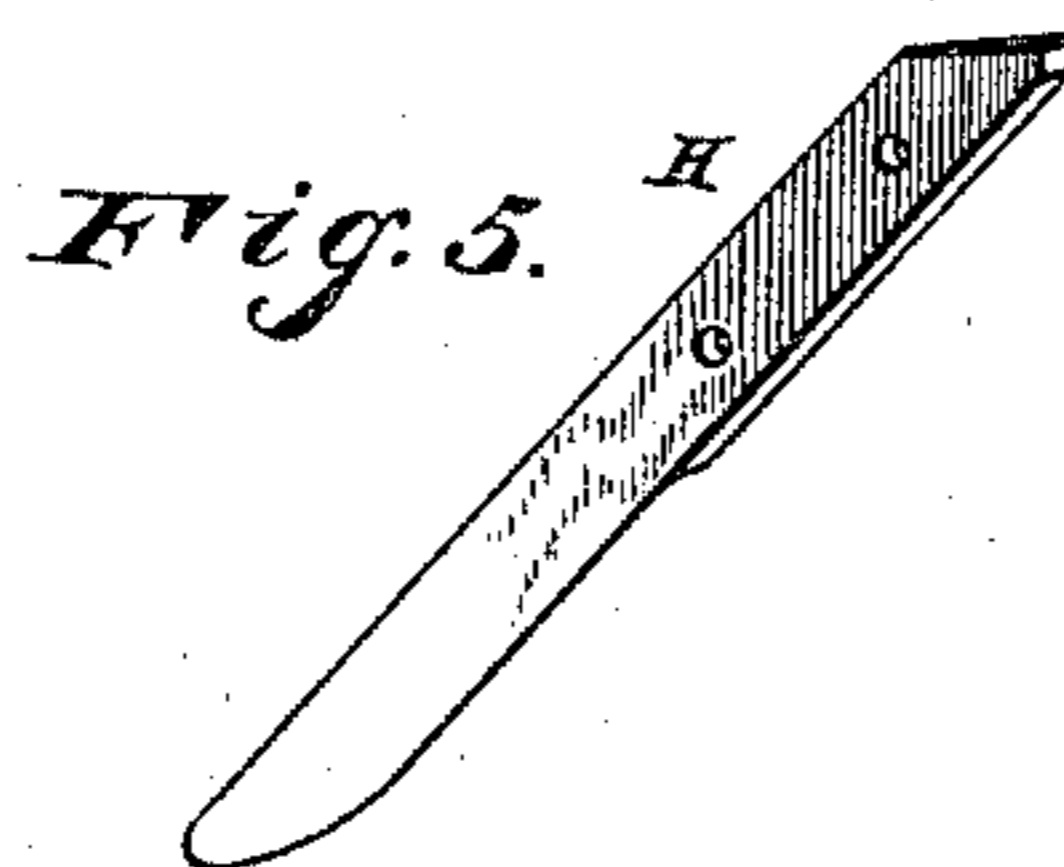
