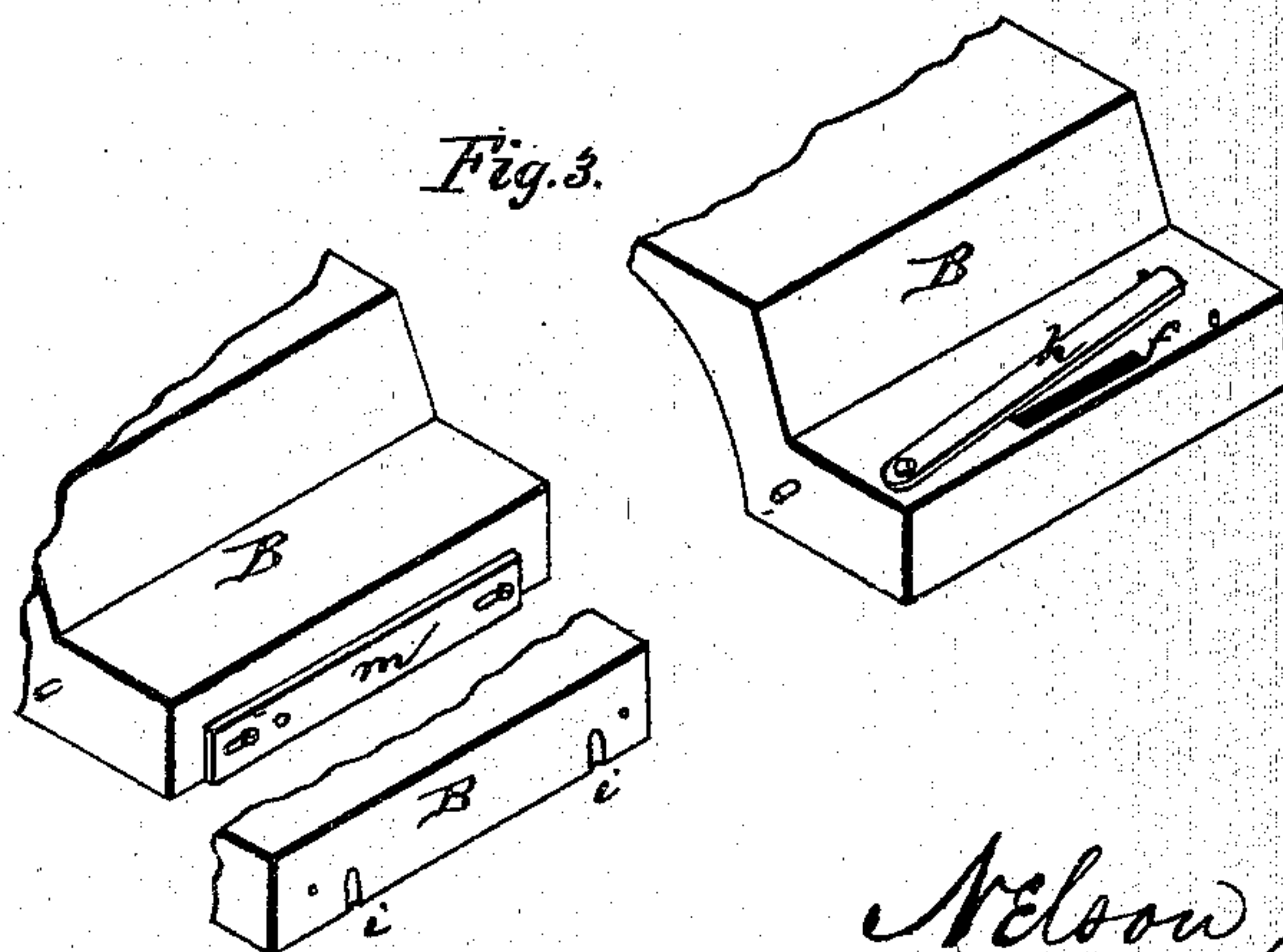
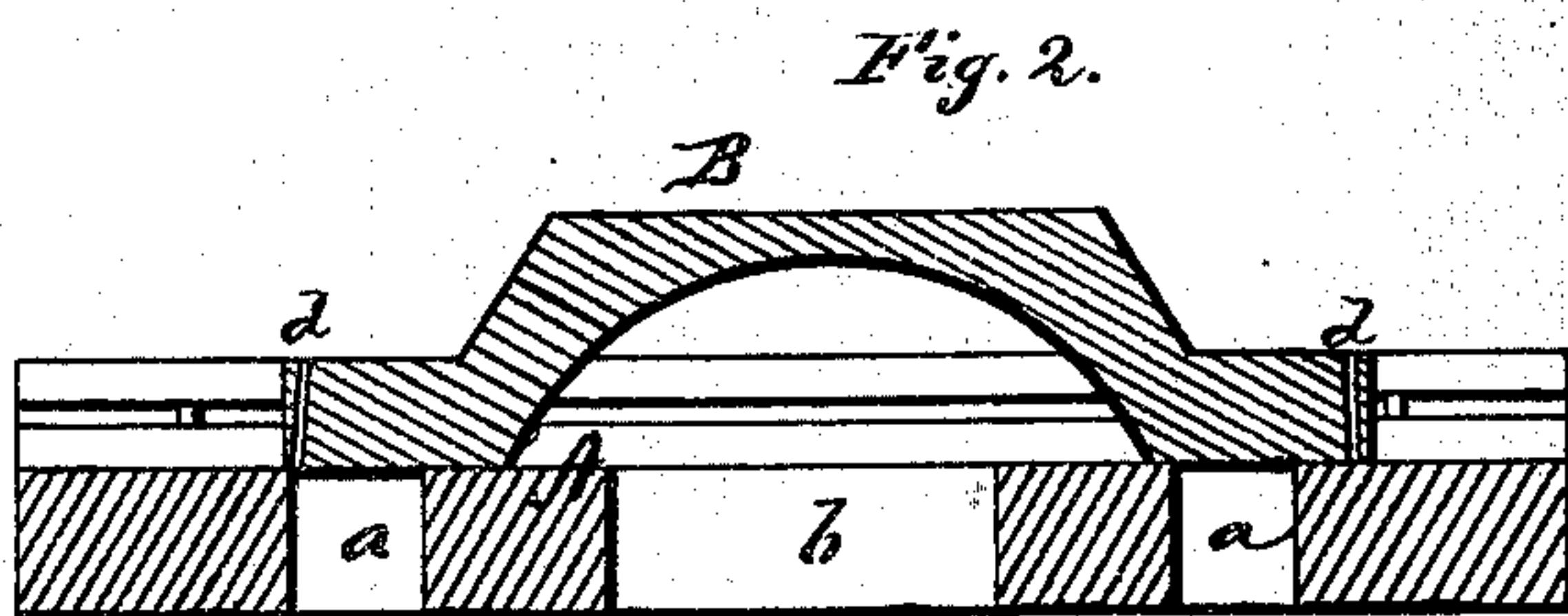
