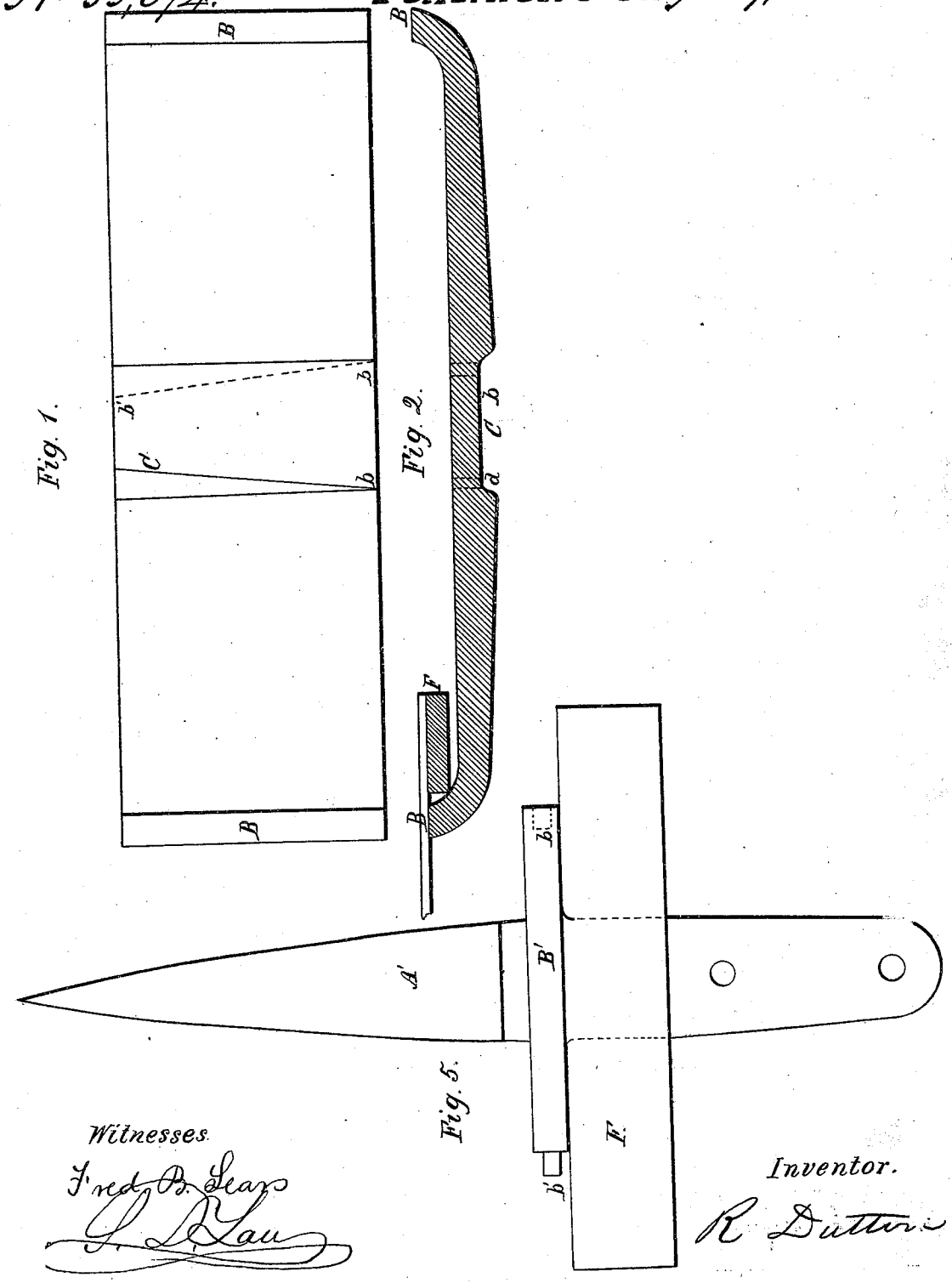
Sheet 1, 2 Sheets.

R. Dutton.

Harvester Finger Bar.

No. 55,074. Patented May 29, 1866.



Witnesses.

Fred. B. Lear

L. D. Law

Inventor.