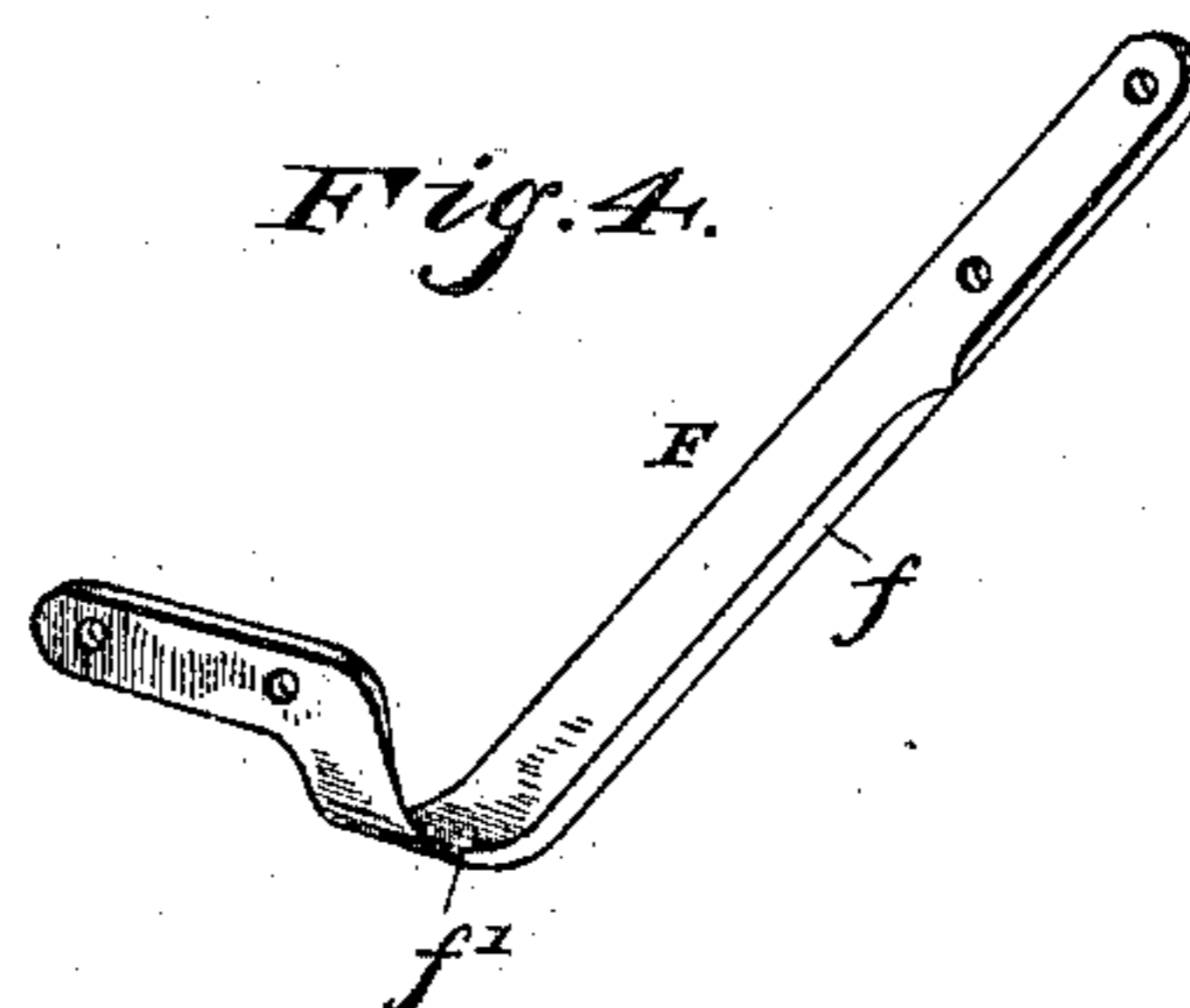