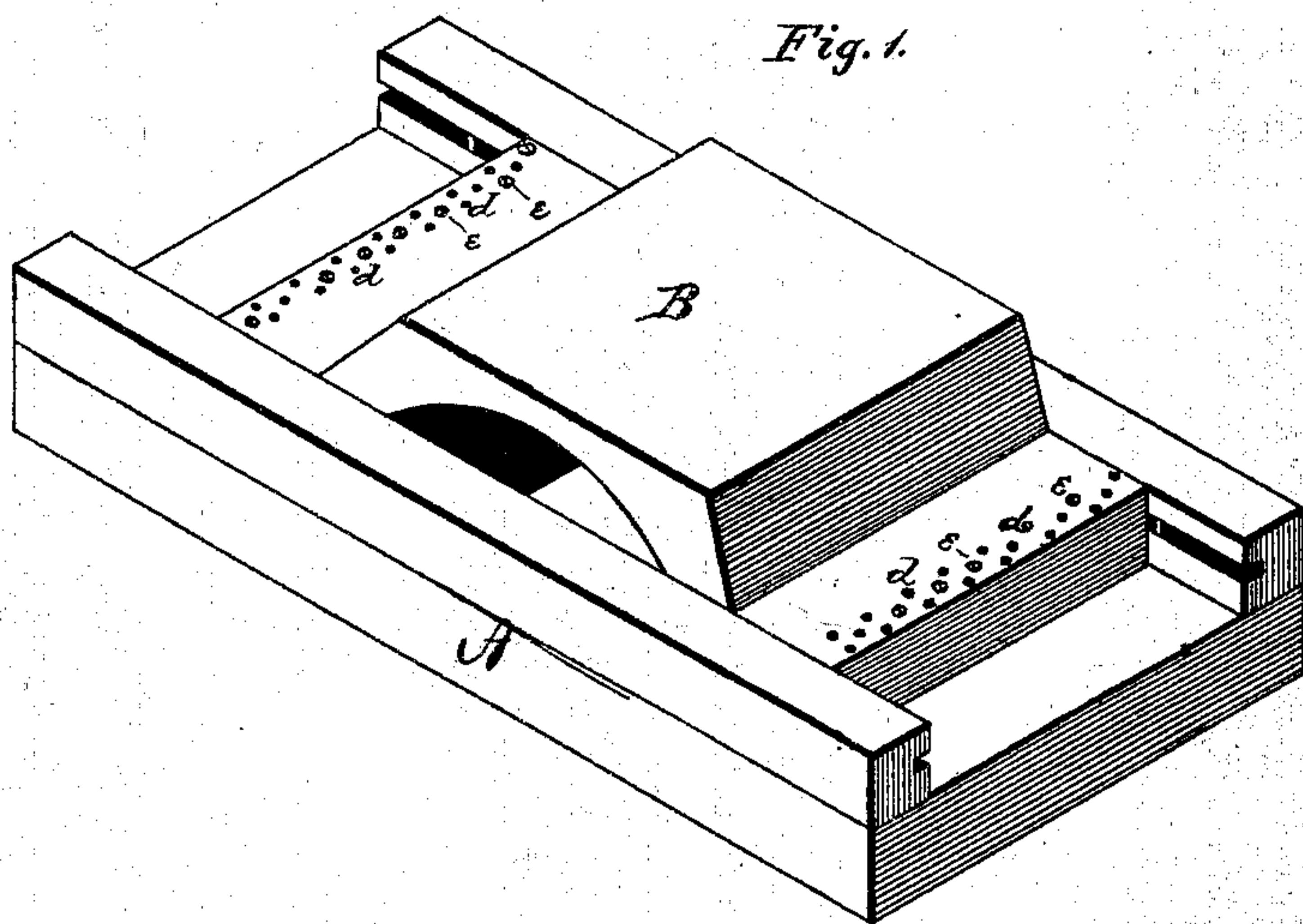


