

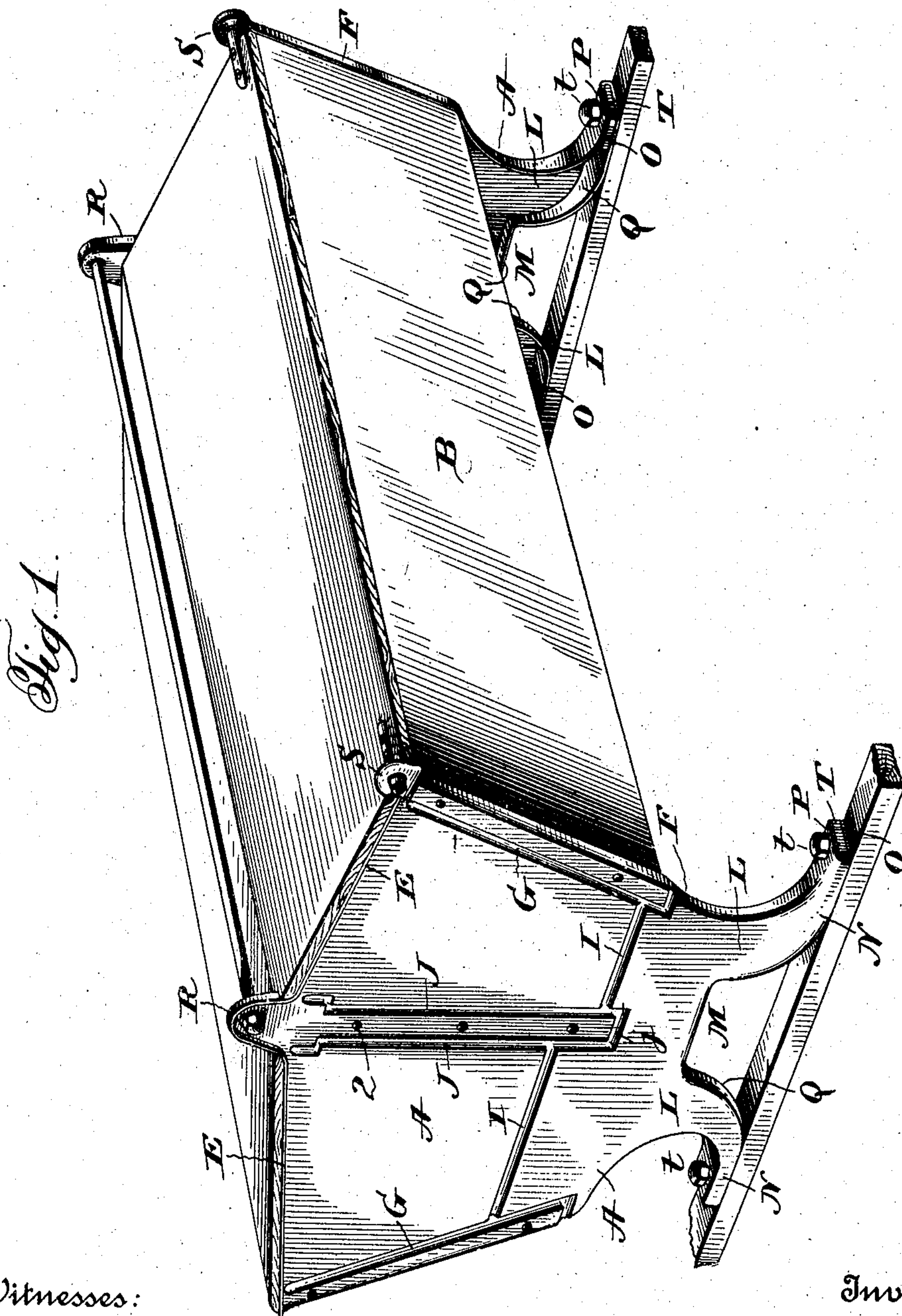
No. 781,412.

PATENTED JAN. 31, 1905.

W. FETZER.  
GRAIN DRILL.

APPLICATION FILED OCT. 22, 1904.

