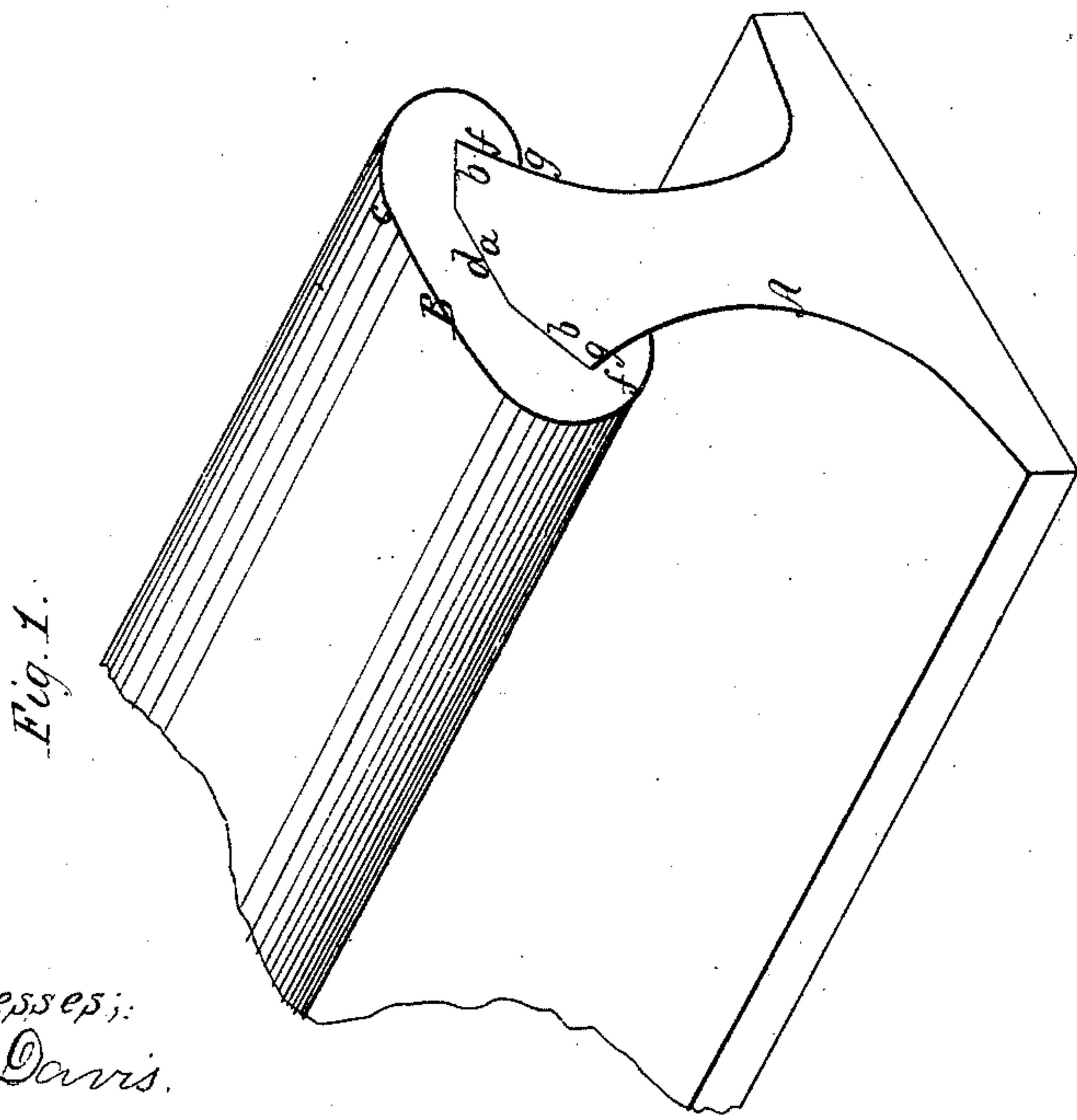
