

(No Model.)

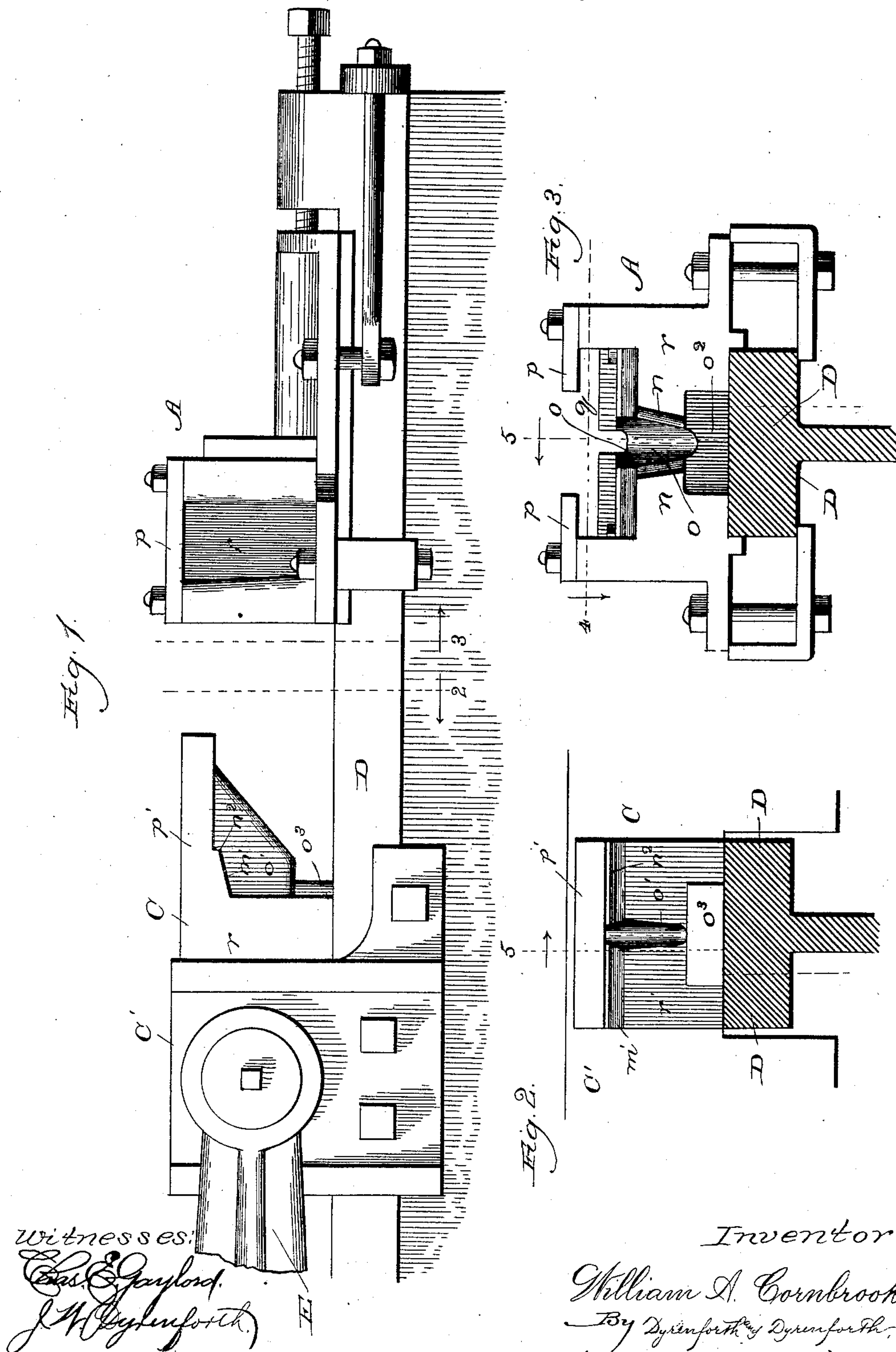
3 Sheets—Sheet 1.

W. A. CORNBROOKS.

DIE FOR UPSETTING THE ABUTTING ENDS OF RAIL BRACES.

No. 367,502.

Patented Aug. 2, 1887.



Witnesses:

Charles E. Gaylord.
J. M. Dyrenforth.

