

E. F. YOUNCE.
 CONVERTIBLE HAY RACK.
 APPLICATION FILED SEPT. 8, 1914.

1,166,877.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

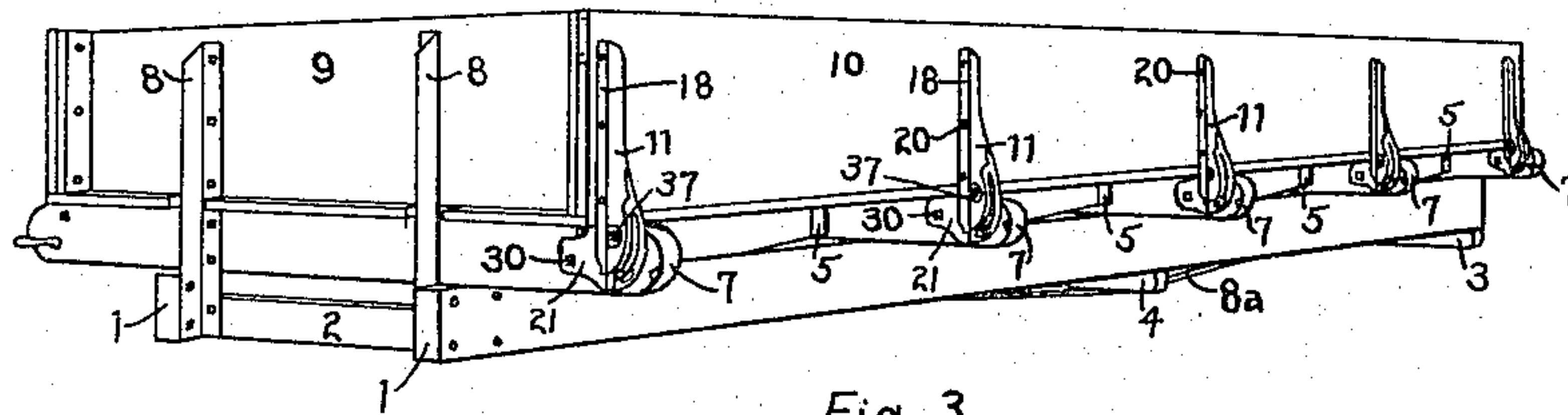


