

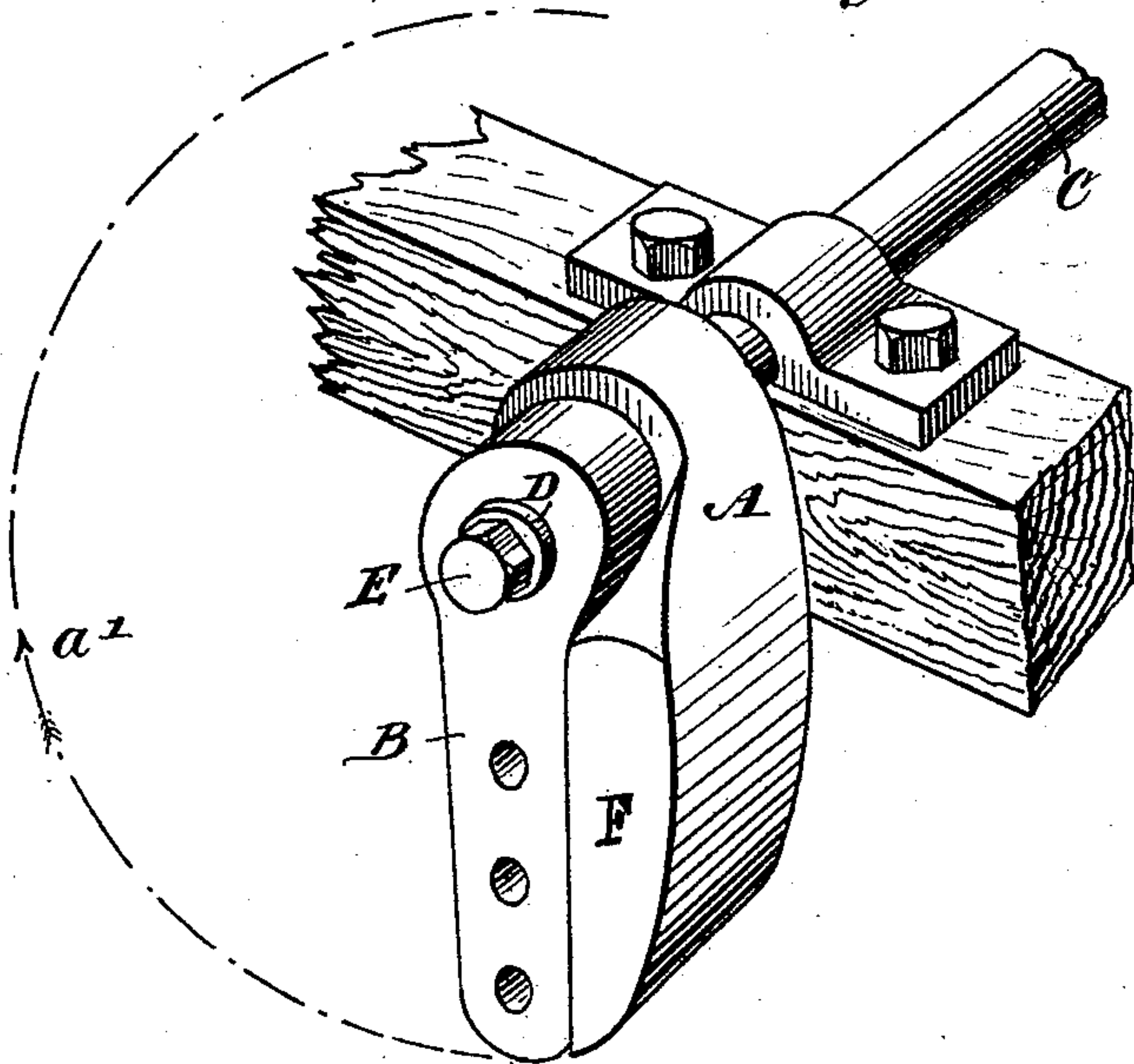
(No Model.)

