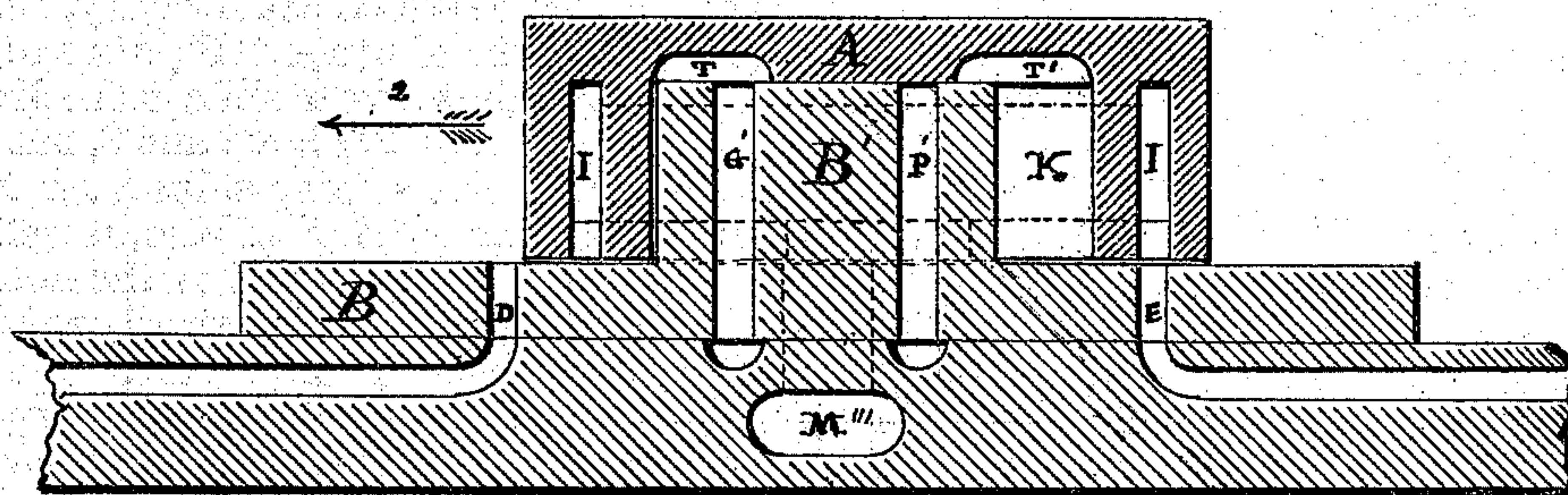
