

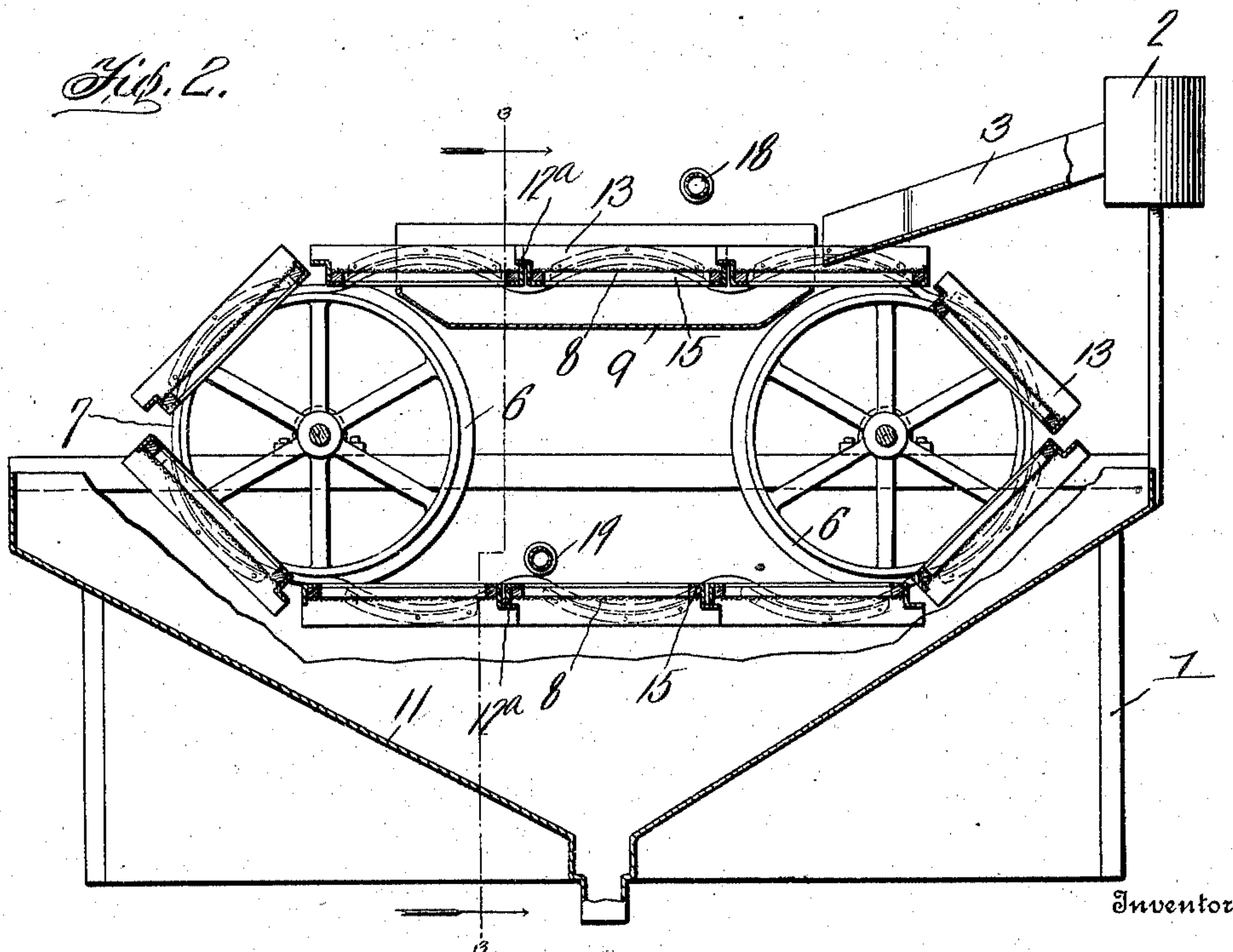
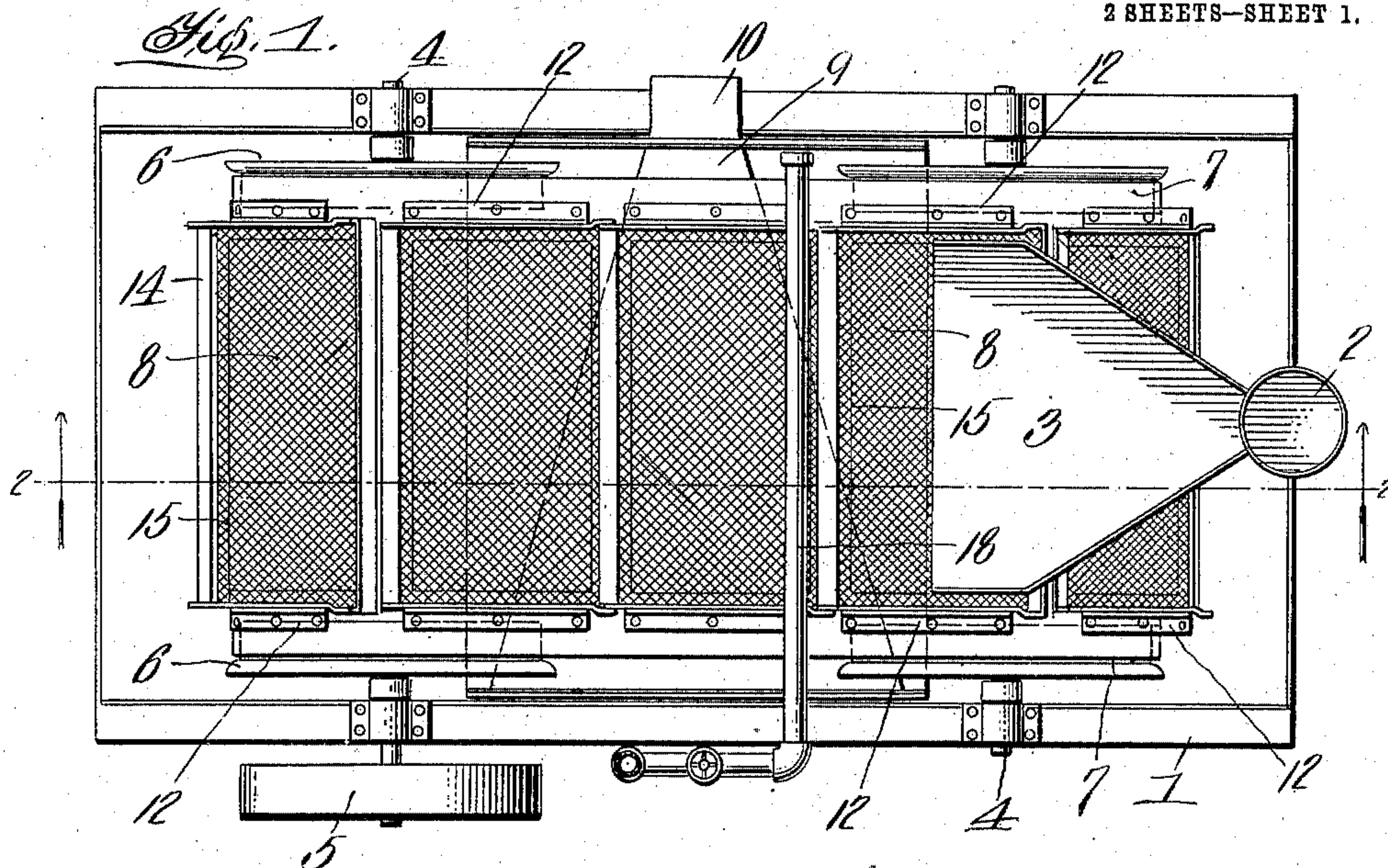
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ORE SCREEN.

