# S. GILZINGER.

## MACHINES FOR FORMING SLED-RUNNERS.

No. 195,813. Patented Oct. 2, 1877.

Fig: 1.

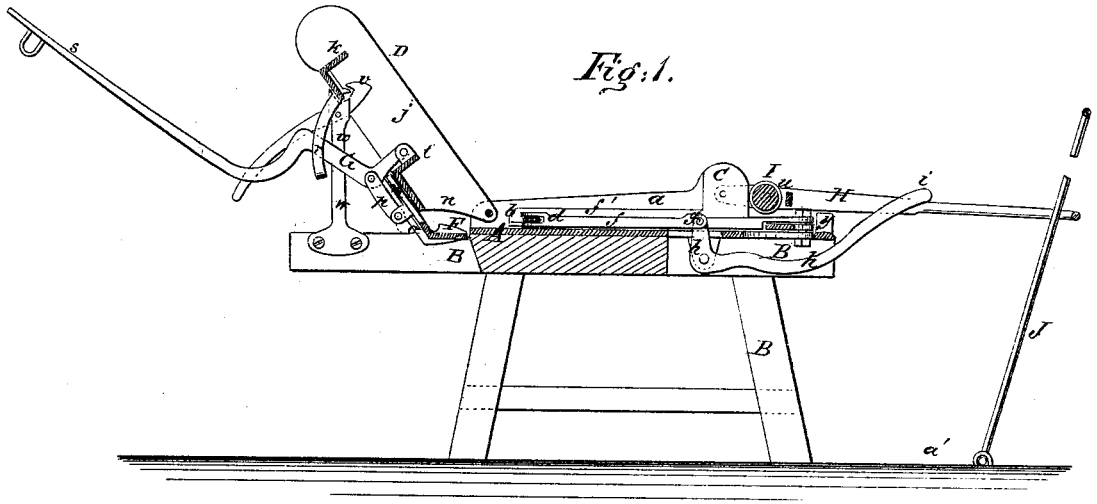


Fig: 2.

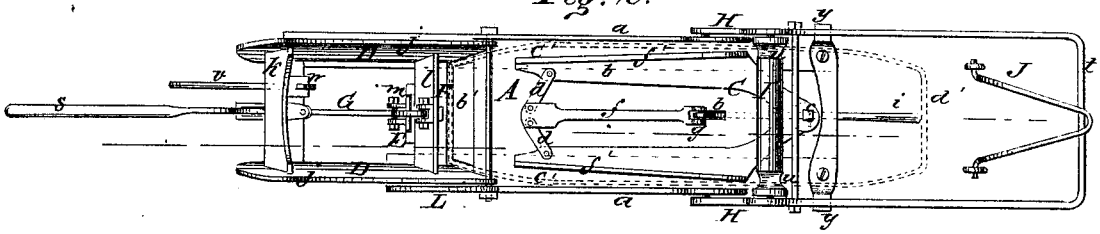


Fig: 5

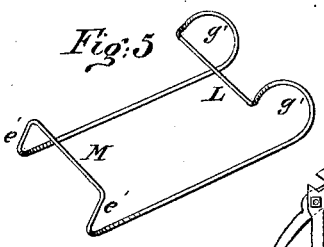


Fig: 3.

