

(No Model.)

C. TOLLE.  
Harrow.

No. 238,458.

Patented March 1, 1881.

Fig. 1.

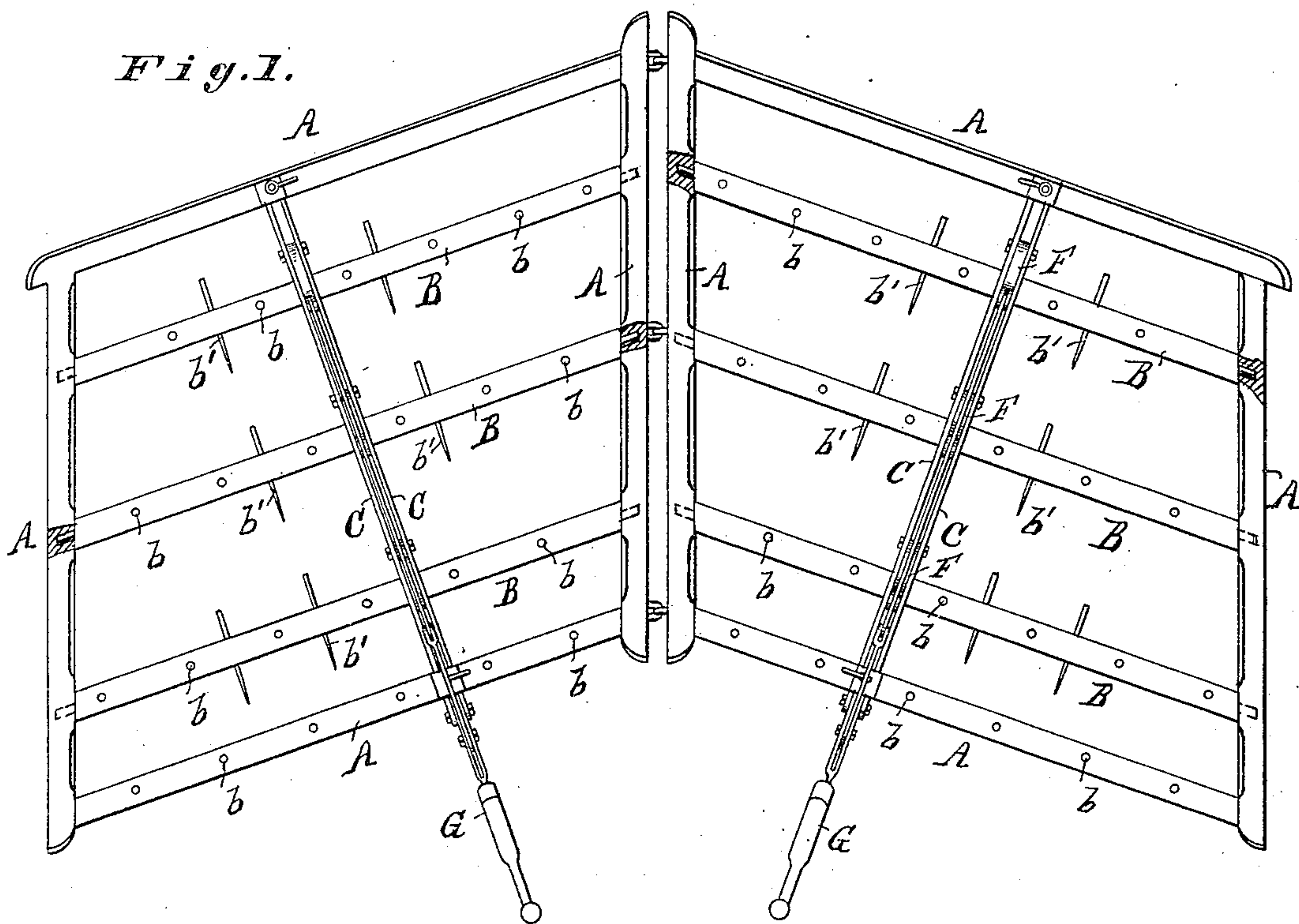


Fig. 2.

