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R. WILKE.

DEVICE FOR THE PROPULSION OF CRANES.

APPLICATION FILED APR. 2, 1903.

NO MODEL.

Fig. 2.

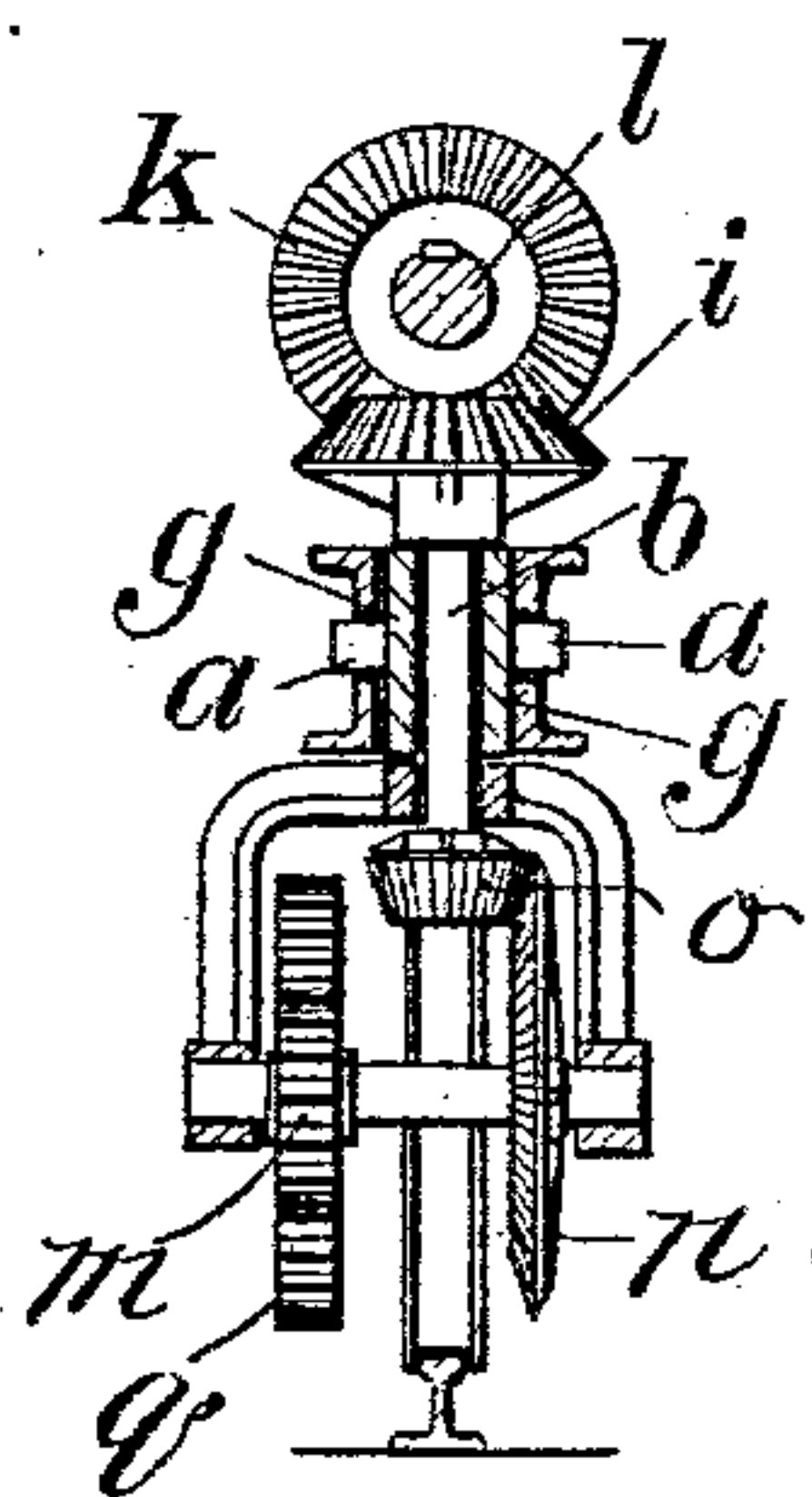


Fig. 3.