Fig. 3

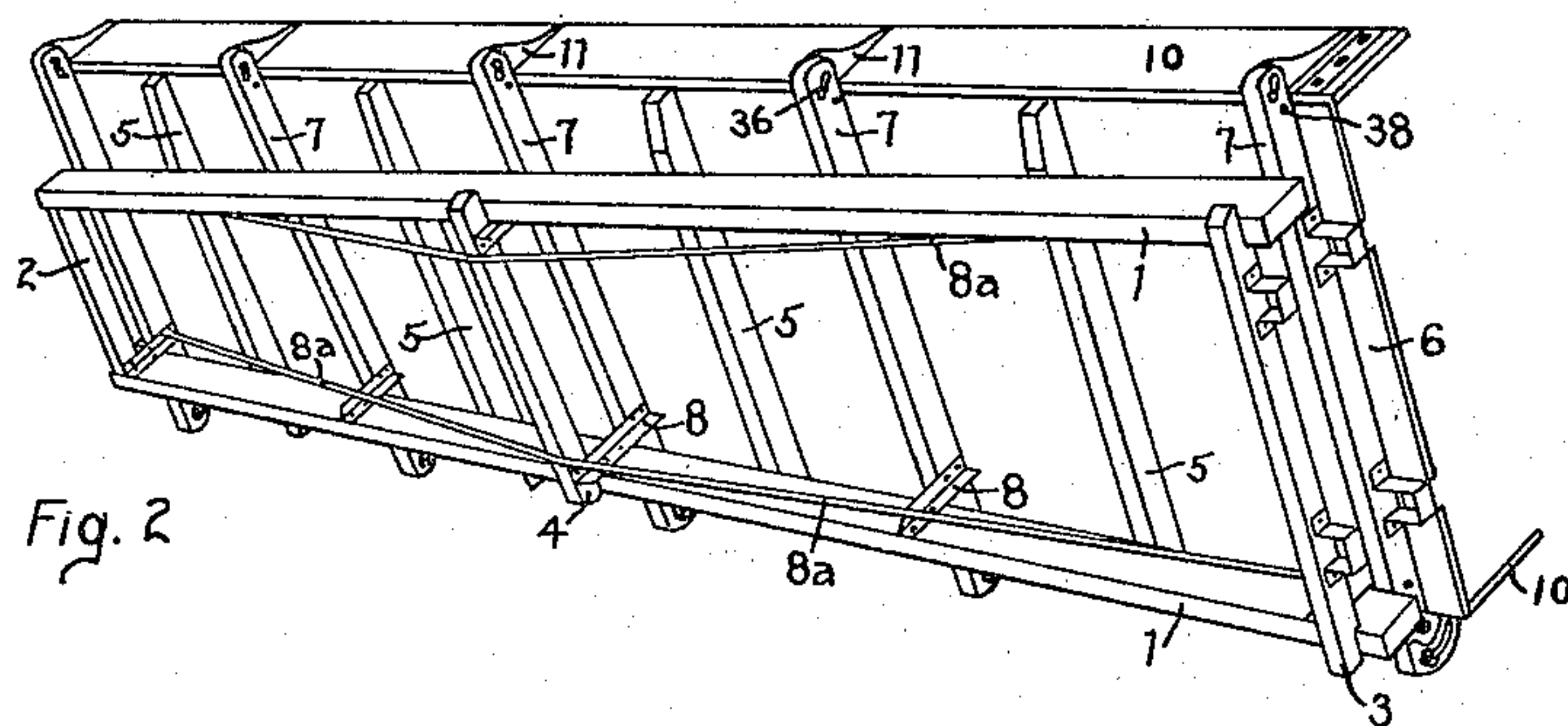


Fig. 2

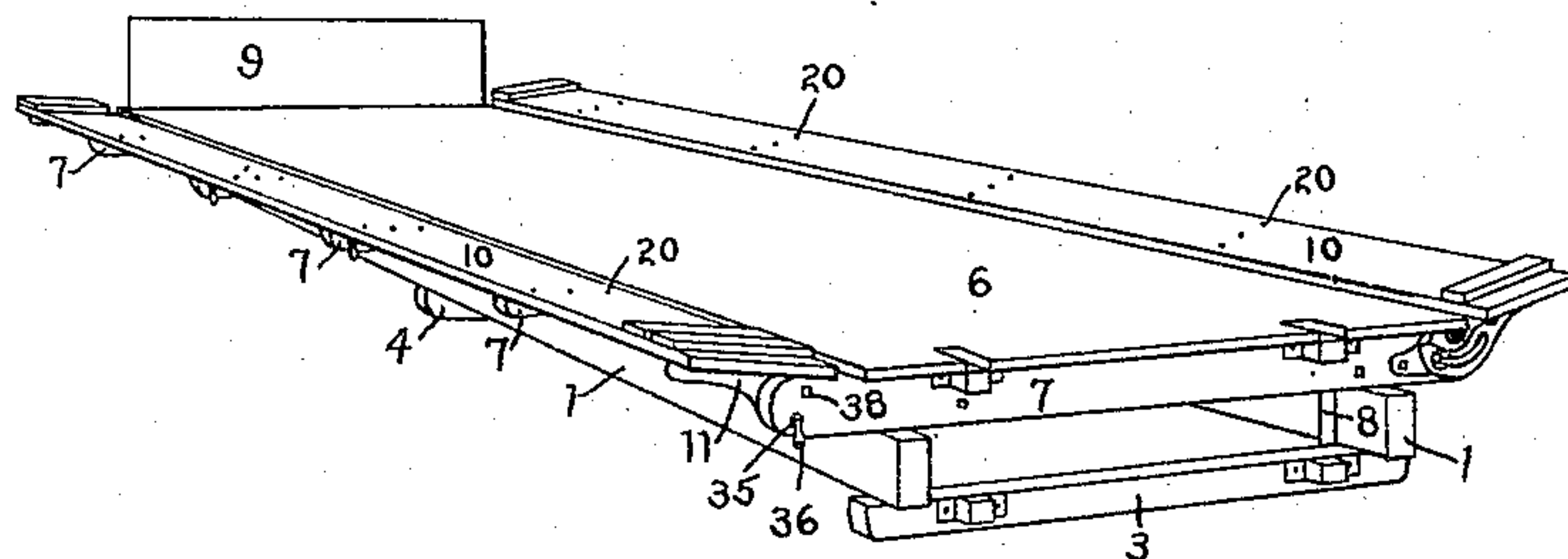


Fig. 1

Witnesses

C. S. Paull
 A. W. Egan

