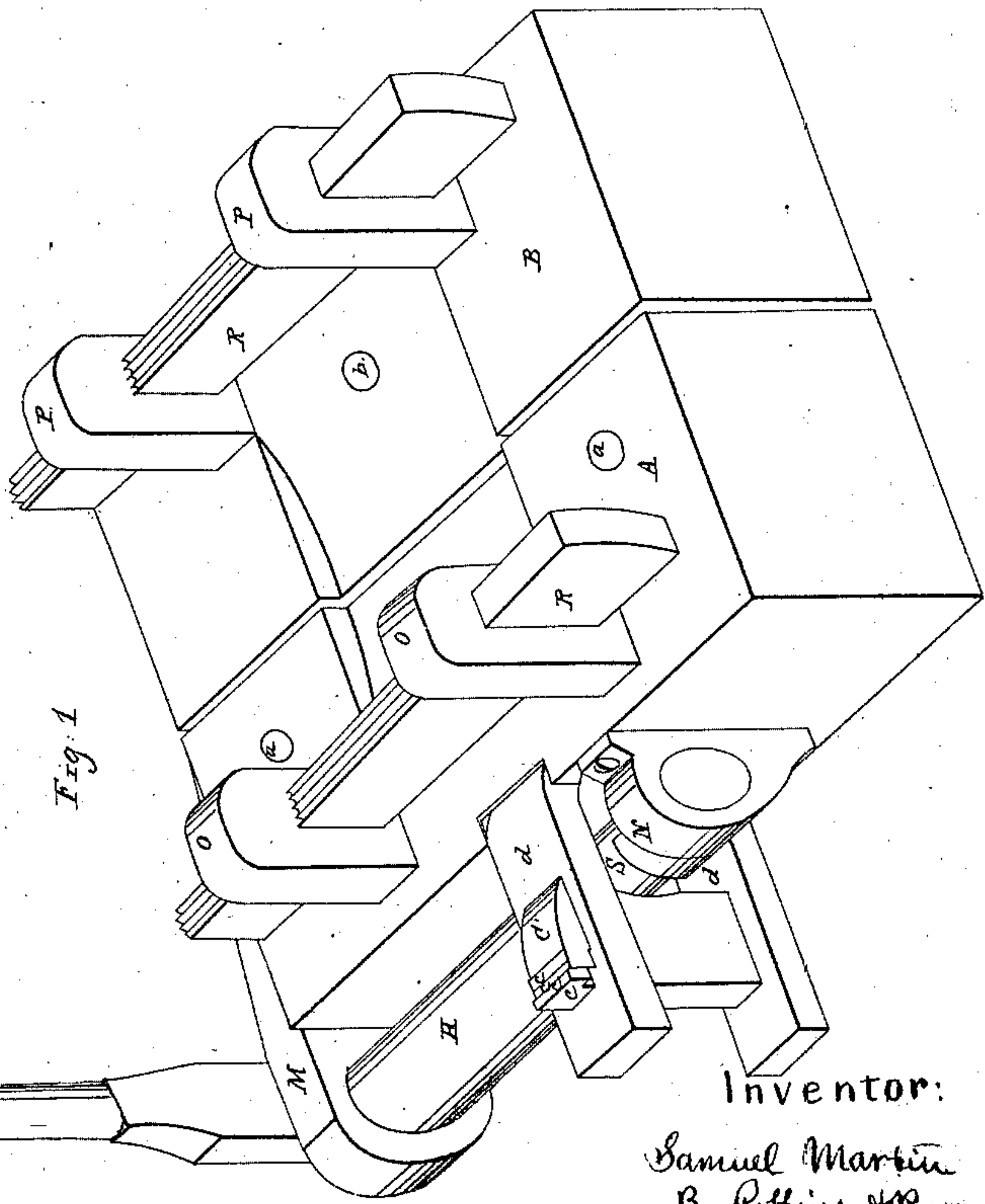
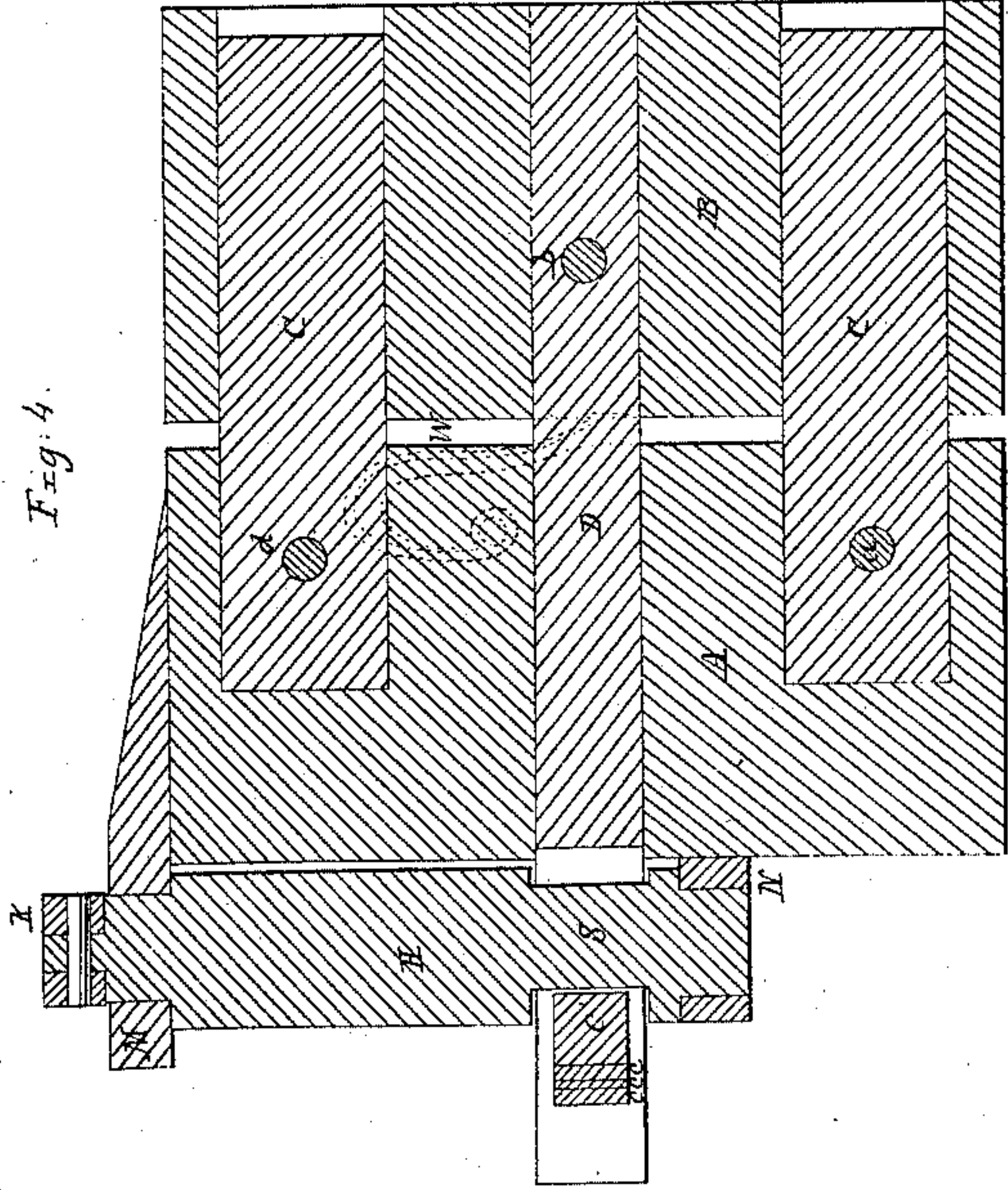
