

Sept. 18, 1923.

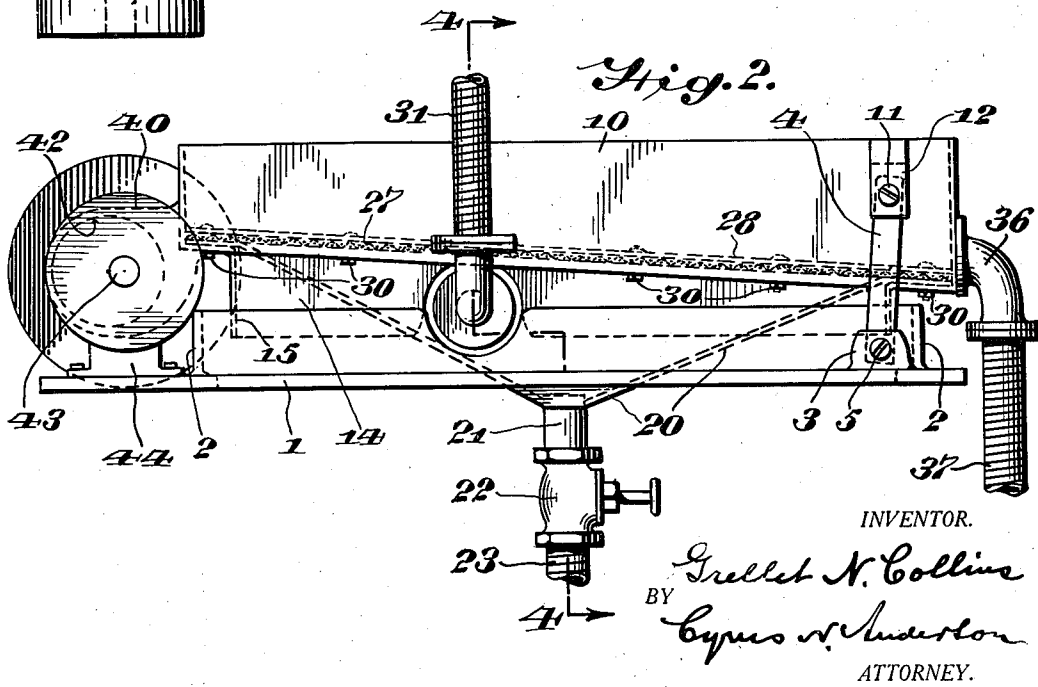
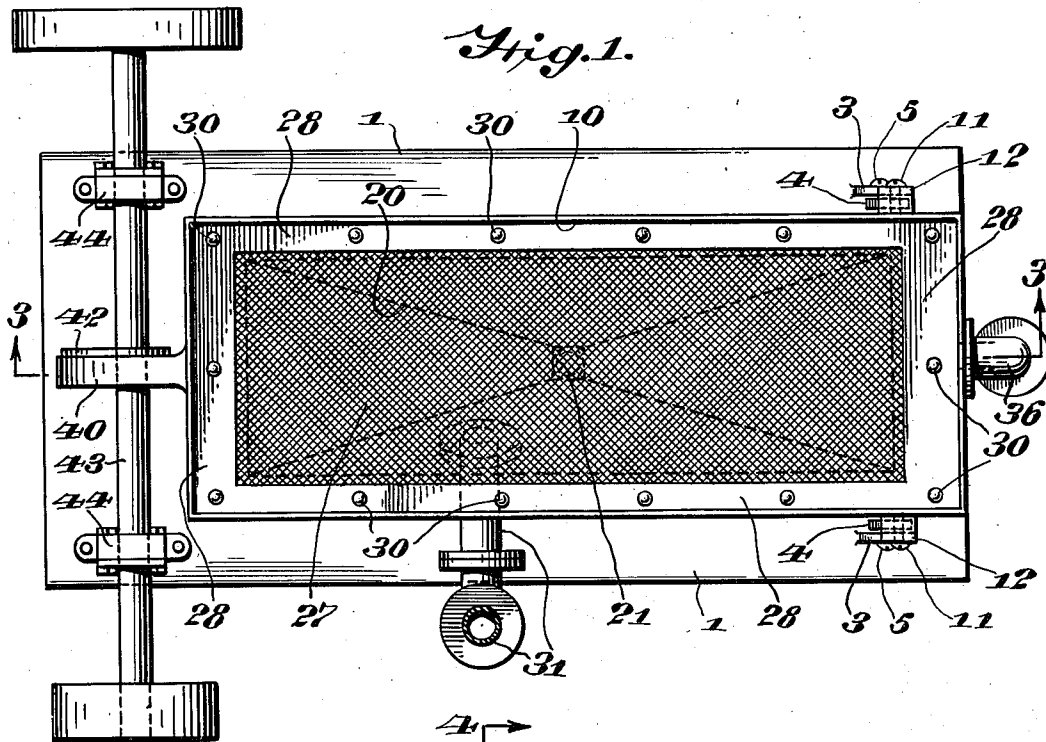
G. N. COLLINS