Inventor

E. F. Younce

By

Howard S. Smith

His

Attorney

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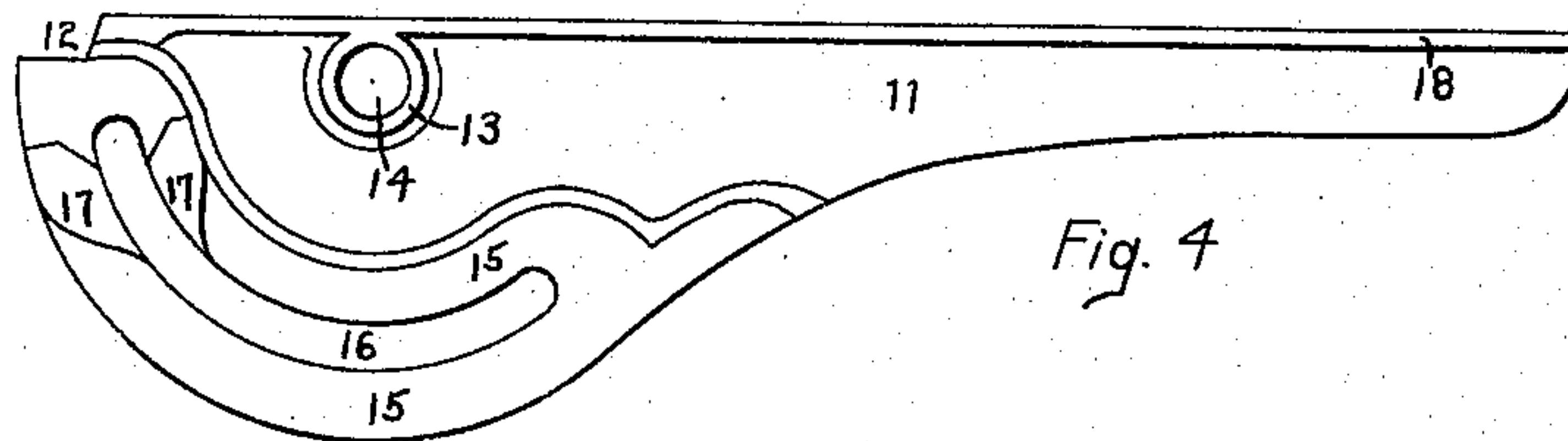