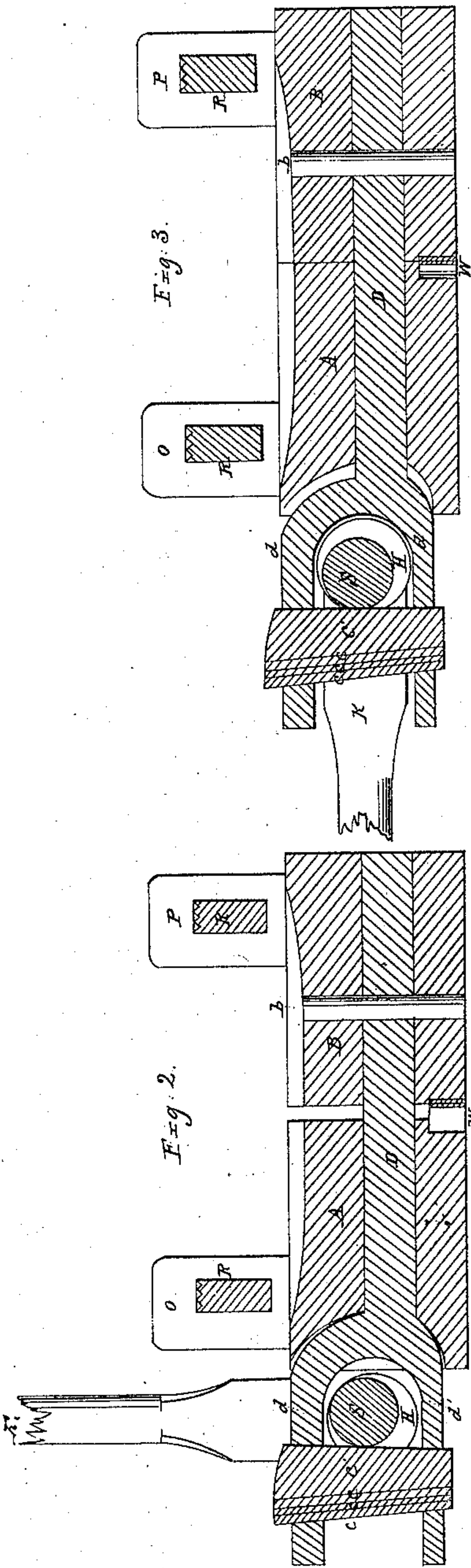


