

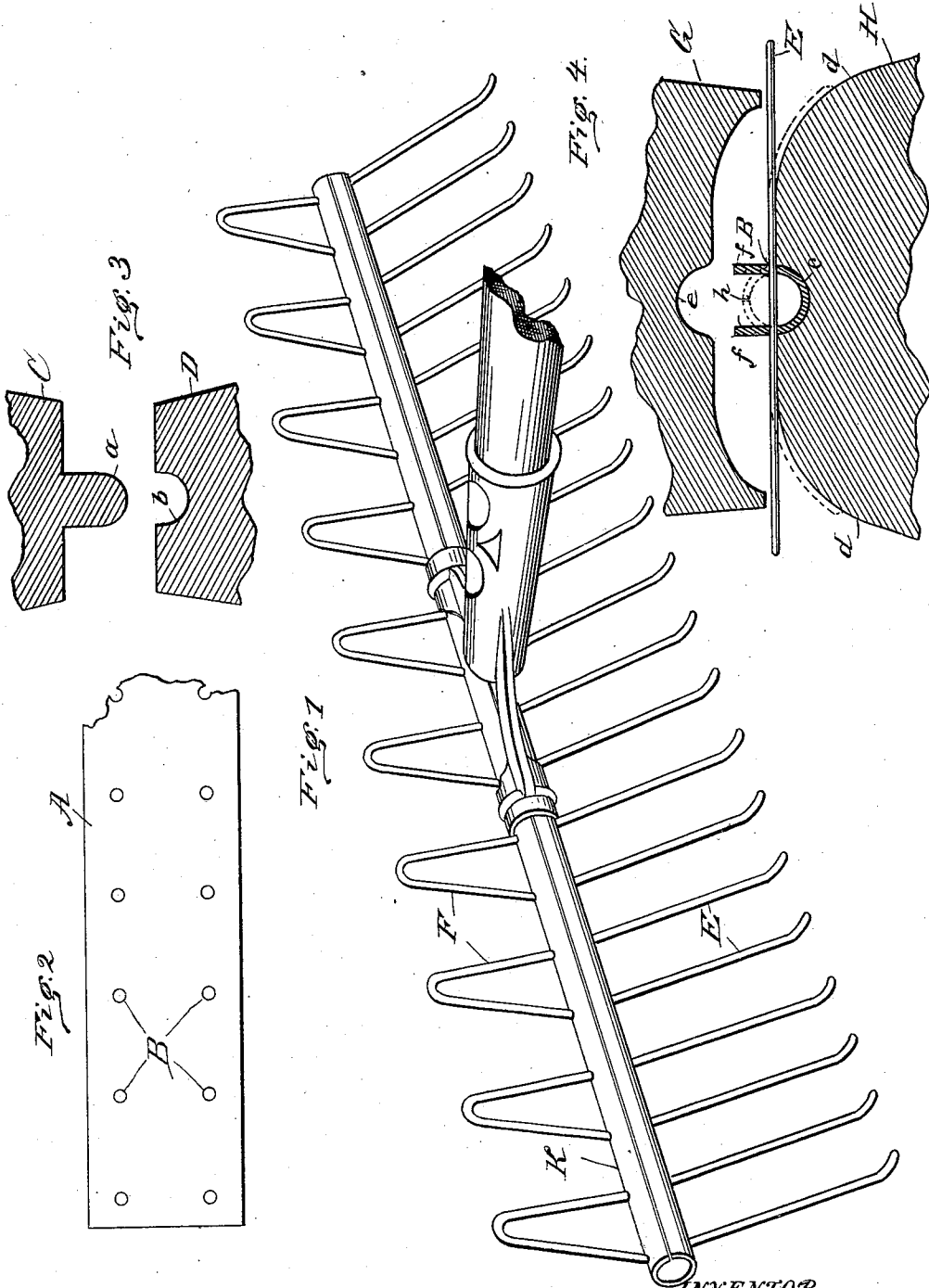
(No Model.)

L. GIBBS.

RAKE AND APPARATUS FOR MAKING SAME.

No. 567,129.

Patented Sept. 8, 1896.



WITNESSES
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RAKE AND APPARATUS FOR MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 567,129, dated September 8, 1896.

Application filed January 6, 1896. Serial No. 574,419. (No model.)

To all whom it may concern:

Be it known that I, LEWIS GIBBS, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Rakes and Apparatus for Making the Same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to rakes, more particularly lawn-rakes, and means for making the same, the object being to provide a rake-head which possesses the requisite strength and durability and to permanently secure the teeth thereto in a simple manner without the requirement of foreign means, such as pins, screws, and the like. I am aware that it is not broadly new to dispense with foreign means for establishing the connection of the teeth with the head of the rake, for in my Patent No. 514,989, dated February 20, 1894, I obtained this result, but in a different way. In the said patent the head is made of spring metal and is bent in a U form, so as to bring the tooth-holes into alinement. The teeth are then inserted through the alined holes, and the tendency of the rake-head to spread firmly pinches the teeth. The spring action of the head is all that tends to hold the teeth in place. In my present invention I provide positive means for holding the teeth, as will appear farther on.

