

W. CLARKE.

Bed Plate.

No. 6,784.

Patented Oct. 9, 1849.

Fig. 1.

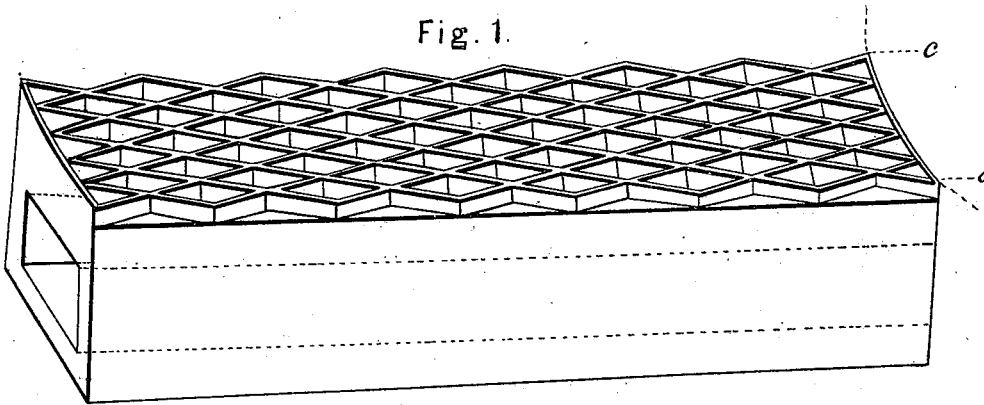


Fig. 2.

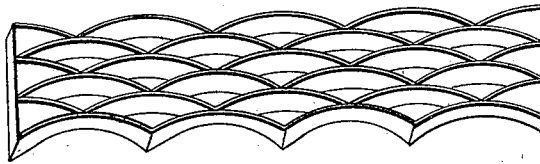
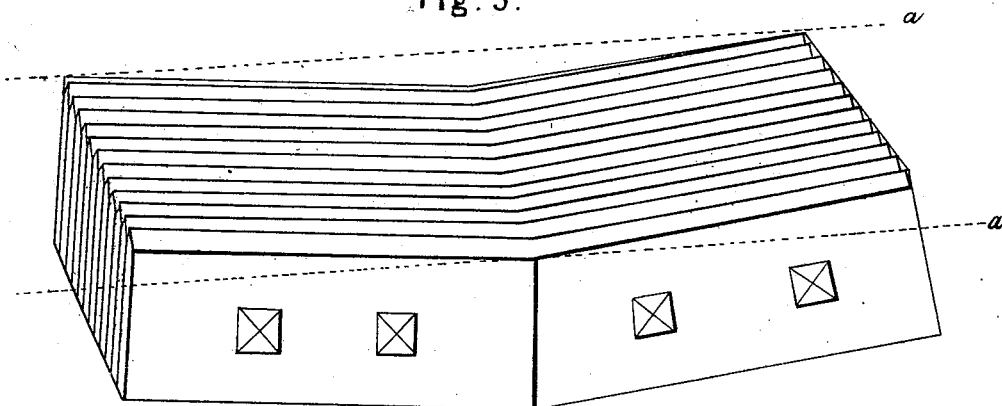


Fig. 3.



# UNITED STATES PATENT OFFICE.

WILLIAM CLARKE, OF DAYTON, OHIO.

## BED-PLATE FOR PAPER-ENGINES.

Specification of Letters Patent No. 6,784, dated October 9, 1849.

*To all whom it may concern:*

Be it known that I, WILLIAM CLARKE, of the city of Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Improvement in Machines for Grinding Rags for the Manufacture of Paper, which I call "Clarke's Castiron Rag-Engine Bed-Plate"; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the drawings (Figures 1 and 2) annexed.

The bed plates used for engines for grinding rags heretofore, have been made so as to present a cutting surface composed of a series of upright steel knives or plates, with one obtuse angle, midway of the entire length of the plates, or in elbow form, the plates being bolted together, as represented in Fig. 3. My improvement consists both in the form of the plate, and the material of which it is made. I make it of castiron, and in one piece, as represented in Fig. 1, the knives or grinding edges and the bed on which they rest being all cast together. The bed in my improvement is straight, and may be either solid or hollow; but for cheapness and ease of handling had better be hollow, as represented in the figure. The knives, instead of being arranged in a parallel series, and with only one angle, as in the machines heretofore used (see Fig. 3), have in my improvement the edges arranged so as to form diamond or lozenge shaped figures (as in Fig. 1), or a number of curves (as in Fig. 2), and thus a greater number of cutting or grinding edges and angles are presented to receive the rags as they pass. The upper surface made by the grinding edges or knives is slightly curved downward (as seen in Fig. 1), so as to be adapted to the shape of the parallel roller, which turns upon it, making an even space or interstice for the rags to pass through as they are ground between these edges and the cylindrical surface of the roller revolving above and upon them.

In the operation of the engine, it will be seen that the roller comes in contact with more grinding surface, in passing over my bed plate, than in the old form, while it travels less distance and requires less power; for the roller on the old elbow bed plate must revolve from *a* to *a*, as represented by the two dotted lines in Fig. 3, in order to come in contact with, or traverse, the entire

grinding surface; while on my bed plate, being straight, the distance passed over by the roller, in revolving, is only equal to the width of the plate at either end, as represented by the dotted lines *c c*, and it is therefore in contact with the whole surface of edges, and grinding on the whole surface at the same time, and there is no waste of power.

The size of the bed plate, of my invention, is twenty-four inches long, five inches wide, and four and a half inches deep exclusive of the depth of the knives or edges which is one inch more; but such bed plates may be varied in size and cast of any other dimensions to suit the size of the rag engines in which they are to be used.

Some of the particular advantages of my improved bed plate, and which I have fully and satisfactorily tested and proved by experiments which I have made with it, are these: 1. It distributes the rags evenly over the whole surface of the plate in grinding, and passes them successively over a greater number of shears or edges, each diamond or curve presenting its own angle. 2. The engine can be "furnished" without clogging or choking as it does on the old elbow plate, where the rags have a tendency to gather at the one angle of the shears or edges in the center. 3. It will grind rags faster; or grind the same quantity with less power than has to be used with the old bed plate. 4. It makes the pulp of a more even and uniform consistency. 5. The pulp is not cut as short as by the steel knives heretofore used, but the fiber being drawn out and ground or mashed, the paper manufactured from it is of much stronger texture. 6. It answers better for the grinding of all soft material for making paper, such as macerated straw &c. 7. It is much lighter and easier handled, and can therefore at any time be placed under the roll or removed, as convenience may require, for making repairs or other purposes. 8. While my bed plate is so greatly superior in its effects and advantages to any heretofore used, its cost is much less. The bed or set of steel plates weighs generally from 140 to 150 pounds, and costs from 18 to 25 cents per pound; and mine of cast iron and of one piece, weighs about 90 pounds, and costs five cents per pound, being less than one-sixth of the expense.

What I claim as my invention, and desire to secure by Letters Patent, is not the

construction or use of a rag engine bed plate with upright edges or knives, made of steel plate, and bolted together, and which has heretofore been in use for grinding rags;  
5 but—

What I do claim, is—

Casting the bed plate of the paper engine in one piece having the cutting or grinding edges arranged over the surface of the plate  
10 in diamond or lozenge shaped figures, or

in curves, so as to present a number of angles or shearing edges for the rags to pass over between that surface and the roller above, in the manner and for the purpose set forth.

WILLIAM CLARKE.

Witnesses:

ROBT. C. SCHENCK,  
WILBUR CONOVER.