Inventor:

William A. Cornbrooks.
By Dyrenforth & Dyrenforth,
Attys.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

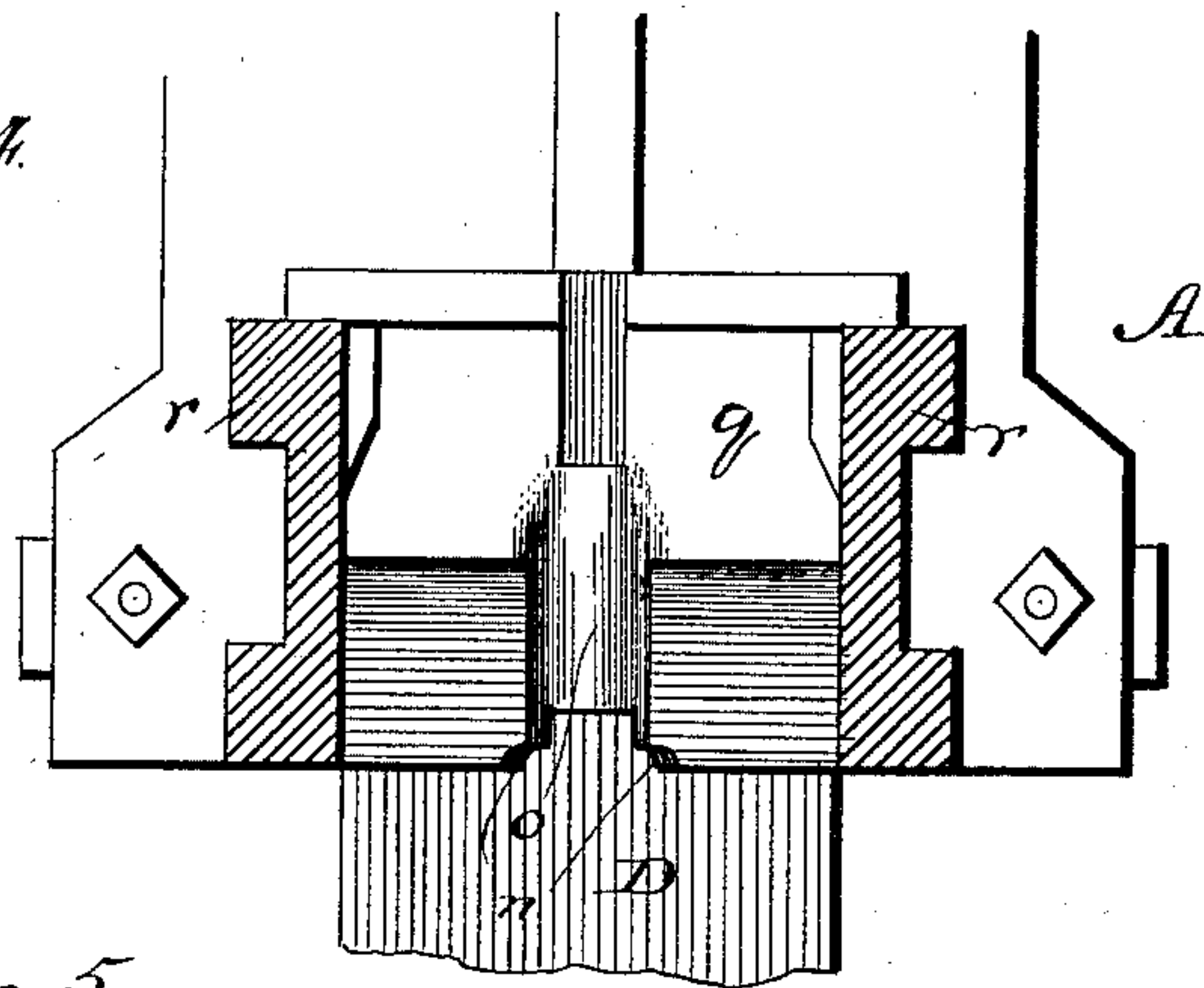


Fig. 5.

