

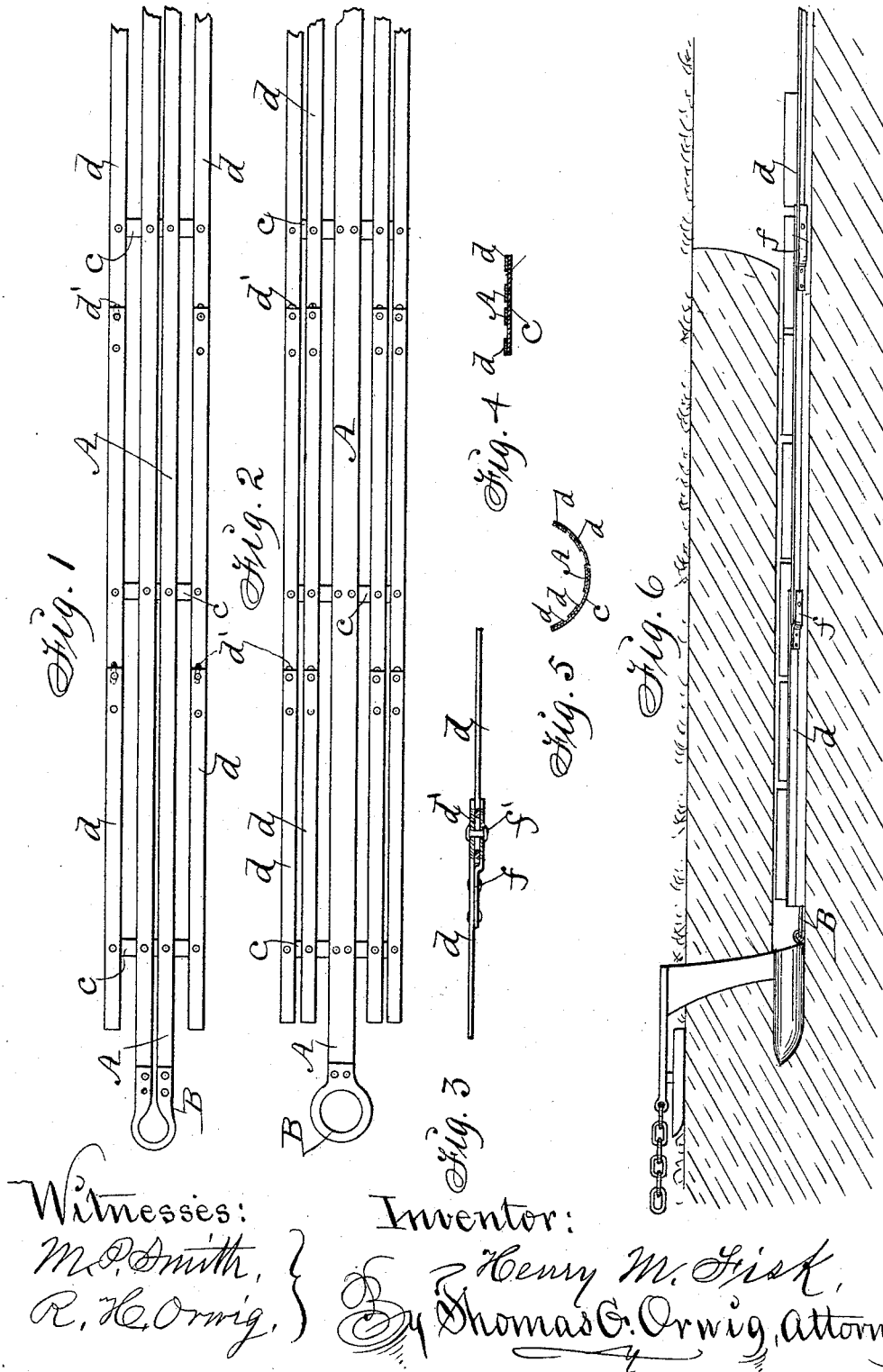
(No Model.)

