(No Model.)

N. L. BECK.

HARROW.

No. 491,400. Patented Feb. 7, 1893.

Fig. 1

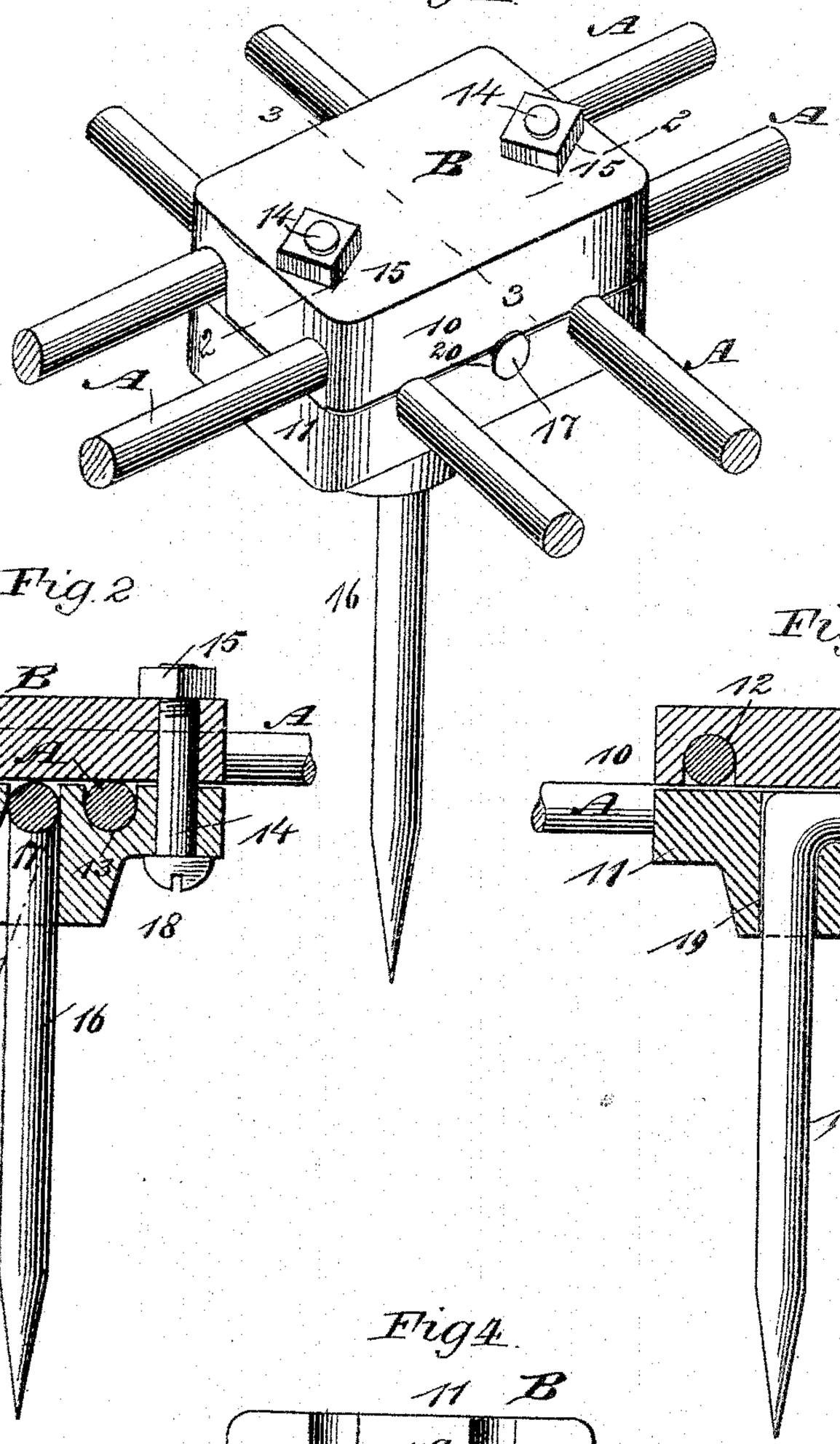
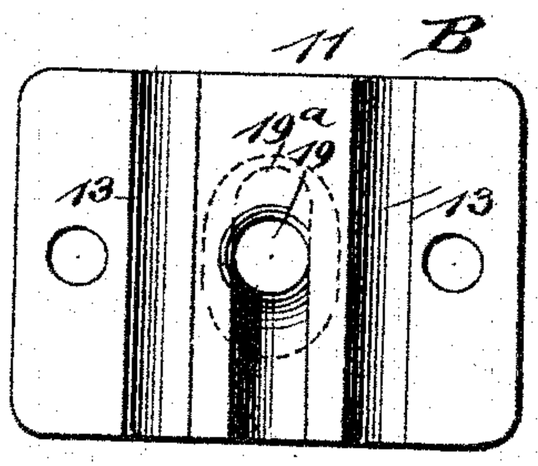


Fig. 2

Fig. 3

Fig 4.



WITNESSES:

Paul Jahost

C. Sedgwick

INVENTOR

N. L. Beck

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

NIELS L. BECK, OF BRAYTON, IOWA.

HARROW.

SPECIFICATION forming part of Letters Patent No. 491,400, dated February 7, 1893.

Application filed August 6, 1892. Serial No. 442,310. (No model.)