2 SHEETS—SHEET 1.



Witnesses:

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Charles L. Milam

Inventor:

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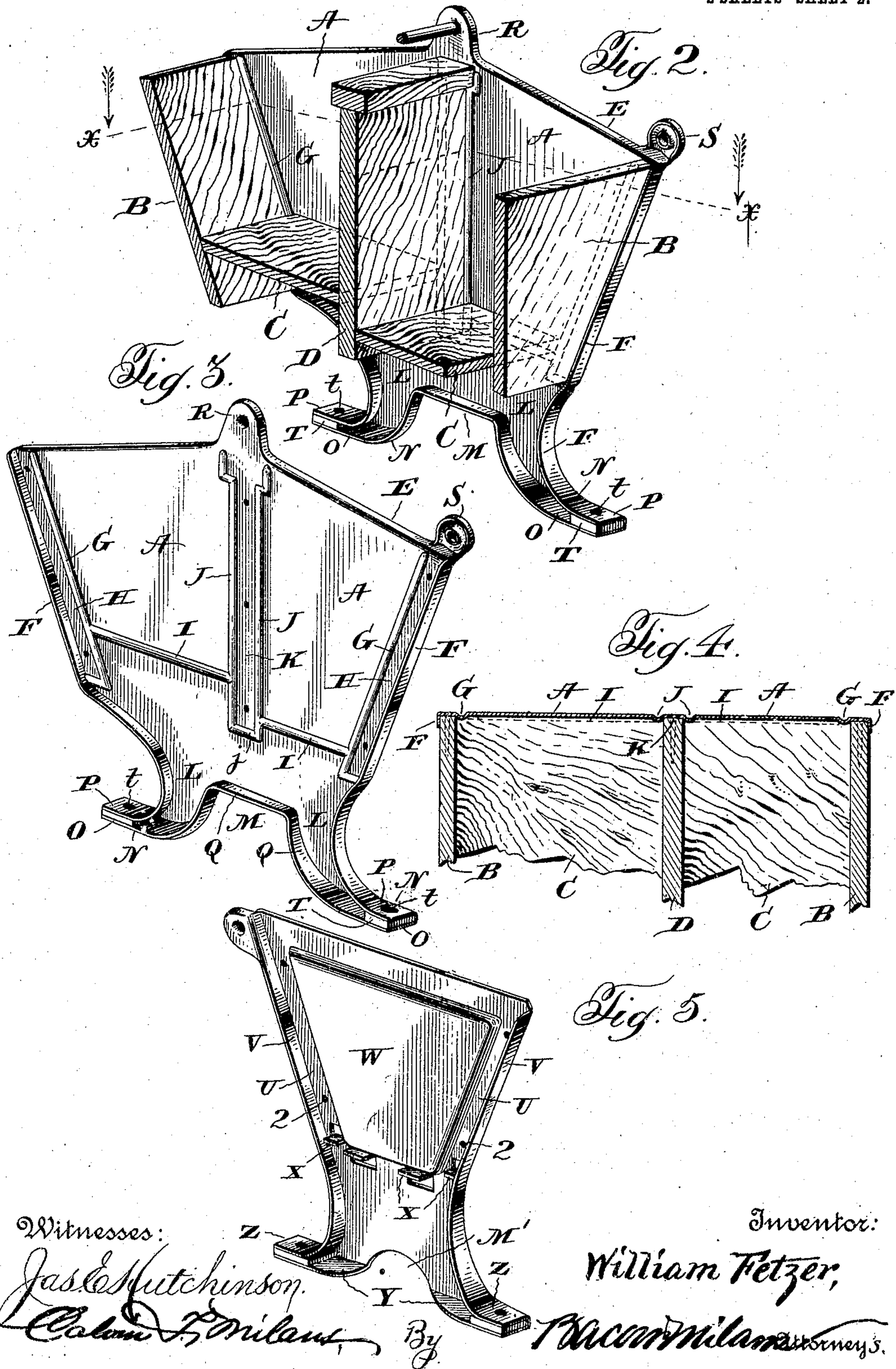
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## UNITED STATES PATENT OFFICE.

WILLIAM FETZER, OF MIDDLETOWN, OHIO.

## GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 781,412, dated January 31, 1905.

Application filed October 22, 1904. Serial No. 229,561.

*To all whom it may concern:*

Be it known that I, WILLIAM FETZER, a citizen of the United States, residing at Middletown, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in grain-drills, and has for its object the provision of a novel construction of hopper and its constituent elements whereby the strength of such devices of this character as are at present known to the trade is materially increased, the normal operative relation of the hopper and the working parts more effectually preserved, and the period of usefulness of the machine correspondingly prolonged.

