No. 627,020. Patented June 13, 1899.

F. G. SUSEMIHL.

BRAKE BEAM.

(Application filed Mar. 10, 1898.)

(No Model.)

Fig. 1.

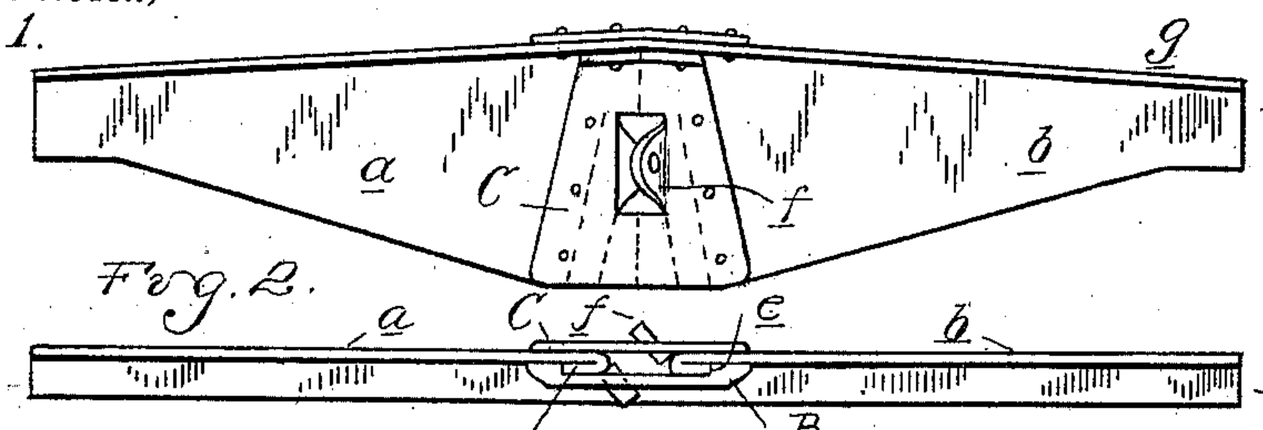


Fig. 2.

Fig. 3.

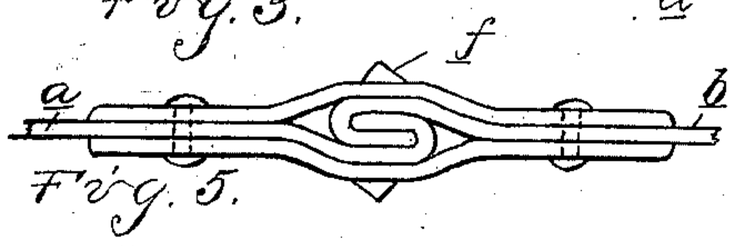


Fig. 4.

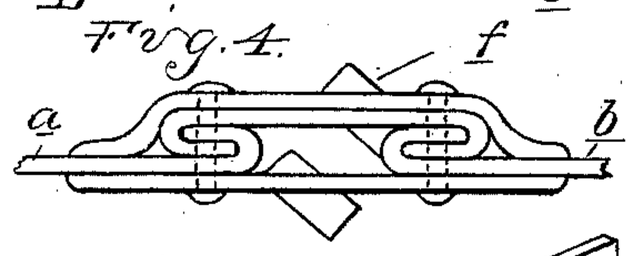


Fig. 5.

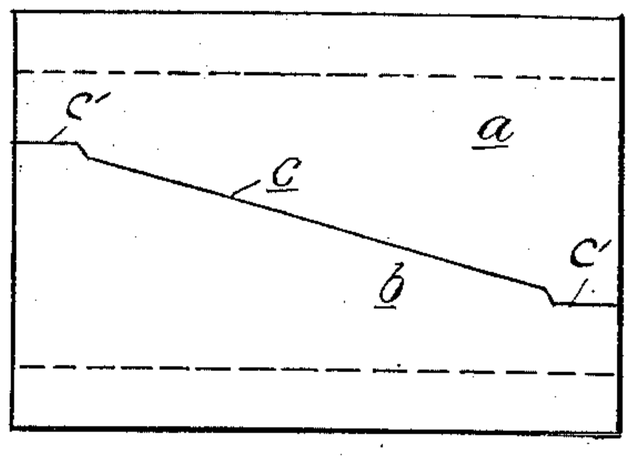


Fig. 6.

