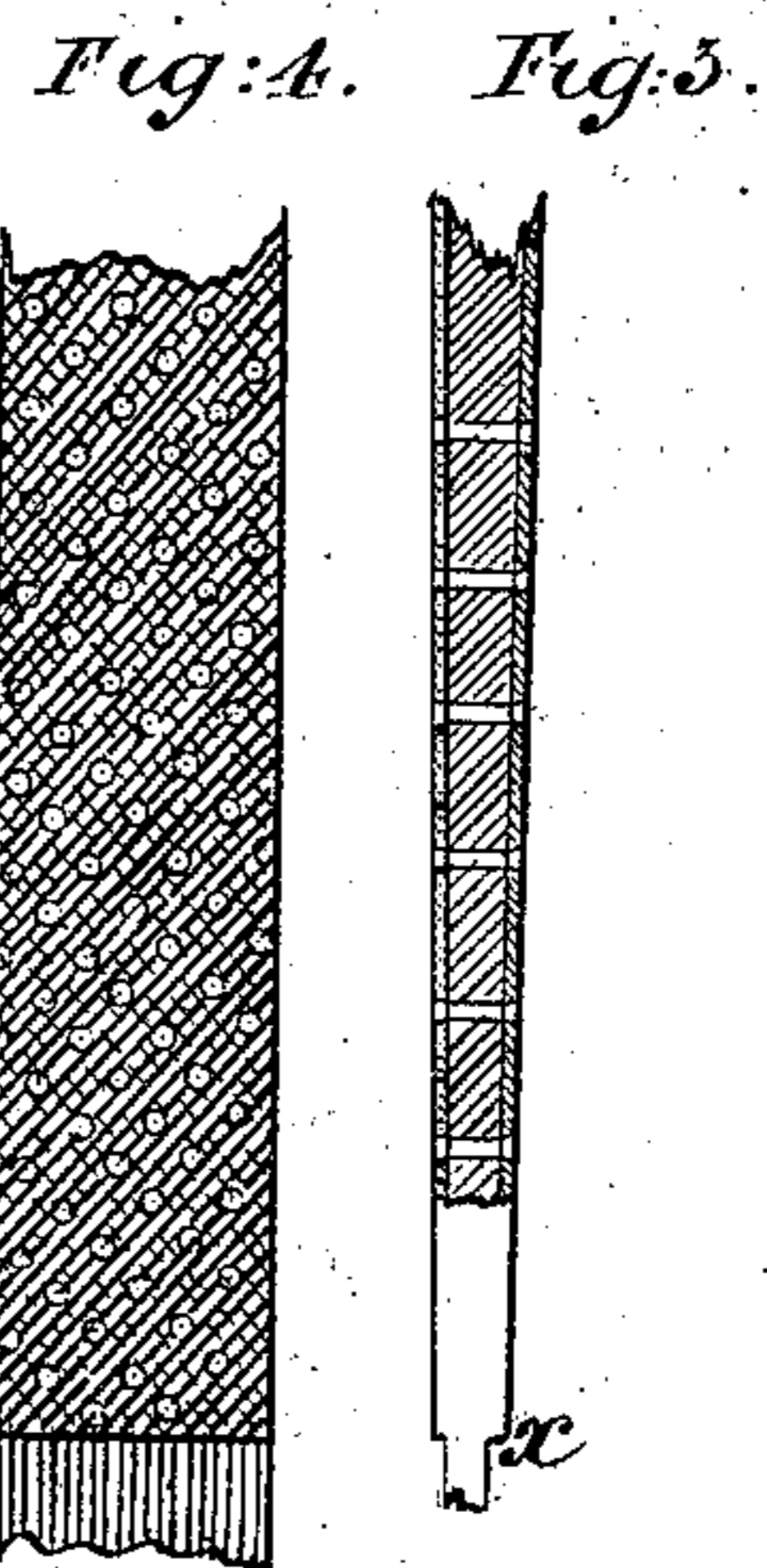