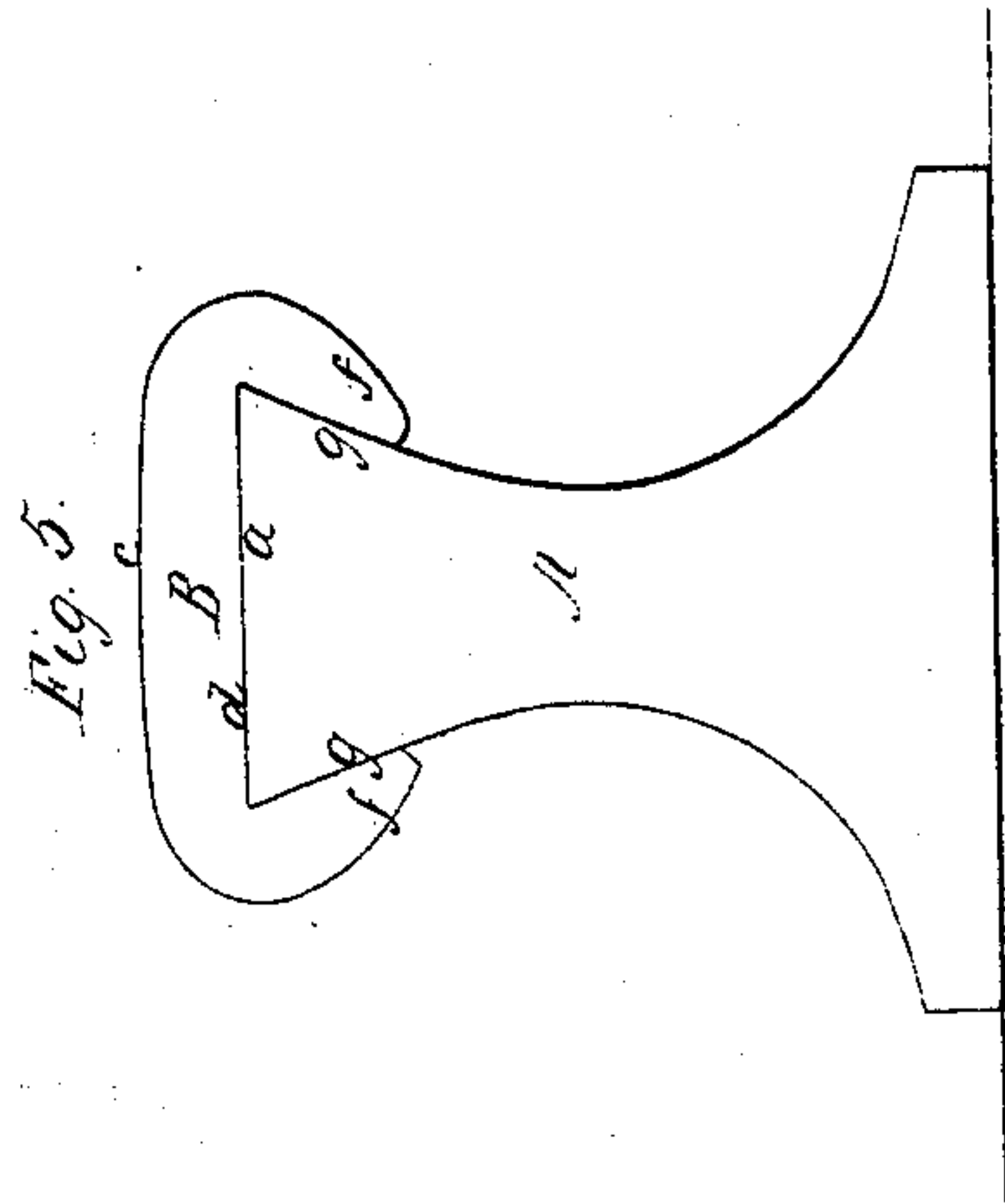
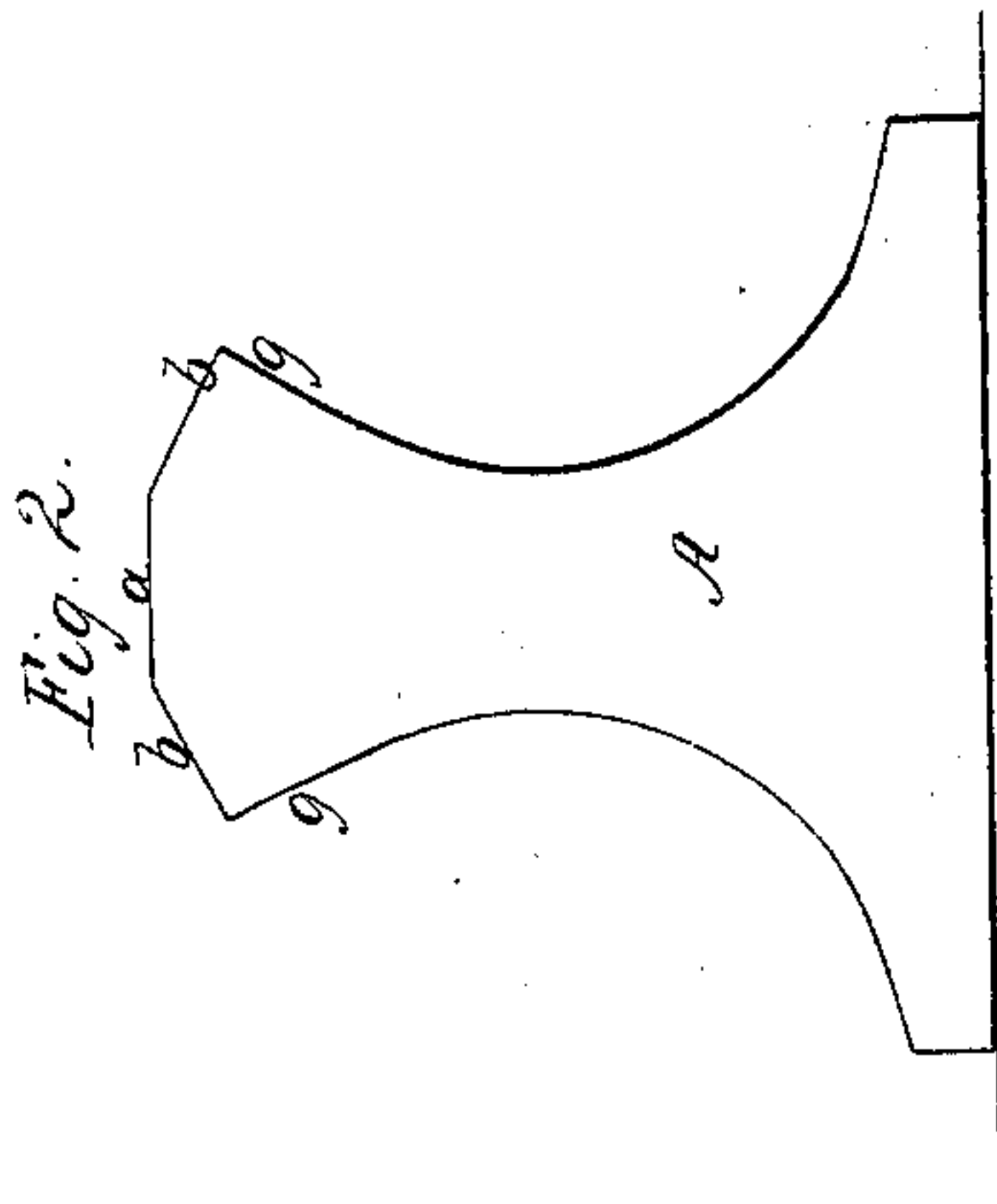
