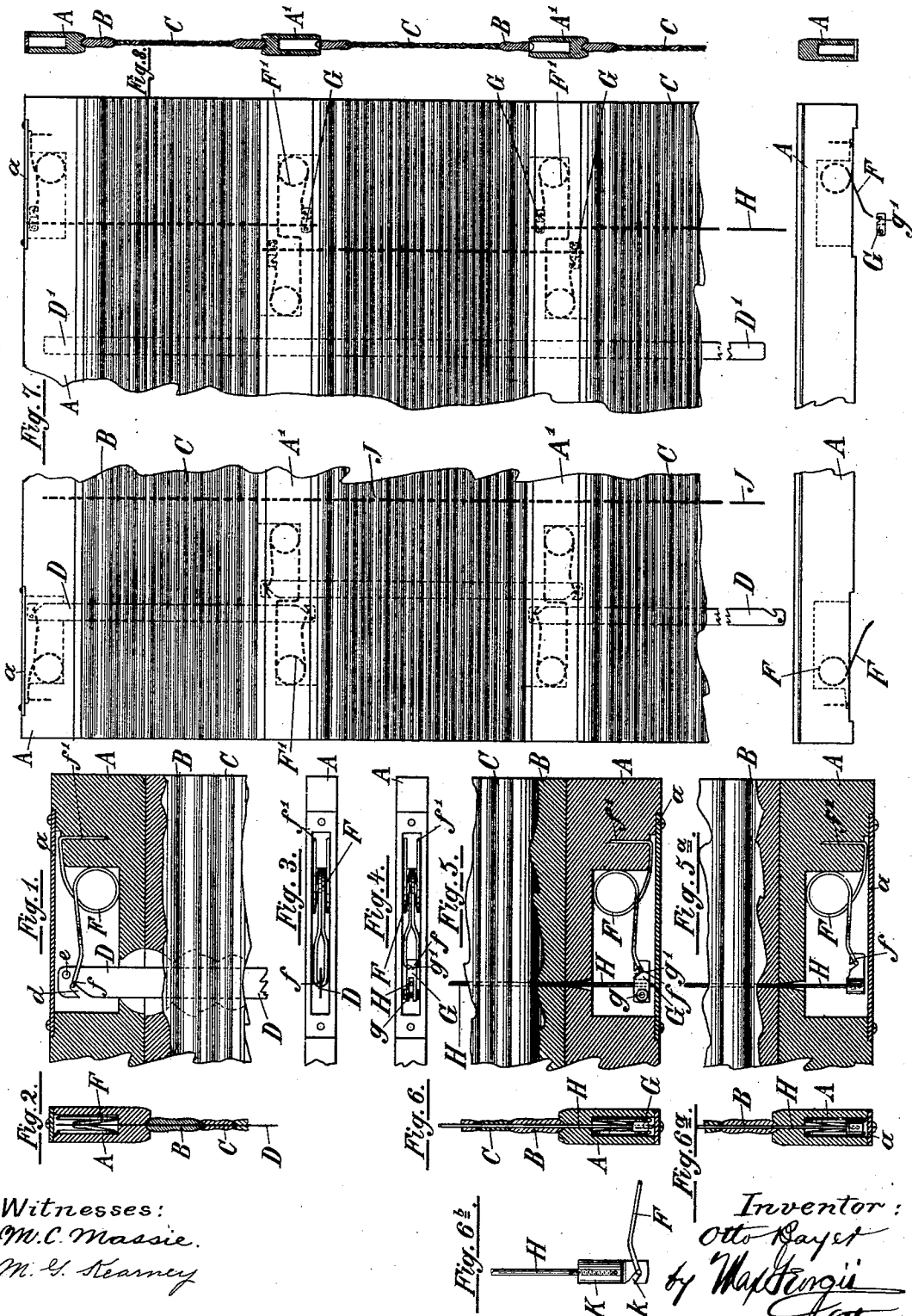


(No Model.)

O. BAYER.
ROLLING SHUTTER OR SCREEN.

No. 571,988.

Patented Nov. 24, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

OTTO BAYER, OF ESSLINGEN, GERMANY.

ROLLING SHUTTER OR SCREEN.

SPECIFICATION forming part of Letters Patent No. 571,988, dated November 24, 1896.

Application filed January 30, 1896. Serial No. 577,444. (No model.)

To all whom it may concern:

Be it known that I, OTTO BAYER, manufacturer, of Esslingen-on-the-Neckar, Würtemberg, Germany, have invented a new and useful Improvement in Rolling Shutters or Screens, of which the following is a specification.

My invention relates to improvements in rollingscreens, blinds, partitions, and the like.

10 The object of my invention is to provide means for readily taking apart or putting together such structures, so that broken or deformed slats may be replaced with but little expense or delay and without requiring the services of a skilled mechanic.

15 My invention consists in the features of construction, details, and combinations of parts, which will first be described in connection with the accompanying drawings, and then particularly pointed out in the claims.

20 In the drawings, Figure 1 is a detail sectional view, partly in elevation, on an enlarged scale, of a top rail, showing one modification of my invention; Fig. 2, a cross-section of the parts shown in Fig. 1; Fig. 3, a plan view of the same; Fig. 4, a similar plan view of another form of my invention; Fig. 5, a view similar to Fig. 1 of a bottom rail provided with that form of my invention shown in Fig. 30 4, and Fig. 6 a cross-section of the same. Fig. 7 shows a portion of a roll screen or blind in which both forms of my invention are employed. Fig. 8 is a cross-section of the same.

