

(No Model.)

M. CHRISTIANSEN.

TILE LAYING ATTACHMENT FOR MOLE PLOWS.

No. 355,588.

Patented Jan. 4, 1887.

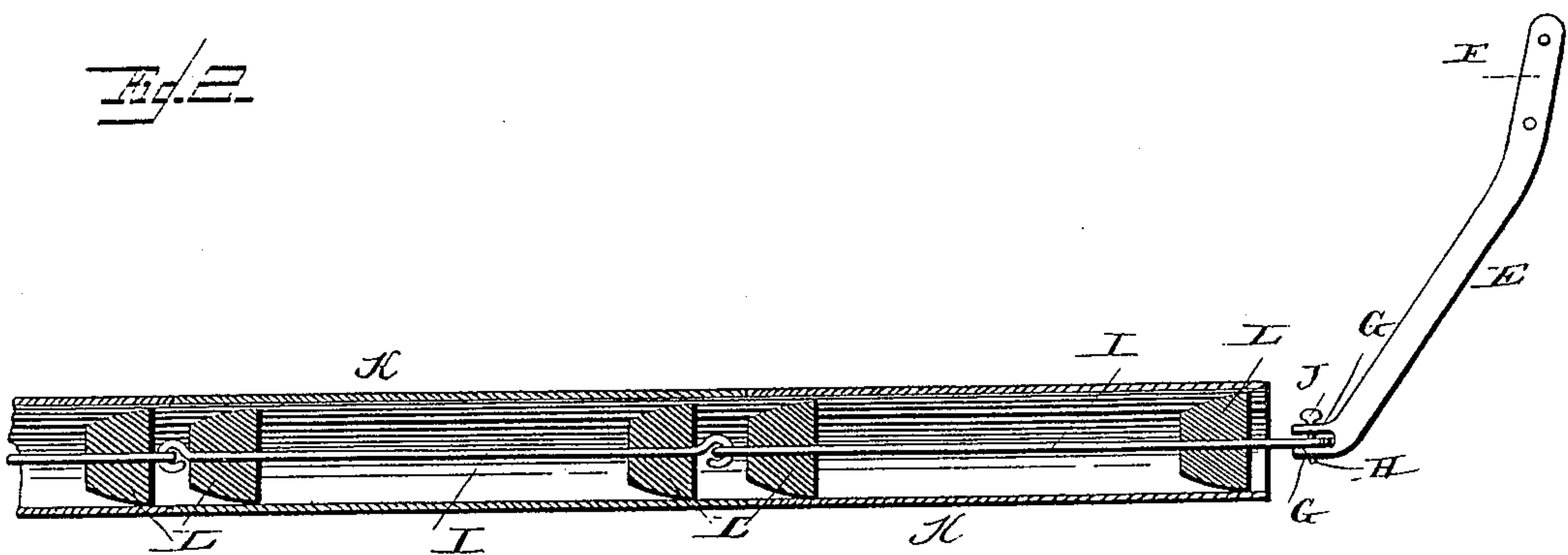
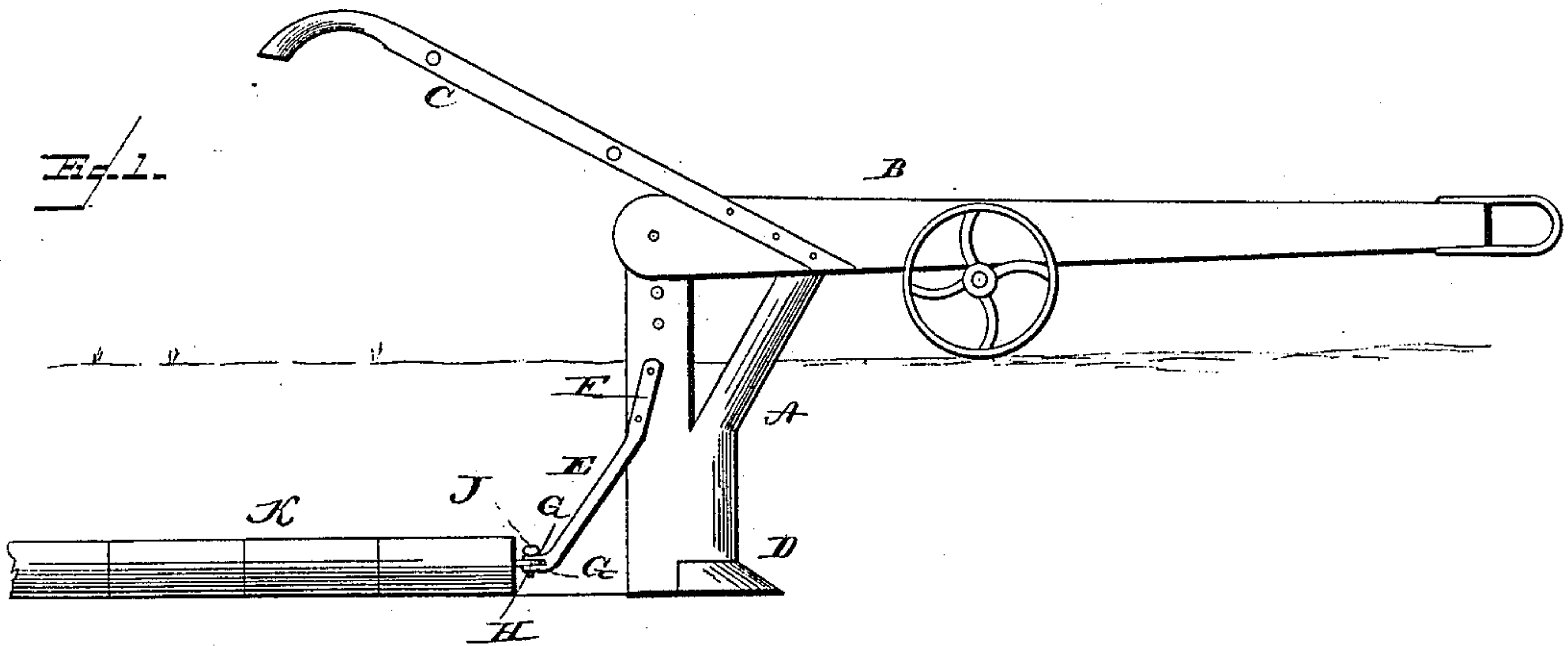
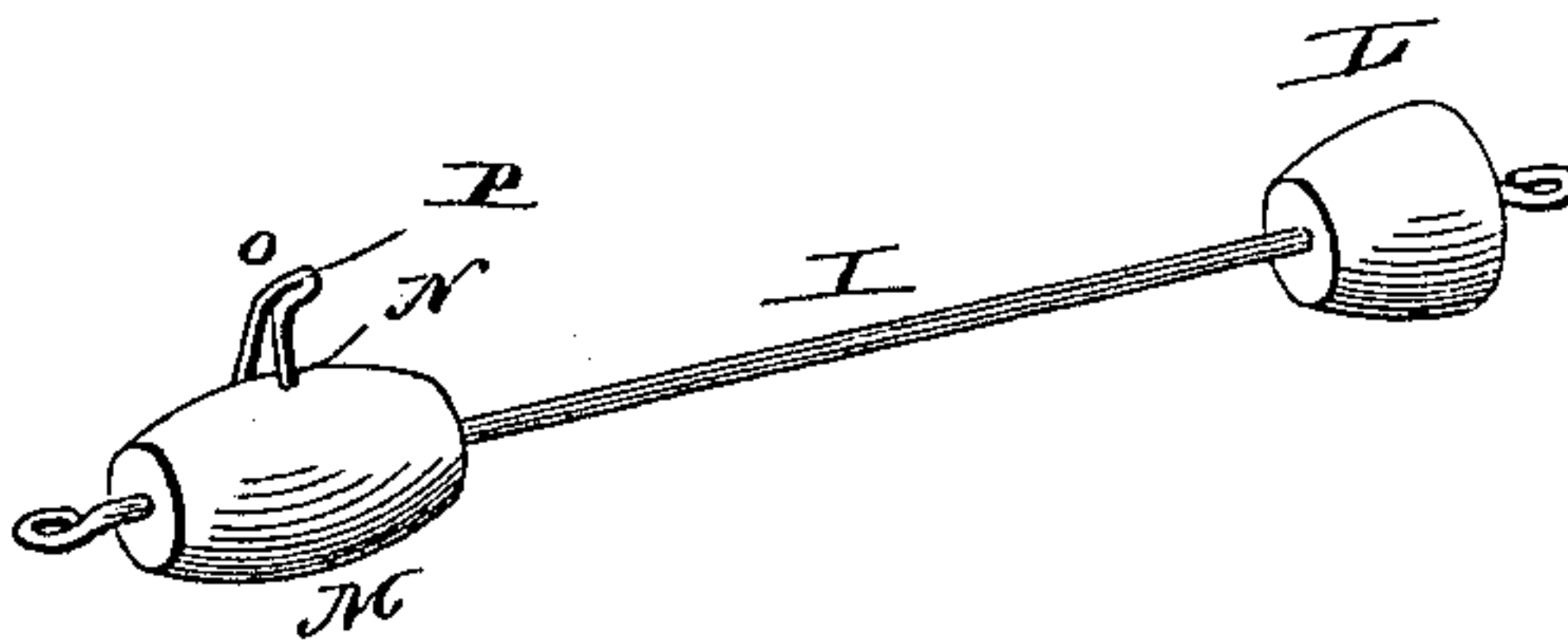
61
72.7

