

No. 681,277.

Patented Aug. 27, 1901.

C. W. SWITZER.

BINDER REEL.

(Application filed July 16, 1900.)

(No Model.)

Fig. I.

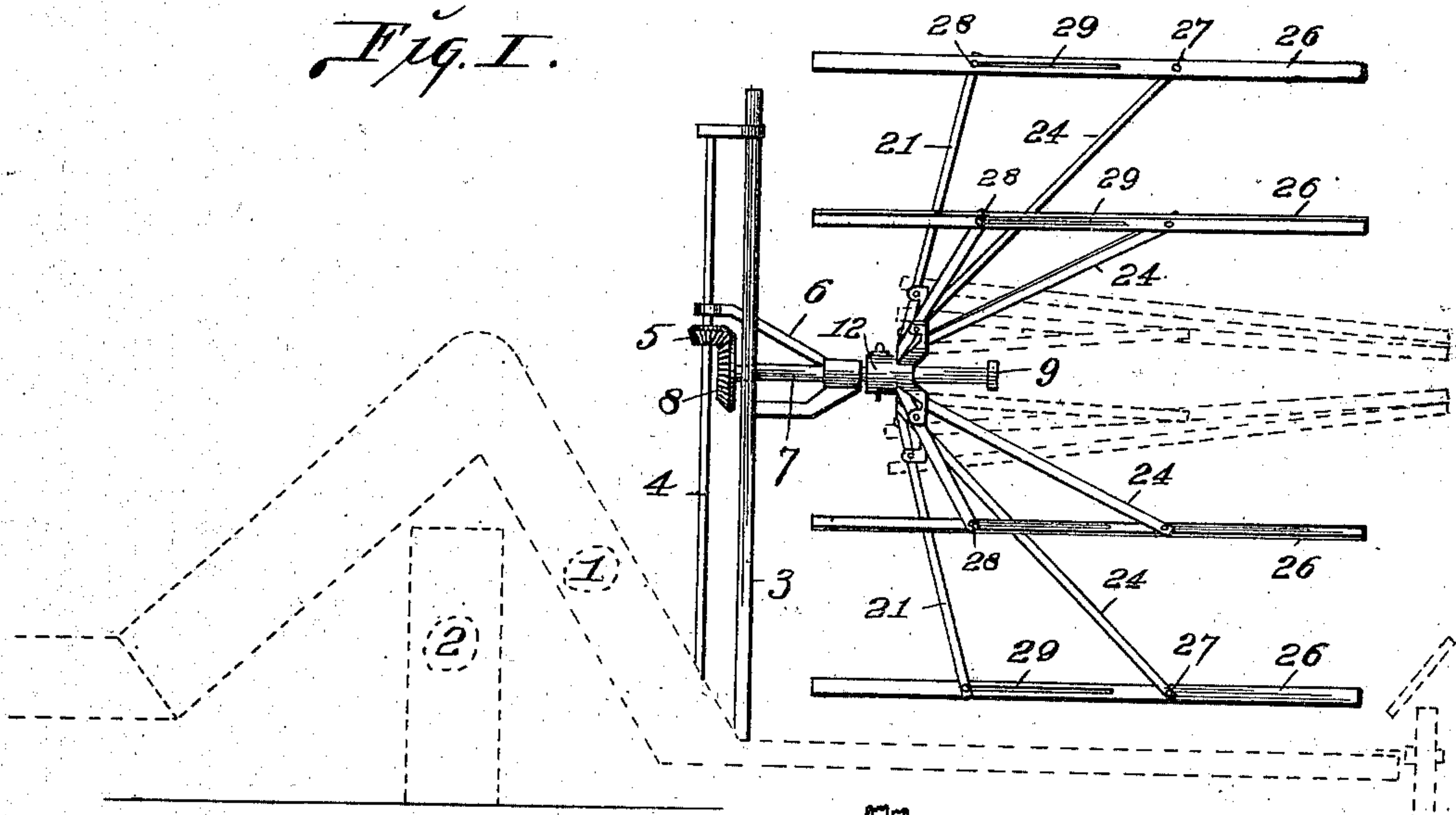


Fig. II.

