UNITED STATES PATENT OFFICE.

CLARENCE H. HOWARD, OF ST. LOUIS, MISSOURI.

LOCOMOTIVE-ENGINE FRAME.


To all whom it may concern:

Be it known that I, CLARENCE H. HOWARD, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Improvement in Locomotive-Engine Frames, of which the following is a specification.

My invention relates to a combined end sill and draw-bar pocket for a locomotive-engine frame, and is in the nature of an improvement on the United States Letters Patent granted to James F. Dunn August 21, 1900, No. 655,531, for a new and improved locomotive buffer-beam.

My invention has for its object to provide a firm and extended attachment of the end sill and combined draw-bar pocket to the longitudinal metallic frame-beams of a locomotive for insuring a more perfect protection to the cylinder-heads and adjacent important parts of the engine and increasing the rigidity and resistance of the end sill to shocks from collision.

It consists in features of novelty as hereinafter described and claimed, reference being had to the accompanying drawings, forming part of this specification, whereon Figure 1 is a top plan of my improved end sill and combined draw-bar pocket with its bracing and attachment to the longitudinal metallic frame-beams (broken away) of a locomotive; Fig. 2, a front elevation thereof; Figs. 3 and 4, vertical transverse sections through the draw-bar pocket and its bracing and attachment to the frame-beams on lines 3 3 and 4 4, respectively, in Fig. 1; Fig. 5, a vertical longitudinal section through the end sill and draw-bar pocket on line 5 5 in Fig. 1; and Fig. 6 a similar view through the end sill on line 6 6 in Fig. 1, showing its attachment with the draw-bar pocket to the adjacent end portion of one of the frame-beams. (Seen in outside elevation.)

Like letters and numerals of reference denote like parts in all the figures.

a represents the end sill, which in the present case is preferably box-shaped in cross-section with its top and bottom walls parallel longitudinally, and the whole composed, preferably, of cast-steel integral throughout; but the end sill a may be of any other suitable shape in cross-section, such as channel-shaped, and either straight longitudinally on its under side or otherwise, as deemed advisable.

The end sill a is formed transversely through its middle portion with a suitable opening 1 for the passage therethrough and play of the draw-bar b, (indicated by dotted lines,) recesses 2 being formed (or not) in the sides 6o of the opening 1 for receiving the springs 3, which bear against the sides of the draw-bar b.

The opening 1 communicates with the draw-bar pocket c, which projects horizontally from the side of the end sill a and is integral therewith and located between the longitudinal frame-beams d. The pocket c may be of any suitable construction adapted to receive the inner end portion of the draw-bar b, with its yoke 4, springs 5, and follower-plates 6, (indicated by dotted lines,) which are arranged and operate in the usual well-known manner, the outer end of the draw-bar b having the coupler 7.

Preferably from each side of and integral with the draw-bar b along the middle thereof and externally thereto projects a brace or bracket e, which may be of any suitable shape in cross-section and is united at one end (preferably integrally) to the rear side of the end sill a, from which it extends, preferably, for the entire length of the pocket c, the outer side portion of the bracket e being preferably T-shaped or formed with a top and bottom upright flange 8, respectively, the flanges 8 bearing against the inner face of the corresponding frame-beam d, to which they are fixed by bolts 9 and 9', (or rivets,) as shown. Or, if desired, only one flange 8 may be used or lugs substituted therefor, according to the contour and disposition of the brackets e between the pocket c and the engine-frame beams d. Each longitudinal frame-beam d is preferably enlarged at its front end and butts thereat against the rear side of the end sill a, to which it is fixed by the bolts 9', (or rivets,) which pass through the flanges 8, (enlarged in depth thereat conformably to the end of the beam d,) and the frame-beam d and through a web or bracket 10, which projects from the end sill a and bears against the outer face of the frame-beam d, the web 10 being either integral with the end sill a, as shown, or of separate construction bolted or riveted thereto.

By the above construction the brackets e being integral with the draw-bar pocket c and end sill a and having an extended bearing along and attachment to the sides of the longitudinal metallic frame-beams d, to which they operate as a brace, the end sill a
is greatly strengthened transversely at its middle and weakest portion and is practically in one piece with the frame-beams \( d \), whereby in the event of collision its deflection thereat and consequent buckling of the frame-beams \( d \) is prevented. Moreover, by the bearing of the webs 10 against the outer sides of the frame-beams \( d \) conjointly with the bearing of the inner sides of the latter against the flanges 8 of the brackets or brace \( e \) any deflecting strain on the overhanging or outer end portions of the end sill \( a \) is transmitted to the frame-beams \( d \) and brace \( e \) by the webs 10.

I do not limit myself to the preferable construction above described and shown on the drawings of a bracket \( e \) projecting from each side of the draw-bar pocket \( e \) along its middle portion or thereabout, as the brackets \( e \) may be virtually in one piece extending the entire distance between the frame-beams \( d \) below the pocket \( e \), to which it is integrally united, my object being to obtain a brace to the frame-beams \( d \), having the draw-bar pocket and end sill as component parts thereof.

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

1. The combination with the longitudinal frame-beams of a locomotive, of an end sill fixed to the said beams and having a central opening transversely therethrough for the draw-bar, a draw-bar pocket integral with the end sill and projecting rearwardly therefrom between the said beams and in alinement with the said opening, a bracket projecting from each side of, and integral with the said brackets having their outer lateral portions adapted to bear against the inner sides of the said frame-beams, and means for fixing the brackets to the said beams, substantially as described.

2. The combination with the longitudinal frame-beams of a locomotive, of an end sill fixed to the beams and having a central opening transversely therethrough for the draw-bar, a draw-bar pocket integral with the end sill and projecting rearwardly therefrom between the said beams and in alinement with the said opening, a bracket projecting from each side of, and integral with the said pocket, the said brackets having their outer lateral portions adapted to bear against the inner sides of the said frame-beams, and means for fixing the brackets to the said beams, substantially as described.

3. The combination with the longitudinal frame-beams of a locomotive, of an end sill fixed to the said beams and having a central opening transversely therethrough for the draw-bar, a draw-bar-pocket integral with the end sill and projecting rearwardly therefrom between the said beams, in alinement with the said opening, a bracket projecting from each side of, and integral with the said pocket, the side brackets having their outer lateral portions adapted to bear against the inner sides of the said beams, webs projecting from the end sill and adapted to bear against the outer sides of the said beams, and means for fixing the said brackets, beams, and webs together, substantially as described.

4. The combination with the longitudinal frame-beams of a locomotive, of an end sill fixed to the said beams and having a central opening transversely therethrough for the draw-bar, a draw-bar pocket integral with the end sill and projecting therefrom between the said beams, and a brace integral with, and adapted to connect the said pocket and end sill to the said beams, part way along the sides thereof, substantially as described.

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

CLARENCE H. HOWARD.

Witnesses:
O. T. LEDFORD,
EDWARD W. FURRELL.