

No. 786,337.

PATENTED APR. 4, 1905.

G. F. ZIMMER.  
CONVEYER.

APPLICATION FILED DEC. 21, 1903.

2 SHEETS—SHEET 1.

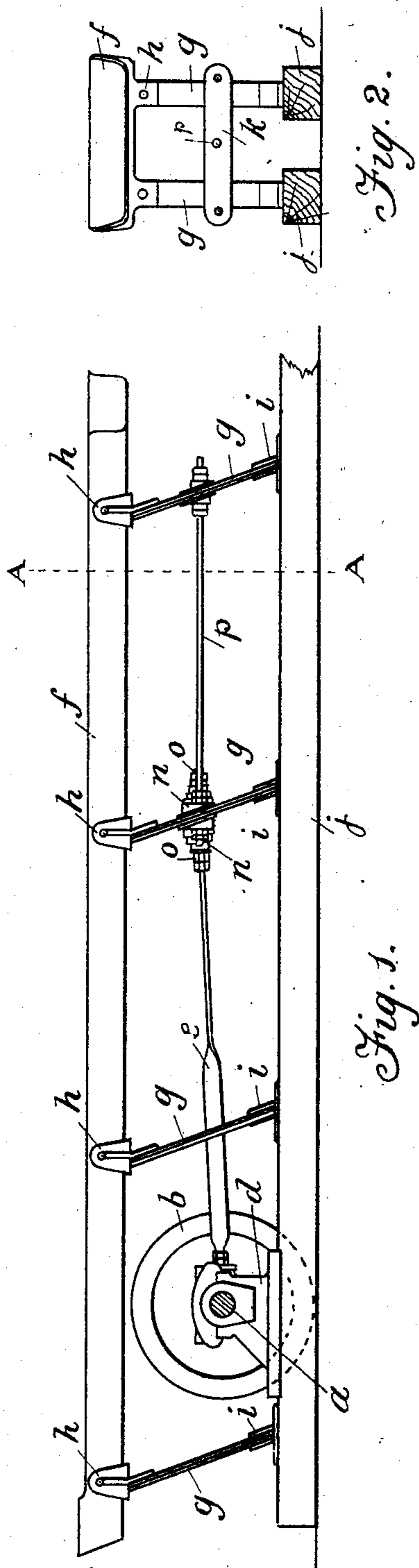


Fig. 1.

Witnesses  
G. H. Dunham.  
G. W. Newton.