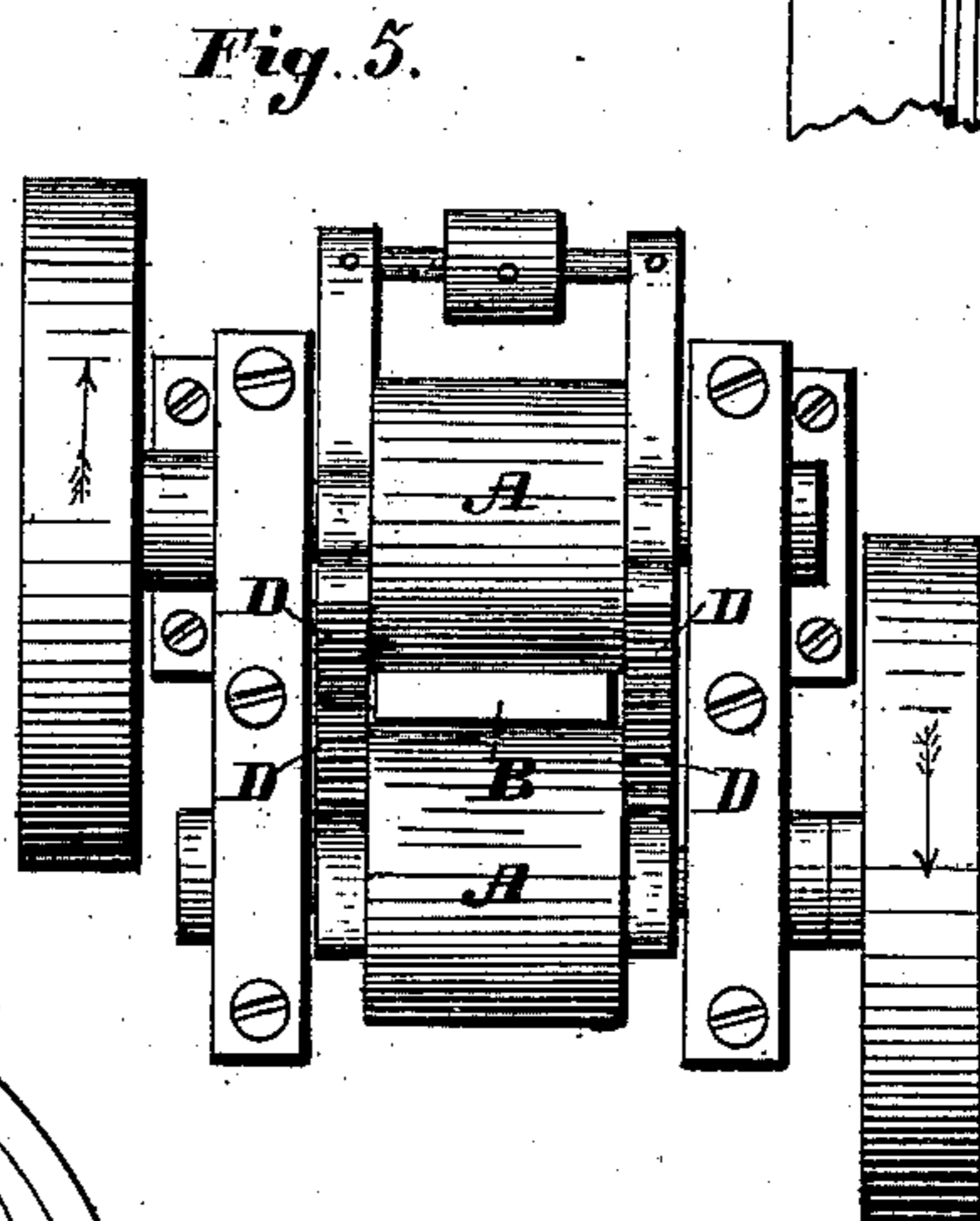
