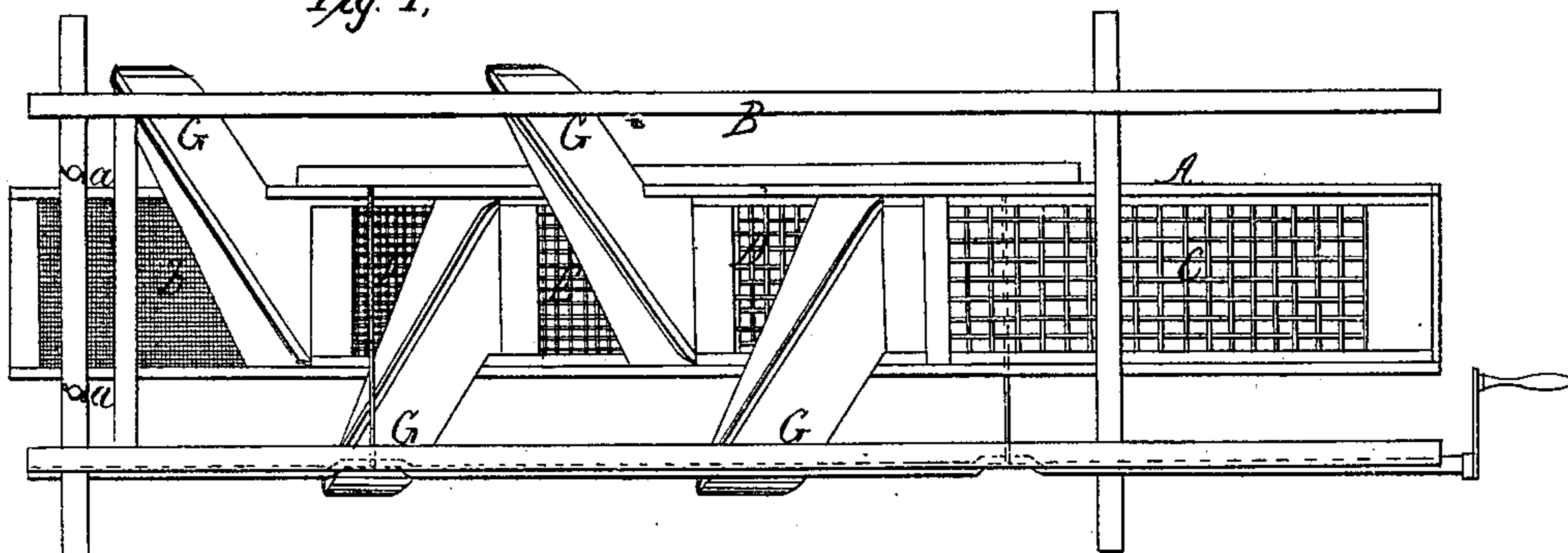


G. E. HOYT & F. NISHWITZ.  
COAL SCREEN.

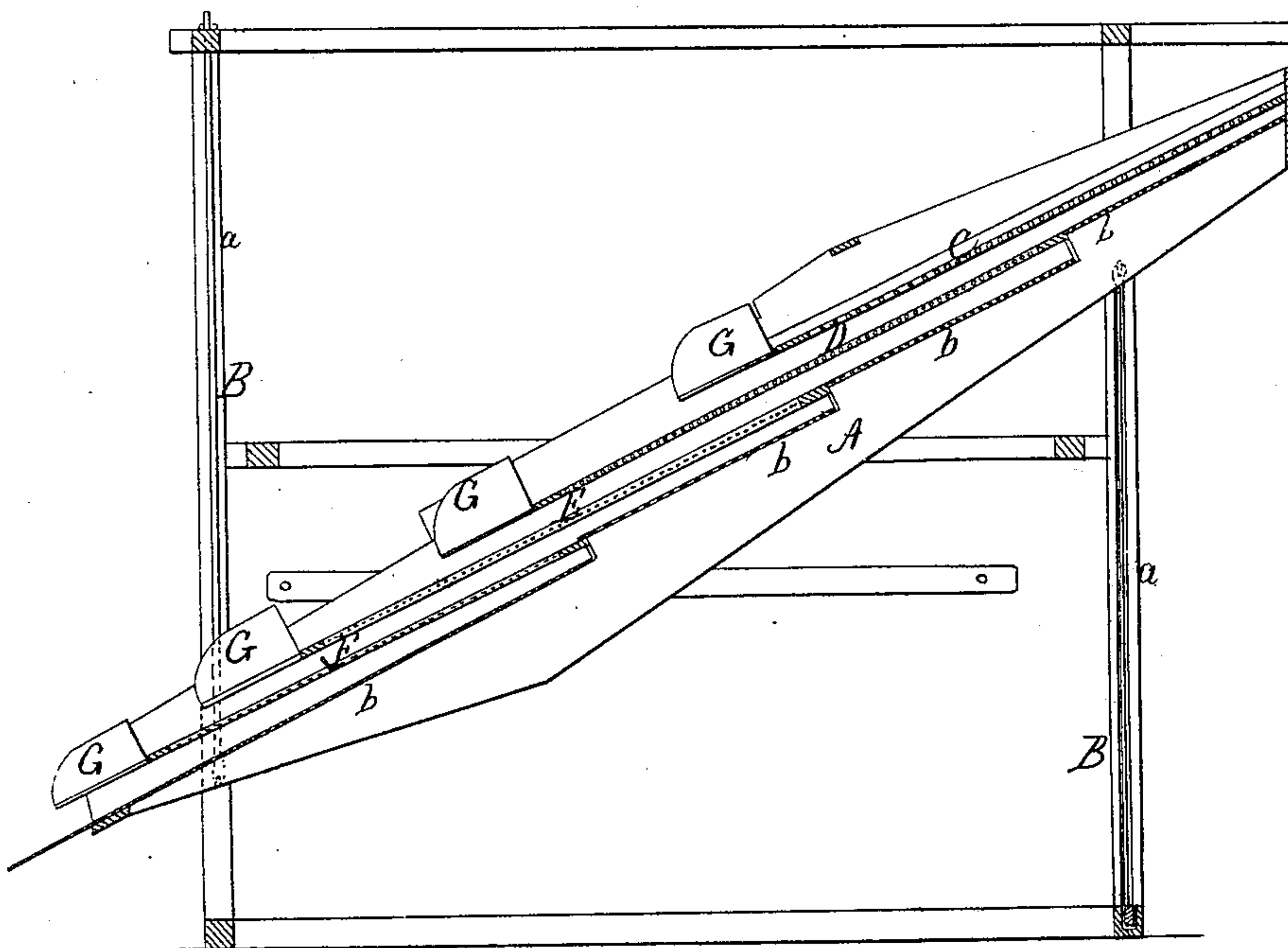
No. 19,175.