35 Referring to the drawings, A indicates the top and bottom rails of a rolling screen or blind, which has border slats B and intermediate slats C. Where the length of the screen or blind is such that too great a strain would be thrown upon the tension device if it extended the full length of the screen, middle rails A' are employed, as shown in Fig. 7.

40 To hold the rails and slats together in a flexible manner, two forms of tying devices may be employed, that is, either a tie-band D or a tie-wire H.

45 In that construction where a tie-band is employed the slats are each slotted from opposite sides by means of a circular saw, the opposite saw-kerfs in each slat meeting and thereby forming an opening through which the tie-band passes, the openings in the various slats being in register with each other.

The ends of the tie-band pass through slots in the rails and are engaged by connecting devices inserted in recesses in said rails.

55 In Figs. 1, 2, and 3 I have illustrated, on an enlarged scale, a connecting device for the end of a tie-band, said connecting device being located in a recess formed in a top rail and serving to hold the upper end of a tie-band.

60 In the views, F is a spring formed of a spring-wire doubled on itself, the central portion of said wire being opened somewhat to form a loop *f*, the two ends of the wire being coiled, as shown, and then bent downward in a straight line and driven into the rail, as shown at *f'*, to hold the spring, said straight portions being separated as far as possible to strengthen the spring against lateral twisting. The end of the tie-band D is provided 65 with a slit *d*, arranged at an incline, as shown, whereby the end of the band D may be hooked into the loop *f* or readily unhooked from the same.

70 Over the recess in the rail is secured a covering-plate *a*, which serves to strengthen the rail at its recessed portion. This plate is preferably provided with an opening, as shown in Figs. 3 and 4, at least over the end of the tie-band and loop *f*, in order that the band may be hooked into or unhooked from the loop without the necessity of removing the plate, as would be the case if the covering-plate were solid.

75 The lower end of the tie-band is held to the bottom rail in a manner similar to that in which the upper end is held to the top rail, which has just been described.

80 When middle rails A' are employed, the construction is somewhat varied. The middle rail is provided with two recesses, one on each side, said recesses not being directly opposite each other, but rather lapping slightly, one past the other, each recess being deep enough to reach past the central line of the middle rail, whereby a lateral opening between the recesses is formed, or, in other words, the recesses connect with each other.

85 Instead of a separate spring for each recess a double spring device is used, this consisting of a double wire bent to form two opposite loops *f*, two coils, two arms, and a straight portion common to both which lies in the opening connecting the two recesses.

The doubled portion of the wire forming each of the two arms is spread apart to permit the end of its respective tie-band D to pass through and engage its respective loop *f*, the adjacent tie-bands passing in opposite directions from the middle rail, at which they are secured to a common spring device, said adjacent tie-bands not being in line with each other, as is shown in Fig. 7.

When tie-bands D are used, as above described, it becomes necessary also to employ a positioning-wire J, owing to the fact that the slots through which the tie-bands pass are generally somewhat wider than the said bands, and therefore would permit a longitudinal movement of the slats to such an extent as to allow their ends to get out of line. The wire J, however, prevents this because it is passed through holes bored in the slats, said holes being readily made of the same diameter as the wire J and in exact register with each other. The ends of the wire J are passed into holes in the top and bottom rails A, which holes do not go entirely through said rails.

When a tie-wire H is used as a tying device in place of a tie-band, such wire is provided at each end with a clamp device G, having an inclined slot *g'*, which engages the loop *f* of its respective spring F. The clamp device is slit longitudinally, as shown in Fig. 4, the end of the wire being passed through said slit and held by drawing together the two cheeks of the clamp device by means of a screw or bolt *g*. The connecting devices for all the rails remain the same as when a tie-band is used.

As the holes in the slats through which the tie-wires pass can readily be bored so exactly as to prevent any longitudinal displacement of the slats, a positioning device or wire J is unnecessary, but I have found that the elasticity of a tie-wire is not sufficient generally to bring the screen or blind to its normal plane position when it has previously been rolled up for some time. Therefore I employ a band or strip D', of resilient material, which is passed through slots in the slats and middle rails in the same manner as the tie-bands hitherto described, the ends of said band or

strip D' being inserted into slots in the top and bottom rails A.

To take apart a blind or screen constructed in accordance with my invention, it is only necessary to unhook the tie-bands from the loops *f* and withdraw said bands, or, if tie-wires are used, to unhook the clamp devices from the loops, then loosen the screws or bolts *g*, and draw out said tie-wires. The operation is reversed in assembling the parts of the screen.

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

1. In a roll-screen or the like, the combination, with the rails, of a plurality of slats, a tying device arranged to hold the slats to the rails and provided with slotted end pieces, and springs provided with loop portions engaging said slotted end pieces, and having straight ends secured to the rails, substantially as set forth.

2. In a roll-screen or the like, the combination, with top and bottom rails having recesses, and a plurality of slats, of a tying device arranged to hold the slats to the rails and provided with slotted end pieces, and springs located in the recesses and provided with loop portions engaging the slotted end pieces, said springs having straight end portions, secured in the rails, and coils intermediate the said end and loop portions, substantially as set forth.

3. In a roll-screen or the like, the combination, with a rail provided with recesses on opposite sides, said recesses connecting at one end, of a plurality of slats, tying devices arranged to hold the slats to the rails, and a double spring device located in both recesses of each rail and provided with ends engaging two adjacent tying devices, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

OTTO BAYER.

Witnesses:

AUGUST B. DRAUTZ,
CHRISTIAN BAUER.