

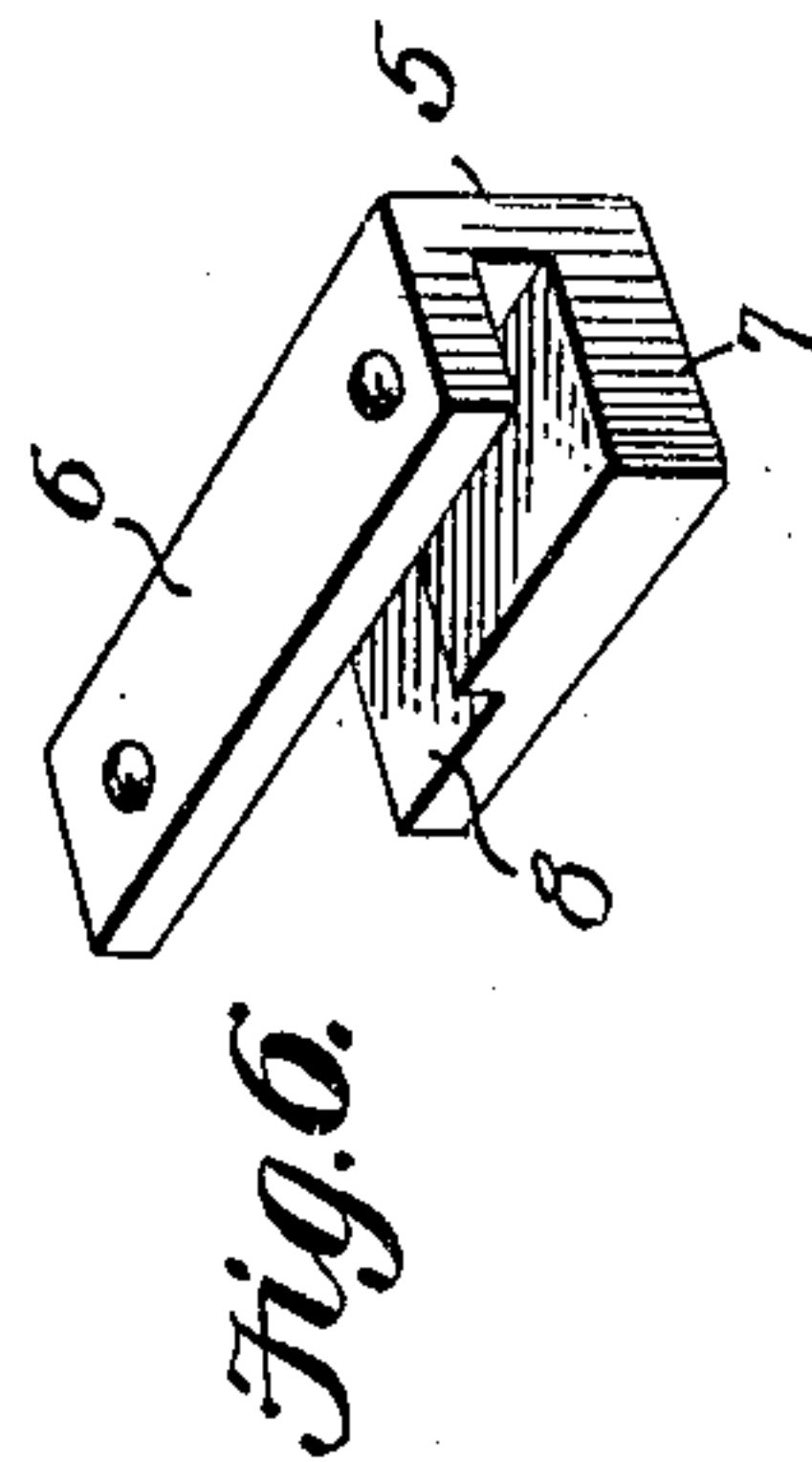
