R. A. NORTH.

SEWERAGE SCREEN.

APPLICATION FILED MAY 17, 1915.

1,217,207.

Patented Feb. 27, 1917.

4 SHEETS—SHEET 1.

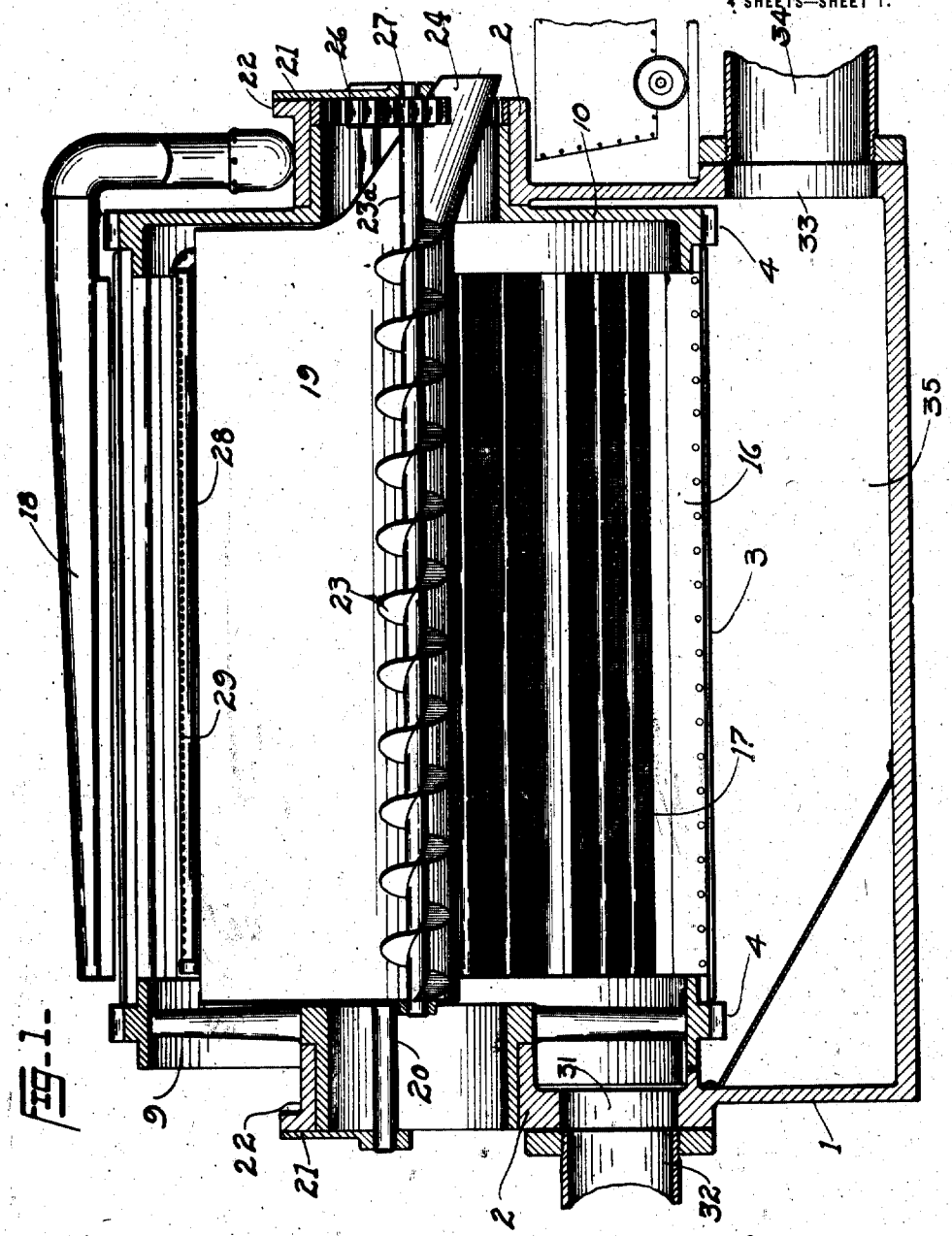



Fig. 1.