Fig. 3.



WITNESSES
F. L. Curand.
J. Holman

Martin Christiansen,
 INVENTOR,
 By *Louis Bagger & Co.*
 Attorney S.

UNITED STATES PATENT OFFICE.

MARTIN CHRISTIANSEN, OF CLINTON, WISCONSIN.

TILE-LAYING ATTACHMENT FOR MOLE-PLOWS.

SPECIFICATION forming part of Letters Patent No. 355,588, dated January 4, 1887.

Application filed July 19, 1886. Serial No. 208,424. (No model.)

To all whom it may concern:

Be it known that I, MARTIN CHRISTIANSEN, of Clinton, in the county of Rock and State of Wisconsin, have invented certain new and
5 useful Improvements in Tile-Laying Attachments for Mole-Plows; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable
10 others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of a mole-plow provided with my improved tile-laying attachment, showing the device in operation. Fig.
15 2 is a longitudinal sectional view of the tile-laying attachment, and Fig. 3 is a perspective view of the last link of the attachment.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to that class of tile-laying apparatus in which the tiles or drain-pipes are strung upon a chain composed of detachable links, which is attached to the
25 rear end of a mole-plow, which opens a passage for the string of tiles, drawing them through the ground and placing them in position, whereupon the chain is withdrawn from the string of tiles and again provided with a new
30 set of tiles, which are placed in the same manner, and so forth; and it consists in the improved construction and combination of parts of such an apparatus, which may be attached to a common mole-plow, laying the tiles in the ditch
35 or passage formed by the mole, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the standard or cutter of the mole-plow, which is adjustably secured in the beam
40 or sled B of the plow, to which the draft is attached, and C indicates the handles, by means of which the plow is guided, all of these parts, as well as the mole D, being of any suitable construction, no claims being made
45 for the same.