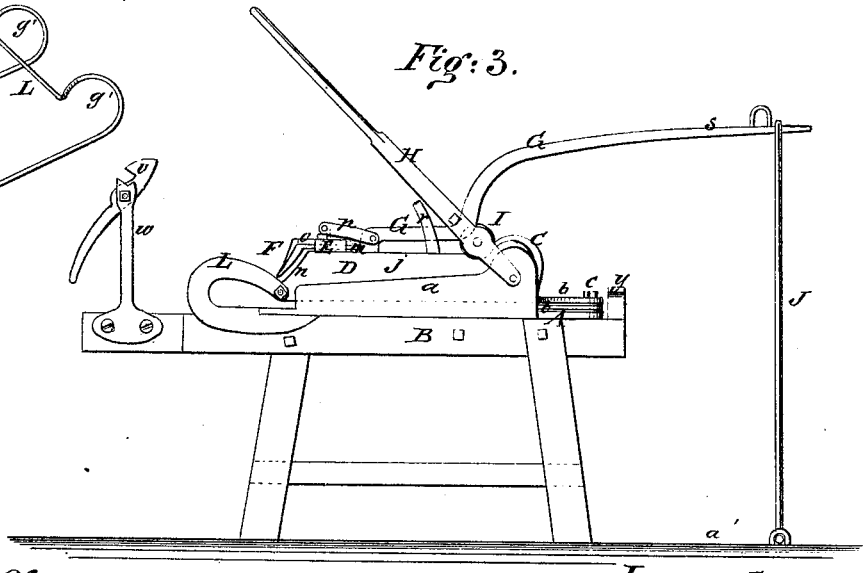
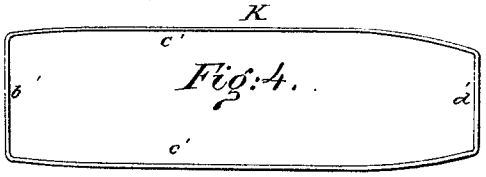


Fig: 4.



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# UNITED STATES PATENT OFFICE.

SEBASTIAN GILZINGER, OF RONDOUT, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO ABEL A. CROSBY, OF SAME PLACE.

## IMPROVEMENT IN MACHINES FOR FORMING SLED-RUNNERS.

Specification forming part of Letters Patent No. **195,813**, dated October 2, 1877; application filed January 26, 1877.

*To all whom it may concern:*

Be it known that I, SEBASTIAN GILZINGER, of Rondout, in the county of Ulster and State of New York, have invented a new and useful Machine for Forming Sled-Runners, &c.; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

This invention relates to a machine for manufacturing sled irons or runners for sleds, together with their braces, from iron; and the invention consists of a machine for making sled-runners from a piece of metal or blank, consisting of a bed-plate with sides of a given shape at right angles thereto; an adjustable clamping device resting on the bed-plate, constructed to operate as a clamp to confine the rod or blank from which the sled-runners are to be made to the inner sides of the bed-plate; and a former consisting of two side pieces which are of the exact size and form it is desired the runners shall be, said former being hinged at the rear of the bed-plate, so as to shut into or between the sides of the bed-plate and the clamping device before described, the former having secured to its rear end a movable bending-plate, which combines with the first-mentioned or main former to give the necessary curve or angle to the rear posts of the runners, which last-mentioned bending-plate, as well as the main former before named, is operated by a lever, and the front of the sides of the bed-plate being constructed with a lever and roller, or similar devices, with which the front curves of the runners are made by bending the blank with the roller, and by aid of the lever, over the front ends of the hinged former.

In the accompanying sheet of drawings, Figure 1 is a side elevation of my machine, partly in section, showing the hinged former thrown back for the introduction of the blank; Fig. 2, a plan or top view of same, showing blank inserted therein; Fig. 3, a side elevation, showing the former closed into the sides of the bed-plate, and the roller and lever thrown back; Fig. 4, a plan view of the blank; and Fig. 5, a perspective view of the sled-runners and braces complete.

Similar letters of reference indicate like parts in the several figures.

