Jan. 4, 1944. M. KUTIL 2,338,649

SCREEN

Filed Aug. 11, 1942 3 Sheets-Sheet 1

Fig. 1.

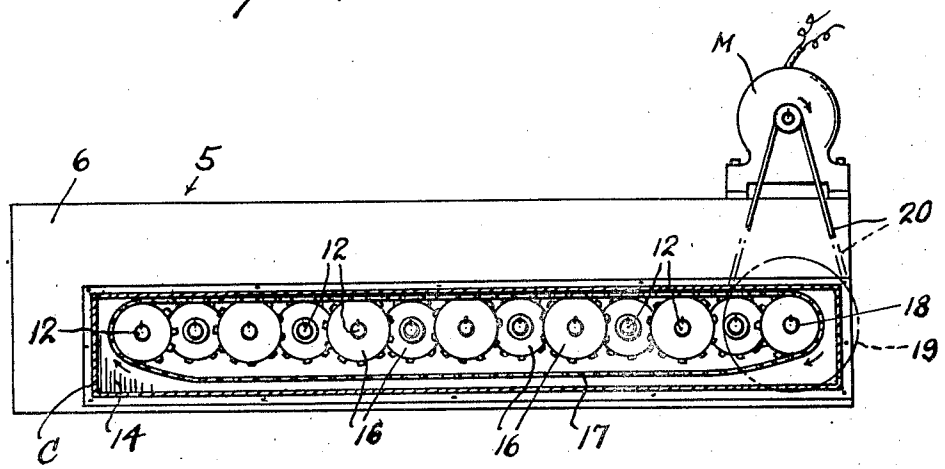
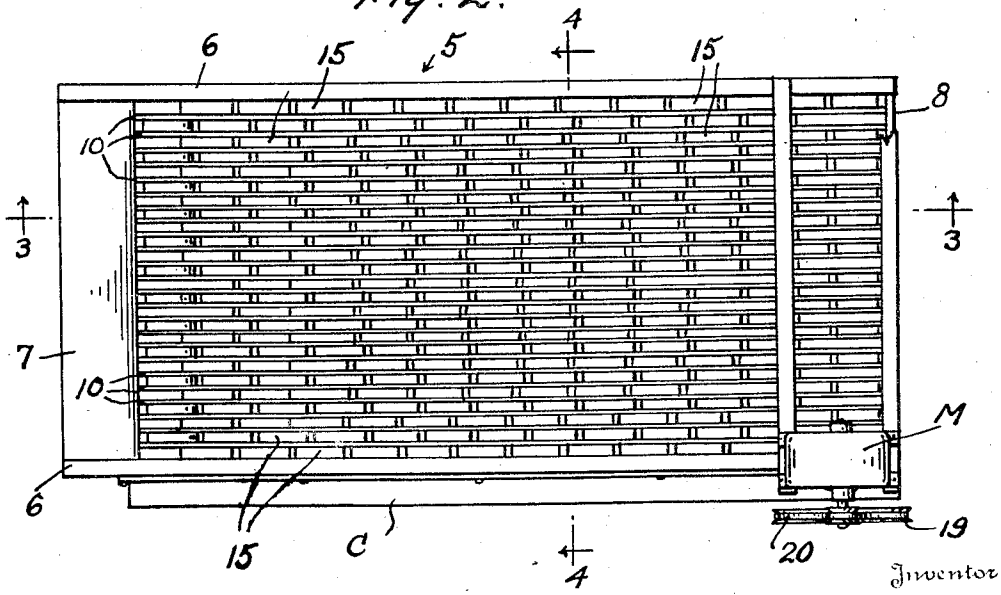


Fig. 2.