Fig. 4

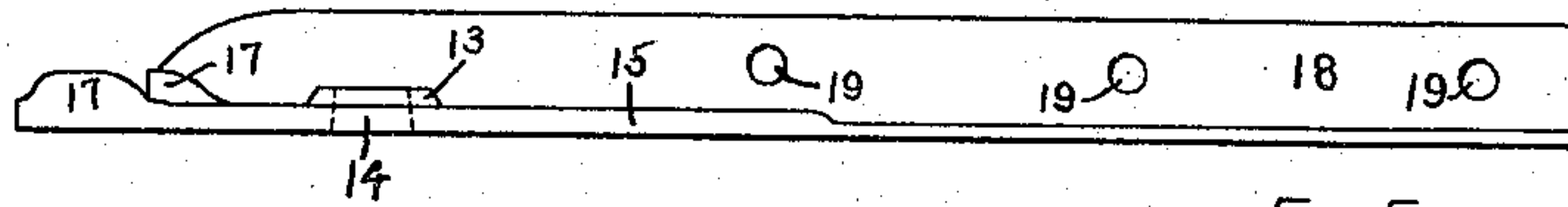


Fig. 5

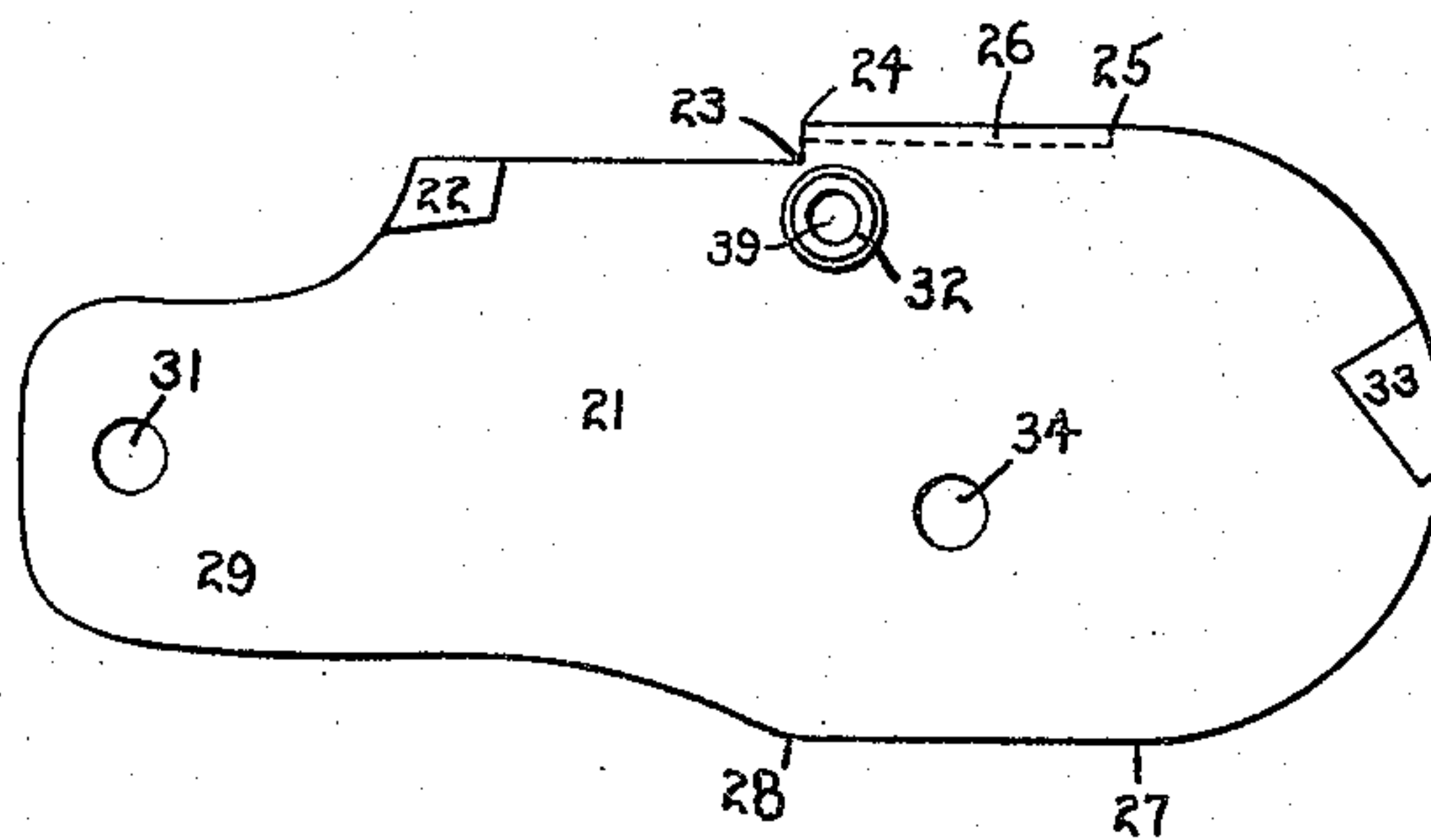


Fig. 6

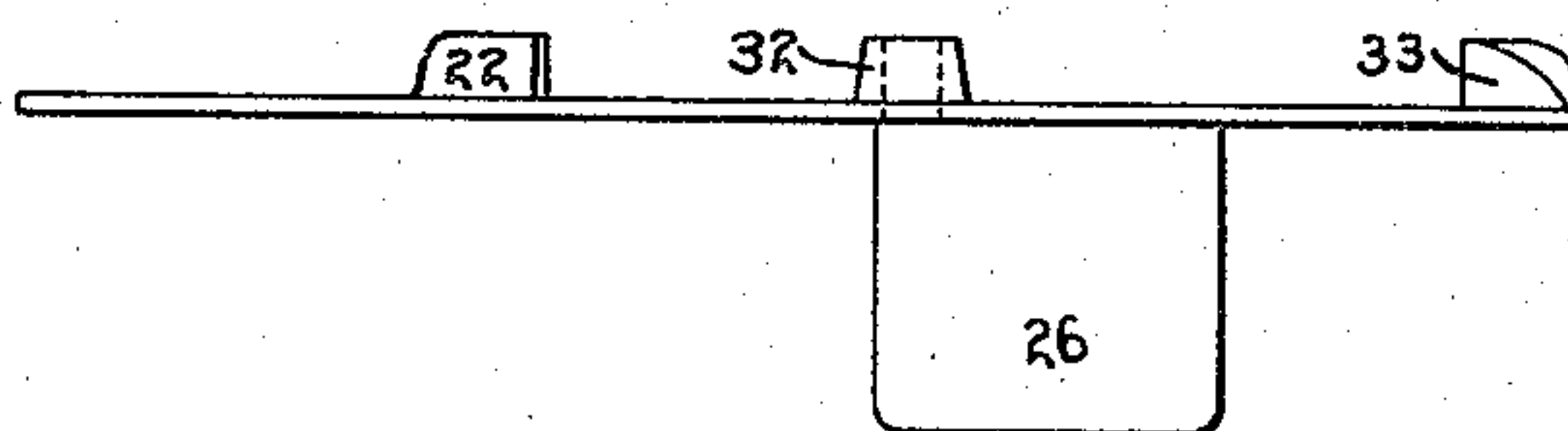


Fig. 7