R. Dutton

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Sheet 2, 2 Sheets.

R. Dutton.

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Fig. 4.

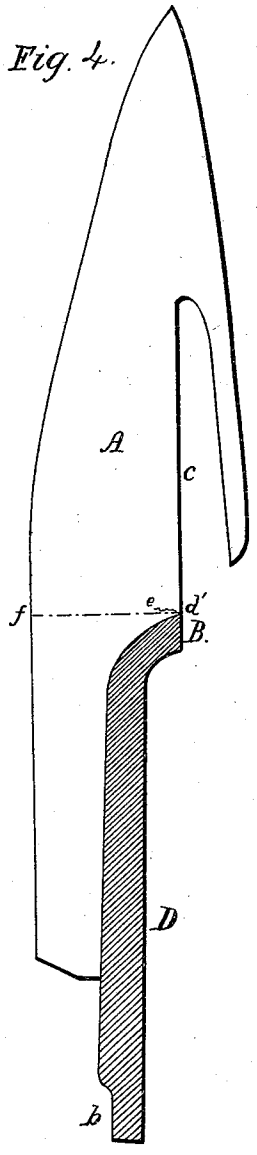
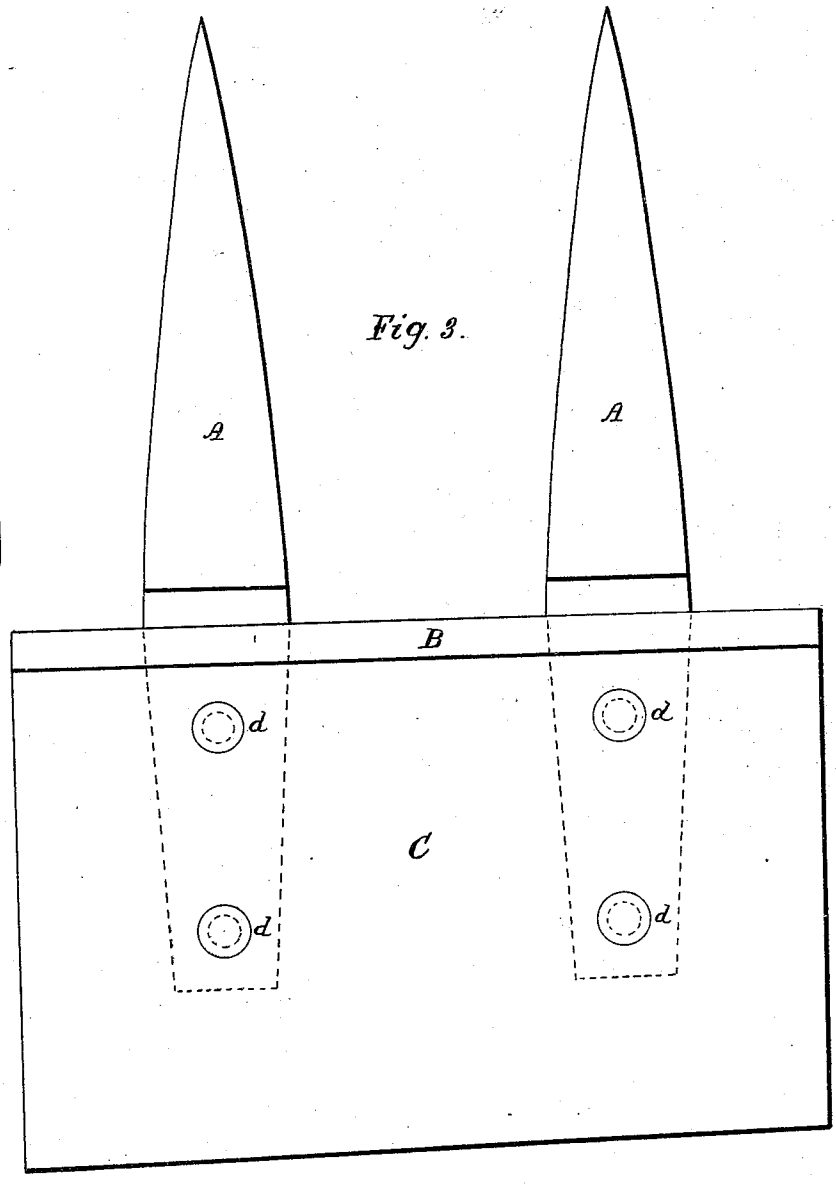


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

RUFUS DUTTON, OF NEW YORK, N. Y.