As stated above, this invention applies more particularly to the manufacture of sled-runners and braces made entire and complete from a piece of metal. That such sled runners may be perfectly made, and at small cost, I construct a machine with a bed-plate, A, properly supported on frame-work B, to which it is firmly secured. This bed-plate is made from cast-iron or other suitable material, and is provided with sides *a a*, cast with or otherwise secured to it. These sides may have a form that shall generally resemble the outline of the sled-runners it is designed to make, or they may be of any other desirable or suitable form. Within the bed-plate A is fitted a clamping device, C, which consists of two angle-irons, *b b*. These angle-irons, or that part of them which forms their sides *f'*, are made to conform, in some degree, to the general shape of the sled-runner, so far as the curved front portion of the runners is concerned. The front ends of these angle-irons, forming the clamping device, extend to the front end of the bed-plate, to which they are secured by a pivotal bolt, *c*, and at or near the rear ends of the angle-irons of the clamping device are affixed two levers, *d*, which levers have their inner ends in turn affixed to one end of a connecting-rod, *f*, forming a toggle. The other end of the connecting-rod *f* is connected by a pivotal bolt, *g*, to a lever, *h*, which passes up through the bed-plate A, and thence is bent at right angles, or nearly at right angles, below the supporting-frame B, terminating in a curved handle, *i*, forming an operating-lever.

Secured to the rear end of the bed-plate A, by a suitable hinge joint or joints, is a former, D. This former consists of two sides, *j j*, which are in size and form exactly that of the runners it is designed to construct on the machine—that is, their front ends are curved to the exact curve that the runners are to have, and their rear ends are curved or angular to the exact curve or angle that the rear brace of

ıe runners are to have. Their width corre-
ponds to the distance between the runners
roper and the upper transverse braces of the
ed, and their thickness approximates to the
iameter or size of the iron from which the
led-runners are to be constructed, and they
re so fitted together that their upper edges
hall incline slightly toward each other at an
ngle that represents the flare or spread of the
unners, so that it will be seen this former is
ubstantially in form and proportion a coun-
erpart of the sled runners and braces. The
ides *j j* are connected together on their upper
urfaces by transverse plates *k* and *l*. To the
earmost one of these plates *l* a slideway, E,
s secured, into which is fitted a sliding block,
, and to the rear end of this sliding block is
ttached a bending-plate, F. This bending-
late F has its inner surface curved or made
ngular, its angle or curve corresponding with
he angle or curve *n* at the rear end of the sides
*j*. To the front or other end of the sliding
lock *m*, or rather to that portion of a pin, *o*,
f the block, which projects above the surface
f the slideway E, is secured one end of a link,
, the other end of the link being secured to a
ever, G, one end of this lever being bent at
ight angles and attached to the rear trans-
erse plate *l*, and then, passing through a
uiding-arc, *r*, attached to the front transverse
late *k*, it is again bent at or nearly at right
ngles, and extends well over the entire ma-
hine, forming a convenient grasping-handle,
as at *s*.

In securing this former D to the bed-plate one of its sides may be bolted to the rear of the bed-plate, and its other side bolted to a ⊂-shaped plate, L, as shown in Fig. 3. At or near the front ends of the sides *a a* of the bed-plate are secured, by pivotal bolts or otherwise, the arms of a double lever, H, the outer ends of these arms being connected by a cross-brace, *t*, so that the lever forms, in fact, a large link, as shown in Fig. 2; and between the arms of this lever, and nearly in contact with the curved front ends of the sides *a a* of the bed-plate and the curved front ends of the angle-irons *b b* of the clamping device C, is fitted a roller, I. This roller is fitted between the arms of the lever, so as to turn freely on journals, and it has recesses *u u* turned into its surface and near its ends. To the rear of the frame-work supporting the bed-plate, and well at the rear of the bed-plate itself, is secured a catch, *v*, supported on a standard, *w*, and to the aforesaid frame-work, and at the front of the bed-plate, are secured stops *y*, on which the lever H may rest when in the position shown in Fig. 2.

To the foundation *a'*, or to some other convenient and suitable support, is affixed a clamp, J.