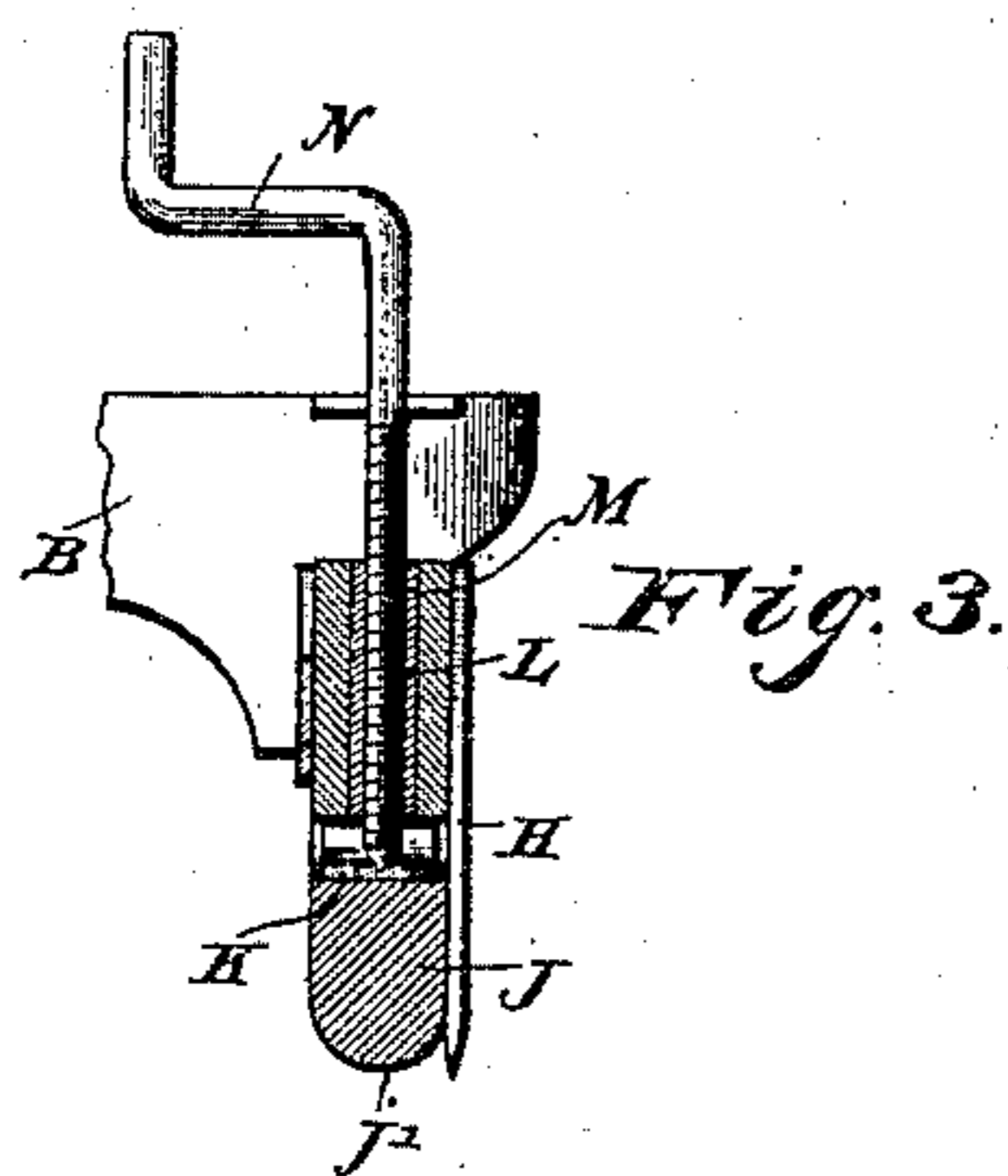
