

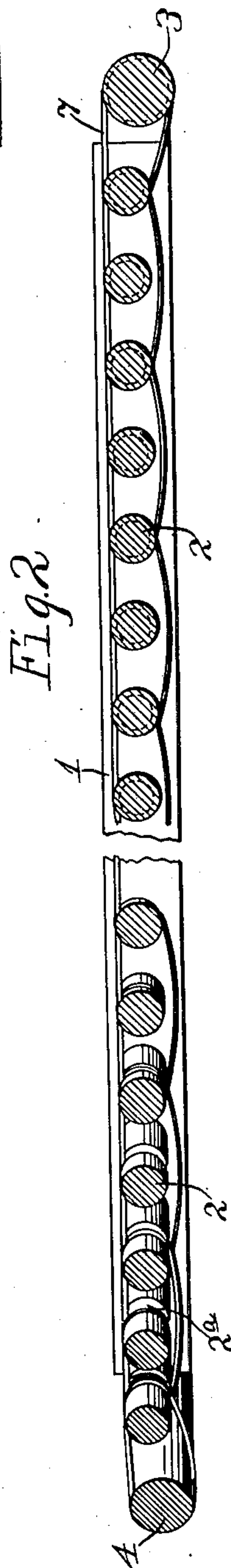
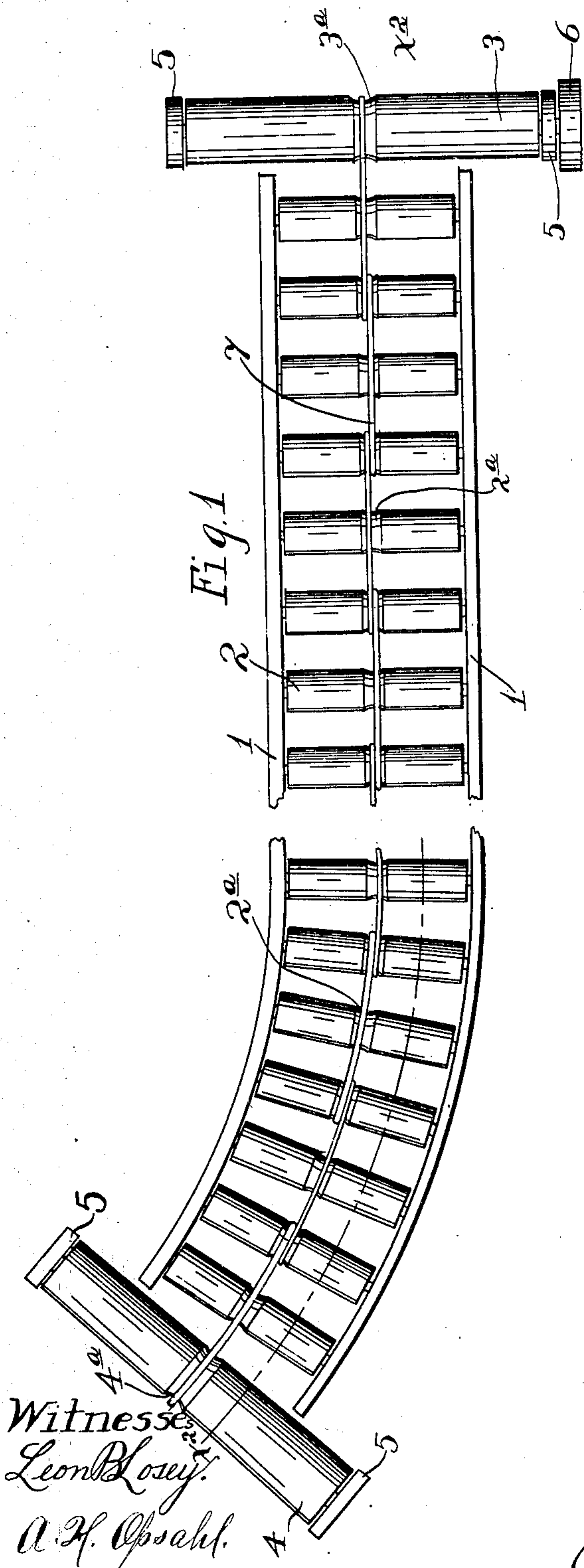
No. 871,340.

PATENTED NOV. 19, 1907.

F. C. HRDINA.  
CONVEYER SYSTEM.

APPLICATION FILED JUNE 5, 1907.