*S. Martin.*

*Upsetting Tires.*

*N<sup>o</sup> 42,210.*

*Patented Apr. 5, 1864.*



Witnesses:

*Nathaniel Wright*  
*A. Ho Smith*

Inventor:

*Samuel Martin*  
*By Pitkin & Burr*  
*Attys*



# UNITED STATES PATENT OFFICE.

SAMUEL MARTIN, OF PARSHALLVILLE, MICHIGAN.

## APPARATUS FOR UPSETTING TIRES.

Specification forming part of Letters Patent No. 42,210, dated April 5, 1864.

*To all whom it may concern:*

Be it known that I, SAMUEL MARTIN, of Parshallville, in the county of Livingston and State of Michigan, have invented a new and useful Improvement in Machines for Upsetting Wagon-Tires; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and of which—

Figure 1 is a perspective view of my improved tire-upsetting machine; Fig. 2, a central vertical section of the same, with the shaft-lever K elevated and the cramping blocks A and B separated in a position ready to receive the tire. Fig. 3 is a similar section illustrating the position of the cramping-blocks when drawn together by the downward movement of the lever. Fig. 4 is a central horizontal section of the machine when in the position shown at Fig. 2, illustrating the manner of combining the cramping-blocks with each other and with the operating-lever K and shaft H.

Similar letters indicate like parts in each of the drawings.

The nature of my invention consists of a novel mode of gaging with perfect accuracy the operative movements of a tire-shrinking machine, and it is developed in an improved arrangement of the various working parts of said machine, as follows:

The bed of my improved machine is constructed of two cramping-blocks, A and B. From recesses upon the inner side of the front block, A, two bars, C C, tenoned and firmly secured thereto by means of the pins *a a*, project horizontally and are received within slots cut to receive them in the rear block, B. This block B is left free to slide backward and forward upon the bars C C. Parallel to these bars, and in the same horizontal plane, a third slot is cut entirely through both of the blocks A and B, in the center thereof, large enough to receive a coupling-bar, D, which is firmly secured at one end within the block B by a pin, *d*, and whose other end projects through the block A, and terminates exteriorly in a fork, E, all as illustrated in Figs. 2 and 4. The outer end of the central slot in the block A is enlarged to receive the swell of the coupling-bar as it assumes the form of the fork at E. The extent to which the blocks A and B

