

No. 707,067.

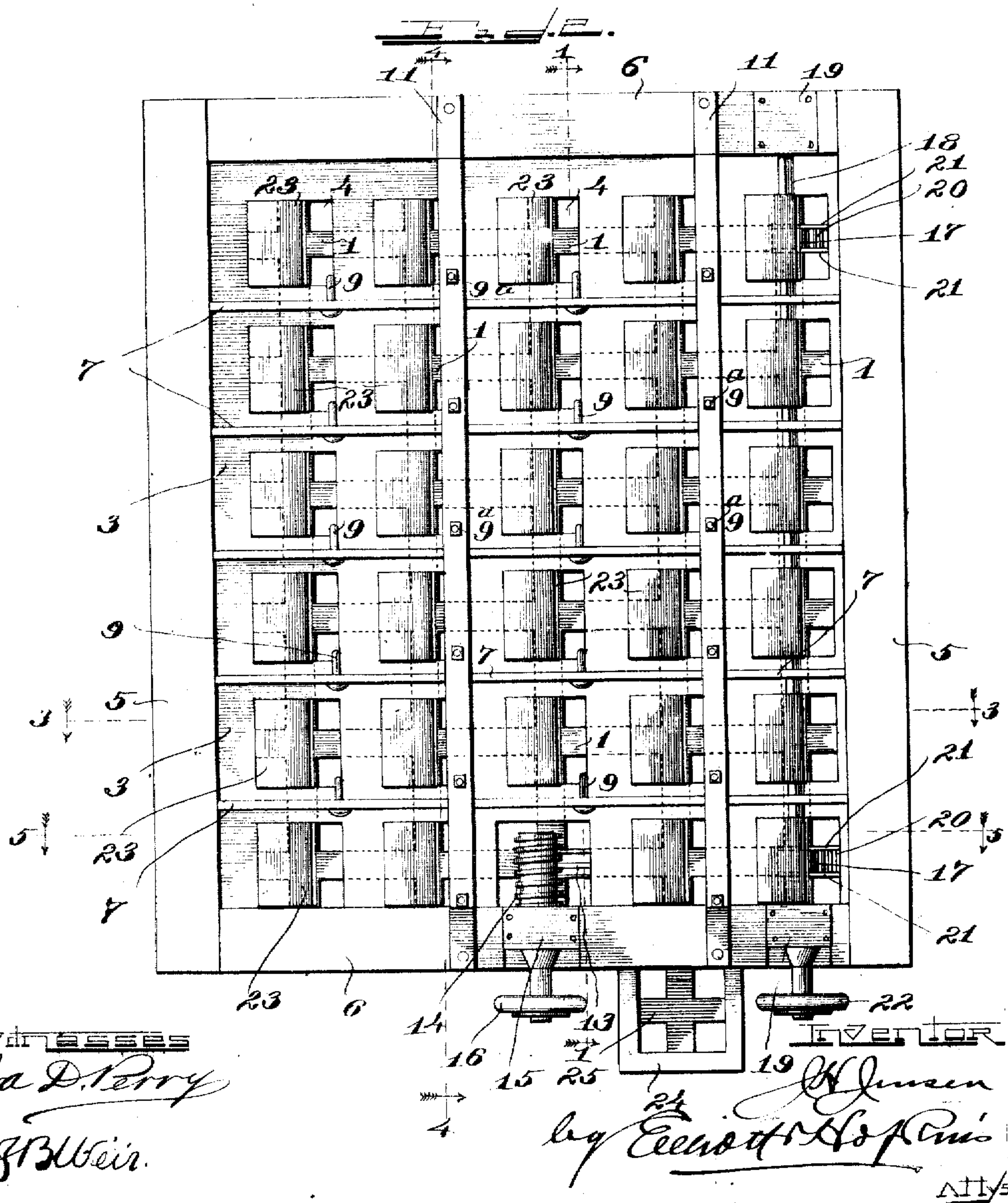