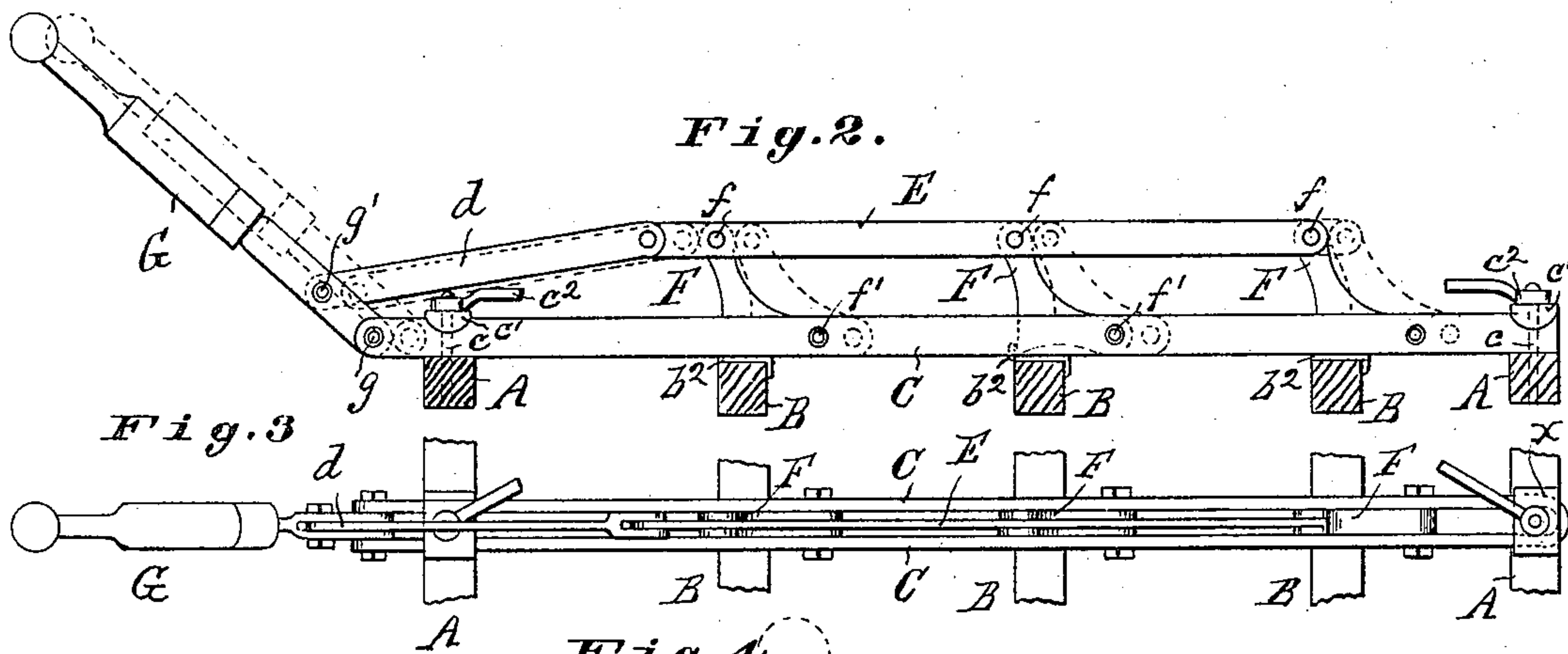


Fig. 3.

