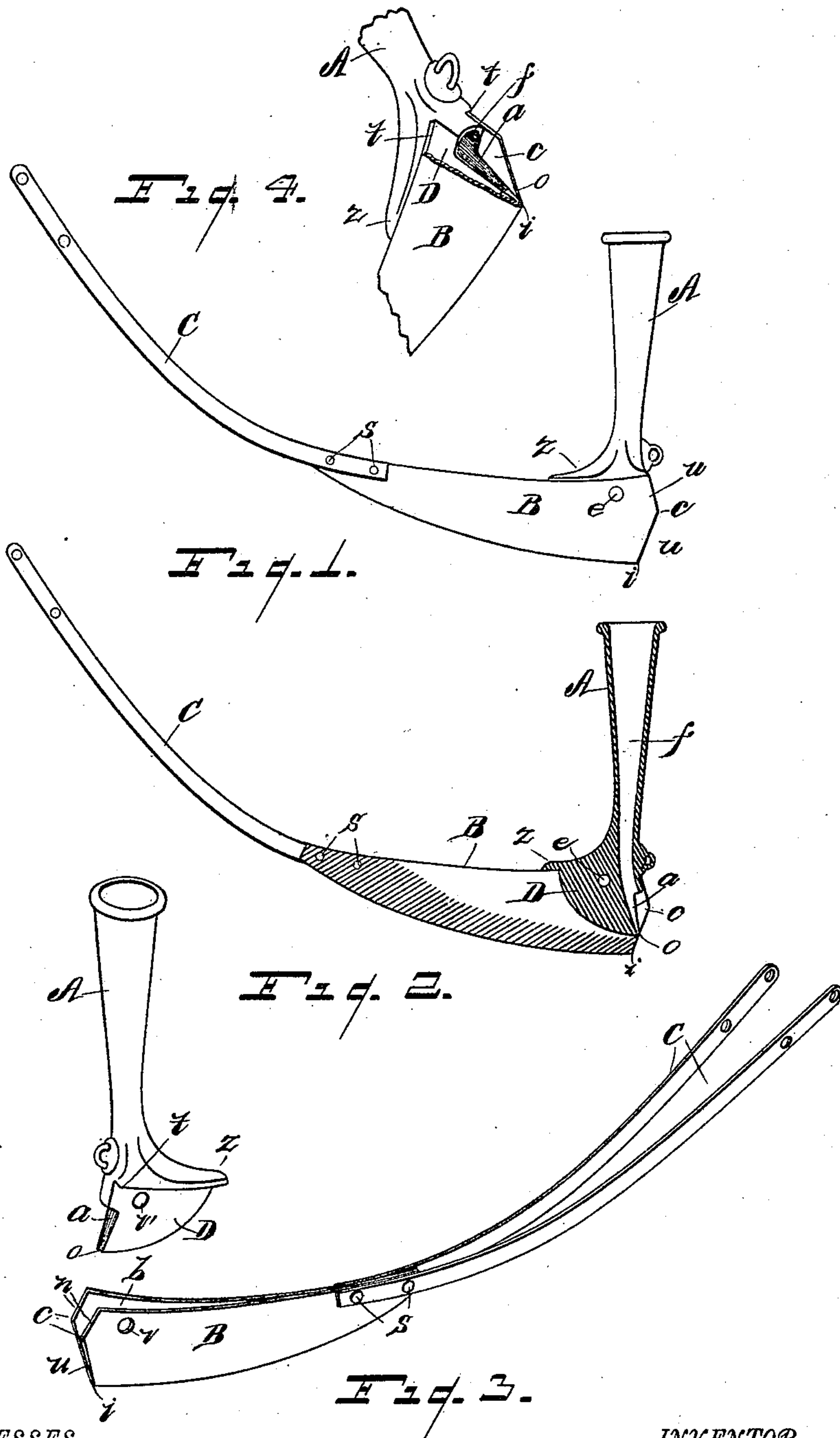


(No Model.)

W. F. HOYT.
HOPPER AND SHOE FOR GRAIN DRILLS.

No. 448,861.

Patented Mar. 24, 1891.



WITNESSES

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WILL. F. HOYT, OF DOWAGIAC, MICHIGAN.