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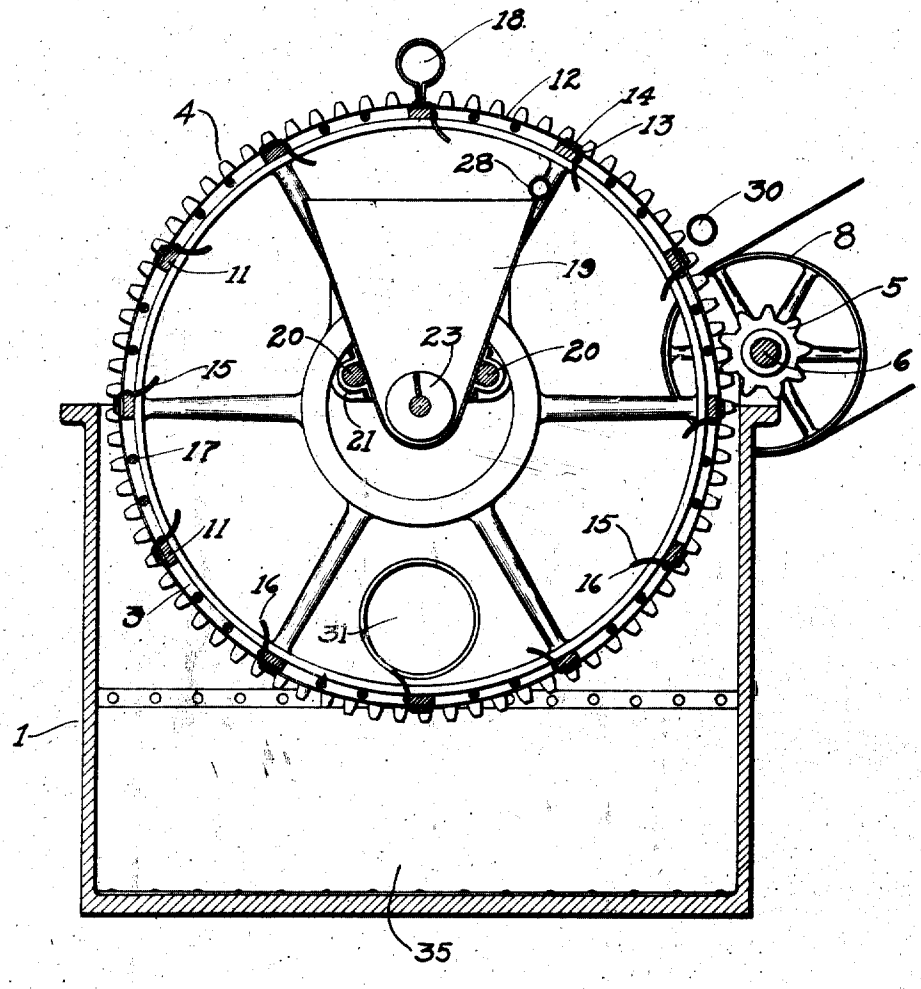
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4 SHEETS—SHEET 2.

FIG. 2.




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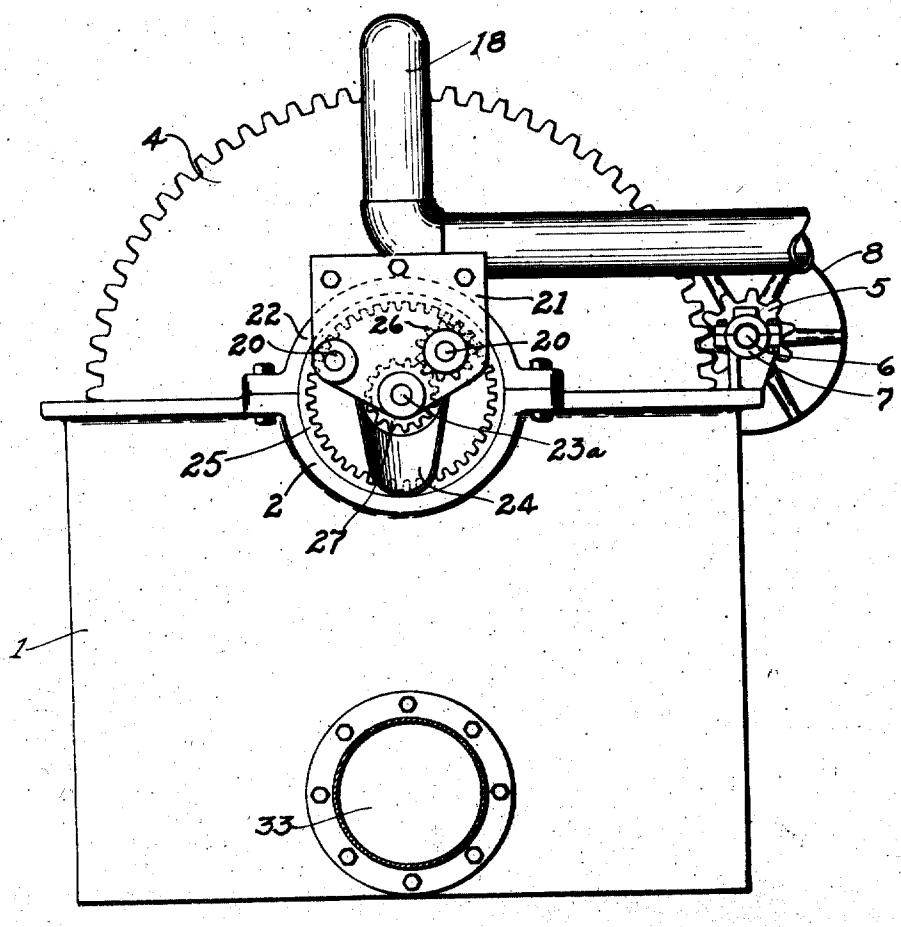
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4 SHEETS—SHEET 3.

