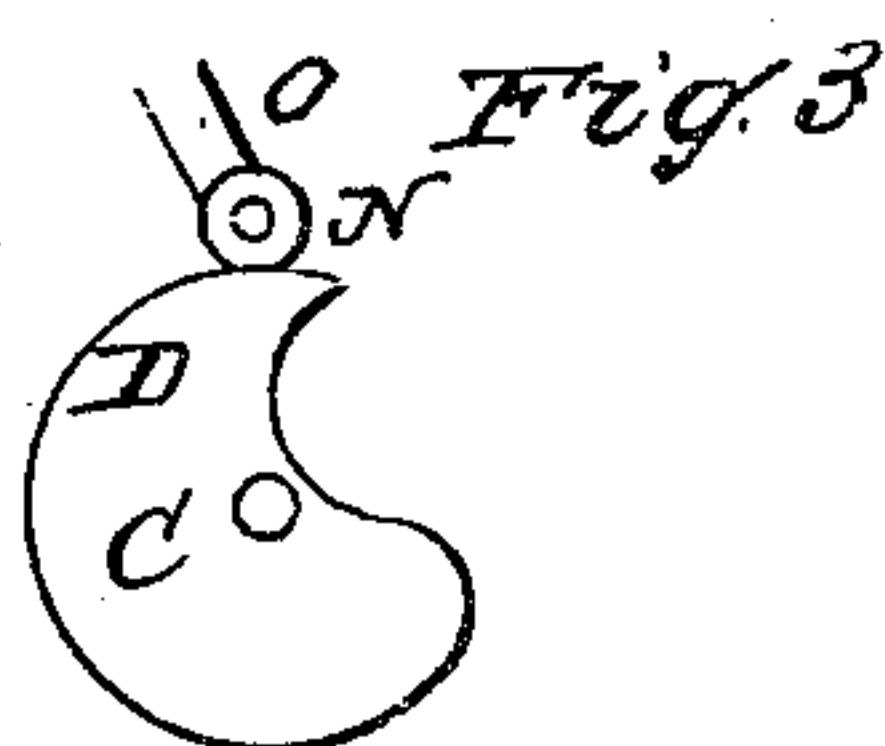
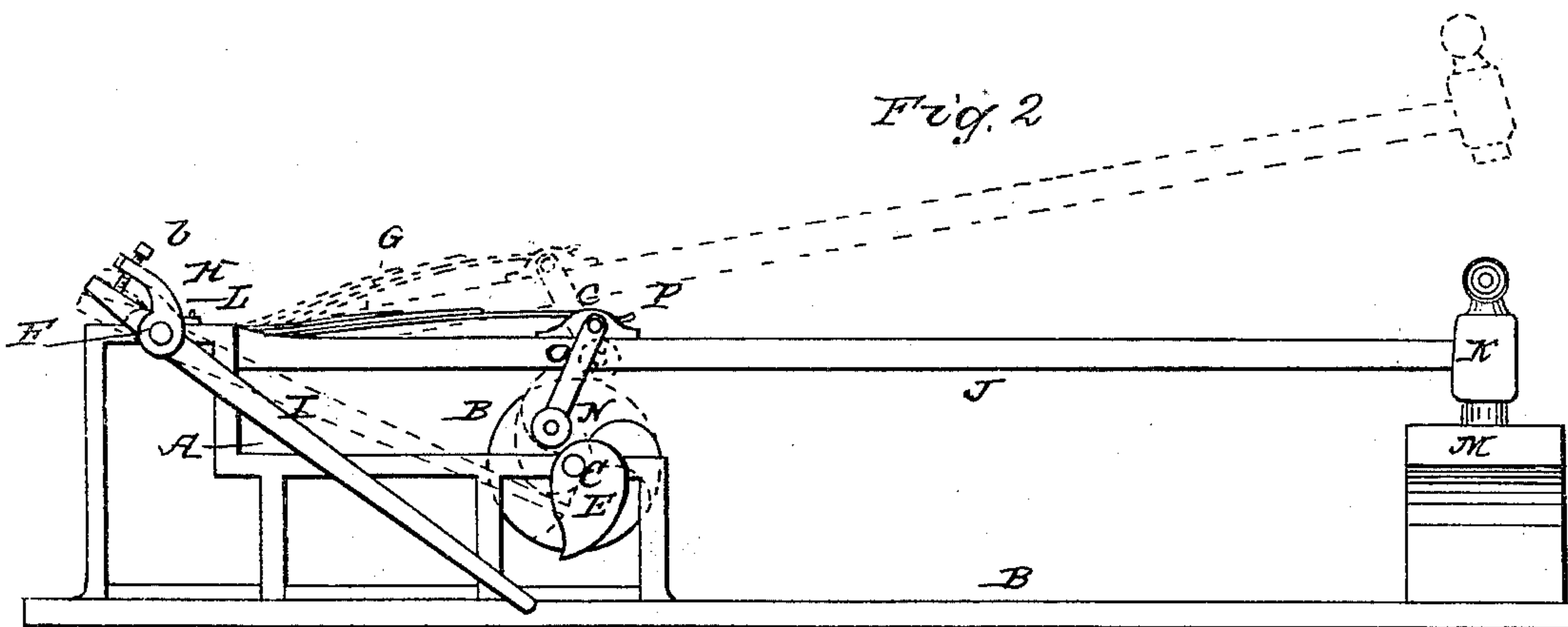
