

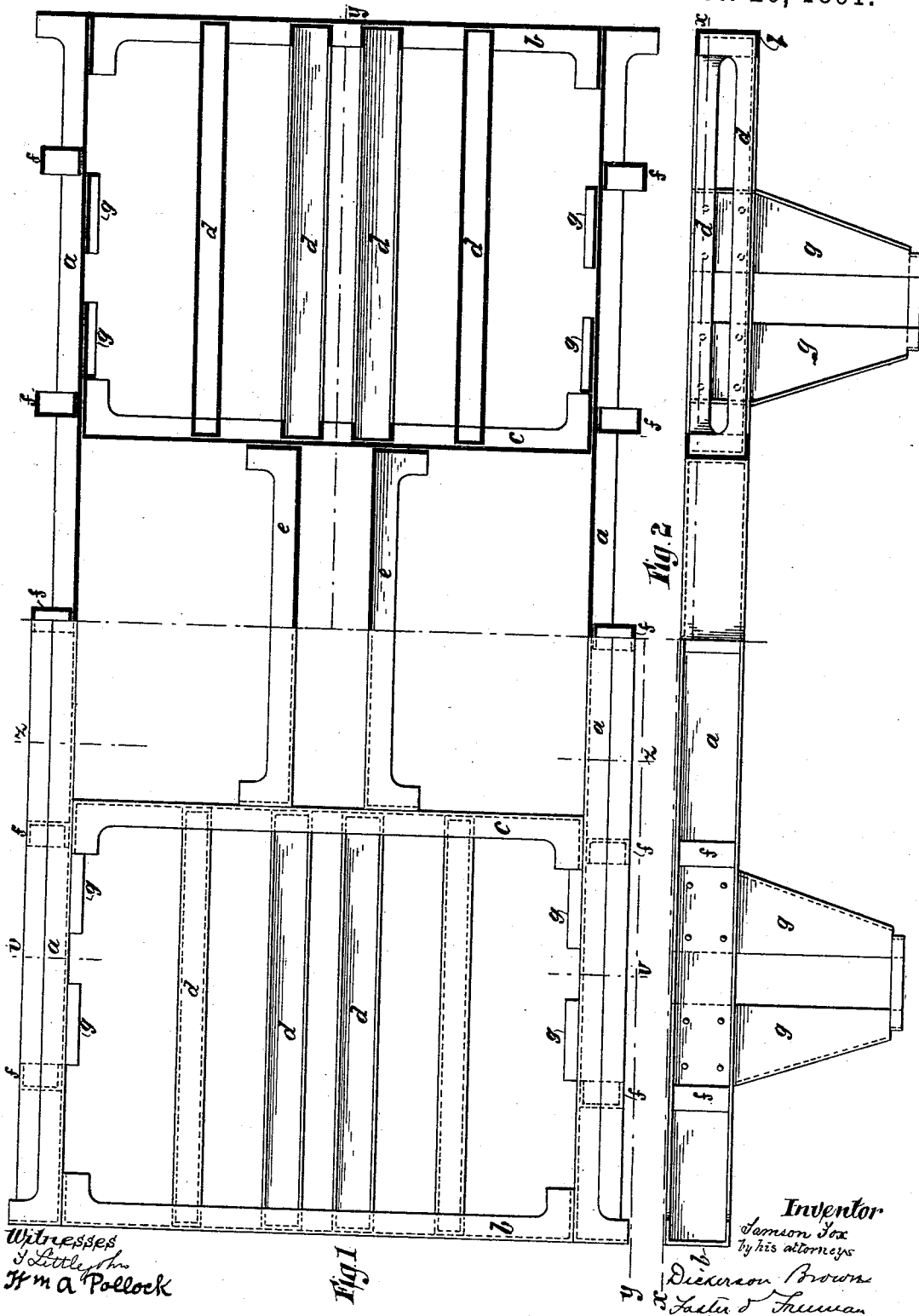
(No Model.)

2 Sheets—Sheet 1.

S. FOX.
UNDER FRAME FOR CARS.

No. 461,428.

Patented Oct. 20, 1891.



