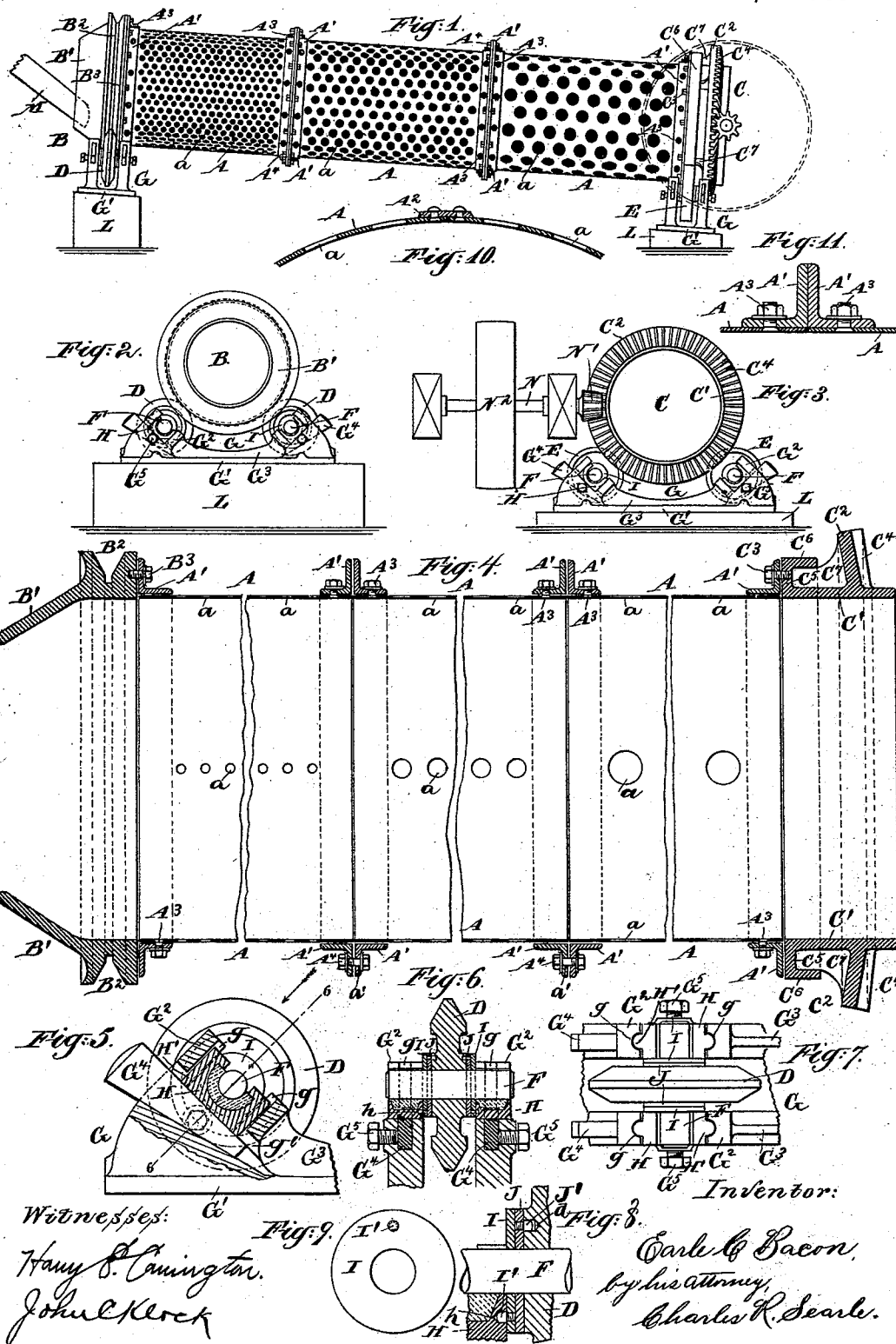


(No Model.)

