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PATENTED JAN. 28, 1908.

G. F. SMAILES.

ROTARY SCREEN.

APPLICATION FILED FEB. 28, 1907.

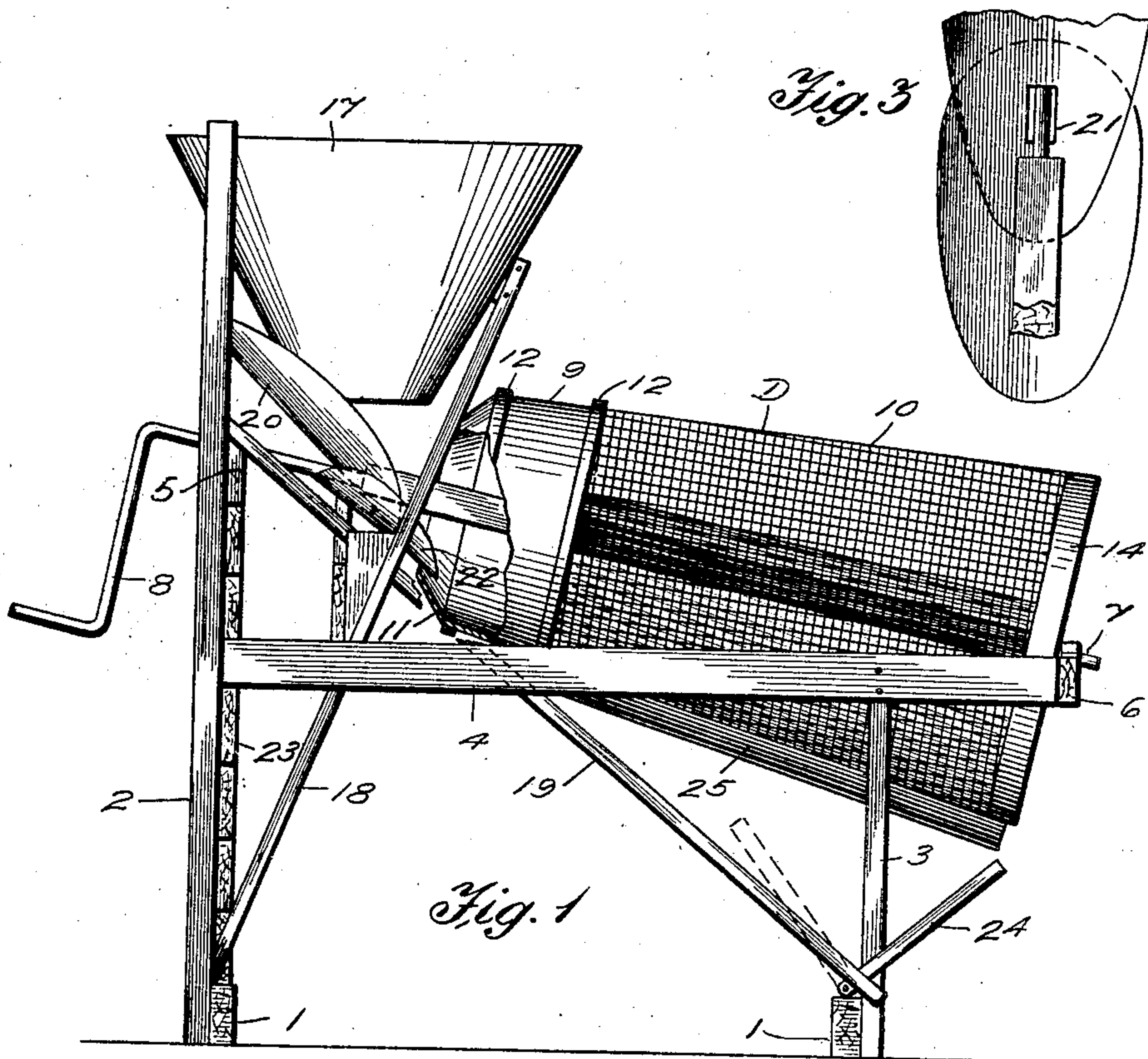


