C. P. BUCKINGHAM.

Manufacture of Cultivator Sleeves.

No. 201,324. Patented March 19, 1878.

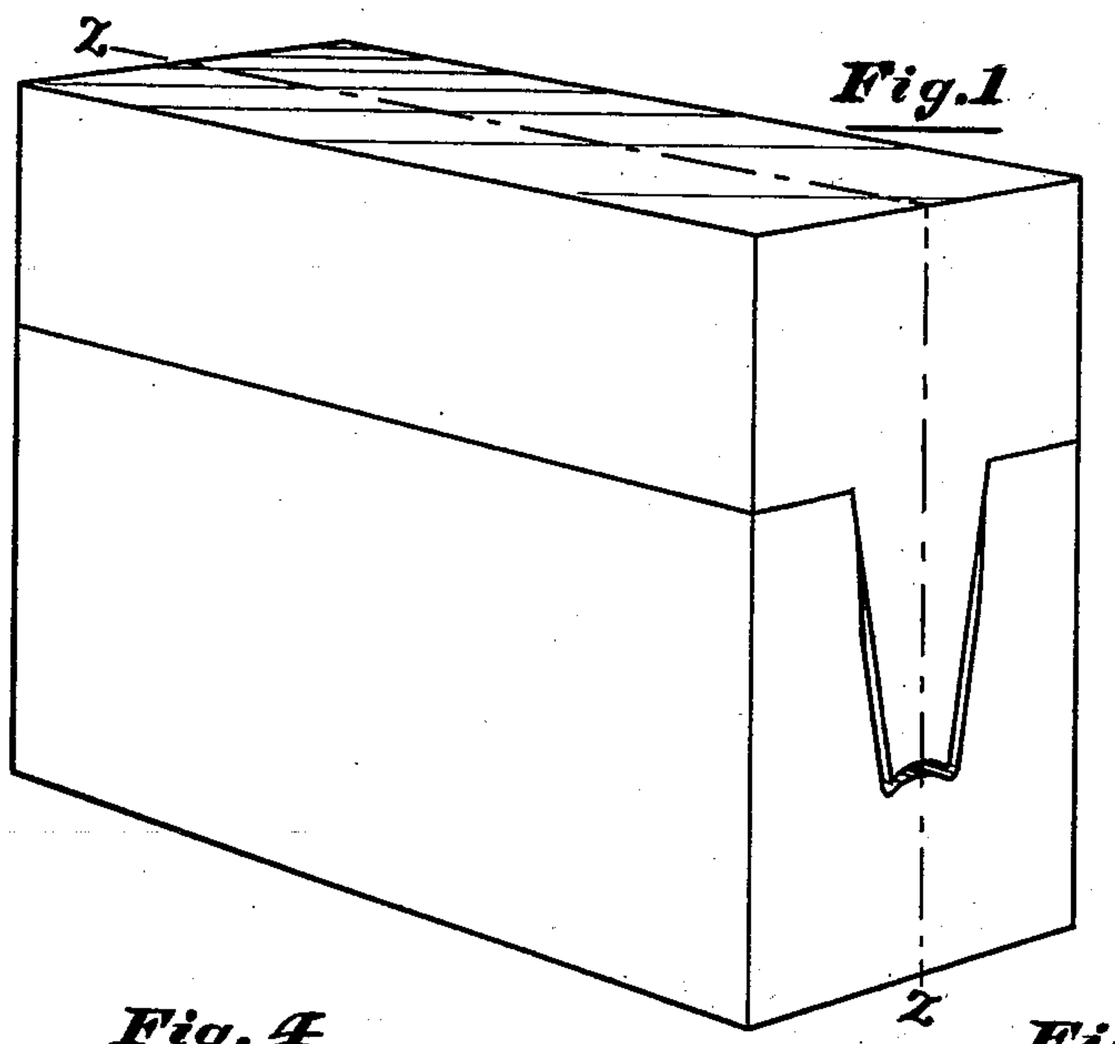


Fig. 1