Fig. 3.




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4 SHEETS—SHEET 4.

Fig. 4.

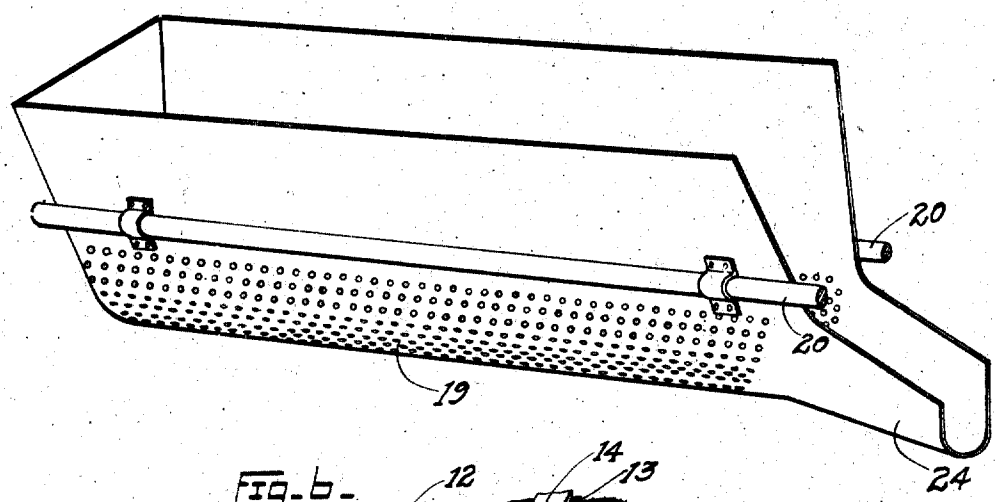



Fig. 6.

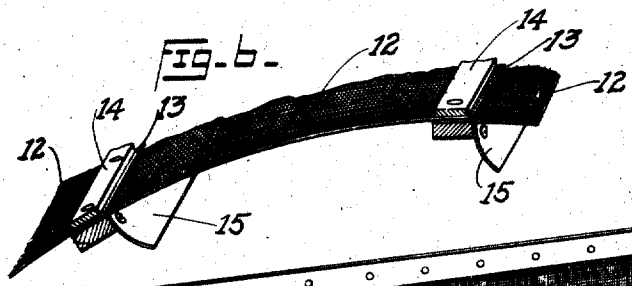
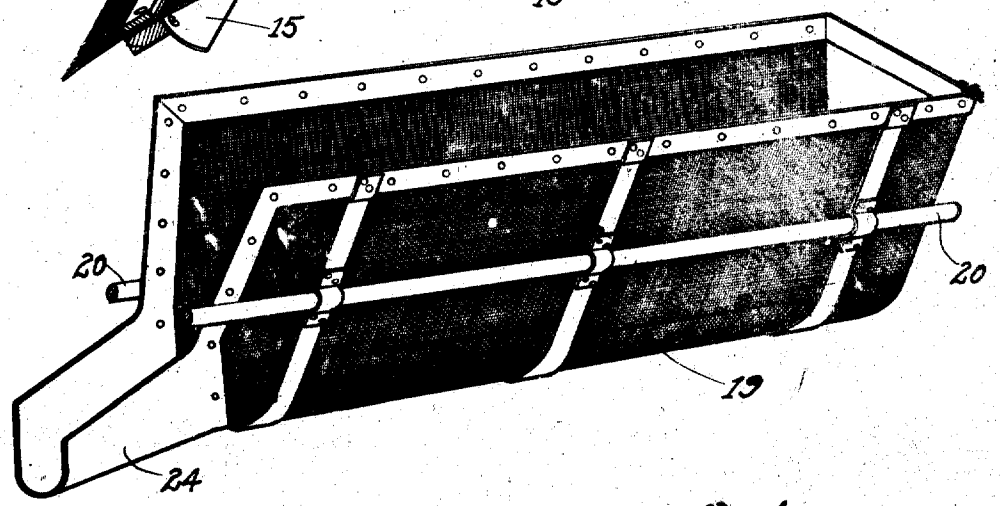