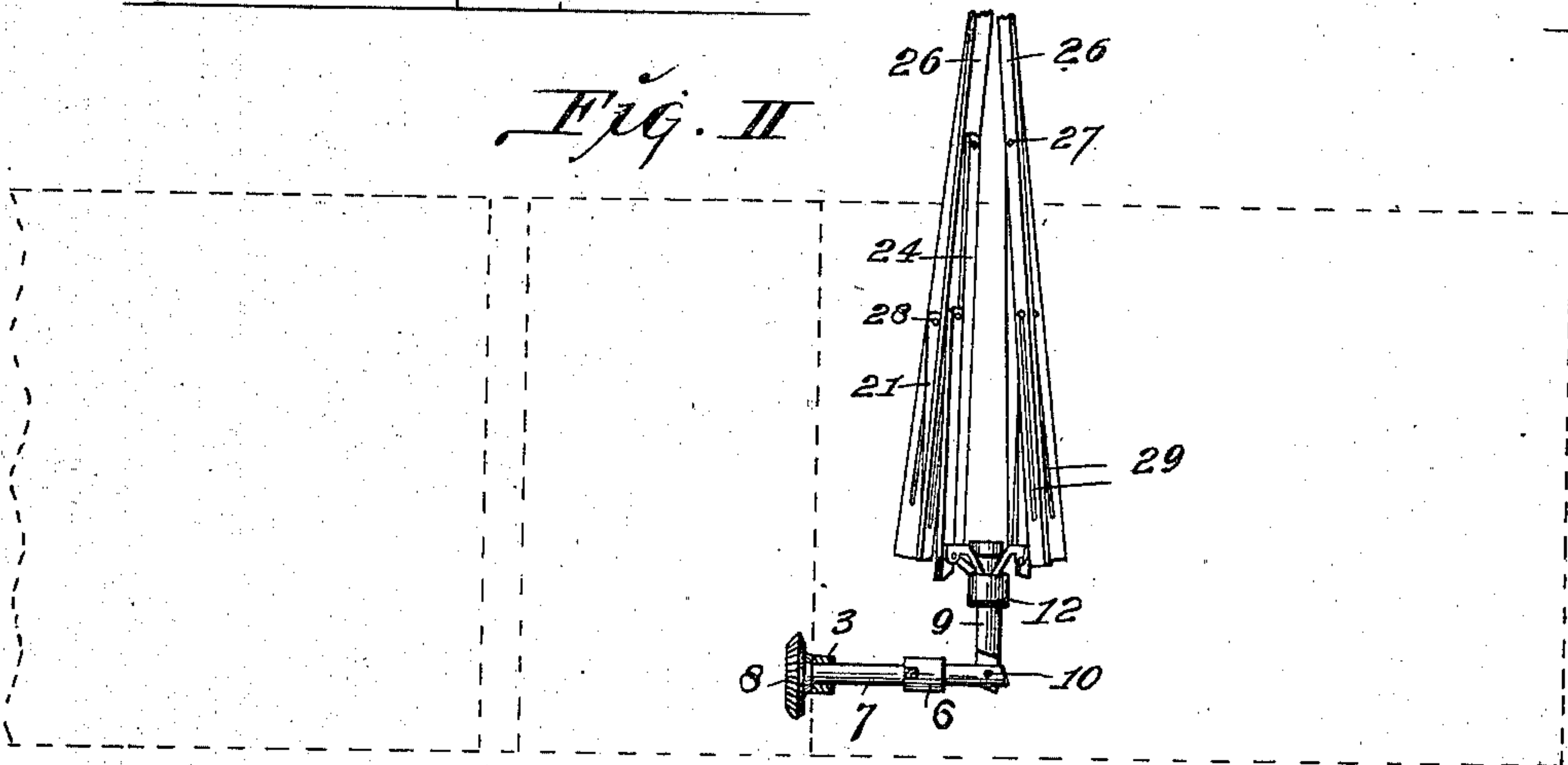


Fig. III.