Fig. 3

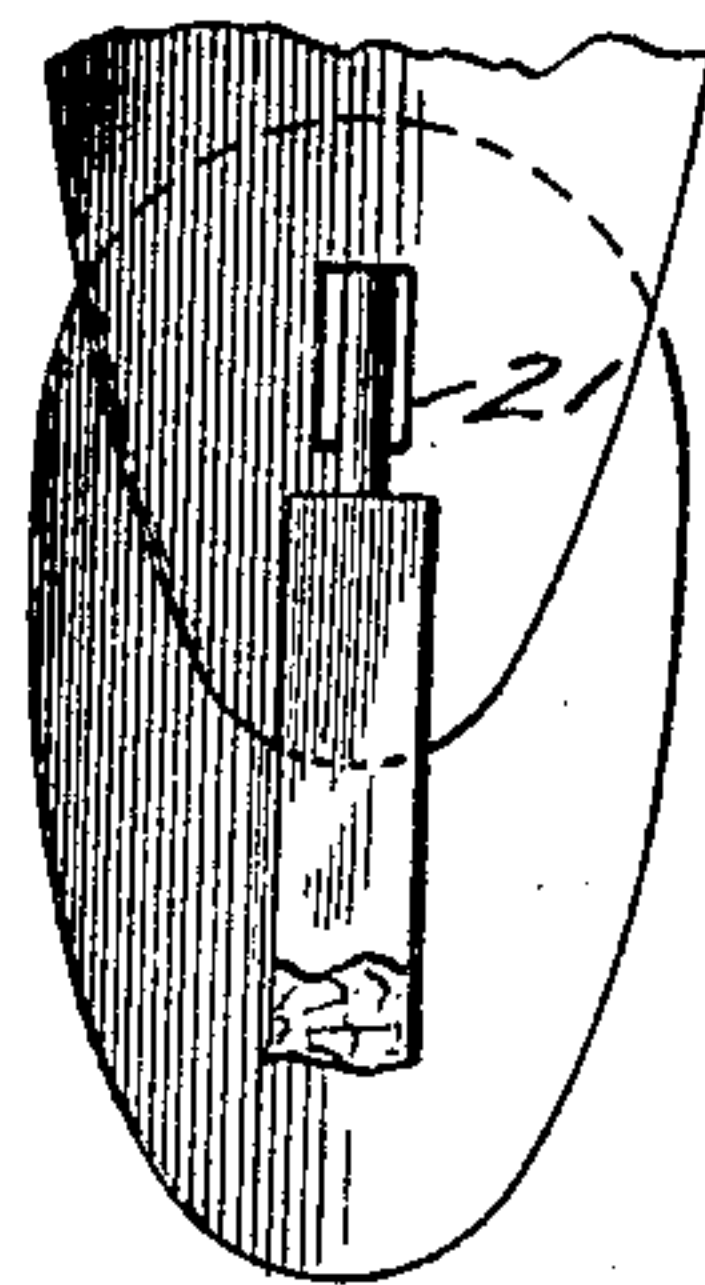
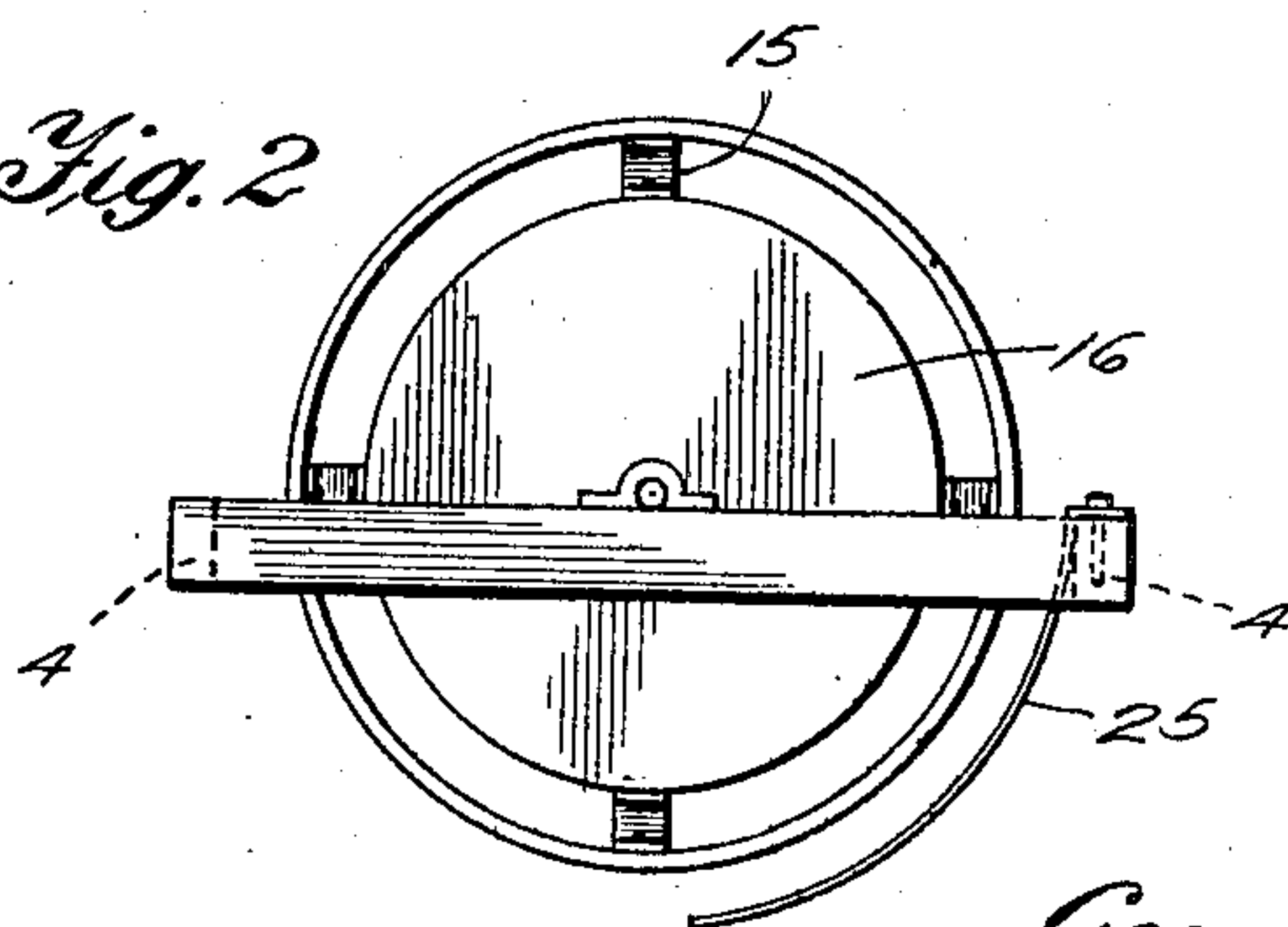