HOPPER AND SHOE FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 448,861, dated March 24, 1891.

Application filed October 16, 1890. Serial No. 368,347. (No model.)

To all whom it may concern:

Be it known that I, WILL. F. HOYT, a citizen of the United States, residing at Dowagiac, in the county of Cass and State of Michigan, have
5 invented certain new and useful Improvements in a Hopper and Shoe for Grain-Drills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it
10 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

15 This invention relates to new and useful improvements in a hopper and shoe for grain-drills; and it consists in a certain construction and arrangement of parts, hereinafter more fully set forth, the essential features of
20 which being pointed out particularly in the claims.

The object of the invention is to provide a hopper and shoe whereby the grain may be fed perfectly into the furrow formed by the
25 shoe, that will protect the grain from being blown away by side winds before entering the furrow, and that will prevent the heel of the shoe from becoming choked with dirt and obstructing the flow of the grain. This object
30 is attained by the construction shown in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved hopper and shoe and the draft-rods attached to the forward end of the shoe. Fig. 2 is a
35 central vertical longitudinal section through Fig. 1. Fig. 3 is a perspective view of same, showing the hopper removed from the shoe. Fig. 4 is a perspective view of the rear portion of the hopper and shoe, a portion of the
40 heel of the shoe being broken away, showing the seed-channel in the rear face of the shank of the hopper and the opening through the hopper communicating therewith.

Referring to the letters of reference, A indicates the hopper or seed-delivery tube, the
45 lower end of which is provided with the horizontally-extending nose z and the vertical shank D, said shank being V-shaped in cross-section both vertically and horizontally to
50 conform to the hollow of the shoe, said hopper also having the seed-opening f , passing therethrough, terminating with the channel a

in the rear face of the shank D, as shown in Figs. 2 and 4.

B indicates the shoe, which is provided with
55 an opening b in the rear edge and end to receive the shank D of the hopper, which is secured therein by the rivet e passing through the holes v in the sides of the shoe and the
60 hole v' in the shank, as clearly shown in Figs. 2 and 3. The shoulders t on each side of the shank D and the extended nose z , resting upon the upper edge of the shoe, as shown in Fig.
4, afford a firm bearing for the hopper and assist in retaining said parts securely in place.
65

C indicates the draft-rods of the shoe, which are riveted to the forward end thereof, as shown at s , which is common.

It will be seen on looking at Figs. 1 and 3 that the heel of the shoe has two angles n
70 and u , respectively, the upper angle n extending rearward from the base of the hopper and the lower angle u extending forward to the extreme point i of the heel. This construction of the heel forms the side wings c ,
75 that extend on each side of the seed-channel a in the shank D, as shown in Figs. 2 and 4, and protect the grain from side winds when passing from the opening f in the hopper to the furrow formed by the shoe, enabling the
80 grain to be sown in perfect rows even in a strong wind, which would be impossible without said protecting-wings. It will also be seen that the channel a in the shank D inclines slightly rearward, which formation, in
85 conjunction with the lower angle u of the heel of the shoe, throws the point i of the heel slightly in advance of the discharge-point o of the grain, whereby the heel of the shoe, when dropping, after passing over an obstruction,
90 is prevented from choking with dirt and impeding the flow of the seed.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—
95

1. The combination, with the hopper having the horizontal nose, the vertical central shank V-shaped in cross-section, the horizontally-projecting shoulders, and the vertical grain-opening terminating with the rearwardly-inclined channel-discharge in the rear
100 of the shank, of the shoe, the opening in its rear upper face, and the shank of the hopper filling said opening, the shoe being riveted to

the shank and having the angle portions *u n* forming side wings to the grain-discharge, substantially as specified.

2. A hopper and shoe for grain-drills, comprising the hopper having the side overhanging flanges *t* and central shank **V**-shaped in cross-section with hole therein, the seed-opening passing through the hopper and terminating with the rearwardly-inclined channel
10 formed in the shank, combined with the shoe

riveted thereto, said shoe having the side wings, said wings having the angles *u n*, and the draft-rods attached to the front of the shoe, substantially as specified.

In testimony whereof I affix my signature in 15 presence of two witnesses.

WILL. F. HOYT.

Witnesses:

C. A. PATTISON,

A. VANUXENE.