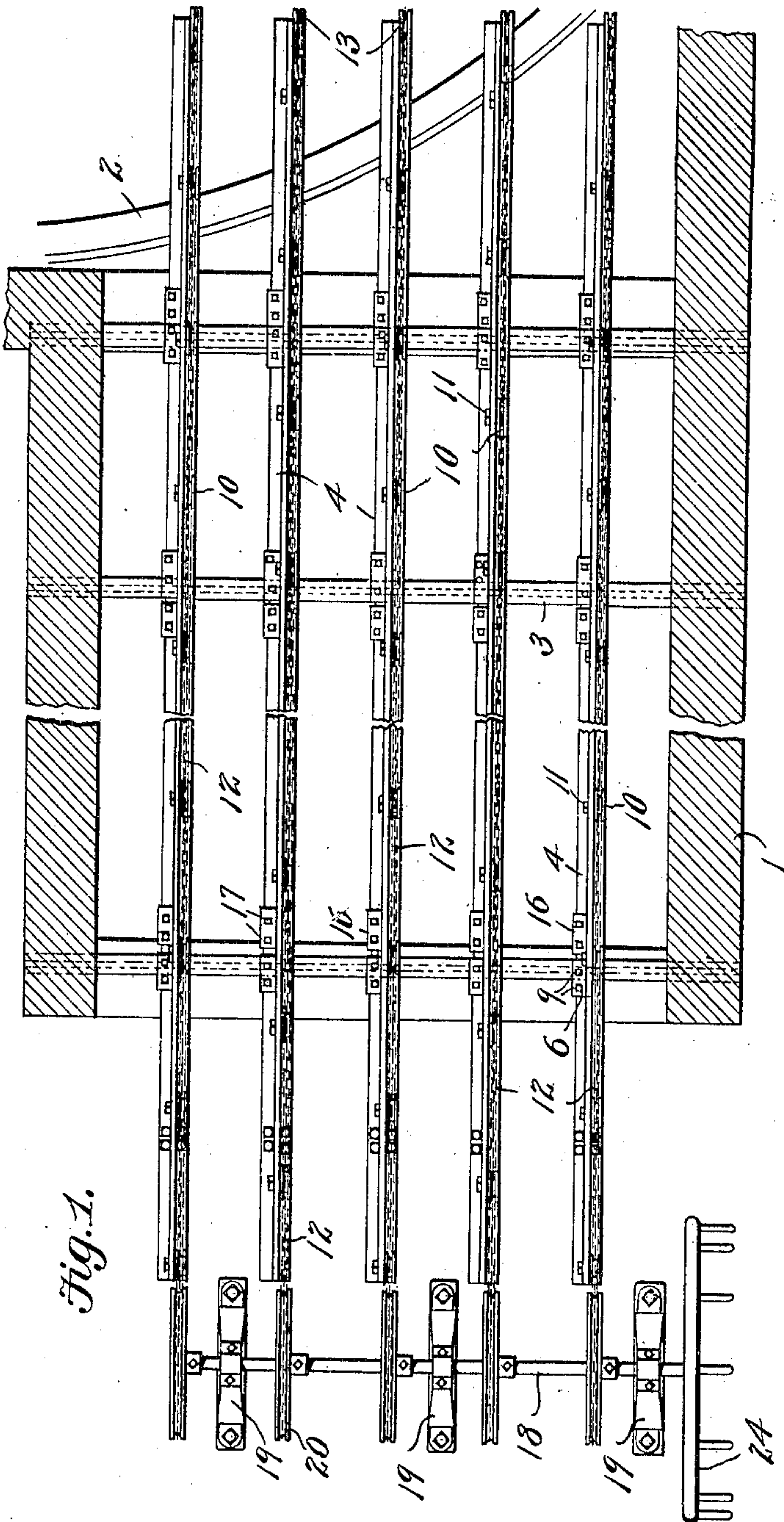
No. 843,264.