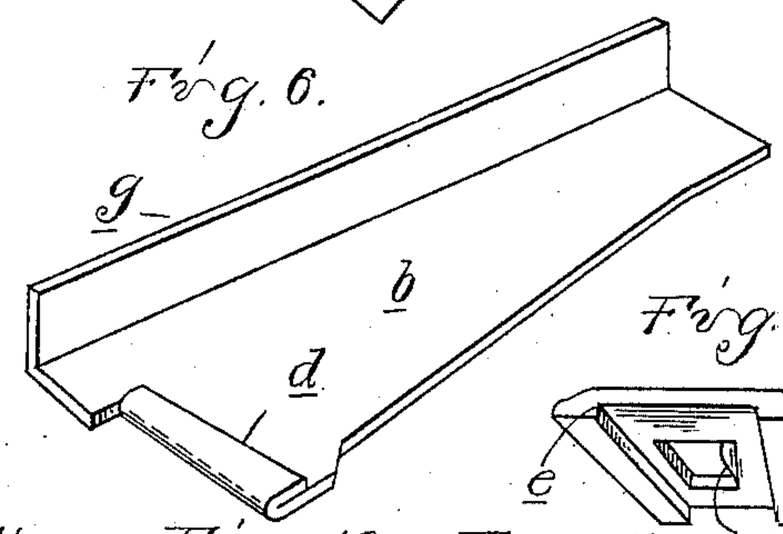


Fig. 7.

Fig. 8. Fig. 9. Fig. 10. Fig. 11. Fig. 12. Fig. 13.

Fig. 14.

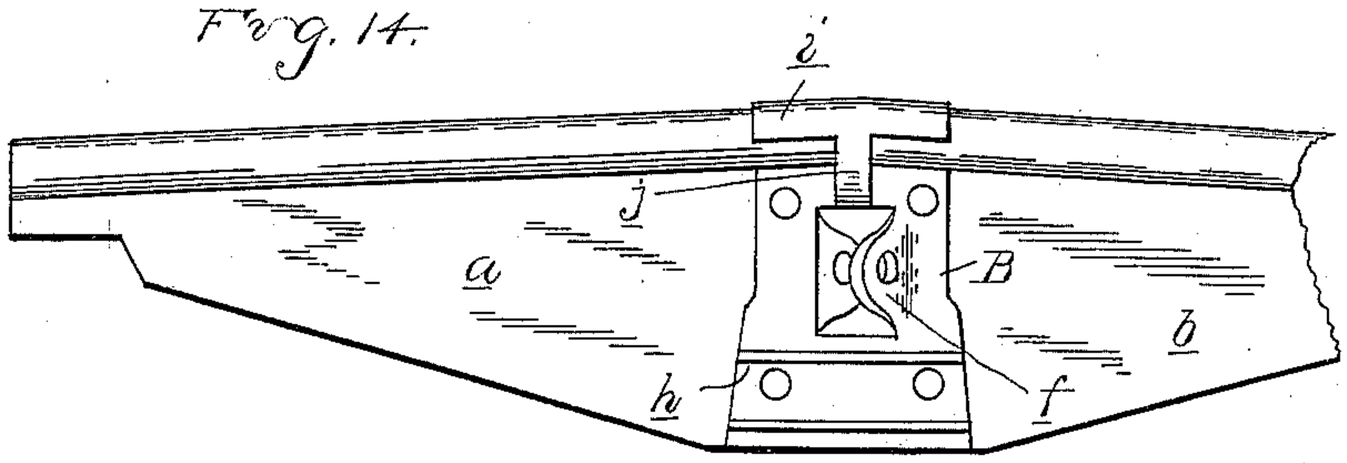


Fig. 16.