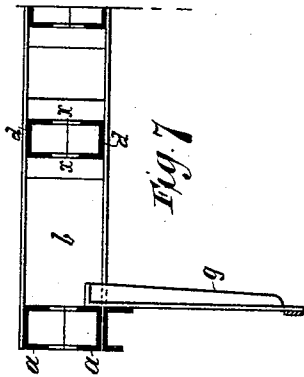
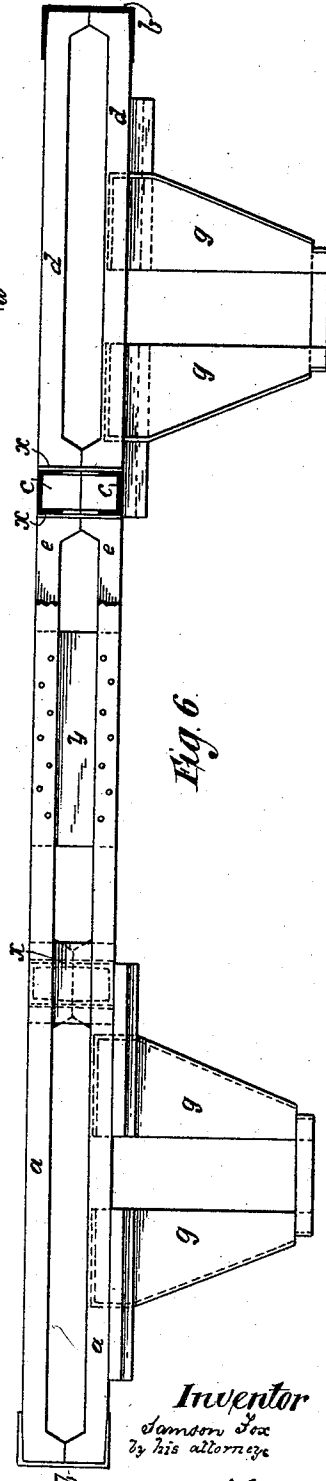
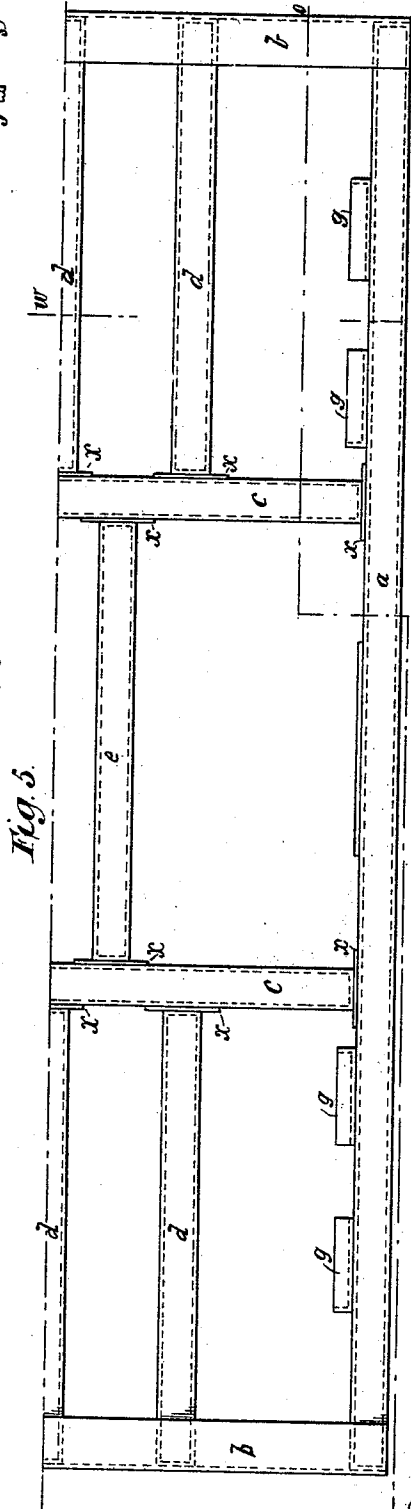
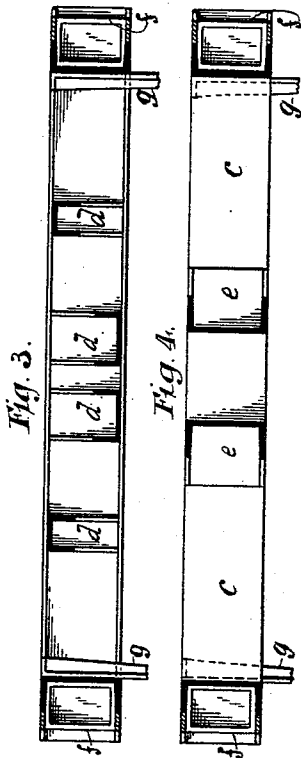
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2 Sheets—Sheet 2.

