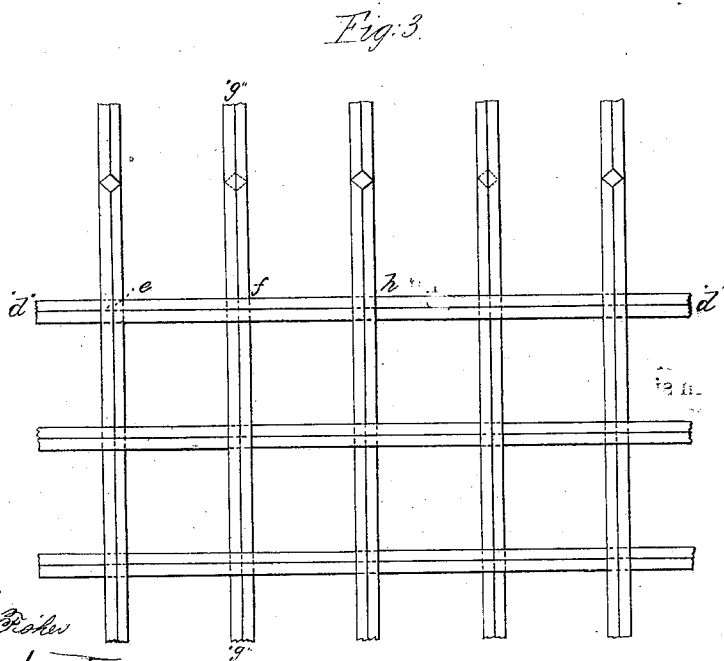
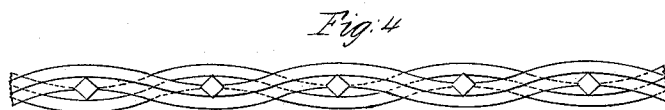
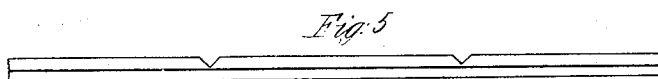
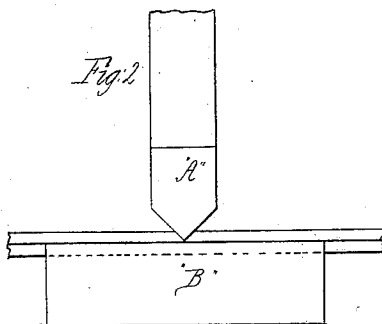
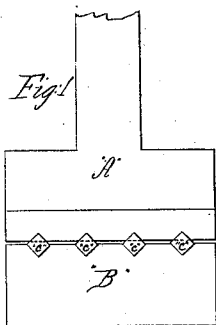


# J. Laubenstein, Coal Screen.

N<sup>o</sup> 34,306.

Patented Feb. 4, 1862.



Witnesses:  
Hammle Poles  
Levi Laubenstein

Inventor

Jonas Laubenstein

# UNITED STATES PATENT OFFICE.

JONAS LAUBENSTEIN, OF MINERSVILLE, PENNSYLVANIA.

## IMPROVEMENT IN COAL-SCREENS.

Specification forming part of Letters Patent No. 34,306, dated February 4, 1862.

*To all whom it may concern:*

Be it known that I, JONAS LAUBENSTEIN, of the borough of Minersville, in the county of Schuylkill, State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Wrought-Iron Screens for the Screening and Sifting of Coal and other Substances; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

Screens for the screening of coal and other hard substances which have to be prepared and assorted in pieces of considerable size and in large quantities are now made of cast-iron by casting the meshes and segments of the proper sizes and shapes, and of woven wire in the ordinary manner of weaving, and also of woven wire which is first prepared by crimping by a process patented by one Henry Jenkins in March, 1847. Although cast-iron screens retain the shape of the mesh, they soon become so polished by use on the surface of wear that the lumps or pieces of coal or other substances to be screened slide too easily over the meshes and are carried forward so quickly that the sizes are not sufficiently and properly separated. This evil is so great that notwithstanding their superior durability but a small number of these screens are used. In screens where the wire of which they are made has been merely woven into shape without any previous preparation the meshes soon lose their uniformity of shape and the coal or other substances prepared becomes irregular in size and the screen useless for the purpose intended. In screens made by crimping the wire previous to weaving, as made under the patent of Henry Jenkins, the objections to the screens manufactured by both the other methods above mentioned are to a certain extent avoided. The coal does not slip or slide so easily as in a cast-iron screen, and the meshes do not become irregular as quickly or as easily as in screens made of wire merely woven without any previous preparation; but these evils do still exist in screens prepared under that patent to a considerable extent. The smooth surface of the wire will permit the coal in some degree to slip or slide over the meshes

