

No. 725,418.

PATENTED APR. 14, 1903.

W. L. DEMPSEY.
HARROW.

APPLICATION FILED MAY 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

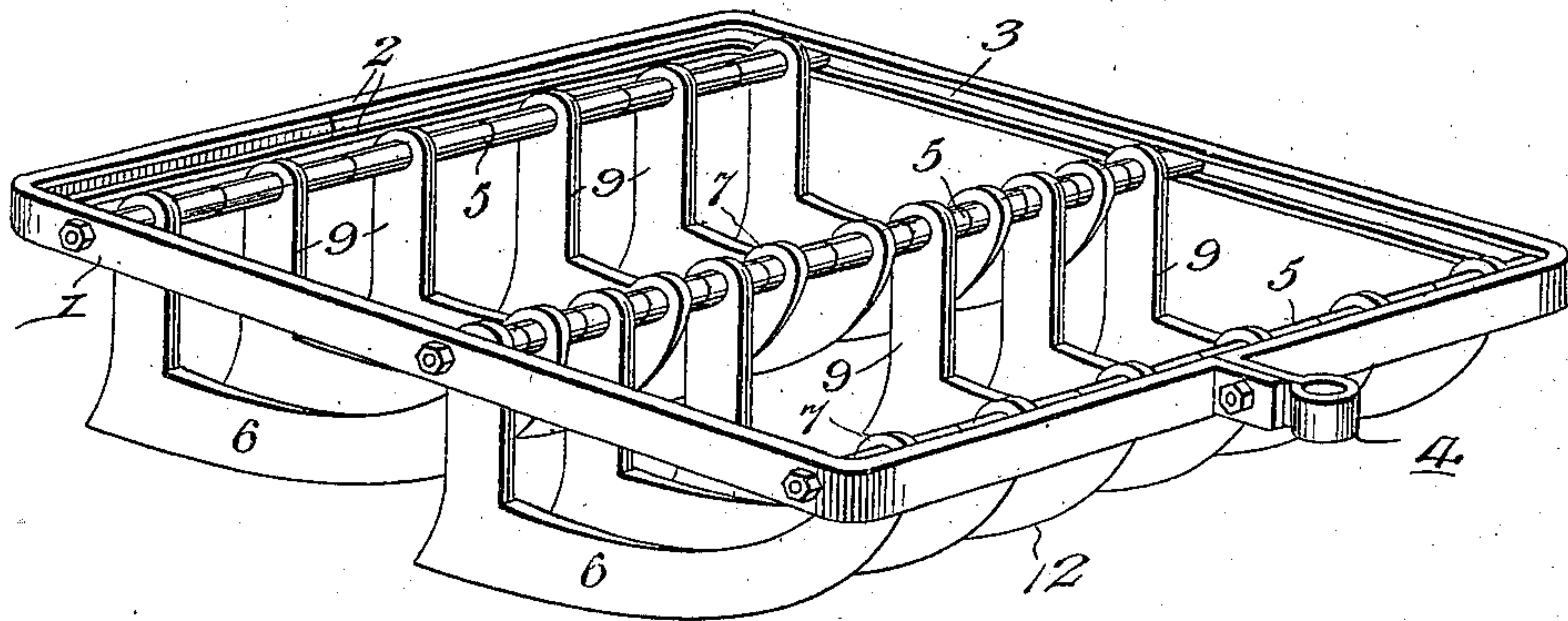
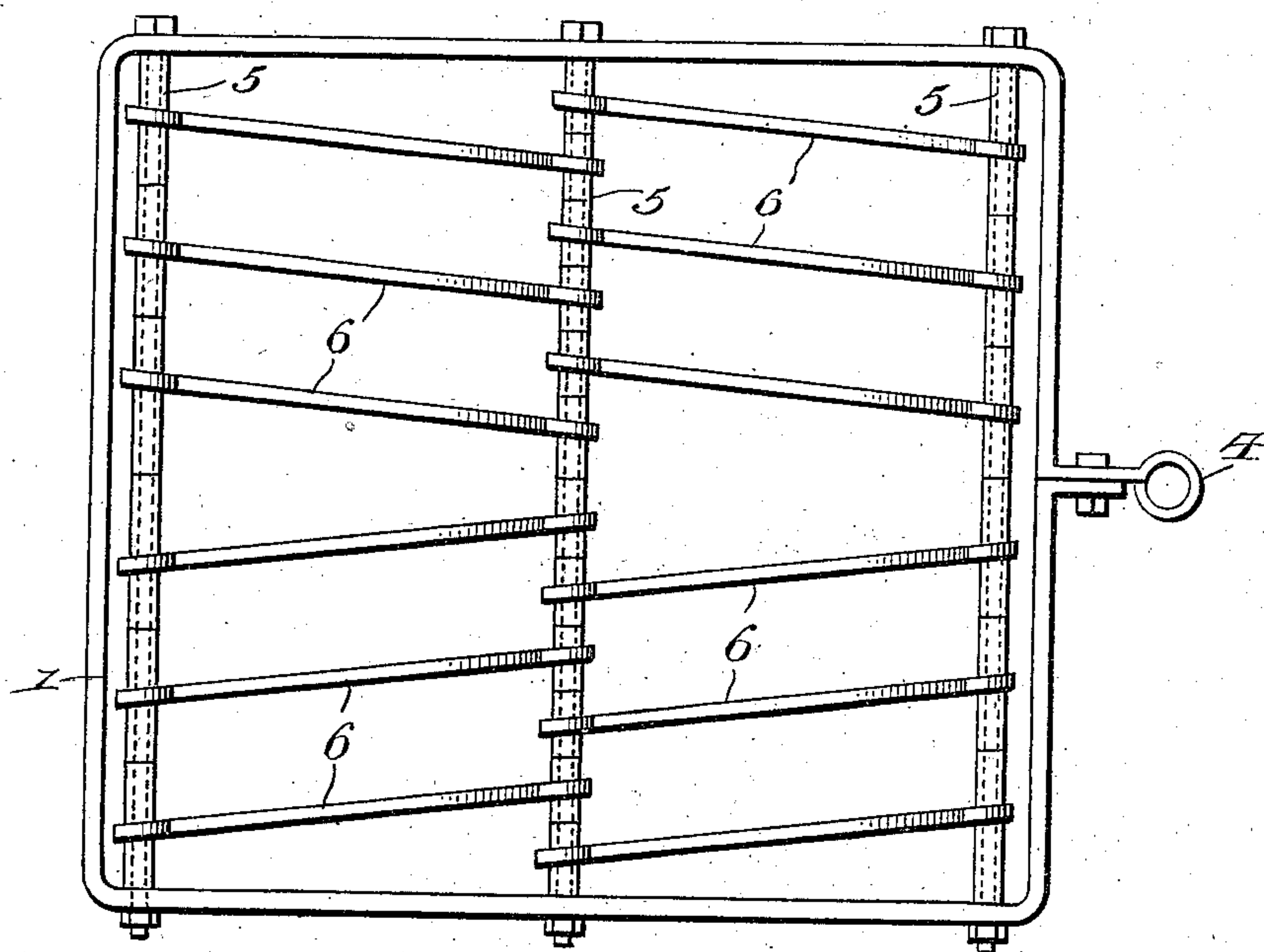