1,468,261

RIDDLE

Filed Feb. 23, 1923

2 Sheets-Sheet 1



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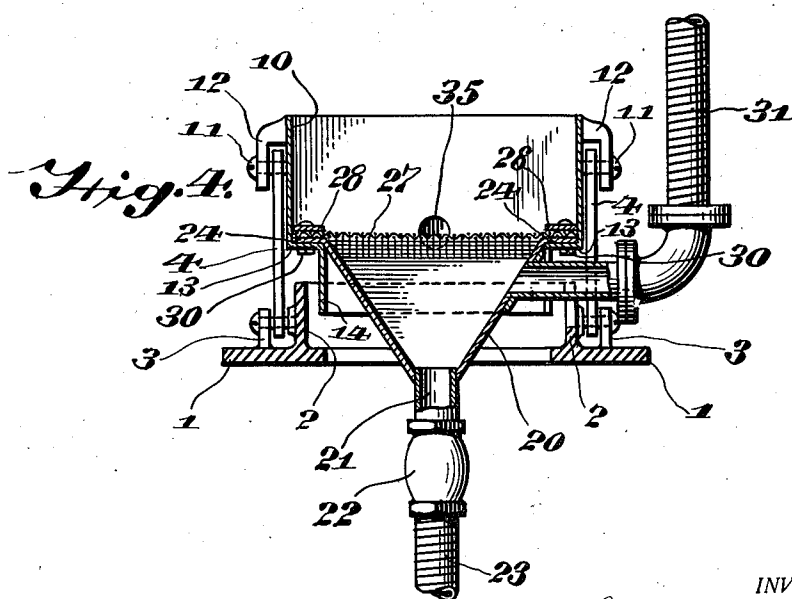
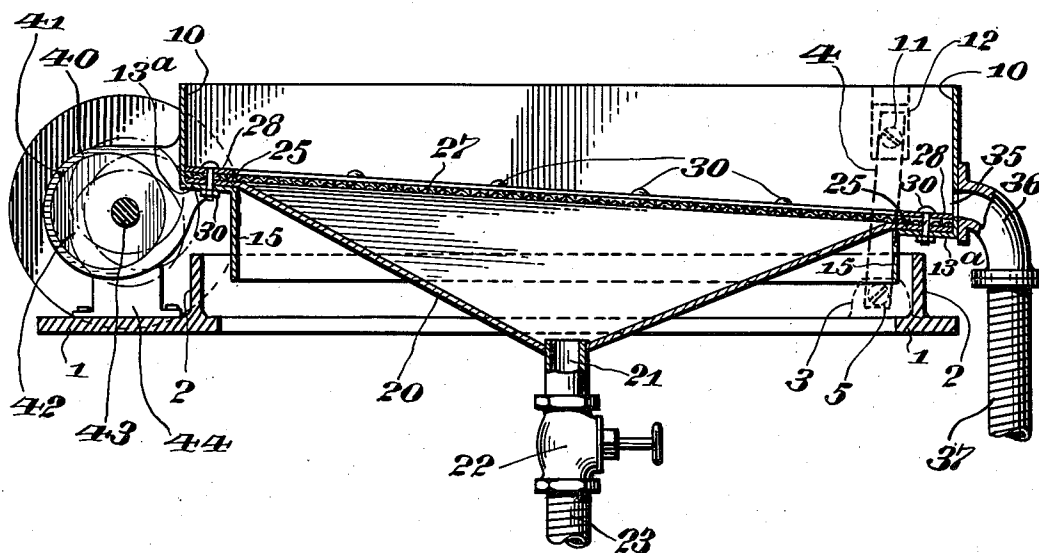
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Fig. 3.



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UNITED STATES PATENT OFFICE.

GRELLET N. COLLINS, OF NARBERTH, PENNSYLVANIA.

