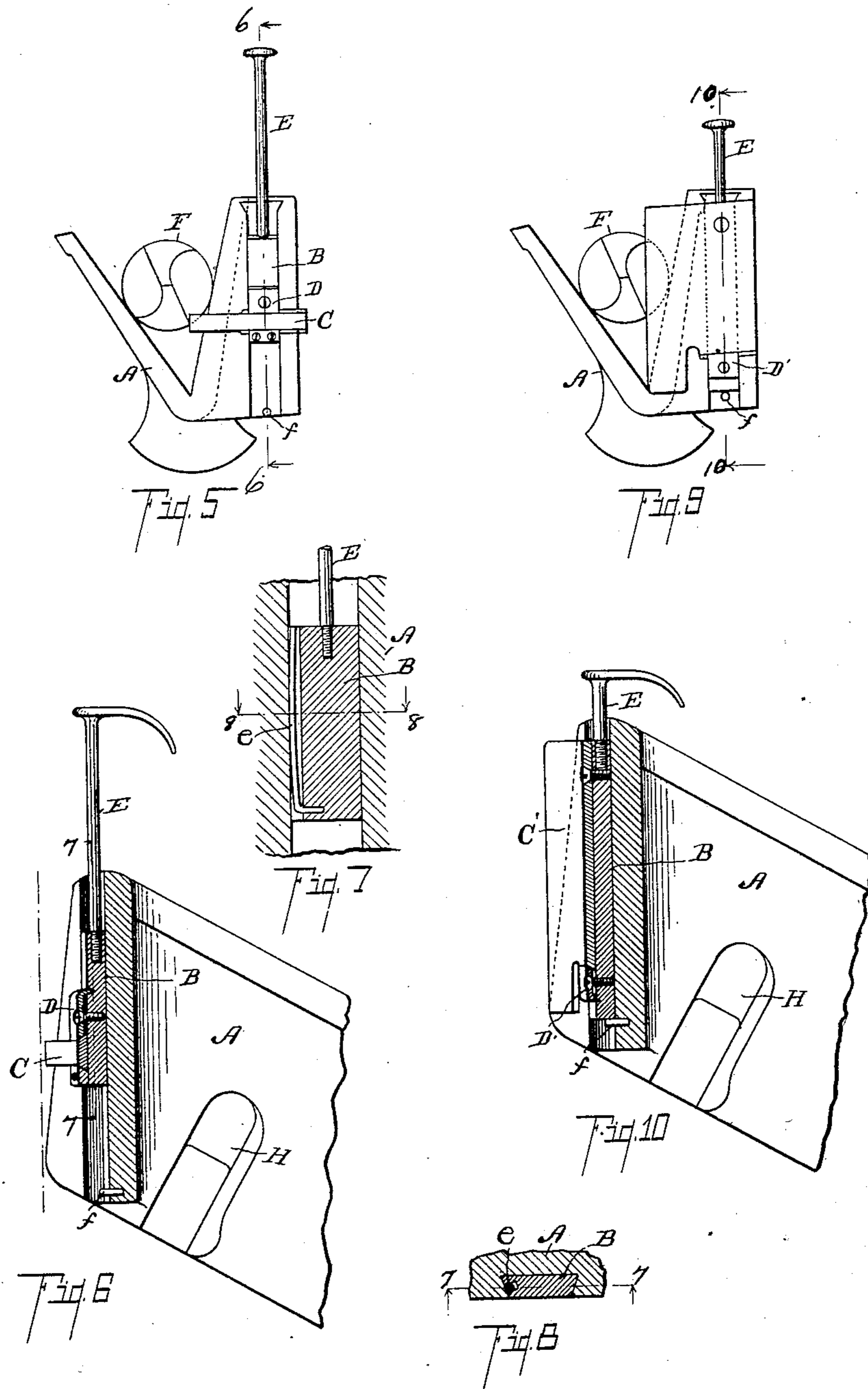
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UNITED STATES PATENT OFFICE.

CORNEIL RIDDERHOF, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO WIL-MARTH AND MORMAN COMPANY, OF GRAND RAPIDS, MICHIGAN.

DRILL-GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 702,885, dated June 17, 1902.

Application filed January 23, 1902. Serial No. 90,860. (No model.)

To all whom it may concern:

Be it known that I, CORNEIL RIDDERHOF, a citizen of the United States, residing at the city of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Drill-Grinding Machines, of which the following is a specification.

This invention relates to improvements in drill-grinders.

The objects of the invention are, first, to provide an improved V-shaped holder for drill-grinders provided with a readily adjustable and removable lip-rest; second, to provide such a drill-holder with a drill lip-rest so constructed and arranged that it is not only adapted for use in grinding twist-drills, but will grind successfully and practically fluted reamers, flat drills, or drills of any description; third, to provide a drill-holder for a drill-grinder in which the lip-rest is readily adjustable to compensate for wear or an accidental cutting away of the lip-rest by the grinding-wheel; fourth, to provide an adjustable device in connection with a V-shaped holder whereby drills having enlarged shanks may be satisfactorily ground; fifth, to provide an improved construction of V-shaped holder in which the steel or emery dust or grit will readily escape from the holder; sixth, to provide a form of construction of V-shaped drill-holder in which it is easy to manipulate drills of any size.

Further objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail elevation view of the upper portion of a V-shaped drill-holder embodying the features of my invention, the same being adapted for use in a machine like that described and patented in Letters Patent No. 643,703, issued February 20, 1900, portions being broken away to show details of construction.

