

No. 610,729.

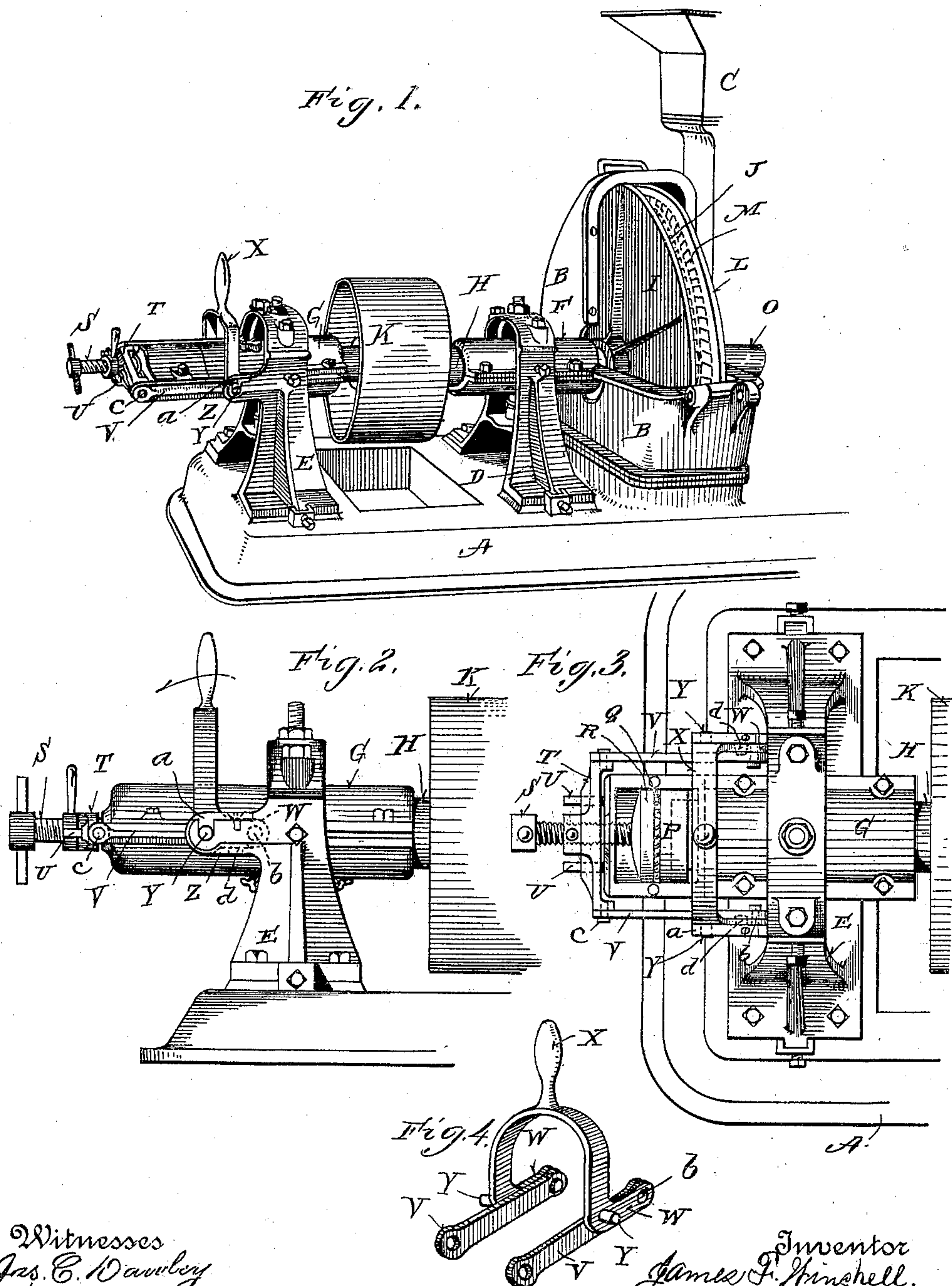
Patented Sept. 13, 1898.

J. F. WINCHELL.
GRINDING MILL.

(Application filed June 4, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 5.