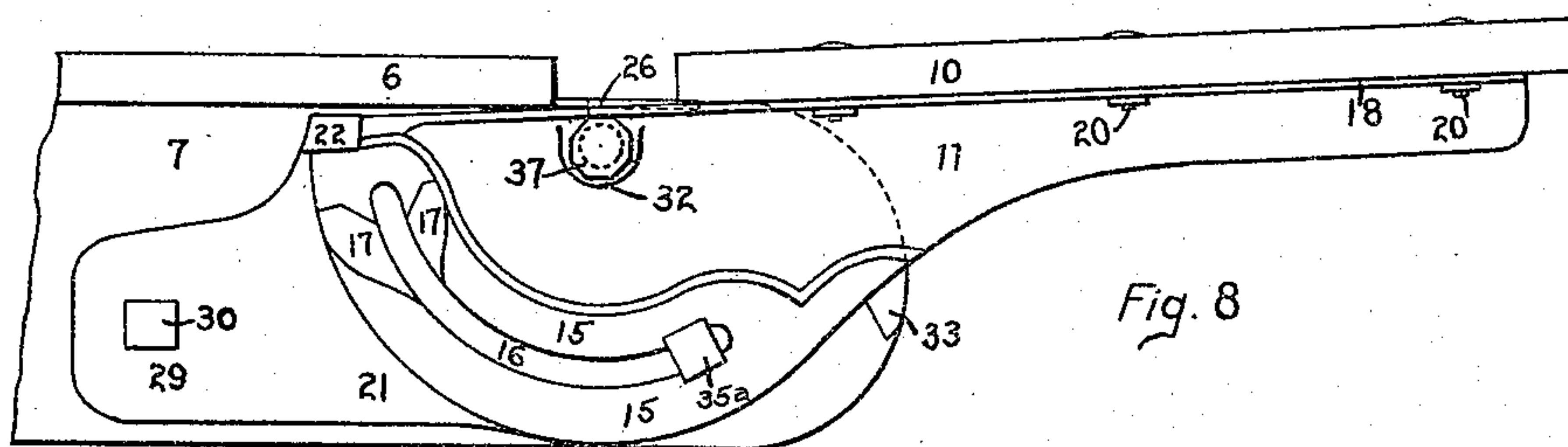


Fig. 8

Witnesses

C. G. Paul
 A. N. Egan

Inventor

E. F. Younce

By

Howard S. Smith

Attorney

UNITED STATES PATENT OFFICE.