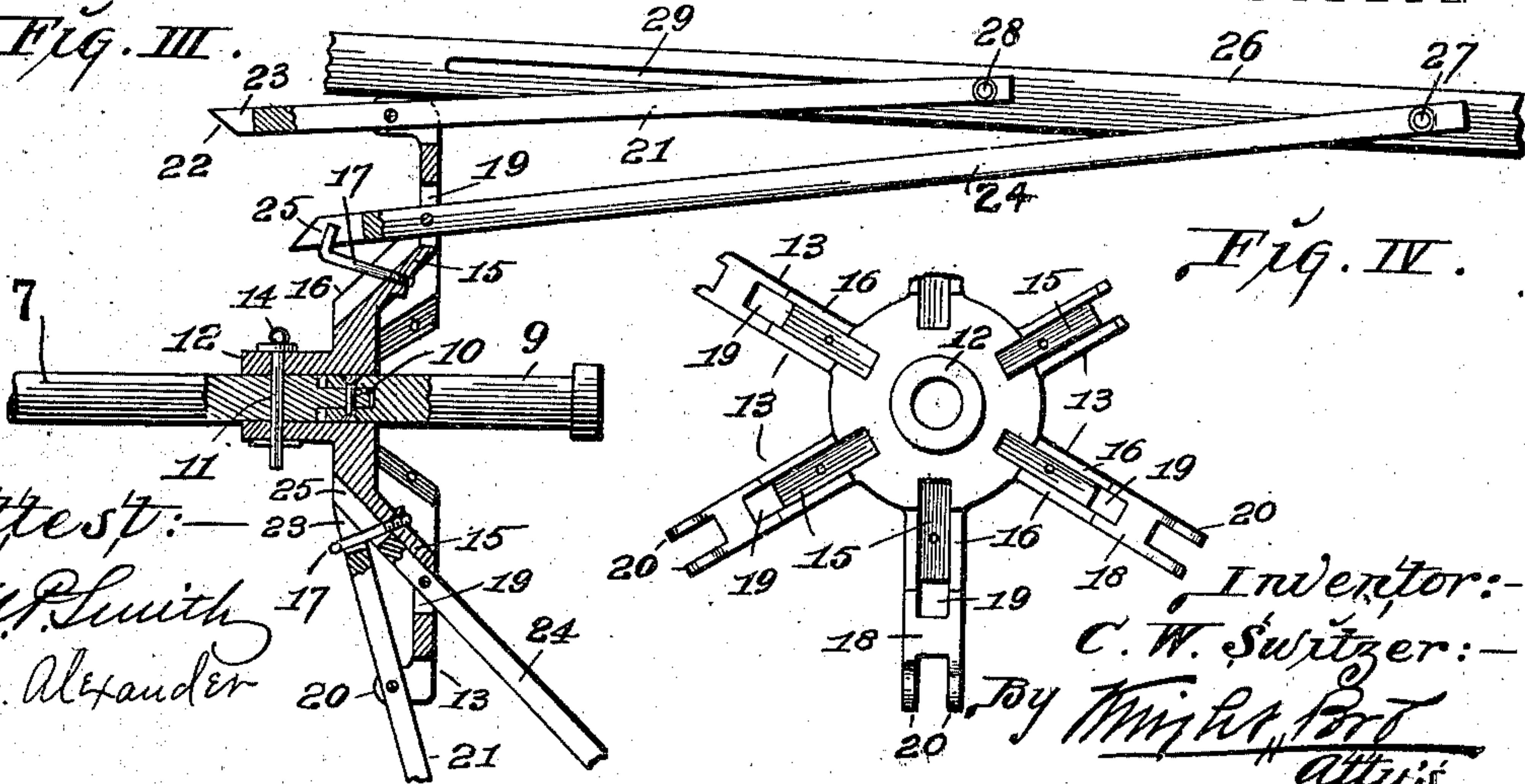
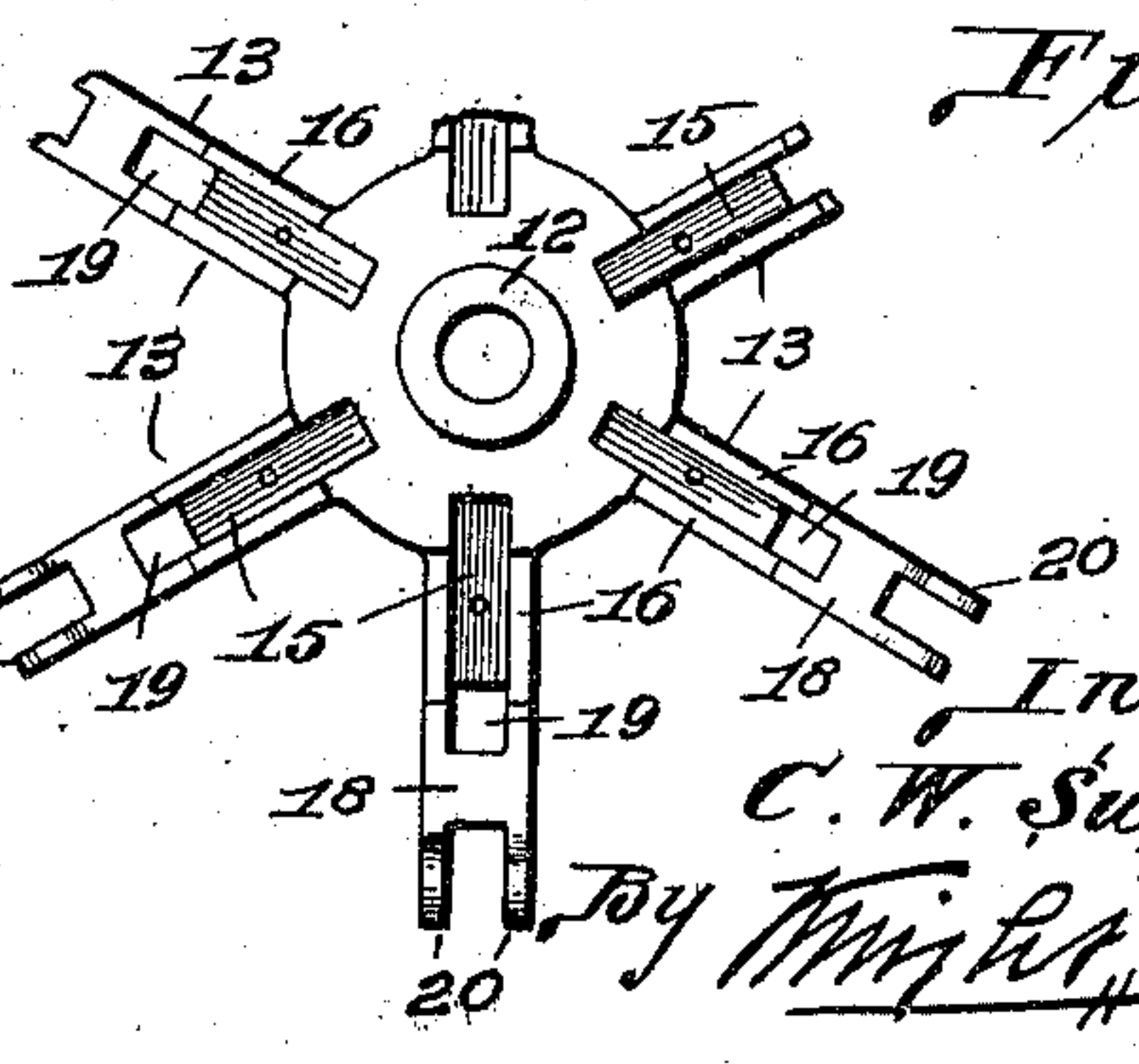


