

(No Model.)

G. D. ROWELL.
PULP SCREENING MACHINE.

No. 493,787.

Patented Mar. 21, 1893.

FIG. 1.

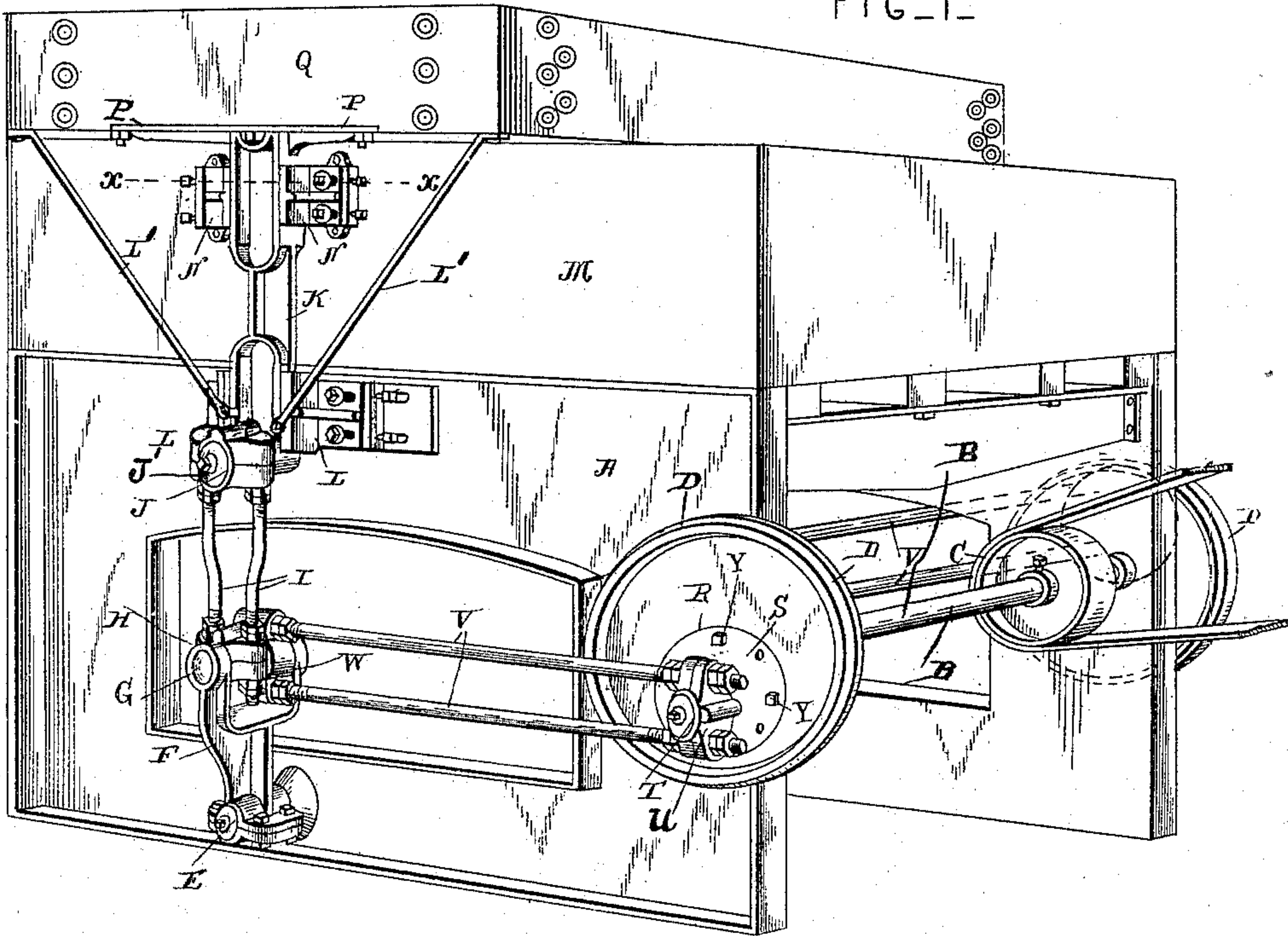


FIG. 2.