Fig. 5.




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# UNITED STATES PATENT OFFICE.

RAY ADNA NORTH, OF GREEN BAY, WISCONSIN.

## SEWERAGE-SCREEN.

1,217,207. Specification of Letters Patent. Patented Feb. 27, 1917.

Application filed May 17, 1915. Serial No. 28,642.

*To all whom it may concern:*

Be it known that I, RAY A. NORTH, a citizen of the United States of America, residing at Green Bay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Sewerage-Screens, of which the following is a specification, reference being had therein to the accompanying drawings.

The present invention relates to certain new and useful improvements in sewerage screens and is particularly adapted to separate the solid matters from the liquid, and to deliver the solid matter in a convenient manner so as to be caught by a wagon, car, or other suitable means.

An object of the invention is to provide a revolving drum that is provided with a plurality of longitudinal strips of suitable screen, said strips being detachably secured to the drum, so as to allow the removing of any one strip which may become defective.

Another object of the invention is to provide a stationary perforated hopper or trough depending within the revolving drum, which hopper is further adapted to separate the water from the solids, said hopper being provided with means for conveying the solid matter to the exterior of the drum.

With these and other objects in view, the invention consists in the combinations, arrangements and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and minor details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—

Figure 1 is a longitudinal sectional view of the invention.

Fig. 2 is a transverse sectional view thereof.

Fig. 3 is an end elevation of the invention.

Fig. 4 is a perspective view of a hopper or trough used in connection with the invention.

Fig. 5 is a perspective view of another form of a hopper or trough constructed of screen, and used in connection with this invention.

Fig. 6 is a fragmentary perspective view showing a strip of screen and the means for securing the same to the drum.

By referring to the drawings, 1 designates a base or frame, being provided with bearings 2 at the opposite ends thereof. A drum 3 is rotatably mounted in the bearings 2 and within the walls of the frame 1. This drum 3 is provided with suitable gears 4 at each end thereof, which gears are adapted to mesh with pinions 5 mounted upon the shaft 6, said shaft being carried by the bearings 7. A drive pulley 8 secured to the shaft 6 provides means for rotating the drum 3.

This drum 3 has one of its ends 9 open, the opposite end 10 being closed as clearly shown in Fig. 2 and Fig. 8.

A plurality of spaced supporting bars 11 are arranged longitudinally between the gears 4 and around the periphery of the drum 3. A plurality of suitable wire screen strips 12, having overlapping edges 13, are supported and secured between the bars 11 and flat binding strips 14, the said strips 14 being secured to the bars 11 by means of screws.

A plurality of longitudinal radial screen buckets or shelves 15 is provided having one edge thereof secured to the bars 11, the free edge 16 of the said buckets extending inward, as clearly shown in Fig. 2. A plurality of supporting rods 17 are spaced longitudinally between the bars 11 and are adapted to support the screen strips 12.

A compressed air pipe 18 superimposed over the drum 3 is connected to a source of supply and is adapted to direct a jet of air down against the screen.

A hopper or conveyer trough 19 within the revolving drum 3 is supported by bars or rods 20, carried by the plates 21, which plates are secured to a cap member 22. This hopper 19 is provided with a screw conveyer 23 and an inclined spout 24 for conveying the solid matter to the exterior of the drum. An internal gear 25 secured to the drum 3, is adapted to mesh with an idler gear 26 car-

ried by the plate 21. A gear 27 mounted upon the conveyer shaft 23ª, which shaft is also supported by the plates 21, the said gear 27 is adapted to mesh with the idler 26 as clearly shown in Fig. 3.