PATENTED FEB. 5, 1907.

S. F. FIELD.  
LEER.

APPLICATION FILED OCT. 5, 1905.

2 SHEETS—SHEET 1.



Witnesses

*E. J. Stewart*  
*H. C. Shepard*

*Samuel F. Field,* Inventor  
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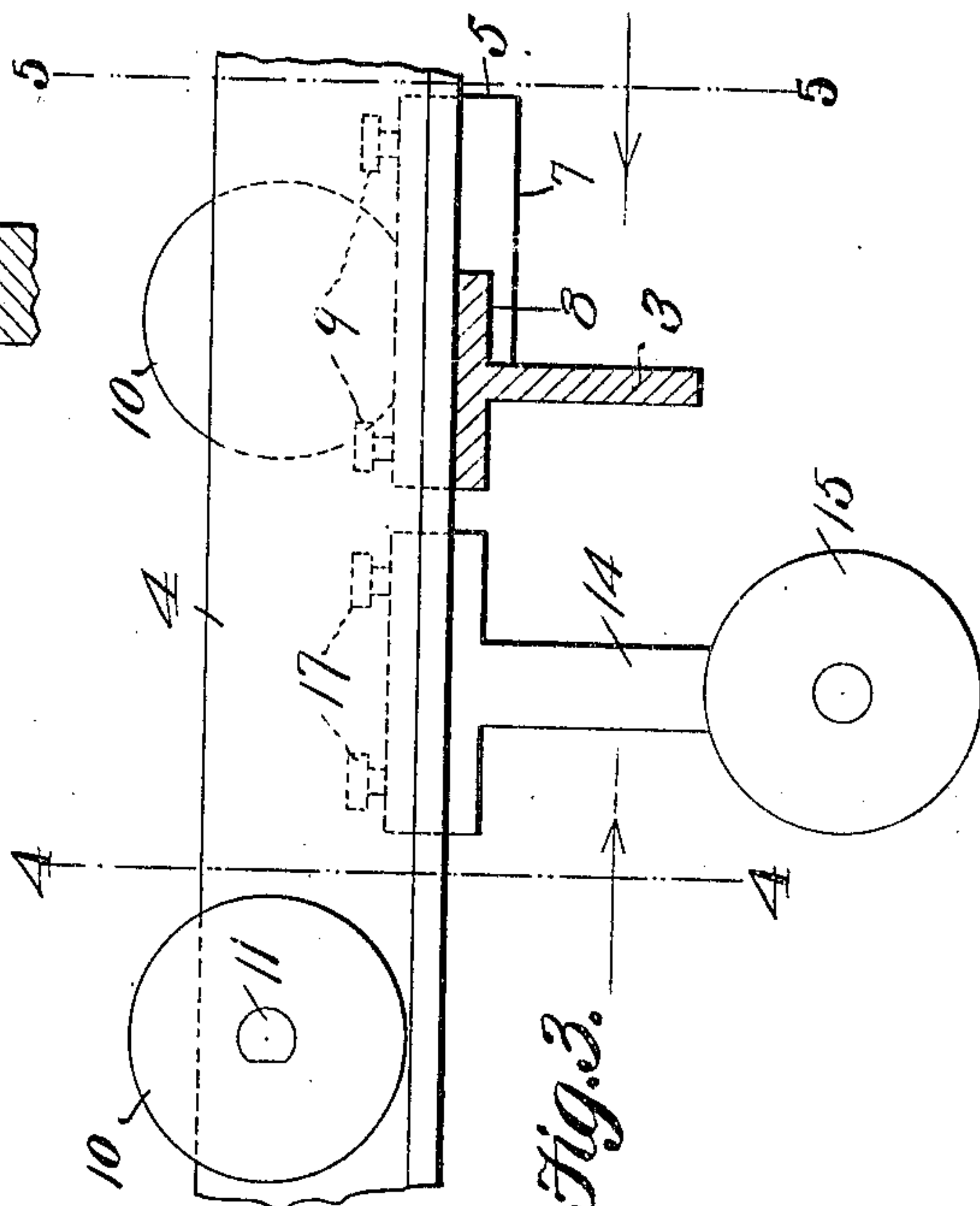
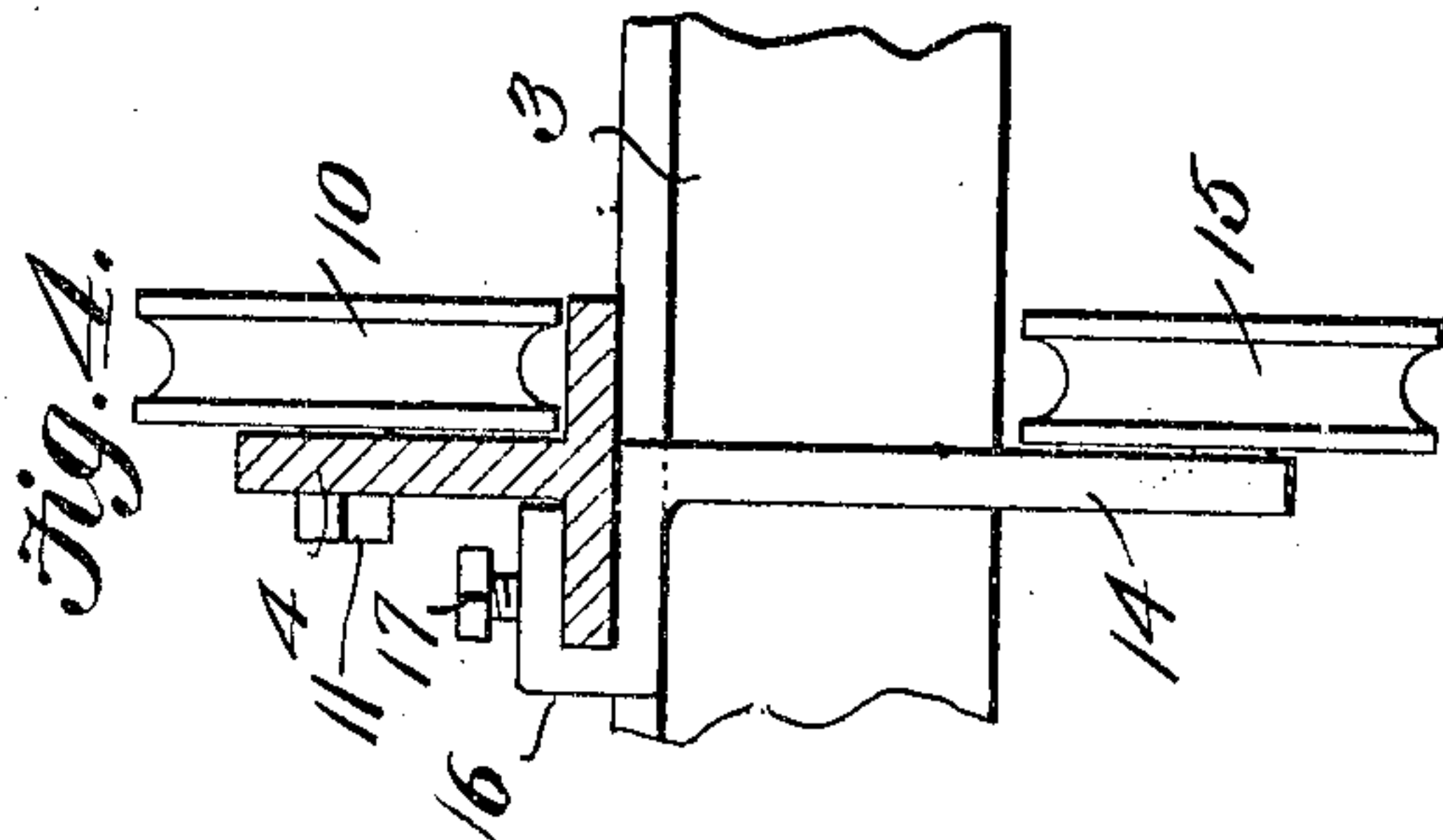