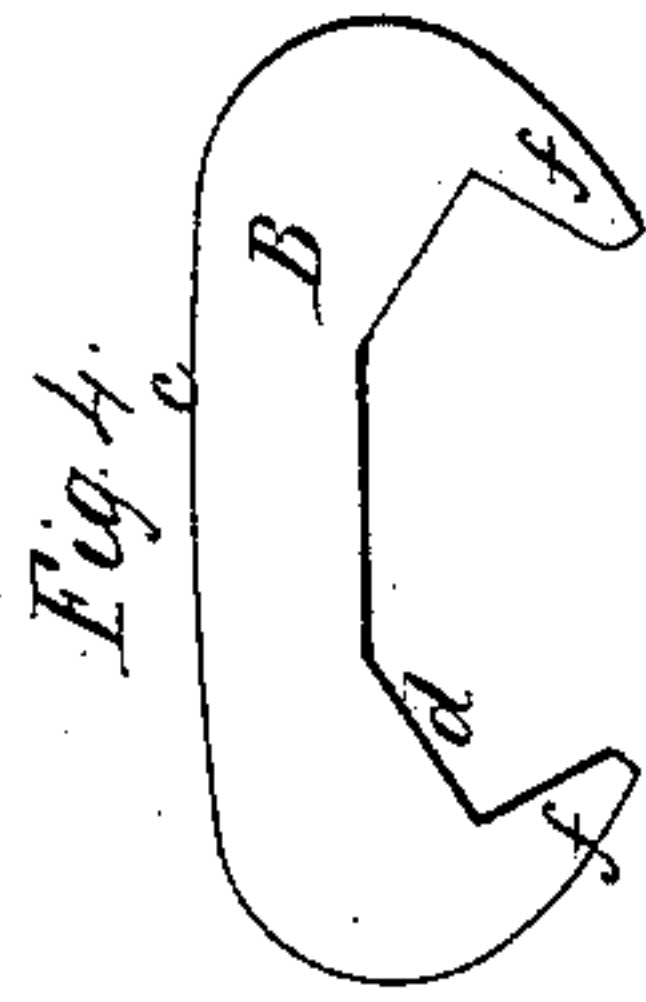