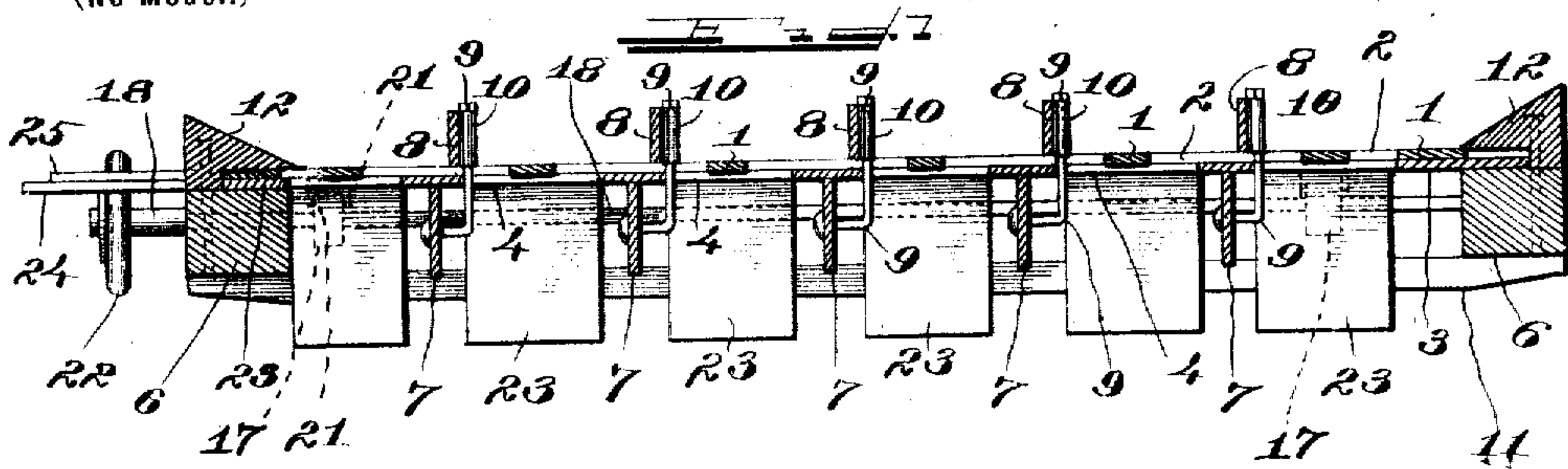
Patented Aug. 12, 1902.