2 SHEETS—SHEET 1.



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By his Attorneys  
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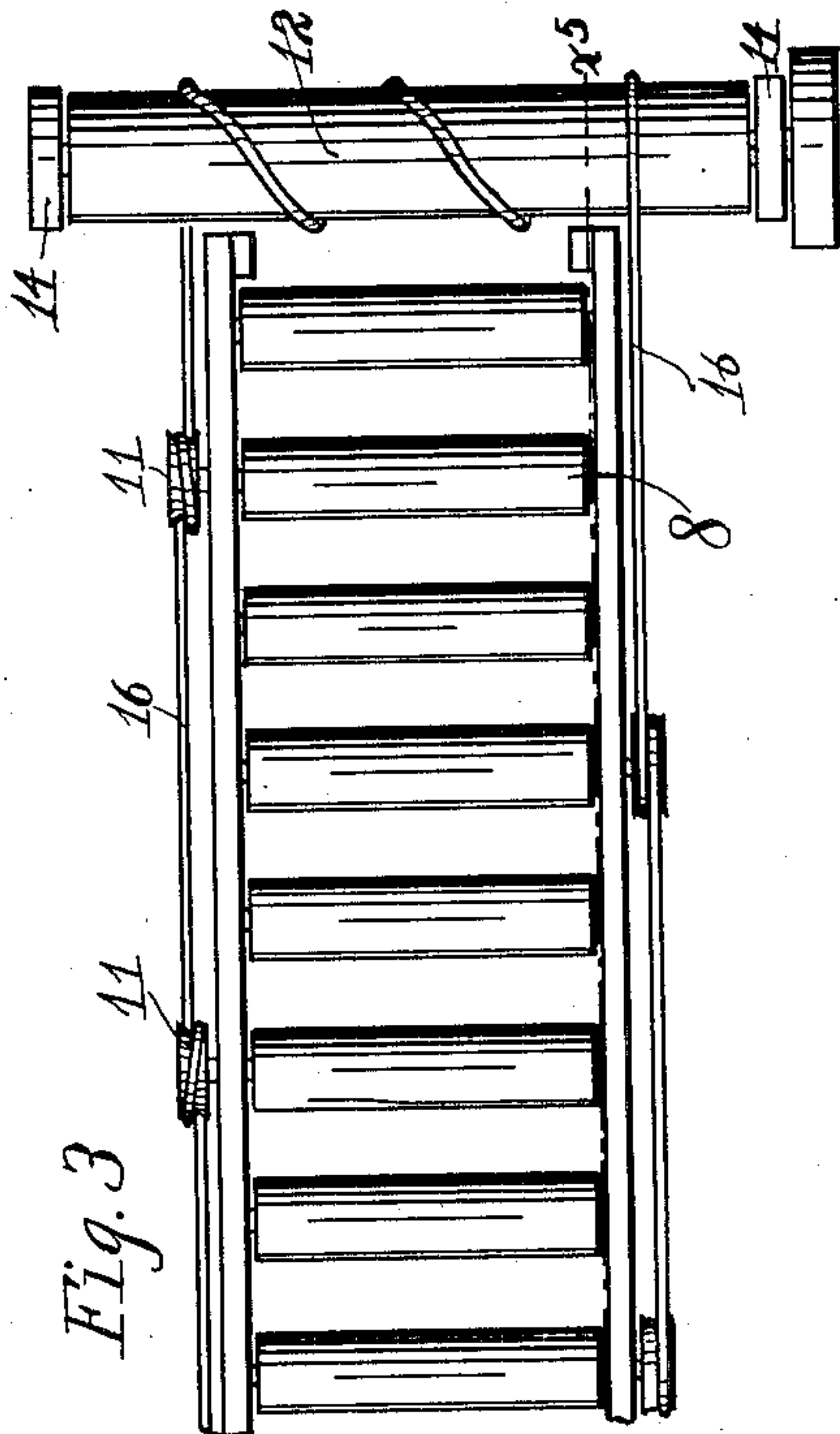


