F. L. IRWIN & J. E. TESSEYMAN.

HOPPER CAR.

APPLICATION FILED MAY 26, 1911.

1,067,784.

Patented July 15, 1913.

4 SHEETS—SHEET 1.

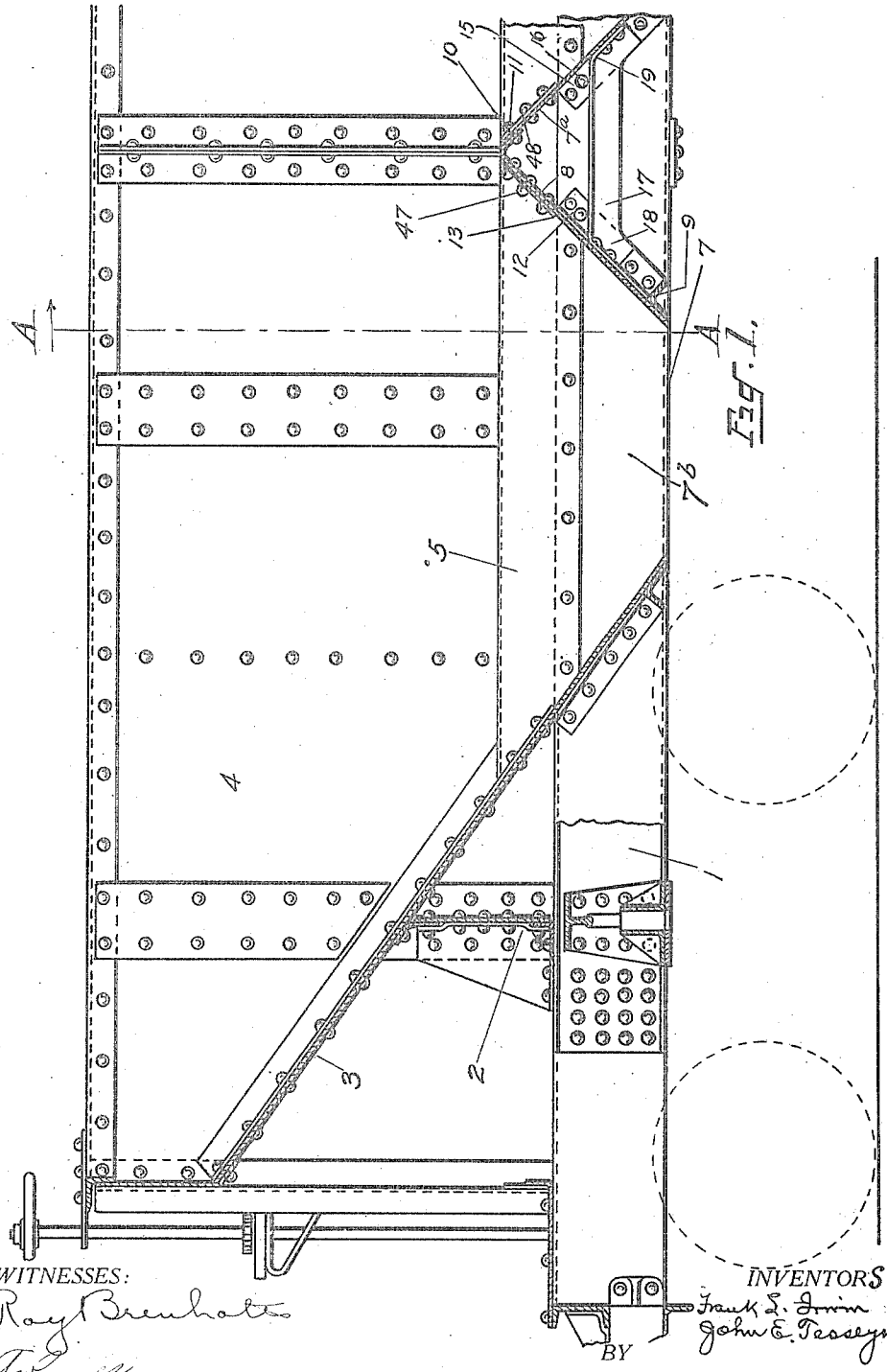


Fig. 1.

