

No. 803,156.

PATENTED OCT. 31, 1905.

H. DUGGAN.
COAL SCREEN.

APPLICATION FILED APR. 10, 1905.

Fig. 1

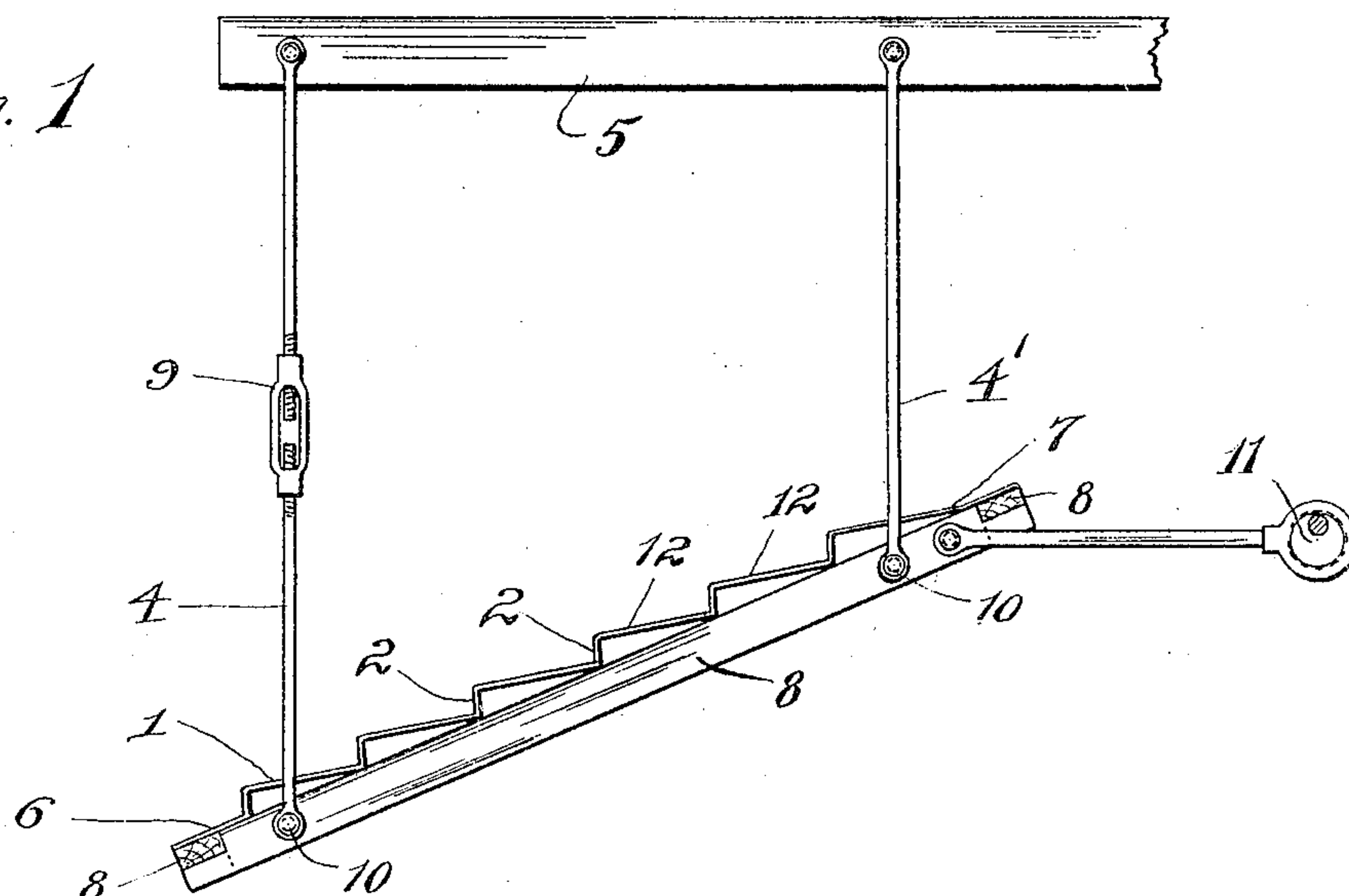


Fig. 2

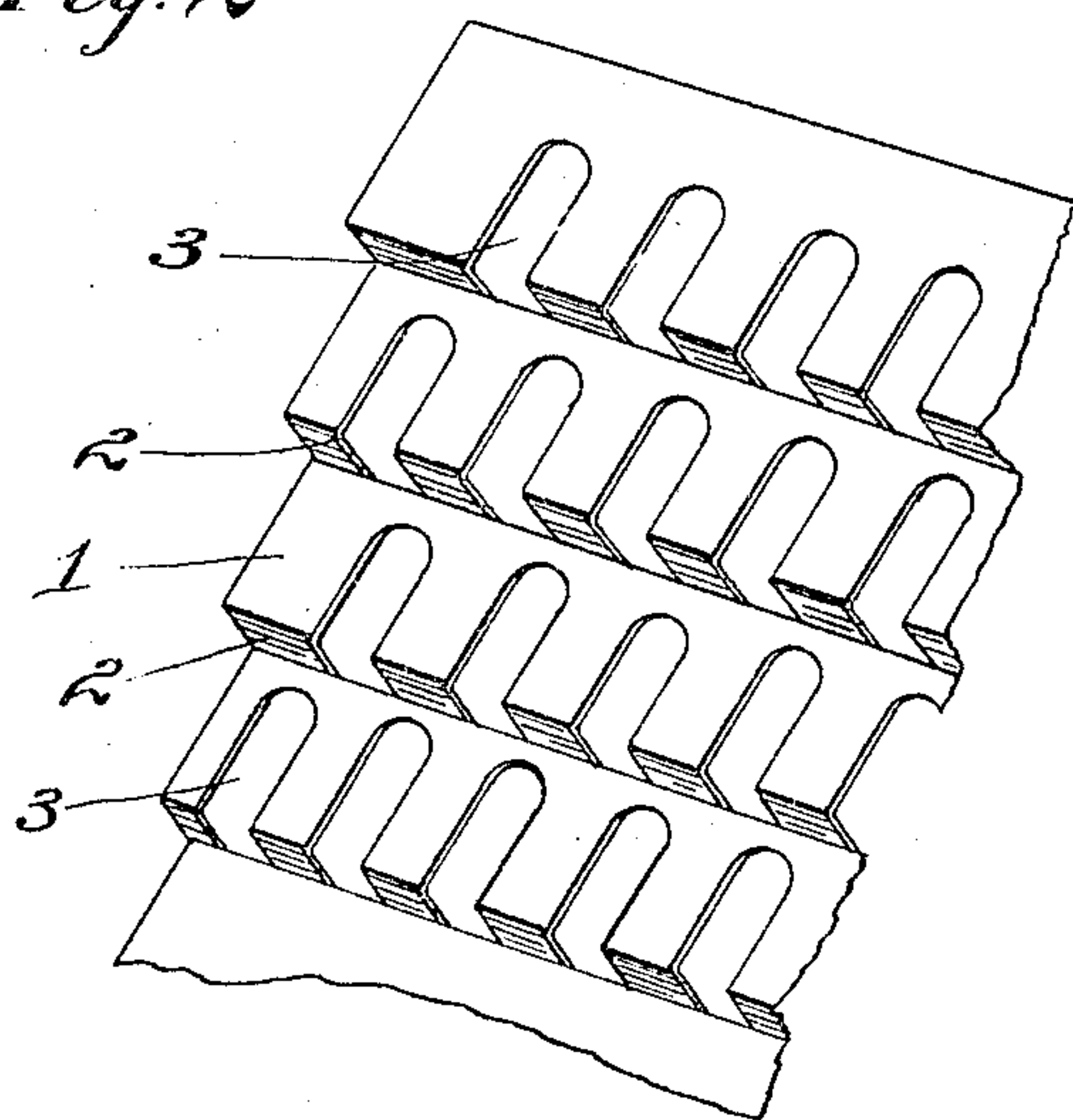
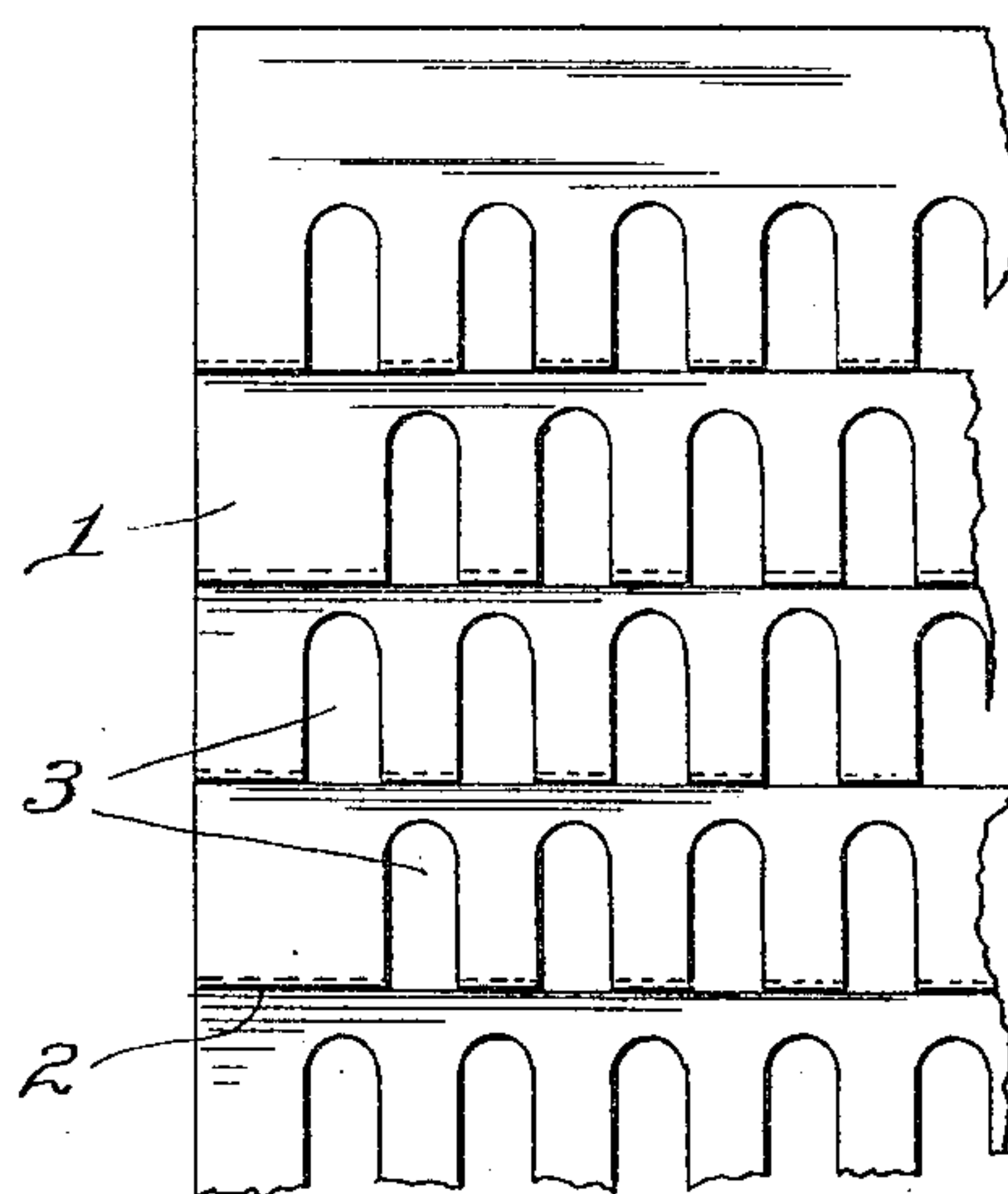