A convenient practical embodiment of my invention comprehends a hopper of a distinctive type, in that the same is composite in character and includes cooperating elements of wood and pressed steel, whereby the advantageous properties of both are secured, it being observed that the pressed-steel elements are preferably formed with receiving portions for the wooden elements whereby the latter are secured in place and properly braced.

The invention also embraces a hopper element in the nature of a pressed-steel end possessing any or all of the following peculiar characteristics—to wit, provision for the receiving, securing, and bracing of wooden or other side members of the hopper or the bottom thereof or partitions therewithin, supporting-legs for the hopper and end formed integrally with said end, feet for the supporting-legs constituted by overlying flanges on said legs, a filling occupying the space intermediate the overlying flanges of the feet to reinforce the same, instrumentalities formed with the feet or filling or both, enabling the fastening of the feet in place, and flanged ears for tie or pivot rods, all of which, as well as other novel details in the construction and arrangement of the several features of a hopper made in accordance with the present invention, will be apparent from the detailed description hereinafter given when read in

connection with the accompanying drawings, forming part hereof, and wherein the before-mentioned convenient embodiment of the invention is illustrated. It is, however, to be understood that although certain disclosures will be herein made it is solely for the purpose of facilitating a full and clear understanding of the invention, because it is obvious that the invention is susceptible of various other embodiments without departure from the spirit of the invention.

Now in relation to the drawings, Figure 1 is a perspective view of the hopper and such fragments of the machine as are necessary to illustrate the mounting of the hopper thereon. Fig. 2 is a perspective view of one end of the hopper, the body being but partially broken away. Fig. 3 is a similar view of one of the hopper ends detached. Fig. 4 is a sectional view on the line *x x* of Fig. 2, and Fig. 5 is a perspective view of a slightly-modified form of hopper end.

Referring more specifically to the drawings, wherein like reference characters refer to corresponding parts in the several views, A designates my improved pressed-steel hopper end; B B, wooden sides for the hopper; C, the wooden bottom, and D a longitudinally-disposed partition, dividing the hopper into two compartments. Of course any number of partitions, longitudinal or transverse, may be employed in keeping with the use to which the machine is to be put. Each pressed-steel end has an outturned strengthening-flange E across its upper edge and corresponding inwardly-turned side flanges F. Near the opposite side edges of the pressed-steel ends I form depressed ribs G, cooperating with the side flanges F, before referred to, to form receiving portions H for the sides of the hopper. Correspondingly-formed horizontal ribs I support the two sections of the bottom of the hopper, it being noted that the relative depths of the several compartments thereof are immaterial, while ribs J J' form a pocket or receiving portion K for the partition.

L represents the legs of the hopper ends, integrally associated therewith, said legs being formed by cutting away a part of the steel plate from which the end is pressed, as indi-



cated at M, the feet N for the legs being constituted by overlying flanges bent inwardly from the opposite edges of the legs and broadened out relative to the side flanges F, whereby they present a solid flat resting-surface. These feet-forming flanges are represented at O and P, the latter merging into the side flanges F and the former being connected together by a horizontally-disposed inturned bottom flange Q.

R and S represent perforated ears, one conveniently offset and both flanged interiorly and exteriorly, whereby strongly-reinforced bearings are afforded for tie or pivot rods, pivot-bolts, or the like.

It is desirable that some additional means be provided for strengthening the feet at their point of attachment to the frame of the machine, and for this purpose I interpose between the flanges constituting said feet steel filling-pieces T, these filling-pieces, as also the flanges, being perforated for the reception of securing-bolts, (clearly shown at t.)

In the form of pressed-steel ends made in accordance with Fig. 5 of the drawings the same is similar in all essential particulars to the form shown in the preceding figures, differing therefrom only in matters of structural details, among which may be noted the receiving portions U for the wooden sides formed by side flanges V and an intermediate centrally-disposed depressed panel W, at the base of which are lugs X, struck out from the material of the end into a substantially horizontal plane for supporting the bottom and sides of the hopper. This plate is designed more especially for those hoppers having but a single compartment. The bottom flanges Y of the feet Z are in the present instance relatively short and broad, being bent inwardly at right angles to the legs and terminating at points adjoining the cut-away portion M'.