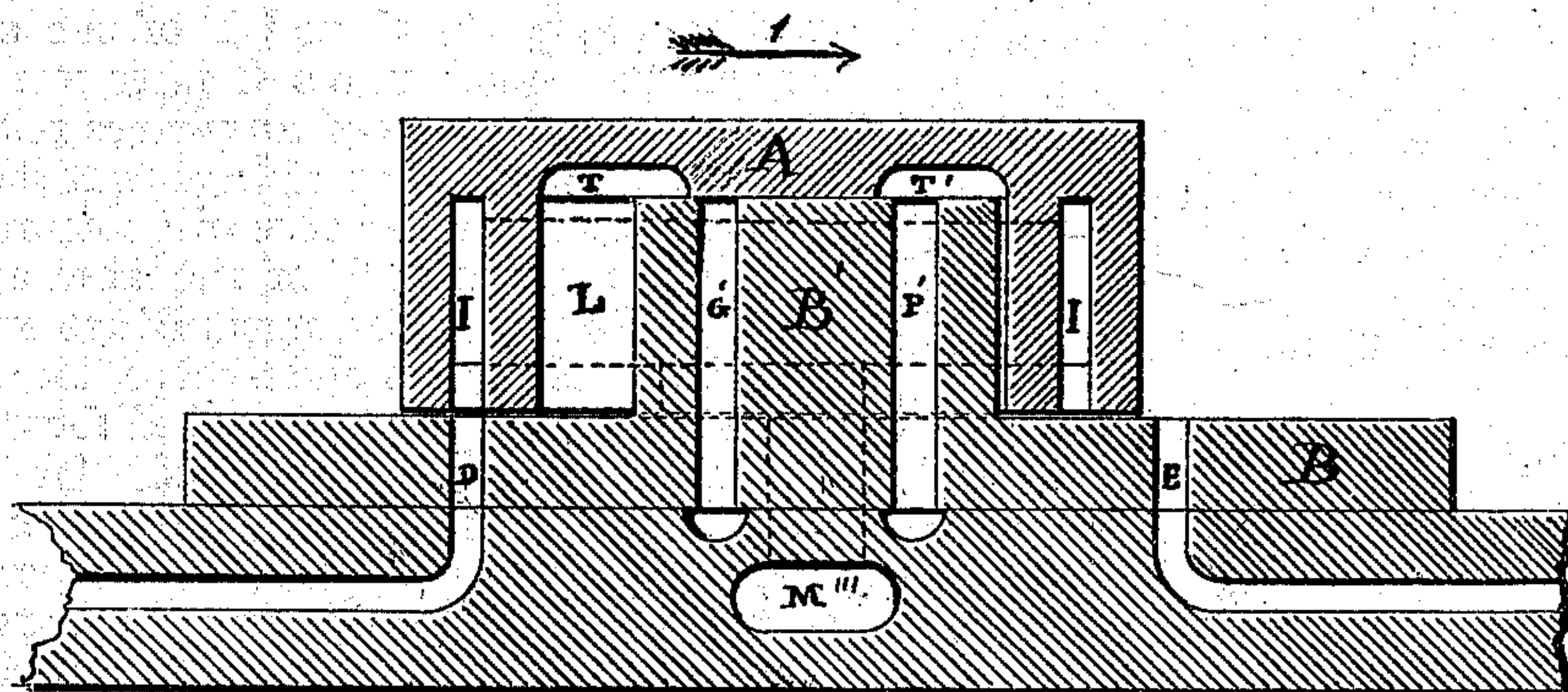
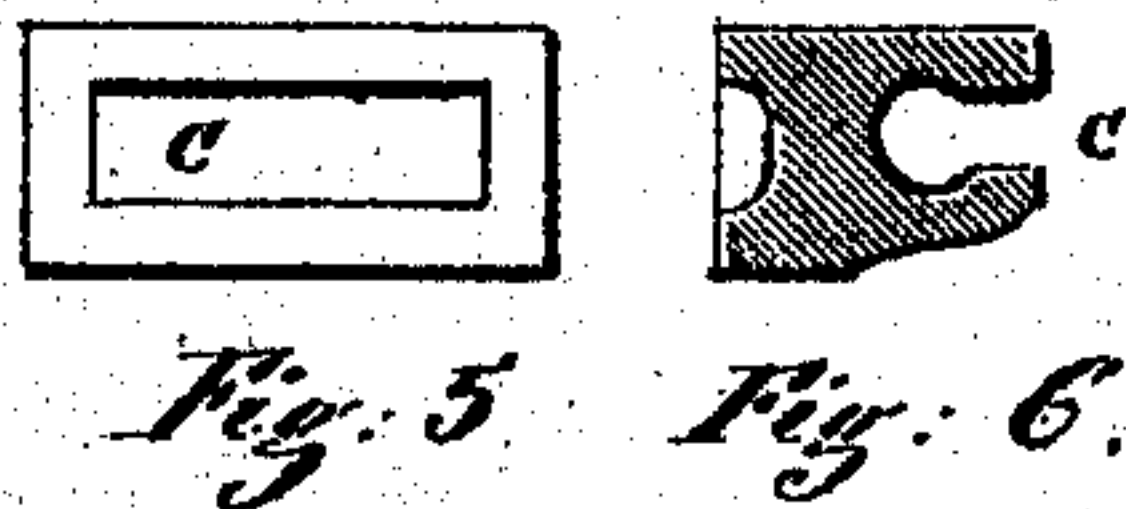