N. JOHNSON.
Slide-Valves for Steam-Engines.

No. 139,793.

Patented June 10, 1873.



Witness:

Henry N. Miller
C. L. Ewert.

Inventor.
Nelson Johnson
per
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Attorneys.

UNITED STATES PATENT OFFICE.

NELSON JOHNSON, OF JASPER, NEW YORK.

IMPROVEMENT IN SLIDE-VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **139,793**, dated June 10, 1873; application filed February 5, 1873.

To all whom it may concern:

Be it known that I, NELSON JOHNSON, of Jasper, in the county of Steuben and in the State of New York, have invented certain new and useful Improvements in Valve for Steam-Engines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a "cushion slide-valve for steam-engines," as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a perspective view, and Fig. 2 a longitudinal vertical section, of my valve. Fig. 3 shows modifications of the same.

A represents the valve-seat, provided with steam-ports *a a* and exhaust-ports *b*, and B is the sliding-valve—all constructed and arranged in any of the known and usual ways. In each end of the valve are made two or more rows of small holes *d d*. The holes of one row come out on the under side of the valve just as near as possible to the end; the next row a little further from the end, and the third row still a little further from the end, and so on, all the holes being drilled a little inclined or slanting, as shown in Fig. 2. On the top of the valve in the holes *d d*, or rather in as many of these

holes as may be desired, are placed screws or plugs *e e*, so as to open just as many holes as may be necessary to let in just the amount of steam required to cushion the piston properly while the wrist is passing the dead-center; and just enough steam let in to fill the space slightly as the piston commences returning, and hold the space full until such times as the wrist gets a proper distance above or below the dead-center before the valve commences opening a full port across the ends, which will do away with the pounding of the engine, as is the case where there is too much steam thrown in while the engine is on the dead-center.

In place of the holes and plugs above described I may use either of the modifications shown in Fig. 3, viz., a port, *f*, with slide *h* on top of the valve; or grooves *i i* with slide *m* on the end of the valve to answer the same purpose.

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

The holes *d d*, with the plugs *e e* or their equivalents, arranged in the ends of a slide-valve, B, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of January, 1873.

NELSON JOHNSON.

Witnesses:

S. COUNTRYMAN,
ANDREW PURDY.