Inventor

Michael Kutil

By L. B. James

Attorney

Jan. 4, 1944. M. KUTIL 2,338,649

SCREEN

Filed Aug. 11, 1942 3 Sheets-Sheet 2

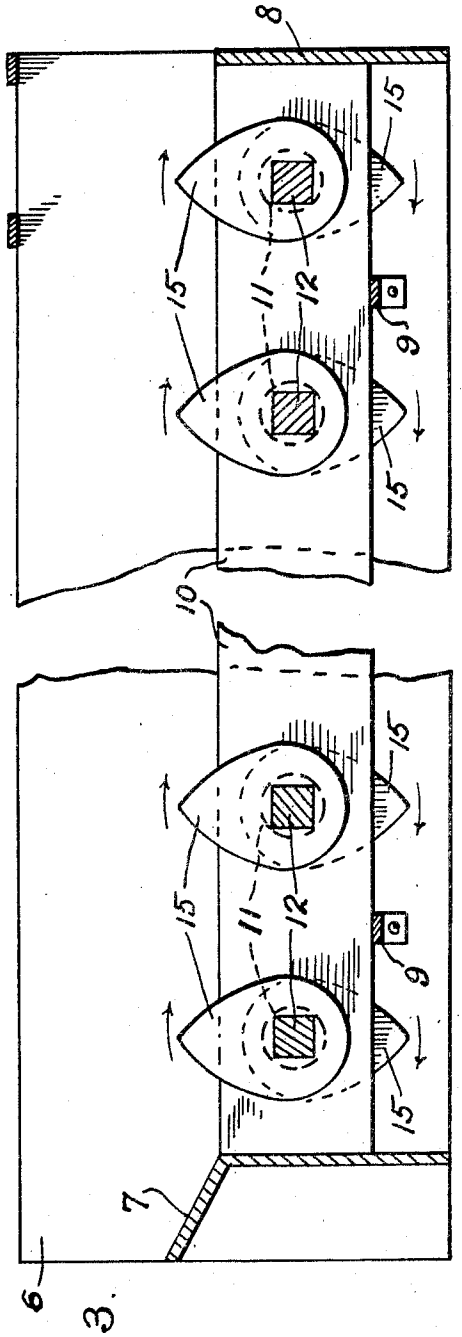


Fig. 3.

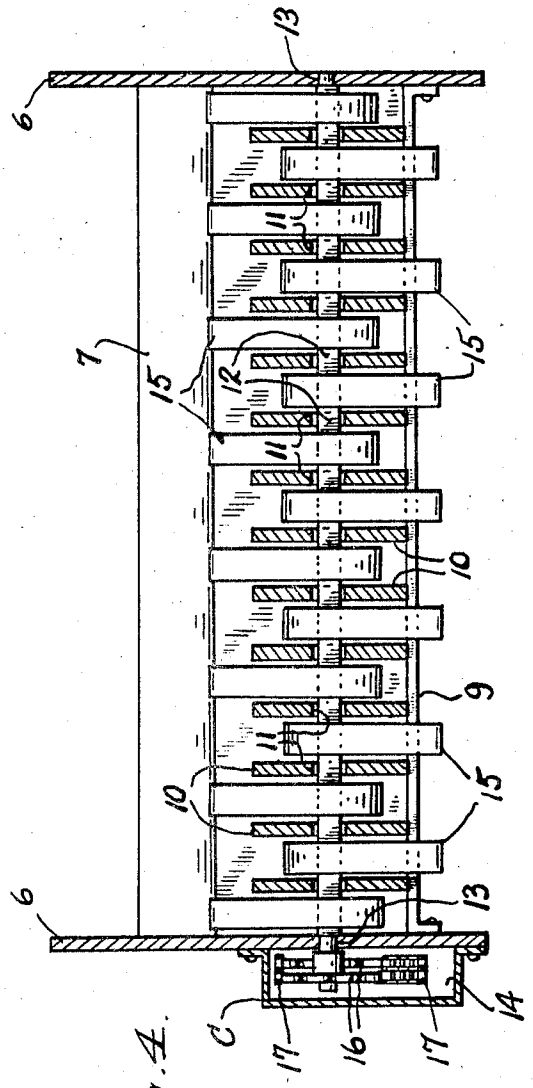


Fig. 4.