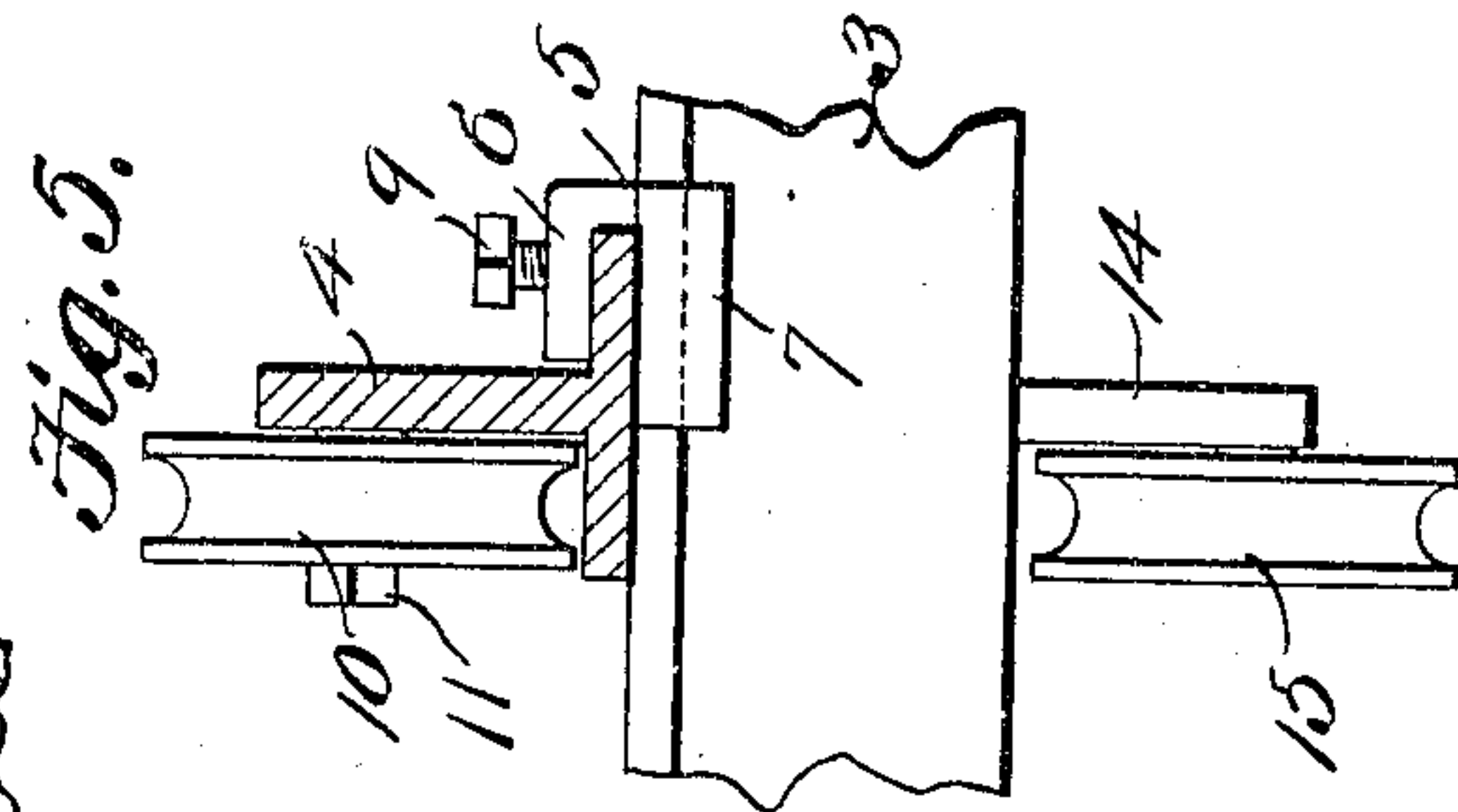
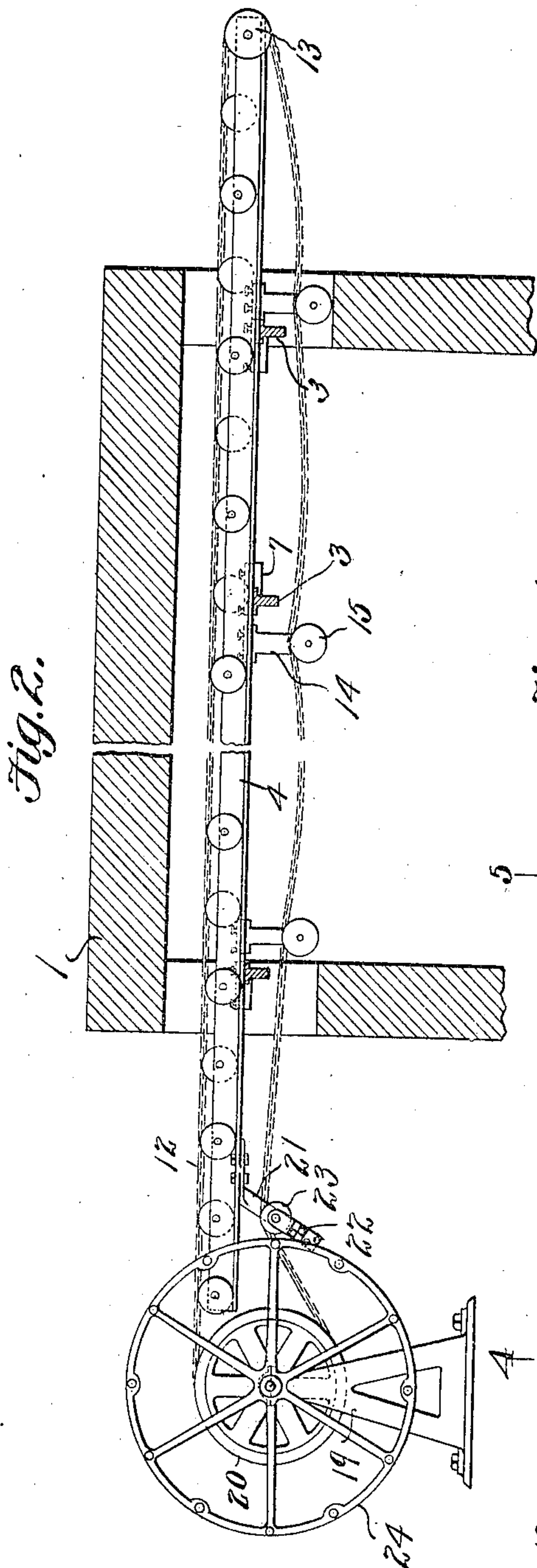
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