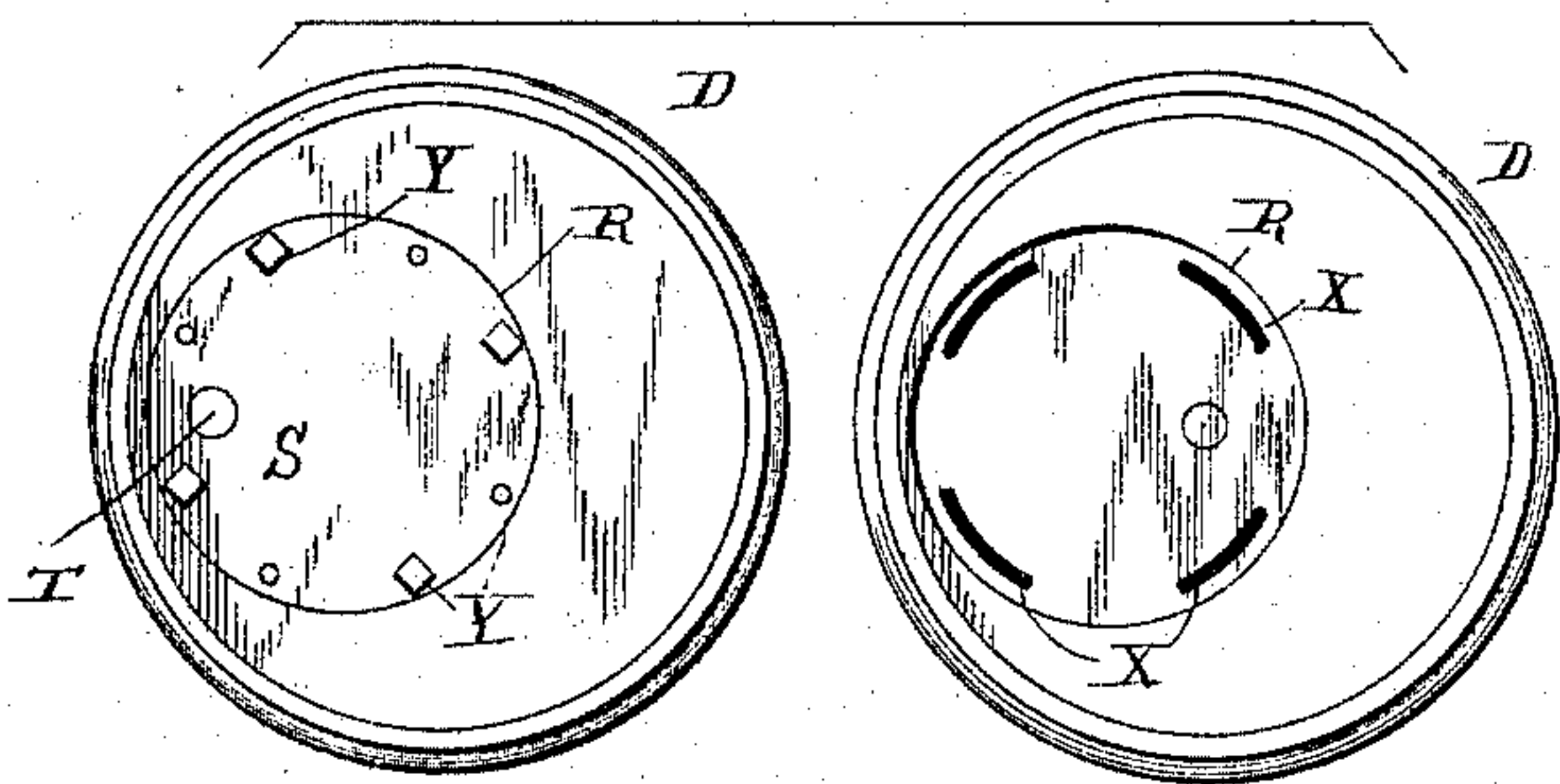
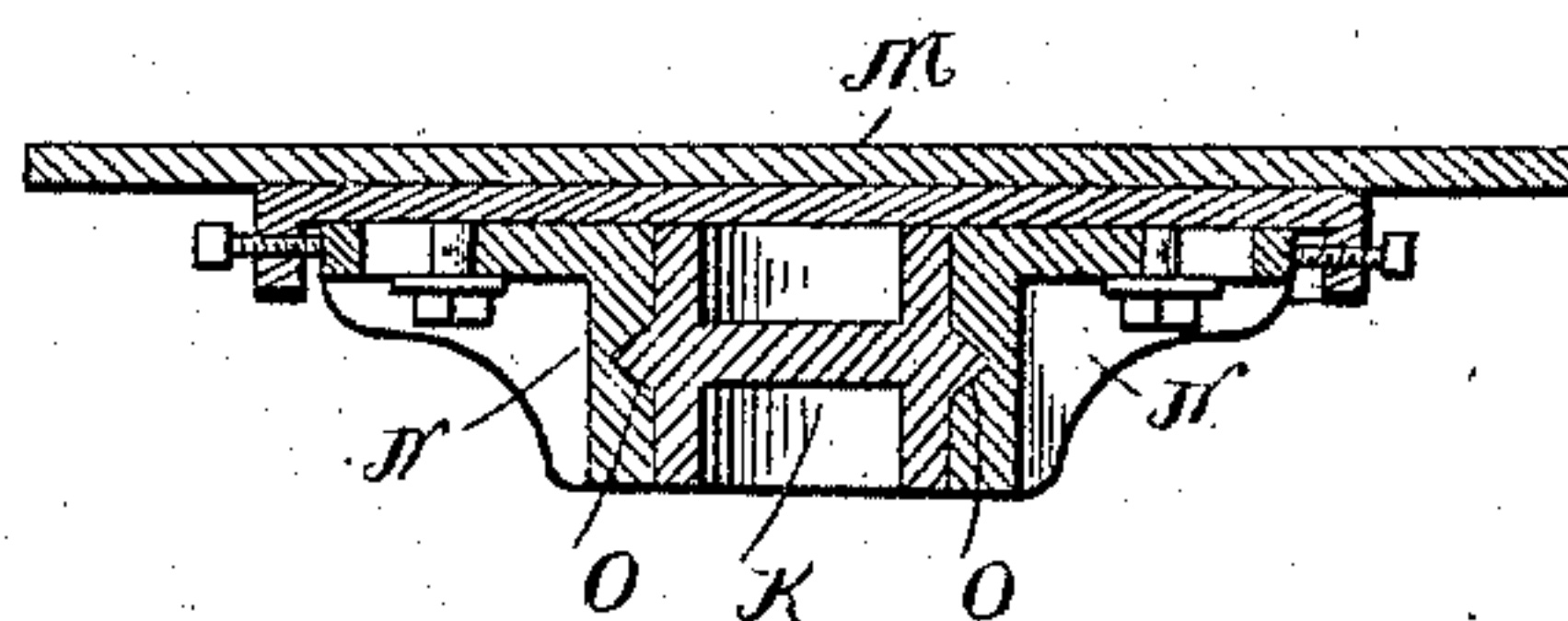