may slide apart is regulated by the length of coupling-bar D. The fork E of this coupling-bar D embraces an eccentric-bearing, S, cut upon a horizontal shaft, H, which is supported against the outer front side of the block A in suitable bearings formed in the brackets M N, secured to the block, as illustrated in Fig. 1 of the accompanying drawings. Longitudinal slots are cut vertically in the jaws of the forked end E of the coupling-bar D to receive a fulcrum-key, *c'*, and one or more filling pieces or slides *c c c*. The extreme length of these slots is so proportioned in relation to the position of the eccentric S, cut in the shaft H, as that if the key-piece *c'* alone is left in the slots its inner face will be simply tangential to the point of coincidence in the circumferences of the shaft and its eccentric when the blocks are spread apart to the utmost limit which the length of the coupling-bar will allow, and which should not exceed twice the difference between the centers of the shaft H and its eccentric S. Hence, with the fulcrum-key *c'* only in place, a revolution of the shaft H would have no effect upon the machine. If, however, a filling piece or slide, *c*, be inserted behind the key *c'* it is evident that the eccentric will upon a revolution of the shaft bear against the key and thereby force the coupling-bar D outwardly, causing it to draw together the blocks B and A a distance equal to the thickness of the slides *c*. Hence, by having a series of these filling-pieces, each the fractional part of an inch in thickness and all uniform, the exact degree to which the blocks shall be drawn together may be in a moment fixed with the utmost precision.

In order to secure the wagon-tire to be shrunk or "upset" firmly to the cramping-blocks A and B, I place upon each two low standards, O O P P, which are slotted to receive the cross-wedges R R, as illustrated in Fig. 1 of the drawings, and channel or groove out the space between the standards so that it shall embrace more closely the circumference of the tire.

When the machine is not in use and the operating-lever K of the shaft is thrown upward and forward so that the eccentric S is turned back free from contact with the fulcrum-key *c'*, the blocks A B are made to slide or spread apart automatically by means of a powerful spring, W, Figs. 2 and 3, (see also dotted



lines in Fig. 4,) placed between them. When the machine is in this position, the tire to be upset after being properly heated is placed transversely across the two blocks A and B, between the standards O O and P P, in the groove cut to receive it, and is secured in this position by driving the two wedges R R into the slotted standards O O and P P across its inner surface. When the tire is thus firmly secured over the opening between the blocks A and B, the lever K is drawn forward and downward, turning the shaft H and bringing its eccentric S to bear against the key  $c'$  in the coupling-bar D with immense power. This action of the eccentric against the key will, as has already been explained, draw the two blocks A and B together a distance equal to the thickness of the filling-pieces  $c c$ , inserted behind the key  $c'$  in the slotted and forked end of the coupling-bar, and to that extent cramps and upsets the tire.

If it be found desirable to shrink the tire at different points of its circumference—say in all two-eighths of an inch—it may first be shrunk at one point (one-eighth of an inch) in the manner described, and then the operator can, with hammer in one hand, quickly loosen the wedges and with the other turn back the shaft and relieve the coupling-bar from tension, so that the spring shall automatically spread apart the cramping-blocks. Having then turned the tire as required it is secured at once in place by single blows upon each wedge, and another movement of the lever will again shrink it an eighth of an inch, as before. All this may be done at one heat with perfect ease and exactness.

The advantages of my improved machine

are found in the rapidity with which it may be worked, the extreme accuracy of measurement which it affords, and the economy and simplicity of its construction.

I am aware that a lever and cam might be substituted in the place of the shaft and eccentric herein described, and also that my improved graduated filling pieces or slides might be used in combination with other machines. I therefore wish it understood that I contemplate the use of my graduated filling-slides and key-piece in combination with any form of cam or eccentric when used to obtain the end herein set forth.

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

1. The use of a fulcrum-key,  $c'$ , and one or more filling-pieces,  $c c c$ , in combination with a cam or eccentric for the purpose of graduating and limiting at pleasure by a fixed scale the movement of the cramping-blocks or holdfasts A and B of a tire-upsetting machine, substantially as is herein set forth.

2. The combination of a shaft, H, and eccentric S, with the cramping-blocks A and B of my improved tire-upsetting machine, when said blocks A and B are made to operate conjointly by means of a coupling-bar, D, constructed substantially in the manner and for the purpose herein set forth.

As witness my hand and seal to this specification this 28th day of September, A.D. 1863.

SAMUEL MARTIN. [L. S.]

In presence of—

H. GRISWOLD,  
J. RUSHBY.