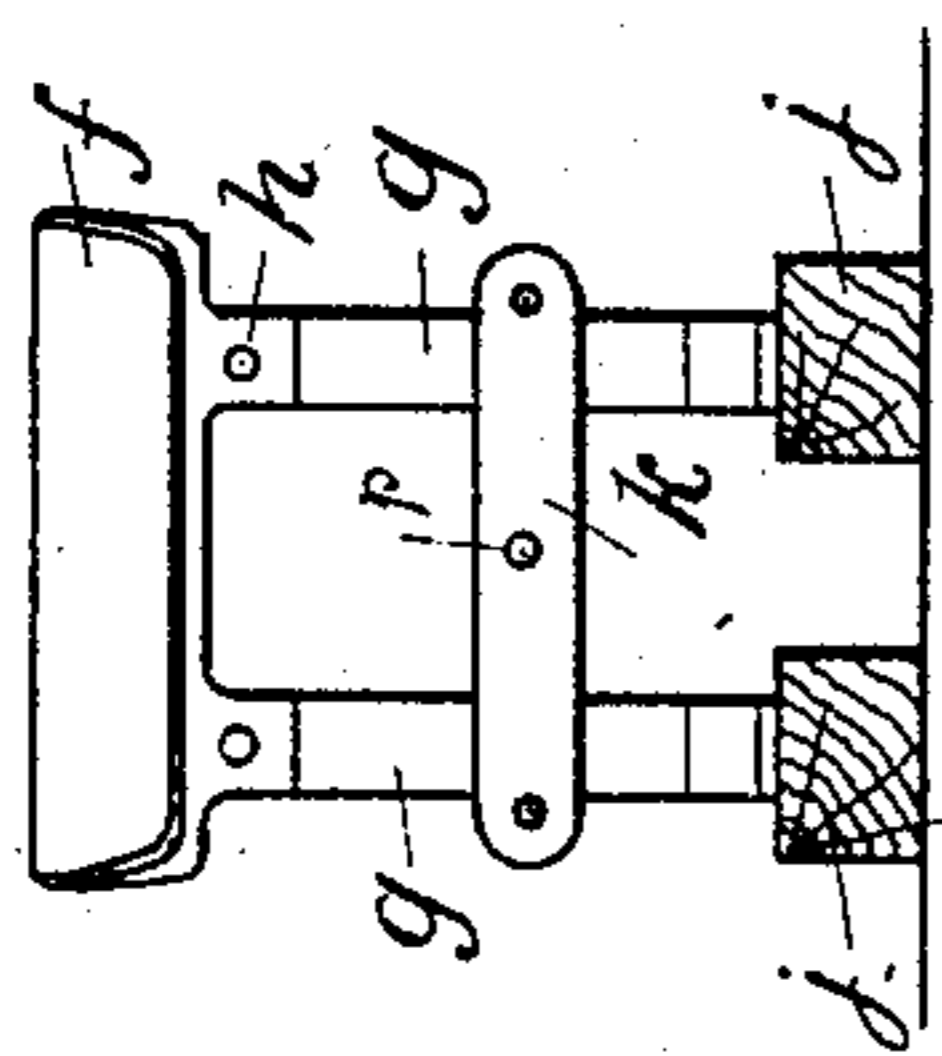


Fig. 2.

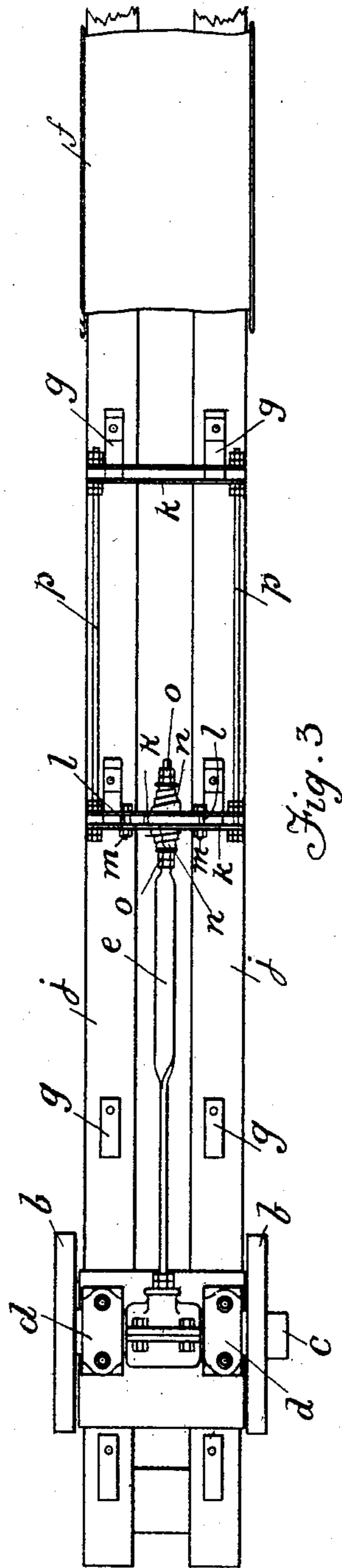


Fig. 3.

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2 SHEETS—SHEET 2.