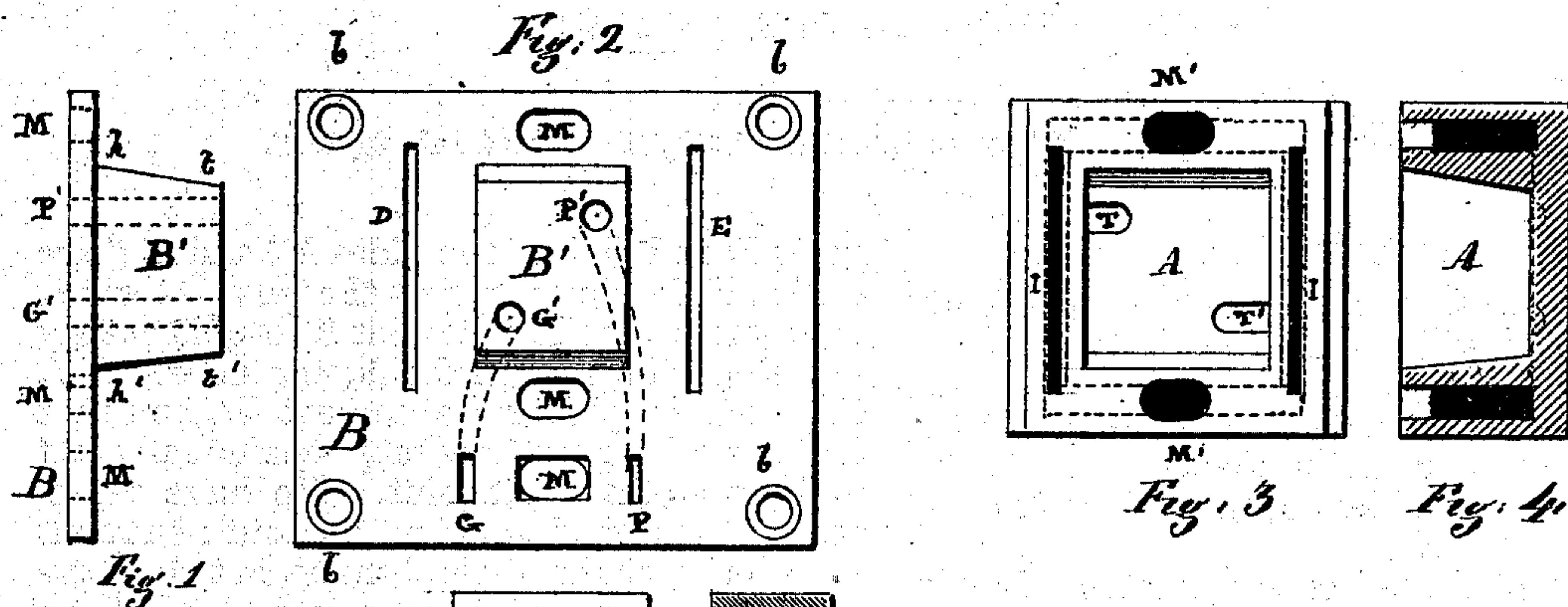