WITNESSES:

Roy L. Brenholtz

A. S. Eager

INVENTORS

Frank L. Irwin

John E. Tesseyman

BY

Geo. W. Rightmire

ATTORNEY.

F. L. IRWIN & J. E. TESSEYMAN.

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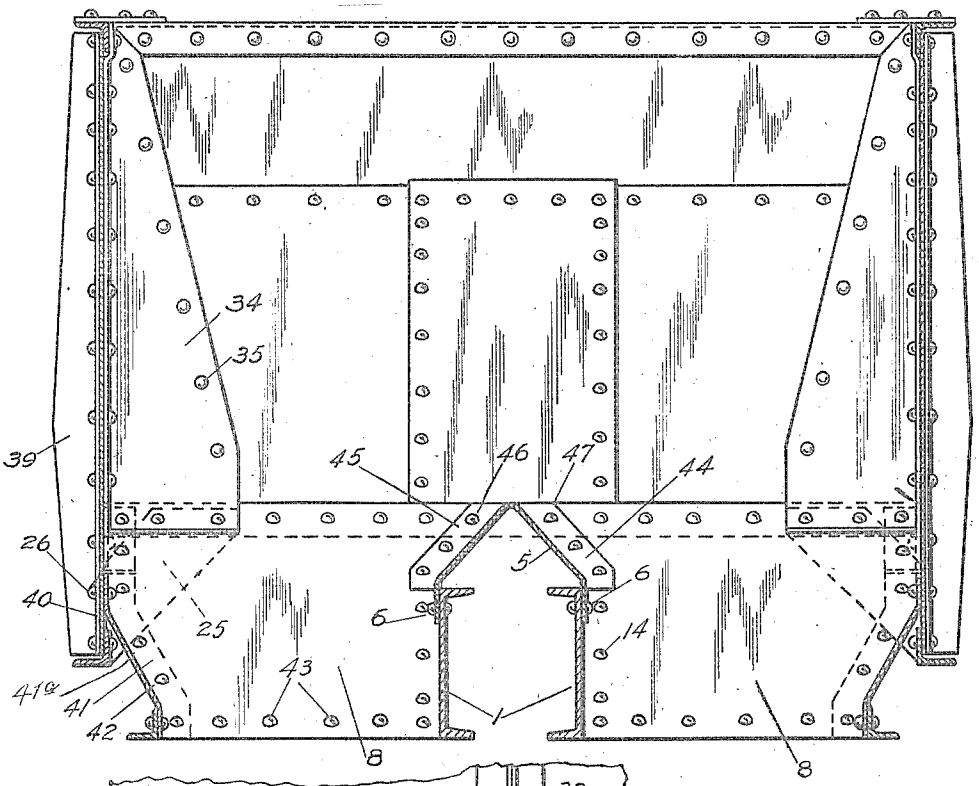


Fig 2

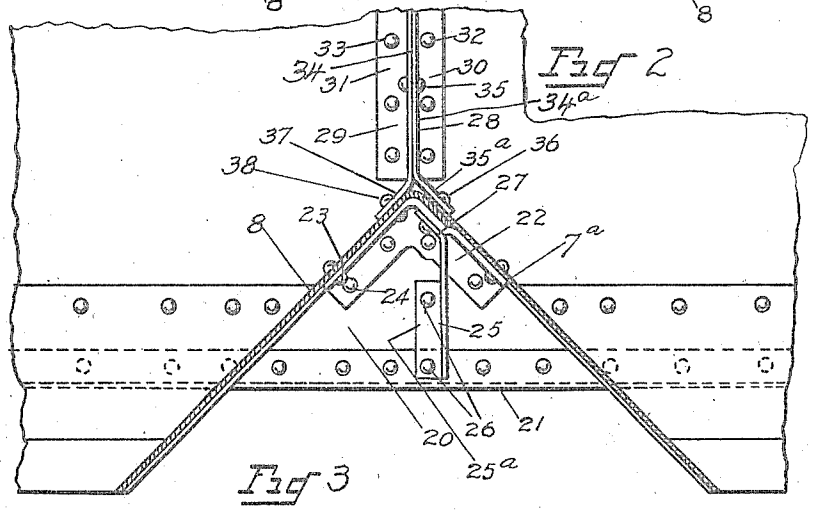


Fig 3

WITNESSES:

Roy Brenholtz

A. R. Yager.

Frank L. Irwin INVENTORS
John E. Tesseyman

BY

Geo. W. Rightmire
ATTORNEY.