RIDDLE.

Application filed February 23, 1923. Serial No. 620,564.

To all whom it may concern:

Be it known that I, GRELLET N. COLLINS, a citizen of the United States, and a resident of Narberth, in the county of Montgomery and State of Pennsylvania, have invented an Improvement in Riddles, of which the following is a specification.

My invention relates to apparatus which is adapted for use in the screening of liquid and semi-liquid materials, such as the so-called "white water" of paper mills, casein, pulp, glue, clay or color in solution.

The invention is embodied in an apparatus in which the material to be screened is caused to flow upwardly through the apparatus and through the screen or sieve contained therein in opposition to the force of gravity and it has for its general object to provide an improved and novel construction of means for effecting vibratory movements of the apparatus during the period that the material to be screened is flowing there-through.

A further object of the invention is to provide an improved and novel construction of means for supporting the apparatus whereby it may be vibrated readily and efficiently.

To these and other ends my invention comprehends the construction and novel arrangement of parts as hereinafter fully described and as illustrated in the accompanying drawings forming a part of this specification and to which reference may be had for a clearer understanding of the same. It will be understood that changes in the details of construction may be made within the scope of the claims without departing from the invention.

In the drawings:

Fig. 1 is a view in top plan view of a riddle embodying my invention;

Fig. 2 is a view in side elevation thereof;

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1; and

Fig. 4 is a vertical transverse sectional view taken on the line 4—4 of Fig. 2.

Referring to the drawings: 1 designates the base of the apparatus having a central opening and also having a vertically and upwardly extending flange 2 which is situated adjacent the outer edge thereof as indicated. The said base is also provided with lugs 3 secured to the opposite side portions of the base 1 adjacent one end thereof to which the lower ends of upright links 4 are pivotally

connected by means of bolts 5. The said links are situated adjacent the discharge end of a box 10 and are pivotally connected at their upper ends to the opposite sides thereof. Such pivotal connection is effected by means of bolts 11 which extend through downwardly extending projections 12 secured to the opposite sides of the said box. The depending portions of these projections are spaced from and are in substantially parallel relation to the adjacent sides of said box. The sides and ends of the box are provided respectively with inwardly extending substantially horizontal flanges 13 and 13^a which terminate with downwardly extending flanges 14 and 15 which project below the upper edge of the flange 2, previously referred to. The side and end portions of the bottom 20 of the box 10 are inclined downwardly and inwardly and said bottom is provided with an opening at its center within which is secured a wash-out or cleaning pipe 21 having a control valve as indicated at 22. The portion 21 is connected with a flexible pipe or conduit extension 23 by means of which the material which may be discharged from the bottom of the box may be conveyed to such point as may be desired.

The outer edges of the side and end portions of the bottom 20 terminate in flanges 24 and 25 which rest upon the upper sides of the flanges 13 and 13^a. The outer edges of a sieve or screen 27 rest upon and are secured to the outwardly extending flange portions 24 and 25 and to the inwardly extending flange portions 13 and 13^a. In order to render more secure the connection between the said sieve or screen and the said flanges I have provided thin metallic strips 28 which overlie the side and end edge portions of the said sieve or screen through which the securing bolts 30 extend.

The material to be screened is introduced into the bottom portion of the screen through a pipe or conduit including a flexible portion 31. The said pipe or conduit discharges into the bottom portion of the box underneath the sieve or screen 27 as is quite clearly shown in Fig. 4 of the drawings. Normally the valve at 22 is closed so that the liquid or semi-liquid material to be screened which is discharged into the box 10 underneath the sieve or screen 27 must flow upwardly through the latter. For discharging the screened material from the box 10 I have provided a port 35 in the right hand end of

the box (having reference to Figs. 1, 2 and 3 of the drawings) which is in communication with a short pipe 36 to which a flexible pipe or conduit 37 is connected.

5 For the purpose of providing means for agitating the box 10 I have provided the end opposite the discharge end thereof with a rigid casting or other projection 40 having an opening therein as indicated at 41
10 within which is situated an eccentric 42 supported upon and rotatable with a shaft 43 which in turn is supported upon bearings 44 upon the base member 1. Any suitable power means may be employed for rotating
15 the said shaft. The eccentric 42 is indicated in a number of positions in the drawing so as to indicate the movements to which the box would be subjected upon rotation of the said shaft and eccentric. It will be seen that
20 upon rotation of the eccentric the box 10 will not only be reciprocated or moved horizontally but also will be vibrated in vertical planes about the axis of the pivot bolts 11 as a center.