IMPROVEMENT IN CONSTRUCTION OF FINGER-BARS OF HARVESTERS.

Specification forming part of Letters Patent No. **55,074**, dated May 29, 1866.

To all whom it may concern:

Be it known that I, RUFUS DUTTON, of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in the Construction of Finger-Bars of Harvesting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and making a part of this specification.

My improvements have reference to such finger-bars as are made from plates of steel or metal, which are rolled out or formed by suitable machinery of a width just sufficient for two finger bars, and then afterward cut diagonally across the center and through the length of the plate, so as to make two finger-bars, such plates being also formed with turned-up or raised sides or edges.

Such improvements consist, first, in so shaping such plate that the finger-bars formed from it will have all required strength in their several parts with the least quantity and weight of metal; and second, in so combining or uniting such finger-bar with the fingers that the latter shall be strengthened, and so as to dispense with the cross-bar heretofore necessarily used with the ordinary finger-bar.

Figure 1 represents a section of a metallic plate rolled out of a width sufficient for two finger-bars and having its edges turned or rolled up, as seen more clearly and plainly in Fig. 2. Fig. 2 is an end view of such plate. Fig. 3 represents a portion of a finger-bar made from one-half of the plate, Fig. 1, and having two fingers attached to it. Fig. 4 is a side view of a finger, and giving an edge view of a section of the finger-bar as fastened to it. Fig. 5 shows a finger such as heretofore used, with its cross-bar, and showing also the relative position of the ordinary knife-bar.

The plate C is rolled out or formed by suitable machinery of a width just sufficient for two finger-bars, and each edge or side B is turned or curved upward, as more plainly shown in Fig. 2. After the plate is so rolled it is to be cut of the required length for a finger-bar, and is then divided or cut lengthwise diagonally through its center, so as to form two finger-bars, and so that each bar will be broadest at one end (that by which it connects with the machine) and taper or decrease in breadth toward the outer end of the bar.

This turning up of the edge of the bar gives greatly increased strength and stiffness to that side of it, and hence such part can be made much thinner and lighter than it could be if the bar was made of a continuous flat plate of metal. On the other hand, if the whole bar in its entire breadth should be made of only the same thickness as is required in the part so turned up or raised, the flat part of the bar would not be sufficiently stiff and firm. To render such flat portion of the bar sufficiently stiff and strong and make it as stiff as the turned-up or raised portion, it becomes necessary that the flat part of the finger-bar should be thicker than the curved portion. This end I secure or attain by shaping the plate C as represented in Fig. 2—that is, by gradually increasing its thickness from its outer edges toward the center and to a point about half an inch distant from the center. This form of the plate gives to each finger-bar, when the plate is cut in two parts, as before mentioned, a wedge shape, the thinnest edge being the one turned up, and the flat part of the bar being the thickest. The several parts of the finger bar have thus all necessary and required strength, and quantity and weight of metal is dispensed with where not demanded for strength, and retained only where necessary.

As before stated, the plate C, after it is rolled or formed as described, is cut or divided diagonally and lengthwise through its center, and two bars formed from it. The direction or inclination of such diagonal line, on which the plate C is thus divided, is usually such that one end of each bar shall be about one inch broader than is the other end. To facilitate the operation of cutting or dividing such plate into two separate bars the plate C is formed with a recess, *b*, extending lengthwise along its center and made of a breadth equal to the desired taper of the finger-bar. The depth of this recess may be such that the plate over such recess may be much thinner than the average thickness of the other parts of the plate, as the strength of the bar is secured by the curved edge on one side and by the increased thickness above mentioned of the flat part of the bar. By forming such recess in the central part of the plate the labor of cutting the plate so as to form two bars is greatly les-

sened, as that part through which the cut is made has not much thickness, and the cutting can therefore be done much quicker. Such recess also forms a convenient guide to the workman in cutting the plate, as the tool is set in at one side of such recess, and is caused to leave the plate at the other end, on the opposite side of such recess. Fig. 2 shows an edge view of such recess, the position of which is also indicated in Fig. 1 by the parallel red lines.