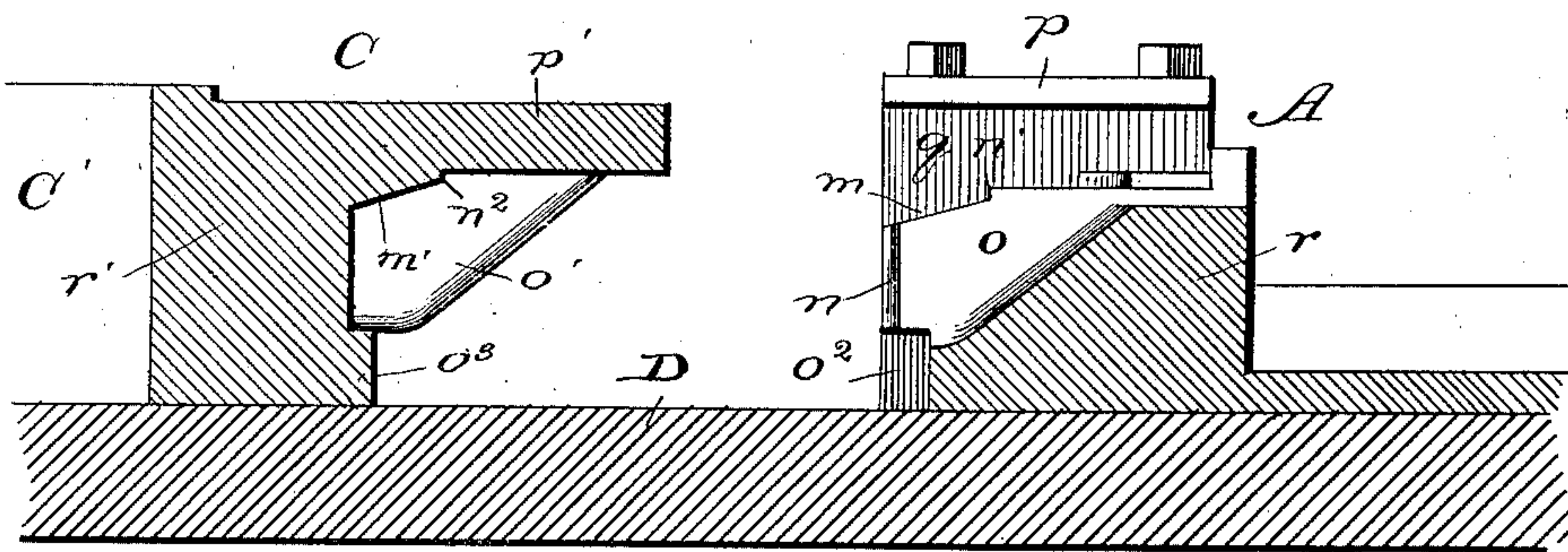
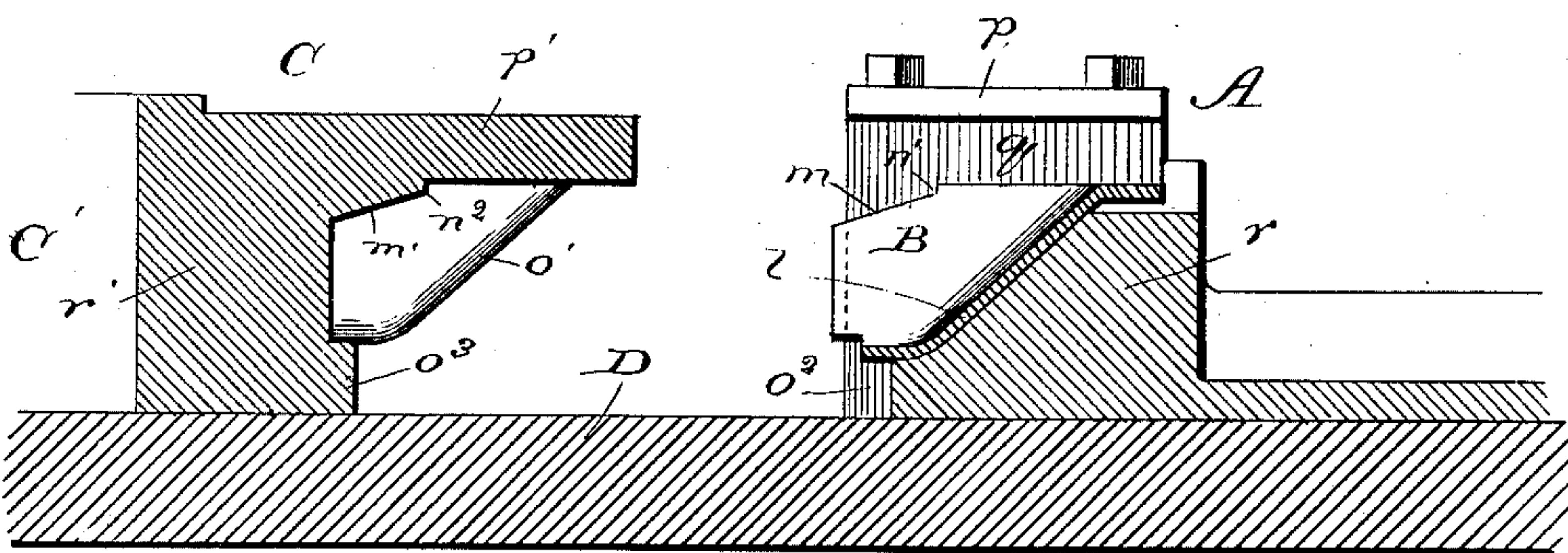


Fig. 6.