FIG. 3.



WITNESSES.

Geo. C. Frech,
J. M. Nesbit.

INVENTOR.

G. D. Rowell,
per
Lehmann & Pattison,
Attys.

UNITED STATES PATENT OFFICE.

GUILFORD D. ROWELL, OF APPLETON, WISCONSIN.

PULP-SCREENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,787, dated March 21, 1893.

Application filed April 2, 1891. Serial No. 387,407. (No model.)

To all whom it may concern:

Be it known that I, GUILFORD D. ROWELL, of Appleton, in the county of Outagamie and State of Wisconsin, have invented certain
5 new and useful Improvements in Pulp-Screening Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable
10 others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in pulp screening machines: and it consists in
15 certain novel features of construction, arrangement and combinations of parts which will be fully described hereinafter and particularly pointed out in the claims.

Figure 1 is a perspective view of a machine
20 which embodies my invention complete. Fig. 2 is a detached plan view of crank adjusting mechanism. Fig. 3 is a cross section through a screw bar or leg and the guides therefor taken on the dotted line X—X of Fig. 1.

25 A, indicates the bed of my machine which consists of an open frame-work of any suitable construction, shape, or size that may be preferred. Journaled to one side of this frame-work is a horizontal shaft B carrying an operating pulley C of any suitable size that may
30 be preferred, and around which a belt from any suitable power is passed.

Secured to each end of the driving shaft B is a balance wheel D, carrying a crank or
35 wrist pin which will be fully described hereinafter.

Extending outward from the bottom of each end of the bed A is a spindle or shaft E upon which the lower end of an arm F is journaled.
40 The upper end of this arm F is bifurcated as shown and the extremities of these bifurcated ends are provided with shaft bearings in which is placed the horizontal spindle G. Journaled upon the spindle G is a boxing H to opposite
45 sides of which are secured the rods I the upper ends of these rods being likewise secured to a boxing J mounted to rock on a spindle J' which is formed upon the lower end of the screen supporting bar or leg K. Secured to

the upper edge of the bed A are the laterally
50 extending bearings L which form guides for the lower ends of the screen bars K.