APPLICATION FILED JUNE 8, 1908.

967,008.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



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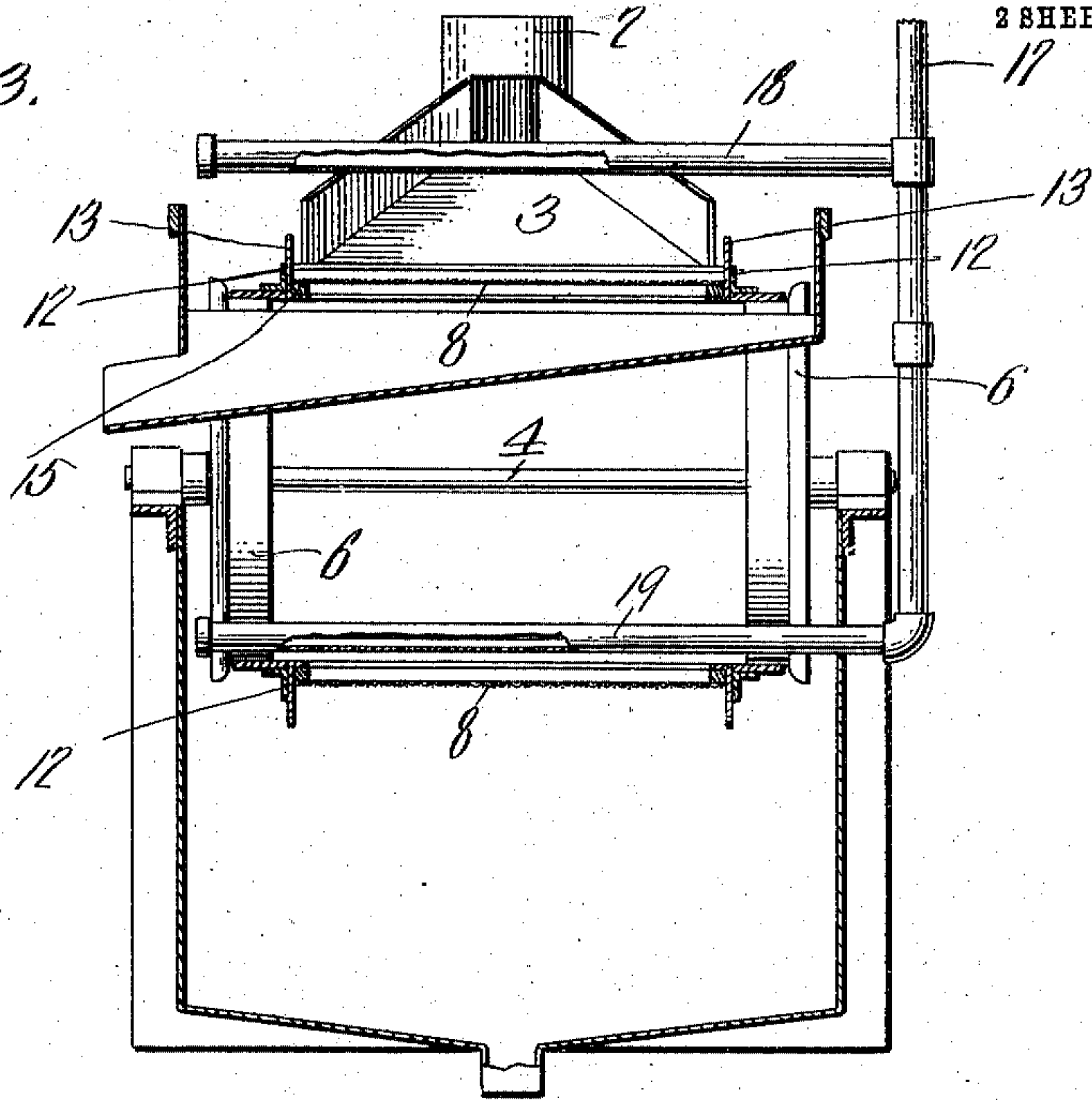
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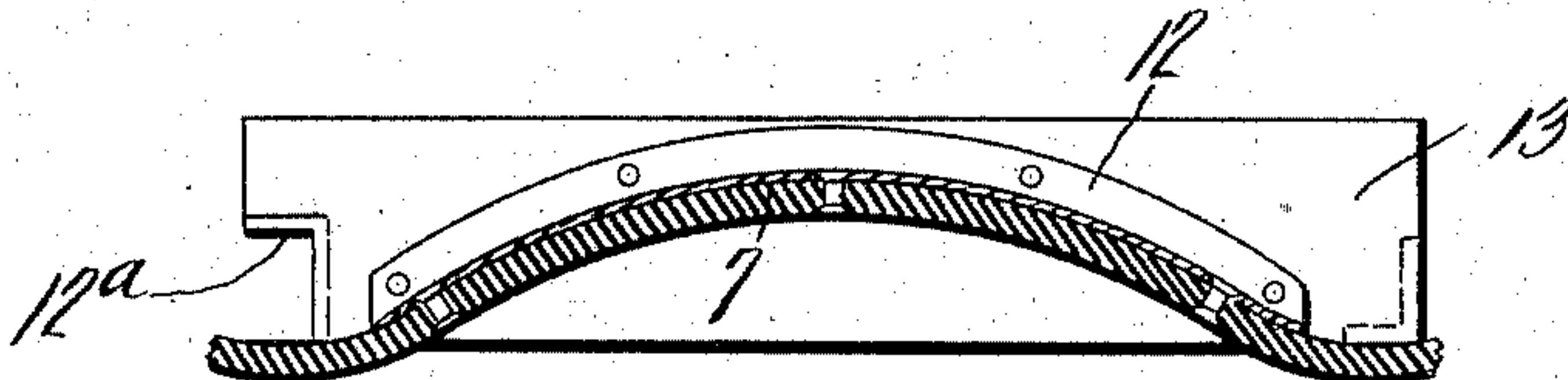
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2 SHEETS—SHEET 2.

