

L. F. FALES.  
 DRIVING MECHANISM FOR PULP SCREENS.  
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2 SHEETS—SHEET 1.

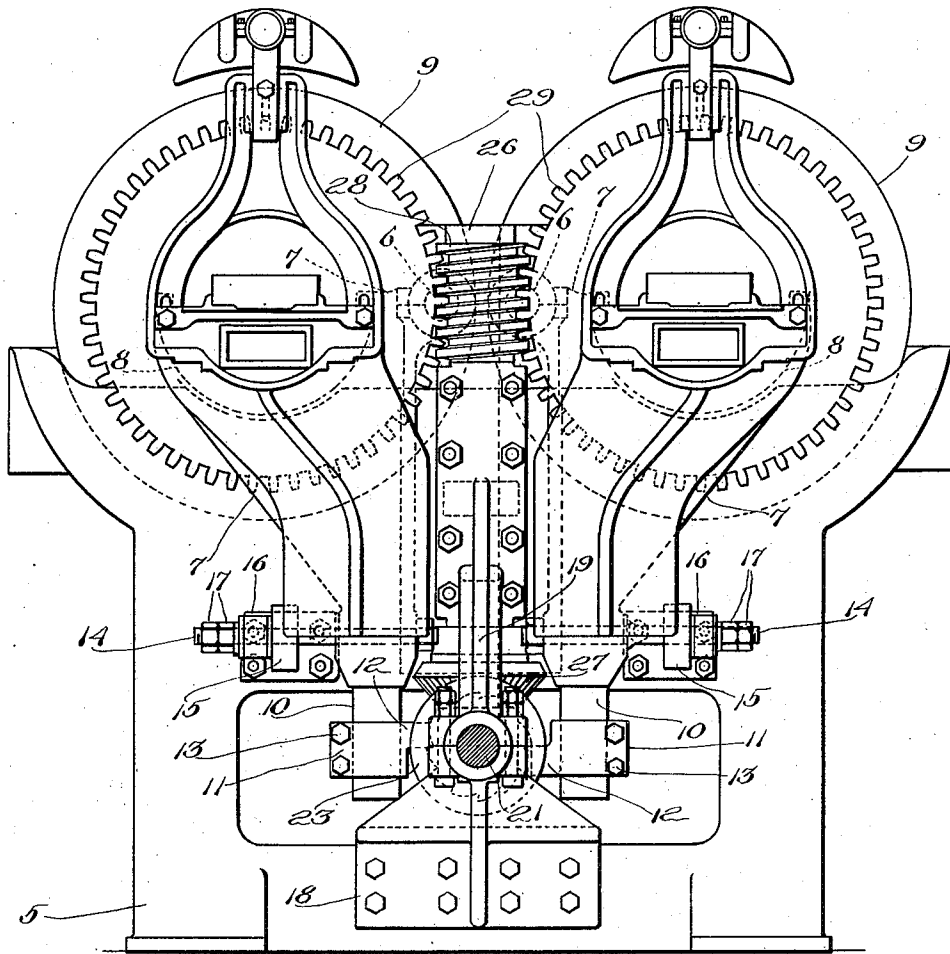


Fig. 1.

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2 SHEETS--SHEET 2.