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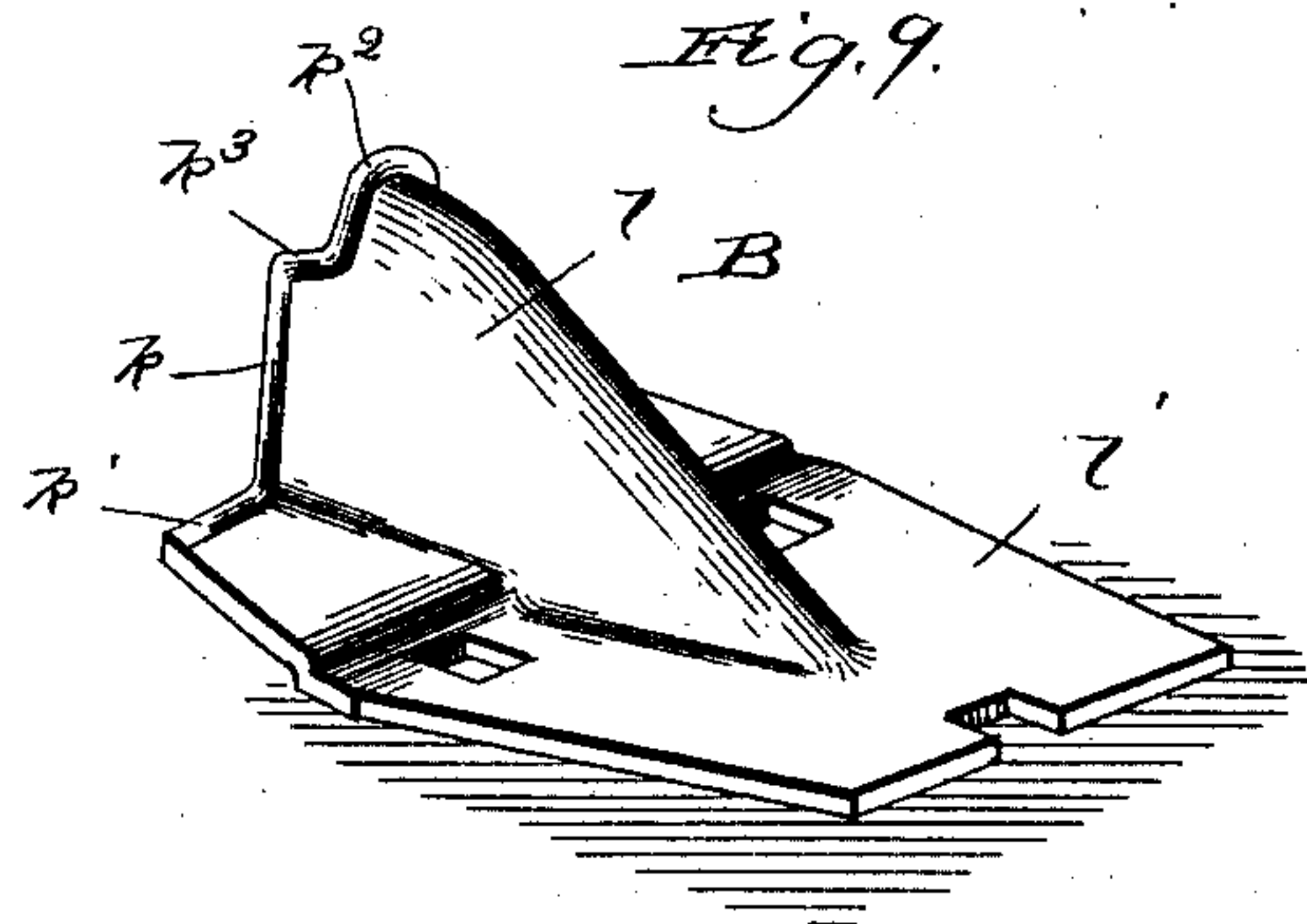
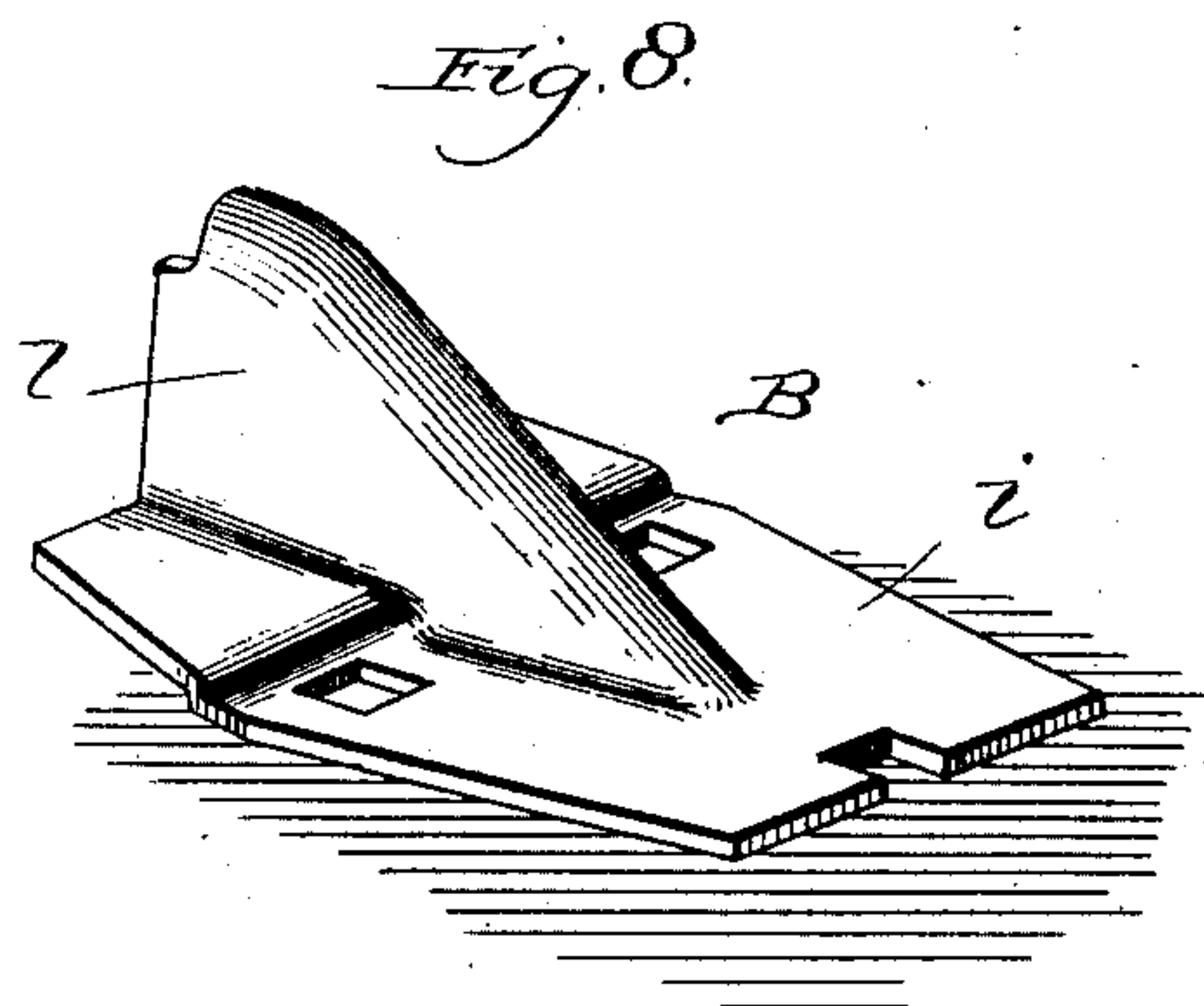