In both forms of the pressed-steel ends illustrated herein they are provided with apertures 2 for the reception of securing nails or screws adapted to engage the ends of the wooden sides and partition to fasten the same firmly in their respective receiving portions or pockets in said pressed-steel ends.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A single-piece sheet-metal hopper end having integral struck-up supporting-legs.

2. A single-piece sheet-metal hopper end having struck-up portions forming receiving-pockets for the hopper sides.

3. A single-piece sheet-metal hopper end having struck-up portions forming receiving-pockets for the hopper sides, and intermediate struck-up portions forming a receiving-pocket for a partition.

4. A single-piece sheet-metal hopper end having struck-up portions forming receiving-

pockets for the hopper sides, and other struck-up portions constituting a support for the hopper-bottom.

5. A single-piece sheet-metal hopper end having struck-up receiving portions for the hopper sides, and intermediate struck-up portions forming a receiving-pocket for a partition.

6. A single-piece sheet-metal hopper end having struck-up portions forming pockets for the hopper sides, the base of said pockets being apertured.

7. A single-piece sheet-metal hopper end having integral struck-up supporting-feet, each having oppositely-disposed overlying flanges.

8. A single-piece sheet-metal hopper end having integral struck-up supporting-feet, each having oppositely-disposed overlying flanges, and a reinforcing-filling intermediate said flanges.

9. A single-piece sheet-metal hopper end having integral struck-up supporting-feet, each having oppositely-disposed overlying flanges, and a reinforcing-filling intermediate said flanges, said flanges and filling having aligned apertures.

10. A foot for hopper ends formed of sheet metal struck up to provide oppositely-disposed overlying flanges, and a reinforcing-filling intermediate said flanges.

11. A single-piece sheet-metal hopper end having struck-up portions constituting a support for the hopper-bottom.

12. A hopper of the character described formed partially of wood and partially of sheet metal, the sheet-metal part having struck-up portions forming receiving portions for securing and bracing the wooden parts in place.

13. A single-piece sheet-metal hopper end having integral struck-up supporting-legs, and struck-up reinforcing side flanges merging into the flanges of the struck-up legs.

14. A single-piece sheet-metal hopper end having integral struck-up reinforcing side flanges, and a reinforcing struck-up top flange.

15. A single-piece sheet-metal hopper end having integral struck-up reinforcing side flanges and a reinforcing struck-up top flange, said side flanges and the top flange extending in opposite directions.

16. A single-piece sheet-metal hopper end having integral struck-up supporting-legs, and a struck-up reinforcing top flange.

17. A single-piece sheet-metal hopper end having an integral struck-up offset ear.

18. A single-piece sheet-metal hopper end having an integral struck-up perforated ear flanged interiorly.

19. A single-piece sheet-metal hopper end having an integral struck-up perforated ear flanged exteriorly.

20. A single-piece sheet-metal hopper end having an integral struck-up perforated ear flanged interiorly and exteriorly.



21. A single-piece sheet-metal hopper end having integral struck-up supporting-legs, and struck-up reinforcing side and bottom edge flanges merging into the flanges of the  
5 struck-up legs.

22. A single-piece sheet-metal hopper end having integral struck-up supporting-legs, and reinforcing side flanges merging into the upper flange of the struck-up legs and also  
10 having struck-up portions constituting receiving-pockets for the hopper sides.

23. A single-piece sheet-metal hopper end having integral struck-up supporting-legs having reinforcing side flanges merging into  
15 the upper flange of the struck-up legs and also having struck-up portions constituting receiving-pockets for the hopper sides, and a struck-up flanged perforated ear.

24. A single-piece sheet-metal hopper end  
20 having integral struck-up side and top flanges,

and a struck-up exteriorly-flanged perforated ear intermediate said top and one of the side flanges, the flange of said ear merging into said top and side flanges.

25. A single-piece sheet-metal hopper end 25 having an integral struck-up reinforcing top flange, and a struck-up perforated ear the flange of which merges into the said top flange.

26. A single-piece sheet-metal hopper end 30 having integral struck-up side and top flanges, and separated struck-up ears the flanges of which merge into said top and side flanges.

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

WILLIAM FETZER.

Witnesses:

E. DECHANT,

R. C. ZECHER.