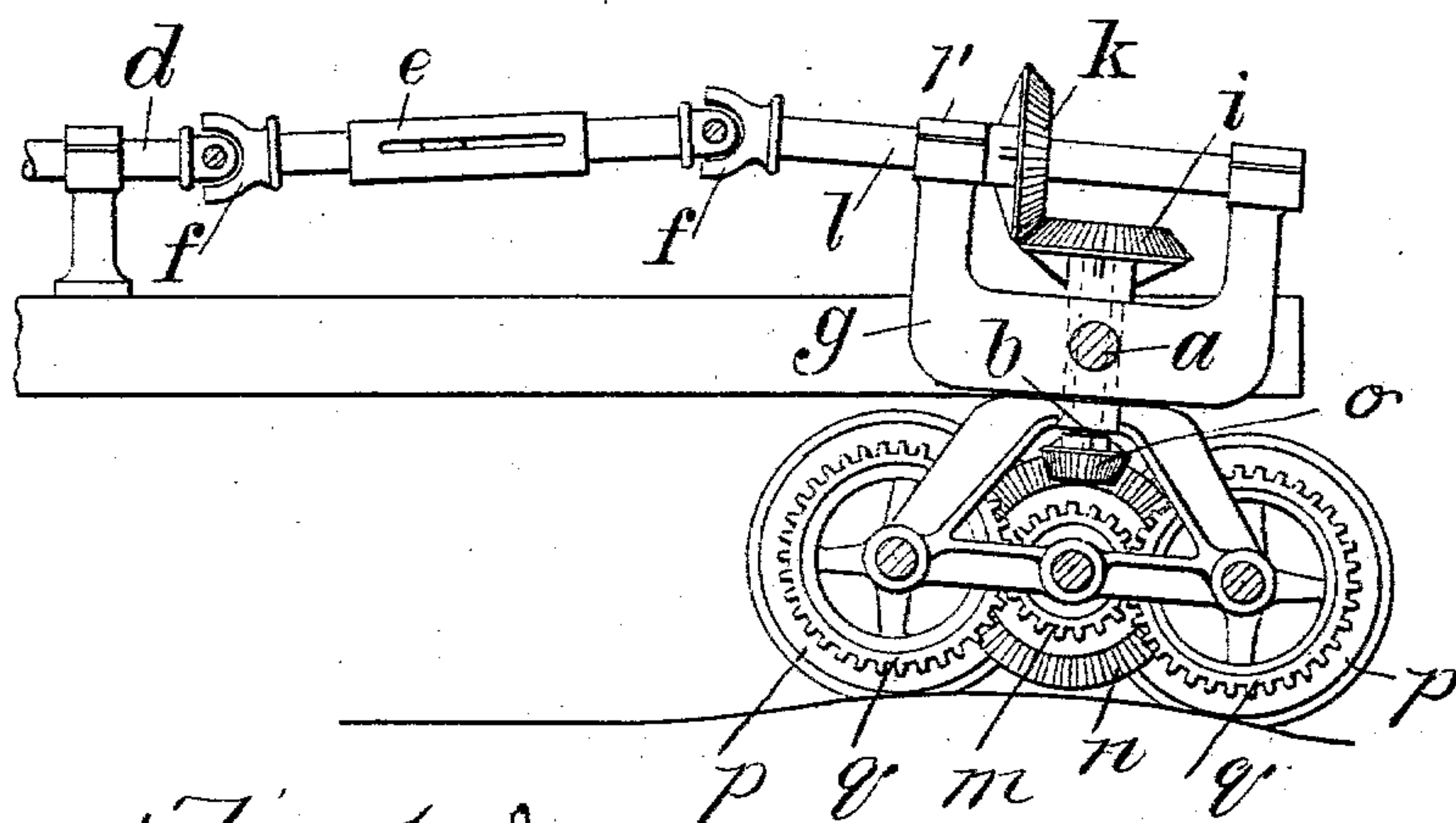
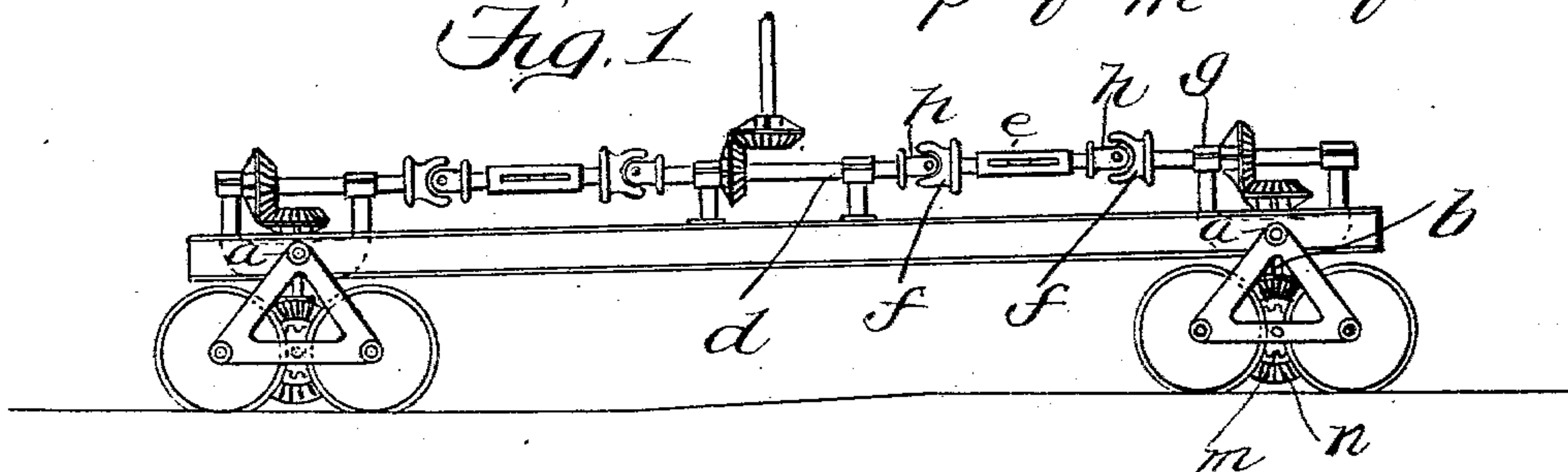


Fig. 1.



