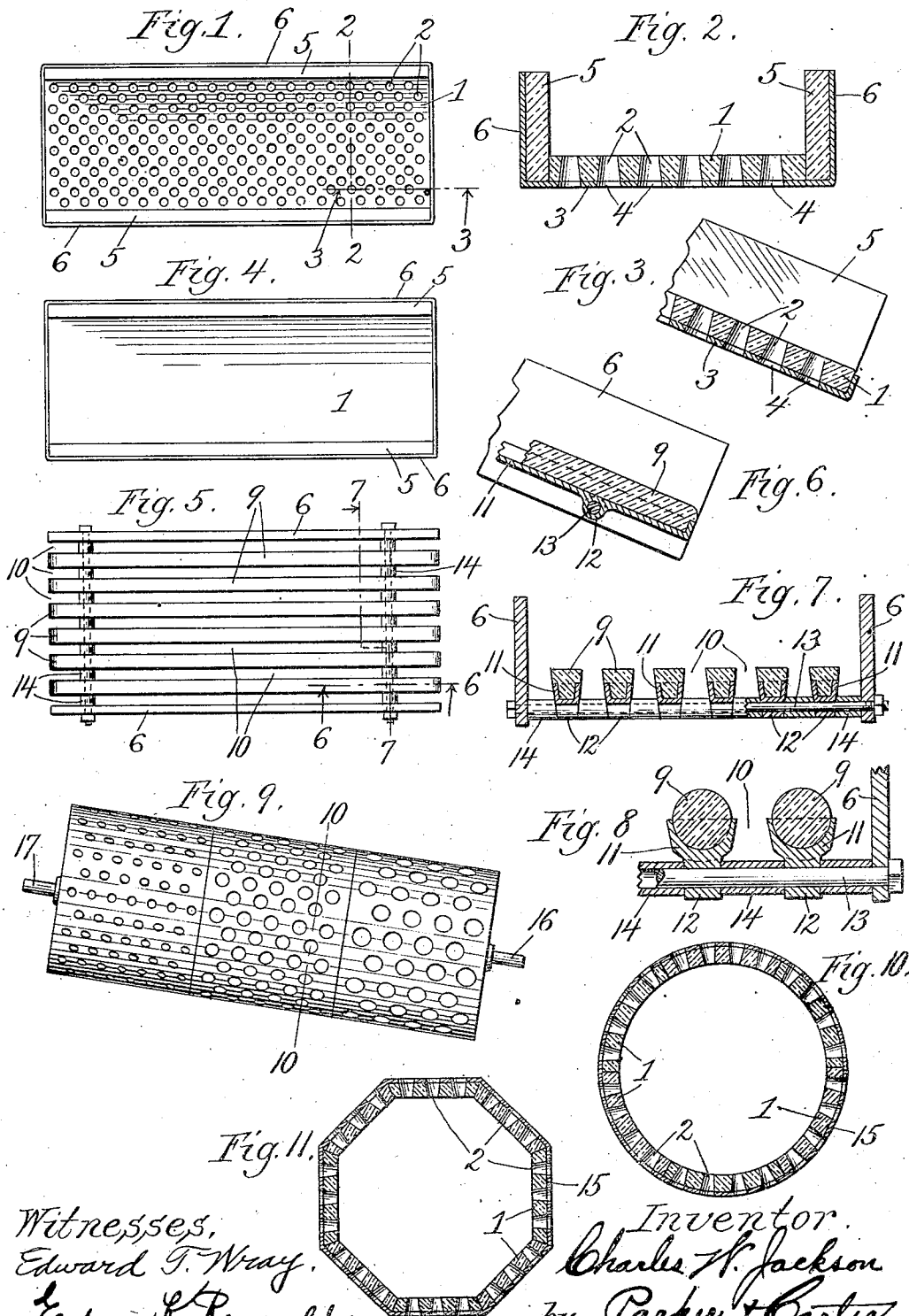


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SCREEN.

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1,220,232.

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UNITED STATES PATENT OFFICE.

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SCREEN.

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To all whom it may concern:

Be it known that I, CHARLES W. JACKSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Screens, of which the following is a specification.

This invention relates to screens, and has for its object to provide a new and improved device of this description.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view of one form of screen embodying the invention;

Fig. 2 is an enlarged sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is an enlarged sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a plan view showing a modified construction;

Fig. 5 is a plan view showing a modified construction;

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5;

Fig. 7 is a sectional view taken on line 7—7 of Fig. 5;

Fig. 8 is a view showing a modified construction of the device shown in Fig. 5;

Fig. 9 is a view showing one form of cylindrical screen;

Fig. 10 is a sectional view taken on line 10—10 of Fig. 9;

Fig. 11 is a view showing a modified construction.

Like numerals refer to like parts throughout the several figures.

One of the objects of the present invention is to provide a device to be used in screening such material as coal. When screens of metal are used for this purpose it is found that they become rough, due to the corrosive action of the material in the coal and to other causes, and thus become defective, deficient and inefficient.

I have found that all this difficulty can be avoided by using a screen where the surface with which the coal comes in contact is made of silicious material, such, for example, as glass. This material is not corroded by the coal, and does not become roughened as does iron or metal. This material, however, is apt to be so brittle as to be incapable of sustaining the weight of the coal and the blows received therefrom. I prefer, therefore, to provide the silicious material at the point where the coal makes contact, and to sup-

port this material by supporting device or medium which will hold it in place and relieve it of the strain due to the weight of the coal.