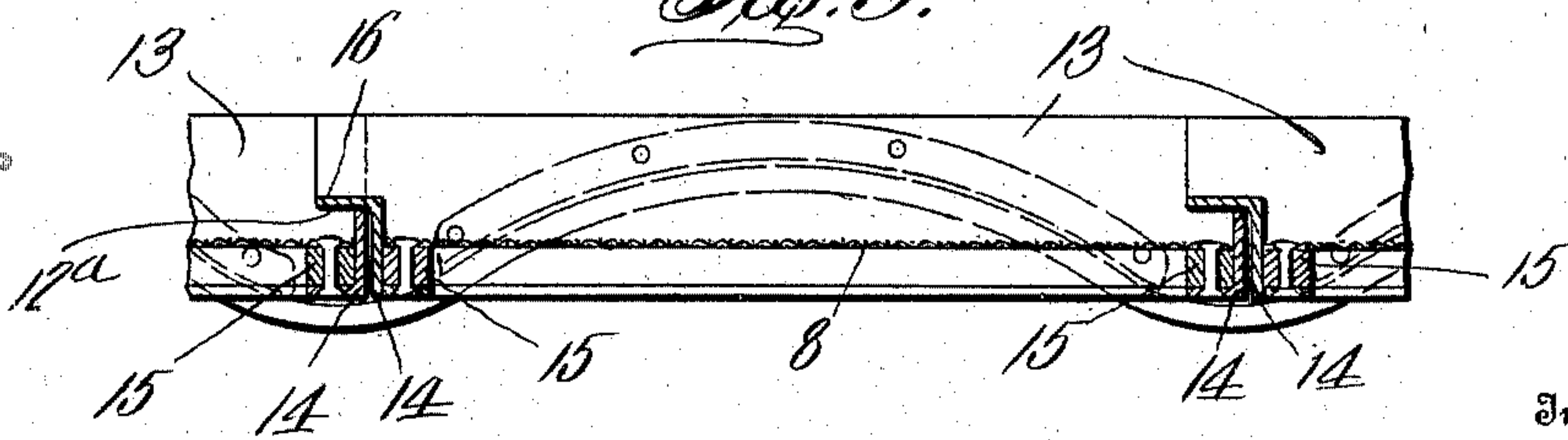
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

FRANK FRANZ, OF BURKE, IDAHO.

ORE-SCREEN.

967,008.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed June 8, 1908. Serial No. 437,451.

*To all whom it may concern:*

Be it known that I, FRANK FRANZ, a citizen of the United States, residing at Burke, in the county of Shoshone and State of Idaho, have invented a new and useful Improvement in Ore-Screens, of which the following is a specification.

This invention relates to a conveyer and separator for ores.

The object of the invention is to convey ores which have been previously acted upon to a certain extent from a suitable temporary source of supply to a suitable place of storage, and during said conveyance to screen from the ore being conveyed the finer particles which in turn are conveyed to a second place of storage, so that the device can be employed either as a screening or separating device or as a grading device.

It will be understood of course that the exact use made of the invention will depend upon the nature of the ores fed to it, and to the condition of said ores when fed, as the same device can be employed for separating dust, waste, etc., from ores of certain grades and for grading other ores or if desired minerals, according to size.

The invention consists in the novel features of construction hereinafter set forth, pointed out in the claims and shown in the accompanying drawings, in which—

Figure 1 is a plan view of the device. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 2. Fig. 4 is an end elevation of a frame support, a belt and an angled plate being shown in section. Fig. 5 is an enlarged detail sectional view taken adjacent to and parallel to the line 2—2 of Fig. 1, and showing in transverse section one screen and portions of two adjacent screens.