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

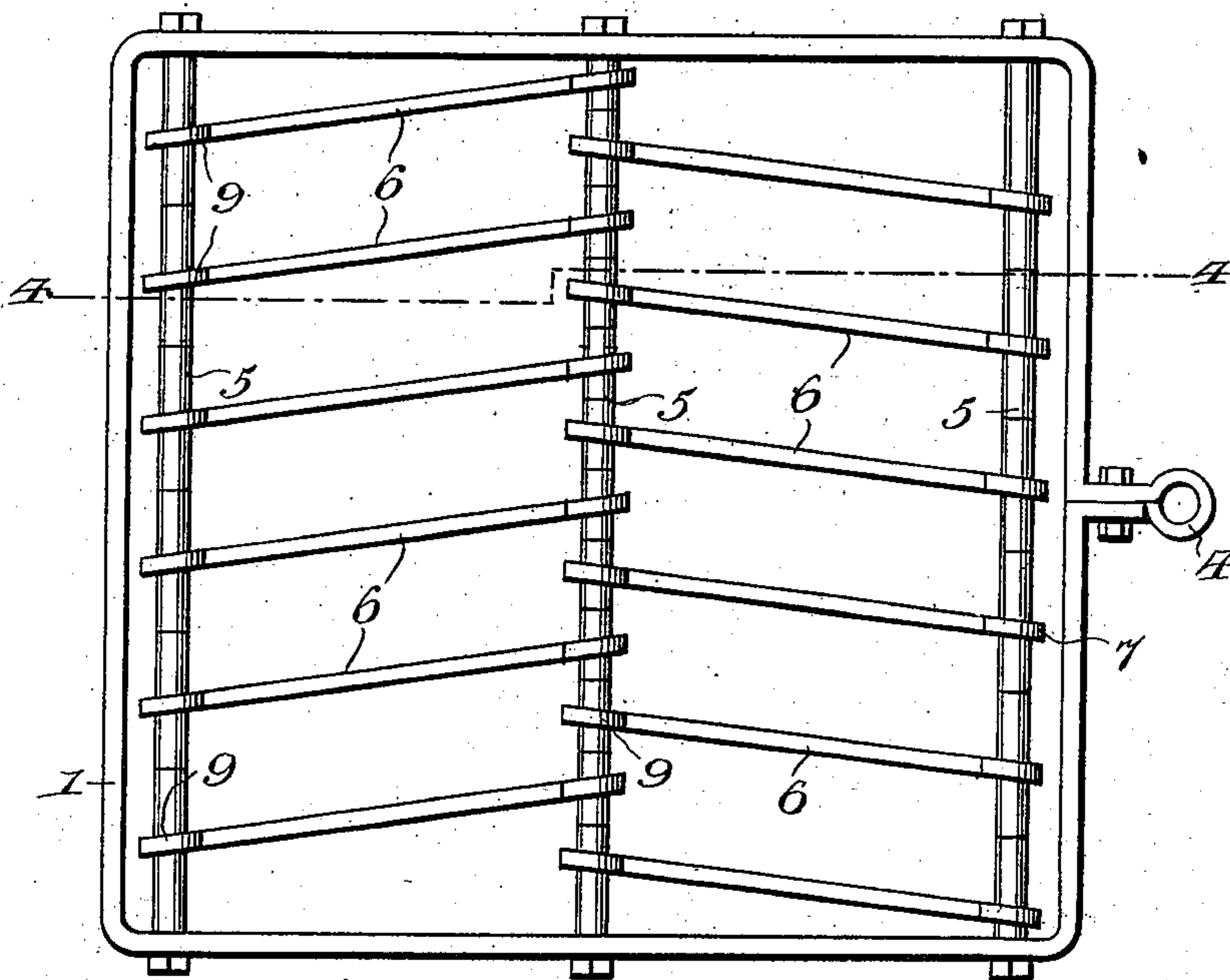


Fig. 4.