A rearwardly and downwardly inclined standard, E, is secured with its bifurcated upper ends, F F, to the standard of the plow, projecting in the same plane as the standard and
50 following in the cut made by the same, and the lower end of this inclined standard is bent horizontally at a level with the mole and

formed into two perforated lips, G. The forward flat eye, H, of one of the links I is secured between these lips by means of a bolt,
55 J, passing through the lips and the eye, and the eyes of the several links are hooked into each other, forming a chain. The links are preferably of the same length as the tiles K, and truncate conical buttons or blocks L are se-
60 cured upon the links near their end, the points of the blocks pointing rearward, and these blocks are of a diameter slightly less than the interior diameter of the tiles, so that the blocks
65 will support the tiles and keep their ends registering with each other, the tiles being placed one upon each link, and being held in a continuous string by means of the chain formed by the links.

The chain may be formed as long as it is
70 desired, and as long as the character of the soil will permit it to be dragged through it without causing too great a strain upon the chain or upon the plow or team, and the last link is provided upon its rear end with a long
75 double-conical block or button, M, of the same diameter as the other blocks, and provided at its middle with two transverse parallel perforations, N N, one at each side of the longitudinal perforation with which it fits upon the
80 straight portion of the link. The straight legs of a bent bail, O, are inserted through these perforations, the doubled end P of the bail being bent to form a hook, which may
85 bear against the rear end of the last tile in the string, preventing the same from slipping off from the chain.

When the device is put in operation, a hole is preferably made in the ground to the depth desired for the ditch, and the plow with the
90 inclined standard is placed into the hole, with the chain attached to the end of the standard and the tiles drawn upon the chain. As now the plow is propelled through the ground it will draw the string of tiles along with it in
95 the passage formed by the mole until the end of the chain is reached, when the plow has preferably arrived to another hole made in the ground. The bolt securing the chain to the perforated lips of the standard is now with-
100 drawn, and the chain may be drawn back through the row of tiles in the ground, the form of the blocks or buttons having their points in a rearward direction assisting in the

free passage of the links through the tiles, and at the same time cleaning the tile from any dirt which may accidentally have entered at the meeting ends of the tiles, besides straightening the tiles out, and when the chain has been drawn entirely out another set of tiles are drawn upon the chain, which again is attached to the plow, which will draw this set of tiles through the ground until it arrives to another hole, when the last tile of the last set will meet with its end the tile of the former set, the tiles thus forming a continuous string.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In combination with a mole-plow, a rearwardly-inclined standard attached to the plow in a plane with the standard or cutter of the plow, and a chain formed of links of the same length as the tiles and having blocks or buttons upon them of the same diameter as the bores of the tiles, as and for the purpose shown and set forth.

2. In a tile-laying attachment for mole-plows, the combination, with a rearwardly-inclined standard having perforated lips at its lower end, of a chain formed by links having straight portions and eyes hooked into each other at the ends, and having the foremost eye of the foremost link secured by a bolt between the lips of the standard and provided with truncate conical blocks or buttons near the eyed ends, having their points pointing in a rearward direction, as and for the purpose shown and set forth.

3. In a tile-laying attachment for mole-plows, the combination of a link consisting of a straight rod having eyes at its ends, a truncate conical block or button, and a double

truncate conical block or button having two transverse parallel perforations at both sides of the perforation for the link, and having a bent bail with its legs inserted into the perforations and its doubled bent end projecting forward, as and for the purpose shown and set forth.

4. In a tile-laying attachment for mole-plows, the combination of a rearwardly-inclined standard having a bifurcated upper end, and having two perforated horizontal lips at its lower end, with a chain formed by straight links having eyes at their ends hooked into each other, and having the foremost eye of the foremost link secured by a bolt between the lips and provided with truncate conical blocks or buttons near their ends, having their smaller ends projecting rearward, and having a double truncate conical block or button upon the rear end of the rearmost link, having a bent bail inserted into its middle with the legs straddling the link and the doubled end bent forward, as and for the purpose shown and set forth.

5. In a tile-laying attachment for mole-plows, a chain composed of links of the same length as the tiles and hooked into each other with their eyed ends, and having conical blocks or buttons upon them of the same diameter as the interior diameter of the tiles, and having their smaller ends pointing rearward, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

MARTIN CHRISTIANSEN.

Witnesses:

F. A. AMES,

A. F. MORGAN.