No. 683,949. Patented Oct. 8, 1901.

H. L. KUTTER.

PAPER MAKING MACHINE.

(Application filed Feb. 9, 1901.)

(No Model.)

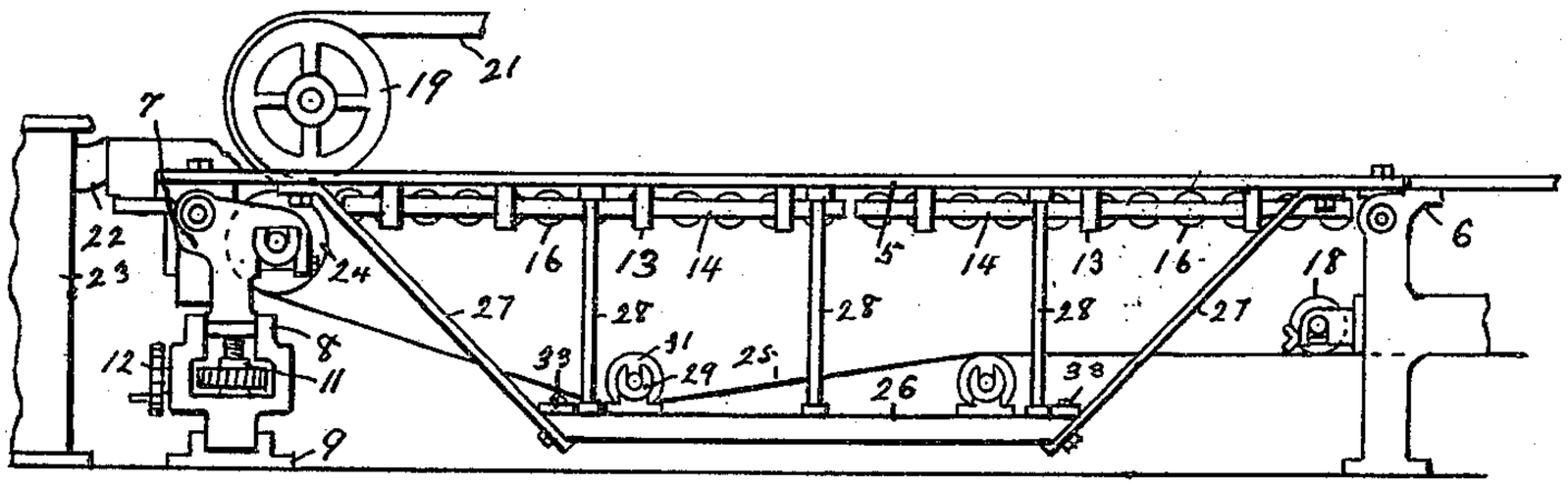


Fig. 1.