and not be turned or rolled by them, which is the motion best adapted to the proper preparation of coal, and the large mass of material passed over such screens at considerable speed soon makes the wire forming the meshes slide on the round point of contact from one-sixth to one-eighth of an inch, and the value of the screen is at once impaired.

My improvement in the manufacture of screens consists, first, in the use of square wrought-iron rods either drawn or rolled and of such thickness as is required, generally from one-eighth to three-eighths of an inch thick. In the methods of making screens either by weaving alone without any previous preparation or under Jenkins's patent, as above described, round iron or wire has always been used, and necessarily so, as these screens cannot be made of any other kind; but it will be seen from the following description of my manufacture of screens that the use of square iron is necessary to obtain the requisites desired.

To enable others skilled in the art of screen-making to make and use my improved screens, I will proceed to describe the manner of making them.

The square rods to be used are each of them first notched on an angle or corner with V-notches, which notches are all made on the same angle or corner and are placed apart twice the length or size of the mesh. These notches are made by the use of a diamond or V punch A, Figures 1 and 2, and not by cutting out the metal. A solid piece of iron B, Figs. 1 and 2, some three inches wide, four long, and two thick, has three or four V-grooves *c c c*, Fig. 1, cut in it. The rods to be prepared are laid in these grooves on an angle or corner. The diamond or V punch is of such size as to cover and punch each rod on the block B at one stroke. The block, rods, and punch are put in a punch-machine, and the rods are then cut nearly to the plane of the block B, about as seen in Figs. 1 and 2, say one-third of the thickness of the rod from angle to angle. The notches are made accurately of the proper distance apart, and the work expedited by the use of a gage on the punch-machine. All the rods used are prepared in the same way. If the meshes are to be square, the notches are made equidistant

on the longitudinal and cross rods. If of a rectangular shape, the distance apart of the notches on the cross-rods and longitudinal rods will of course be made to accommodate to such shape; and it will be perceived that the shape of the mesh can be easily changed by making the notches at different angles to the length or line of the rod. In the ordinary square and rectangular mesh the notch is necessarily made at right angles to the length of the rod. The rod as prepared previous to weaving is shown in Fig. 5. After the rods are thus prepared or so prepared by any other of the numerous means which any mechanic can suggest and adapt thereto they are woven together by hand into the desired shape, and in doing this the rods must be so placed that all the notches of both the longitudinal and cross rods present themselves or face toward the same side of the screen. In Fig. 3 the notches are all facing upward. Take the rod *d d* in this figure. At *e* the rod is notched. At *f* the notch is in the rod *g g*, and the rod *d d* is at this point solid. At the point *h* the rod *d d* is notched and the top rod remains solid, and the same operation occurs throughout the screen, as is seen in Fig. 3, in which at the point of contact the dotted lines represent the rod cut or notched, and the con-

tinuous lines the unnotched part of the rods. The solid or unnotched parts of the rods are thus presented all on the one side and the notched parts of the rod on the other.

In making screens for use the solid side is made the inside or side of wear. It will be seen that in this arrangement the angle or sharp corner of the rod is alone presented to the substances passing over the screen.

In Fig. 4 will be seen an end view of a section of the manufactured screen after weaving.

The screen when thus prepared is made in segments or sections, as found necessary in the ordinary method.

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

An improved manufacture of screens for the screening and preparing of anthracite coal or other coals and hard substances similarly handled and prepared, substantially as above described.

And I do not claim as my invention any of the mechanical contrivances or machines used in the making of these screens.

JONAS LAUBENSTEIN.

Witnesses:

HOWELL FISHER,  
L. LAUBENSTEIN.