J. H. JENSEN.
THRESHER SCREEN.

(Application filed July 18, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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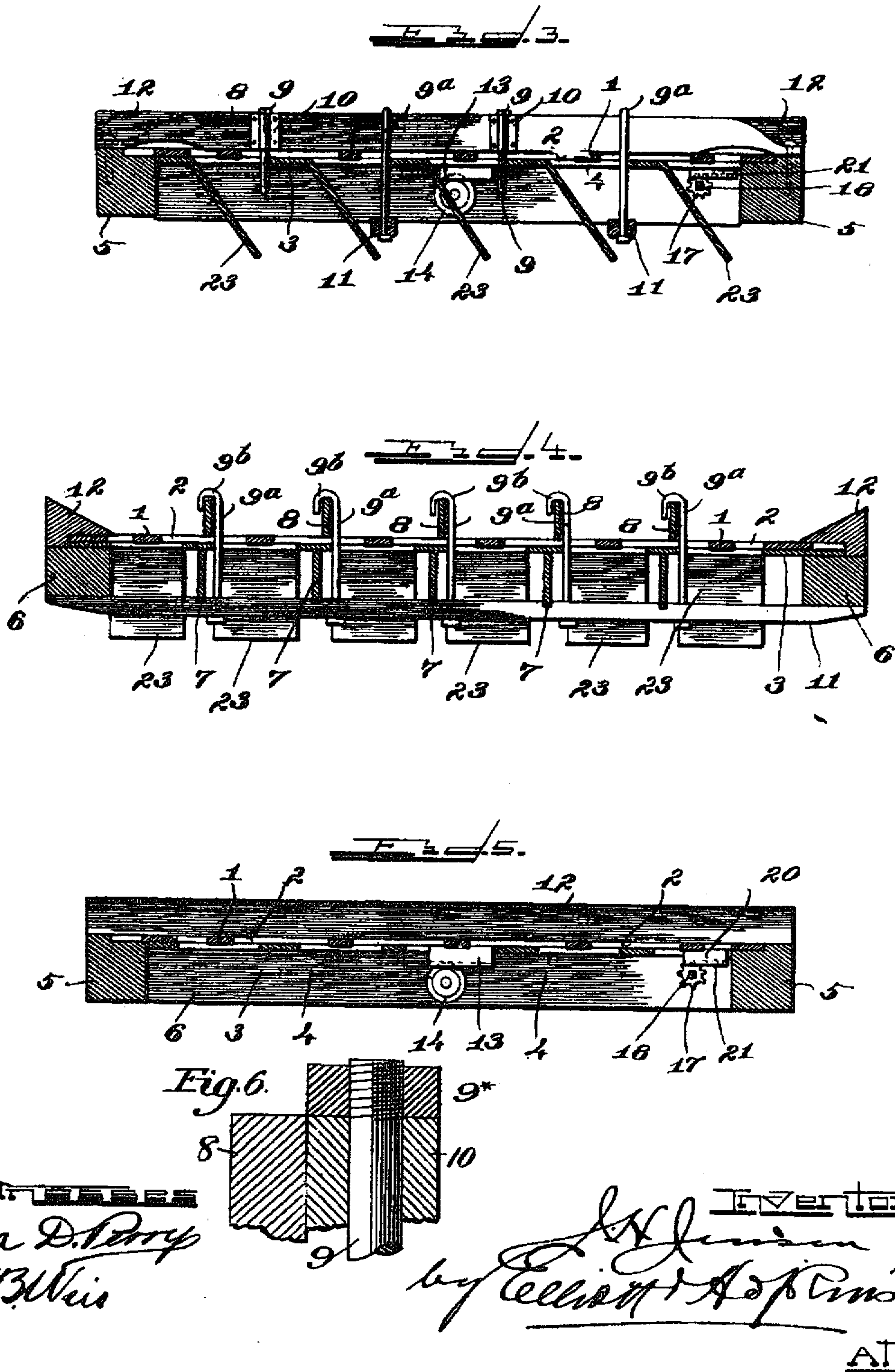
Patented Aug. 12, 1902.

J. H. JENSEN.
THRESHER SCREEN.

(Application filed July 16, 1900.)

(No Model.)

2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

JENS H. JENSEN, OF MINDEN, NEBRASKA.

THRESHER-SCREEN.

SPECIFICATION forming part of Letters Patent No. 707,067, dated August 12, 1902.

Application filed July 16, 1900. Serial No. 23,707. (No model.)

To all whom it may concern:

Be it known that I, JENS H. JENSEN, a citizen of the United States, residing at Minden, in the county of Kearney and State of Nebraska, have invented certain new and useful Improvements in Thresher-Screens, of which the following is a full, clear, and exact specification.

My invention relates to that class of 10 thresher-screens—such, for instance, as shown in my United States Letters Patent No. 648,588, granted May 1, 1900—in which are employed two thin apertured plates arranged face to face and relatively adjustable, where- 15 by the size of the openings or mesh may be altered to suit the varying requirements.

One of the important objects of my invention is to provide means for supporting the screens or apertured plates at one or more 20 points intermediate of their edges and holding their opposed faces accurately together, so as to prevent the possibility of grain or other small particles passing or lodging between them and to maintain the surface of 25 the screen perfectly level.

Another object of my invention is to cause the grain and the wind to pass in parallel currents above and below the screens, respectively, whereby side currents of air and 30 the lateral shifting of the grain will be absolutely prevented.