ELIAS F. YOUNCE, OF UNION, OHIO.

CONVERTIBLE HAY-RACK.

1,166,877.

Specification of Letters Patent.

Patented Jan. 4, 1916.

Application filed September 8, 1914. Serial No. 860,520.

To all whom it may concern:

Be it known that I, ELIAS F. YOUNCE, a citizen of the United States, residing at Union, in the county of Montgomery and State of Ohio, have invented a new and useful Improvement in Convertible Hay-Racks, of which the following is a specification.

This invention relates to new and useful improvements in convertible hay-racks.

The object of my invention is to provide a strong and readily assembled hay-rack which may be easily and quickly converted into a wagon box, and vice versa.

In the accompanying drawings, Figure 1 is a perspective view of the hay-rack before its conversion into a wagon box. Fig. 2 is a perspective view, showing the bottom portion of my invention. Fig. 3 is a perspective view of my construction after its conversion into a wagon box. Fig. 4 is a side view of the swinging portion of my retention hinge. Fig. 5 is a bottom view of the same. Fig. 6 is a side view of the stationary portion of the retention hinge. Fig. 7 is a bottom view of the same. And Fig. 8 is an elevational view, showing the two parts of the hinge connected together.

Throughout the specification and drawings, similar reference characters denote corresponding parts.

In a detailed description of my invention, the numerals 1—1 designate two longitudinal beams which are inclined toward each other and joined together at one end by a connecting member 2. At their opposite ends and middle portions, these beams are connected by cross pieces 3 and 4 respectively.

Resting upon the beams 1—1 are cross bars 5 of a hay-rack and wagon bottom 6. Also supporting the bottom 6, and extending a short distance beyond the side edges thereof, are transverse members 7. These members 7, as well as the connecting member 2 and cross pieces 3 and 4, are readily secured to the beams 1—1 by angle irons 8. Truss rods 8^a connected to the end transverse members 7, pass under the cross piece 4 to cooperate with the angle irons 8 in making the beams 1—1 and connected parts a firm and compact supporting structure for the combined hay-rack and wagon bottom 6.

Firmly secured to one end of the bottom 6, by angle irons 8, is an upright end member 9. There is also provided a pair of side

members 10—10 which are hingedly secured to the bottom 6 by the following means: Referring to Fig. 4, the numeral 11 designates an elongated metallic plate or casting having the outline of a dipper. The upper straight edge of the casting 11 terminates at one end in a notched portion 12, the lower edge of said casting having a wide semi-circular curve from the notched portion 12 to a point almost midway its length, whence it extends in a slightly curved line to the opposite end of the casting. Provided in the upper central portion of the semi-circular part of the casting 11, is a conical projection 13 containing a conical bore 14 which extends on through the casting. Below the bore 14 is a raised segmental portion 15 which contains a circumferential slot 16. Provided on either side of the slot 16, near the end thereof which is adjacent the notched portion 12, is an upturned lug 17 for a purpose to be hereinafter explained. (See Figs. 4 and 5). Preferably integral with, and at right angles to the face of the casting 11, is a longitudinal flange portion 18 provided with holes 19, and by means of bolts 20 passing through these holes the casting 11 may be firmly secured to a side member 10. (See Fig. 5 and 8).

Referring to Fig. 6, the numeral 21 designates an elongated casting whose contour may best be described by starting at an upturned lug 22, then proceeding in a straight line to a point 23, then at a right angle to a point 24, and thence in a straight line to a point 25. Preferably integral with the casting 21, and extending outwardly at right angles thereto between the points 24 and 25, is an ear 26 adapted to rest upon a transverse member 7 to which the casting is secured. From the point 25 to a point 27 immediately below it, the edge of the casting 21 is almost a semicircle, and from the point 27 to a point 28, a straight line. Between the points 28 and 22 the edge of said casting is irregularly curved to provide a neck portion 29 which may be firmly secured to a transverse member 7 by a bolt 30 passing through an aperture 31. (See Figs. 6 and 8).

Just below the point 23, the casting 21 has a conical projection or pivot 32 which is adapted to loosely enter the bore 14 in the casting 11 for the purpose of supporting the latter during a swinging movement to be hereinafter described.