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY DUGGAN, OF TOLUCA, ILLINOIS.

COAL-SCREEN.

No. 803,156.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed April 10, 1905. Serial No. 254,714.

To all whom it may concern:

Be it known that I, HENRY DUGGAN, a citizen of the United States, residing at Toluca, in the county of Marshall and State of Illinois, have invented new and useful Improvements in Coal-Screens, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements of coal-screens.

One object of my invention is to separate the lumps of coal of various sizes so that the pieces of the same or nearly uniform size may be collected together.

Another object of my invention is to prevent undue waste of the coal during the process of separating the same.

Heretofore coal-screens have been so constructed as to shear or break the coal into pieces, which necessarily caused a large per cent. of waste. Their construction also necessitated the screen being adjusted at a considerable angle in order to permit the coal to slide over the surface of the screen. The sharp angle at which the screens were disposed necessitated the use of breaks and the like constructed at intervals over and above the screen to prevent the coal from running over the same too rapidly. Where breaks of this sort were not used, a great amount of coal would run over the screen without being screened at all.

My screen is designed to obviate the above objections and can be used in a more nearly horizontal position than heretofore and yet keep the coal in motion and is so constructed that the coal will not be sheared or broken into pieces, and the per cent. of waste is therefore reduced to a minimum.