Fig. IV.



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UNITED STATES PATENT OFFICE.

CHARLES W. SWITZER, OF ATWATER, ILLINOIS.

BINDER-REEL.

SPECIFICATION forming part of Letters Patent No. 681,277, dated August 27, 1901.

Application filed July 16, 1900. Serial No. 23,807. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. SWITZER, a citizen of the United States, residing at Atwater, in the county of Macoupin and State of Illinois, have invented certain new and useful Improvements in Binder-Reels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to binder-reels, and has for its object the construction of a simple and inexpensive reel that can be folded into a very small compass and swung into an out-of-the-way position while the binder is stored or being transported.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a front elevation showing the binder-frame in dotted lines and my improved reel in position thereon, dotted lines showing the position of the reel when folded. Fig. II is a plan view showing the frame of the binder in dotted lines and the reel folded and swung into its rearward out-of-the-way position. Fig. III is an enlarged sectional view taken through the center of the hub of the reel and showing portions of the folding arms. Fig. IV is a front elevation of the hub of the reel.

Referring by numerals to the accompanying drawings, 1 indicates the frame of the binder; 2, the main reel thereof; 3, the standard that supports the reel, and 4 the vertically-arranged shaft that carries the beveled pinion 5 for imparting rotary motion to the reel, all of these parts being of ordinary and well-known construction.

Carried by the standard 3 is a bracket 6, in which is horizontally arranged for rotation a short shaft 7, that is provided on its inner end with a bevel gear-wheel 8, that meshes with the pinion 5. A short shaft 9 is hinged by means of a pin 10 to the outer end of the shaft 7 in such a manner that it can be swung rearwardly in a horizontal plane, and passing through the shaft 7 adjacent this hinge is an aperture 11. Arranged to slide upon the short shaft 9 and the outer end of the shaft 7 is the hub or spider of the reel, the same com-