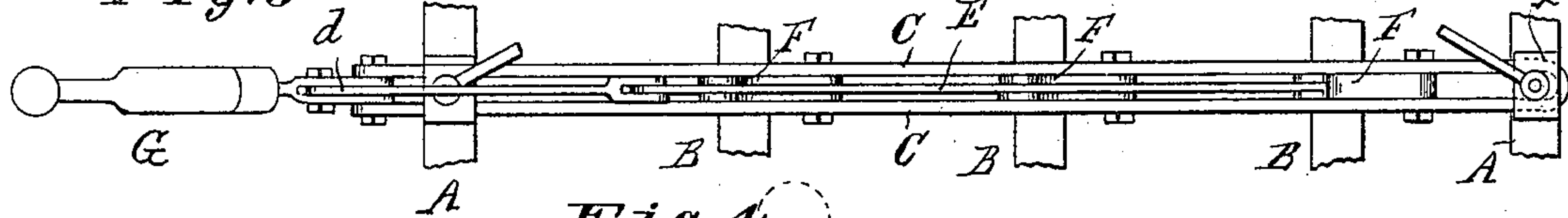
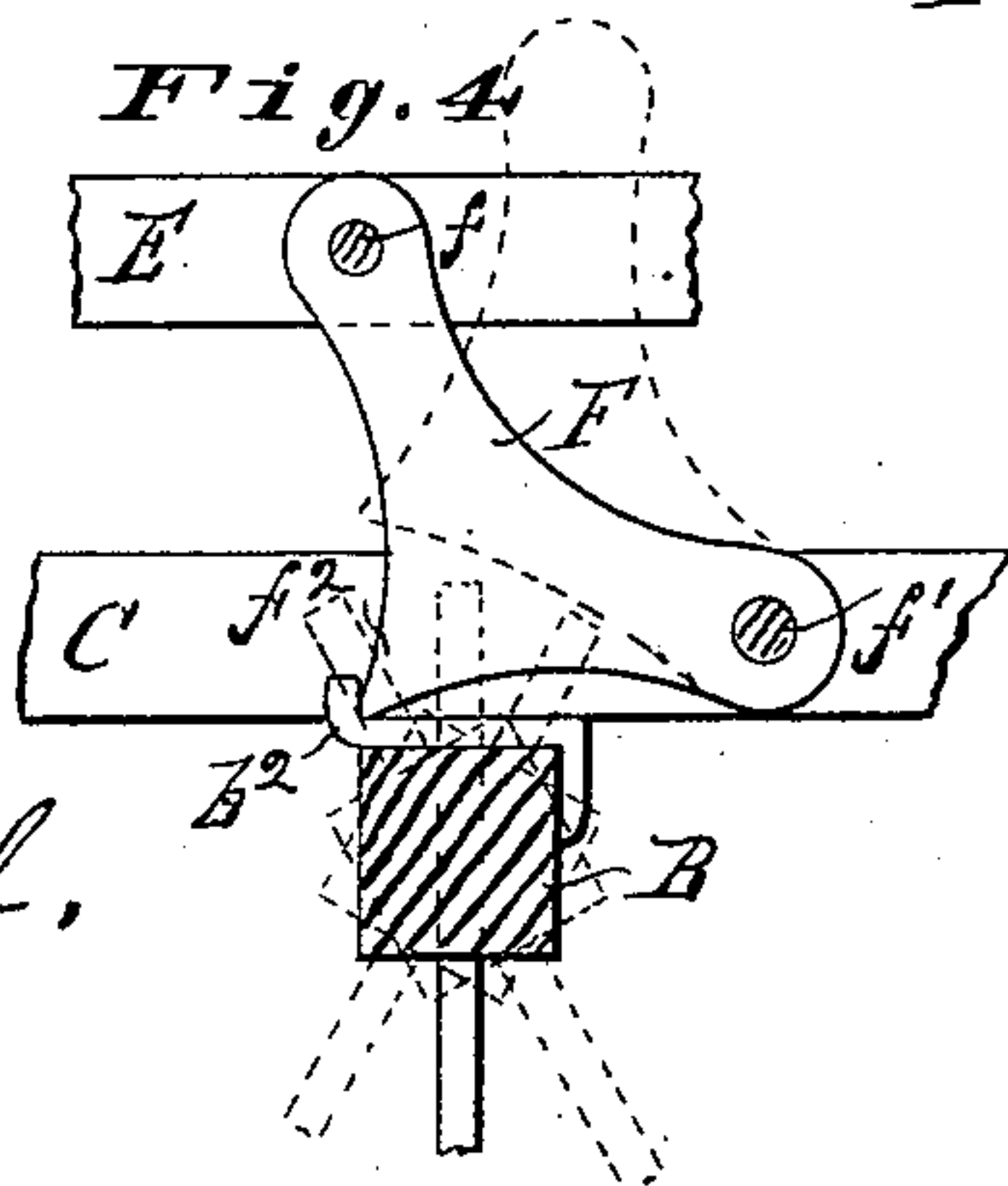