Witnesses:

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RICHARD WILKE, OF BRUNSWICK, GERMANY.

DEVICE FOR THE PROPULSION OF CRANES.

SPECIFICATION forming part of Letters Patent No. 752,939, dated February 23, 1904.

Application filed April 2, 1903. Serial No. 150,848. (No model.)

To all whom it may concern:

Be it known that I, RICHARD WILKE, engineer, a subject of the Emperor of Germany, residing at Brunswick, Duchy of Brunswick, Empire of Germany, have invented certain new and useful Improvements in Arrangements for the Propulsion of Cranes and the Like, of which the following is a specification.

In many traveling mechanisms—such, for instance, as cranes—instead of separate wheels double wheels or groups of wheels are frequently used.

Referring to the accompanying drawings, Figure 1 is a view in side elevation of my improved device; and Figs. 2 and 3 are respectively a transverse sectional view and an enlarged view of one end of the device, showing a slightly-modified arrangement.

In such arrangements as soon as one wheel encounters a raised part or incline on the rail the intermediate wheels lose their grip and do not support the mechanism or crane. In order to overcome this, each group of wheels is frequently made to pivot on a common horizontal axis *a*. The wheels then retain their grip in spite of inequalities or unevenness of the track. In many cases it is advisable to make the wheels to pivot on a vertical axis as well.

Now this invention has for its object a driving mechanism for such groups of wheels pivoting on a horizontal and a vertical axis:

A vertical shaft *b* is provided, carrying a bevel-pinion *i* for each group of wheels. This transmits the movement, Figs. 2 and 3, in the ordinary manner to the running-wheels from a main shaft and is mounted in a frame *g*, carrying the wheels, which frame is also pivoted on the above horizontal axis *a*. For this object this pivoted frame *g* may be provided with two pins, as shown in Fig. 2. The main shaft of the driving-wheel *k* is also mounted in this frame.

In order that the main shaft may not impede the swinging or pivoting movement of the part of the shaft *l* passing through the wheel-frame *g* and bevel-wheels, the following arrangement is adopted: The part of the shaft *l* which is carried by the wheel-frame is connected with the main shaft *d*, which is

firmly mounted by means of a link or intermediate piece *h*, which is connected with its two adjacent pieces by means of universal joints *f*. This shaft also has an arrangement by which its parts can telescope one in the other, so that it may be shortened or lengthened. In this manner the pivoting movement of the wheel-frame on its axis *a* is rendered possible.

A spur-gear *q* is mounted on each of the axles of the running-wheels *p* of each group of wheels, as shown in Fig. 3. Each two of the wheels *q* which belong in the same group gear with a common pinion *m*, mounted with a bevel-wheel *n* on a suitable shaft. A second bevel-wheel *o*, mounted on the vertical shaft *b*, gears with said bevel-wheel. The vertical shaft *b* may be driven from above by suitable means. In the accompanying drawings the driving mechanism is shown as consisting in a bevel-wheel *i*, mounted on said vertical shaft *b* above the carriage-frame, with which bevel-wheel a further bevel-wheel *k*, mounted on a horizontal shaft *l*, gears. The frame *g*, in which all the said operating parts and the running-wheels *p* are mounted, is, as shown in Fig. 2, pivotally mounted on horizontal pins *a*. This frame also carries a bearing *r* for the horizontal shaft *l*, so that the various parts can all turn on the shaft *a* and remain constantly in gear.

The device shown in Fig. 1 is substantially the same as that shown in Figs. 2 and 3, except that in Fig. 1 the frames carrying the wheels are shown as having only a rocking movement on the pivot-pins *a*, whereas in Figs. 2 and 3 the frame is shown as being swiveled on the end of the shaft *b*, whereby the entire group of wheels may have in addition to the rocking movement on the pins *a* a swiveling movement about the shaft *b*.

I declare that what I claim is—

In a carriage for traveling cranes, the combination with the groups of wheels, each group being journaled in a frame pivoted on a common horizontal axis, and a beveled gear for driving the wheels of each group, a vertical shaft carried by each of said frames on which said beveled gears are mounted, a second bev-

eled gear mounted on said vertical shaft, a
main driving-shaft, auxiliary driving-shafts
carrying beveled gears gearing with the said
second beveled gears on the vertical shaft, and
5 telescoping and connecting links connecting
the main and auxiliary driving-shafts, sub-
stantially as described.

In testimony whereof I have hereunto set my
hand in presence of two subscribing witnesses.

RICHARD WILKE.

Witnesses:

WILHELM LEHRKE,
JULIUS SECKEL.