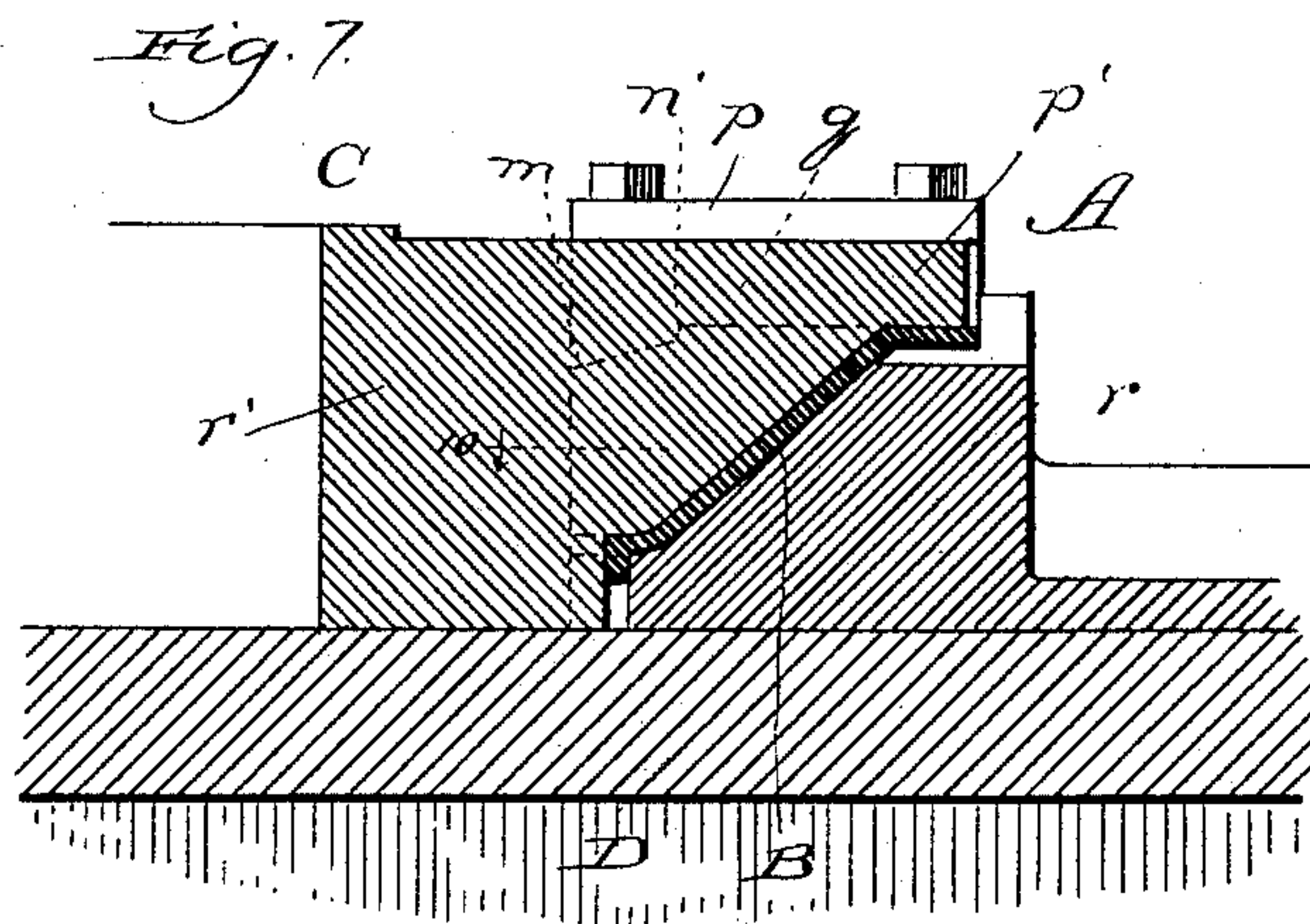
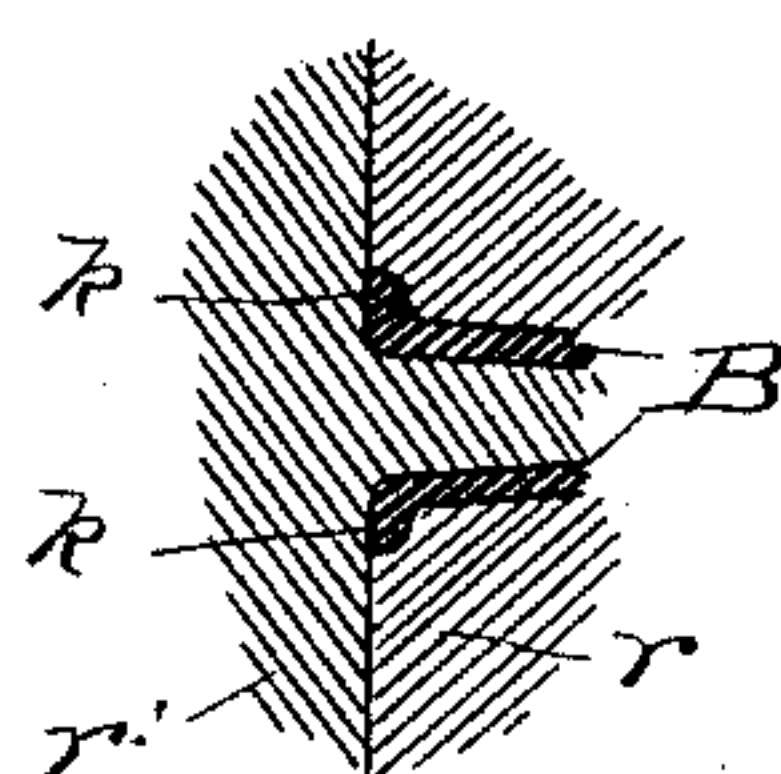