It will be seen that as the drum 3 is caused to rotate, the gears 25, 26 and 27 will cause the conveyer to turn also.

A pipe 28 is connected to a water supply and is provided with a plurality of holes 29 so as to direct streams of water up against the radial shelves 15, which will dislodge any substance that is carried by the said shelves, the solid matter so falling will be caught by the hopper 19.

A pipe 30 being connected to a source of supply extends longitudinally on the outside of the drum 3, the said pipe being provided with a plurality of holes which are adapted to direct streams of water down against the outer surface of the revolving screen, so as to dislodge any substance carried by the screen that failed to drop into the conveyer trough 19.

The supporting frame 1 is provided with an inlet opening 31, to which a pipe 32 may be connected. At the opposite side is an outlet opening 33 to which a pipe 34 may be connected.

The operation of the device is as follows:

The sewerage is carried to the interior of the revolving drum by the inlet pipe 32, the water in the sewerage passing off through the screen and drops in the bottom 35 of the frame 1, where it is carried off by the outlet pipe 33. All solid matter contained in the sewerage will be carried up by the revolving drum and shelves carried thereby, until such solids come in contact with a jet of air coming from the pipe 18, when it will be blown downward into the hopper 19, leaving the same in a comparatively dry state to be conveyed to the exterior of the revolving drum by means of the revolving screw conveyer within the hopper 19.

If it is not especially desirable to have the savings from the sewer as dry as possible, then a jet of water may be directed against the inside surface of the screen by the pipe 28, the water dropping in the hopper will largely pass off through the perforations in the bottom of the said hopper.

Having thus described my invention, what I claim is:

1. In a machine of the class described a supporting frame, a rotatably mounted drum carried by said frame, said drum being provided with a plurality of longitudinal strips of wire screening mounted around its periphery, means carried by said revolving drum for elevating solid matter, a stationary hopper depending within said drum and adapted to receive said solid matter, said hopper having a horizontal, foraminous bottom, and means provided within said hopper coaxial with said drum but independent thereof for conveying solid matter to the exterior of said drum.

2. In a machine of the class described a supporting frame, a rotatably mounted drum carried by said frame, said drum being provided with a plurality of longitudinal strips of wire screening mounted around its periphery, means carried by said revolving drum for elevating solid matter, a stationary hopper depending within said drum and adapted to receive said solid matter, said hopper having a horizontal, foraminous bottom, and means within said drum for directing a jet of water tangentially against the inner surface of said wire screening and a screw conveyer arranged within said hopper coaxially with said drum but independently thereof for conveying solid material to the exterior of said drum.

3. In a machine of the class described a supporting frame, a rotatably mounted drum carried by said frame, said drum being provided with a plurality of longitudinal strips of wire screening mounted around its periphery, means carried by said revolving drum for elevating solid matter, a stationary hopper depending within said drum and adapted to receive said solid matter, said hopper having a horizontal, foraminous bottom, a screw conveyer arranged within said hopper coaxially with said drum but independently thereof for conveying solid matter to the exterior of said drum, and means for rotating said conveyer at a different speed than said drum.

4. In a machine of the class described a supporting frame, a rotatably mounted drum carried by said frame, said drum being provided with a plurality of longitudinal strips of wire screening mounted around its periphery, means carried by said revolving drum for elevating solid matter, a stationary hopper depending within said drum and adapted to receive said solid matter, a screw conveyer arranged within said hopper coaxially with said drum but independently thereof for conveying said solid matter, an internal gear secured to said drum, an end plate, an idler gear carried by said plate and meshing with said internal gear, and a gear mounted upon said conveyer and meshing with said idler gear, substantially as described.

5. In a machine of the class described a supporting frame, a rotatably mounted drum carried by said frame, said drum being provided with a plurality of longitudinal strips of wire screening mounted around its periphery, means carried by said revolving drum for elevating solid matter, a stationary hopper depending within said drum and adapted to receive said solid matter, a com-

pressed air pipe superimposed over the drum and adapted to direct a jet of air against said wire screening, a pipe extending longitudinally on the outside of said drum and adapted to direct streams of water against the outer surface of said drum, and means within said drum for directing a jet of water tangentially against the inner surface of said wire screening.

In testimony whereof I hereunto affix my signature.

RAY ADNA NORTH.