Fig. 2 is a detail cross-sectional view taken on line 2 2 of Fig. 1, showing the adjustable V-shaped block I in the bottom of the drill-holder to accommodate drills having large shanks. Fig. 3 is a detail transverse sectional view on line 3 3 of Fig. 1, showing details of the opening for the manipulation of drills within the holder and for the escape of emery and steel dust. Fig. 4 is a detail perspective view of the adjustable V-shaped block I appearing in Figs. 1 and 2. Fig. 5 is a detail front elevation view of the structure appearing in Fig. 1, showing details of construction of the adjustable lip-rest. Fig. 6 is a detail sectional view on line 6 6 of Fig. 5. Fig. 7 is a detail sectional view of the friction device of the adjustable lip-rest, taken on line 7 7 of Figs. 6 and 8. Fig. 8 is a detail transverse sectional view of the same, taken on line 8 8 of Fig. 7. Fig. 9 is a detail end elevation view with a broad lip-rest extending from the angle of the V to the top of the same, which is adapted for use for twist-drills, the same being made adjustable for wear. Fig. 10 is an enlarged detail sectional view of the same, taken on line 10 10 of Fig. 9.

In the drawings similar letters of reference refer to similar parts throughout the several views, and all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines.

Referring to the lettered parts of the drawings, A is the main body of the V-shaped holder, adapted to be supported in a drill grinding machine like that illustrated in the Patent No. 643,703, issued to Henry P. White on the 20th day of February, 1900. In the bottom of the V-shaped groove of this holder is a longitudinal slot, forming a rectangular seat slightly divergent at the bottom. An adjustable block I, with a V-shaped groove, is inserted in the slot and is retained in position by pins *n n*, forced normally outward by the spring between them, so that this block moves freely back and forth in the slot.

Many drills of small size have a larger shank than body, and the object of this device is to adjust the same in front of the shank so that the bit can lie flat in the groove and present its lip at the proper angle to the grinding-wheel. For the smaller sizes of drills

this block I can be adjusted, and the largest sizes will rest above the same. A finger-slot H is cut into the V-shaped holder A from its bottom upwardly, which permits the convenient handling of the drill without the necessity of providing any instrument or tool for taking it out of the groove, and this slot is also found an advantage, as any grit or dust, either from the grinding-wheel or the implement ground, is readily discharged from the bottom of the holder through this opening without causing any inconvenience or necessitating any special sweeping or cleaning of the holder.

15 An adjustable and removable drill lip-rest is provided for the front of the holder. This is carried by the adjustable block B, which fits in suitable ways formed in the front of the holder, the ways being parallel to the proper line of support at the front end of the drill. This block B is retained in position frictionally by a spring *e*, inserted in a groove in one side of the same and bowed to contact with the sides of the ways, a stem E extending up therefrom and turned into a suitable handle for the convenient manipulation of the block and its attached lip-rest. The lip-rest is preferably a steel finger C, held adjustably in place by the clip-piece D, the same being suitably dovetailed to be properly gripped and extending in front of the V-groove in proper position to engage the flutes of the drill or reamer, as is clearly illustrated in Figs. 1 and 5, and this is adjustable up and down to engage the flute at the proper point to prevent rotation. A stop *f* is provided to prevent its being pushed too low. A broad lip-rest can be provided with its front edge at an angle that will be quite effective for grinding twist-drills, though it cannot be adapted to grind reamers and drills of more than the two flutes. I make this adjustable to compensate for wear and to secure the best position of the drill-lip-rest edge to secure the best results. When this construction is used, the angle of the edge of the rest is necessarily swung off to one side of the line of the V of the holder to accommodate the thickness of the wedge of the drill. This, however, is a common feature, which appears in the patent to Stetson, No. 237,922, February 15, 1881, and I do not wish to be understood to claim anything for this feature.

The device I have provided for adjusting the lip-rest works very effectively and is so

constructed that the presence of grit does not materially interfere with the operation. The parts are easily manufactured and assembled, and I have made provisions not only for adjustment for wear, but to adjust the lip-rest to the proper and best position for grinding all classes of tools.

I have made the lip-rest readily assembled, so that different varieties of the lip-rests can be used for different classes of work.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a drill-grinder, a V-shaped holder; an adjustable slide B, in suitable ways on the front of the holder retained in position by a curved spring *e*; a drill lip-rest C adjustably clamped to the slide B by suitable clips D; a suitable handle connected to the slide for adjusting the same, coacting for the purpose specified.

2. In a drill-grinder, a V-shaped holder; an adjustable slide B, in suitable ways on the front of the holder retained in position by a curved spring *e*; a drill lip-rest secured to the said slide; a suitable handle connected to the slide for adjusting the same, coacting for the purpose specified.

3. In a drill-grinder, a V-shaped holder; an adjustable slide, in suitable ways on the front of the holder retained in position by suitable friction means; a drill lip-rest adjustably secured to said slide; means for adjusting said slide for the purpose specified.

4. In a drill-grinder, a V-shaped holder; an adjustable slide in suitable ways on the front of the holder retained in position by suitable friction means; a drill lip-rest carried by said slide; means for adjusting said slide, for the purpose specified.

5. In a drill-grinding machine, the combination of a V-holder having a lip-rest at the front and containing a rectangular slot or way formed in the bottom of the V; an adjustable block I retained in said slot by suitable friction means and adjustable back and forth therein to accommodate drills with large shanks, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

CORNEIL RIDDERHOF. [L.S.]

Witnesses:

GUS. J. FENNELL,
WM. H. GAY.