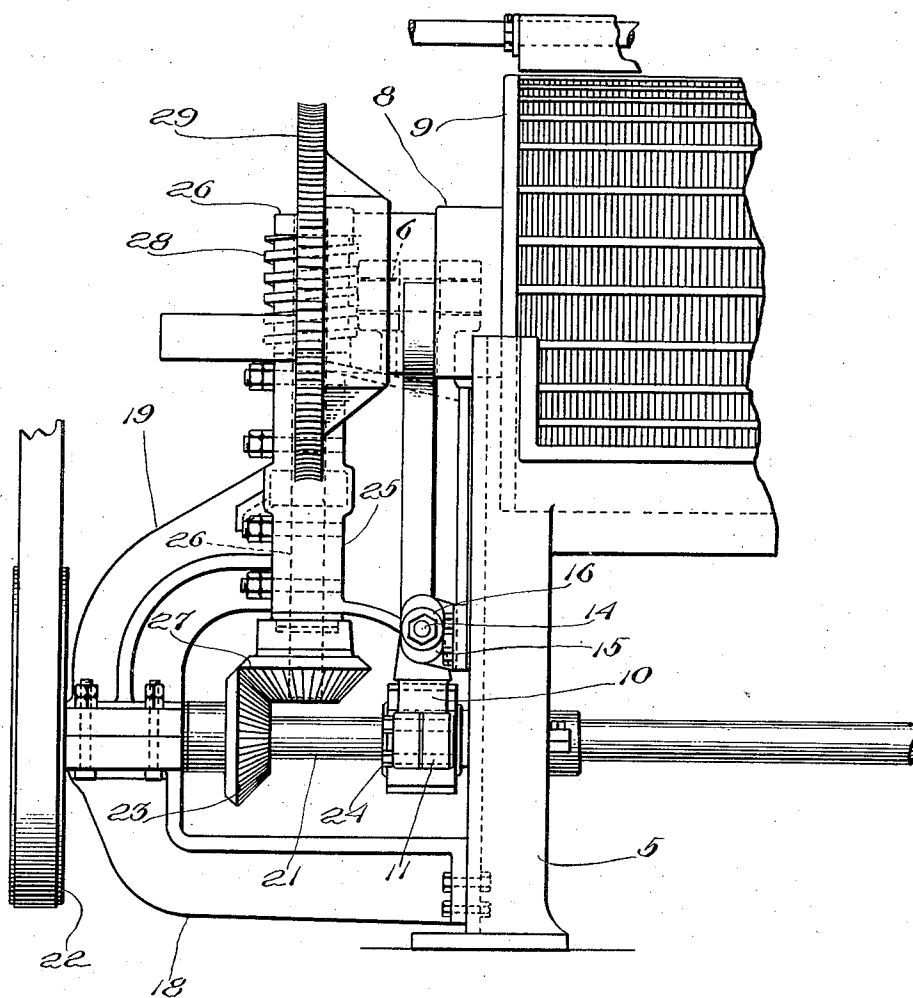


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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DRIVING MECHANISM FOR PULP-SCREENS.

1,026,948.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed January 18, 1912. Serial No. 671,943.

*To all whom it may concern:*

Be it known that I, LEWIS F. FALES, of Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Driving Mechanisms for Pulp-Screens, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

10 This invention has reference to improvements in mechanism for driving the rotary screens of pulp screening or straining machines.

One object of the invention is to so construct a driving mechanism for rotary pulp screens that the main shaft thereof may be comparatively short and that said main shaft and the mechanism operated thereby to drive the pulp screens may be strong and efficient while of simple construction.

Another object of the invention is to so construct a driving mechanism for rotary pulp screens having a vibratory movement that the axis on which said screens vibrate shall be approximately coincident with the pitch point of the driving and driven gears whereby the teeth of the driven gears of the pulp screens may, in their vibratory movement, rock on the drive gear.

30 Another object of the invention is to simplify the construction of driving mechanisms for rotary cylindrical pulp screens.

Other objects of the invention will appear from the following description.

35 The invention consists in the novel driving mechanism for pulp screens as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents an end view of a duplex rotary pulp screen provided with my improved driving mechanism. Fig. 2, represents a side elevation of portions of the same.

Similar numerals of reference designate 45 corresponding parts throughout.

This invention has reference to improvements in driving mechanisms for pulp screens of the nature described in U. S. Letters Patent No. 955,025, granted to Otto 50 Wandel, April 12, 1910.

In rotary pulp screens of the nature herein referred to it is desirable that, in operation, the cylindrical screens be rotated continuously and that during such rotation the screens be sharply and intermittently vibrated to effect the sifting of the finer par-

ticles of pulp through the interstices of the screens. In view of such constant vibration of the mechanism it is desirable that the drive gear should be of such relation that its parts shall not be unduly worn and it is also desirable that the drive gear should be supported close to the main frame. It is also important that the drive gear should be of such nature that the meshing teeth thereof may be accurately formed in an economical manner.