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UNDER FRAME FOR CARS.

No. 461,428.

Patented Oct. 20, 1891.



Witnesses
J. Little
H. M. A. Pollock

Inventor
Samson Fox
by his attorney

Dickinson Brown Foster & Freeman

UNITED STATES PATENT OFFICE.

SAMSON FOX, OF LEEDS, ENGLAND, ASSIGNOR TO THE FOX SOLID PRESSED STEEL COMPANY, OF CHICAGO, ILLINOIS.

UNDER-FRAME FOR CARS.

SPECIFICATION forming part of Letters Patent No. 461,428, dated October 20, 1891.

Application filed December 4, 1890. Serial No. 373,597. (No model.)

To all whom it may concern:

Be it known that I, SAMSON FOX, of Leeds, England, have invented a new and useful Improvement in Under-Frames for Cars, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

The under-frames of railway and other rolling-stock—such as are used on tramways and common roads—are ordinarily constructed of a combination of timber and metal work, and are generally made heavy in order to obtain the necessary strength and rigidity, and are usually somewhat costly. Sometimes, however, such under-frames are constructed of ordinary channel iron or steel with the end attachments made by rivets or by cutting and welding the ends of the bars; and my present invention relates to a method of manufacture and in particular to a way of forming a solid end on channel-bars for the purpose of strengthening those parts and forming a convenient method of joining the various portions of such under-framing together. For this purpose I take channel iron or steel of suitable length to form the respectively required part or parts, such channels being either rolled as bars or pressed or flanged from flat plates, heat the end or ends thereof, place the metal on a suitable die or mandrel, and press or turn one or both of the ends to a right or other angle with the other part in such wise as to form a solid end or solid ends thereto—that is to say, a part or parts at the required angle or angles, but in one with the channel itself.

It is advantageous to employ for pressing or forming the ends of such channel-bars machinery or apparatus of the kind forming the subject-matter of another application by me for Letters Patent filed on the 4th day of December, 1890, and serially numbered 373,595, which machinery or apparatus is not herein claimed as constituting part of my present invention.

In order that the manner of carrying my invention into practical effect may be clearly understood, I now proceed to describe the

same in detail with especial reference to examples illustrated in the drawings hereunto annexed, in which—

Figure 1 is a half-sectional plan, at the line xx of Fig. 2, of an under-frame constructed of solid-end channel-bars according to my invention. Fig. 2 is a half-sectional elevation at the line yy of Fig. 1. Fig. 3 is a cross-section at vv of Fig. 1. Fig. 4 is a cross-section at zz of Fig. 1.

aa are the sole-bars; bb , the head-stocks; cc , the cross-bars; dd , the end longitudinals, and ee , center longitudinals. As will be seen, all these are of channel-section, and each has both its ends turned to a right angle with the bar itself, which is effected, as already described, by heating the ends, then placing on a suitable mandrel or die, and by suitable tools pressing to the required angle, so as to be suitable for attachment to another component part of the under-frame, dispensing with the use of separate angle-pieces at the points of connection, and dispensing also with any welding at the corners of the bar. The several parts may be connected together by bolts or rivets. ff are small brackets made of pressed plate. gg are axle-guards.

Fig. 5 is a half-plan. Fig. 6 is a front view, partly in section, on the line oo of Fig. 5, and Fig. 7 is a cross-sectional view on line ww of Fig. 5, illustrating another design of under-frame, wherein the sole-bars aa are formed of oppositely-arranged channel-bars, each having its ends turned to a right angle, and the juxtaposed ends of two bars thus formed being fitted into the head-stocks bb , which are of ordinary channel iron or steel. The cross-bars cc and the center and end longitudinals dd and ee are also composed of oppositely-arranged channel iron or steel bars with ends turned to a right angle, as specified. xx are strips of plate to which the ends of the various parts are bolted or riveted at the junctions. y is a piece of plate riveted to the sole-bar to stiffen it. It will be observed that these closed end bars are formed with portions projecting at right angles to the back

of the bar to a greater extent than the projection of the edge of the channel, thereby obtaining a greater fixed attachment at these portions and greater certainty that the parts
5 will be kept at right angles to each other.

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

A frame for vehicles constructed of channel-beams having bent and forged closed ends,
10 the said ends projecting at right angles to the

bodies of the beams and beyond the edges of the beams, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMSON FOX.

Witnesses:

S. O. EDMONDS,

WM. A. POLLOCK.