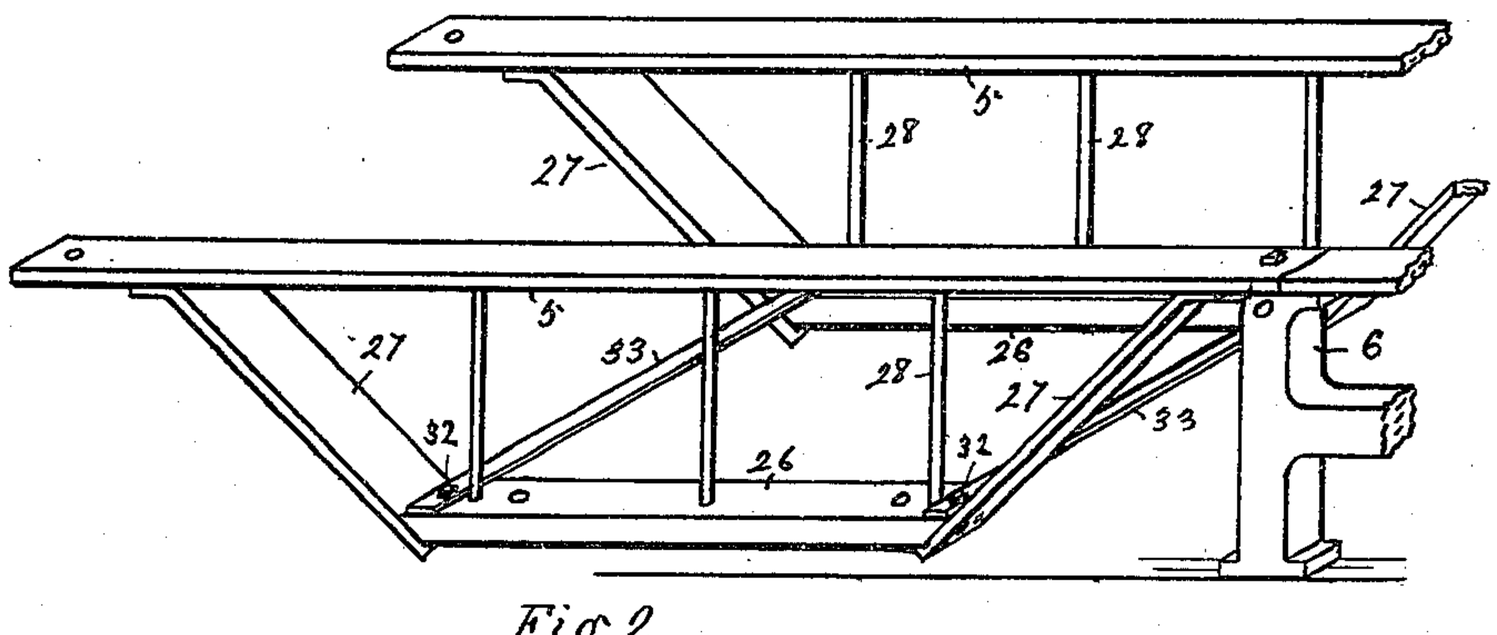


Fig. 2.

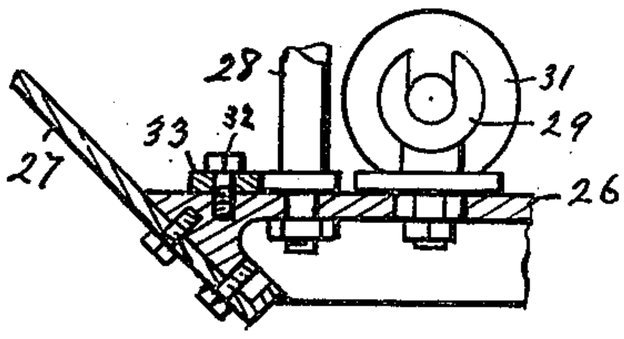


Fig. 4.

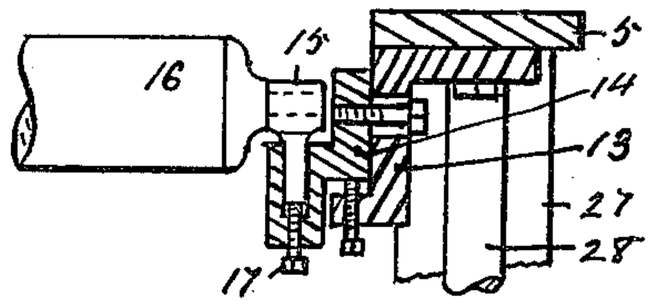
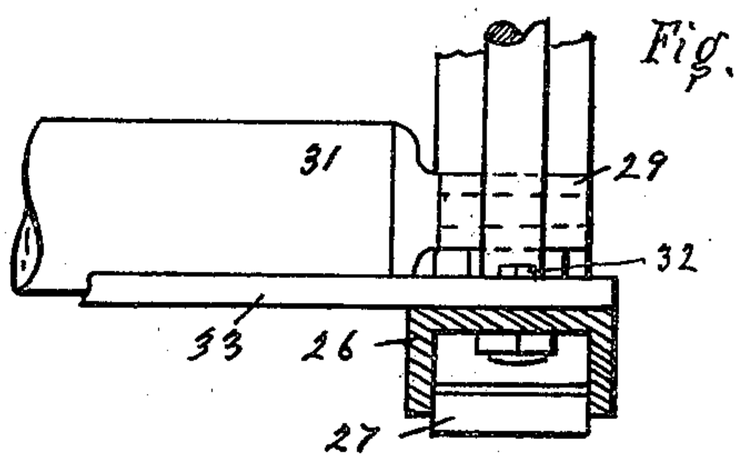


Fig. 3.



WITNESSES.

T. A. Gray

John Francis.

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By Robert S. Carr. Atty.

UNITED STATES PATENT OFFICE.

HERMAN L. KUTTER, OF HAMILTON, OHIO, ASSIGNOR OF ONE-HALF TO FRANK C. TROWBRIDGE, OF SAME PLACE.

PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 683,949, dated October 8, 1901.

Application filed February 9, 1901. Serial No. 46,723. (No model.)

