G. A. KELLER.

MACHINE FOR MAKING GRATINGS.

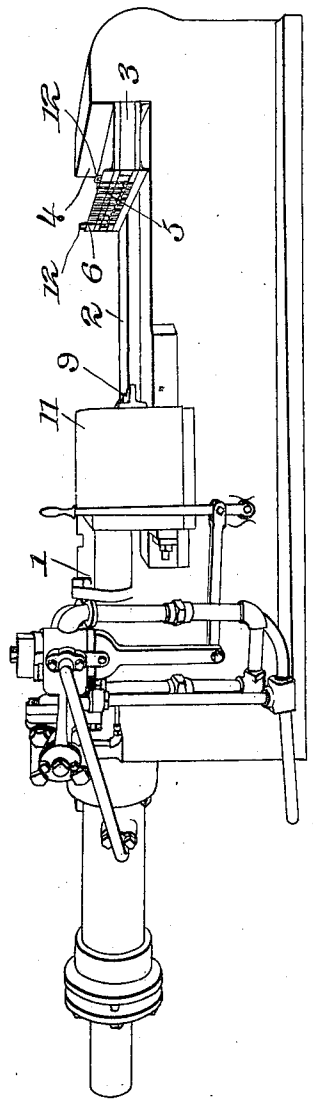
APPLICATION FILED MAR. 27, 1912.

1,051,119.

Patented Jan. 21, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

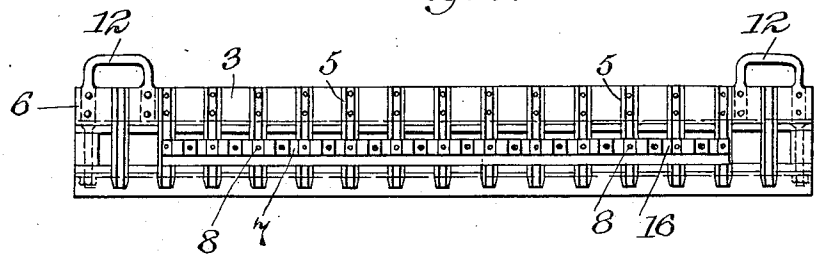


Fig. 3.

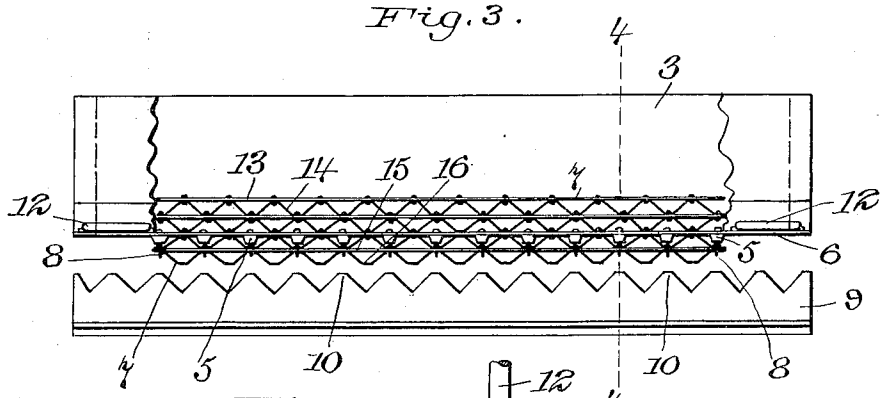


Fig. 4.

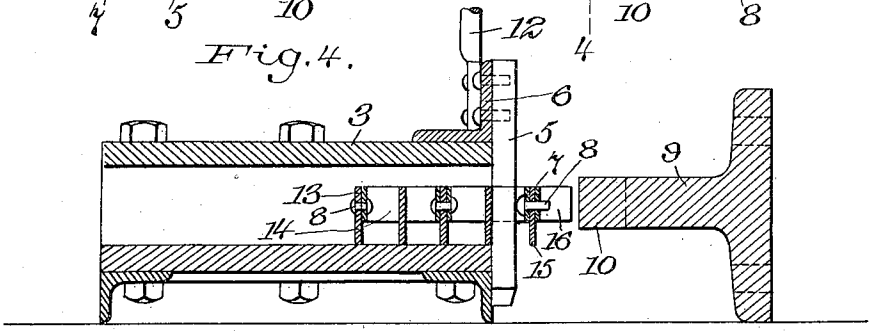
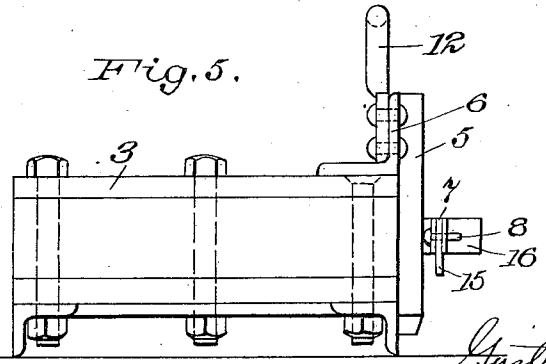


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING GRATINGS.