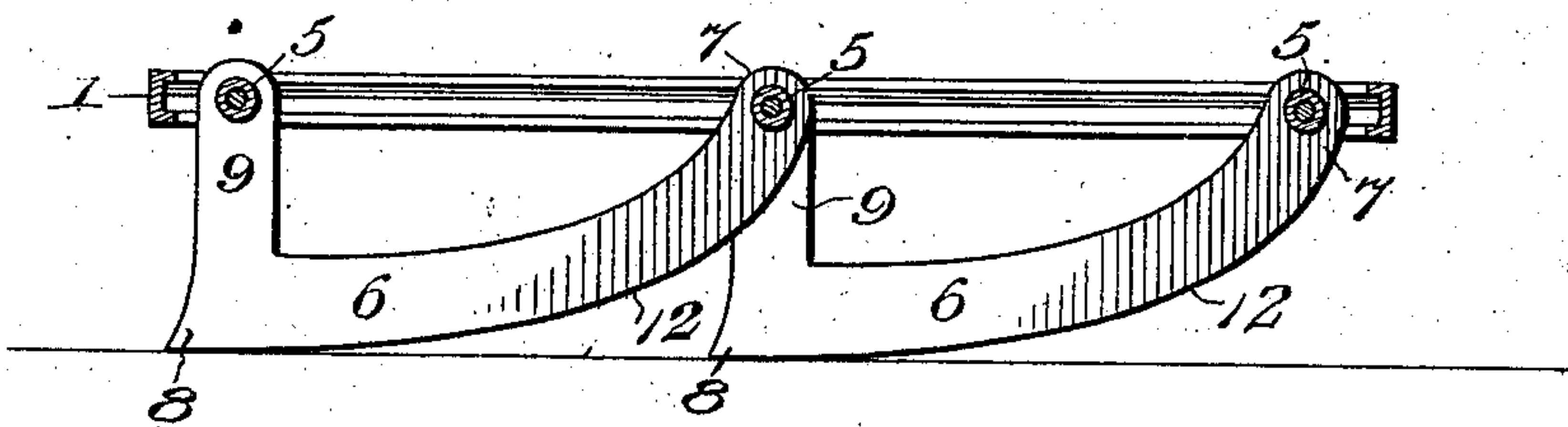
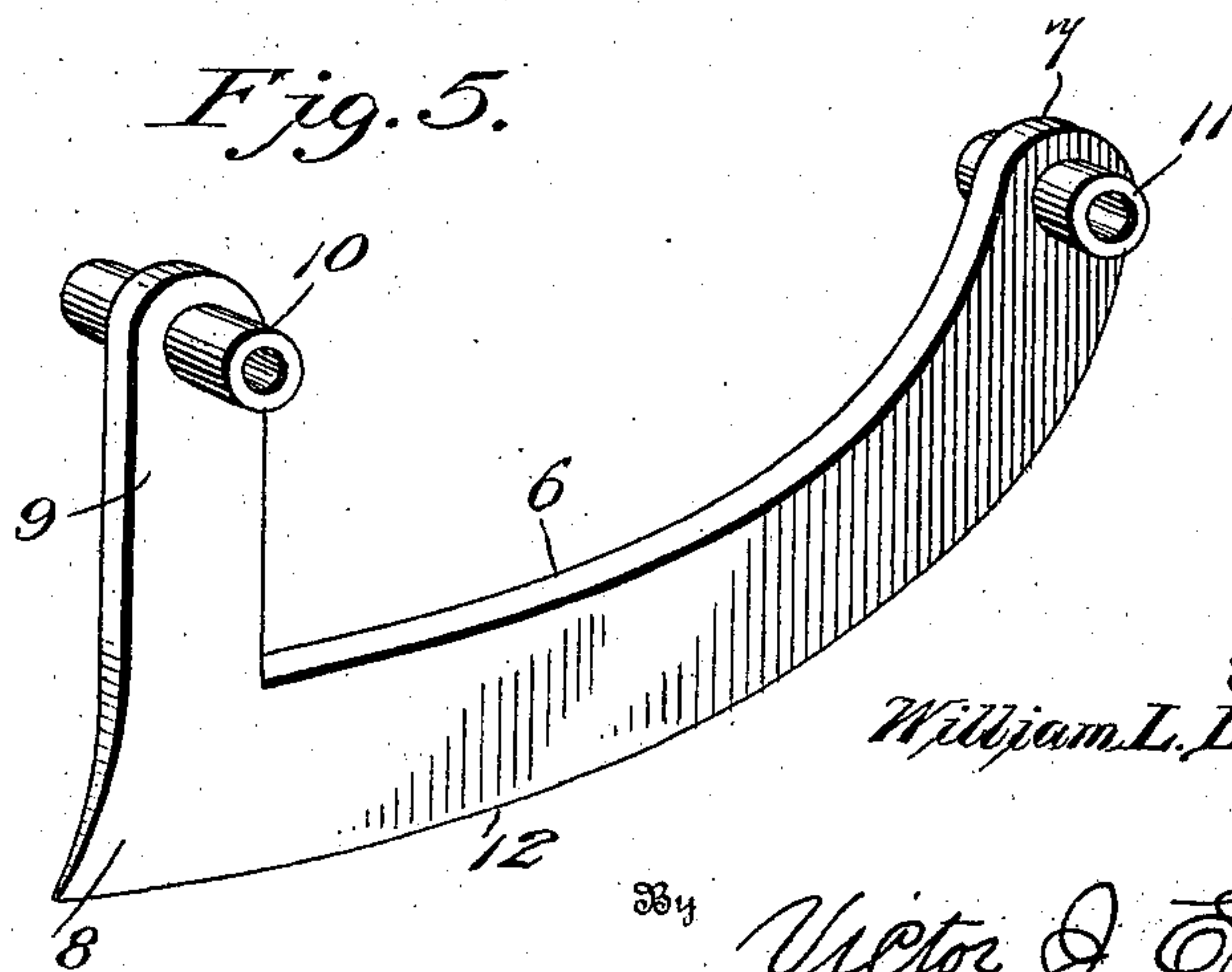