With these objects in view my invention relates to certain features of construction and combination of parts, as will be hereinafter described and claimed.

Figure 1 of the accompanying drawings is a view in perspective illustrating my invention. Fig. 2 is a plan view of a fragment of a strip of sheet metal, showing the form and manner of punching the holes for the rake-teeth before the strip is formed into a tubular head. Fig. 3 is an end view of the dies by which the strip of sheet metal, as shown in Fig. 2, is bent or turned to U form, as shown in Fig. 4. Fig. 4 is an end view of dies by which the cylindrical tube is formed and the teeth formed.

Heretofore tubular rake-heads have been made by cutting drawn or welded tubes to desired lengths and drilling therein a series of holes transverse the tube and diametrically

opposite, in which were placed a series of rake-teeth. This method has proven to be too expensive, and the result not desirable, because of the excessive weight and cost of production. To obviate the excess of weight and cost is the object of my invention, which I will now describe as a new method of manufacturing tubular rake-heads.

A denotes a strip of sheet metal cut from a rolled sheet of such width as would provide the desired length of head and of desirable number in thickness, say from sixteen to twenty American wire-gage. These strips are nipped or cut off the end of the machine by a cutter the full width of the sheet, with a uniform width throughout their length, the edges being parallel. In this strip A there is then punched in pairs series of holes B, as shown in Fig. 2. The holes may be punched in pairs, two at a time, or one entire side at one operation, but always in such order as to bring the holes diametrically opposite when the strip is formed into a tube. When so punched, the strip is placed between the dies C and D, the former having provided on its lower face a rib *a* and the latter in its upper face a corresponding groove *b*. (Shown in Fig. 3.) The dies are then closed, by which movement the sheet is turned to a U shape, as shown in the dies, Fig. 4.

When the strip A, with holes, as B, punched therein, has been turned to U form with sides parallel, or thereabout, the prongs E of the previously-provided teeth F may be passed through holes B, as shown in Fig. 4, and free edges of the U-bar turned downwardly and inwardly to contract the inner edge of the holes B on the prongs E of the teeth F, thereby securing the teeth in the head F.

The dies shown in Fig. 4 are made in two parts, G and H, the latter having in its upper side a groove or recess, as *c*, adapted to receive the U-shaped head as formed in the die D. (Shown in Fig. 3.) The upper sides of the die may be rounded off, as shown at *d*, to curve the teeth transverse the head.

In the upper part G of the die is provided a groove *e*, the sides of which are adapted to catch over the sides *f* of the sheet-metal head and turn them in and down to position indicated by the dotted lines *h*, thus completing the tube K. The sides of part G of the die

are curved down, as shown, to correspond with the upper side portion of part H, the operation of which is to curve or bend the teeth, as before stated. The die may be formed to
 5 give any desired curvature to the teeth, or the underface of part G, outside of the groove e, may be flat, and the corresponding top part of part H to correspond, which would leave the teeth straight, but secured in the
 10 tubular head because of the pressure of the dies on the tube, which condenses the sheet metal forming the tube about the teeth, thereby securing the teeth in the tube or rake-head.

Although I have shown and described a tubular rake, and prefer such form, yet I would have it distinctly understood that I do not restrict myself to such form, as I contemplate
 15 as falling within the scope of my invention any form of rake-head having tooth-openings the walls of which are closed upon and caused
 20 to permanently bite the teeth after the teeth have been inserted.

Having thus fully described the nature and object of my invention, what I claim is—

25 1. In apparatus for making lawn-rakes as described, the combination of the dies G and H, having corresponding central recesses or grooves, the part H, having rounded sides d, the other part G, having downwardly projected sides that correspond with the sides of

the die H, whereby as the tube is formed in the central recesses or grooves, the end portions of the teeth will be bent transverse the head or bar, substantially as set forth.

2. In a rake, a rake-head formed with a series of tooth-holes, rake-teeth inserted
 35 through said holes, the walls of said holes being contracted to permanently bite or pinch the teeth.

3. The combination with a hollow rake-head having two sets of registering tooth-holes, teeth inserted through said holes, said rake-head being bent on a line cutting the
 40 holes whereby portions of the walls of said holes are contracted to bite and firmly and permanently hold the teeth.

4. In a rake a rake-head consisting of a longitudinally-hollow body having two sets of registering tooth-holes, rake-teeth inserted
 50 through said holes, said head being bent on a line cutting the tooth-holes to contract portions of the walls of said holes to permanently bite the teeth, substantially as set forth.

In testimony whereof I have hereunto set my hand this 30th day of December, A. D. 1895.

LEWIS GIBBS.

Witnesses:

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 BURT A. MILLER.