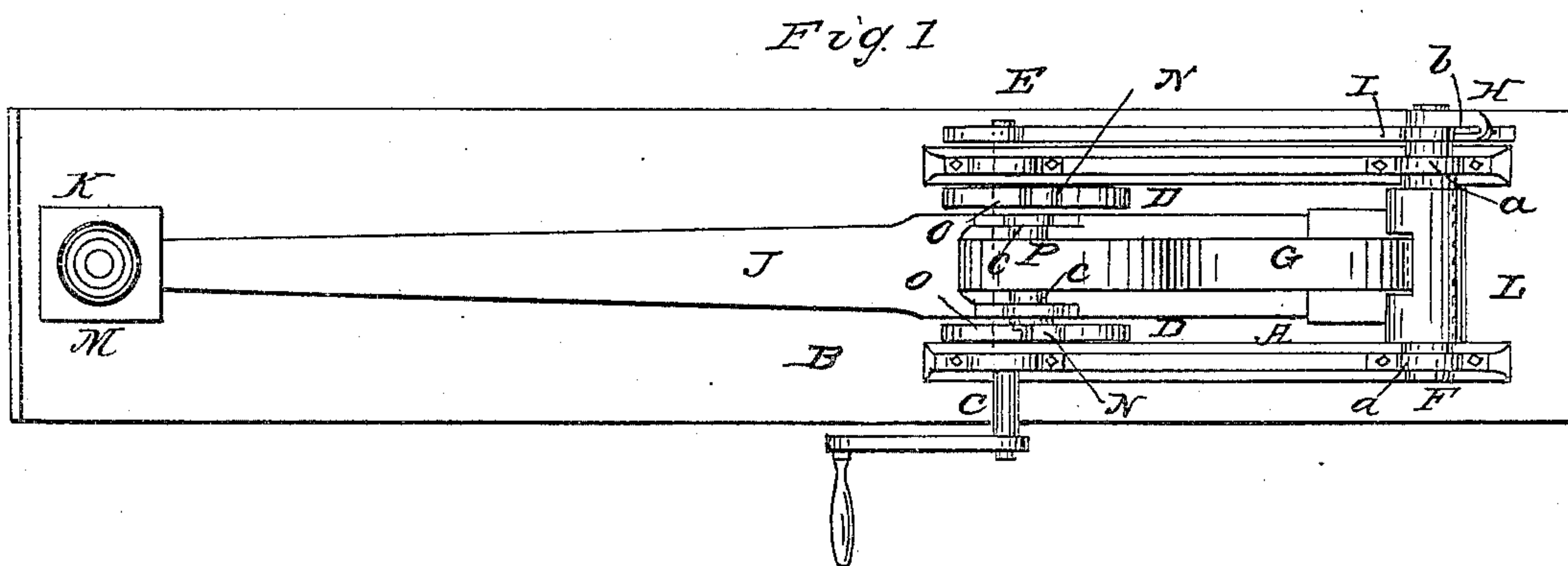