To all whom it may concern:

Be it known that I, NIELS L. BECK, of Brayton, in the county of Audubon and State of Iowa, have invented a new and useful Improvement in Harrows, of which the following is a full, clear, and exact description.

My invention relates to an improvement in harrows, and the improvement consists principally in the construction of the body of the harrow the harrow being so made that the body thereof may be put together in a short time and in a convenient manner, and wherein the harrow body may be made as long or as wide as may be desired.

A further feature of the invention consists in the construction of the harrow-teeth and their location in blocks, each block being adapted to carry a tooth, and the manner in which the blocks are attached to the frame, the blocks serving not only as carriers for the teeth but also as binding or connecting devices for the frame.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of one of the tooth-carrying blocks and a portion of the frame; Fig. 2 is a section taken longitudinally through the block on the line 2—2 of Fig. 1; Fig. 3 is a transverse section through the block taken practically on the line 3—3 of Fig. 1; and Fig. 4 is a plan view of the bottom section of the block.

The frame of the harrow is made up of a series of bars A, the bars being in two sets, one set running longitudinally of the frame and the other set transversely. The bars of each set are parallel and the bars of the longitudinal sets cross the bars of the transverse sets, and in connection with the bars of the frame a number of binding and tooth-carrying blocks B, are employed. These blocks are used at proper intervals apart wherever two of each set of bars cross. Practically speaking, each of the sets of bars, both longitudinal and transverse, comprise two bars, as shown in the drawings, Fig. 1. The block B, is made in two sections, an upper section 10 and a lower section 11. The upper section 10, is provided with two longitudinal channels or grooves 12 in its under face, and each of these channels is adapted to receive the bars of one set; and when the bars are in position in the channel their under sides are flush with the under face of the top section. The lower section 11 of each block has two grooves or channels 13, produced transversely in its upper face, one channel near each end; and these grooves or channels 13, receive the bars of the set adapted to cross the bars carried by the upper section of the block. Thus when the two sections of the block are brought face to face and the bars are inserted in their channels, four of the bars, two transverse and two longitudinal, will be tied together when the block sections are united; and the sections are usually united by means of bolts 14, passed through them at their ends, the bolts being provided with suitable lock nuts 15, whereby the sections of the block may be quickly separated and the entire frame of the harrow disconnected and packed in a minimum of space.

The lower section of each block B, is adapted to carry a harrow tooth 16, and each harrow tooth is provided at its upper end with a head 17, standing at a right angle to the body. In the center of the lower section 11 a sleeve or collar 18, is formed upon its under face, and this sleeve or collar is provided with a vertical aperture 19, which extends from the bottom of the collar up through to the upper face of the said lower section. The aperture 19 in the collar and in the lower section 11 of the block is provided with one inclined wall 19^a, as shown in Fig. 2, the inclined wall being in direction of one end of the section; and in the top surface of the lower section the aperture 19 is intersected by a central transverse channel or groove 30, and in this upper channel or groove the head of the tooth is adapted to rest while the body portion extends downward through the aperture 19. Thus it will be seen, when the two sections of the block are bolted together a tooth is held firmly in position in the block; and as the opening through which the body of the tooth downwardly extends is inclined at one side, as above stated, the tooth is able to move in direction of the front or rear of the harrow,

as shown in dotted lines, Fig. 2, thus accommodating itself to the irregularities of the ground and to the position of clods of earth, stones, &c., and also facilitating the turning of the harrow to one side when required.

It will be observed that with a series of blocks a series of body bars and a series of teeth, a harrow may be quickly built up in any field, the parts being capable of being carried to the field in a comparatively small package, and that the harrow when set up will be as effective as any harrow the parts of which are permanently united; and further that when a harrow is not to be used it may be dismantled and its parts stored in a small space, and placed in a tool-house, barn or other appropriate place.

Having thus described my invention, I claim as new and desire to secure by Letters Patent,—

1. As an improvement in harrows, the combination of the frame bars A arranged in sets disposed at right angles to each other, the securing blocks at the intersection of such sets of bars, said blocks consisting each of upper and lower sections 10, 11, the upper section having longitudinal grooves on its lower face to receive the longitudinal set of bars A, the lower section having transverse grooves in its upper face to receive the transverse bars A said section also having a vertical bore 19 at a point intermediate the transverse grooves formed with lateral extension 20 at its upper end, the harrow tooth 16 fitting the bore 19, and having a head portion 17 fitting the extension 20, and the securing bolts 14 and 15, all arranged substantially as and for the purpose described.

2. In a harrow, the combination with a body portion, consisting of two sets of bars, A crossing each other at right angles, of securing blocks, each consisting of an upper and lower section, the upper section having longitudinal grooves in its under face, the lower section transverse grooves in its upper face, such upper and lower faces bearing respectively upon the transverse bars A and against the longitudinal bars A, the lower section having a vertical bore 19 centrally between the transverse grooves, said opening having an inclined face 19^a and a lateral extension 20, the tooth 16 fitting the bore 19 and having a head portion seating in the extension 20, and the securing bolts 14, passed through sections, and arranged at the outside of the transverse bars A and projected up between the longitudinal bars A, all arranged substantially as shown and for the purposes described.

NIELS L. BECK.

Witnesses:
HANS SORENSEN,
SIMON NOLSEN.