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM L. DEMPSEY, OF FREDERICKSBURG, VIRGINIA.

HARROW.

SPECIFICATION forming part of Letters Patent No. 725,418, dated April 14, 1903.

Application filed May 2, 1902. Serial No. 105,679. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. DEMPSEY, a citizen of the United States, residing at Fredericksburg, in the county of Spottsylvania and State of Virginia, have invented new and useful Improvements in Harrows, of which the following is a specification.

This invention relates to harrows and the blades therefor, and the primary object of the same is to provide a harrow which will more thoroughly break up or comminute the soil by a draw-cut operation in contradistinction to the usual drag of the ordinary harrow-tooth.

A further object of the invention is to provide a blade for a harrow which is constructed in such manner as to gradually depress into the soil from its front extremity to its heel, and thereby sever or break lumps or clods of soil by passing through them and avoid the usual operation in harrows as now commonly constructed of turning such lumps or clods over without breaking them up.

A further object of the invention is to provide a harrow which will thoroughly break up the soil in a comparatively short time and avoid the necessity of traversing the same ground-surface a number of times to arrive at the degree of fineness desired.

With these and other objects and advantages in view, the invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a harrow embodying the features of the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a top plan view of a slightly-modified form of the harrow. Fig. 4 is a longitudinal vertical section on the line 4-4, Fig. 3. Fig. 5 is a detail perspective view of one of the harrow-blades.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a supporting-frame, which in the present instance has a square contour and is formed of suitable channel-iron to provide flanges 2 to strengthen the same and at the same time lighten the structure thereof and also to produce a groove 3, which is particularly utilized at opposite

sides in a manner which will be presently set forth. The flanges 2 are disposed inwardly and the outer surface of the frame is smooth. This particular form of frame may be varied at will and different shapes employed without in the least detracting from the operation sought, and for economy in the manufacture it is proposed to construct the frame from a single bar or piece of channel-iron which is bent into the shape shown and the terminals bolted together at the center of the front end, one terminal being continued in advance of the other and shaped to produce a draft-eye for the attachment of the draft devices.

Extending across the frame at regular intervals is a series of supporting-rods 5, having heads at one end and nuts removably applied to the opposite end, whereby the said rod may be removed and replaced at will in varying the position and number of blades employed in the harrow to meet different contingencies. A plurality of blades 6 of a particular form are held by the rods 5, and each blade has an upwardly-extending toe 7 and a rearwardly-projecting heel 8, a hanger-arm 9 rising from the latter and having a transversely-extending sleeve 10 immovably held in its upper terminal. The toe 7 also has a transversely-extending sleeve 11 held therein, and in applying the blades to the harrow the supporting-rods 5 are passed through the sleeves 10 and 11. Each blade is formed with a lower reduced or cutting edge 12, which extends gradually in curved bevel form from the toe to the terminal of the heel, and when the several blades are mounted within the frame and secured in operative position the greater or forward portion of the cutting edges will be elevated above the ground-surface, as clearly shown by Fig. 4. In other words, if the blades be supported on a level surface the portions of the cutting edges at the heels 8 only will be in contact with said surface. This will cause the blades at their forward extremities to gradually ride over and draw through lumps or clods of soil with a shear cut, and the tendency of the blades of the harrow to depress will cause this cutting operation to be effected in a vertical plane and in a downward direction. This operation is materially advantageous over the ordinary straight drag operation of harrow-