J. BENSON.  
CRANK ARM.

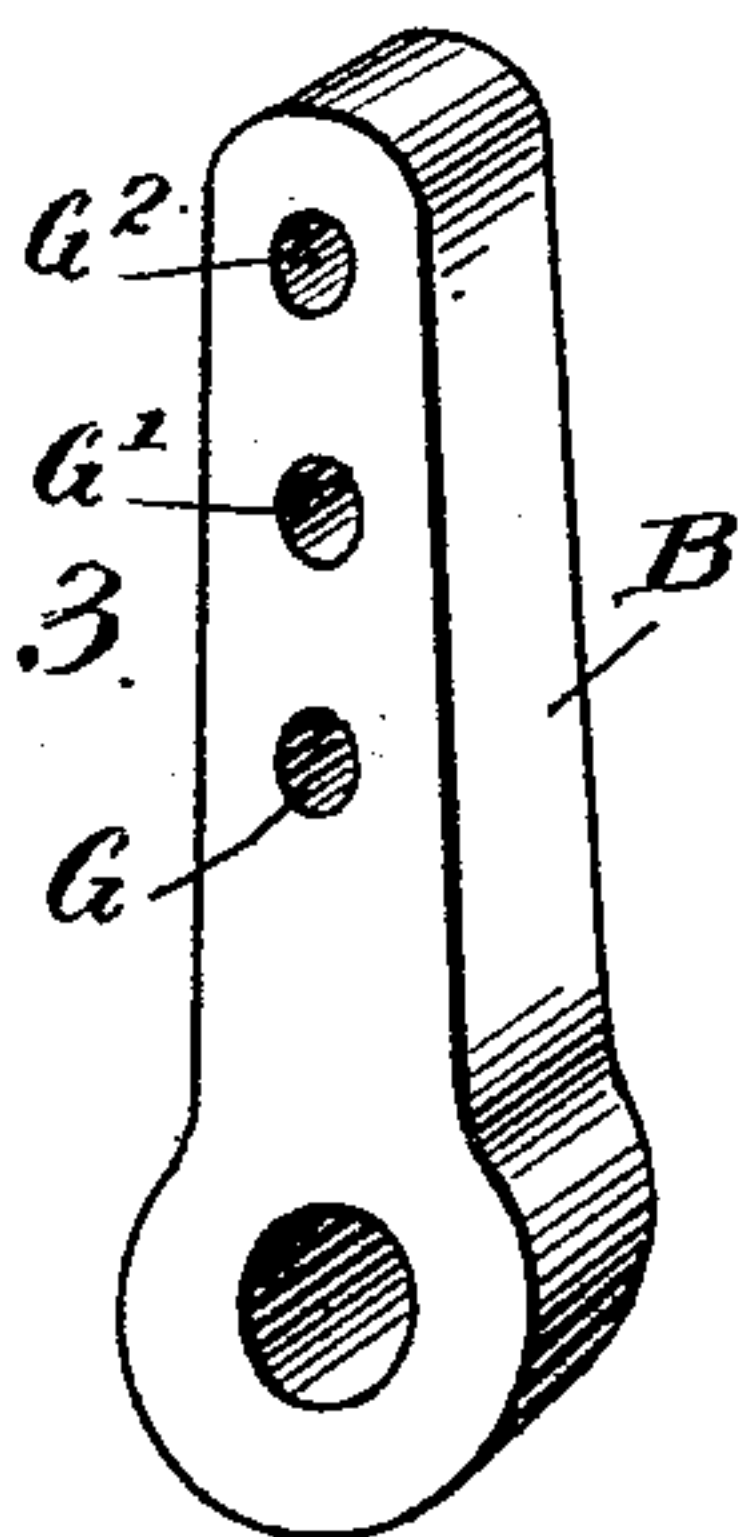
No. 464,416.

Patented Dec. 1, 1891.