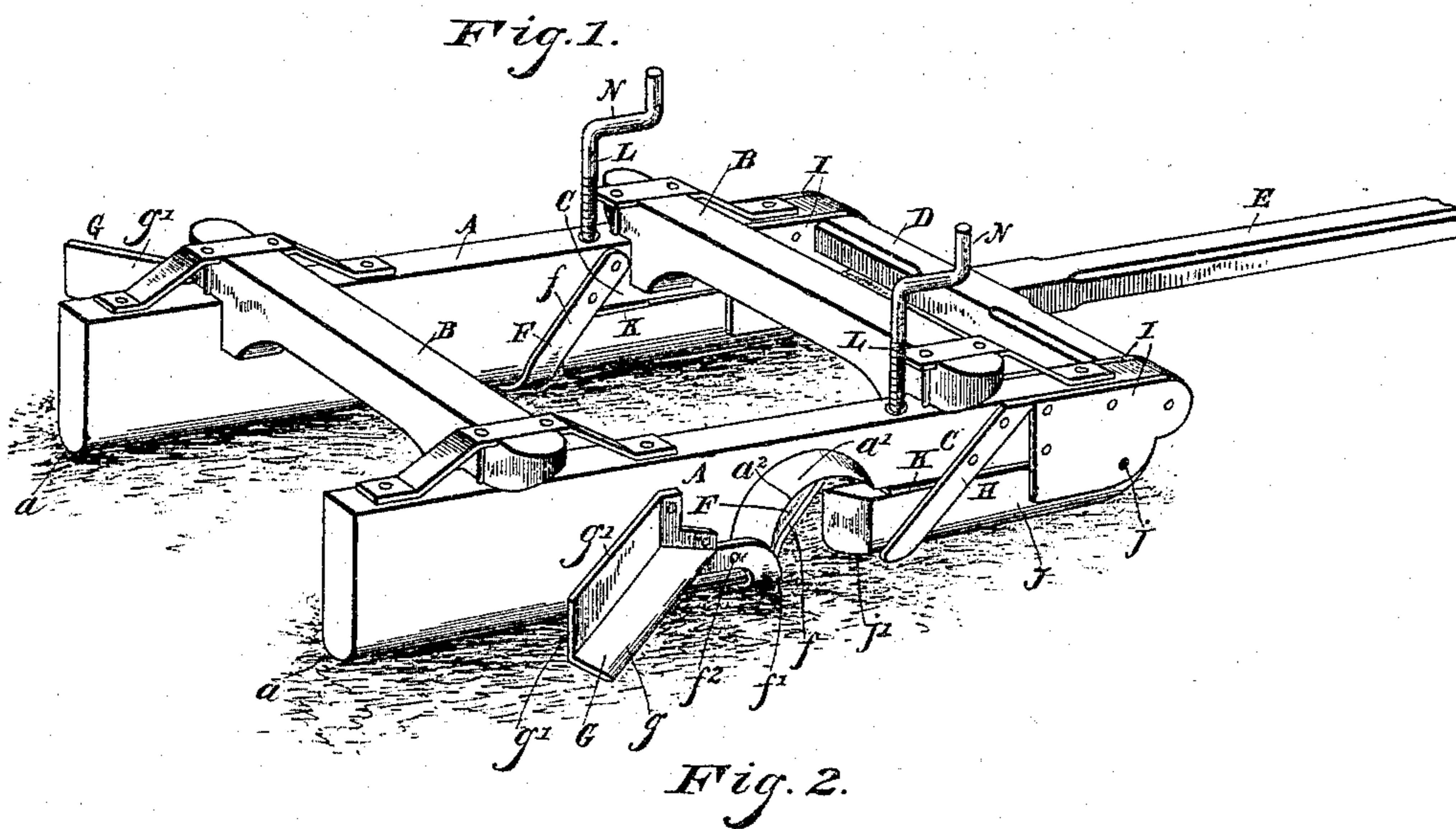