F. L. IRWIN & J. E. TESSEYMAN.

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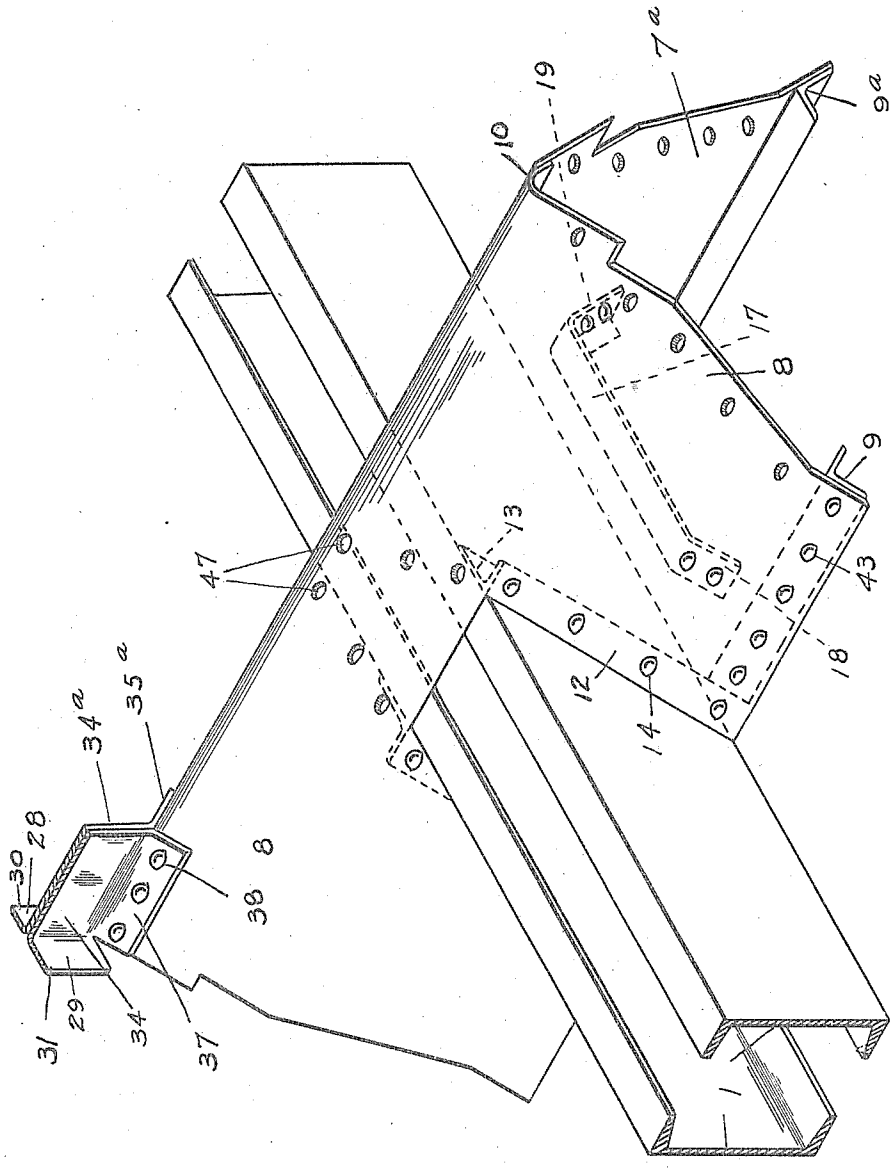


Fig 4

WITNESSES:

B. Murr
W. Davison

INVENTORS

Frank L. Irwin
John E. Tesseyman
BY
Geo. W. Righeimer
ATTORNEY.

