

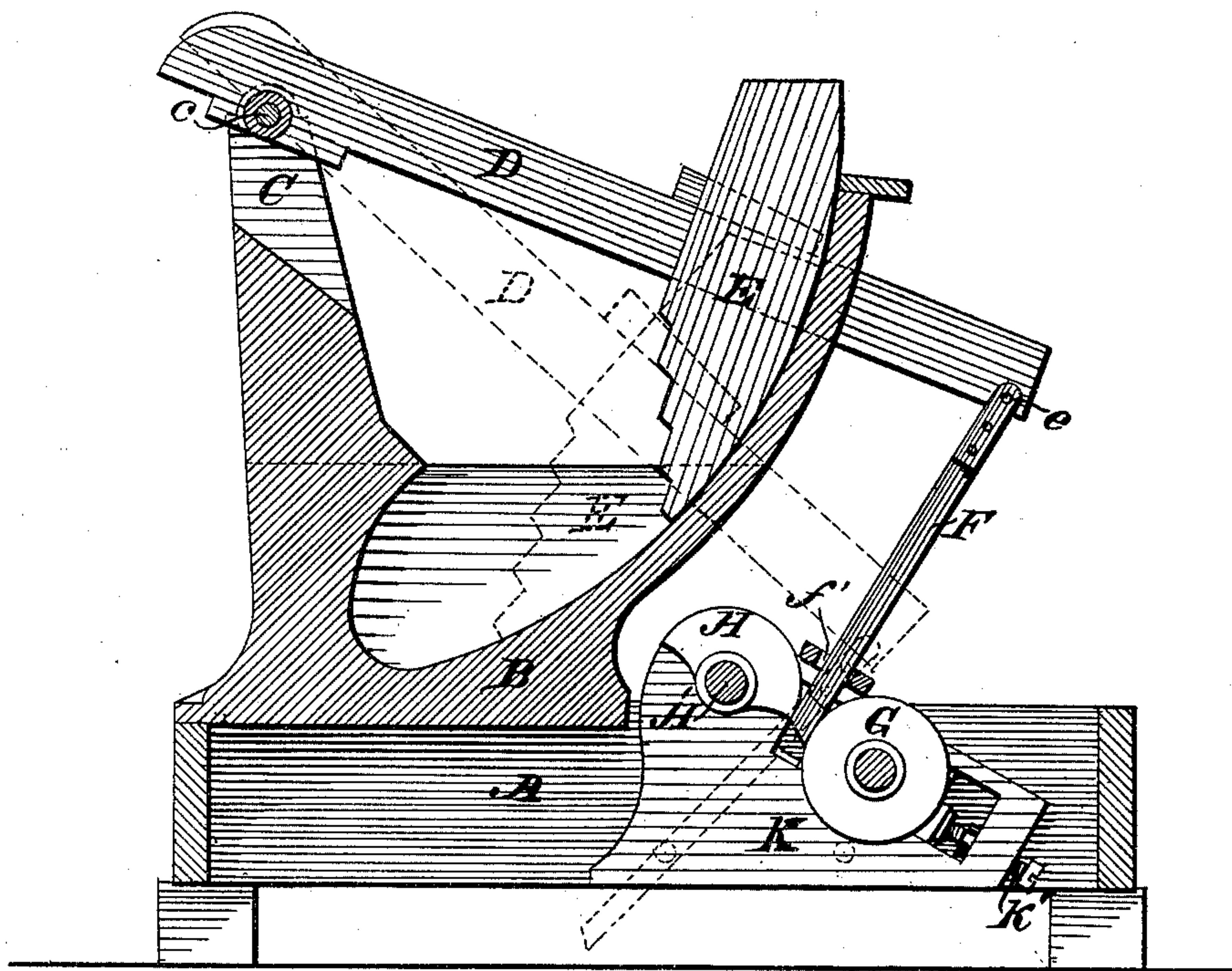
W. H. MASE & S. TERWILLIGER.

FULLING-MILL.