E. C. BACON.
SCREEN.

No. 532,629.

Patented Jan. 15, 1895.



UNITED STATES PATENT OFFICE.

EARLE C. BACON, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE FARREL
FOUNDRY AND MACHINE COMPANY, OF ANSONIA, CONNECTICUT.

SCREEN.

SPECIFICATION forming part of Letters Patent No. 532,629, dated January 15, 1895.

Application filed October 1, 1894. Serial No. 524,557. (No model.)

To all whom it may concern:

Be it known that I, EARLE C. BACON, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Screens, of which the following is a specification.

The invention relates to inclined revolving screens for separating previously crushed stone or ore into sizes.

It consists of a number of perforated cylindrical sections flanged together at their abutting ends, forming a long cylinder, one end of which is flanged to the receiving head and the opposite end similarly secured to the discharging head. An annular V-groove, having its walls cast in one with the receiving head, is engaged by two correspondingly shaped rollers which support the upper end of the screen. The opposite end is supported by two plain cylindrical rollers on which rests a cylindrical bearing surface formed on the discharging head. Teeth cast on the discharging head are engaged by a suitable driving pinion and give the required rotary motion to the screen. The rollers are mounted in open bearings. The journal boxes slide in ways formed in the inner faces of the jaws and are adjusted by tapered keys driven under the boxes and held by set-screws. The end-thrust is taken on removable hardened steel washers mounted on the journals. The washers are each provided with a dowel-pin received in a corresponding hole in the bearing box or the roller, so that one washer stands relatively fixed while the other revolves in contact with it. This insures that all the wear and abrasion in working shall be on the inner faces of the two washers, thus saving the other parts against any change, and allowing an occasional replacement of the washers to maintain the machine in the original condition indefinitely.

The sections of the screen are all of the same diameter, and the flanges are drilled uniformly with each other and with the heads so that the sections are interchangeable and may be removed or replaced, or others substituted, as the conditions may require.

The accompanying drawings form a part of

this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation. Fig. 2 is an end elevation taken from the left in Fig. 1. Fig. 3 is an elevation showing the opposite end. Fig. 4 is a central longitudinal section of the screen alone on a larger scale. Fig. 5 is a side elevation partly in vertical section showing one of the rollers and its bearing. Fig. 6 is a section on the line 6—6 in Fig. 5. Fig. 7 is a plan view of the same parts seen in the direction indicated by the arrow in Fig. 5. Fig. 8 is a vertical section of a portion on a still larger scale. Fig. 9 is a face view of one of the washers. Fig. 10 is a cross-section through a portion or one of the screen sections, and Fig. 11 is a longitudinal section showing the flanged joint between two screen sections.

Similar letters of reference indicate the same parts in all the figures.

A, A, A, are cylindrical sections of steel plate, having perforations *a*, as usual, to separate the broken stone into the desired sizes. The edges of the longitudinal joints are butted, and riveted with countersunk rivets to a narrow covering strip *A*² applied on the outside, thus leaving the interior free from projections. Each end of each section *A* is secured with countersunk bolts *A*³ to an annular angle-iron flange *A*¹, provided with holes *a*¹ matching corresponding holes in the flange on the adjacent end of the next screen section. Bolts *A*⁴ inserted in these holes hold the sections together.

B is the receiving head, made in a single cylindrical casting of hard strong iron, with a conical flange *B*¹ projecting forward to take the crushed rock from the chute *M*, and a deep V-groove finished on its cylindrical portion. Its rear face is plane, and is drilled and tapped to correspond to the holes in the flanges *A*¹ and receive tap-bolts *B*², securing the screen section to the head.

C is the discharging head, also in one piece, as shown, and similarly drilled and tapped to receive the bolts *C*³ which secure the joint between the flange *A*¹ on the last screen section and this head.

C' is the main cylindrical portion, and C² is an annular flange carrying the bevel gear teeth C⁴ cast therewith.