The red line C *b*, Fig. 1, represents a part of the diagonal line on which the plate is to be divided, as before mentioned. Such red line, however, shows the direction in which such plate C is to be cut to form finger-bars for a machine cutting on the left side.

For bars suitable for or adapted to machines cutting on the right side the plate will be cut on a line running in the direction indicated by the dotted lines *b b'*, Fig. 1. The finger-bar C and the fingers A A are then connected together, as shown in Fig. 3—that is, the turned-up edge of the finger-bar is made the front edge of the bar, and the upper side of the shank of the finger is cut away, as shown in Fig. 4, to fit the curve and bottom of the finger-bar, and the two are firmly fastened together by means of rivets *d d*. The turned-up edge B of the finger-bar is planed off level, and the shank of the finger is cut away to receive the finger-bar, as mentioned, just enough so that the surface B of the finger-bar and the bottom surface, *e*, of the slot of the finger will be in the same line or plane, as shown in Fig. 4, the red lines in such figure showing a section of the finger-bar cut near its center, where the diagonal cut passes about midway of the recess *b*. The edge B is in line with the under surface of the slot of the finger. By so connecting such finger-bar to the finger and planing off the turned-up surface B, such surface B is made to form or take the place of the ordinary cross-bar B', or the bar extending in front of the knife-bar F and below the knife-sections, (represented by red lines at K, Fig. 4,) and making a support for the knives in their vibrations.

As finger-bars have heretofore been constructed of flat plates of steel or metal, such cross-bars B' have been necessary. Such cross-bar has generally been formed by being cast on each finger, as shown in Fig. 5, the ends of the several sections abutting against each other, or connecting with each other by means of a socket and recess, as indicated in Fig. 5, or a small bar, extending the whole length of the finger-bar and in front of the knife-bar, has been riveted to the several fingers.

By making the edge of the finger-bar form the cross-bar between the fingers the finger itself is much cheapened and simplified, as neither the cross-bar on the finger or the bar extending across the fingers and in front of the knife-bar will be required; and when the cross bar is formed by riveting a bar to the fingers the finger is weakened by the hole made for the rivet, which is in that part of the finger which receives the greatest strain when coming in contact with any obstruction. This is wholly obviated by making the edge of the finger-bar form the cross-bar. This form of finger-bar and its manner of connection with the finger also acts as a brace for the finger, the upper part or edge of the finger, at *e*, Fig. 4, bearing against the edge of the bar and bracing and strengthening it.

The knife-sections K, resting upon the edge of the finger-bar, bring the cutting-edge of the blades close to the upper edge of the under side of the slot in the finger, and the edge B of the finger-bar being thin, furnishes a narrow surface-bearing on the under side of the knife. A close and low cut can also be secured, as the length of the stubble need not be more than the thickness of the finger from *f* to *d'*, Fig. 4.

The bar being turned up in front presents less obstruction to the stubble and inequalities of the ground than it would if not turned up, but left square, as is usually done, and, being wedge-shaped, it slides more freely over the ground.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Forming the finger-bars of harvesting-machines from a metallic piece rolled or formed by suitable machinery of sufficient width for two finger-bars, and having the edges turned or rolled up, as described, when such metallic piece or plate is made thinnest at its edges and increasing in thickness toward the center, substantially as and for the purposes set forth.

2. Making in the center of such metallic plate a recess or thinner portion, for the purpose of facilitating the dividing or cutting such plate, substantially as set forth.

3. Making the finger-bar of harvesting-machines wedge shape, or increasing in thickness from the front toward the back side, and rolling or turning up its thinnest edge, substantially as and for the purposes set forth.

4. The combination of the finger and finger-bar, substantially as described, so that or by which the finger is braced and supported by the bar at the back end of the under side of the slot of the finger, substantially as and for the purposes set forth.

R. DUTTON.

Witnesses:
S. D. LAW,
FRED. B. SEARS.