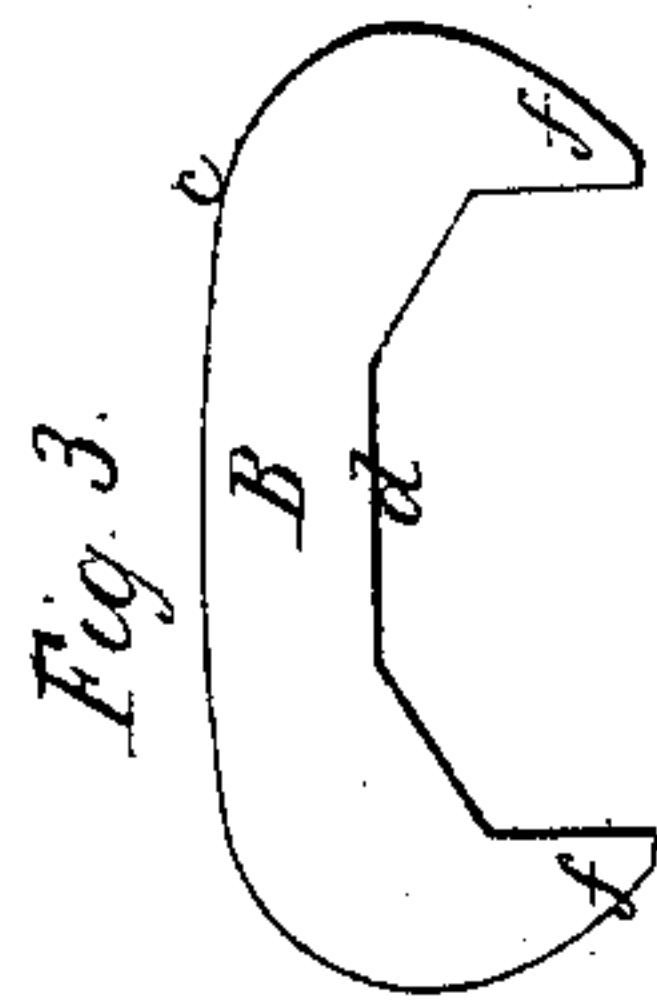