Fig. 10.



witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM A. CORNBROOKS, OF MOLINE, ASSIGNOR TO PETTIBONE, MULLIKEN
& COMPANY, OF CHICAGO, ILLINOIS.

DIE FOR UPSETTING THE ABUTTING ENDS OF RAIL-BRACES.

SPECIFICATION forming part of Letters Patent No. 367,502, dated August 2, 1887.

Application filed May 25, 1887. Serial No. 239,321. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. CORNBROOKS, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented a certain new and useful Improvement in Upsetting the Abutting Ends of Rail-Braces and Dies for the Same; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention consists in upsetting the abutting edges of rail-braces to broaden the wearing-surfaces and fit them against the rails.

My invention also consists in the general construction of my improved upsetting-die; and it further consists in details of construction and combinations of parts, all as hereinafter more fully set forth.

In the drawings, Figure 1 shows my improved die in side elevation, the female die being stationary and adjustable and the male die horizontally reciprocating on a bed. Fig. 2 is a broken section, showing the male die in front elevation, taken on the line 2 of Fig. 1, and viewed in the direction of the arrow; Fig. 3, a section showing the female die in front elevation, taken on the line 3 of Fig. 1, and viewed in the direction of the arrow; Fig. 4, a section taken on the line 4 of Fig. 3, and viewed in the direction of the arrow; Fig. 5, a section taken on the lines 5 of Figs. 2 and 3, and viewed in the direction of the arrows; Fig. 6, a similar view of the same with a brace in position in the female die to be upset; Fig. 7, a similar view of the female die with a brace in position after having its abutting edges upset; Fig. 8, a view in perspective of a rail-brace as it emerges from the forming or shaping die and before it is subjected to the operation of the upsetting-die; Fig. 9, a similar view of a rail-brace after its abutting edges have been upset; and Fig. 10, a section taken on the line 10 of Fig. 7, and viewed in the direction of the arrow.

A is the female die or portion of the die comprising a metal body, r , provided on its upper side with a rectangular recess, q , over the edges of which extend ledges p , forming guide-flanges, for a purpose hereinafter described.

In the base of the recess q is a recess, o , some-

what oval at the entrance, as shown in Fig. 3, its base being horizontal from the entrance through a portion of its extent and upwardly and backwardly inclined throughout the remainder of its extent, the base being also concave and the sides slightly converging toward it, to cause the recess to coincide with the external surface of the hollow abutment of the rail-brace B, as shown in Fig. 8. On opposite sides of the mouth of the recess o are depressions n , and above it inclined surfaces m , extending upward and backward to shoulders n' , and below the recess o in the face of the body r is a rectangular, or substantially rectangular, recess, o^2 .

C is the male die or portion of the die comprising a metal body, r' , having a horizontal extension, p' , on its upper side, from the lower surface of which extends the head o' , receding toward the face of the body r' throughout a portion of its extent and horizontal throughout the remainder of its extent, as shown, to correspond in form with the recess o in the female die A, the cross section of the head o' being such with reference to that of the recess o as to leave, when introduced into the latter, a space equal in width throughout to the thickness of the metal forming the brace B.

On the face of the body r' , at opposite sides of the head o' , to coincide with the inclined surfaces m and shoulders n' of the female die, are backwardly-inclined surfaces m' and shoulders n'' , and below the head o' is a rectangular projection, o^3 , to coincide with the recess o^2 in the part A.

Both dies A and C are supported on a machine of old construction and therefore not illustrated further in the present connection than is required to indicate the operation of actuating the dies to upset the abutting edges of rail-braces B of the form shown in Fig. 8 to produce the form shown in Fig. 9. The female die A is secured rigidly upon the bed D of the machine, and is adjustable thereon by means of set-screws, as shown, and the die C is secured to a reciprocating head, C' , on the bed D in a manner to cause its parts to coincide with those of the female die, the head C' being reciprocated through the medium of pitmen E on opposite sides.