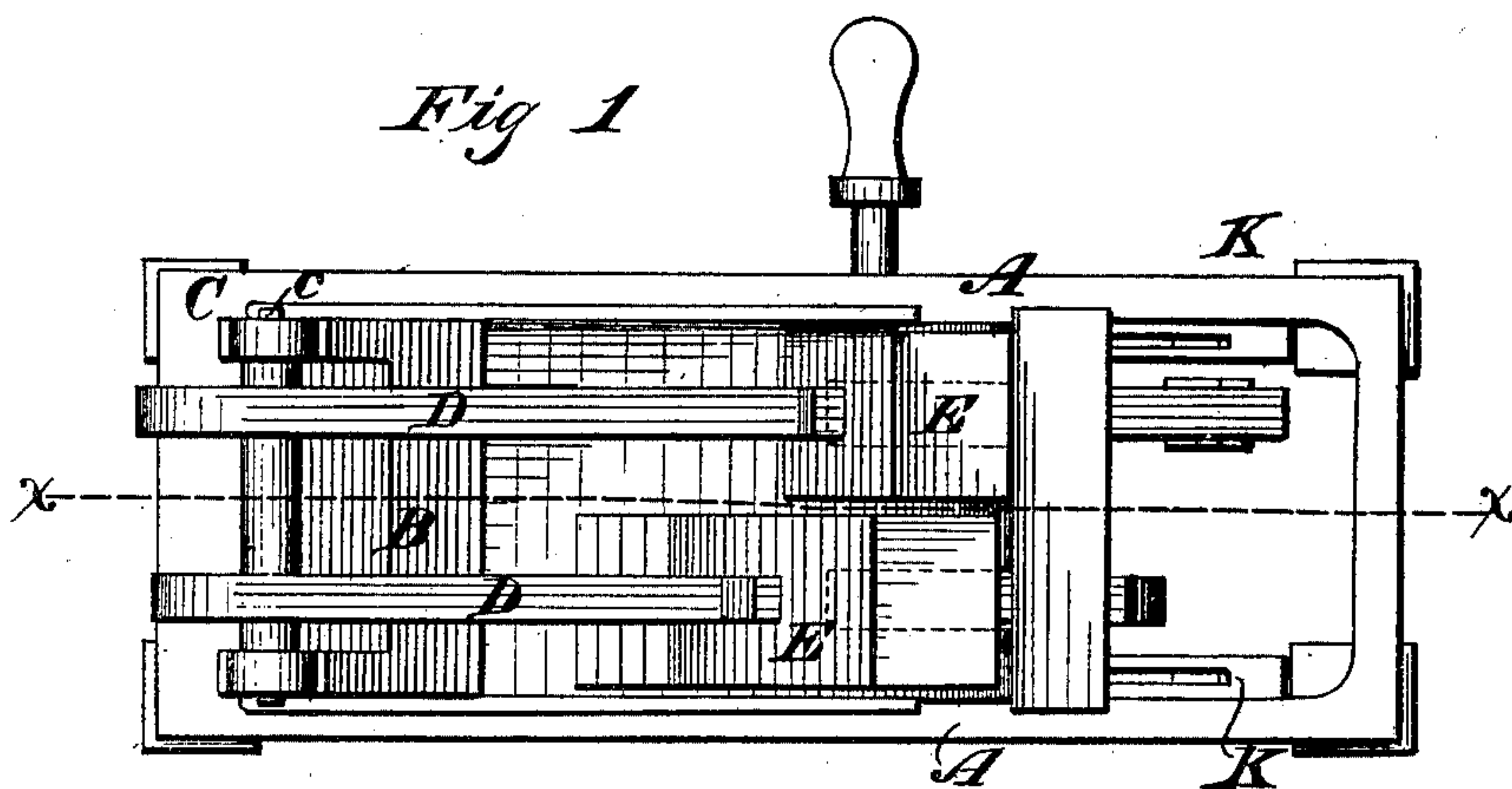
No. 176,023.

Patented April 11, 1876.

*Fig 2.*



*Fig 1*



WITNESSES

*Wm A Skinkley*  
*Eld Davidson*

By *their* Attorney

INVENTORS,

*Willard, H. Mase.*  
*Silas Terwilliger.*

*Wm. Baldwin*

W. H. MASE & S. TERWILLIGER.

FULLING-MILL.

