

M. J. MOLLEN.
 SCREEN PLATE FASTENER.
 APPLICATION FILED MAY 8, 1909.

954,452.

Patented Apr. 12, 1910.

Fig. 1.

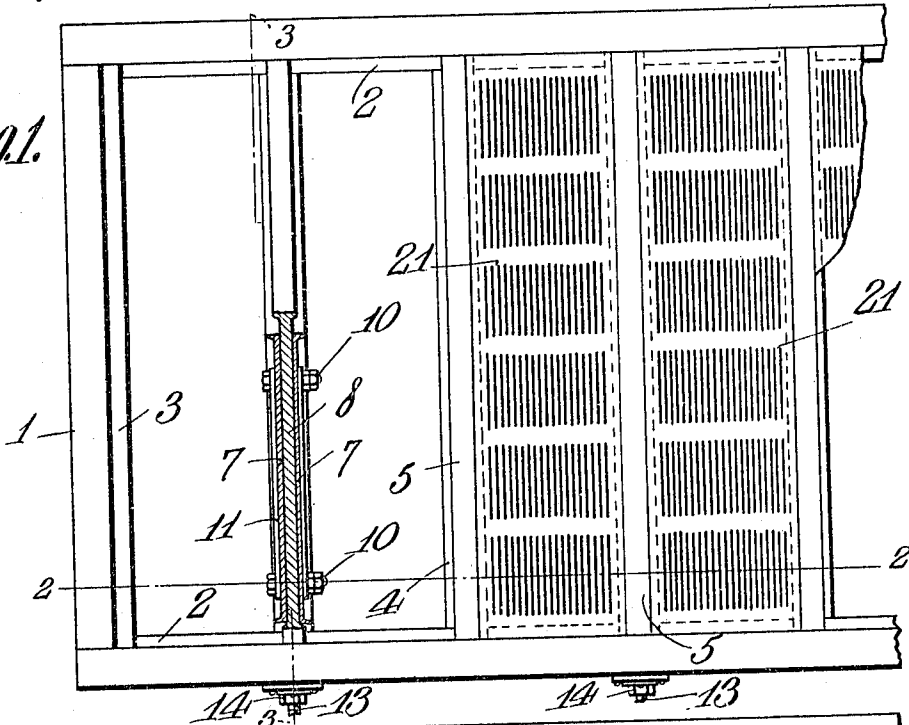


Fig. 2.

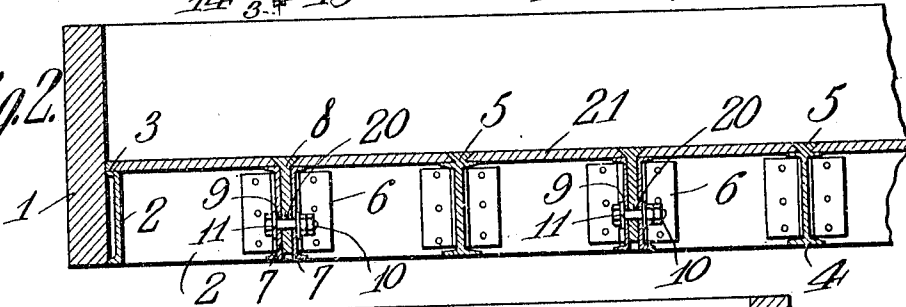


Fig. 3.

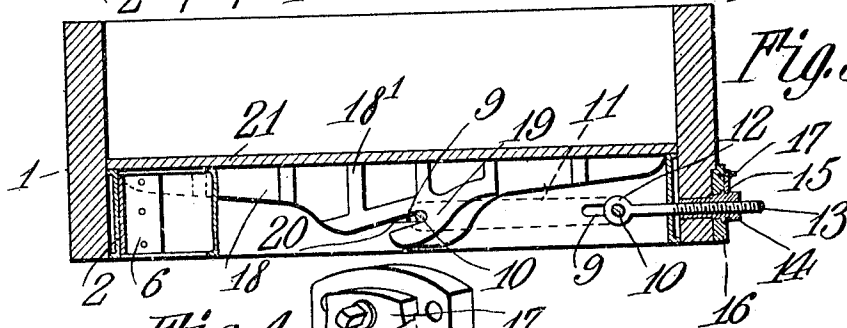
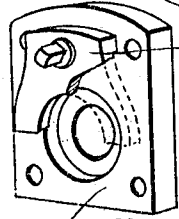
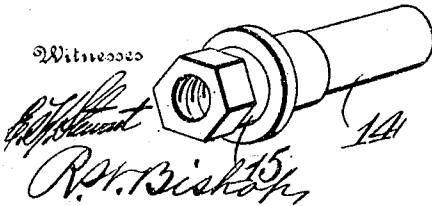


Fig. 4.