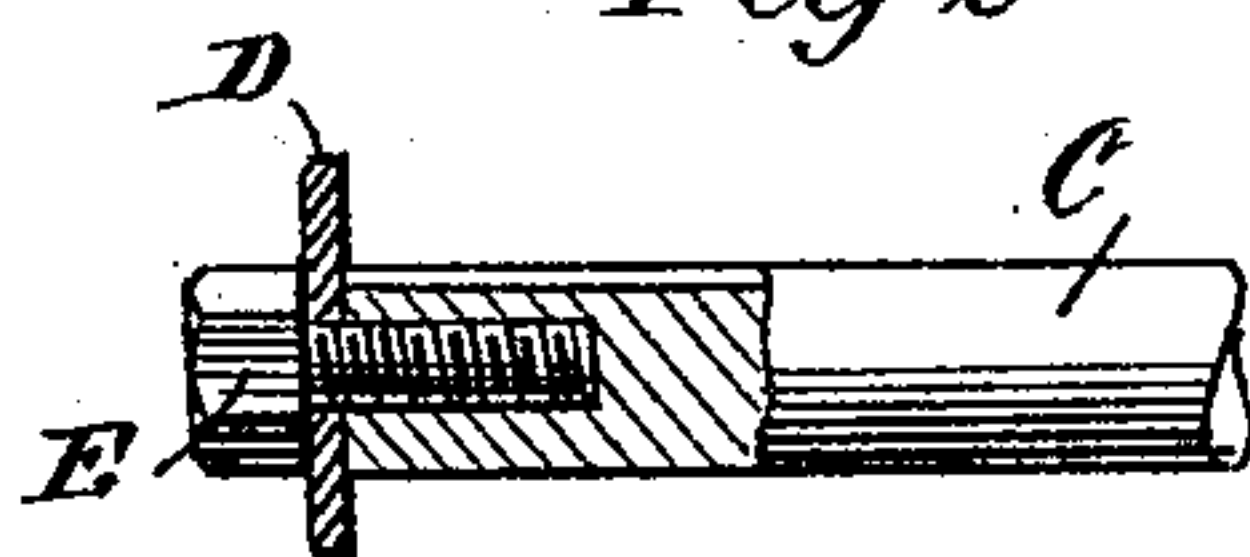
*Fig 1.*



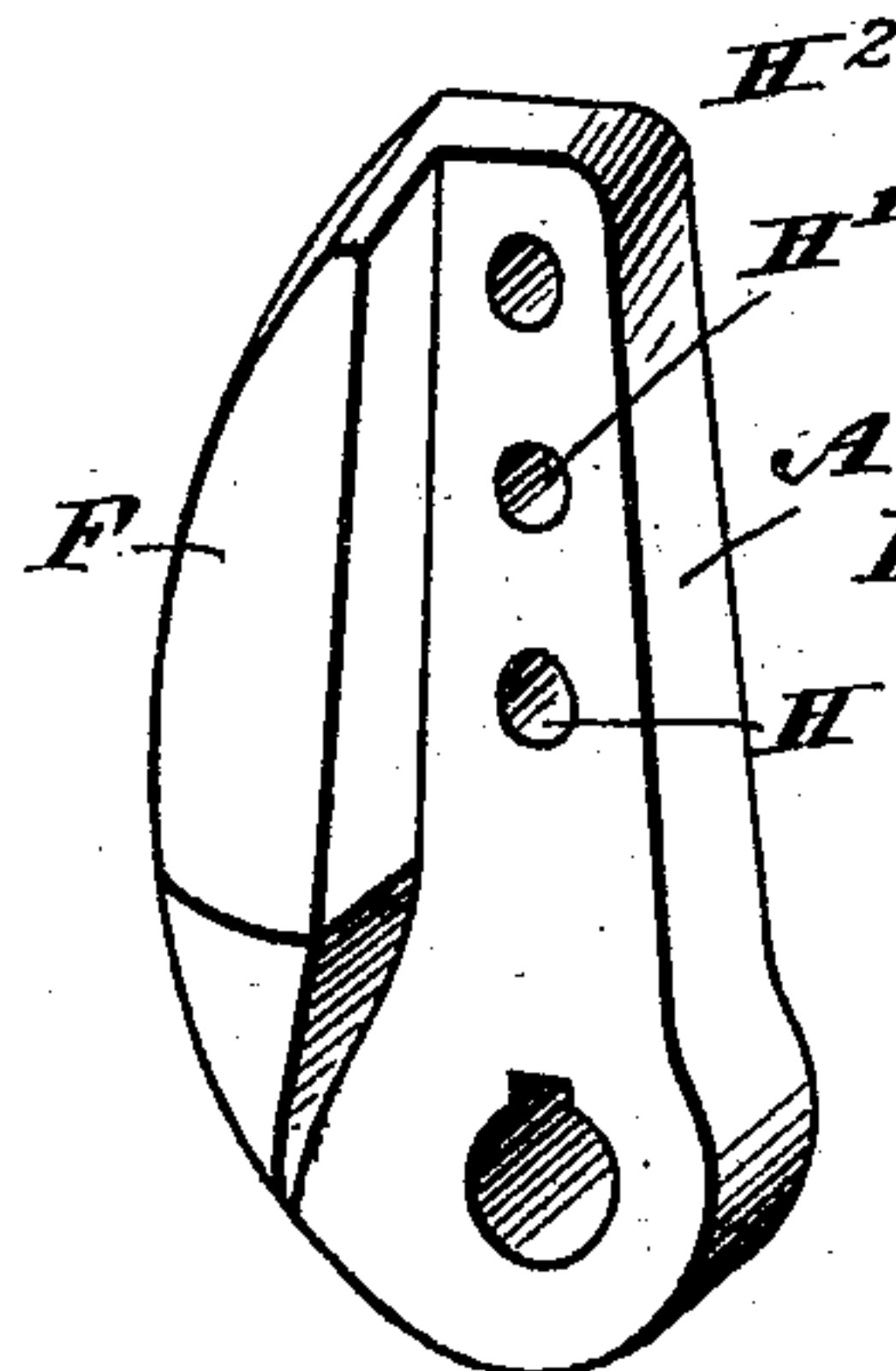
*Fig 3.*



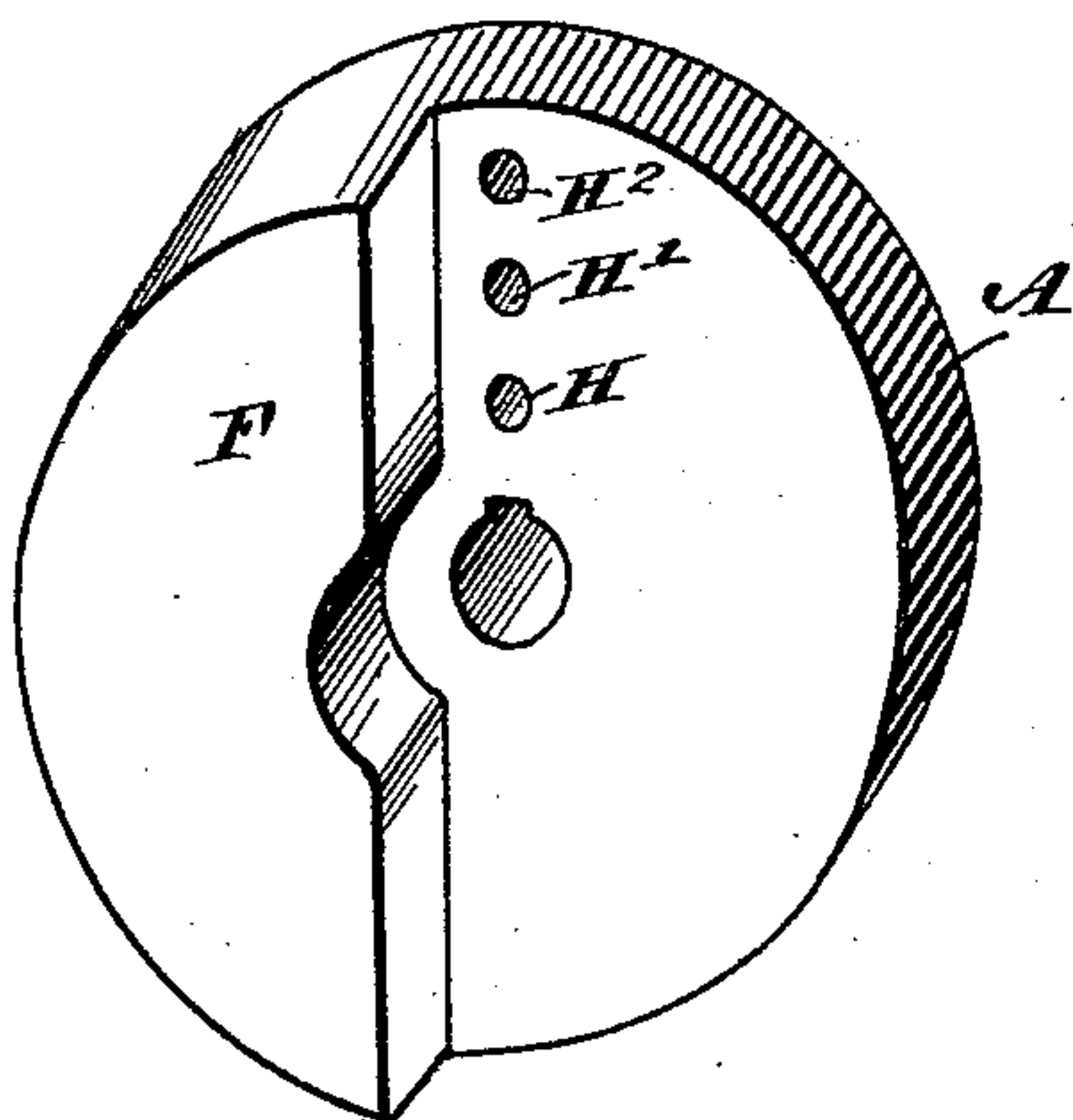
*Fig 2*



*Fig 4.*



*Fig 5.*



WITNESSES:

*Paul Johst*  
*E. M. Clark*

INVENTOR:

*James Benson*  
BY *Munn & Co*

ATTORNEYS

# UNITED STATES PATENT OFFICE.

JAMES BENSON, OF WANAARING, NEW SOUTH WALES.

## CRANK-ARM.

SPECIFICATION forming part of Letters Patent No. 464,416, dated December 1, 1891.

Application filed July 16, 1891. Serial No. 399,978. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES BENSON, of Wanaaring, New South Wales, have invented a new and Improved Crank-Arm, of which the following is a full, clear, and exact description:

The object of the invention is to provide a new and improved crank-arm which is simple and durable in construction, and is more especially designed for use in machines for drilling Artesian wells and for other machines in which a drop is required.

The invention consists in certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the improvement as applied. Fig. 2 is a side elevation of the shaft, with parts in section. Fig. 3 is a perspective view of the loose section. Fig. 4 is a like view of the section fastened to the shaft, and Fig. 5 is a perspective view of a modified form of the section fastened in the shaft.