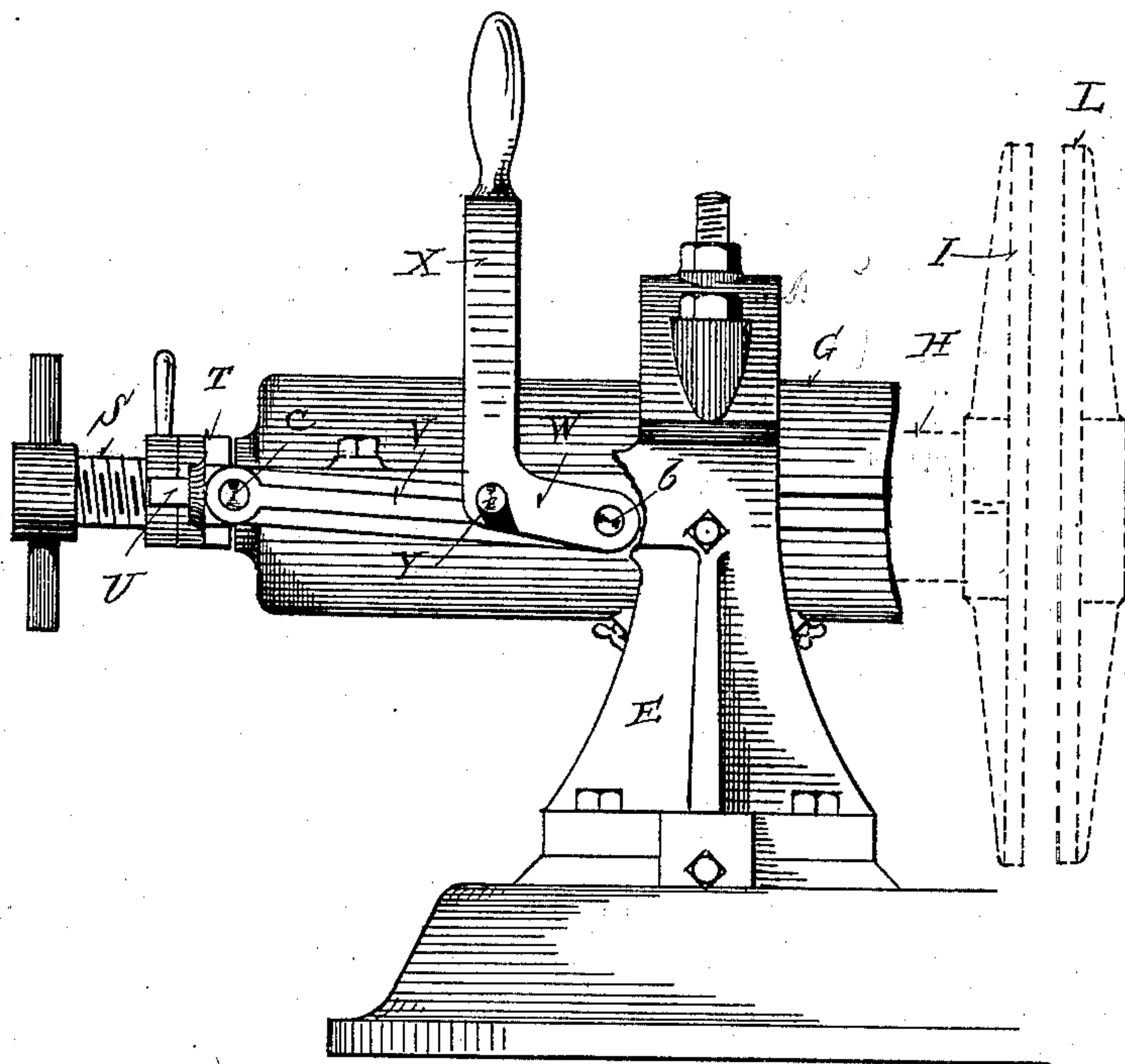
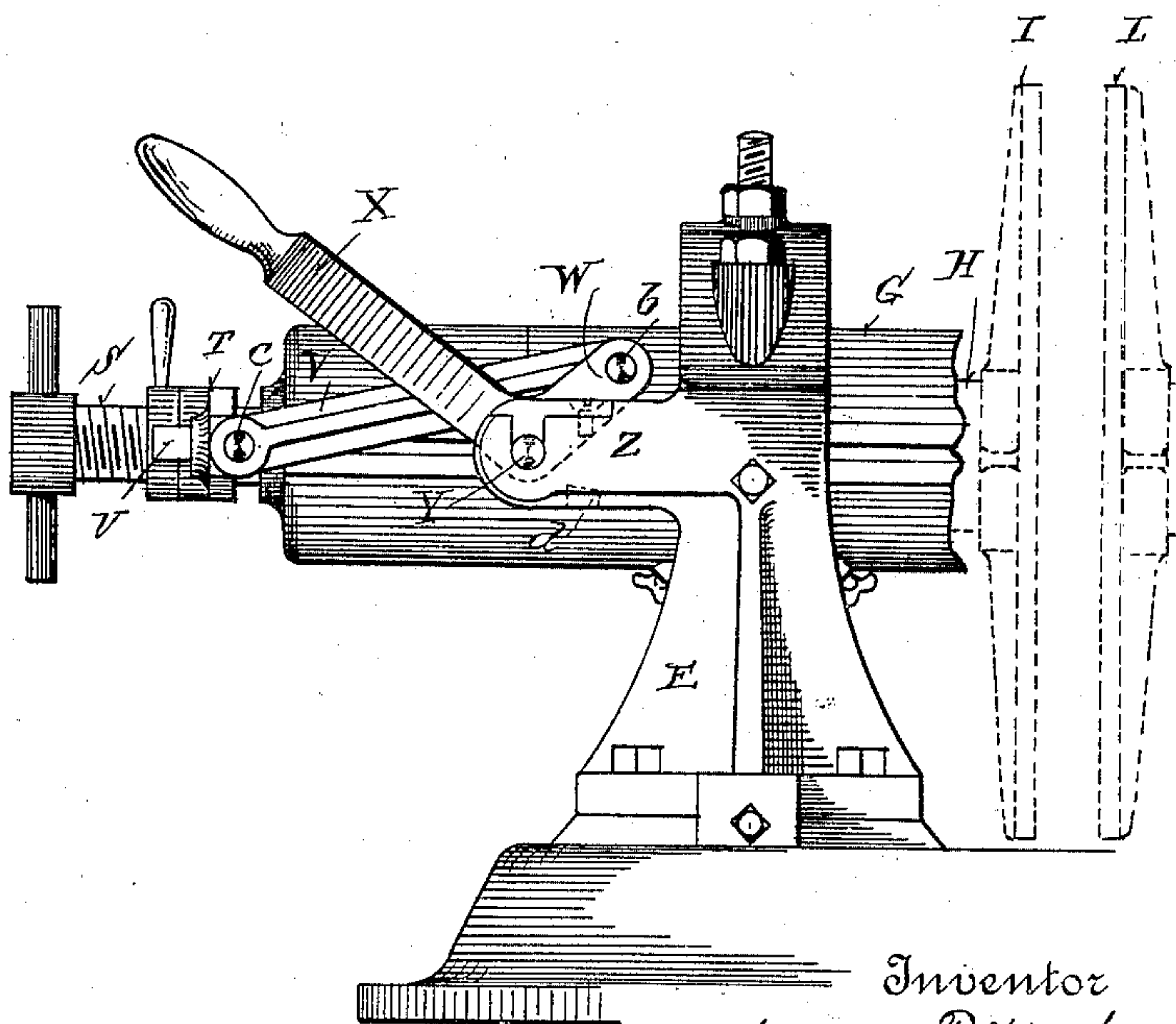