Patented Jan. 19, 1858.

*Fig. 1,*



*Fig. 2,*





# UNITED STATES PATENT OFFICE.

GEO. E. HOYT AND FREDERICK NISHWITZ, OF BROOKLYN, NEW YORK, ASSIGNOR TO  
GEO. E. HOYT, OF SAME PLACE.

## COAL-SCREEN.

Specification of Letters Patent No. 19,175, dated January 19, 1858.

*To all whom it may concern:*

Be it known that we, GEORGE E. HOYT and FREDERICK NISHWITZ, both of the city of Brooklyn, in the State of New York, have invented an Improved Coal-Screen; and we do hereby declare the following to be a correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan or top view of our improved screen, and Fig. 2 is a longitudinal vertical section of the same, through the middle.

The same part is indicated in both figures by the same letter of reference.

The nature of our invention consists in a new arrangement of screens for the purpose of separating coal into sizes and freeing it from dust. Various methods have been devised for screening and cleaning coal but all of them are liable to objection either on account of the slowness or imperfection with which the work is done. In the rotating screen, for example, the coal has a long distance to travel and is much broken up and wasted. If the rotating screen is worked rapidly the coal is carried around by centrifugal force and the machine clogs and does its work badly. Another plan has been the passing of the coal through a series of sieves arranged vertically above one another. This arrangement is attended with the disadvantage of obliging the dust to pass through all the screens, giving to each all the work to do that had been done by its predecessor. This plan makes slow work and bad work, the coal being but imperfectly freed from dust and dirt, and, owing to their presence, the smaller sizes passing out with the larger and rendering the separation into sizes imperfect. Besides, when these screens are horizontal a special mechanical contrivance is necessary to empty them.

The principle at which we have successfully aimed in our improved screen is the final separation of the dust and dirt from the coal from the beginning of the screening, and keeping the dust so separated from again mingling with the coal. Thus the work is done once for all, and is not repeated as many times as there are sieves, as in other screening machines. The sieves which follow the first dust screen have only to separate the small residuum of dust that may have escaped the action of the first sieve,

and that which may result from the agitation and attrition of the coal by the motion of the sieve itself.

To enable others to understand and construct our improved screen we will proceed more particularly to describe it with reference to the drawings.

A marks an inclined box or frame supported by rods *a, a*, within a frame B, the rods *a* being so arranged as to vibrate and give a lateral vibratory motion to the box or frame. Within the box A are placed four screens C, D, E, F. These screens are so placed in the box that they overlap one another for a portion of their length, the remaining portion being occupied by fine dust screens *b*, each screen except the first or upper one having such a dust screen attached to it. The lowermost screen F has a dust screen under its entire length. The screens C, D, E, F, have different sized meshes, and are each provided with a discharge spout G by which the coal is conveyed from the several screens into proper receptacles. The upper screen C has the coarsest mesh, and retains nothing but large or "lump" coal. The other screens gradually decrease in the size of their meshes, the lowermost one retaining "chestnut" coal. The coal to be screened and separated is placed upon the upper screen C, and a vibratory motion, lateral or otherwise, imparted to the box A. The upper screen, C, retains the "lump" coal, which is conveyed by its spout, G, into a proper receptacle, while the smaller coal and dust pass through the screen C, and fall upon the screen, D, and dust screen, *b*, a portion of the dust and fine matter passing through the dust screen to the ground. The screen D retains and delivers the next size to "lump," known as the "egg" coal. The next screen retains the "nut," and its successor the "chestnut" size, while the lowest fine screen retains the "pea" size. It will thus be seen that the dust is finally separated from the coal on each screen by the dust screens, *b*, and is not carried successively over all the screens as in other machines, with unnecessary expenditure of power to accomplish imperfect work.

By our improvement the coal is perfectly cleansed from dust and the different sizes are effectually separated from each other.

The overlapping of the screens is merely

intended to economize space, and is not an essential part of our invention, which would operate equally well without the overlapping.

5 Having thus fully described our invention, we wish it to be understood that we do not claim any form of rotating coal screen. Neither do we claim any arrangement which requires the dust to pass  
10 through a succession of screens before being finally separated from the coal. But

What we do claim as new and desire to secure by Letters Patent is—

15 Preventing the dust and dirt which have been once separated from the coal from

again mingling with it, by means of the arrangement hereinbefore described of the inclined screens C, D, E, F, in combination with the dust sieves *b*, the whole constructed, arranged and operating substantially in the 20 manner herein set forth and applied to the purposes specified.

The above specification signed and witnessed this 21st day of December A. D. 1857.

GEO. E. HOYT.  
FREDERICK NISHWITZ.

Witnesses:

G. S. HARDING,  
C. H. TIEBOUT.