The improved crank-arm is made in two sections A and B, of which the section A is keyed or otherwise fastened on the shaft C. The other section B is held on the shaft C in front of the section A and against the face of the same by a washer D and screw E, secured to the shaft, as is plainly illustrated in Figs. 1 and 2. The loose section B is adapted to abut at one side against a flange F, projecting forward from the section A, so that during one half-revolution of the shaft C the said flange F carries the loose section B along, and when the crank-arm reaches a lowermost position, as illustrated in Fig. 1, then the loose section B can readily swing upward in the direction of the arrow  $a'$  without being hindered by the section A, which slowly follows with the revolving of the shaft C.

When the section B is at the end of its rapid motion, it stands in an uppermost vertical position, and is then again engaged by the flange F to be swung downward into a lowermost position, when the loose section can again rapidly swing upward, as previously described, to permit the tool or other machinery connected with the said section to drop suddenly.

The loose section B is provided with a row of apertures  $G\ G' G^2$ , one of which is adapted to carry the crank-pin connected with the machinery to be actuated. By inserting the crank-pin in the innermost aperture G the drop is considerably less than when the crank-pin is in the next or outermost aperture  $G'$  or  $G^2$ . In the section A, fastened on the shaft C, are also arranged a series of apertures  $H\ H' H^2$ , adapted to register with the apertures  $G\ G' G^2$ , so that the two sections A and B can be secured to each other by bolts or other means passing through the respective registering apertures  $G\ H\ G' H' G^2 H^2$  whenever it is desired to form a solid crank-arm.

As shown in Fig. 5, the fast section A is made in the shape of a disk, so as to give additional strength to the crank-arm.

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

As an improved article of manufacture, a crank consisting in the fixed section or arm A, having a longitudinal flange F along the rear edge of its outer face and a series of transverse apertures  $H\ H' H^2$ , and the loose section B, resting against the face of the arm A in front of the flange F and provided with a series of apertures  $G\ G' G^2$ , registering with those in the arm A, substantially as set forth.

JAMES BENSON.

Witnesses:

D. MAUNSELL,

J. S. McELVENEY, Jr.