No. 176,023.

Patented April 11, 1876.

Fig 4.

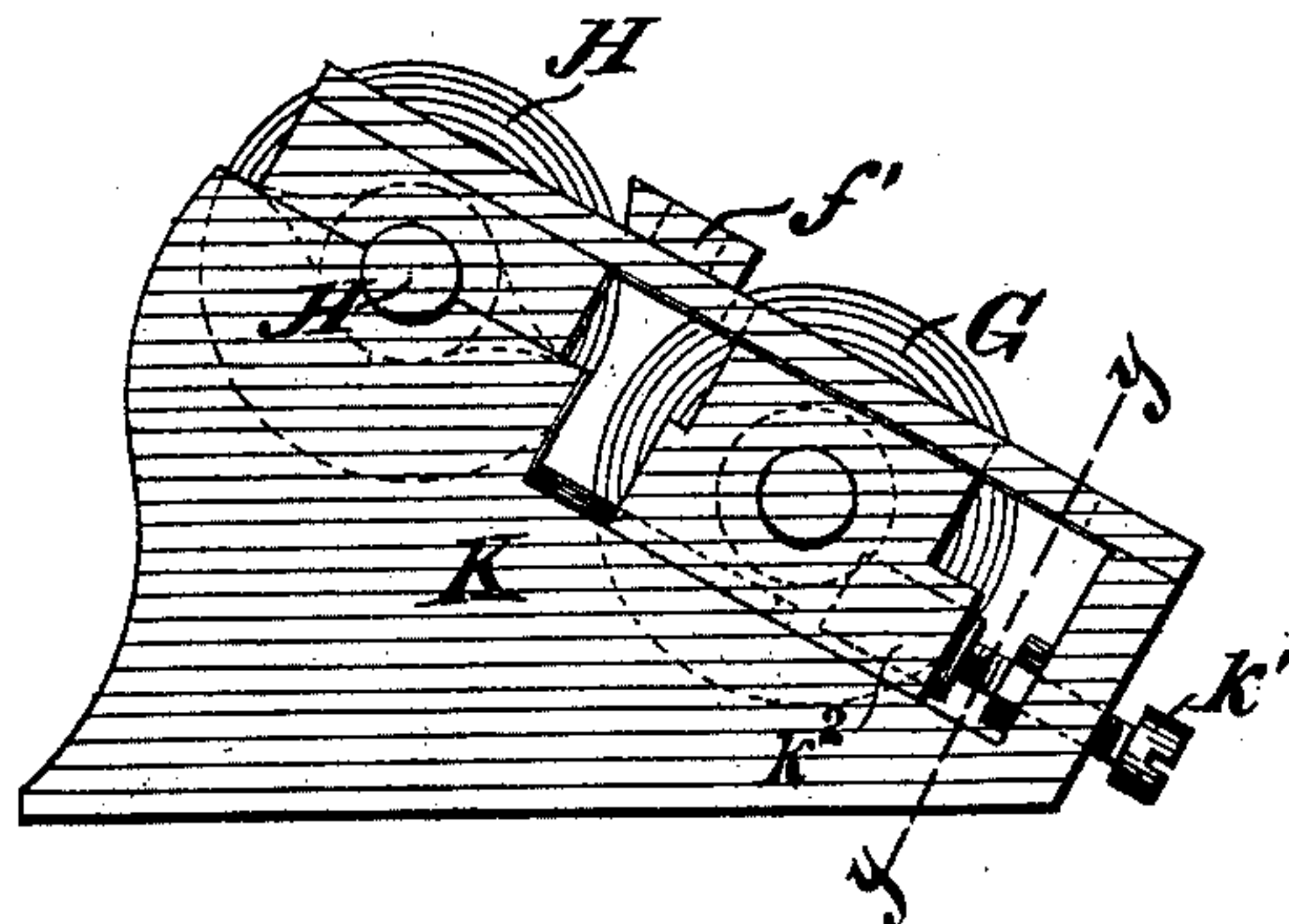


Fig 3.