Fig. 3

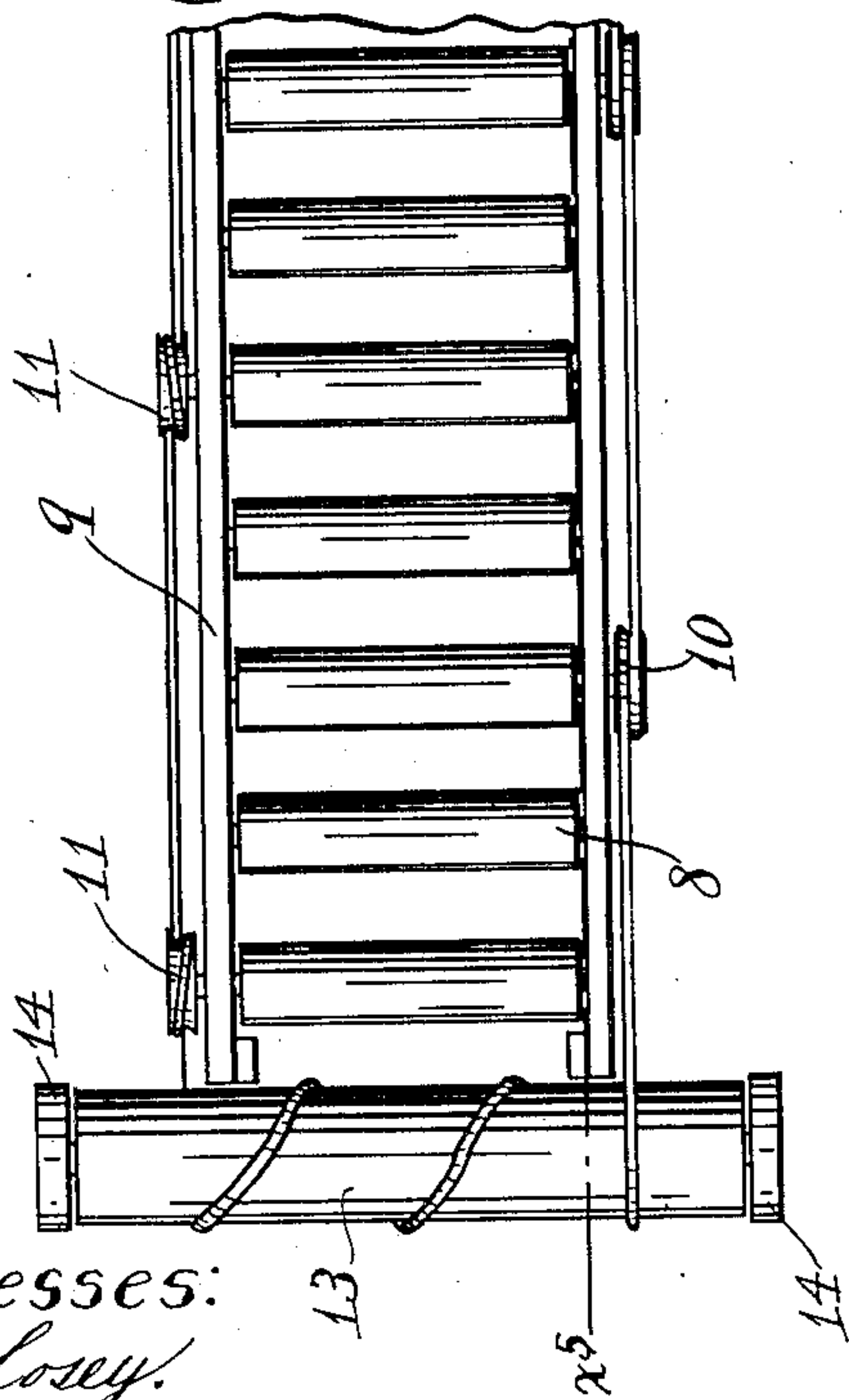


Fig. 4

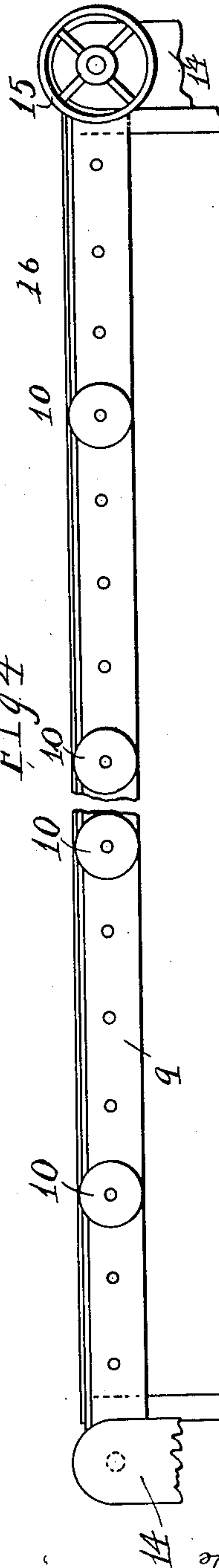


Fig. 5

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# UNITED STATES PATENT OFFICE.