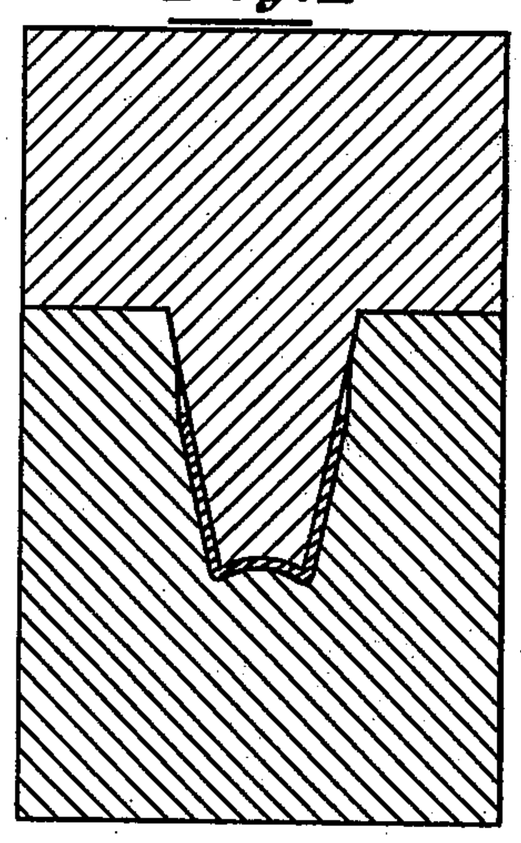


Fig. 2

Fig. 4

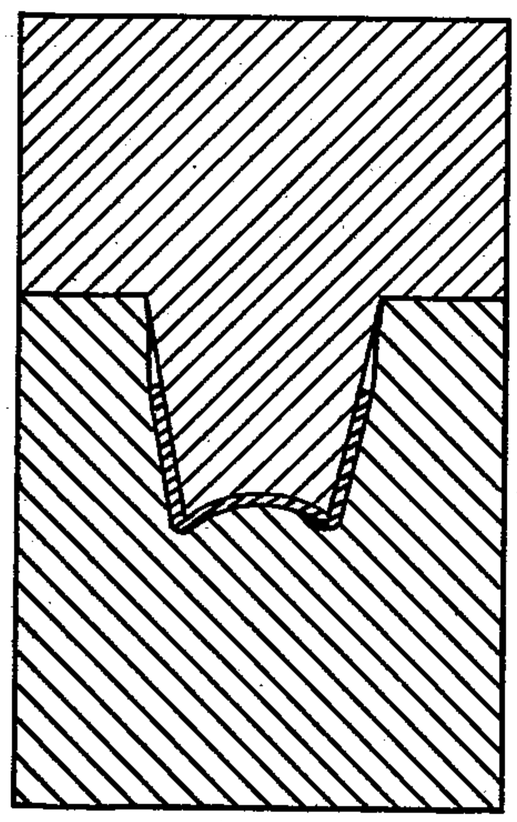
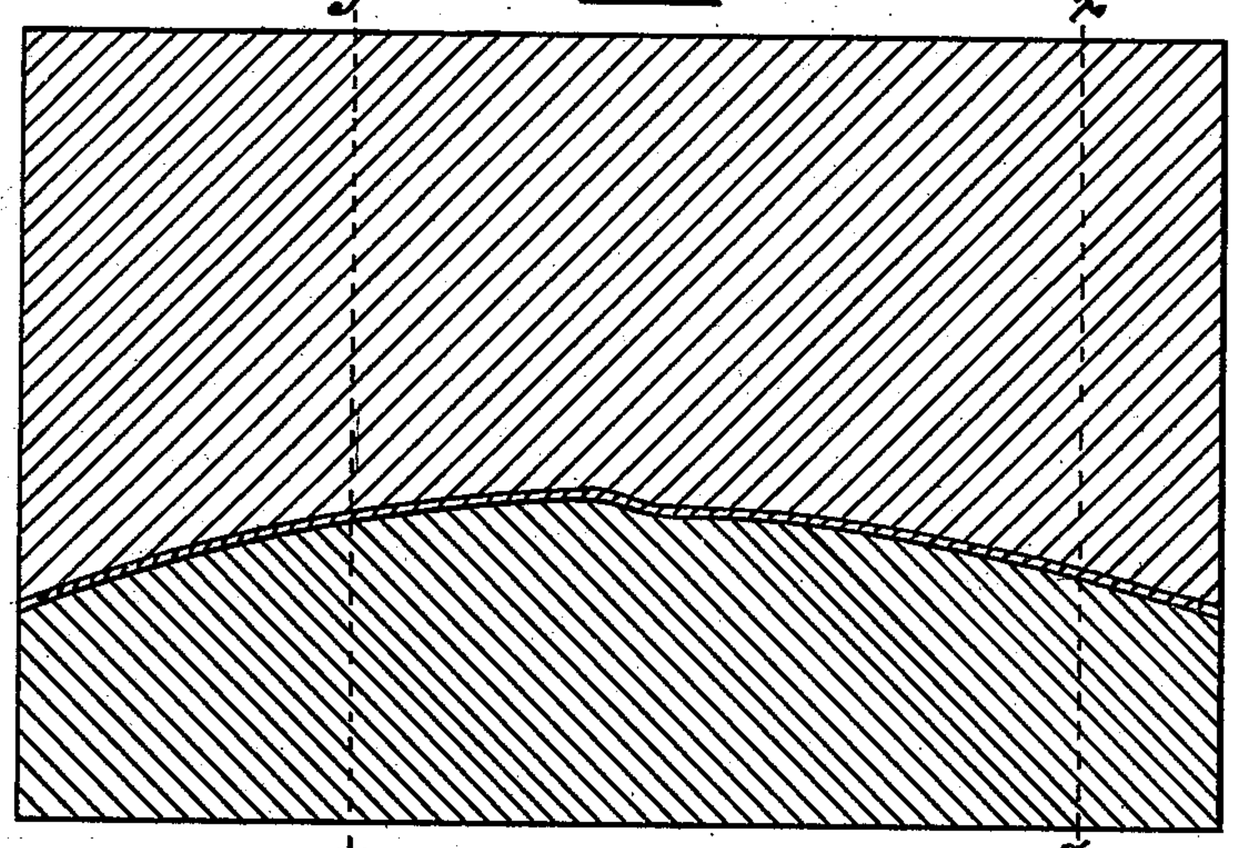