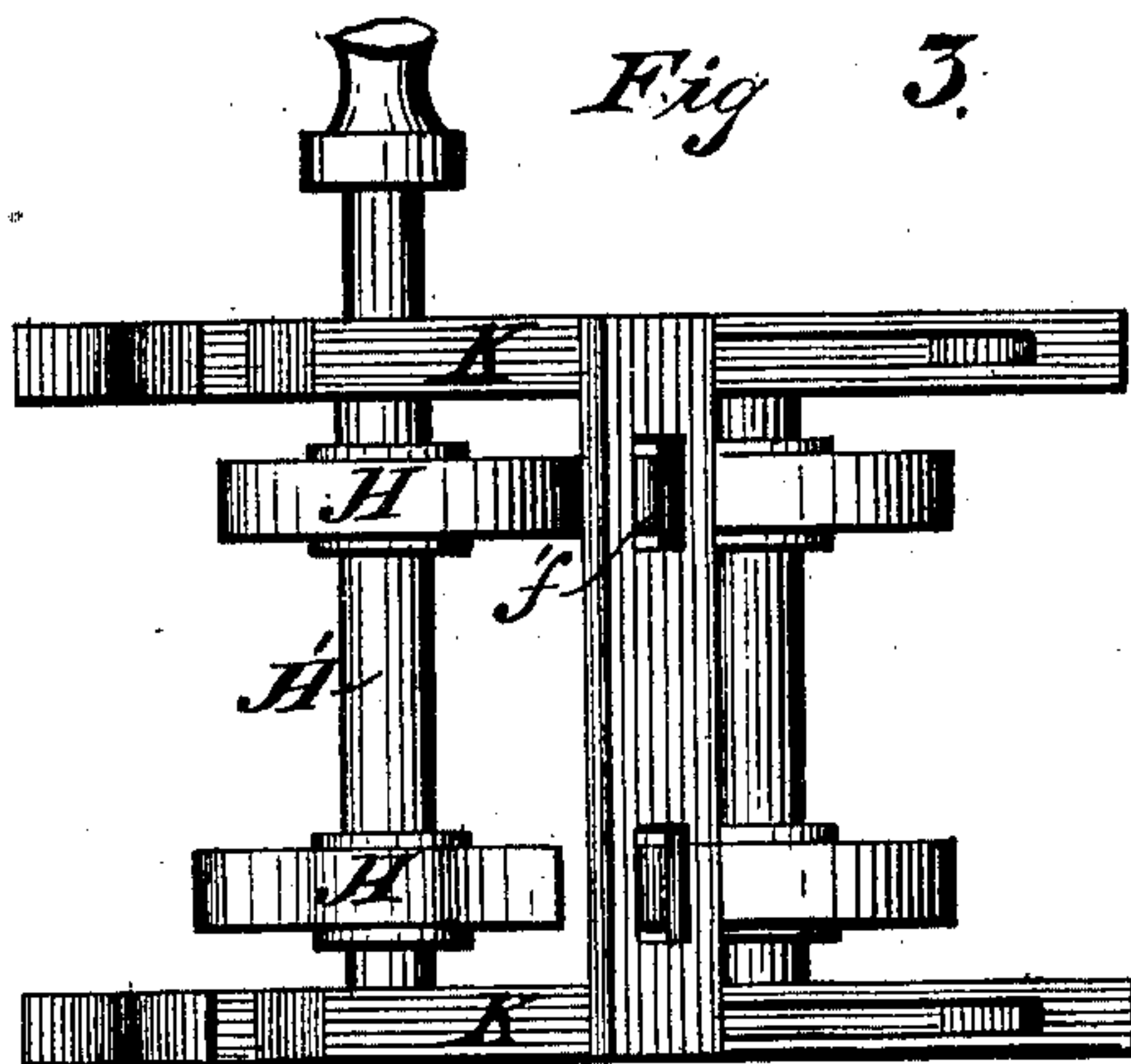