In these drawings 1 represents a suitable supporting frame which may be of any size and construction and 2 represents a hopper from which leads a discharge chute 3 and in operation the ores are delivered to the hopper 2 and fed by gravity from said hopper to my device. I employ with my invention two parallel shafts 4 journaled transversely upon the frame 1 and upon one of which is placed a band wheel 5. Within the frame and upon these shafts I mount flanged pulleys 6. Over these pulleys run belts 7 arranged parallel to each other and traveling adjacent to opposite sides of the frame

1, chains and sprockets have been found unsuitable for use in machines of this kind as the links fill with sand and other foreign matter. These belts carry between them suitable screens 8, the belts and screens forming an endless conveyer which receives the material fed from the hopper 2, and the material fine enough to pass through the screens is deposited into a transversely arranged chute 9 having a discharge mouth 10, which mouth may either discharge the fine material upon one side of the frame 1 or it may discharge it into cars, wagons or upon an incline down which it may travel. The material which does not pass through the screens is dumped as the screens pass downwardly and over the rear pulleys, into a large hopper 11, from which the material is discharged into a suitable receptacle.

The above brief description of the device will make clear its general construction, but in order to reduce the device to a practical basis, it is necessary to provide some special means whereby the screens 8 will pass readily over the pulleys, breaking a joint as they pass from upper to lower position, and uniting again to form a practical continuous conveyer as they pass beneath the feed chute 3. In order to provide for the easy passage of the screens around the two sets of pulleys, the belt 7 instead of being permitted to assume the shape which a flexible belt will take when run over two pulleys is given a succession of compound curves similar to the curvature of the pulleys, and is held in such shape by securing each belt to a series of curved angled plates 12, the said plates being riveted to the belts, as shown most clearly in Fig. 4, said plates being spaced apart, thus causing each belt to assume a serpentine shape. This provides each belt with a plurality of curved vertically arranged metal flanges to which are bolted end boards 13, said end boards being cut away as shown at 12<sup>a</sup> to permit them to interlock when the belt is running in a horizontal plane, and to enable them to break joint as the belts pass over the pulleys. It will be understood that each belt carries as many of the curved angled plates 12 and as many end boards 13 as there are screens in the conveyer. Where the material to be passed through the screens is large and coarse, the screens themselves may be formed of metal sheets secured directly to



the end boards 13, said plates having openings punched therein through which the screened material passes. In the accompanying drawings, however, I have shown a series of screens intended for the finer grades of ores and the screens are, therefore, formed of wire of any suitable mesh. Where screens of this kind are employed, and this will be the usual construction, flanged frames 14 are secured to the end boards 13 and frames 15 upon which the wire screens 8 are secured are fitted within the frames 14, resting upon the flanges, as shown more especially in Fig. 5, and whenever a screen becomes broken or damaged in any way the frame 15 can be lifted out and a new screen substituted for the old one. It will also be noted that the frames 15 are angled along one side at their top, thus producing an outwardly extending flange 16 which when the end boards 13 are interlocked, lap over the top of the frame 14 of the adjacent screen, which construction is also most clearly shown in the enlarged sectional view in Fig. 5. By having each frame 15 overlap an adjacent frame, none of the material fed from the chute 3 to the screens is permitted to drop in between the frames. In using the conveyer above described, I intend to discharge the material upon the screens with a discharge of water in order to prevent clogging of the screens and to aid in rapidly screening the ores. For this purpose, I provide a water supply pipe 17 provided with two horizontally extending branches 18 and 19, suitably perforated to discharge water upon the screens, the pipe 18 discharging water upon the screens above the chute 9, and the pipe 19 passing below the chute 9 and above the hopper 11. By means of these pipes the screens are kept clean and the work of

screening or separating the material greatly hastened.

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

1. A device of the kind described comprising a plurality of pulleys, parallel belts traveling over said pulleys, curved angled plates secured to the belts, the plates being spaced apart, interlocking boards secured to said plates, the boards being of greater length than the chord of the plates, and screens carried between the said boards, the boards forming ends of a screen frame.

2. A device of the kind described comprising a plurality of pulleys, belts running over said pulleys, curved angled plates secured to the belts, said plates giving the belts a permanent serpentine form, interlocking screen frames carried by the plates and between the belts, a feed chute for discharging material to said screens, a discharge chute arranged beneath the screens and receiving material passing through them, a hopper in which said screens dump.

3. A device of the kind described comprising two sets of pulleys, endless belts running over said pulleys, curved angled plates secured to said belts and holding them in a serpentine form, interlocking end boards carried by said plates, flanged frames carried by said end boards, screens carried by said frames, means for feeding material to said screens, and a discharge chute receiving material passing through the screens the arcs being similar to the curvature of the pulleys.

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