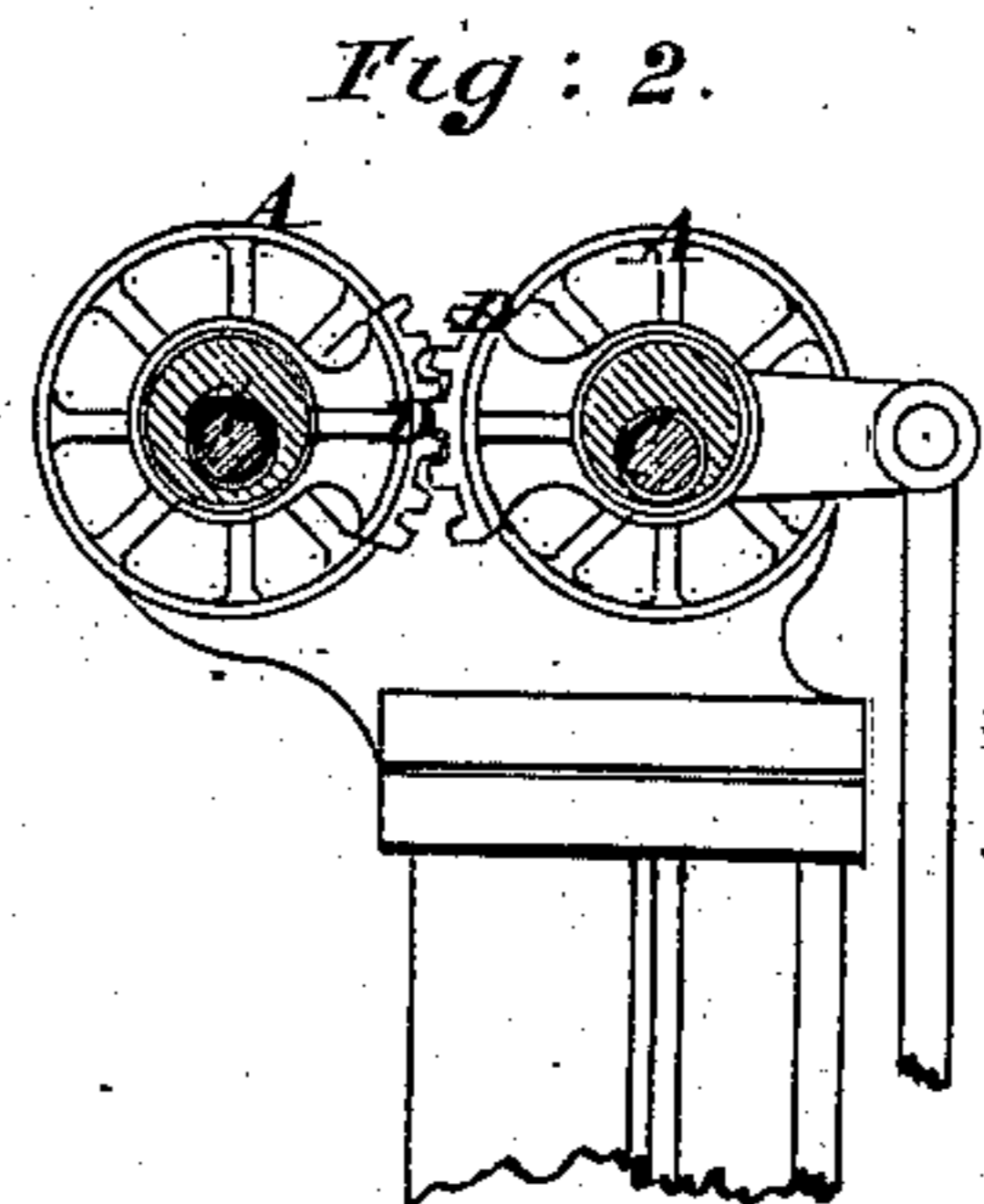