In Figs. 1, 2 and 3 I have shown one form of screen, consisting of one or more pieces, 1, of silicious material to act as the bottom of the screen, said material provided with a series of holes 2 of the proper size to permit the desired screening effect, the fine coal going through the holes 2. A support, 3, of metal, wood or other supporting material is provided, which supports the glass so that it will not be broken by the weight of the coal or the blows of the coal lumps. This support is also provided with holes 4 which register with the holes in the glass. I prefer to arrange these holes so that they increase in diameter or cross sectional area from the top toward the bottom, so as to insure the free passage of the material there-through, and prevent them from being clogged. The screen may be provided with sides 5 made of silicious material, but these sides may be omitted if desired, because there is very little contact of the coal with the sides of the screen, and the contact at the sides does not retard the smooth flow of the coal over the screen. If the sides of silicious material are omitted, it is desirable to have sides, 6, of any suitable material so as to prevent the coal from passing off the screen at the sides.

In Fig. 4 there is shown a plan view of a screen in which the silicious material 1 and the support 3 are free from holes, so that the device acts simply as a chute.

In Fig. 5 there is shown a screen consisting of a series of bars 9, separated by spaces. These bars are made of silicious material, such as glass or the like, and are carried by supports 11 of metal or other material of suitable strength. The supports 11 are provided with lugs 12, through which pass the rods 13, by means of which the screen is held in position. The screens are held in proper relation by the sleeves 14 on the rods 13. This screen is preferably provided with sides 6 of any suitable material.

In Fig. 8 there is a modified construction shown in which the bars 9 are circular and the supports 11 are of a proper shape to receive them.

In Fig. 9 there is illustrated a cylindrical, hollow screen. The interior of the screen is made up of silicious material 1, such as

glass, made in sections of any desired size, and the support for the glass is on the outside and may be in the form of a cylinder 15. The support and the silicious material 5 are provided with holes through which the fine coal may pass, and the cylinder is inclined so that the large lumps will pass through and be discharged at the discharge end. This cylinder may be provided with 10 holes increasing in cross sectional area from the upper end toward the lower end, and is mounted to rotate about an axis, as by means of the shafts 16 and 17. Instead of being round, the screen may be polygonal, as 15 shown in Fig. 11.

I have illustrated screens and chutes of various forms in order to indicate somewhat the wide scope of the invention.

It will be seen that in screens of this kind 20 the surface along which the coal passes is of glass or other silicious material, so as to form a surface with a low coefficient of friction and which will not be corroded by the chemicals in the coal. It will further be 25 seen that the coal will travel along such a chute or screen when the angle of inclination is comparatively small, and that it will not be stopped and the screen clogged, as is the case with the screens now in use. The sup- 30 port being of a tenacious material which is not brittle, holds the silicious material in proper place and prevents it from being broken and relieves it of the strain which would tend to break it. It will also be seen 35 that even in case the silicious material would become cracked it would still be held in place and would act efficiently and satisfactorily. The device is adapted to be used for conveying any kind of material, such as coal, 40 ashes, grain, coke or the like. When this device is used the chute or screen will be effective with a much less incline than with the ordinary screen or chute, and hence it 45 reduces the cost of construction and saves material in building. It also decreases the velocity of the material and hence greatly reduces the breakage in material such as coal and the like. The shape of the chute or 50 screen may be varied as desired, and the device may be used in connection with any other suitable apparatus.

I claim:

1. A screen for coal, etc., comprising an 55 inclined portion made of silicious material with which the coal makes direct contact and provided with a series of openings extending therethrough, and an inclined supporting part therefor of tenacious material

fixed with relation to said silicious material adapted to relieve the strain on the silicious 60 material and hold it in place, said tenacious material also provided with openings which register with the openings in the silicious material.

2. A screen for coal, etc. comprising an 65 inclined engaging piece of silicious material, a series of holes therein larger in cross sectional area at their outer ends than at their inner ends, an inclined supporting piece 70 of tenacious material supporting said silicious engaging piece and fixed with relation thereto and having a thickness less than that of the engaging piece of silicious material, said supporting piece provided 75 with holes registering with those in said engaging piece.

3. A screen comprising a screening surface made up of silicious material and having 80 screen openings, and supporting means for said silicious material consisting of a tenacious material, said tenacious material having screen openings registering with 85 those of the silicious material.

4. A screen comprising a screening surface made up of silicious material and with 85 elongated screen openings between portions of said silicious material, and a supporting device supporting said silicious material between said elongated openings, the silicious 90 material provided with projecting parts which project into receiving spaces in the supporting device, the supporting device and silicious material being fixed with relation to each other.

5. A screen for coal, etc. comprising a 95 screening surface made up of silicious material, said surface broken up by a series of openings or spaces through which the finer material passes, rigid metallic supporting material located below the silicious material 100 and upon which it is supported, said supporting material provided with openings or spaces registering with the openings or spaces which break up said silicious material screening surface, the width of said 105 openings or spaces between said rigid metallic supporting material at their narrowest portions being wider than the narrowest portions of the openings or spaces associated with the silicious material. 110

Signed at Chicago, Illinois, this 11th day of April, 1910.

CHARLES W. JACKSON.

Witnesses:

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