F. GLASSON & W. GILFILLAN.

Improvement in Slide-Valves.

No. 129,726.

Patented July 23, 1872.



Witnesses:

*H. Gengenibre Hubert*  
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Inventor:

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# UNITED STATES PATENT OFFICE.

FREDERICK GLASSON, OF NEW YORK, N. Y., AND WILLIAM GILFILLAN,  
OF PATERSON, NEW JERSEY.

## IMPROVEMENT IN SLIDE-VALVES.

Specification forming part of Letters Patent No. 129,726, dated July 23, 1872.

### SPECIFICATION.

We, F. GLASSON, of the city of New York, in the county and State of New York, and W. GILFILLAN, of the city of Paterson, in the county of Passaic and State of New Jersey, have invented certain Improvements in Steam-Valves for Pumps, &c., of which the following is a specification:

This invention refers to that class of slide-valves used in steam force-pumps or other steam-engines, and which, being actuated by tappets or stops on moving parts therein, are required to perform their functions with as little lost motion of the tappets as possible, in order to reverse the engine and pass the dead-point thereof; and the invention consists in the construction of the valve-seat and its fixed abutment, and the combination with the latter of a valve of peculiar construction, which is reciprocated by the force of the steam acting between it and the said abutment, as herein-after described.

### *Description of Drawing.*

In our drawing, Figures 1 and 2 represent our improved valve-seat. Figs. 3 and 4 represent our improved valve seen from the under part thereof and in section. Figs. 5 and 6 is the small valve used in connection with our valve to distribute the steam therein; and Figs. 7 and 8 represent our improved slide-valve on its seat, seen in sectional elevation and in two different positions thereof, so as to illustrate its working.

### *General Description.*

C is a little slide-valve of ordinary construction, working upon the ports G M P, so as to admit or exhaust steam alternately through the ports G' P'. M is the exhaust-port; M''', the exhaust-pipe. B is the valve-seat of our improved valve. This seat is planed true on its face, and is provided with holes b to fasten it to the cylinder of the pump or machine in which it is to be introduced. The seat B has two ports, D and E, which are to communicate in the ordinary way with the two ends of the steam-cylinder. B' is an abutment or partition fastened to or forming part of the seat B, and located between the two ports D and E. This abutment has straight sides opposite the

ports D and E, but the sides h t and h' t' are made sloping in order that the valve A, which is to work over the abutment B', may fit snugly as well on the seat, on the sloping sides h t h' t', and on the top of the abutment B', and that all the rubbing surfaces may wear equally and make a steam-tight joint. We have represented the end view (Fig. 1) of our abutment B' as being of rhomboidal shape, but the abutment B' may be made of any desired shape which will allow of the valve A sliding freely thereon in the direction to and from the ports D E without losing steam. G' and P' are ports on the top of the abutment B' communicating with the ports G and P of the seat B, whereon the small valve C is to work; but the valve may be placed anywhere relatively to the valve A, provided always that the ports controlled by the little valve will communicate with the ports G' and P' of the abutment B'. On each side of the abutment B' are exhaust-ports M M'. A is the slide-valve, for distributing steam to the ports D and E for working the engine to which it is attached. This valve A has on its face two long exhaust-ports, I I, to correspond to the ports D and E, and two side ports, M' M', to correspond to the exhaust-ports M of the seat; and these four ports on the face of the valve A communicate together and have no connection whatever with the inside cavity of the valve A. Said cavity, being a counterpart of the abutment B', fits snugly thereon, allowing the valve to slide in the direction of the arrows 1 and 2, Figs. 7 and 8, but being steam-tight on the sloping sides h t h' t' of the abutment, on the top thereof also, as well as on the seat B. In the bottom of the hollow part of the valve A are cut two small cavities, T T', which correspond to the ports G' and P' of the abutment B', as and for the purpose described further. The valve A being placed over the abutment B', the little valve being placed on its seat G M P, and a steam-chest being placed over the whole, the operation of our valve is as follows:

### *Operation of our Valve.*

In Fig. 7 the steam is entering the port E, while the port D is exhausting through the port I, hollow valve A, ports M' M to M''', and the piston of the machine (not seen in the



drawing) is working in one direction, until the tappet, by moving the little valve C, or any other valve answering the same purpose, admits steam into the port P' through the cut T', between the side of the abutment B' and the side of the cavity of the valve A, driving said valve in the direction of the arrow No. 1 until the cut T' passes the opening P', which cuts off the steam, the valve A being in the position represented in Fig. 8. The steam is now entering the port D, while the port E is exhausting through I (same as above) to M''' until, the small valve being moved, steam is admitted through the port G' through T to space L, driving the valve A in the direction of the arrow No. 2 and the space K, exhausting through T' P' P' M to M''' until the valve A is again as represented in Fig. 7, when the operation is repeated.

*Claims.*

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. In combination with the abutment B', constructed substantially as described, the hollow valve A, provided with the cavities T T', whereby steam admitted alternately through ports G' P' will reciprocate the valve, as set forth.

2. The valve-seat B, having the abutment B' and ports D E M, arranged as set forth, in relation one to the other.

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