SAMUEL F. FIELD, OF FINDLAY, OHIO.

## LEER.

No. 843,264.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed October 5, 1905. Serial No. 281,510.

*To all whom it may concern:*

Be it known that I, SAMUEL F. FIELD, a citizen of the United States, residing at Findlay, in the county of Hancock and State of Ohio, have invented a new and useful Leer, of which the following is a specification.

This invention relates to leers for glass-houses, and has for its object the production of an improved conveyer for carrying the product of the plant through any portion thereof. It is proposed to avoid elevating the glass after leaving the flattening-wheel or other portion of the plant, and therefore I employ an endless-conveyer mechanism, so as to carry the plates always through the upper portion of the tunnel, whereby the glass is not subjected to any drafts of cold air which may enter at the bottom of the tunnel.

A still further object is to provide for supporting the glass while in transit upon anti-friction-rollers in addition to the support afforded by the traveling elements of the conveyer in order that the glass may not become cracked and broken by sagging of the conveyer under the weight of the glass. In other words, it is designed to relieve the traveling elements of the conveyer of the weight of the glass and to carry the same upon a non-yieldable support, along which they are conveyed by the traveling conveyer elements in a very simple and efficient manner.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a plan view of a leer, the top of the tunnel being broken away to disclose the features of the present invention. Fig. 2 is a side elevation of the conveyer with the tunnel broken away. Fig. 3 is an enlarged fragmentary view of the supporting-frame of the conveyer. Fig. 4 is a sectional view on the line 4 4 of Fig. 3. Fig. 5 is a similar view on the line 5 5 of Fig. 3. Fig. 6 is a detail perspective view of one of the brackets employed in the construction of the present device.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

In Figs. 1 and 2 of the drawings I have shown the wall portions 1 of the tunnel of a leer or glass-furnace. A portion 2 of any conventional form of flattening-wheel has been indicated in Fig. 1 of the drawings. Within the tunnel and extending transversely across the same is a series of T-beams 3, having their ends seated in the walls of the tunnel, which support a series of longitudinal inverted-T bars 4, which overlap one edge portion of the flattening-wheel and have their other ends projecting externally of the outer end of the tunnel. Each longitudinal bar is connected to each cross-bar by a bracket 5, which includes an upstanding web portion having a substantially horizontal flange 6 at its upper end to overlap the flange of the bar 4, there being a bottom substantially horizontal flange 7, carried by the lower edge of the web 5 and underlapping the bar 4. The upper side of the flange 7 at one end thereof is cut away to provide a seat or recess 8 for the reception of the flanged portion of the adjacent T-beam 3, there being suitable fastenings 9 piercing the bracket and the flanges, so as to rigidly connect the beam and the bar.