To upset the abutting edges of a rail-brace,

B, the latter, by preference immediately after removing it from the forming-die, for which I have filed an application for Letters Patent concurrently with the present application, is reheated only about the abutting edges, whereby the cooler portion is enabled to resist the action of the die. When heated, as aforesaid, the brace is inserted during the back-stroke of the head C' in inverted position into the female die A with its hollow abutment *l* in the recess *o* and its base *l'* in the recess *q*, to the surface of which, including the inclined planes *m* and shoulders *n*, it conforms. The male die C advances toward the opposing female die A and introduces the extension *p'* between the guide-flanges *p*, thereby pressing the brace downward on its seat and preventing displacement by the action of the male die, which at the end of its stroke has introduced the head *o'* into the hollow abutment *l* of the brace in the recess *o*, the inclined surfaces *m'*, and shoulders *n'* against and upon the corresponding parts of the brace, all of which operations, besides removing any irregularities or imperfections in the shape produced by the forming-die, firmly hold it while the abutting edges are being upset. The upsetting is produced by the pressure of the face of the body *r'* at the sides of the head *o'* against the vertical sides of the opening to the hollow abutment *l*, which turns them into the depressions *n*, producing the ridges *k*, and forms the ridges *k'*, Fig. 9, and by the pressure of the rectangular projection *o'* against the lower portion of the face of the inverted hollow abutment *l* to produce the ridge *k'* and shoulders *k'*.

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

1. Upsetting the abutting ends of rail-braces to flange and broaden the wearing-surfaces and fit them against the rails, substantially as described.
2. In a die for upsetting the abutting edges of rail-braces B, the combination of a female portion, A, having a recess, *o*, and a male portion, C, having a head, *o'*, and an extension, *p'*, substantially as and for the purpose set forth.
3. In a die for upsetting the abutting edges of rail-braces B, the combination of a stationary female portion, A, having a recess, *o*, and a reciprocating male portion, C, having a head, *o'*, and an extension, *p'*, substantially as and for the purpose set forth.
4. In a die for upsetting the abutting edges of rail-braces B, the combination of a stationary adjustable female portion, A, having a recess, *o*, and a horizontally-reciprocating

male portion, C, having a head, *o'*, and a horizontal extension, *p'*, substantially as and for the purpose set forth.

5. In a die for upsetting the abutting edges of rail-braces B, the combination of a female portion, A, having a recess, *q*, lateral guide-flanges *p*, extending over the recess *q*, and a recess, *o*, in the base of the recess *q*, and a male portion, C, having a head, *o'*, and a horizontal extension, *p'*, substantially as and for the purpose set forth.

6. In a die for upsetting the abutting edges of rail-braces B, the combination of a female portion, A, having a recess, *q*, lateral guide-flanges *p*, extending over the recess *q*, a recess, *o*, in the base of the recess *q*, inclined surfaces *m*, shoulders *n'*, and depressions *n*, and a male portion, C, having a head, *o'*, a horizontal extension, *p'*, inclined surfaces *m'*, and shoulders *n'*, substantially as and for the purpose set forth.

7. In a die for upsetting the abutting edges of rail-braces B, the combination of a female portion, A, having a recess, *q*, lateral guide-flanges *p*, extending over the recess *q*, a recess, *o*, in the base of the recess *q*, inclined surfaces *m*, shoulders *n'*, depressions *n*, and a recess, *o'*, below the vertical opening to the recess *o*, and a male die, C, having a head, *o'*, a horizontal extension, *p'*, over the head *o'*, inclined surfaces *m'*, shoulders *n'*, and a projection, *o'*, below the head *o'*, substantially as and for the purpose set forth.

8. In a die for upsetting the abutting edges of rail-braces B, the combination of a stationary adjustable female portion, A, having a recess, *q*, lateral guide-flanges *p*, extending over the recess *q*, a recess, *o*, in the base of the recess *q*, having its sides converging toward a concave base horizontal from the vertical opening to the recess throughout part of its extent and backwardly and upwardly inclined throughout the remainder of its extent, inclined surfaces *m*, shoulders *n'*, vertical depressions *n*, and a recess, *o'*, below the vertical opening to the recess *o*, and a male portion, C, having a head, *o'*, corresponding to the form of the recess *o* in the female portion A, a horizontal extension, *p'*, over the head *o'*, to enter the recess *q* below the guide-flanges *p*, inclined surfaces *m'*, shoulders *n'*, and a projection, *o'*, below the head *o'*, substantially as and for the purpose set forth.

WILLIAM A. CORNBROOKS.

In presence of—

S. W. SKINNER, Jr.,
L. A. THOMPSON.