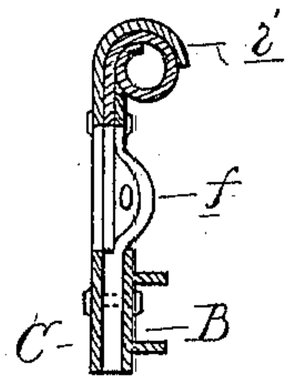
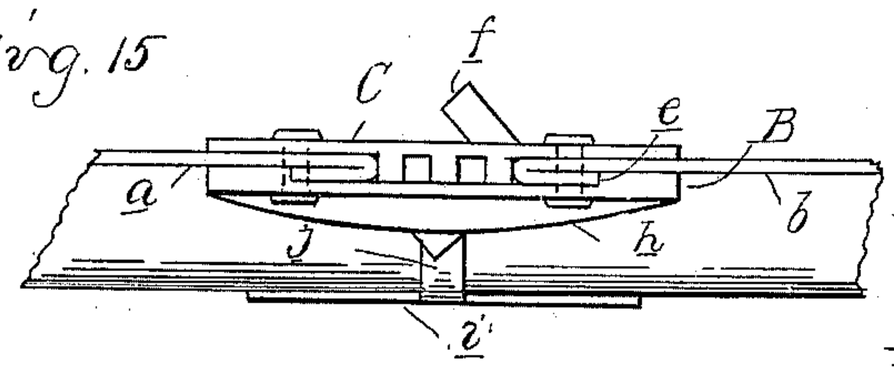


Fig. 15



Witnesses:
Otto F. Bandtel
R. L. Oakley

Inventor
Francis G. Susemihl
By Thos. G. Wagner & Son
Attys.

UNITED STATES PATENT OFFICE.

FRANCIS G. SUSEMIHL, OF DETROIT, MICHIGAN.

BRAKE-BEAM.

SPECIFICATION forming part of Letters Patent No. 627,020, dated June 13, 1899.

Application filed March 10, 1898. Serial No. 673,349. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS G. SUSEMIHL, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Brake-Beams, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to brake-beams which are formed from sheet metal; and it is the object of my invention to obtain a construction in which the metal blanks may be cut with greater economy of material.

Heretofore it has been customary to form the beam from a single sheet-metal blank which in order to obtain the desired trussing effect is of considerably greater width at the center of the beam than at the ends. This necessitates a great waste of material in the cutting of each blank. To avoid this waste, I have devised a construction in which the beam is formed from two blanks forming complementary parts of a rectangle and which therefore may be cut without waste from rectangular sheets of material.

My invention therefore consists in the construction of a sheet-metal brake-beam formed of two sections united at the longitudinal center of the beam; further, in the means employed for uniting these sections, and, further, in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described and claimed.

In the drawings, Figure 1 is a bottom plan view of my sectional sheet-metal brake-beam. Fig. 2 is an edge elevation thereof. Figs. 3 and 4 are similar enlarged views showing modified constructions. Fig. 5 is a plan of a rectangular sheet of metal with the blanks for forming the complementary sections of the beam indicated thereon. Fig. 6 is a perspective view of one of the formed sections. Fig. 7 is a perspective view of the connecting-plate. Figs. 8, 9, 10, 11, 12, and 13 are cross-sections of slightly-modified forms of beams. Fig. 14 is a plan of still another modification. Fig. 15 is an enlarged edge elevation thereof, and Fig. 16 is a cross-section.

A is a rectangular blank of sheet metal. From this blank the complementary beam-sections *a* and *b* may be formed without waste by cutting on the diagonal line *c*, and when placed together, with their large ends abutting, will form a beam of the usual shape, substantially straight on its compression edge and inclined from center to end on its tension edge. To secure these sections together, the inner end of each blank is turned over at the tension portion (preferably including the brake-lever opening) to form the shoulders or hooks *d*, and a connecting-plate B, formed with opposite shoulders *e*, is screwed or riveted to the two sections, so as to hold them with their compression portions abutting and the shoulder *d* engaging with the opposite shoulders *e*. This will form a beam of as great strength as if made from a single blank, as the full cross-section of both its compression and tension portions is maintained, while the connecting-plate serves to additionally stiffen it at its center. As it is usual to pass the brake-lever diagonally through the center of the beam the sections are cut away between the compression and tension portions to form an aperture of sufficient size for this purpose, and the ears *f*, forming bearings for the pivot of the lever, are formed on the plate B, and a corresponding plate C on the opposite side of the beam.

To stiffen the beam laterally, a flange *g* is turned down on its compression edge either to form a right-angle bend, as shown in Fig. 8, or to form any of the cross-sections shown in Figs. 9, 10, and 11; or this flange may be made of a separate piece of metal, as shown in Figs. 12 and 13.