F. L. IRWIN & J. E. TESSEYMAN.

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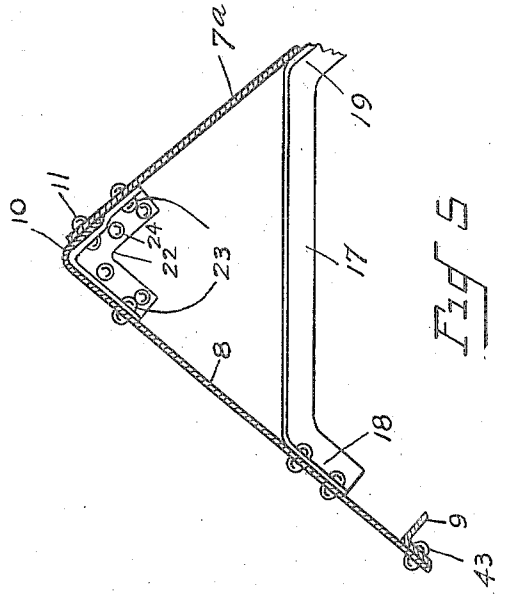


Fig 5

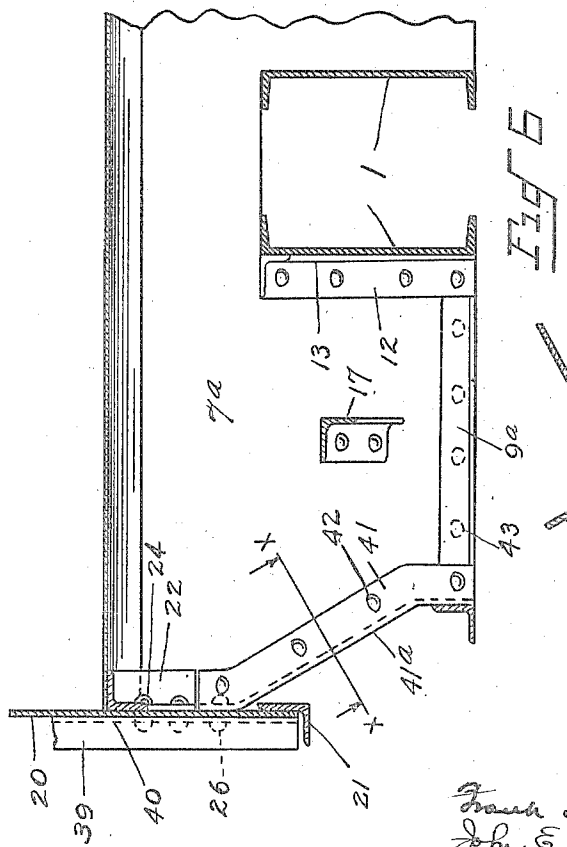


Fig 6

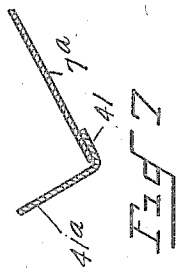


Fig 7

WITNESSES:

B. Murr

W. Davison

INVENTORS

Frank L. Irwin

John E. Tesseyman.

BY

Church, Rightmire

ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANK L. IRWIN AND JOHN E. TESSEYMAN, OF COLUMBUS, OHIO, ASSIGNORS TO THE RALSTON STEEL CAR COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

HOPPER-CAR.

1,067,784. Specification of Letters Patent. Patented July 15, 1913.

Application filed May 26, 1911. Serial No. 629,713.

To all whom it may concern:

Be it known that we, FRANK L. IRWIN and JOHN E. TESSEYMAN, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Hopper-Cars, of which the following is a specification.

Our invention relates to improvements in hopper cars of the type usually known as the twin-hopper car, and has especial reference to the construction of a cross hood and its connection with the sides of the car, and of reinforcing the same.

The invention further consists in constructing a car of this style with the lower edge of the plate girder sides arranged in a horizontal plane between the upper and lower edges of the center sill, the hopper bottom being substantially in the same plane as the bottom of the center sill.