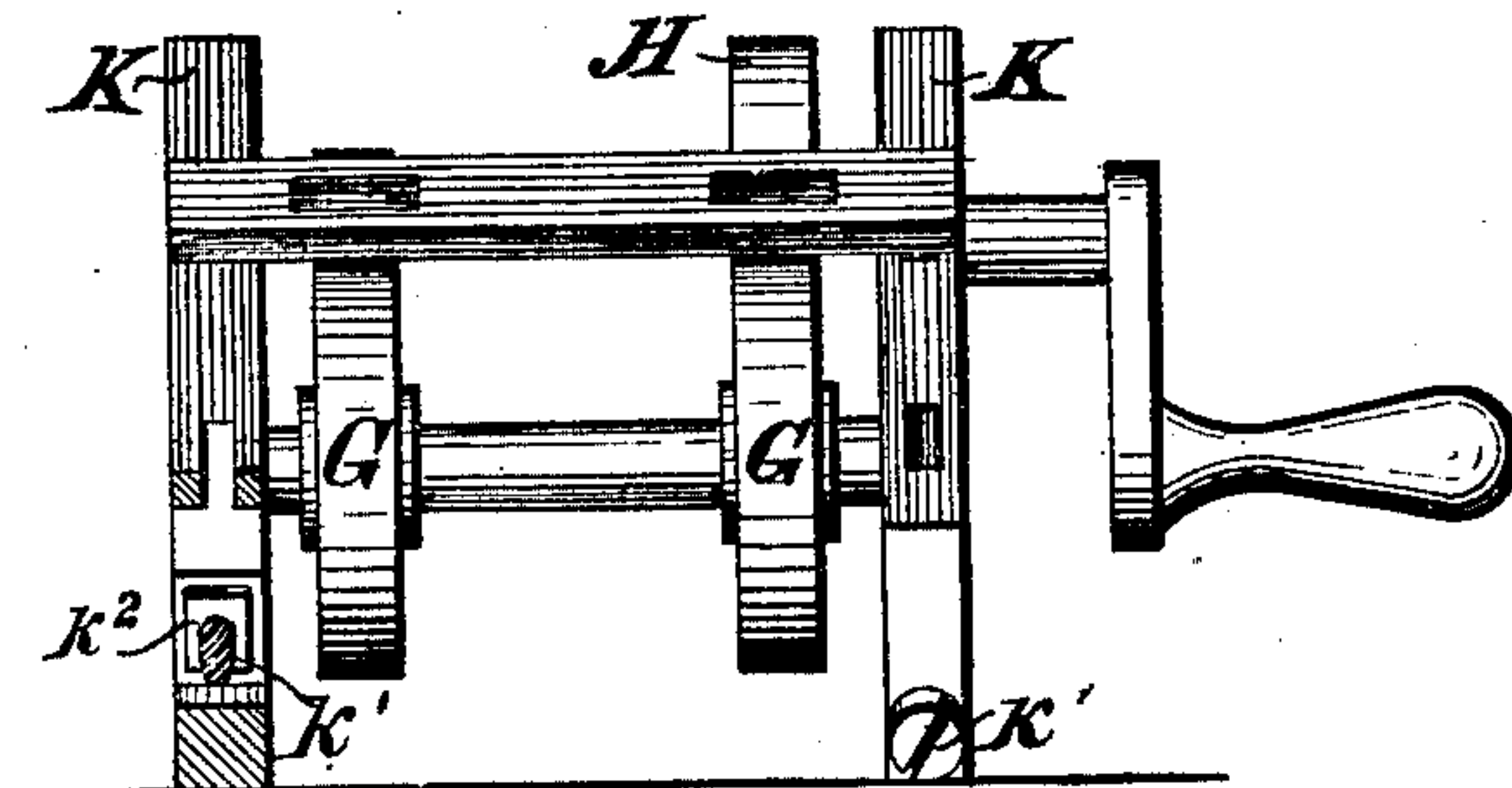