H. M. FISK.

FLEXIBLE CARRIER FOR TILE LAYING MACHINES.

No. 421,488.

Patented Feb. 18, 1890.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY M. FISK, OF PELLA, IOWA.

FLEXIBLE CARRIER FOR TILE-LAYING MACHINES.

SPECIFICATION forming part of Letters Patent No. 421,488, dated February 18, 1890.

Application filed August 10, 1889. Serial No. 320,377. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. FISK, a citizen of the United States of America, and a resident of Pella, in the county of Marion and State of Iowa, have invented a new and useful Carrier for Laying Drain-Tile, of which the following is a specification.

My invention consists in the combination of short pieces of metal straps with one or more continuous straps, as hereinafter set forth, to produce a neat, strong, and durable flexible carrier that can be readily advanced under ground in a straight line, and also in a curved line, with less friction and with less power than the jointed carriers heretofore used.

In the accompanying drawings, Figure 1 is a plan view showing two continuous parallel straps in the center and a single jointed strap, formed in sections, on each side connected with the two parallel central straps by means of cross-pieces. Fig. 2 shows one continuous strap in the center and two parallel jointed straps on each side. Fig. 3 is an enlarged view of one of the joints in the side straps. Fig. 4 is a cross-sectional view of Fig. 1, and Fig. 5 is a cross-sectional view of Fig. 2, showing it curved. Fig. 6 represents the carrier under ground and connected with a mole-plow, as required for practical use.

A are continuous flat flexible metal straps about one and one-half inch wide. They may vary in length, as desired.

B is an eye fixed to the front end to be engaged by a hook connected with a mole-plow.

c c are short flat flexible metal straps rigidly fixed across the under sides of the strap A at regular intervals.

d are flat flexible metal straps, about twenty inches long, pivotally connected with the ends of the short straps c by means of rivets, and with each other by means of flexible lap-joints that will allow longitudinal contraction and expansion. The front end of each strap d has an elongated perforation d'.

f is a short flat metal strap that has a bend at its center. It is riveted to the under side of the rear end of the strap d to produce an open slot in which the front end of a mating strap d can be inserted and covered, and secured by means of a rivet f, passed through the elongated perforation d' and around per-

forations in the overlapping strap, as clearly shown in Fig. 3. All the straps d are thus connected to produce flexible joints in which the front ends of the straps d are covered, and the joints re-enforced by means of the bent straps f, as required, to produce a complete carrier that will readily bend laterally to facilitate laying tile in a curved line whenever desired.

I am aware that parallel flexible metal straps have been connected by riveting them to curved cross-straps to produce a tile-carrier. I am also aware that short curved plates have been overlapped and pivoted at their centers to a continuous metal strap and connected with each other at their corners by means of rivets passed through coinciding slots in the overlapping plates in such a manner as to allow flexion in opposite directions, as required to produce a flexible carrier; but my manner of rigidly fixing cross-straps to continuous central straps, pivoting the overlapping ends of short straps to the ends of the fixed cross-straps to extend parallel with the continuous strap in the center, and connecting the series at points between the cross-straps by means of joints that allow flexion in opposite directions, is novel and greatly advantageous in the construction and operation of a drain-tile carrier.

I claim as my invention—

1. A carrier for laying drain-tile, comprising a continuous central strap composed of a single flat strap or two or more parallel straps fixed to short cross-straps, a hook or eye on the front end of the central strap, and one or more jointed straps composed of short sections pivotally connected with the ends of the short cross-straps, arranged and combined in the manner set forth, for the purposes stated.

2. A flexible tile-carrier composed of a continuous strap A, having a fixed eye B at its front end, cross-straps c, fixed to the strap A, short straps d, having slots d' at their rear ends, and bent straps f, fixed to the rear ends of the straps d, substantially as shown and described, for the purposes stated.

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