Referring to the drawings which are hereto attached and hereby made a part of this specification, Figure 1 is a vertical longitudinal section through one end of a car taken on a line between the center sill and one side of the car, showing the center sill hood in side elevation and the cross hood in section; Fig. 2 is a vertical transverse section through the car shown in Fig. 1, along the line A—A, showing the cross hood in side elevation; Fig. 3 is a vertical transverse section through the cross hood near the side of the car, showing the connection of the cross hood with the side stake and with the side plate girder; Fig. 4 is a perspective showing the cross hood positioned upon the center girder, and the inside side stake connected therewith; Fig. 5 is a vertical transverse section through the cross hood, showing the construction of the hood and the angle brace extending from one side thereof to the other; Fig. 6 is a vertical section along the median line of the apex of the cross hood in Fig. 2 through the center sill, cross hood, and adjacent portion of the left side of the car, to show especially the means of uniting the cross hood to the side of the car, omitting the gusset 25 hereinafter described. Fig. 7 is a section looking downward, along the line X—X in Fig. 6.

In the drawings, 1 indicates the center girder of a twin hopper car, the bolster construction being shown generally at 2, the end slope sheets at 3, the side of the car at 4, the center sill hood at 5; the center girder 1, as seen especially in Figs. 2 and 4, comprises parallel oppositely disposed channels which are spaced apart as desired, the center sill hood 5 being mounted thereon and secured thereto through the vertical web thereof, near the upper edge of the center girder, as shown at 6. The door construction is not shown in these drawings, for it forms no part of this invention, but the line of the doors when closed is seen at 7 in Fig. 1, the hopper lying between the end slope sheets and the cross hood, and indicated generally at 7^b. As seen, the end slope sheets 3 direct the material near the end of the car into the hopper to the point of discharge, and one side of the cross hood will direct the material in the opposite direction into the same hopper, while the other side of the cross hood will guide the material into the hopper adjacent to the other end of the car, where the opposite end slope sheets (not shown) perform the function of guiding the material adjacent to the end of the car into the hopper. This style of car, therefore, calls for a cross hood arranged substantially at the middle of the car, and this cross hood extends from one side of the car transversely of the center girder to the opposite side of the car, being secured to the sides of the car and the center girder, and being reinforced appropriately and connected to the center sill hood in a manner now to be described.

The principal feature of our invention resides in the construction of this cross hood and related parts of the car. In the construction disclosed herein, the cross hood comprises two oppositely disposed inclined sheets, 7^a and 8, the lower edges of which are reinforced by angles 9, 9^a, and lie in substantially the same horizontal plane as the bottom of the center girder construction, as appears especially in Fig. 4. Sheet 8 is bent at its upper end to form a flange 10 thereon at practically a right angle with the sheet; the sheet 7^a overlaps the flange 10 and is riveted thereto at 11, across the car. The sheets are cut away and applied to the center sill as appears in Fig. 4, and an angle 12 is arranged with one flange secured to the center girder at 13, and the other flange secured to the sheet 8 at 14 (see Fig. 4), thereby forming a secure connection between the center girder and the

lower portion of the cross hood sheet 8 and reinforcing the latter where it is cut away to admit the center girder. Sheet 7^a is similarly connected to the center girder by the angle 15, through the rivets 16, as appears in Fig. 1. A bracing angle member 17 is arranged in the cross hood between the side of the car and the center girder, having its ends bent and applied to the inner faces of the sheets 7^a and 8, as shown at 18 and 19, and being securely riveted thereto. It is apparent that the load has a tendency to crush the cross hood at this point, and the brace member 17 furnishes adequate support. A similar bracing angle member is provided for the cross hood on the opposite side of the center sill, but it is not deemed necessary to show the same in the drawings.

Referring especially to Fig. 3, the side girder is shown at 20, the lower edge 21 of which is arranged in a horizontal plane above the plane of the bottom of the hopper and center girder, and below the plane of the top of the center girder construction; this construction adds to the symmetry of the car, saves material and labor and provides facilities for trussing and bracing the car at its sides which render it a valuable improvement. The cross hood is connected at its end to the side of the car by means of the bent angle member 22, which lies in the angle formed between the upper sides of the sheets 7^a and 8, and is secured thereto at 23 and to the side of the car at 24. Further, the cross hood and side of the car are connected by an angle plate 25, secured at 26 through a flange 25^a formed thereon to the side girder plate, through the flange 27 formed along its upper edge to the angle member 22 and the overlapping sheets 7^a and 8.