Placed upon the top of the bed A is a trough M which is also provided at opposite ends with
55 laterally extending bearings N which form guides for the upper ends of the screen supporting bars K. Formed in the inner sides of these bearings L, N, are vertical V-shaped grooves O, and the vertical edges of the screen supporting bars are made V-shape so as to fit
60 in the V-shaped grooves of the said bearings. By means of this construction these bearings not only serve as guides for the screen supporting bars, but also support them against
65 any lateral movement of the bars in the bearings. I am enabled to thus do away with guides or bearing plates which have heretofore been placed on the upper sides of the
70 trough and in which arms, which project from the sides of the trough have extended.

The upper ends of the screen supporting bars K, have laterally extending arms P upon which the ends of the screen Q are placed and secured in any suitable manner.

L' L', indicate inclined braces secured to
75 each end of the screen and extending down and secured to the respective screen bars or legs at opposite ends.

Formed eccentrically in the outer face of each of the two balance wheels D is a circular
80 cavity R, in which is placed and closely fitted, a circular disk S. Extending laterally from this disk and eccentrically thereto is a wrist pin T upon which is journaled a boxing U to which the outer ends of the connecting rods
85 or pitmen V are connected in any desired manner. The inner ends of these rods V are secured to a boxing W which is journaled upon the spindle G inside of the boxing H heretofore mentioned. As shown the ends of
90 the rods V and I are adjustably secured to their boxings for the purpose of lengthening or shortening the rods and thus regulate the relative positions of the parts to which they are attached.

Made transversely through the balance
95 wheels within the eccentric recess R are the circular openings X through which pass the

bolts Y, which also pass through the disk S, and by means of which the disk is clamped firmly within the recess, while at the same time it is allowed a partial rotation, as will be readily understood. By placing the wrist pin eccentrically upon the disk and adjustably securing the disk eccentrically upon the balance wheel, I am enabled by rotating the disk to turn the wrist pin to carry the wrist pin away from or bring it toward the shaft and thus regulate the stroke which is imparted by the wrist pin as the driving shaft is revolved.

The pulp screening machines heretofore generally used have caused great inconvenience and wear to the machinery and building by vibrations and jar because the gearing to raise and lower both ends of the screen operated or moved in unison and in the same direction hence the vibrations and jar of the heavy machinery pushing and pulling in unison and in the same directions will cause the building to vibrate in cadence. This is very dangerous and wearing on the building and contents particularly in view of the heavy weight of the loaded screen (usually several tons) and consequent power necessary to move it. To obviate this vibration in cadence of the machinery and building, the crank mechanisms are arranged oppositely on the drive shaft B, so that when one pitman is moving up and outward and its toggle links are moving away from the shaft, the other pitman is moving in the opposite direction and inward and down and its toggle links toward the shaft. By this arrangement when one pitman is pushing the other pitman is pulling. Consequently the gearing at opposite ends of the screen works in opposite directions; they counteract each other's effect on the building so that the building cannot vibrate in unison and cadence with the machinery. Of course the invention is not limited to the use of cranks or adjustable pins. The stroke of the driving gear can be varied by the adjustable crank mechanisms.

The construction and arrangement above described reduce the friction as compared with mechanisms heretofore constructed for this purpose, and enable me to run the ma-

chine at a much higher speed, and thus do a greater amount of and more effectual work.

Having thus described my invention, I claim—

1. In a pulp screening machine, the bed plate, the trough thereon, a screen above the trough, supporting bars depending from the screen, guides therefor, arms pivoted at their lower ends to the bed and having their upper ends bifurcated, spindles extending through the said bifurcated ends, a boxing journaled on each spindle, a boxing journaled upon the lower end of each supporting bar, connections between the said boxes, a driving shaft, and connections between the driving shaft and the said pivoted arms, the parts combined substantially as set forth.

2. In a pulp screening machine, the combination of a bed, the screen having depending legs, guides therefor on the bed, arms pivotally mounted at their lower ends, rocking boxes carried by the upper ends of said arms, rocking boxes carried by said legs, links connecting said boxes on the legs and on said arms, a second box journaled on each pivoted arm, a driving shaft, and pitmen connected to said second boxes and connected with and operated by said shaft, substantially as shown and described.

3. In combination, a support, a screen having depending bars at opposite ends, guides on the support for said bars to prevent lateral movement, each bar having a lateral spindle at its lower portion, reciprocating toggle links at opposite ends of the screen at their lower ends respectively mounted on the support and at their upper ends respectively mounted on said spindle, a drive shaft, pitmen respectively connected to the joints of said links to swing them, and mechanism on the shaft to reciprocate the pitmen, substantially as described.

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

GUILFORD D. ROWELL.

Witnesses:

JOHN BOTTENSEK,
G. W. NOBLE.