

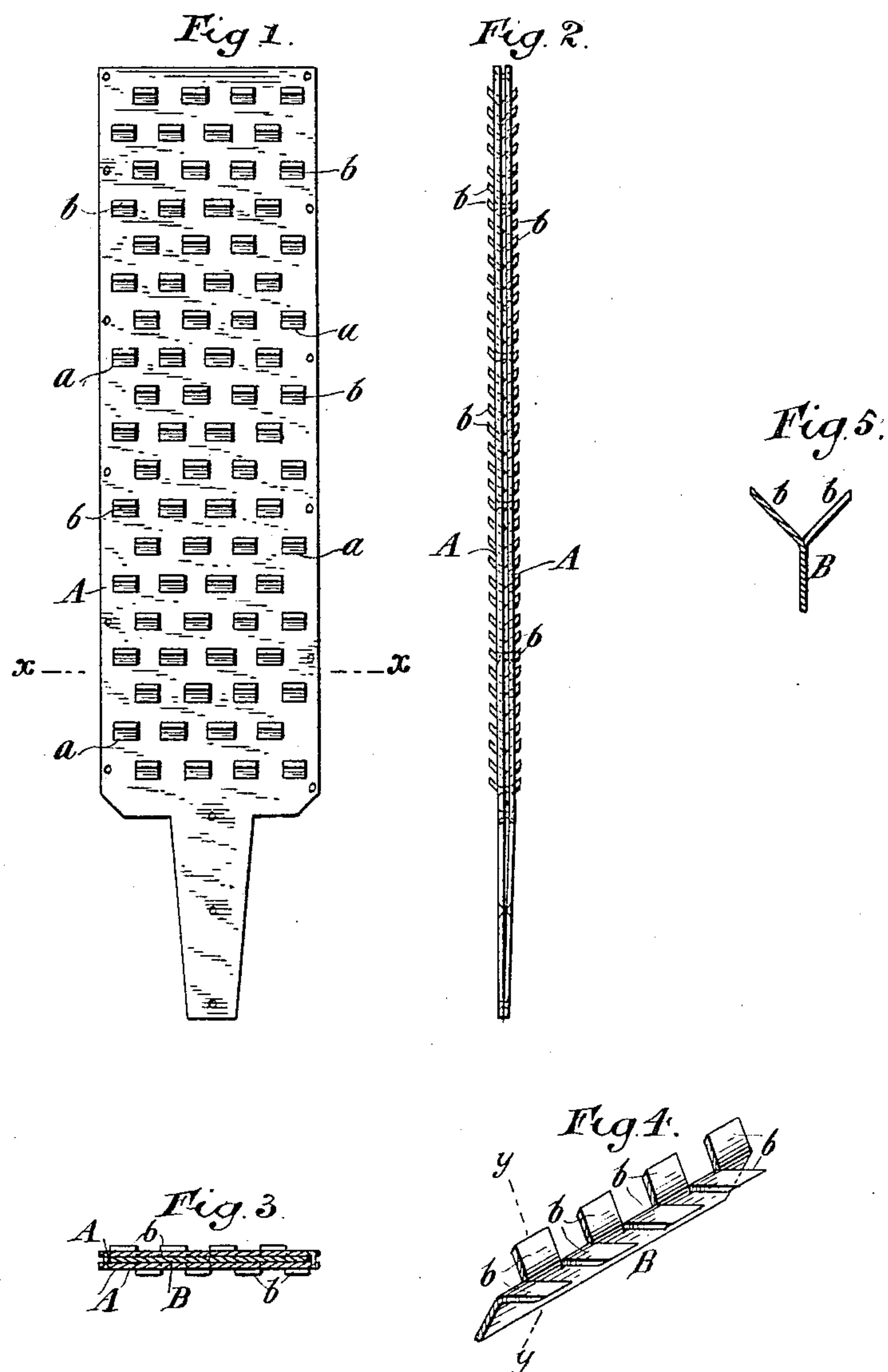
(No Model.)

R. VOLLSCHWITZ.

RASP.

No. 379,620.

Patented Mar. 20, 1888.



Witnesses.  
James D. Griswold,  
Maurice J. Roach.

Inventor,  
R. Vollschwitz,  
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# UNITED STATES PATENT OFFICE.

RUDOLPH VOLLSCHWITZ, OF HOBOKEN, NEW JERSEY.

## RASP.

SPECIFICATION forming part of Letters Patent No. 379,620, dated March 20, 1888.

Application filed May 26, 1887. Serial No. 239,381. (No model.)