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UNITED STATES PATENT OFFICE.

MARTIN J. MOLLEN, OF NEKOOSA, WISCONSIN.

SCREEN-PLATE FASTENER.

954,452.

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To all whom it may concern:

Be it known that I, MARTIN J. MOLLEN, a citizen of the United States, residing at Nekoosa, in the county of Wood and State of Wisconsin, have invented a new and useful Screen-Plate Fastener, of which the following is a specification.

This invention relates to improvements in paper pulp screens and has for its object the provision of a screen box of a simple and strong construction which will be free of leakage.

The further object of the invention is to provide an improved fastening device by which the screen plates may be quickly and firmly secured in place and may be readily removed when it is desired to clean the screen.

These objects are attained in the device illustrated in the accompanying drawings, and the invention resides in certain novel features of the same as will be hereinafter first fully described and then particularly pointed out in the appended claims.

In the annexed drawings, which fully illustrate the invention, Figure 1 is a plan view partly broken away of a paper pulp screen embodying the improvements. Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is a transverse section on the line 3—3 of Fig. 1. Fig. 4 is a detail perspective view of a portion of the fastening devices.

In carrying out my invention, I employ a box frame 1 of the usual construction and to the sides and ends of said frame I secure the channel irons 2. Upon the upper edges of the end bars 2 I secure retaining strips 3 having their inner edges beveled so as to form slightly over-hanging lips as indicated clearly in Fig. 2. At intermediate points of the length of the box 1, I secure transverse I-beams 4, having dove-tailed strips 5 on their upper edges, the said strips being so shaped as to present slightly over-hanging lips, as clearly shown in Fig. 2. Extending between the sides of the box 1 and arranged at points between the I-beams 4 and the ends of the box and between adjacent I-beams, I secure to the side bars 2, by means of angle irons 6, the transverse channel irons 7 which are spaced apart sufficiently to admit the screen-locking strip. 8. These channel irons 7 are constructed with longitudinal slots 9 near one end and near the center through which transverse bolts 10 are

inserted, the outer ends of the said bolts being inserted through strips 11 which serve to cover the said slots 9 and thereby prevent accumulation of matter therein, and also serve as connecting links to secure a simultaneous longitudinal movement of the said bolts in the operation of the device. The outer-most bolt 10 is caused to pass through the eye 12 of an eye-bolt 13 which projects from the said bolt 10 through the side channel iron 2 and the side of the box 1 and is fitted in an internally threaded sleeve or nut 14 having an annular groove 15 near its outer end as shown most clearly in Fig. 4. This sleeve or nut 14 is rotatably mounted in a journal plate 16 which is rigidly secured to the side of the screen box and is provided with a suitable opening to receive the said nut or sleeve 14 and to the outer face of this plate 16 I secure a keeper or locking plate 17, having a semi-circular recess in its lower edge, the wall of the said recess being arranged to enter the groove 15 in the nut or sleeve, thereby holding the said nut or sleeve against longitudinal movement, but at the same time permitting a rotary movement of the same.

The fastening strip 8 has its upper head dove-tailed, and depending centrally from the said head is a central web 18, which is adapted to fit between the channel irons 7, and is formed with strengthening ribs, 18', as shown in Fig. 2. This depending rib or web 18 is so shaped as to present a central enlargement 19, provided with an inclined notch or open-ended slot 20. This inclined slot or open-ended notch 20 is adapted to engage the innermost transverse bolt 10 in the operation of fastening the screen plates in position.

The screen plates, 21, may be of the usual or any preferred construction, and are supported upon the upper edges or flanges of the several channel irons, with their edges engaging the dove-tailed strips on the same, while between the adjacent edges of the bars of a pair of screen plates the fastening strip 8 is inserted so that when the said plate is drawn home the screen plates will be firmly held in place.