C⁵ is an outwardly projecting plane portion receiving the bolts C³, and C⁶ is a rearward extension of the part C⁵ finished on the exterior and forming a plain cylindrical surface, for a purpose to be described.

C⁷ are strengthening webs connecting the flange C² and the portions C⁵, C⁶, at equally spaced points in the circumference.

The screen, consisting of the several sections and the heads, is mounted at a slight downward inclination toward the discharging end, and is supported upon four rollers, two at each end, the journals F of which are received in bearings carried in castings G. The edge of each of the rollers D at the receiving end is angular, matching to the V-groove B². These rollers not only support the weight of this end of the screen and its contents, but by engaging in the groove resist the tendency of the whole to travel downward toward the discharging end. The rollers E at that end are cylindrical, matching against the surface C⁶, above described. The bearings are the same for each pair of rollers, and a description of one will suffice.

G is a casting, consisting of a bed-plate G', two pairs of jaws G² at each end and a web G³ connecting the opposite pairs of jaws. The latter are inclined inward at an angle of about forty-five degrees, and grooved on the interior surfaces, as indicated at *g* to form guide-ways for the journal-boxes H provided with corresponding ridges H'. Each journal-box has the usual provisions for babbitting, and has also a small hole *h* drilled to receive a dowel-pin I' screwed or otherwise set in a thin, hardened steel washer I encircling the journal. J is an exactly similar washer, carrying a dowel-pin J', which engages in a hole *d* drilled parallel with the axis in the central boss or hub of the roller and consequently revolving therewith. This construction insures that the boss of the roller and the adjacent portion of the box shall be preserved from all wear, because the abrasion is borne by the two surfaces of the washers I and J which are presented toward each other. The machine may be worked for an indefinite period, and on substituting new washers at intervals the screen is maintained in its exact position. The opposite side of the roller carries a similar pair of washers, so that as one of each pair revolves with the roller and the other is relatively fixed by its engagement with the journal-box, the wear produced by the end thrust is taken entirely by these steel washers, which may be removed when worn, and changed from the upper side of the roller where the wear is com-

paratively slight to the lower side, or new washers inserted, as may be found necessary.

The castings G are mounted on timbers L, having the upper faces inclined to correspond to the inclination of the screen. Grooves *g'*, planed or otherwise produced below the jaws G², receive tapered keys G⁴ which adjustably support the journal-boxes H and are held against displacement by the set-screws G⁵.

The screen is revolved by means of the bevel-gear C⁴ cast on the head C, into which meshes the bevel pinion N' on a horizontal shaft N carried in suitable bearings, and turned by a belt, not shown, running on a pulley N².

The material delivered by the several sections and the rejections at the discharging end are received as usual in suitable bins, not shown.

Thin metal covers or dust protectors may be employed over the rollers and bearings to prevent the access of fine particles of grit to the wearing surfaces.

The advantages of having the screen sections interchangeable are obvious. Two or more sections similarly perforated may be substituted for the three differently perforated sections shown, when only one size of road metal or ore is desired, or, if one section becomes worn or broken, it may be replaced with little labor and expense.

My construction, connecting the sections only by the flanges and bolts, leaves the inner surface entirely clear for the material to travel around, and the outer surface clear and unobstructed for the material to be discharged, and allows the sections to be exchanged when required. The plane faces of the flanges allow the sections to be removed and inserted with facility without disarranging the other parts.

I claim as my invention—

The combination of the journal boxes H having ridges H' and hole *h*, the castings G having jaws G² and grooves *g'*, the tapered keys G⁴ in said jaws and bearing against the journal boxes, the set screws G⁵ bearing against said keys, the rollers having journals supported in said boxes, the washers encircling the journal and carrying dowel pins engaging said holes *h*, the washer and a dowel pin carried thereby and engaging a hole in said roller parallel with its axis, substantially as and for the purpose specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

EARLE C. BACON.

Witnesses:

LAVINIA JACKSON,
STANLEY K. GREENE.