The inside side stake is composed of two angle members 28 and 29, having flanges 30 and 31 thereon applied to the side of the car and riveted thereto at 32 and 33, and having the wide flanges 34 and 34^a which are riveted together, as shown at 35, throughout their length. The flange 34^a on the side stake member 28 is bent at its lower end to form the flange 35^a thereon to overlie the overlapping sheets 7^a and 8, and rivets 36 secure together the flange 35^a, the sheets 7^a and 8, the connecting angle member 22 and the angle gusset plate 25. The flange 34 on side stake member 29 is bent at its lower end to form the flange 37, overlying the sheet 8, and by means of rivets 38 is secured to said sheet 8 and to the angle member 22. In this manner we securely bind together the end of the cross hood, the side of the car, and the inside side stake, so that all parts are rigidly reinforced; referring to Figs. 2 and 3, it will be seen that the gusset member 25 is connected through the flange 25^a, by means of the rivets 26, to the outside side stake 39, through the flange 40 thereon. The end of the cross hood sheets is further reinforced by means of the flange 41 formed on the end sheet 41^a of the hopper to overlie the cross hood sheet 7^a, as shown in Fig. 7, and is secured thereto at 42; the end sheet is secured to the side of the car and the outside side stake by the rivets 26 which also secure thereto the gusset angle member 25. The lower edge of the cross hood sheet 7^a is further reinforced by the angle member 9^a, which is secured thereto by the rivets 43.

The center sill hood 5 as above stated is secured along its lower edges to the center girder or sill at 6 and meets the slope of the cross hood on an inclined line and is secured thereto by means of the lateral flanges 44 and 45 formed on the center sill hood, which flanges are secured to the cross hood sheet 8 by rivets, as shown at 46 and 47. In this manner the cross hood and the center sill hood are securely united to resist both longitudinal and transverse stresses. In a similar manner the center sill hood is united to the cross hood sheet 7^a as shown in Fig. 1.

In Fig. 4 is shown the perspective of the cross hood and center girder in which it appears clearly that the cross hood sheets 7^a and 8 extend entirely across the car and are cut away to be applied to center girder or sill. The application of the inside side stake to the cross hood is also herein illustrated. We do not confine ourselves to the specific construction shown and disclosed herein, but desire to have the advantage of all the variations and modifications which fall within the scope of the appended claims.

What we claim is:—

1. In a hopper car, a cross hood comprising one sheet bent downwardly along its upper side to form the ridge portion, and a second sheet secured along its upper edge to the lower edge of said ridge portion, and means for securely connecting said cross hood to the center sill and sides of the car.

2. In a hopper car, a cross hood comprising a sloping sheet bent downwardly along its upper side to form the ridge portion of said hood, and a second sheet secured along its upper side to said downwardly bent portion of said first sheet, means for securing said sheets to the center sill of the car, and a gusset bracing member connecting the side of the car and said cross hood.

3. In a hopper car, a cross hood comprising sloping sheets, one being bent to form the ridge of the hood, and the other being secured thereto along its upper side, an inside side stake applied to said hood and secured thereto, means for securing said hood to the side of the car, and a flanged gusset member interposed between the side of the car and the cross hood and secured thereto.

4. In a hopper car having a center sill and a center sill hood, a cross hood comprising sloping members applied to the center sill and extending from side to side of the car, and secured to the center sill and to the sides of the car and to the center sill hood, one of said sloping members being bent downwardly along its upper side to form the ridge of said hood, and the other sloping member being secured along its upper side to said downwardly bent portion.

5. In a hopper car having a center girder, a cross hood comprising oppositely inclined sheets, one of which is bent along its upper side to form the ridge of said hood, the other being secured to said ridge portion, both being secured to the center girder and sides of the car, a bracing member secured to the side of the car and applied to the under face of the cross hood sheets and secured thereto, and an inside side stake having flanges formed thereon bent at their lower ends and applied to the outer face of the ridge of said cross hood, and being secured thereto.

In testimony whereof we affix our signatures in the presence of two witnesses.

FRANK L. IRWIN.
JOHN E. TESSEYMAN.

Witnesses:
W. E. WEEKS,
B. L. STARNER.