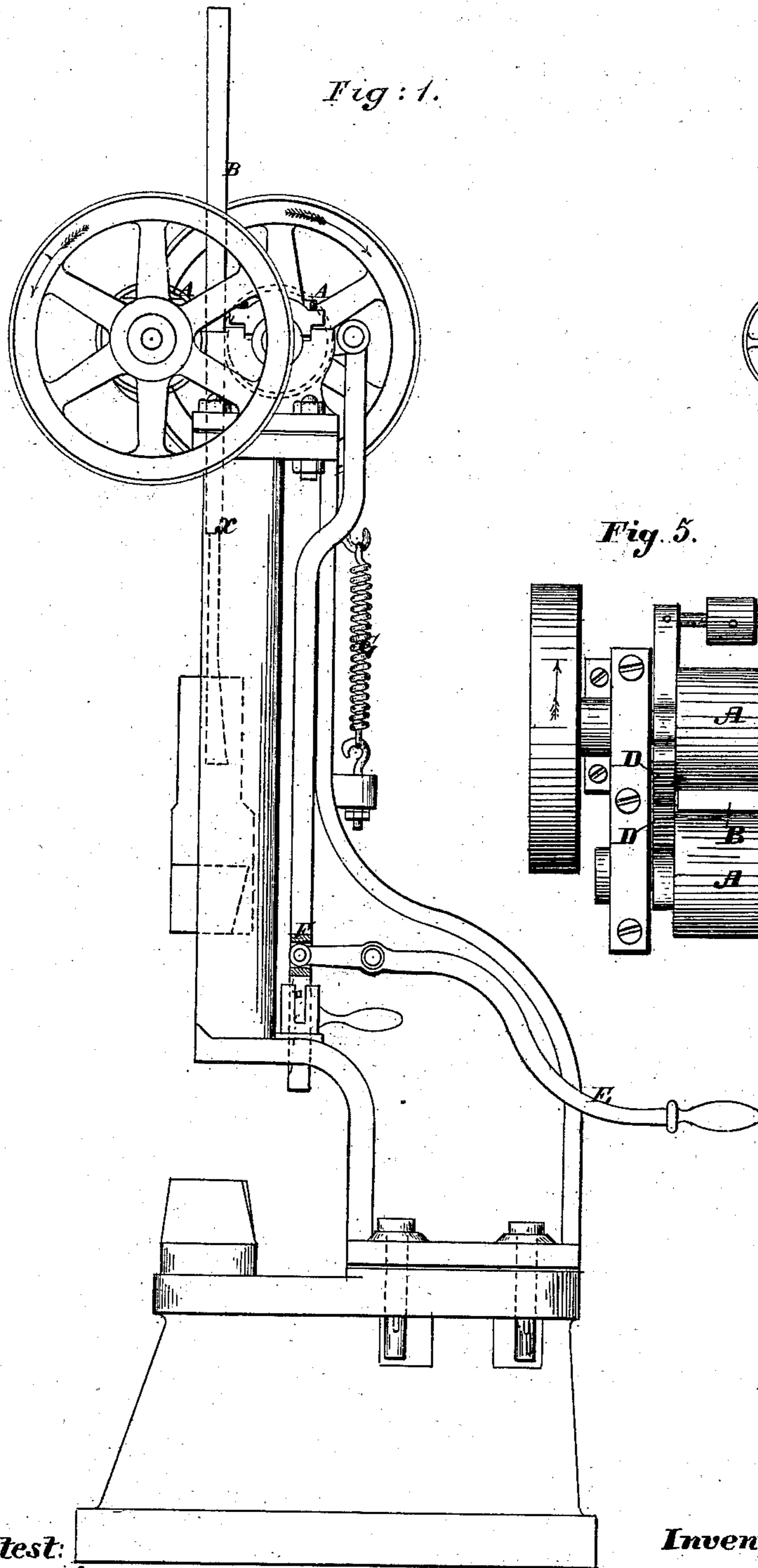