Inventor

Michael Kutil

By L. B. James

Attorney

Jan. 4, 1944. M. KUTIL 2,338,649

SCREEN

Filed Aug. 11, 1942 3 Sheets-Sheet 3

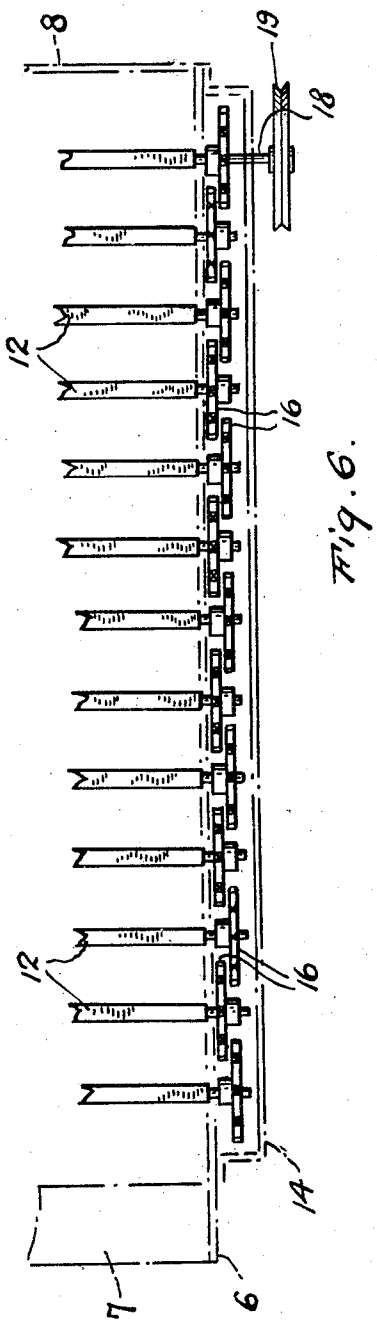


Fig. 6.

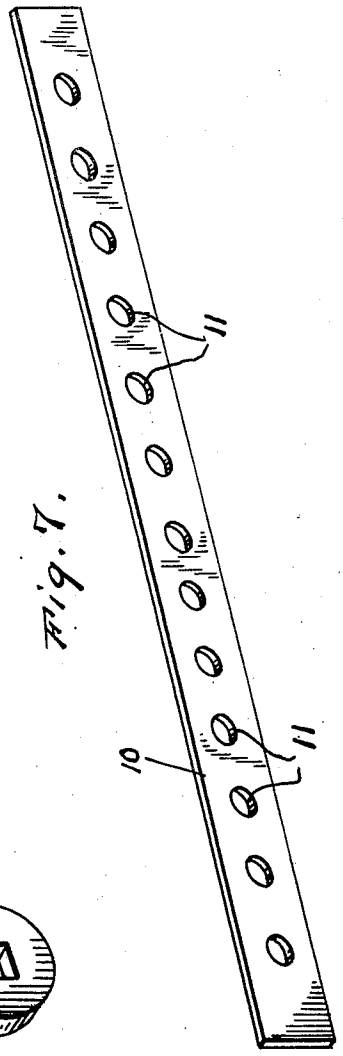


Fig. 7.

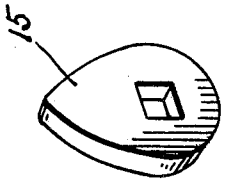


Fig. 5.

Inventor

Michael Kutil

By L. B. James

Attorney

Patented Jan. 4, 1944

2,338,649

UNITED STATES PATENT OFFICE

2,338,649

SCREEN

Michael Kutil, Manitowoc, Wis.

Application August 11, 1942, Serial No. 454,422

2 Claims. (Cl. 209—358)

This invention relates to material handling and assorting machines and more particularly improvements on the jarring screen set forth in my pending application Serial No. 366,458.

The primary object of this invention resides in the provision of a coal screening machine adapted to rapidly separate predetermined sizes of coal from fine particles therein without reducing the size thereof through the usual practice of bouncing, jostling or cascading the same over agitators.

Another object of this invention resides in the provision of a coal screening machine adapted to separate the desired sizes of coal from fine particles therein and roll it gently over the deck toward a hopper or other receiving device.

A further object of this invention resides in the particular construction and arrangement of the agitators relative to the partitions.

A still further object of this invention resides in the particular disposition of the rows of agitators relative to one another.

Aside from the foregoing objects this invention resides in the particular construction and arrangement of the driving means of the agitators.

Among the many objects of this invention is provision of means for protecting the power transmitting means directly connected to the agitator shafts.

With these and other objects in view this invention resides in certain novel features of construction and arrangement of elements to be hereinafter more particularly set forth in the specification, illustrated in the accompanying drawings and pointed out in the appended claims and, while this disclosure depicts my present conception of the invention, the right is reserved to resort to such changes in construction and arrangement of elements as come within the spirit of the invention.