Another object of my invention is to provide improved means for maintaining the parallelism of the plates—that is to say, preventing the edges of the apertures in one 35 plate from changing their angularity with reference to the edges of the apertures in the other plate—thus insuring against any variation in the formation of the mesh, as would be the case should one plate swerve with refer- 40 ence to the other instead of moving in a direct line.

A further object of my invention is to provide means whereby the size of the mesh may 45 be ascertained from the exterior; and a still further object is to provide minor details of improvement whereby the material to be screened will be directed toward and maintained on the screen and prevented from sliding 50 sideways and the trash, straw, and long particles held aloof from the screen and prevented from clogging its apertures.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of 55 parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims. 60

In the said drawings, Figure 1 is a transverse sectional view of my improved thresher-screen, taken on the line 1 1, Fig. 2. Fig. 2 is a bottom plan view thereof. Fig. 3 is a longitudinal section taken on the line 3 3, Fig. 2. 65 Fig. 4 is a transverse section on the line 4 4, Fig. 2. Fig. 5 is a longitudinal section on the line 5 5, Fig. 2; and Fig. 6 is an enlarged detail vertical sectional view of one of the clamping-bolts hereinafter described. 70

1 represents the top screen or apertured plate, having apertures 2 cut therein to constitute the mesh, and 3 represents the bottom screen or apertured plate, having apertures 4. The apertures 2 4 are preferably 75 square, and those in the upper plate may be made larger than those in the lower plate, though not necessarily so. These plates are arranged face to face one upon the other, and the bottom one, 3, is supported at its edges 80 upon beams 5 6, extending transversely and longitudinally thereof.

Arranged lengthwise of the line of movement of the material to be screened as it comes onto the screen are a number of thin bars or 85 stringers 7, which impinge the under side of the bottom plate 3 along the lines of the cross-bars between the meshes, as clearly shown in Figs. 1 and 4, and which support the bottom plate at suitable intervals between the beams 90 5 against downward movement, thus holding it preferably level and in accurate contact with the under side of the top plate 1, while the latter is held down in accurate engagement with the bottom plate by similar bars 95 or stringers 8, which stand on edge on top of the plate 1 and are arranged parallel with the bars 7 and also over and lengthwise of that part of the surface of the lower screen between the apertures, so as not to obstruct the 100 latter, and which stringers 8 hold the top plate or screen 1 perfectly flat and level and at the same time prevent the material or grain from sliding sideways or transversely. They also

perform the further useful and important function of holding the trash and straw and other long particles aloof from the screen-plates and prevent the mesh of the latter from becoming clogged thereby. The stringers or bars 7 are supported at their ends in the end beams 5, while the stringers 8 are supported by the bars 7 by means of L-shaped bolts 9, whose lower ends are firmly secured in the bars 7, while their upper ends pass through the apertures of the plates 1 3 and are firmly secured to the sides of the bars 8 by means of straps 10 or other suitable devices, such bolts 9 being arranged at suitable intervals throughout the length of the bars 7 8 and being so small in diameter and placed in one of the corners of the apertures of the plates 1 and 3 as not to interfere with the adjustment of the top plate to form the minimum size of mesh. By this means it will be seen that the plates may be relatively adjusted for varying the size of the mesh, while their faces are held in accurate engagement and all possibility of the material finding its way between such faces prevented. The lower cross-bar 7 may, if desired, be further reinforced or braced at suitable intervals by means of beams 11, secured to the longitudinal beams 6 and having the bars or stringers 7 let into their upper edges, as better shown in Figs. 1 and 4, and it is also preferable to pass hook-shaped bolts 9^a through the beams 11 and engage their upper hooked ends 9^b over the edges of the upper stringers 8.