J. L. Booth

Railroad Track Iron

N^o 57,467.

Patented Aug. 28, 1866



Witnesses;
J. A. Davis.
R. F. Argord.

Inventor;
Jonathan L. Booth

UNITED STATES PATENT OFFICE

J. L. BOOTH, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN RAILROAD-RAILS.

Specification forming part of Letters Patent No. 57,467, dated August 28, 1866.

To all whom it may concern:

Be it known that I, J. L. BOOTH, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Rails for Railroads; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a perspective view of the end of a rail provided with my improvement; Fig. 2, an end elevation of the body of the rail; Figs. 3 and 4, end views of the face or tread piece detached; Fig. 5, an end elevation, showing a modification in the form of the top of the body of the rail.

Like letters of reference indicate corresponding parts in all the figures.

It has long been a favorite idea to construct rails for railroads with a body made of inferior material and a face or cap to receive the tread of the wheels. Many plans have been proposed. One is to use a steel face welded to the iron body and rolled with it. The great objection to this is that when the steel face is worn out the whole rail must be thrown away, in the same manner as ordinary iron rails. In other words, the steel and iron cannot be separated, and therefore, when the face is abraded, the rail is useless. Another plan is to employ a face or cap on top of the body of the rail, made removable at pleasure when worn, secured in place by means of bolts or equivalent, so that the parts can be easily separated. The difficulty in this case is that the parts composing the rail are loose and irregular in action, and do not form, as it were, a whole. The face does not hold closely to the body.

My invention consists in the combination of a steel face or cap with an iron body, not welded so that the parts cannot be easily separated, nor on the other hand loosely connected, so that they form two separate parts in action, but shrunk on, thus combining the qualities of a tight fit and capability of removing the cap at any time when worn, so that another may be substituted.

As represented in the drawings, A indicates the body of the rail, which is made of ordi-

nary wrought-iron; and B indicates the cap or face, which is preferably made of steel.

I prefer to make the top or bearing surface of the body of the rail as represented in Figs. 1 and 2—that is, with a plane central horizontal surface, *a*, and a plane angular surface, *b*, on each side of the center. These angles correspond in a degree with the tread of the wheel, which principally comes on the inner edge of the rail; but, if desired, the top of the body may be entirely horizontal, as shown in Fig. 5, or the upper corners may be clipped or rounded, or such other form may be given as may be found necessary or desirable. The steel face or cap is first passed through rollers, so as to make it of suitable form, as indicated in Fig. 3—that is, with the usual tread-surface *c*, an angular or plane inner surface, *d*, to fit the corresponding surface of the body, and with vertical lips *f f*, which cannot well be rolled with an inward angle at the first operation. The inner surface, *d*, is rolled to fit accurately, when hot, the top of the body of the rail. In this condition the cap is applied to the top of the rail hot, and the whole is passed between rollers, which act on the lips *f f* and press them firmly inward against the angles *g g* of the body, and thus bind them closely to the same. The cap is then cooled, and shrinks closely and firmly to the body of the rail.

I attain by this process results of a practical nature of the utmost importance, viz., I combine the cap and body so firmly as to form a unit or whole by shrinking, and at the same time in such a manner that they may be readily separated again by heating or otherwise, so that when the cap is worn out it may be easily replaced.

The advantages of this arrangement over those at first referred to are so obvious as to scarcely need notice. Where the steel is welded to the body and is rolled with it, it forms an integral part and cannot be separated again, and thus the whole rail is useless when the tread is worn out. I combine a steel surface of much endurance, and when it is worn useless it can be replaced without discarding the body of the rail; and where a cap or face is secured to the body by sliding it on endwise,

or by bolting it thereto, it is so loose and yielding as to soon break or become disarranged.

I combine the cap with the body so closely that they form a whole, while, at the same time, they can be easily separated.

Aside from these advantages there are others worthy of mention. I am thus enabled to secure a steel face in a permanent manner and avoid making the whole rail of steel. If either the body or cap should break and the other part remain entire the rail would still remain intact by reason of the closeness and tenacity with which they hold together, and as they are distinct and independent parts, it is not probable they would break in the same place. If a welded steel rail were to break it would break at one place, and if a combined rail, loosely connected, were to break the parts would be likely to become detached or separated, or, at least, so disarranged as to throw a train from the track.

The binding of the cap upon all the surface of the body of the rail by shrinking has a tendency to mutually strengthen the parts against the strain, which would not be the case if said parts were loosely connected.

The ends of the rails may be hardened to prevent abrasion of the joints.

I do not claim simply and broadly combining a steel face with an iron body, as I am aware that the same has been done by welding and rolling in one mass. Neither do I claim, broadly, the combination of a cap or face with the body of a rail so that the parts may be separated and replaced, as I am aware that such parts have been loosely connected thus.

What I claim as my invention, and desire to secure by Letters Patent, is—

A rail for railroads composed of the iron body A and steel cap B, when the latter is rolled and shrunk on the body in such a manner as to unite the parts closely as a unit or whole, but still allow them to be easily separated and replaced, substantially as herein set forth.

JONATHAN L. BOOTH.

Witnesses:

R. F. OSGOOD,

J. A. DAVIS.