M. HASSE.
Drop-Hammer.

No. 228,067.

Patented May 25, 1880.



Attest:
J. Henry Kaiser.
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Inventor:
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Atty.

UNITED STATES PATENT OFFICE.

MAX HASSE, OF BERLIN, GERMAN EMPIRE.

DROP-HAMMER.

SPECIFICATION forming part of Letters Patent No. 228,067, dated May 25, 1880.

Application filed April 13, 1880. (Model.) Patented in England July 25, 1879.

To all whom it may concern:

Be it known that I, MAX HASSE, of Berlin, in the German Empire, engineer, have invented Improvements in Drop-Hammers; and I do hereby declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent—that is to say:

This invention relates to that description of hammers or stamps in which the hammer-block has a vertical stem passing up between two nipping-rollers, to which rotary motion is imparted, whereby they effect the raising of the stem, and consequently of the hammer-block, until, by means of a governing-lever, the one roller is moved slightly away from the stem, and thus allows the hammer-block to fall again. According to the present invention, the said stem, instead of being made of equal thickness throughout its length, as heretofore, is only made of equal thickness up to a certain distance above the hammer-head, at which point it suddenly increases in thickness by a shoulder on either side, and thence gradually increases in thickness toward the upper end. By this arrangement the action of the hammer will be under as perfect control of the operator as a steam-hammer, as the hammer-block will only rise so long as the governor-lever is moved in order to cause the nipping-rollers to follow up the decreasing thickness of the tapering stem as it passes up between them, while its descent will be equally governed by bringing the nipping-rollers into such position as to more or less check the downward motion at any point. On the other hand, the before-mentioned sudden decrease of thickness of the stem at a certain point near the lower end prevents the hammer-block from being lifted too high, as when such point passes between the rollers these will cease to nip the stem, and the hammer-block will consequently cease to rise.

The two nipping-rollers each have their axes mounted eccentrically in cylindrical bear-

ing-blocks carried by the framing, to one of which blocks is attached an arm, connected by a rod to the governing or steering lever below, while both blocks are geared together by toothed segments, so that as the steering-lever is moved so as to raise the arm of the one eccentric bearing both bearings will be turned so as to move the nipping-rollers away from the stem, while by the contrary motion they will both be made to approach and nip it.

The steering-lever, or the rod connecting it to the eccentric bearings, is connected to an adjustable spring, the tension of which is made to balance the weight of the lever, so that this will remain in whatever position it is placed in when let go of by the operator, and thus the hammer-block will be held suspended in the corresponding position.

In order to insure a uniform speed of rotation of the nipping-rollers as much as possible, whether in or out of action, both axes are provided with small fly-wheels, one of which also constitutes the pulley by which the one roller is driven through a strap from a mill-shaft.

The accompanying drawings show a hammer constructed as above described.

Figure 1 is a side view. Fig. 2 is a vertical section through the eccentric bearings C C of the rollers A A. Figs. 3 and 4 are a sectional and a side view, respectively, of the hammer-stem; and Fig. 5 is a top or plan view, showing the relative arrangement of the rollers, &c., in position for gripping the hammer-stem.

The rollers A A are geared together so as to revolve in opposite directions, as indicated by the arrows, and gripe between them the hammer-stem B, which tapers to a less thickness toward its lower end, as shown. At a point, *x*, the thickness undergoes sudden diminution, so that when the hammer is raised its full height the rollers can exert no further gripping action on the stem to raise it higher.

The axes of the rollers A A carry fly-wheels, either of which may serve as a driving-pulley. These axes revolve in eccentric bearings C C, which are geared together by toothed segments D D.

E is the steering or governing lever, connected by a rod, F, to an arm projecting from one of the eccentric bearings. The weight of

the lever E is counteracted by a spring, G, in addition to the weight of the rod F.

The eccentric bearings are so arranged that on raising the lever E the rollers A A are brought nearer together, gripping the hammer-stem B and raising the hammer; but by depressing the lever E the rollers are separated, relieving the hammer-stem from their gripe, so that the hammer descends.

The hammer-stem is made of wood, as shown in part vertical section at Fig. 3, the wood being in three thicknesses—a strong middle core with a facing on each side, the whole secured together by treenails. It is of advantage to have the grain of the wood-facings lying diagonally in opposite directions, as indicated by the part elevation, Fig. 4.

Having thus described the nature of my invention and the best means I know of carrying it into practical effect, I claim—

1. An improved drop hammer or stamp

having a tapering stem griped between rollers mounted in eccentric bearings geared together, substantially as herein described.

2. A tapering stem for a drop hammer or stamp having the abrupt shoulder or diminution of thickness at x , substantially as and for the purpose herein set forth.

3. In combination with a drop hammer or stamp and its gripping-rollers, the eccentric bearings C C, geared together, and the governing-lever E, balanced by the adjustable spring G, substantially as herein described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 28th day of November, 1879.

MAX HASSE.

Witnesses:

GEORGE LOUBIER,
BERTHOLD ROI.