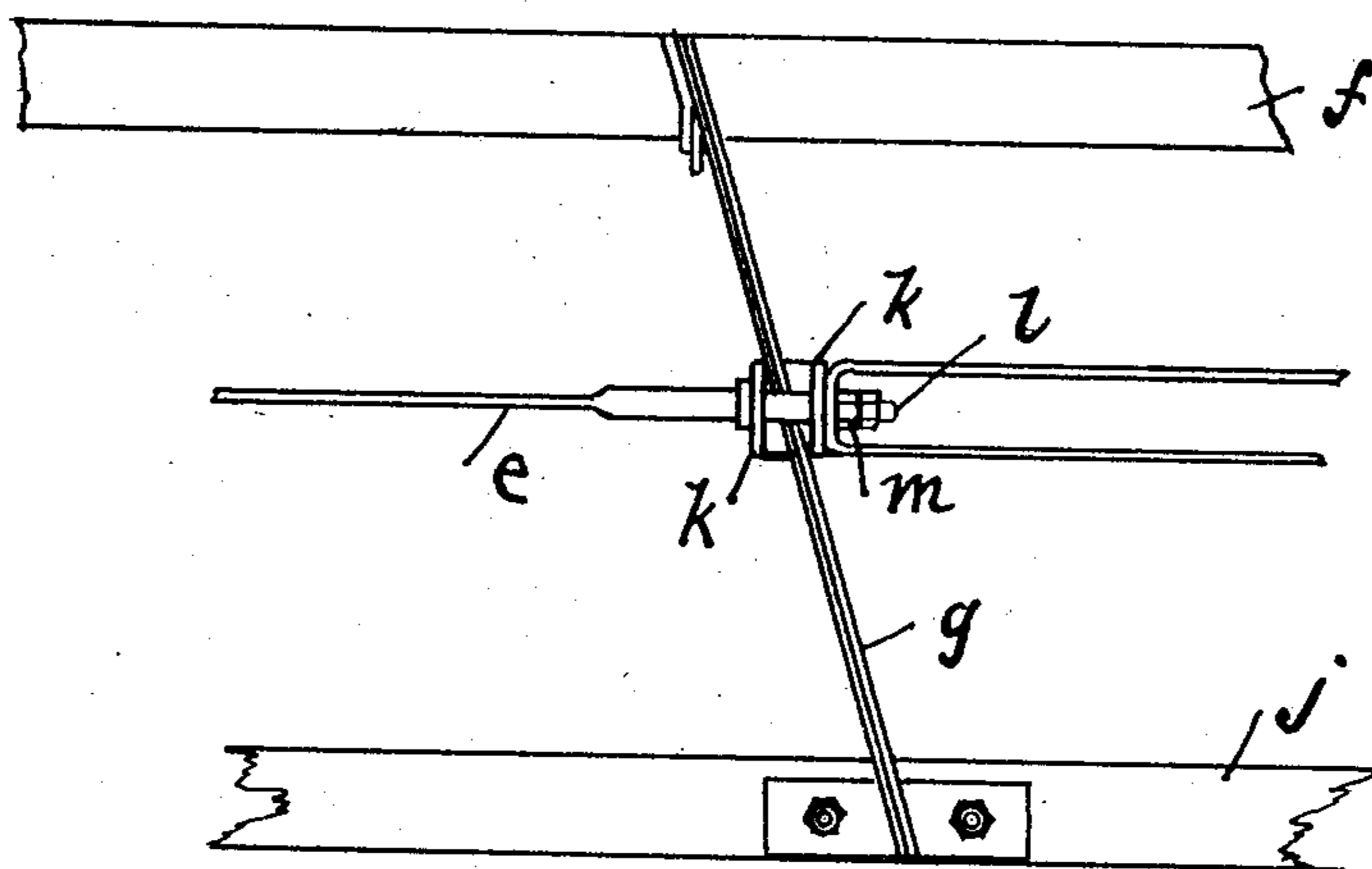


Fig. 4.