W. VAN ANDEN.

Trip Hammer.

No. 9,942.

Patented Aug. 16, 1853.



# UNITED STATES PATENT OFFICE.

WILLIAM VAN ANDEN, OF POUGHKEEPSIE, NEW YORK.

## TRIP-HAMMER.

Specification of Letters Patent No. 9,942, dated August 16, 1853.

*To all whom it may concern:*

Be it known that I, WILLIAM VAN ANDEN, of Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and Improved Trip-Hammer; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a plan or top view of my improved trip-hammer. Fig. 2, is a side elevation of the same. Fig. 3 is a section, showing more particularly one of the eccentrics, and vibrating friction rollers.

Similar letters of reference indicate corresponding parts in each of the several figures.

This invention relates to certain improvements in trip-hammers, and consists:—1st, in having the hammer shaft attached to a collar, which works loosely around a shaft to which a spring which forces down the hammer shaft, is attached. The spring is made to act more or less upon the hammer shaft, by means of a set screw and lever, against which a cam operates. By this arrangement, as will be hereafter shown, the hammer may be made to descend with greater or less force, as desired.

2nd, my invention consists in the employment or use of vibrating friction rollers, attached to the hammer shaft, by which vibrating rollers, the most prominent parts of the cams which elevate the hammer, are relieved, instantaneously, of the pressure of the hammer shaft, directly said prominences have passed the centers of the vibrating rollers.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents a frame, resting upon a bed-piece, B. The frame may be constructed in any suitable manner. On the front part of the frame, A, there is placed, transversely, a shaft, C, having two cams, D, D, upon it, and also a cam, E, on the outer side of the frame; see Fig. 1.

F, is a shaft, placed transversely on the back part of the frame, and working in suitable bearings, (a), (a). To the center of this shaft, a spring, G, is attached; and, at one end, an arm, H, having a set screw, (b), through it.

I, is a lever placed loosely on the shaft, F;

the upper part of the lever passing under the set screw, (b).

J, is the hammer-shaft, having the hammer, K, on its outer end; the opposite end of the hammer-shaft is attached to a collar, L, which fits loosely around the shaft, F, to which the spring, G, is attached; as seen in Fig. 1.

M, is the anvil or block, on which the hammer strikes.

N, N, are two friction rollers, attached to a frame, O, the upper part of which is attached to a small shaft, P, working in bearings, (c), (c) on the hammer-shaft, J. The friction rollers bear or rest upon the cams, D, D.

Operation: This will readily be seen. The shaft, C, is made to rotate, by hand or otherwise; and the cams, D, D, which rotate with the shaft, C, and bear against the friction rollers, N, N, elevate the hammer-shaft, J. The cam, E, as it rotates, bears upon and depresses the lower end of the lever, I. The upper end of the lever, I, consequently bears against the set-screw, (b); and the shaft, F, to which the spring, G, is attached, is turned; and the spring, G, bears or presses upon the hammer-shaft, J; and, when the highest points of the cams, D, D, have passed the lowest centers of the friction rollers, N, N, the spring, G, of course forces the hammer shaft, J, downward, and the hammer, K, strikes the anvil or block, M.

By depressing or elevating the set-screw, (b), there will be a greater or less pressure of the spring, G, upon the hammer-shaft; for, by depressing the screw, (b),—(see Fig. 2,)—the lower end of the lever, I, is elevated, and brought nearer the cam, E; consequently, there will be a greater action of the cam, E, upon the lever, I, and the shaft, F, will be turned considerably, and the spring, G, be made to bear with increased pressure upon the hammer shaft. The reverse takes place, when the set screw is elevated, as will be readily understood.

The cams, D, D, are relieved, instantaneously, of the pressure of the friction rollers, after the highest points of the cams have passed the lowest centers of the rollers; for the frame, O, vibrates, and throws the rollers off; consequently, the short angles of the cams will not become worn and rounded, as would be the case, if the rollers were fixed permanently to the hammer-shaft.

I do not claim elevating the hammer-



shaft by means of cams; neither do I claim the friction rollers, irrespective of the particular manner of arranging or attaching them to the hammer-shaft, as herein shown; 5 but,

Having thus described the nature and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is,

10 1. Attaching a collar, L, to one end of the hammer shaft, J; said collar, L, working over a shaft, F, which has a spring, G, attached to it, for the purpose of forcing down the hammer-shaft. The shaft, F, 15 being provided with a set-screw, (b), or its equivalent, and lever, I, arranged as described, by which, upon properly adjusting said set-screw, or its equivalent, the hammer

may be made to descend upon the block or anvil, M, with greater or less force, as de- 20 sired.

2. I claim the employment or use of the friction rollers, N, N, attached to a vibrating frame, O, and arranged substantially in the manner as herein shown; for the purpose of 25 relieving, instantaneously, the cams, D, D, from the pressure of the rollers, when the highest points of the cams have passed the lowest centers of the rollers; thus preventing the wearing of the cams at their high- 30 est points, as set forth.

WM. VAN ANDEN.

Witnesses:

O. D. MUNN,

ED. POLHAMUS.