(No Model.)

O. CULVER.
ROAD RUT CUTTER.

No. 488,185.

Patented Dec. 20, 1892.



Witnesses:

J. M. Wilkins.
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UNITED STATES PATENT OFFICE.

ORRIS CULVER, OF GRAND RAPIDS, MINNESOTA.

ROAD-RUT CUTTER.

SPECIFICATION forming part of Letters Patent No. 488,185, dated December 20, 1892.

Application filed January 9, 1892. Serial No. 417,552. (No model.)

To all whom it may concern:

Be it known that I, ORRIS CULVER, a citizen of the United States, residing at Grand Rapids, in the county of Itasca and State of Minnesota, have invented a new and useful Road-Rut Cutter, of which the following is a specification.

This invention relates to road rut cutters; and it has for its object to provide a machine of this character which is adapted to cut ruts in the ground or in the ice for lumber work or any place where heavy loads are drawn on sleds, and the primary object of the same, to attain this end, is to have the cutting apparatus of the same so disposed as to readily cut out a round rut to receive the runners of the sleds and which will not clog or turn when the same meet obstacles, but readily run over everything, plow out the ruts and throw the dirt or ice out of the way to each side of the machine.

With these and many other objects in view which will readily appear as the nature of the invention is fully understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings;—Figure 1 is a perspective view of a road rut cutter constructed in accordance with my invention. Fig. 2 is a detail transverse section through one of the runners in advance of the rut cutting knife. Fig. 3 is a similar view through one of the gage shoes. Fig. 4 is a detail in perspective of the main rut cutting knife. Fig. 5 is a similar view of the advance cutter.

Referring to the accompanying drawings;—A, A represent the opposite parallel runners having the rounded bearing edges a traveling upon the surfaces that are cut, and said runners are spaced and braced apart by the cross-braces B securely fastened to the top edges of each runner and are of a width according to the width of road to be formed. An ordinary platform may be located upon the top runner frame over said braces and a suitable load placed thereon according to the hardness of the ground or other surface to be cut, said platform being secured to the sled frame in the ordinary manner. The said

runners A have the forwardly extending reduced ends C projecting beyond the front ends of the runners and connected at their outer ends by the pivoted cross-bar D to which is secured the draft pole or tongue E to which is hitched the team to draw the machine. The front ends of the runners A are beveled and concaved as at a from the outer faces thereof to the inner and at an angle so as to form a sharp edge a^2 upon the inside of said runners. Closely secured to the runners and fitting around and projecting forward from the inner and bottom edges formed by said concaved bevel at the forward ends, are the main cutting knives F. The said rut cutting knives F are made of cast steel and sharpened on their top and inner edges so that the wear will always be in the same direction as their sharpening, and the same will thus be preserved from injury and sustain longer usage than usual. The knives F have the straight inner cutting portions f , that are secured at an angle to the inner faces of the runners and project beyond the inner sharpened ends a^2 thereof and slanting downwardly and rearwardly from near the top edges of said runners are curved at their lower extremities to form a semi-circular grooved cutting portion f' conforming to the rounded bottom edges of said runners and encircling and projecting beyond the extreme forward ends of the same and are secured at f^2 upon the outer faces of said runners near the lower edges thereof. It can be readily seen that as the machine moves in a forward direction the advance knives F will first bury their grooved cutting portions f' into the surface to be cut and dig out a rut of a rounded shape adapted for the reception of said runners, while the inner straight cutting edge of said knives projecting upwardly and forwardly at an angle from the semi-circular cutting portion f' , will cut out and line up the inner sides of the opposite ruts and cut and remove all obstacles, of a cutable nature therein, while moreover at the same time the bevel of the forward ends of the runners will serve to throw the cut material scooped by said knives away from the runners.

To carry off the ice, ground, or mud and

other material removed from the cut ruts, mold boards G are secured to the outer faces of each opposite runner directly in rear of the rut cutting knives F. The said mold boards
 5 G are provided with a front downwardly inclined receiving ledge *g*, and the straight rear walls *g'* which serve to carry the material away from the runners of the machine to any distance desired according to the length of
 10 said mold board, which are secured to said runners at an off-standing angle, being analogous to the disposition of mold boards in other plowing implements. Advance cutting knives H are secured to the outside faces of
 15 the forwardly extending ends C of said runners and directly in front of the cutting ends thereof. The said advanced cutting knives H are secured to said ends at an angle corresponding and parallel with that of the straight
 20 cutting sides *f* of the knives F which are secured upon the opposite faces of the runners, and by said disposition of the straight knives H it will be apparent that while the same loosen up the surface to be cut in advance of
 25 the rut forming knives, at the same time the said knives will cut, mark out and line up the outer sides of the ruts to be cut while the knife portions *f* will do the same to the inner sides of the ruts.