Fig 5.



WITNESSES

Wm A Skinkle  
E. Davidson

By his Attorney

INVENTORS.

Willard H. Mase.

Silas Terwilliger.

Wm D. Baldwin



# UNITED STATES PATENT OFFICE

WILLARD H. MASE AND SILAS TERWILLIGER, OF MATTEAWAN, N. Y.

## IMPROVEMENT IN FULLING-MILLS.

Specification forming part of Letters Patent No. **176,023**, dated April 11, 1876; application filed December 8, 1875.

*To all whom it may concern:*

Be it known that we, WILLARD H. MASE and SILAS TERWILLIGER, both of Matteawan, in the town of Fishkill, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Fulling-Mills, of which the following is a specification:

Our invention relates to mechanism for actuating the hammers or beaters of fulling mills. The old way of doing this was to lift the beaters by tappets or wipers, which plan is objectionable—among other reasons, as being too slow, there being practical difficulties in the way of lifting the hammer by this plan more than about thirty-five strokes per minute.

Another plan proposed is to lift the hammer-arm by a cam bearing directly on the end of said arm; but this plan involves end-thrust on the beater-arm, strain on the framing, and the rapid wear of the mechanism.

Another plan proposed has been to lift the arm by a strap passing over a pulley, and between gripping-rollers, which release the strap to allow the hammer to drop. This plan involves somewhat complicated mechanism, and is subject to various difficulties well known in the trade.

The object of our invention is so to organize the mechanism of a fulling-mill as to secure a simple, compact, and effective machine, not liable to get out of order, the parts of which can readily be removed, replaced, or adjusted, to compensate wear or for the purpose of making repairs.

The subject-matter claimed hereinafter specifically will be designated.

The accompanying drawings show so much only of our improved machine as is necessary to illustrate the subject-matter hereinafter claimed. Our improvements, however, are adapted for use in combination with the most highly-organized machines of the present day, and are intended to be accompanied by usual and well-known means of adjusting and assembling or removing the parts, so as to permit one beater of a set to be removed without stopping the whole set, we usually running them in sets of four.

Figure 1 represents a plan view of a por-

tion of our improved apparatus, and Fig. 2 a section therethrough on the line *x x* of the preceding figure. Fig. 3 represents a plan or top view of the actuating mechanism detached; Fig. 4, a side view, and Fig. 5 an end view thereof, partly in section, on the line *y y* of Fig. 4.

The mechanism is mounted upon a stout frame, A. From one end of the bed B arises uprights C, connected by a cross-shaft, *c*, upon which the helves or arms D of the hammers or beaters E are mounted. A set of two hammers is shown in the drawings. A pitman or pendent link, F, attached to the hammer-arm by a pivot, *e*, passes down through a guide-slot, *f'*, between a friction-roller, G, and a cam, H, mounted on a cam-shaft, H', driven in usual well-known ways. The cam-shaft revolves in fixed bearings, while those of the roller-shaft are in boxes adjustable longitudinally in a frame, K, provided with set-screws *k*<sup>1</sup>, working against rubber blocks or cushions *k*<sup>2</sup>, Fig. 5, by which the requisite bite of the roller upon the pendent link is secured, and any wear of the parts compensated.

The operation of the device will readily be understood from the foregoing description. The pendent link is squeezed between its cam and friction-roller, lifted to the desired height, and dropped by the cam, thus allowing the beater to fall by its own weight. The rapidity of the movement is only limited by the quickness with which the hammers will fall—about sixty times per minute.

The pendent links, instead of being made to swing on pivots on the hammer-arms, might be caused to move rectilinearly in suitable guides, and be connected with the hammer-arms by slides and friction-rollers, so as to move freely laterally on said arms as well as endwise with them.

Among other advantages of our improvements are the avoidance of strain upon the frame or hammer-arms, the great capacity given to the machine for adjusting, removing, or replacing its parts, and the removal of the actuating devices from a point where they are likely to interfere with the removal or working of the beaters to one entirely out of the way.

We claim as our invention—

1. The combination, substantially as hereinbefore set forth, of the hammer-arm and its pendent link with the friction-roller and cam.

2. The combination, substantially as hereinbefore set forth, of the hammer-arm, the pendent link, the friction-roller, the cam, and the guide for the pendent link.

In testimony whereof we have hereunto subscribed our names.

W. H. MASE.

SILAS TERWILLIGER.

Witnesses:

WM. J. PEYTON,

E. C. DAVIDSON.