Fig. 1

Fig. 2



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ROTARY SCREEN.

No. 877,803.

Specification of Letters Patent.

Patented Jan. 28, 1908.

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To all whom it may concern:

Be it known that I, GEORGE F. SMAILES, a citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented new and useful Improvements in Rotary Screens, of which the following is a specification.

This invention relates to rotary screens, and it has for its object to provide a device of this class which may be employed for the purpose of screening and sifting sand, gravel and other materials such as loam, fertilizing material and the like, and which will successfully operate to separate the finer from the coarser properties under various circumstances, whether the material operated upon be dry or wet.

Further objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and assemblage of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation, partly in section, of a rotary screen constructed in accordance with the invention. Fig. 2 is an end view of the screen and a portion of the supporting frame and related parts. Fig. 3 is a detail plan view of a portion of the guide chute and the auxiliary chute.

Corresponding parts in the several figures are denoted by like characters of reference.

A simple frame structure is provided including a sill 1, uprights 2—3, side rails 4 and cross-bars 5—6 affording bearings for an inclined shaft 7 having at its upper or front end a crank 8 whereby it may be rotated. The shaft 7 carries a drum D which is suitably connected therewith and supported thereupon; said drum comprising a solid portion 9 at its upper end and foraminous portion 10, which latter may be constructed of screen wire of any suitable mesh, it being also understood that portions of different mesh may be included in a single drum for the purpose of grading the screen product.

The solid or inlet portion of the drum is provided with an annular flange 11, and it is provided with encircling hoops or bands 12 for the purpose of strengthening and reinforcing the construction. A hoop 14 at the

lower or outlet portion of the screen carries, upon a plurality of radial arms or brackets 15, a disk or diaphragm 16 which serves to prevent the material discharged over the tail end of the drum from scattering; this feature being especially useful when the machine is set up for operation indoors.

The uprights 2 at the front end of the machine support a hopper 17 for the additional support of which braces 18 are provided. Braces 19 are also used, wherever their presence may be found desirable, for the purpose of reinforcing the frame structure.

Suitably supported in the frame, beneath the hopper 17 is a chute 20 for the purpose of directing material from the hopper towards the inlet of the drum; the chute 20 is slotted, at 21, for the passage of the shaft 7 and below the slot is supported an auxiliary chute 22 over which material leaking through the slot 21 and passing over the chute 20 will be conveyed into the open inlet end of the drum where it is deposited upon the solid portion 9 of the latter. A shield 23, which may consist of boards nailed to the uprights 2, is provided for the purpose of preventing unscreened material that may drop from the shovel which is used in feeding the hopper 17 from being mixed with the screened material below the drum.

An apron 24 is hingedly supported adjacent to the sill 1 of the machine; this partition member may be adjusted in various positions for the purpose of effecting separation between various grades of material discharged through the meshes of the drum. Suitably supported upon the frame of the machine adjacent to the upgoing side of the drum is a shield 25 which will guide the screened material to a suitable position below the drum and prevent such material from being scattered over a wide area by the centrifugal action of the drum.

From the foregoing description taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains.

The construction is very simple and the improved screen may be constructed and installed at a very moderate expense. The device will be found extremely useful for contractors, builders, stone-masons and others who use large quantities of sand which must be carefully screened and separated according to the various uses to which it is to be put.

Ordinary screening methods, especially when the sand is wet, have been found very ineffective in producing a thorough separation, especially when various grades of finers are
5 desired. I have found by practical experience that by this improved rotary screen the sand even when quite wet may be thoroughly and effectively separated into various grades suitable for cement work, for ordinary brick
10 and stone laying, for pointing up, and for other different uses. The device may also be effectively employed by farmers and horticulturists for the purpose of sifting and separating loam, fertilizing materials and the
15 like, as well as for mixing such materials.

A device constructed in accordance with this invention, even when made of large capacity, may be made so light that it may be readily moved from one place to another, and
20 the rotary movement of the drum may be effected without undue exertion by a boy while one or more men are engaged in shoveling material into the hopper. The solid portion 9 of the drum receives the direct impact
25 of the material dropping from the hopper,

the fall being also broken by the arrangement of the inclined guide chutes, and the drum, and especially the screen portion of the latter will thus be protected from injury and guarded against excessive wear.

Having thus fully described the invention, what I claim as new is:—

A rotary screen comprising a frame, a drum with a shaft rotatably mounted on the frame, said drum having longitudinal radial
35 arms therein, a hopper on the frame, a slotted chute communicating with the hopper, an auxiliary chute communicating with the slotted chute, and with the inner open end or mouth of the drum, an adjustable grading
40 apron for the drum, and means for guiding the material and preventing the scattering of the same, substantially as specified.

In testimony whereof, I affix my signature in presence of two witnesses.

GEORGE FRANKLIN SMAILES.

Witnesses:

C. E. WYETH,

ROBERT E. FORGRAVE.