To all whom it may concern:

Be it known that I, HERMAN L. KUTTER, a citizen of the United States, and a resident of Hamilton, Ohio, have invented certain new and useful Improvements in Paper-Making Machines, of which the following is a specification.

My invention relates to paper-making machines of the Fourdrinier class; and the objects of my improvement are to support the shake-frame entirely by the ends of its top rails, to suspend the bottom rails from the ends of the top rails, to support the middle portion of the top rails by struts mounted on the bottom rails, to connect the bottom rails together by means of transverse braces to prevent them from spreading under the momentum of the wire rolls mounted thereon, and to maintain uniformity in the extent of the shaking movement of the table and wire rolls, whereby the formation of wrinkles in the making wire is prevented. These objects are attained in the following-described manner, as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the shake-frame in mounted position; Fig. 2, a perspective view showing the construction of the shake-frame; Fig. 3, a cross-section of the top and bottom rails with parts attached, and Fig. 4 a longitudinal section of portions of the bottom rail and its connections.

In the drawings, 5 represents the top rails of the shake-frame, pivotally mounted at their respective ends on the fixed frame 6 and the breast-roll frame 7. The breast-roll frame is mounted at its ends on the respective supports 8, which are trunnioned to oscillate in floor-bearings 9 to impart the shaking motion to the front end of the shake-frame. Said supports are made extensible in length by means of screw and worm-gear mechanism 11, and they may be adjusted simultaneously by means of chain and sprocket-wheel connections 12 with the mechanism, whereby the front end of the shake-frame may be adjusted in height during the operation of the machine. Brackets 13 depend at intervals from the top rails, and plates 14 are adjustably supported thereon. Bearings 15, wherein the table-rolls 16 are journaled, are independently adjustable on plates 14 by means of set-screws 17. Stretcher-roll 18 is adjustably secured to the fixed frame, and deckle-pulleys 19 carry deckle-straps 21 in the usual manner. Chute 22 leads from the feed-box 23 to deliver the pulp over breast-roll 24 and on the making wire 25.

The bottom rails 26 of the shake-frame are inflexible and about one-half the length of the top rails 5. They are rigidly suspended from the end portions thereof by means of stiff plates 27, which are laterally inflexible and secured at an angle to the corresponding ends of the bottom rails. Columns 28, mounted on the bottom rails, are arranged to support the middle portion of the top rails to keep them in alinement and prevent them from sagging.

As seen in Fig. 4, the lower ends of the plates 27 are turned at a right angle to their length, and these angled ends engage the lower edges of the inclined lugs of the ends of the bottom rails, to which they are secured, thus preventing endwise strain on the parts and, furthermore, serving to prevent lateral movement of the inclined braces.

Bearings 29 for the wire rolls 31 are mounted on the bottom rails, and transverse braces 33 connect corresponding ends of the bottom rails together. Said braces are pivotally secured to the bottom rails by means of bolts 32 and, together with plates 27, serve to prevent the bottom rails from swinging laterally beyond the vertical plane of the top rails under the momentum imparted to them by the shaking movement of the frame.

By the rigidity of the construction of the shake-frame uniformity is maintained in the distance of the end movement given to the wire rolls and the respective table-rolls directly thereover, which removes the objectionable strain otherwise imparted to the making wire and the tendency thereof to form wrinkles and materially lengthens its life.

Having fully described my improvement, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a paper-making machine, the combination with top rails supported at their respective ends on the breast-roll and fixed frames, and inflexible bottom rails formed substantially shorter and registering with the

middle portions of the respective top rails, of rigid inclined plates laterally inflexible, rigidly connecting the corresponding ends of the respective top and bottom rails together and having their lower ends extended at a right angle and engaging inclined lugs on the ends of the bottom rails, columns mounted on the bottom rails and arranged to maintain the middle portions of the top rails in alinement with their end portions.

2. In a paper-making machine, the combination with fixed frame and the breast-roll frame and means for vertical adjustment of the latter, of top rails pivotally mounted at their ends on said frames, inflexible bottom rails of less length than the top rails, inflexible inclined and vertical means for holding the top and bottom rails in vertical alinement, said means having right-angled lower ends and the bottom rails having inclined lugs engaging said ends and means for rigidly connecting the opposite bottom rails and preventing their swinging laterally, and table and wire rolls supported respectively by said top and bottom rails and kept in vertical alinement with each other and means for vertical adjustment of said rolls, substantially as set forth.

HERMAN L. KUTTER.

Witnesses:
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