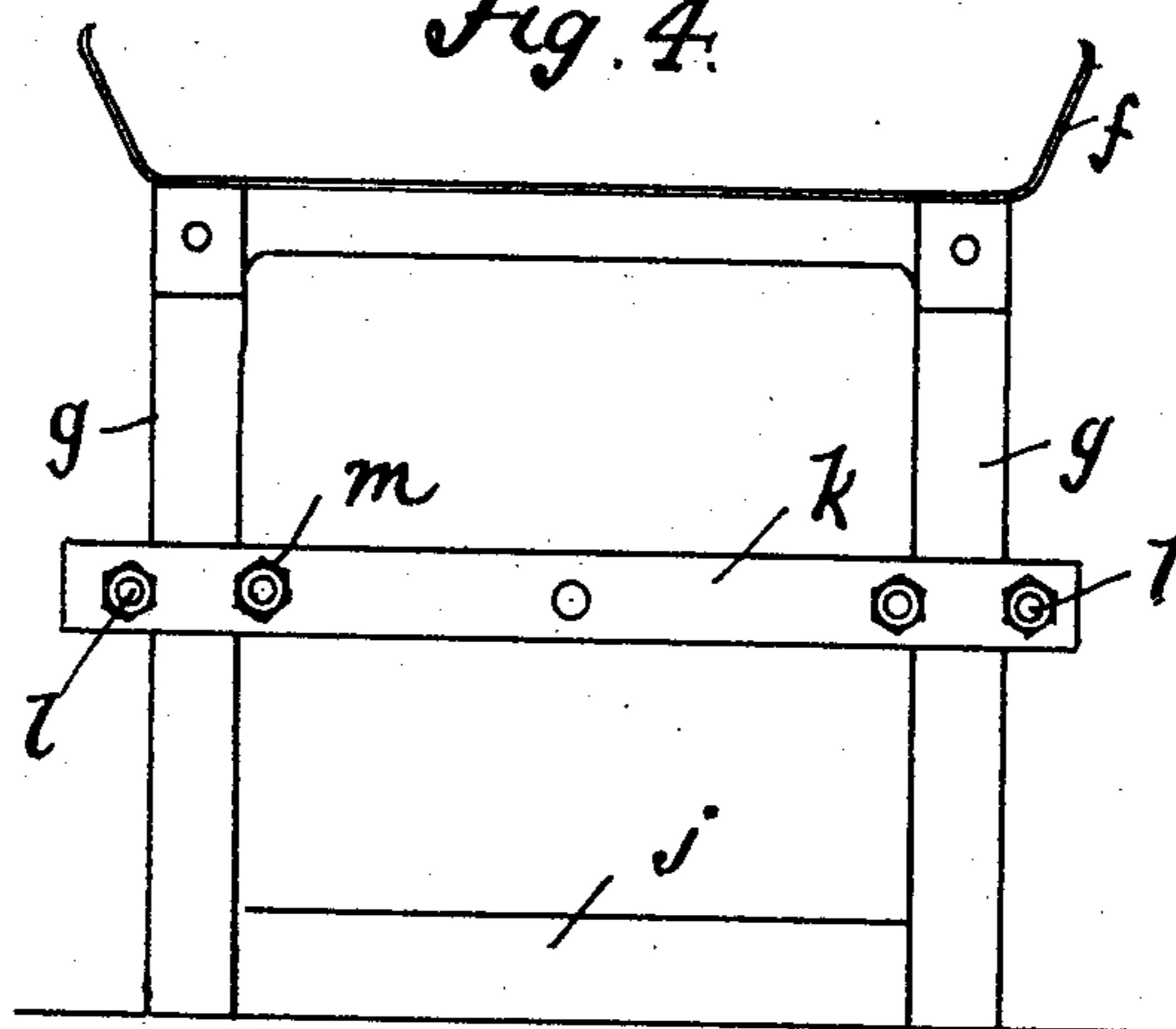


Fig. 5.

Witnesses  
*Alfred E. [Signature]*  
*W. H. Dunham*

Inventor  
*G. F. Zimmer*  
per *J. E. Halford*  
Attorney

# UNITED STATES PATENT OFFICE.

GEORGE FREDERICK ZIMMER, OF LONDON, ENGLAND.

## CONVEYER.

SPECIFICATION forming part of Letters Patent No. 786,337, dated April 4, 1905.

Application filed December 21, 1903. Serial No. 186,039.

*To all whom it may concern:*

Be it known that I, GEORGE FREDERICK ZIMMER, a subject of the King of Great Britain, residing at 82 Mark Lane, in the city of London, England, have invented new and useful Improvements in Conveyers, of which the following is a specification.

My invention relates to improvements in vibrating-trough or "swinging" conveyers; and the object thereof is to increase the carrying capacity of such conveyers without increasing the speed of the driving-shaft and in some cases even when the speed of the driving-shaft is reduced. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the driving end of a conveyer constructed according to this invention. Fig. 2 is a cross-section of same on line A A, Fig. 1. Fig. 3 is a plan, with part of trough removed, of same. Fig. 4 is a side elevation of clamping device to an enlarged scale. Fig. 5 is an end elevation of same.