At regular intervals throughout each longitudinal bar 4 are grooved rollers 10, each of which is supported upon a horizontal axis 11, carried by the upstanding portion of the bar, the upper peripheral portion of the roller rising a suitable distance above the top of the bar. Running across the tops of these rollers is an endless conveyer element 12, preferably a chain, which runs around a relatively large guide-roller 13, carried by the rear end of the bar and projecting both above and below the same, so as to carry the lower ply of the chain beneath the bar. Hangers 14 depend at suitable intervals from the bar and carry the grooved rollers 15, over which the lower ply of the chain travels. As clearly indicated in Figs. 3 and 4 of the drawings, each hanger 14 is provided at its upper end with a horizontally-disposed substantially U-shaped bracket 16, which embraces the flange of the adjacent bar, to which it is rigidly connected by a threaded fastening 17. The brackets 16 and the rollers 10 are upon opposite sides of the longitudinal bar, and each of the hangers 14 is disposed in the



same vertical plane with the web of the bar in order that the rollers 10 and 15 may lie in the same vertical plane.

Disposed transversely across the front ends of the bars 4 is a horizontal shaft 18, mounted in suitable bearings 19 and carrying a series of sprocket-wheels 20, one for each of the chains 12, which pass around the adjacent sprocket and thence upwardly and rearwardly to a chain or belt tightening device, including a hanger 21, depending from the bottom of the adjacent bar 4 and carrying a bracket 22, which is adjustable longitudinally of the hanger and carries a grooved roller or pulley 23, over which the lower ply of the belt or chain passes. It will here be explained that there is a belt-tightener of this description for each of the belts or chains, and all of the belt-tighteners are located externally of the tunnel in order that they may be conveniently accessible for tightening the belts when the furnace is in operation, thereby to avoid shutting down of the furnace whenever it becomes necessary to tighten the belts. The shaft 18 is controlled by means of a hand-wheel 24, carried by one end of the shaft.

In practice a workman standing at the flattening-wheel transfers a glass plate from the wheel to the rear or inner end of the conveyer in the usual manner by means of the ordinary tongs, whereupon the plate is supported by the antifriction-rollers 10 and is carried along by the conveyer belts or chains. It will here be explained that each glass plate is supported by the rollers 10 in addition to the support afforded by the chains or belts, whereby the rollers 10 constitute a rigid support for the plates, and the latter are not cracked and broken as when supported directly upon the flexible traveling elements only of a conveyer. In addition to supporting the glass plates the rollers 10 constitute antifriction-supports for the conveyer belts. While I have shown grooved rollers 10, I may employ sprocket-wheels.

By reference to Fig. 1 of the drawings it will be noted that the rollers 10 of each longitudinal series are staggered with respect to the rollers of the adjacent series, whereby the rollers of successive series are in alinement transversely of the series, so as to effectually support the glass plates. It is preferred to have the rollers staggered rather than to have the corresponding rollers of the several series in transverse alinement, for the reason that the staggered arrangement affords the

necessary support for the glass plates and at the same time reduces the number of rollers.

It is preferred to locate the conveyer within the top of the tunnel, so as to maintain the glass plates in the hottest portion thereof, thereby to avoid damage to the plates by changes in temperature. Moreover, the plates are maintained at a constant elevation when in transit through the tunnel, and are therefore not subjected to any lifting actions, which tend to break and injure the plates.

Having thus described the invention, what is claimed is—

1. In a leer the combination with a tunnel, of T-shaped cross-bars extending across the tunnel, inverted-T-shaped longitudinal bars supported upon the cross-bars, substantially U-shaped brackets connecting the bars at their points of crossing, each bracket being of substantially U shape and embracing the flange of one of the bars, the lower side of the bracket being reduced in its upper face at one end to engage beneath the flange of the adjacent crossing-bar, the upper side of the bracket being projected longitudinally beyond the reduced side to overlap the upper side of the flange of said crossing-bar, and fastenings to hold the brackets in place.

2. In a leer the combination with a tunnel; of T-shaped cross-bars extending across the tunnel, inverted-T-shaped longitudinal bars supported upon the cross-bars, substantially U-shaped brackets connecting the bars at their points of crossing, each bracket being of substantially U shape and embracing the flange of one of the bars, the lower side of the bracket being reduced in its upper face at one end to engage beneath the flange of the adjacent cross-bar, the upper side of the bracket being projected longitudinally beyond the reduced side to overlap the upper side of the flange of said cross-bar, fastenings to hold the brackets in place, antifriction-rollers journaled in the sides of the longitudinal bars with their peripheries projecting above the tops thereof, and a series of endless conveyer-belts traveling over the rollers.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL F. <sup>his</sup> × FIELD.  
mark

Witnesses:

JOHN W. GRIMM,  
ROSS J. WETHERALD.