1,051,119. Specification of Letters Patent. Patented Jan. 21, 1913.

Application filed March 27, 1912. Serial No. 686,664.

To all whom it may concern:

Be it known that I, GUSTAV A. KELLER, a citizen of the United States of America, residing at New York city, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Machines for Making Gratings, of which the following is a specification.

My invention relates to the manufacture of metal gratings and is specifically designed to rapidly and economically rivet together the elements of a built-up reticulated grating of the kind described in my copending application Serial No. 686,663 filed of even date herewith. Such grating is composed of alternate straight and zig-zag bars or strips of iron which are riveted together at every point of contact. If the multiplicity of rivets so used are headed up individually it consumes much time and labor. It is also difficult to get a satisfactory anvil or support for the rivets while being upset by hand labor in position in the grating. I have invented a machine which rapidly and accurately heads up these rivets, operating upon all the rivets in a given section of grating at the same time.

The best form of apparatus embodying my invention at present known to me is illustrated in the accompanying two sheets of drawing in which—

Figure 1 is a perspective view of the entire machine in operative position in a press. Fig. 2 is a front elevation of the mechanism removed from the press. Fig. 3 is a plan of the same, parts being broken away. Fig. 4 is a cross section on line 4—4 of Fig. 3, and Fig. 5 is an end elevation without the plunger.

Throughout the drawings like reference characters indicate like parts.

1 is a reciprocating power press of the kind called a "bulldozer", operated by fluid pressure, on the bed 2 of which the particular mechanism comprising my invention is placed.

3 is a box shaped housing which is open at the front, and usually also at the back, as shown in Fig. 4. This rests on bed 2 of the press and against the back plate 4.

A series of parallel bars 5, 5, shaped in cross section to conform to the mesh of the grating to be formed, are fastened to an angle iron strip 6, so as to hang down across the open front of the housing 3, passing through the meshes of grating 7, in process of manufacture, and serving as anvils against which the heads of rivets 8, 8, may rest. 9 is a plunger with a plurality of heads 10, 10, so located and spaced as to press against the other ends of the rivets 8, 8, when forced toward the housing by motion of the press piston 11. The angle strip 6 has handles 12, 12, by which it may be raised and lowered.

In the operation of my invention the bars or strips for forming the grating 7 are first bent and punched ready for assembling. One section is formed by hand riveting, composed of a straight bar 13 and a bent strip 14, riveted together, and the grating is built up to any desired width from this by the machine above described. The finished portion of the grating is slid back into the interior of the housing as it is formed, as indicated in Figs. 3 and 4. A pair of bars or strips, 15 and 16, to form a new panel or section of the grating, are assembled at the front of the grating and loosely pinned to it by inserting rivets 8, 8. The anvils 5, 5, are then inserted through the meshes of the grating behind these rivet heads. Fluid under pressure, steam, water or compressed air, being forced into cylinder 17 of the press, the piston is driven out, forcing the heads 10, 10, of plunger 9 against the rivets 8, 8, upsetting the same and so fastening the strips 15 and 16 to the grating. The piston is then pulled back and the plunger 9 with it. The angle iron 6 and attached anvils 5, 5, are lifted up so the anvils clear the grating, another set of strips are connected to it by loose rivets to form another section, the grating is slid back into the housing far enough to permit the anvils to be inserted behind the loose rivets of the new section, the plunger is forced against the rivets again and the above described operation repeated. By a few repetitions of this operation, the grating may be rapidly built up to the desired width, the riveting being performed evenly and expeditiously.

Having, therefore, described my invention, I claim:

1. The combination of a box shaped housing adapted to receive a partly formed grating, and a series of parallel anvils supported on a strip and adapted to be hung across the open face of said housing and pass through openings in said grating behind the rivets

mounted therein, of a reciprocating plunger provided with a plurality of heads adapted to press upon the exposed ends of said rivets.

2. The combination with means for supporting a partly formed grating and the headed ends of the rivets for connecting it to an additional section, of a reciprocating plunger provided with a plurality of projections for pressing against the other ends of said rivets, said above mentioned means comprising a series of anvils adapted to extend through the meshes of the grating behind the rivets and conforming in cross section to said meshes.

3. The combination of a box-like housing open front and back and provided with supports for maintaining it in a horizontal position, a series of anvils depending from an angle iron and adapted to be hung across the face of the housing, and a horizontally reciprocating plunger provided with a series of heads spaced to coöperate with the above mentioned series of anvils.

4. The combination with a hollow housing for the reception of a partly formed grating of a series of cross pieces for insertion in the grating behind the rivets coöperating with said housing, and a reciprocating plunger provided with a plurality of projections for pressing against the other ends of said rivets, together with means for reciprocating said plunger.

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