In assembling the parts in accordance with my invention, the several channel irons are secured to the sides of the wooden screen box in any convenient manner. The screen plates are placed upon the I-beams 4 and the channel irons 7 with their edges engaging

the dove-tailed heads 5 of the I-beams, as will be readily understood. The retaining bar 8 is then inserted downward between the channel irons 7, it being understood, of course, that at this time the transverse bolts 10 are at the inner ends of the longitudinal slots 9. The upper inclined wall of the notch 20 will then rest upon the innermost bolt 10. The eye-bolt 13 is, of course, fitted upon the outer bolt 10 when the said bolt is inserted through the channel irons 7 and the end of said eye bolt is projected through the side of the screen box. The bearing plate 16 is secured to the side of the box with the bolt 13 passing centrally through its opening and the nut or sleeve 14 is then fitted on the said plate and turned home so as to be journaled in the plate 16. The locking plate 17 is then secured to the plate 16 with its lower concave edge fitting in the groove 15 of the nut or sleeve so as to swivel the said nut. With the parts thus arranged, if a wrench or similar tool be applied to the outer end of the nut or sleeve 14 and the said nut turned to the right, the bolts 10 will be drawn horizontally to the outer ends of the slots 9 and this action will cause the inner transverse bolt 10 to ride upon the lower face of the notch or open-ended slot 20 so as to force the same downward, the result being that the fastening bar 8 is drawn vertically downward so that the dove-tailed head of the same will engage the edges of a pair of screen plates and will firmly clamp the same upon the upper sides of the channel irons 7. It will be seen that the movement imparted to this fastening member will be a direct, vertical movement so that the said fastening bar or strip may be made equal in length to the transverse dimension of the box and will fit against the side walls of the same so as to prevent any leakage and render the use of additional retaining strips unnecessary. When it is desired to clean the screen it is necessary merely to rotate the nut or sleeve 14 to the left whereupon the bolts 10 will ride inward in the slots 9 and the inner of said bolts will consequently force the fastening bar 8 upward so as to disengage the same for the screen plates, which will thereupon be released and may be readily removed for cleaning.

The invention presents an extremely simple construction, and its advantages are thought to be manifest.

The channel irons and the I-beams are made of galvanized sheet metal so as to possess the necessary strength without great weight. The screen box, consequently, can be easily operated.

Having thus described my invention, what I claim is:—

1. In a paper pulp screen, the combination of screen plates, a fastening bar engag-

ing the adjacent edges of the screen plates, a transverse retaining bolt below the fastening bar and in engagement therewith, and means for moving the said bolt longitudinally of the fastening bar whereby said bar will be moved vertically into or out of engagement with the screen plates.

2. In a paper pulp screen, the combination of spaced transverse beams, screen plates resting thereon, a fastening bar fitted between the said spaced transverse beams and having a dove-tailed head adapted to engage the edges of screen plates, a retaining bolt disposed transversely of the spaced beams and engaging the fastening bar, and means for moving the said bolt longitudinally of the transverse beams whereby the said fastening bar will be moved vertically between the said beams.

3. The combination with spaced transverse beams, of screen plates resting thereon, a fastening bar inserted between the transverse beams and adapted to engage the screen plates and provided on its under-side with an inclined notch, a bolt fitted transversely in the beams and engaging the said inclined notch, and means mounted on the side of the screen box for moving the said bolt longitudinally of the beams.

4. The combination of spaced transverse beams having longitudinally disposed slots, screen plates resting on the beams, a fastening bar adapted to engage the screen plates and provided with a depending web fitting between the beams, transverse bolts mounted in the longitudinal slots in the beams, links connecting the said bolts, an eye-bolt engaging the outermost of said transverse bolts, and a swiveled nut on the outer end of said eye-bolt to impart a longitudinal movement to the same.

5. The combination with spaced transverse beams, of screen plates resting thereon, a fastening bar adapted to engage said screen plates and provided with a depending web fitting between the transverse beams, a pair of bolts fitted transversely in the beams and arranged to move longitudinally of the same, one of said bolts engaging the depending web of the fastening bar, a driving bolt engaging one of said transverse bolts, a nut or sleeve mounted on said driving bolt and provided with an external annular groove, a bearing plate supporting the said nut or sleeve, and a locking plate secured on said bearing plate and engaging the said annular groove.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MARTIN J. MOLLEN.

Witnesses:

M. J. POWER,

HERMAN H. HELKE.