In order that the material to be screened may be kept upon the screen and the upper plate 1 at the same time permitted free movement, I arrange shields 12 along the longitudinal edges of the apparatus parallel with the line of movement of the material as it comes onto the screen, and these shields 12 have their faces inclined toward and overlapping the plate 1, as better shown in Fig. 1, so that the plate may move freely under the shield, while the latter, in conjunction with stringers 8, will hold the material evenly divided on the screen and prevent particles from engaging the edge of the top plate and obstructing its movement.

The top plate 1 is adjustable both transversely and longitudinally, whereby the openings or mesh of the screen as a whole may be multiplied and at the same time have their individual dimensions reduced. This is effected by bringing the point of conjunction of the cross-bars which constitute the apertures in one plate at or about the center of the aperture of the other plate, as shown in dotted lines in Fig. 2. As a means for adjusting the plate 1 in one of these directions I provide the bottom of the plate with a ribbed block 13, the ribs of which are of sufficient length to remain in engagement with an adjusting-worm 14, while the plate 1 moves its maximum distance lengthwise of said teeth or transversely of the worm 14. The worm 14 is journaled in a suitable bearing 15, se-

cured to the under side of the beam 6 or to any other suitable support, and engages with the block 13 in a well-known manner, the worm being provided with an operating handle or wheel 16, whereby it may be turned for shifting the plate lengthwise of the worm or what might be termed "transversely" of the screen. The plate 1 is shifted in the other direction or longitudinally by means of pinions 17, mounted on a shaft 18, which is journaled in boxes 19 on the under sides of the beams 6, and which pinions 17 engage with rack-bars 20, secured to the under side of the plate 1 and having their teeth arranged at right angles to the ribs of the block 13. The pinions 17 are loose on the shaft 18, so as to be capable of sliding relatively to the shaft, but are compelled to turn therewith. This condition may be conveniently effected by making the shaft 18 square or angular in cross-section and the apertures through the pinions 17 of corresponding formation. The edges of the rack-bars 20 may be provided with depending flanges 21, which make the pinions 17 slide lengthwise of the shaft 18 when the upper screen is moved longitudinally and still remain in mesh with the rack-bars 20. The outer end of the shaft 18 is provided with an operating handle or wheel 22 or other suitable device. With this arrangement it will be seen that the top screen 1 may be adjusted both longitudinally and transversely or laterally by rotating the wheels 16 22 in the proper direction, and it will also be seen that the two points of connection between the plate 1 and the shaft 18 being greatly removed from each other all tendency of said plate to oscillate on an independent axis, so as to shift the edges of its apertures out of parallelism with the edges of the apertures in the bottom plate, will be prevented, and this desirable result will also be largely contributed to by the engagement of the ribs of the block 13 with the worm 14.

The bottom plate 3 may be provided with deflectors 23 for catching the current of air and directing it upwardly through the meshes of the screen without interfering with the supporting bars or stringers 7.

The purpose of making the apertures 2 in the upper plate 1 larger than those in the bottom plate 3 is to provide for a larger mesh when the conjunction of the cross-bars forming the apertures in the upper plate are located centrally with reference to the apertures in the lower plate and at which time the plates are in position to produce the minimum-size mesh. This difference in the size of the openings or apertures also enables me to employ the supporting-bolts 9 9^a and pass the same through the apertures without preventing the upper plate from being adjusted to expose the full opening of the lower plate. In order that the size of the mesh may be determined from the exterior, I provide the screens with an index or gage consisting of a plate 24, projecting from the edge of one of

the plates and having an aperture therein the same in form as the apertures in said plate, and a cross 25, projecting from the edge of the other plate and representing the cross-bars which form the apertures in the latter plate where they come together. Thus as the upper plate 1 is adjusted, making a relative movement between the apertured plate 24 and the cross 25, the mesh of the two plates 1 3 will be duplicated by the plate 24 and cross 25.

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

1. In a screen the combination of two relatively adjustable apertured plates arranged face to face, stringers arranged across the face of the upper one of said plates and extending longitudinally of the screen, stringers arranged under the lower one of said plates longitudinally of the screen and means for connecting said stringers together, substantially as set forth.