Fig. 3



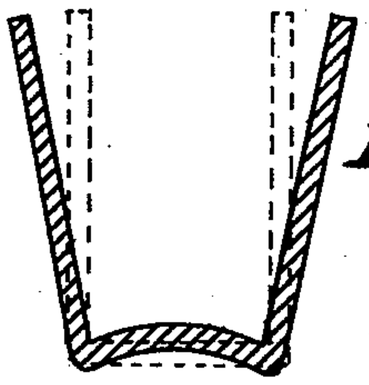


Fig. 6

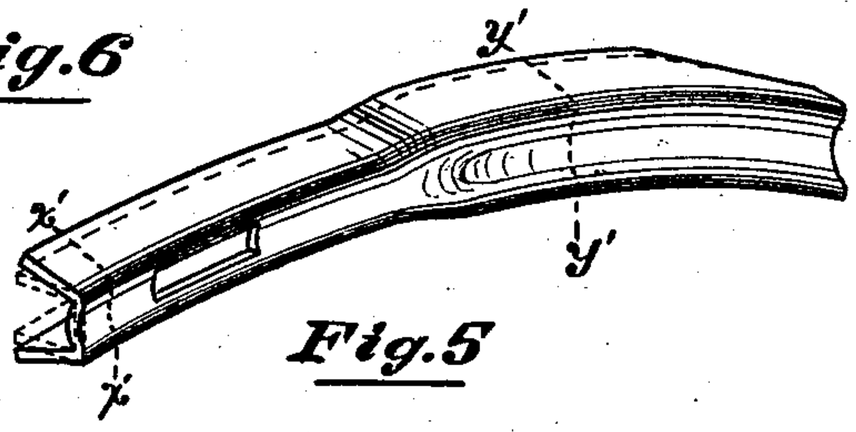


Fig. 5

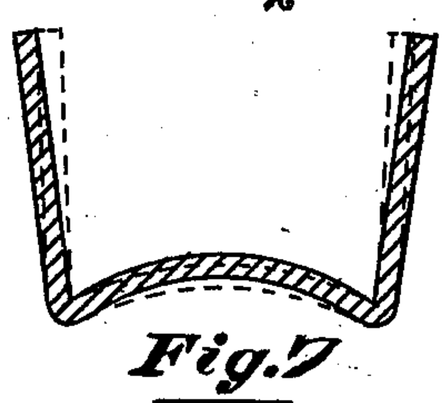


Fig. 7

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UNITED STATES PATENT OFFICE.