teeth now commonly employed, and whereby lumps or clods of soil are frequently thrown or turned to one side without becoming broken or comminuted and pulverization is only
 5 practically effected after a number of movements of the harrow over the same surface or area. Moreover, it will be seen that as the improved harrow moves forward the blades
 10 will gradually depress toward their heels, and in view of the greater depression being at the heels of the blades a practical penetration of the broken soil for a considerable extent will ensue at the heel portions of the blade, and
 15 thereby break up the lumps or clods which may have been turned over, and thus expedite the harrowing operation.

The sleeves 10 and 11 of the several blades hold the latter in proper adjusted relation on the supporting-rods 5, and the several blades
 20 can be disposed in various positions to facilitate the harrowing operation with increased advantage in view of the construction and operation of the several blades, as set forth. In the arrangement shown by Figs. 1 and 2
 25 the blades are disposed in series of three, the two series at the front being converged toward each other and the two rear series similarly converged and positioned alternately in line with the centers of the spaces of the front
 30 series.

In Fig. 3 the blades are shown disposed in two series, those at the front being inclined or obliquely disposed toward the left and those at the rear also inclined or obliquely directed toward the right, the rear series of
 35 blades having their front ends or toes held in line with the centers of the spaces between the front series of blades. In this form of the harrow the front blades draw the soil over
 40 in one direction and the rear blades push or move it in an opposite direction, and this operation, in conjunction with the shearing cutting action of the individual blade, results in a thorough pulverization of the soil treated.
 45 Another advantage of the improved harrow, in conjunction with the disposition of the blades in alternation, so that one set or series will be positioned in line with the spaces between the set or series in advance, is the treatment or breaking up of any lumps or clods
 50 that may be drawn between the forward blade with obvious beneficial results.

The improved harrow may be provided with as many blades as desired, and the dimensions and proportions of the latter may be
 55 changed at will or to suit different kinds of work.

Another advantage in arranging the blades so that one series will be in alinement with
 60 the spaces of the series in advance is that the

forward series will tend to draw the lumps or clods of soil between them for cutting or breaking up the rear series. This operation is peculiarly effective when the blades are disposed at an angle, as set forth. 65

Another advantage in the present construction is that two or more of the series of blades hereinbefore described are so disposed that the heels of the forward series project backwardly and beyond the toes of the rear series
 70 of blades, thereby causing the heels of the forward series of blades to hold lumps and clods, while the rear series of blades enter and cut into the said lumps and clods, and thereby completely pulverize at one operation all
 75 the soil over which the harrow passes.

Having thus fully described the invention, what is claimed as new is—

1. In a harrow, the combination of a supporting-frame, and a series of rigid blades immovably held at their opposite ends to the frame and of elongated form, the blades having opposite straight parallel sides and the one series disposed to operate on the soil located between the blades of the other series
 85 and each blade having a lower downwardly and rearwardly inclined cutting edge, the greater portion of the cutting edge being normally elevated.

2. A blade for a harrow, consisting of an elongated rigid body having opposite straight parallel sides and a lower cutting edge inclined from the front toe which projects above the upper edge of the body downwardly to the rear heel projecting from the body, the latter having a hanger-arm rising vertically therefrom and the upper terminal thereof together with the upper end of the toe being formed with laterally-projecting sleeves. 100

3. In a harrow, the combination of a forward and a rear series of blades, the blades having toes at their front extremities elevated above the backs thereof and rearwardly-projecting heels, the heels of the forward series of blades projecting backwardly beyond and between the toes of the rear series of blades, the blades at their rear ends having hangers rigidly rising therefrom, and a frame having transversely-extending bars to which the upper ends of said hangers and the toes of the several blades are directly and immovably connected. 105

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

WILLIAM L. DEMPSEY.

Witnesses:

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 L. L. LAYTON.