About midway between the points 25 and 27, just inside the semicircular edge of the casting 21, is an upturned lug 33 which co-operates with the lug 22 in effecting a result to be hereafter explained.

Beneath and a little to the right of the pivot 32, is a circular aperture 34 which receives a bolt 35, one end of which is secured to a transverse member 7, while the other, after passing through the aperture 34, is adapted to loosely enter the slot 16 in the casting 11. The bolt 35 has a head 35^a which is adapted to engage the upturned lugs 17 to hold the casting 11 in a vertical position, while the other end of the bolt 35 passes through its respective transverse member 7 to receive a winged nut 36. (See Figs. 1, 2 and 8).

In operation, by means of the bolt 30 and ear 26, a casting 21 is secured to each transverse member 7 in such a manner as to cause the pivot 32 to assume a position slightly beyond the side edge of the bottom 6. (See Figs. 1, 3 and 8). The castings 11, of which there is one for every casting 21, are secured to the side members 10—10 by the bolts 20 which extend through the apertures 19 in their flange portions 18. (See Figs. 3 and 8). The two separate castings 21 and 11 are united by causing the pivot 32 of the former to pass through the bore 14 of the latter, and to prevent said castings from becoming disengaged, a nut 37 may be screwed on the end of a bolt 38 which passes through the transverse member 7 and a hole 39 in the pivot 32.

When the casting 11 has been pivotally mounted upon the casting 21, there is formed for the side members 10—10 a retention hinge whose movement will now be described. As has been stated, the castings 21 are firmly secured to the transverse members 7 which support the bottom 6, while the castings 11 are attached to the side members 10—10. Therefore, it will be seen that said side members may be moved about the pivots 32 from their lower or hay-rack position shown in Fig. 1, to their vertical or wagon-box position shown in Fig. 3.

The lowermost or hay-rack position of the castings 11 and side members 10—10 which they support, is shown in Figs. 1 and 8. In this position the lugs 33 engage the lower edges of the castings 11, the lugs 22 at the same time engaging the notched portions 12 of said castings, to arrest a further downward movement of the latter. This construction makes it possible for the side members 10—10 to support a great weight in their lateral positions.

When the casting 11 is turned about the

pivot 32 from the hay-rack to the wagon-box position, the bolt 35 is loosened by turning the winged nut 36, as the head 35^a of said bolt lies in the path of the lugs 17 which move upwardly with the slot 16. Therefore, by drawing the bolt 35 outwardly, the head thereof will clear the lugs 17 during their upward movement. When the castings 11 and side members 10—10 which they support, attain their vertical or wagon-box position, the bolts 35 will be in the extreme lower ends of the slots 16. Accordingly, if it is now desired to maintain said side members in their elevated position, the winged nuts 36 should be turned sufficiently to draw the heads 35^a of the bolts 35 inwardly a sufficient distance to lie in the path of the lugs 17, to engage the latter and thereby arrest a downward movement of the castings 11 until a hay-rack position of the side members 10—10 is again desired. It will now be seen that the side members 10—10 will be firmly held in their lowermost or hay-rack position by the lugs 22 and 33 engaging the castings 11; that said castings may be freely turned about the pivots 32 to bring said side members into a vertical or wagon-box position, and that they may be firmly held in such a position by the slot and bolt construction just described. Thus, by the use of my improved hinge construction, an easy, quick and effective conversion from hay-rack to wagon-box, and wagon-box to hay-rack, may be accomplished.

I do not wish to be limited to the details of construction and arrangement herein shown and described, and any changes or modifications may be made therein to suit different conditions of use.

Having described my invention, I claim:

A convertible hay-rack comprising a bottom member, a pair of side members, a hinge connection comprising two parallel parts, one attached to the bottom member and the other secured to a side member, means for pivotally securing the last named part to the first named one, lugs on the first named part to limit the movement of the second named part in one direction, and a single slot, pin and shoulder mechanism for limiting the movement of the last named part in the opposite direction, substantially as described.

In testimony whereof I have hereunto set my hand this 5th day of September, 1914.

ELIAS F. YOUNCE.

Witnesses:

CHARLES C. BECHER,
HOWARD S. SMITH.