30 To the extreme forward ends of the projecting ends C are secured the depending plates I extending below the ends C and adapted to receive the front ends of the gage runners J pivotally secured at *j* between each pair of
 35 plates and extend rearwardly to a point just in advance of the rut cutting portions of the knives F, and said gage runners are also provided with rounded edges *j'* which allow the same to travel smoothly upon the ground and
 40 the same are also provided with the socketed bearing plates K secured upon the top edges thereof near the rear ends of the same and adapted to receive the ends of the threaded adjusting screws L working through the
 45 threaded perforations M through the forwardly extending ends C, and said screws terminate above the machine in the crank arms N by means of which the screw may be manipulated to press the gage runners J
 50 downward in order to have the machine cut a small depth of rut or by loosening the same allows the machine to cut as deep a rut as possible according to the nature of the ground or use to which the road-way is to be
 55 placed.

The construction and operation of the herein described road rut cutter is now thought to be apparent without further description.

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

1. In a road rut cutter, the combination of the runners having forwardly extending ends, curved rut cutting knives secured to and pro-
 65 jecting beyond the front ends of said runners, advance cutting knives secured to the

outer sides of the forwardly extending ends in advance of said rut cutting knives, mold boards secured at an angle to the outer faces of the runners in rear of the front ends thereof, and adjustable gage runners located directly in front of the rut cutting knives at one side of the advance knives, substantially as set forth.

2. In a road rut cutter, opposite parallel
 75 runners having forwardly extending ends, curved rut cutting knives secured to and projecting beyond the front ends of said runners, gage runners or shoes pivoted to the front ends of said forwardly extending run-
 80 ner ends, and means for adjusting said pivoted gage runners or shoes, substantially as set forth.

3. In a road rut cutter, opposite parallel
 85 runners having forwardly extending ends, curved rut cutting knives secured to and projecting beyond the front ends of said runners, advance cutting knives secured to the other side of the forwardly extending ends in advance of said rut cutting knives, mold boards
 90 in rear of the front ends of said runners, gage runners or shoes pivoted beneath and to said forwardly extending ends, and adjusting crank screws working through said extending ends and upon the top edges of said
 95 gage runners there-beneath, substantially as set forth.

4. In a road rut cutter, the combination with opposite parallel runners, having outer beveled concaved ends, of rut cutting knives
 100 secured to said beveled ends, the same comprising the straight forwardly and upwardly inclined cutting sides or edges secured to the inner faces of the runners and projecting beyond the inner front edges thereof, and the
 105 semi-circular groove or rut cutting portions fitting under and projecting beyond the bottom front ends of said runners, substantially as set forth.

5. In a road rut cutter, the combination
 110 with opposite parallel runners, of curved rut cutting knives secured to and projecting beyond the front ends of said runners, and mold boards secured at a rearwardly and outwardly extending angle to the outer faces of said run-
 115 ners and comprising forwardly and downwardly inclined ledges, to direct the material to the ground and straight back walls arising from the rear edges of said downwardly inclined ledges, to direct the cut material
 120 away from the ruts substantially as set forth.

6. In a road rut cutter, the combination with opposite parallel runners having forwardly extending ends, of rut cutting knives secured to the front ends of said runners and
 125 having straight forwardly inclined cutting edges secured to the inner faces of the runners and semi-circular groove or rut cutting portions projecting from under the bottom front ends of said runners, mold boards in rear of
 130 said rut cutting knives, advance cutting knives secured to the outer sides of the run-

ners in advance of the rut cutting knives
and parallel with and at the same angle to
the straight cut sides or edges thereof, piv-
oted gage runners or shoes secured beneath
5 said forwardly extending ends, and means
for adjusting said runners or shoes, substan-
tially as set forth.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

ORRIS CULVER.

Witnesses:

H. W. CANFIELD,
H. R. KING.