As shown in the drawings 5 indicates one of the main end frames having at its upper portion the studs or pivots 6, 6 on which are pivoted the vibrator frames 7, 7 having at their upper portions bearings in which the tubular collars 8, 8 of the cylindrical screens 9, 9 are journaled and said frames 7, 7 having the depending arms 10, 10 furnished near their lower ends with the slide blocks 11, 11 having the projections 12, 12 and secured in position on said arms 10, 10 by the bolts 13, 13. Secured to the lower portions of said vibrator frames 7, 7 are laterally extending bolts 14, 14 which are slidable in perforations of the guide blocks 15, 15 secured to the frame 5 and said bolts are furnished at their outer end portions with elastic buffers 16, 16 held from outward movement by the adjusting nuts 17, 17 whereby the return movement of the frames 7, 7 is limited through the interception of the buffers 16, 16 by the guide blocks 15, 15.

Securely mounted on the main frame 5 is the drive frame having the members 18 and 19. In bearings respectively of the main frame and said drive frame is journaled the main shaft 21 having the drive pulley 22 the miter pinion 23 and the throw cam 24, this latter being located between and acting on the projections 12, 12 of the blocks 11, 11 to effect, during the rotation of the main shaft, the rapid vibration of the arms 10, 10 and their frames 7, 7.

100 Journaled in the vertical bearing 25 of the drive frame member 19 is the worm shaft 26 having at its lower end the miter pinion 27, driven by the similar pinion 23 of the main shaft 21, and at its upper end the worm 28 meshing with the worm gears 29, 29 mounted on the respective collars 8, 8 of the screens 9, 9. The pitch of the worm 28 and of the gears 29, 29 are so related that the pitch points thereof, at which the worm 28 is fully engaged between two teeth of each gear 29, 29 are approximately coinci-

dent with the axes of the studs or pivots 6, 6 so that, as the frames 7, 7 swing on said pivots the teeth of the gears 29, 29 may rock relatively to the thread of the worm 28  
5 without undue wear of either of said parts.

By the use of the vertical worm 28 I find that the length of the main shaft 21 can be shortened as shown in Fig. 2 of the drawing and that the outer bearing for said main  
10 shaft, formed between the members 18, 19 can be brought closer to the main frame 5 than as heretofore constructed, hence the vibration of such bearing is considerably reduced. I find also that the worm gears  
15 29, 29 may be more economically and more accurately cut or formed than is the case with crown gears or spur gears.

Having thus described my invention I claim as new and desire to secure by Letters Patent—

1. Driving mechanism for rotary pulp screens comprising a main frame, a drive gear frame secured to the main frame and having a horizontal bearing and a vertical  
25 bearing, a main shaft journaled in the horizontal bearing and having a miter pinion, a power transmission shaft journaled in said vertical bearing and having a miter pinion meshing with the pinion of the main shaft, a cylindrical pulp screen rotatably  
30 mounted in bearings, and driving connections between said power transmission shaft and said pulp screen, substantially as described.

35 2. Driving mechanism for rotary pulp screens comprising a main frame having a pair of studs, frames pivotally mounted on said studs, means for vibrating said frames, a pair of cylindrical pulp screens rotatably

mounted in said frames and having worm 40 gears, a worm located between said worm gears and in engagement therewith, and means for driving said worm.

3. Driving mechanism for rotary pulp screens comprising a main frame, a pair of 45 vibratory frames carried on members of the main frame, a pair of pulp screens journaled in said vibratory frames and having worm gears, a worm shaft journaled in a vertical bearing and having its worm lo- 50 cated between and in engagement with said worm gears, the pitch points of said worm and worm gears being approximately coincident with the axes about which said frames are adapted to vibrate. 55

4. Driving gear for rotary pulp screens comprising a main frame, a drive gear frame secured thereto, studs extending from the main frame, vibrator frames pivotally 60 mounted on said arms and having arms furnished with cam blocks pulp screens journaled in said vibrator frames and having worm gears, a shaft journaled in a vertical bearing of said drive gear frame and having a worm located between said worm 65 gears and in engagement with both thereof, a miter pinion at the lower end of said worm shaft, and a main shaft journaled in bearings respectively of said main frame and drive gear frame, said main shaft hav- 70 ing a throw cam acting on the cam blocks of the vibrator frames and a miter pinion in engagement with the similar pinion of the worm shaft, substantially as described.

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