25 I have also found it to be of advantage to so support the box 10 that the screen 27 shall be slightly inclined from the end of the box which is supported upon the eccentric 42 toward the opposite discharge end.

30 By providing means whereby a compound movement is imparted, as described, to the box containing the screen I have been enabled to obtain very efficient results both as to capacity and as to effectiveness of the separating or screening action. Another advantage
35 incident to my invention is that it may be installed and employed in places where the vertical space is limited.

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

1. In a riddle, the combination of a box having a screen therein and a discharge outlet above said screen, means for supplying
45 material to be screened to the said box underneath the said screen so that such material is caused to flow upwardly through the said screen against the force of gravity, means
50 for pivotally and swingingly supporting one end of said box, and means for supporting the opposite end of said box, which means is adapted to effect simultaneous vertical and longitudinal movements of portions of said box.

55 2. In a riddle, the combination of a box having a screen therein and a discharge outlet above said screen, means for supplying material to be screened to the said box underneath the said screen so that such material
60 is caused to flow upwardly through the said screen against the force of gravity, means for pivotally and swingingly supporting one end of said box, and rotatable means for supporting the opposite end of
65 said box, the said rotatable supporting

means operating to effect simultaneous vertical and longitudinal movements of portions of said box.

3. In a riddle, the combination of a box having an outlet port for screened material, 70 a screen situated below said port extending transversely of said box and secured to its opposite sides and ends which screen is inclined from the discharge end of said box upwardly to the opposite end of said box, a 75 flexible conduit in communication with said port, means for supplying a liquid or semi-liquid material to the said box underneath said screen, means for pivotally and swingingly supporting said box adjacent its discharge end, a rotatable shaft having an eccentric secured thereto and a rigid projection extending from said box and having an opening therethrough within which the said eccentric is situated, the said projection being situated in opposed relation to the said discharge port.

4. In a riddle, the combination of a box having a screen situated within and extending transversely thereof a distance below 90 its top and inclined downwardly toward its discharge end and the said box having an inlet port therein below the said screen through which the liquid or semi-liquid material to be screened is introduced, a port 95 in one end thereof above said screen through which the screened liquid or semi-liquid material is adapted to the discharged and a port in its bottom through which the solid material separated from the said liquid or semi-liquid material is adapted to be discharged, 100 flexible conduits having communication with the said ports, upright link supports pivoted at their lower ends upon stationary pivots and pivoted at their upper ends to the said box adjacent its discharge end and the said box having at its opposite end an outwardly extending rigid projection having an opening therethrough, a rotatable shaft and an eccentric upon said shaft situated within 110 said opening, substantially as described.

5. In a riddle, the combination of a box having sides and ends provided at their lower edges with inwardly and substantially horizontally extending flanges and a downwardly projecting bottom having a horizontally extending flange at its upper edge 115 which overlies the flanges of the sides and ends of said box, a screen supported at its outer edges upon the said flanges, means for securing the edges of the said screen and the said flanges together, means for supplying liquid or semi-liquid material to be screened to the said box underneath the said screen, means having connection with said box above 120 said screen for conveying the screened liquid or semi-liquid from the said box and means for imparting to the said box a combined horizontally reciprocating and vertical movement, substantially as described, 130

6. In a riddle, the combination of a base member having a central opening there-through and a vertically extending flange surrounding said opening, a box having 5 sides and ends which terminate at their lower edges in horizontal inwardly extending flanges which flanges terminate in vertically depending flanges which project within and below the upper edge portion of the 10 flange upon the said base member and the said box having a bottom portion which projects downwardly into the central opening of the said base member and the top edge portion of which terminates in outwardly extending 15 flanges which overlie the inwardly extending flanges at the lower edges of the sides and ends of the said box, a screen supported at its outer edges upon the said flanges, means for delivering liquid or semi-liquid materials to the portion of said box 20 underneath the said screen, means having connection with said box above said screen for conveying the screened liquid or semi-liquid material from said box, upright links 25 having pivotal connection at their lower ends to the said base and pivotal connection at their upper ends to the opposite sides of said box adjacent the discharge end thereof, and means at the opposite end of said box 30 for imparting thereto horizontal reciprocating and vertical movements, substantially as described.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 20th day of February, A. D., 1923.
GRELLET N. COLLINS.