CATHARANUS P. BUCKINGHAM, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN THE MANUFACTURE OF CULTIVATOR-SLEEVES.

Specification forming part of Letters Patent No. **201,324**, dated March 19, 1878; application filed August 17, 1876.

To all whom it may concern:

Be it known that I, CATHARANUS P. BUCKINGHAM, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in the Process of Manufacturing Sleeves for Cultivators, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of the dies in which the sleeve is first bent; Fig. 2, a sectional view of the same, taken on the line *x x*, Fig. 3; Fig. 3, a longitudinal section taken on the line *z z*, Fig. 1; Fig. 4, a transverse section taken on the line *y y*, Fig. 3; Fig. 5, a perspective view of the cultivator-sleeve when taken from the dies; and Figs. 6 and 7, cross-sections of the same, taken on the lines *x' x'* and *y' y'*, respectively, of Fig. 5.

My invention relates to the manufacture of wrought-metal sleeves, which are used for the purpose of connecting the shovels of cultivators to the beams; and its object is to form the upper ends of such sleeves rectangular in cross-sections.

The invention consists in forming the sleeves in suitable dies, with the front side concave or depressed and the side ribs bent up part way, and then straightening up the side ribs or flanges, so that they will stand at right angles to the front side, by any suitable means.

Heretofore these sleeves for cultivators have been made U-shaped in cross-section, and it has been necessary to make the end of cultivator-beams of a shape conforming thereto, so that the sleeve would accurately fit over the end of the beam, or else the two were left with imperfect bearing-surfaces.

It has been difficult to form the ends of the sleeves rectangular by bending in dies. The bend or fold of the sides cannot be completed in the dies so as to leave the sides parallel to each other, for it would then be almost impossible to remove the sleeves from the dies on account of pinching. The sides must be left slightly flaring when they come from the dies, so as to be readily removed from the latter. If the front is at the same time left plain, when the sides are straightened up the front portion of the sleeve will be forced outward, so as to form a convex surface, and make the sleeve U-shaped in cross-section.

Another obstacle to the striking of the sleeves in dies with perpendicular faces is, that unless the stock is of perfectly uniform thickness there is great danger of cracking the dies. If only sufficient space is left for the sides of the finished sleeves between the perpendicular faces of dies, a very slight variation in the thickness of the stock will be sufficient to split the lower die when struck. Furthermore, the sleeves are bent so as to be curved longitudinally. The blank, when laid upon the lower die, is straight. If, then, the faces of the dies were perpendicular, the dropping of the upper die would simply shear off the plate, cutting out a piece the shape of the die, instead of striking up the blank in the form desired.

I construct the dies as shown in the drawings, so that when the partially-bent sleeve is taken therefrom the front portion thereof will be depressed or concave, as shown in Figs. 5, 6, and 7 of the drawings. A mandrel of suitable form and thickness is then placed within the partly-formed sleeve, which is then put under a drop and struck, and thus the side flanges are straightened up, so as to be parallel to each other, and this finishing step in the process of bending or folding up the sides will force the front edge of the sleeve outward, so as to be at right angles to the side pieces at the upper end of the sleeve, or, in other words, as shown in dotted lines, Figs. 5 and 6 of the drawings, so that the sleeves will be rectangular in cross-section.

In order to manufacture sleeves by bending them as described, metal of first-rate quality must be used, or it will not stand the bending.

Wrought-iron of very high grade may be employed; but I prefer steel, as the results obtained from its use are in every respect more satisfactory.

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

The herein-described improvement in the

art of manufacturing wrought-metal sleeves for cultivators, consisting in first bending the shank in suitable dies, so that the sides will be left flaring and the front edge concave or depressed, and then straightening up the sides so that they will be parallel to each other, and thereby forcing outward the front portion by said lateral compression of the sides alone, so that the sleeve will be rectangular in cross-section, substantially as set forth.

C. P. BUCKINGHAM.

Witnesses:
L. M. HARRIS,
L. L. COBURN.