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES F. WINCHELL, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE FOOS MANUFACTURING COMPANY, OF SAME PLACE.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 610,729, dated September 13, 1898.

Application filed June 4, 1897. Serial No. 639,380. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. WINCHELL, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in quick-releasing mechanism for grinding-mill shafts, so that the grinding-heads may be quickly separated and adjusted together.

15 My invention is particularly designed for and adapted to the vertical-disk type of grinding-mills being manufactured and sold by my assignee of this invention, the Foos Manufacturing Company, though it may be used with other grinding-mills.

20 It consists, essentially, of a double bell-crank lever connected by links with a cross-head adapted to slide to and from the grinding-head shaft and carrying the temper-screw for giving slight adjustment to such shaft, whereby when such lever is operated it will adjust the cross-head and with it the temper-screw to and from the grinding-shaft in a manner to permit the shaft to shift longitudinally and quickly in one direction and in a manner to quickly adjust the shaft in the other direction.

25 In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 is a perspective view of so much of one type of grinding-mill now being put on the market by my said assignee as is necessary to show the adaptation and arrangement of my quick-adjusting mechanism. Fig. 2 is a side elevation of a portion of such mill and of my mechanism; Fig. 3, a plan view of what is shown in Fig. 2; Fig. 4, a detail perspective view of the bell-crank lever with its links; Fig. 5, an enlarged detail side elevation with parts broken away; and Fig. 6, a similar view to Fig. 5, showing the cross-head moved outward by the quick-release mechanism.