Now, my machine being constructed substantially as I have described, it is operated by first forming a blank, K, as shown in Fig. 4. This blank is made from iron or steel, or any other suitable metal, of the form shown in Fig. 4, and its ends may or may not be welded together. This blank, having been previously heated to a red heat, is inserted onto the bed-plate A, with its end *b'* passing beyond the point at which the former D is hinged, or attached to the rear end of the bed-plate and over the inner curved surface of the bending-plate F, the sides *c'* of the blank lying into the space formed between the vertical sides *f'* of the angle-irons *b b*, forming the clamping device C and the sides *a a* of the bed-plate, the front end *d'* of the blank K protruding beyond the front end of the bed-plate, as shown in Fig. 2, and over and into the recesses *u u* of the roller I, which, with the lever H, is in the position shown in Fig. 1, and resting on the stops *y*. The end of the lever *h* is then depressed, which, by the operation of the connecting-rod *f* and levers *d*, forming a toggle, expands or throws outward the vertical sides of the angle-irons *b b*, tightly clamping the sides of the blank K between the angle-irons and the sides *a a* of the bed-plate. The lever G is next pressed by the hand upward, which forces the rear end of the blank tightly between the inner curved surface of the bending-plate F and the curved or angular rear ends *n* of the side pieces *j j* of the former D, thus forming the rear braces *e' e'* of the sled-runners, the catch *v* keeping the former D rigidly in position for this purpose. The pressure still being maintained on the lever G, the former is disconnected from the catch *v*, and it (the former D) is turned down into the bed-plate A, the vertical sides *j j* of the former passing between the vertical sides *f'* of the angle-irons *b b* of the clamping device C and the sides *a a* of the bed-plate A, pressure still being maintained on the lever G by means of the clamp J, which is hooked over the end of said lever, as shown in Fig. 3. The double lever H is next raised upward and backward, forcing the protruding end *d'* of the blank K around the curved front ends of the sides *j* of the former, making the blank conform exactly, as at *g' g'*, to the curvature of these ends, and also making the proper curve at the point of attachment of the front brace L with the upper ends of the runners. This front brace and the rear brace M are formed by the ends *d'* and *b'*, respectively, of the blank K.

The blank having now received its proper form, the clamping device C is released from the runners, the clamp J from the end of the lever H, the former D is turned back to the position shown in Fig. 1, the sled runners and braces, now fully formed, adhering to and surrounding the sides of the former D, when the runners are slipped off from the sides of the former, (the ⊂-shaped connection or plate permitting this,) and the runners and braces are complete, as shown in Fig. 5, and ready for the top board. The runners receive the proper flare or spread from the flare or spread of the side pieces of the former, which are made to flare for that purpose, as before stated.

It is obvious that some slight modifications

in the general construction or in the details of the machine above described may be made without materially changing the spirit or chief points of my invention, which I claim as follows:

1. A machine for forming sled runners and braces of metal, consisting of a bed-plate with vertical sides, and provided with a clamping device composed of two legs, secured by a pivotal bolt which unites their front ends together, and resting on the bottom of the bed-plate, and operated by a lever passing beneath the bed-plate, and extending to the front of the same, combined with a former consisting of two parallel sides of the exact dimensions and shape of the runners and braces of the sled to be formed, the rear end of the former being hinged to the rear of the bed-plate, and having secured at its rear end a movable bending-plate, substantially as and for the purpose described.

2. In a machine for forming sled runners and braces of metal, a former of the exact size and shape of the runners and braces to be formed, combined with a movable bending-plate hinged to the rear ends of the sides of the former, and provided with a sliding plate and operating-lever, the inner face of said bending-plate being of the same curve or angle as are the rear ends of the sides of the former, substantially as and for the purpose described.

3. In a machine for forming sled runners and braces of metal, a former with two sides of the shape and dimensions of the sled runners and braces to be bent thereon, combined with a bending-plate hinged to the rear ends of the sides of the former, the bending-plate extending across from one of the sides of the former to the other, and accurately fitting the curve or angle of the ends thereof, substantially as and for the purpose described.

4. In a machine for forming sled runners and braces of metal, a clamping device secured to a bed-plate with vertical sides, and consisting of two legs with vertical sides united at one end by a pivotal bolt and at the other end by two levers and a connecting-rod, substantially as and for the purpose described.

5. The curved plate L at the rear of the bed-plate, for giving a hinged support to one of the two former-plates, as shown and described.

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