I have illustrated one form of my invention in the accompanying drawings, in which like reference-numerals are used to designate like parts in the several figures.

Figure 1 is a full end view of the screen and its attaching means. Fig. 2 is a perspective view of a portion of the screen. Fig. 3 is a portion of a plan view of the screen.

Referring to the drawings by reference-numerals, the screen 1 is made of a sheet or sheets of any suitable metal of any required strength and bent downwardly, as shown in Figs. 1 and 2, or at any other angle, so as to form a plurality of steps 2. In the sheet or sheets of metal openings or holes 3 3 are formed, which may be of various sizes and

shapes and of any required distance apart. It will be noticed that each opening in the screen extends from a suitable distance above the step 2 through that part of the metal which is bent downwardly and terminates at the bottom of said step. This feature of the screen permits the coal to slip through the openings readily and prevents clogging of the coal therein. The openings are so arranged that each is followed in the succeeding step of the screen by a solid portion of a sheet of which the screen is made, thereby giving a staggered effect to the openings, as shown in Figs. 2 and 3. This also tends to prevent the clogging of the screen as the coal passes over or through the same, and as those parts of the metal which are not removed are flat it prevents waste in that it does not shear the coal.

It will be noted that flat surfaces 12 are provided between the steps 2, each of said steps being adapted to give the coal a fresh or new impetus, which carries the coal over said flat surfaces, and thus permits the screen to be placed in a substantially horizontal position and still keep the coal in motion. It will be noted also that the openings 3 are elongated and extend transversely in said flat surface and that said openings terminate at the bottom of the steps 2. Thus a lump of coal that is too large to pass through one of the openings 3 upon reaching the lower end of said opening passes onto the flat surface 12 without coming in contact with the sharp edge of the screen at the upper side of said flat surface and is permitted to slide on over the screen without being cut upon the lower edge of the opening 3 and reduced to slack, thus saving a large amount of coal that in other forms of screens is wasted by being cut upon the sharp edge of the openings in the screen.

The screen can be adjusted for use, as shown in Fig. 1, or any other suitable means of support may be used. Rods 4 and 4' (shown in Fig. 1) are provided, the lower ends of which are fastened with a bolt 10 or other suitable means to each corner of the screen and are connected or fastened to any suitable means of support, as 5. The side of the screen 6 is lower than the side 7 and can be adjusted at any desired angle by lengthening the rod 4, a buckle 9 being provided for that purpose. At the sides and ends of the screen and underneath the same are beams of wood or metal 8, which constitute a frame upon which the

screen is mounted and which support the same.

The screen is properly suspended and is given a shaking motion by any well-known contrivance, as by an eccentric 11 or the like. The coal is placed upon the upper side of the screen 7, falls through or passes over the screen, according to the size of the pieces, and is deposited in any suitable receptacle.

A number of different grades of coal may be obtained by using any number of screens desired, the screens being placed in succession, each succeeding screen being adjusted lower than the preceding one, so that the upper side of the succeeding screen would be just underneath the lower side of the preceding one, the holes or openings in the first or upper screen being smaller than in the screen next succeeding. It will be understood that the screen may be constructed out of any number of sections by any suitable means of fastening said sections together, so as to make the screen of any desired size.

While I have described my invention with particular reference to the details of construction and while I have illustrated certain forms of embodying my invention in a practical structure, I am aware that many changes may be made in the construction herein shown and described—as, for instance, other means may be provided for adjusting the screen or imparting a shaking motion thereto—and I therefore claim the right to make such changes in construction as fairly fall

within the spirit of my invention, and I do not wish to limit my invention further than as defined in the appended claims.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A coal-screen consisting of a single piece of sheet metal, a plurality of parallel steps formed therein, flat surfaces being provided between said steps, said flat surfaces having elongated transverse openings formed therein of less length than said surfaces, whereby a flat surface is provided upon the upper end and the two sides of each of said openings, said openings terminating at the bottom of said steps.

2. A coal-screen consisting of a body of sheet metal, provided with a plurality of elongated openings, said openings being arranged in alinement transversely and staggered or disposed out of alinement longitudinally of said body and being so disposed as to leave a flat surface surrounding each of said openings, and a plurality of parallel steps formed in said screen, said openings terminating at the bottom of said steps.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

HENRY DUGGAN.

Witnesses:

PHILIP J. MAGUIRE,
SPENCER L. ADAMS.