In the accompanying drawings forming a part of this application:

Fig. 1 is a side view of the screen showing a portion of the gear casing broken away.

Fig. 2 is a plan view thereof.

Fig. 3 is an enlarged sectional view approximately on line 3—3 of Fig. 2.

Fig. 4 is an enlarged sectional view approximately on line 4—4 of Fig. 2.

Fig. 5 is a detail perspective view of one of the agitators.

Fig. 6 is a diagrammatic plan view of the sprocket gears and shafts.

Fig. 7 is a detail perspective view of one of the partition plates.

In the present illustration of this invention, the numeral 5 designates, in general, a coal separating screen consisting of side walls 6 connected together by end walls 7 and 8 and suitable cross braces 9 to maintain rigidity between the same, said end wall 7 is of greater height than the end wall 8 and is disposed at the feed end of the screen.

Resting or otherwise disposed on the cross braces 9 between the side walls 6 is a plurality of spaced partition plates 10 of lesser height than the side walls 6, the same having laterally aligned openings 11 therein through which square or other suitably shaped shafts 12 rotate in bearings 13 secured to the side walls 6 with one of their ends extending into an oil tight compartment 14 on the outer surface of a side wall 6.

Mounted on each of the aforesaid shafts 12 between the partition plates is a plurality of substantially egg-shape agitators 15, the apexes of each row of which being alternately disposed in opposite directions in order to ensure continuous contact of the agitators with the material on the upper edges of the partitions and thus cause it to roll smoothly toward the discharge end of the screen rather than being thrust over the screen by intermittent kicks from the agitators.

Keyed or otherwise splined on those ends of the shafts terminating within the compartment 14 are aligned rows of sprocket gears 16 over which is trained a duplex sprocket chain 17.

Among the several shafts heretofore mentioned is a similarly shaped power shaft 18 having one end extending through the cover plate C of the compartment 14 and carrying a sheave 19 splined thereto which, in turn, is connected by a belt 20 or the like to a suitable motor M preferably supported by the screen.

With this invention fully set forth it is manifest that a screen is provided whereby coal or other similar material can be rapidly assorted with the maximum recoverages and minimum damage to the desired grades thereof and, through the particular assemblage of cooperating elements, vibration of the screen is reduced to a minimum degree.

Having thus described my invention what I claim and desire to protect by Letters Patent is:

1. A sifting and assorting screen comprising side walls, end walls connecting the side walls, partition plates of lesser height than the side walls spacedly disposed therebetween and having aligned openings therein, shafts rotatably

extending through the openings in the partitions with their opposite ends journalled in the side walls of the screen, aligned rows of substantially egg-shaped agitators carried by said shafts between the partition plates with the apexes of each row thereof alternately extending in opposite directions, sprocket gears splined on certain ends of the shafts in spaced longitudinal rows, a duplex sprocket chain simultaneously engaging the gears, an oil tight compartment formed on one side wall of the screen and housing the sprocket gears and sprocket chain, a sheave splined on certain of said shafts outwardly of said oil tight compartment, a motor supported on said screen and a power transmitting belt connecting the motor to the sheave.

2. A sifting and assorting screen the combination of, a frame having a plurality of laterally spaced partition plates therein and extending longitudinally thereof adjacent its bottom, a plurality of rotatable shafts journalled in the side walls of the frame and extending through openings in the partition plates, certain of said shafts having their ends extending through a side wall of the frame into an oil tight compartment formed thereon and one of said shaft having its end terminating outwardly of the face plate of the oil tight compartment, substantially egg-shape agitators removably mounted on the shafts in longitudinal rows between the partition plates with the apexes of those agitators in alternate rows extending in opposite directions, longitudinally arranged rows of sprocket gears splined on those ends of the shafts within the oil compartment with the outermost row thereof overlapping the innermost row, said sprocket gears on certain shafts being disposed in longitudinal alignment and outwardly of the remaining inner aligned sprocket gears, a duplex sprocket chain simultaneously engaging all of the sprocket gears, a motor supported on the frame, and power transmitting means connecting the motor to that shaft having its end extending through the face plate of the oil tight compartment.

MICHAEL KUTIL.