FRANK C. HRDINA, OF NORTH ST. PAUL, MINNESOTA.

## CONVEYER SYSTEM.

No. 871,340.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed June 5, 1907. Serial No. 377,329.

*To all whom it may concern:*

Be it known that I, FRANK C. HRDINA, a subject of the Emperor of Austria, residing at North St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful improvements in Conveyer Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that type of carrier systems wherein closely positioned rollers afford the support for the articles carried or conveyed, and has for its object to provide an improved means for driving the said rollers, that is, for imparting positive rotary movements thereto as distinguished from those that are rotated simply by gravity acting on the parcels to be delivered, and which are usually designated as gravity conveyers or carriers. This latter type of carrier will deliver only on a down grade, while my improved drive adapts the rollers to carry articles either up grade or down grade, as well, of course, as on the level.

The improved carrier is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings; Figure 1 is a plan view showing a track made up of rollers and supports therefor, and illustrating my improved drive applied thereto. Fig. 2 is a vertical section taken on the line  $x^2 x^2$  of Fig. 1. Fig. 3 is a plan view illustrating a modified form of the improved drive. Fig. 4 is a side elevation of the parts shown in Fig. 3; and Fig. 5 is a vertical section taken on the line  $x^5 x^5$  of Fig. 3.

Referring first to the construction illustrated in Figs. 1 and 2, the numeral 1 indicates roller supporting rails, and the numeral 2 indicates carrier rollers having projecting trunnions journaled in said rails. The numerals 3 and 4 indicate large end rollers located at the opposite ends of the track section, shown as journaled in suitable supports 5. As shown, the roller 3 is provided with a pulley 6 over which a power driven belt, not shown, may run to impart rotary motion to said roller. The intermediate portions of the carrier rollers are provided with annular grooves  $2^a$ , and the rollers 3 and 4 are likewise provided with intermediate annular grooves  $3^a$  and  $4^a$ , respectively.

These grooves  $2^a$ ,  $3^a$  and  $4^a$  act as sheaves of a driving belt 7, which belt so-called is preferably round in cross section and may be in the form of a rope or cable. The belt 7 is preferably given several wraps around the groove  $3^a$  of the end roller 3. The upper portion of the belt 7 is carried over all of the rollers 2 and is wrapped around the grooves  $2^a$  of alternate members thereof, while the lower portion of said belt is passed under all of the said rollers and is wrapped around the grooves  $2^a$  of alternate rollers 2 that are intermediate with respect to the alternate rollers first noted. In this way, when the belt is driven, the rollers will be rotated in a common direction. The grooves in the said rollers permit the upper portion of the belt to lie below or at least not to project above the upper surfaces of the said rollers.

In the construction illustrated in Figs. 3, 4 and 5, the carrier rollers 8 are journaled at their ends in supporting rails 9 and, as shown, each third roller is an idle roller, while the other rollers are alternately provided at their opposite ends with sheaves 10 located on one side of the track, and sheaves 11 located at the other side of the track. The large end rollers 12 and 13 are mounted in suitable bearings 14, and the said roller 12 is provided with a driving pulley 15. The driving belt 16 is spirally wound around the rollers 12 and 13, and the upper portion thereof is passed over and wrapped around the sheaves 10, while the lower portion of said belt is passed under and wrapped around the sheaves 11. If desired, the sheaves 10 and 11 might be located on the same side of the track, but with the described construction, or in the slight modification just indicated, all of the carrier rollers will be driven in a common direction under a movement of the driving belt 16. Suitable guides (not shown) may be located adjacent to the large end rollers 12 and 13, to hold the driving belt 16 against lateral movement. For the purpose of broad statement, the sheaves 10 and 11 of the construction illustrated in Figs. 3, 4 and 5 are considered as parts of the respective rollers, to the shafts or trunnions of which they are applied.

What I claim is:—

1. In a carrier system, the combination with a multiplicity of carrier rollers, of an endless belt, the upper portion of which is carried over and wound completely around certain of the said rollers, and the lower por-

tion of which is carried under and wound completely around certain of the other rollers, substantially as described.

2. In a carrier system, the combination  
5 with a multiplicity of carrier rollers and end rollers, said rollers having grooves in their intermediate portions, of an endless driving belt, the upper portion of which is passed  
10 over all of the said rollers and is wound around certain thereof, and the lower por-

tion of which belt is carried under and wound around certain of the other rollers, substantially as described.

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

FRANK C. HRDINA.

Witnesses:

H. D. KILGORE,  
M. E. RONEY.