Fig. 4.



Attest:

Charles Pickles  
John W. Herthel,

Inventor:

Charles Tolle  
by Herthel & Co  
Attys



# UNITED STATES PATENT OFFICE.

CHARLES TOLLE, OF GODFREY, ILLINOIS.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 238,458, dated March 1, 1881.

Application filed August 13, 1880. (No model.)

*To all whom it may concern*

Be it known that I, CHARLES TOLLE, of Godfrey, Madison county, and State of Illinois, have invented a new and useful Harrow, of which the following is a specification.

This invention relates to that class of harrows which is represented by the patent of Charles Tolle and Christian Wirth, No. 198,710, December 25, 1877; and it consists in a certain novel combination of parts by means of which the construction is simplified and the capacity of the harrow for adjustment is increased, as will be fully described hereinafter.

Figure 1 is a top plan, showing duplicate sections of the harrow coupled together and ready for use. Fig. 2 is an enlarged side elevation of the lever attachment which I have provided at the top of the frame of the harrow to operate the trip levers or pawls, said parts shown being the turn-bars with catches, the lower parallel bars carrying the hand-lever and its connections to the top or lock bar, and the pawls pivoted to both the lock-bar and bottom parallel bars, the dotted lines showing adjustability of the said parallel bars and their mounted parts. Fig. 3 is a top or plan view of Fig. 2; and Fig. 4 is an enlarged detail, showing a pawl in engagement with its catch of a turn-bar securing its teeth in vertical condition. The dotted lines show adjustability of the same parts.

Similar letters refer to similar parts throughout the several views.

As shown in Fig. 1, my harrow is composed of two parts or sections, each of which is a duplicate, complete in itself, can be used separately, or, when coupled together, used jointly.

A A A A represent the parts composing the main frame, and which is preferably of the shape shown in Fig. 1.

B B B represent the turn or toothed bars; *b b b*, &c., the series of teeth. These are passed through the turn-bars to project above and below, and are rigidly secured to the turn-bars. *b' b'*, &c., are a fewer number of similarly-arranged teeth, but secured at right angle to the remaining series. As soon as the lower portion of the teeth come out of the ground the upper end of the teeth catch into the ground, and this revolving action is achieved by the

teeth *b'*, which, with the series of teeth *b b*, &c., make the harrow rotary, if such action is desired.

I employ two parallel or adjusting bars, C C, in combination with the hand-lever and its arm *d*, connected to the top or lock bar, E, which carries the pivoted trip levers or pawls F, so that all said just-named parts are capable of an adjusting action either to the right or left in a horizontal direction on top of the frame.

It can be here stated that the handle and its connections to the lock-bar and pawls are shown in the patent above alluded to, and in the present case said parts are simply used to lift the pawls into or out of engagement with the catches on the toothed turn-bars.