I preferably form the beam with a camber on its compression edge, which may be done without changing the complementary character of the blank forming the two sections and gives an additional trussing effect over the straight-back line construction. This camber is of great value, as in many places where the beam is used the room is too limited to permit of the point of the truss being thrown forward far enough to gain the desired strength. This strength, however, may be obtained by cambering the beam backward, which is readily accomplished with my construction, but would be impossible in constructions previously used where formed of a single plate doubled. Another advantage of this construction is that I am enabled to throw the brake-lever farther back, thereby

obtaining a greater space for the clamping-plates between the point of truss and aperture for the lever. A better balancing of the beam is also obtained. Morever, the turned-over end edges of the two sections will extend on diverging lines, thus forming a wedge-seat for the clamping-plate, which engages therewith, and thereby forming a tighter fit.

The plates B and C may be formed either of sheet or cast metal, preferably malleable castings, and in the construction shown in Figs. 14, 15, and 16 these plates are formed with ribs *h* on the lower plate for obtaining greater lateral strength and the sockets *i*, formed on the upper plate, adapted to receive the ends of the compression portions of the opposite sections, with the web *j* between, which both strengthen said sockets and form an abutment for the compression portion of the two beam-sections, as shown in Fig. 14.

Instead of forming the shoulders *d* as I have shown in Fig. 2, I may form them, as shown in Fig. 4, of an open-hook shape, adapted to engage with corresponding hooks on the connecting-plate, or I may form these shoulders or hooks on the two sections, so as to engage with each other, as shown in Fig. 3, the construction shown in Fig. 2 being the preferable form.

It will be observed that with all of these constructions the two members of the beam have a hook engagement with and pull against each other either directly, as in Fig. 3, or through the medium of the connecting-plate, as shown in the other figures. In the claims I shall therefore make use of the expression "counterpulling shoulders or hooks," meaning by this shoulders or hooks that are adapted to directly or indirectly form a hook engagement with and pull against each other and not intending to include flanges which are secured together by rivets, as the rivets do not form hooks in the sense in which I employ the term.

It will be seen that the hooks *d* extend across the aperture for the brake-lever, and as the plates B and C may be of any desired thickness this elongated hook adds materially to the tensile strength of the tension member.

In severing the rectangular blank to form the two beam-sections instead of cutting completely across the blank I preferably cut, as shown in Fig. 5, on lines *c'*, extending parallel with the side of the blank for a short distance from each end and then joining with the oblique or diagonal line *c*. This will form the end portion of each section which engages with the brake-shoe with parallel edges and will also enlarge the central portion of the beam with which the clamping-plates engage.

What I claim as my invention is—

1. A sheet-metal brake-beam formed in two like sections united at the longitudinal center of the beam and oppositely tapering toward the ends, each section having a turned flange on its compression edge, the blanks of said sections being adapted when placed together with their tapering edges abutting, to form complementary portions of a rectangle.

2. A sheet-metal brake-beam formed in two sections united at the longitudinal center of the beam, said sections being provided with bent counterpulling shoulders or hooks formed on the adjacent ends of their tension portions.

3. A sheet-metal brake-beam formed in two sections united at the longitudinal center of the beam, said sections being provided with counterpulling hooks at the adjacent ends of their tension portions and having turned flanges forming their compression portions.

4. A sheet-metal brake-beam formed in two sections united at the longitudinal center of the beam, said sections being provided with counterpulling shoulders or hooks on their tension portions formed by folding over their adjacent ends.

5. A sheet-metal brake-beam comprising two sections arranged on opposite sides of the longitudinal center of the beam, said sections having the adjacent ends of their tension portions folded to form counterpulling shoulders or hooks and a connecting-plate for uniting said sections formed with opposite shoulders or hooks adapted to engage with said shoulders or hooks in said sections.

6. A sheet-metal brake-beam comprising two sections arranged on opposite sides of the longitudinal center of the beam, having shoulders or hooks formed on the adjacent ends of their tension portions and turned flanges forming their compression portions, and a connecting-plate having oppositely-formed shoulders adapted to engage with said shoulders on said sections and sockets adapted to receive said compression-flanges.

7. A sheet-metal brake-beam formed in two like sections united at the longitudinal center of the beam, each comprising a turned compression-flange and a folded hook on the union edge of the tension portion, the blanks of said sections being adapted when placed together to form complementary portions of a rectangle.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS G. SUSEMIHL.

Witnesses:

OTTO F. BARTHEL,

M. B. O'DOGHERTY.