*To all whom it may concern:*

Be it known that I, RUDOLPH VOLLSCHWITZ, of Hoboken, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Rasps, of which the following is a specification.

My present invention is an improvement on the rasp which is the subject of Letters Patent of the United States granted to me April 18, 1883, No. 285,185.

I will describe my improvement in detail, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a side view of a rasp embodying my improvement. Fig. 2 is an edge view thereof. Fig. 3 is a transverse section thereof, taken on the plane of the line *x x*, Fig. 1. Fig. 4 is a view of certain rasp-teeth and a plate with which they are formed, constituting part of my invention. Fig. 5 is a transverse section thereof, taken at the plane of the line *y y*, Fig. 4. Figs. 4 and 5 are on an enlarged scale.

Similar letters of reference designate corresponding parts in all the figures.

A designates flat metal plates. These plates are perforated, as shown, by parallel rows of perforations *a*, extending at right angles to the length of the plates. Preferably the perforations of one row are opposite the spaces between the perforations of the next adjacent row or rows.

B designates plates of metal provided with teeth *b*, which constitute, when in position, the cutting portions of the rasp. These teeth are integral with the plates B, and are formed by making incisions with any suitable tool in one of the side edges of the plate, which incisions by preference extend to about midway in the width of the plates and at right angles to the lengths thereof. The incisions having been made, the portions of metal between them are bent at angles to the direction of the width of the plates. A portion of the teeth are bent in one direction and a portion in the other, and I prefer that alternate teeth shall be bent in opposite directions, as shown more clearly in Fig. 4. The number of incisions may be such that an equal number of teeth will extend in each direction. As shown more clearly in Fig. 5, the teeth are bent at such an angle to the plates B as that a cross-section of the plate

and teeth will be approximately Y-shaped. The plates B are placed between the plates A in such manner that the teeth *b* upon one of the sides of the plates B will extend through the perforations *a* in one of the plates A, and the teeth *b* upon the other sides of the plates B will extend through the perforations *a* in the other of the plates A. When a sufficient number of the plates B have been placed between the plates A, so that all the perforations *a* have received teeth *b*, the plates A are riveted together firmly, whereby the plates B are securely clamped between the plates A and prevented from movement. The teeth of alternate rows occupy positions opposite the spaces between the teeth of the next adjacent row or rows, and when bent in the manner indicated incline toward the forward end of the rasp, as shown more clearly in Fig. 2.

If desired, the teeth *b* may be sharpened before being placed between the plates A; but they may be sharpened afterward. I prefer to so sharpen them that their tops or outer ends shall have surfaces approximately parallel with the surfaces of the plates A.

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

1. As a new article of manufacture, a rasp comprising metal plates provided with rows of perforations, other plates provided with rows of teeth bent from the plates last named, the teeth of one row being bent in an opposite direction to the teeth of the other row, said last-named plates being arranged in such manner that the teeth thereof will extend through said perforations after the first-named plates have been secured together, substantially as specified.

2. As a new article of manufacture, a rasp comprising metal plates provided with rows of perforations extending at approximate right angles to the lengths of the plates, the perforations of one row being opposite the spaces between the perforations of the next adjacent row or rows, other plates provided with rows of teeth bent from the plates last named, the teeth of one row being bent in an opposite direction to the teeth of the other row, said last-named plates being arranged between the first-named plates in such manner that the teeth thereof will extend through said perforations



after the first-named plates have been secured together, substantially as specified.

3. As a new article of manufacture, a rasp comprising metal plates provided with rows of perforations, other plates provided with rows of teeth bent from the plates last named, the teeth of one row being bent in an opposite direction to the teeth of the other row, said last-named plates being arranged between the first-named plates in such manner that the teeth thereof will extend through said perforations after the first-named plates have been secured together, said teeth being so bent that when thus placed they will extend at an incline toward the forward end of the rasp, substantially as specified.

4. As a new article of manufacture, a rasp comprising metal plates provided with rows of

perforations, other plates provided with rows of teeth bent from the plates last named, the teeth of one row being bent in an opposite direction to the teeth of the other row, said last-named plates being arranged between the plates first named in such manner that the teeth thereof will extend through said perforations after the first-named plates have been secured together, the surfaces of the tops or outer ends of such teeth being approximately parallel with the surfaces of the plates first named, and said teeth being so bent that when thus placed they will extend at an incline toward the forward end of the rasp, substantially as specified.

RUDOLPH VOLLSCHWITZ.

Witnesses:

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M. J. ROACH.