2. In a screen the combination of two relatively adjustable apertured plates, a frame for supporting said plates, a projection extending through said frame and representing the apertures in one of said plates and a projection extending from the other of said plates and overlapping said first projection and representing the apertures in the latter said plate for constituting a gage indicating the size of mesh of the screen, substantially as set forth.

3. In a screen the combination of two relatively adjustable apertured plates arranged face to face, stringers secured under independently of and supporting the lower one of said plates, stringers arranged over the face of the upper one of said plates for holding it down and means connecting said second stringers with said first stringers and thereby holding said second stringers against movement with the upper one of said plates, substantially as set forth.

4. In a screen the combination of two relatively adjustable apertured plates, stringers arranged under the lower one of said plates, stringers extending over the upper one of said plates, cross-beams extending under and supporting said first stringers, and means supporting said cross-beams at intervals from said stringers, substantially as set forth.

5. In a screen the combination of two relatively adjustable screen-plates arranged face to face, stringers located across one of said plates, stringers arranged across the other of said plates and being fixed with relation to both of said plates, and connections passing through said plates and securing said stringers together, the adjustable one of said plates being movable longitudinally and transversely and having apertures for the passage of said connections of greater diameter than said connections in all directions whereby said adjustable plate may move transversely

and longitudinally independently of said connections, substantially as set forth.

6. In a screen the combination of a screen proper, a plurality of stringers arranged at short intervals apart across one face of said screen and extending longitudinally of the screen, a plurality of stringers arranged at short intervals apart across the other face of said screen and extending lengthwise of said first stringers and means extending through said screen proper and connecting the stringers on one side thereof with the stringers on the other, substantially as set forth.

7. In a screen the combination of two apertured plates arranged face to face and being relatively adjustable, a plurality of stringers arranged at short intervals apart across the face of one of said plates and extending longitudinally of the screen, a plurality of stringers arranged at intervals across the face of the other of said plates and extending lengthwise of said first stringers, and means extending through said plates and connecting the stringers on one side thereof with the stringers on the other, substantially as set forth.

8. In a screen the combination of two apertured plates arranged face to face and being relatively adjustable transversely and longitudinally, a plurality of continuous stringers arranged across the face of one of said plates and extending longitudinally of the screen, and being fixed against movement with said plates, a plurality of stringers arranged across the face of the other of said plates, and means passing through said plates and securing said stringers together, substantially as set forth.

9. In a screen the combination of two apertured plates arranged face to face and being relatively adjustable transversely and longitudinally, a plurality of continuous stringers arranged across the face of one of said plates and extending longitudinally of the screen and being fixed against movement with said plates, a plurality of continuous stringers arranged across the face of the other of said plates and extending lengthwise of said first stringers and means passing through said plates and securing said stringers together, substantially as set forth.

10. In a screen the combination of upper and lower apertured plates arranged face to face, stringers extending longitudinally of the screen and bearing upon the face of the upper one of said plates, stringers extending longitudinally of the screen and bearing against the face of the lower one of said plates, means passing through said plates and connecting said stringers together, cross-bars extending under said lower stringers and means passing through said plates and connecting said cross-bars with said upper stringers, substantially as set forth.

11. In a screen the combination of a screen proper having apertures therein, stringers extending longitudinally of said screen and

bearing against the upper face thereof, string-
ers extending lengthwise of said first string-
ers and bearing against the lower face of said
screen proper, said stringers being located to
5 one side of or between the apertures of said
screen proper, means passing through the
apertures of said screen proper and connect-
ing said stringers together, cross-bars ar-
ranged under and supporting said lower

stringers and connections passing through the 10
apertures of the screen proper and secured at
their upper and lower ends to said upper
stringers and cross-bars respectively, sub-
stantially as set forth.

JENS H. JENSEN.

Witnesses:

F. A. HOPKINS,
EDNA B. JOHNSON.