30 The letter A designates the base of such a mill, upon which is mounted a casing B for the grinding-heads, with a feed-hopper C. On

the base are also mounted bearing-standards D and E, these standards supporting suitable bearings F and G for the shaft H. This shaft carries a grinding-head I, armed with suitable grinding-plates J. A pulley K is utilized to drive this shaft and grinding-head by means of a belt. A similar grinding-head L, with grinding-plates M, is mounted in juxtaposition to the grinding-head I on a shaft O, mounted also in suitable bearings. One of these heads is to be adjusted to and from the other by two classes of adjustments. One class is quick, and hence I term my improvements "quick-adjusting mechanism." The other class of adjustments is slow, being effected by temper-screw. I have illustrated a mill in which both of the heads rotate; but it is obvious that if but one head rotated and the other was stationary my improvements would be equally applicable. I have shown it applied to one of the heads as illustrated in the drawings—namely, the head I. The shaft H of this head extends into the bearing G and has placed against its end a plate P, with antifriction-balls Q between it and a plate R. The temper-screw S bears against the plate R, and through it and the balls and plate P adjusts the shaft inward to bring the head I in proper relation to the head L, according to the degree of coarseness or fineness it is desired to grind the material, as corn. So far I have described nothing new.

I will now refer to my mechanism proper. A yoke T carries the temper-screw S and is mounted upon pins U, extending from the end of the bearing G. To each end of the yoke are pivoted links V, while these links at their other ends are pivoted to the arms W of the double bell-crank lever X, having studs at Y, which are pivoted in brackets Z, extending from the standard E and having caps *a*, which keep the trunnions in place. Now it will be seen that in order to quickly release the head I and its shaft H it is only necessary to take hold of the lever X and move it in the direction of the arrow, as shown. This will slide the cross-head T on its pins U away from the shaft and release the temper-screw S from the plate R. Thus the shaft can shift longitudinally in that direction. It tends so by the pressure of the material be-

tween its head and the other head, and when so shifted it moves the plates P and R, together with the balls between them, without separating said plates. To return the shaft
5 to "normal" position, as it may be termed, the lever X is returned to normal position. It will be understood, of course, that the pivot *b* between the lever and the links and the pivot *c* between the links and the cross-
10 head are slightly out of line with the trunnions Y when the lever X is in normal or holding position. Stops formed by lugs *d* project inward from the brackets Z and limit the downward movement of the arms W of
15 the lever X. Thus it will be seen that I have provided a quick-releasing mechanism which, besides quickly permitting or freeing the shaft in one direction, will yet hold the shaft
20 against shifting from its place of adjustment by the temper-screw and will return the shaft to normal position after permitting it to be quickly released.

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

1. In a grinding-mill quick-releasing mechanism, the combination with a grinding-head and its shaft, of a slidable cross-head carrying a device to control the shaft, a hand-lever
30 adapted to be quickly operated and links connecting said lever and said cross-head whereby when the lever is operated the cross-head will be adjusted with respect to the grinding-shaft.

35 2. In a grinding-mill quick-releasing mechanism, the combination with a grinding-head

and its shaft, of a slidable cross-head carrying a temper-screw adapted to adjust and control such shaft, a double-armed lever pivoted near the cross-head and links connecting
40 the arms of said lever with the cross-head whereby when the lever is operated the cross-head will be adjusted with respect to the grinding-shaft.

3. In a quick-releasing mechanism for
45 grinding-mills, the combination with its head and shaft, of a slidable cross-head, a temper-screw carried thereby, a double-armed bell-crank lever, pivoted near the cross-head, and links connecting the lever-arms with the cross-
50 head, the normal position of the lever bringing the centers of the link-pivots out of line with the centers of the lever-pivots.

4. In a quick-releasing mechanism for
55 grinding-mills, the combination with a grinding-head, its shaft and bearings, of pins extending from one of the bearings, and brackets extending from one of the bearing-standards, a slidable cross-head on the pins and stops on the brackets, a double-armed crank-
60 lever pivoted in the brackets and limited by said stops, links pivoted to said arms and to the cross-head, and a temper-screw carried by the cross-head and adapted to adjust said shaft.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. WINCHELL.

Witnesses:

C. W. BOCK,
A. C. ALLEN.