prising the tubular body portion 12, integral with the outer end of which are formed the radially-extending arms 13. Formed through the tubular portion 12 of this hub is a pair of apertures adapted to coincide with the aperture 11, and by passing a pin 14 through these coinciding apertures the hub is rigidly fixed upon the shaft 7. When so fixed in position, the outer portion of the hub surrounds the joint of hinge between the shaft 7 and the short shaft 9. The arms 13 extend outwardly from the tubular portion 12 of the hub at angles of approximately forty-five degrees, as indicated by 15, these portions of the arms being provided on their edges with the flanges 16, and fixed in the arms 13 and extending rearwardly between these pairs of flanges are tail-bolts 17. The ends 18 of the arms 13 extend outwardly from the ends of the angled portions 15 and are provided at the points where they leave said angled portions with the apertures 19 and at their extreme outer ends with the pairs of ears 20. Pivotaly held between each pair of ears 20 is a short swinging bar 21, the rear end of which is beveled or cut off at an angle, as shown at 22, and said rear end is also provided with a short longitudinally-extending slot 23, through which one of the tail-bolts 17 passes when this bar 21 is swung to its outward limit of movement.

Passing through each of the apertures 19 and pivotaly held therein is a long swinging bar 24, the rear end of which is provided with a short longitudinally-extending slot 25 to accommodate the corresponding tail-bolt 17. When this longitudinal bar is swung outwardly to its limit of movement, its rear end lies directly upon the angled portion 15 of the arm 13 between the flanges 16. When both the bars 21 and 24 are swung outwardly to their limit of movement, the beveled end 22 of the bar 21 bears directly upon the extreme rear end of the bar 24, and the laterally-bent end of the tail-bolt 17, that projects through the slots 23 and 25, bears against the outer face of the end of the bar 21 and rigidly locks the bars 21 and 24 to the hub.

Slats or blades 26 are provided for each pair of the swinging bars 21 and 24, the outer ends of each bar 24 being pivotaly held to its slat by a bolt 27 and the outer end of each

bar 21 being connected to its slat by a bolt 28, that passes through a longitudinally-extending slot formed in the slat.

When my improved reel is open and ready for use, the bars 21 and 24 are swung to their outward limits of movement, and the tail-bolts 17 are so positioned as to lock the arms in their proper positions. The pin 14, passing through the tubular portion 12 of the hub and through the outer end of the shaft 7, locks these two parts together, and as rotary motion is imparted to said shaft 7 through the bevel-gears 5 and 8 the reel will operate in the usual manner.

When it is desired to fold the reel and swing the same into an out-of-the-way position, the tail-bolts 17 are so manipulated as to bring their laterally-bent ends into coincidence with the slots 23 and 25 in the arms 21 and 24, after which the slats 26 are swung toward one another until their rear ends rest upon the outer ends of the arms 13. During this movement the bolts 28, connecting the outer ends of the bars 21 to the slats 26, will necessarily travel throughout the length of the slots 29. The reel is now folded into such a position that the entire binder can pass through a very low doorway or beneath an overhanging obstruction that would ordinarily be struck by a reel having fixed arms or slats.

When it is desired to swing the reel rearwardly into the position shown in Fig. II while the binder is being transported or stored, the pin 14 is removed, after which the tubular portion 12 of the hub is slid outwardly onto the short shaft 9 and the entire reel and said short shaft are swung around in horizontal plane and at right angles to the shaft 7. When the reel is thus swung rear-

wardly, the binder-platform can be folded or slid inwardly toward the body of the binder and the entire machine can readily be drawn through a much narrower space than could ordinarily be traversed by a binder.

A reel so constructed is applicable for all binders, is simple in construction and operation, and when folded and swung rearwardly occupies a very small space in an out-of-the-way position.

I claim as my invention—

1. In a device of the class described, a rotatably-arranged shaft, a short shaft-section hinged to the first-mentioned shaft, a hub arranged to slide upon the shaft and the hinged section, so as to cover the joint when the shafts are in line, pairs of swinging bars carried by the hub, and a slat pivotally connected to each pair of swinging bars, substantially as specified.

2. In a device of the class described, a rotatably-arranged shaft, a hub sliding upon said shaft, pairs of swinging bars pivotally connected to said hub, and a slat pivotally connected to each pair of swinging bars, substantially as specified.

3. In a device of the class described, a rotatably-arranged shaft, a short shaft-section hinged to the first-mentioned shaft, a hub arranged to slide upon the shaft and the hinged section, means whereby said hub is locked upon the shaft, pairs of swinging bars carried by the hub, and a slat pivotally connected to each pair of swinging bars, substantially as specified.

CHARLES W. SWITZER.

In presence of—

GEO. H. KNIGHT,
M. E. LOWE.