To adjustably secure the harrow-teeth in any position—that is to say, cause the teeth to backwardly incline, be vertical, or incline forward, or occupy any intermediate position between those just named—I first partially turn the toothed bars B B to the desired point; secondly, I adjust the parallel bars C C (carrying all the hand-lever attachment on top of the frame) to the same desired point, permitting the engagement of the pawls with the catches of the toothed bars, so that the latter cannot turn, and consequently its teeth will be made to occupy the position desired. Each turn-bar (in line where the pivoted pawls are arranged) carries stops or catches *b<sup>2</sup>*. (See Figs. 2 and 4.) Each turn-bar B has its ends journaled in the parts of the frame A A, (see Fig. 1,) and hence can be turned round to give the harrow-teeth position at any point.

The parallel bars C C, as shown in the figures, are arranged in the line of the catches of the turn-bars, and simply rest on top of the frame parts A A, so as to be capable of being moved back and forth, as indicated in Fig. 2. The said parallel bar C C can be made of a single bar of metal of sufficient length to be bent at the middle, (see Fig. 3 at the point marked X,) and the sides of said bar brought only so close together as to leave space sufficient for the operation of the pawls F, which are located between said parallel bars. (See Figs. 1, 2, 3.)

*c c* are screws that pass up through the frame



parts A A at both ends, or the front and rear parts, of the harrow. Said screws pass between the parallel bars C C.

$c' c'$  are washers placed on the screws, and  
 5  $c^2 c^2$  are tail-nuts to secure the said washers tightly against the ends of the adjusting-bars C C, and thus the latter, when properly adjusted, are secured immovably. By loosening only the tail-nuts the parallel bars are adjust-  
 10 able. I lay stress upon this manner of employing adjustable bars C C, as these carry the lever attachment that operates the pawls, and all said parts are adjustable together at one and the same time, as indicated by the  
 15 dotted lines in Figs. 2 and 4.

The pawls F are preferably of the constructive shape shown in Figs. 2, 3. Said pawls are respectively pivoted to the lock-bar at  $f$  and parallel bars below at  $f'$ , as shown, so that by  
 20 moving the lock-bar the point  $f^2$  of each pawl can be made to engage or disengage from the catch  $b^2$ .

G is the hand-lever. It is fulcrumed at  $g$  to the parallel bars, and the arm  $d$  is pivoted at  
 25  $g'$  to the hand-lever.

The operation of the harrow is as follows: When used as a rotary harrow the pawls F are kept out of engagement with the catches on the turn-bars and the latter permitted simply  
 30 to revolve. As before stated, the operator can adjust and secure the teeth in three different positions—viz., to backwardly incline, be vertical, or incline forward, the said positions being indicated by the dotted lines in Fig. 4. To  
 35 harrow deep, reach and break as well as level the lumps and heavier clods, the teeth are set to incline forward. To perform the work of

an ordinary harrow, the teeth are set and held in a vertical position. For covering the seed, especially cultivating corn, clover-seed, &c.,  
 40 place the teeth at an inclination backward. All the parts—viz., the parallel bars C C, carrying the hand-lever connected to lock-bar and pawls—can be adjusted to hold the turn-bars from turning, so that the teeth will be posi-  
 45 tioned at any intermediate point between the various changes above stated. To make, therefore, all the said various changes after the turn-bars with their teeth have been adjusted  
 50 as desired, the parallel bars with mounted hand-lever attachment are likewise adjusted to the point to permit the pawls to engage the catches. The operator needs simply to un-  
 55 screw each tail-nut, loosening the hold of the washers, in order to slide or adjust the parallel bars and their parts and bring same in line with the previously-adjusted positions of the catches. Thus the teeth can be set and held in many  
 60 more different positions, adapting my harrow the better to suit the nature of the work re- quired.

What I claim is—

In combination with the main frame having the turn-bars B B, with the catches  $b^2$ , the adjustable bars C C, and the bars E G, carrying  
 65 the pawls F F, the construction being such that the turn-bars may be held in any desired position or be permitted to rotate, substantially as described.

CHARLES TOLLE.

Witnesses:

WILLIAM H. MARTIN,  
 JAIRUS B. TURNER.