The same letters denote the same parts in all the figures.

*a* is the crank-shaft; *b b*, fly-wheels secured to same; *c*, driving-pulley; *d d*, crank-shaft plumber-blocks; *e*, the connecting-rod; *f*, the conveyer-trough; *g g*, spring-legs; *h h*, top brackets; *i i*, bottom brackets; *j j*, timbers supporting the conveyers.

In the usual way the connecting-rod is attached to a bracket riveted to the under side of the conveyer-trough, thus compelling the conveyer-trough to reciprocate a certain distance equal to the diameter of the circle described by the crank-pin; but in my improved conveyer the connecting-rod is attached to the spring-legs instead of to the trough, thereby enabling the elasticity of the spring-legs to increase the amplitude of the vibration of the trough.

As will be seen by inspection of the drawings, the connecting-rod *e* is attached at the small end to wood or metal clamps *k k*, which extend across the conveyer and are secured to the spring-legs *g g* by bolts *l l* and nuts *m*. The bolts which secure the clamps to the

spring-legs *g g* do not pass through the spring-legs, but pass through the clamps on each side of the spring-legs.

The amplitude of the trough may be varied by moving the clamps *k k* up and down. The nearer the top of the spring-legs the clamps are placed the nearer the amplitude of the trough approximates to the diameter of the crank-circle, and the nearer the clamps are to the bottom bracket the greater is the amplitude of the trough in excess of the diameter of the crank-circle.

Volute springs *n n* are threaded on the end of the connecting-rod *e*, one on either side of the clamps *k k*, the tension of the said springs being adjusted by suitable nuts *o o*.

In order to distribute the driving strain over more than one pair of spring-legs, I attach similar clamps to the pair of spring-legs in front of the pair to which the connecting-rod is attached, and I connect the clamps to each other by means of rods *p p*, which are screwed at each end and form bolts to secure the clamps to the spring-legs. By this arrangement the clamps may be attached to the spring-legs at any suitable point to secure the desired result. I may, if necessary, continue the rods *p p* to the next pair of spring-legs, thus distributing the driving strain over three pairs of spring-legs instead of two, which is an advantage in long conveyers or conveyers carrying a heavy load.

Of course many modifications of the construction above described may be made in design or detail without departing from my invention in its broader scope, and in this sense I do not wish that the said invention be limited to the precise forms I show, as, for instance, in some cases the volute springs may be dispensed with.

What I claim, and desire to secure by Letters Patent, is—

1. In a conveyer the combination of a trough supported on spring-legs with a cranked driving-shaft, a connecting-rod attached at one end to the crank of the driving-shaft and at the other end to an adjustable clamping device secured to one pair of spring-legs at any

desired point so as to give the required vibration to the trough, as specified and for the purpose stated.

2. In a conveyer the combination of a trough  
5 supported on spring-legs with a cranked driving-shaft, a connecting-rod attached at one end to the crank of the driving-shaft and at the other end to an adjustable clamping device secured to one pair of spring-legs at any  
10 desired point so as to give the required vibration to the trough and means for distributing the driving strain over two or more pairs of spring-legs all substantially as specified and for the purpose stated.

15 3. In a conveyer the combination of a trough supported on spring-legs with a cranked driving-shaft, a connecting-rod attached at one end to the crank of the driving-shaft and at

the other end to an adjustable clamping device secured to one pair of spring-legs at any  
20 desired point so as to give the required vibration to the trough, a volute spring on the end of the connecting-rod on each side of the clamping device nuts screwed onto the end of the connecting-rod to adjust the tension of the  
25 volute springs and rods secured to the said clamping device on a second and if necessary on a third pair of spring-legs all as specified and for the purpose stated.

In testimony whereof I have signed my name  
30 to this specification in the presence of the two subscribing witnesses.

GEORGE FREDERICK ZIMMER.

Witnesses:

GEO. W. NEWBERY,  
T. J. OSMAN.