

No. 704,387.

Patented July 8, 1902.

A. SCHULZ.
MEANS FOR MOVING HEAVY LOADS.

(Application filed Apr. 12, 1902.)

(No Model.)

Fig. 1.

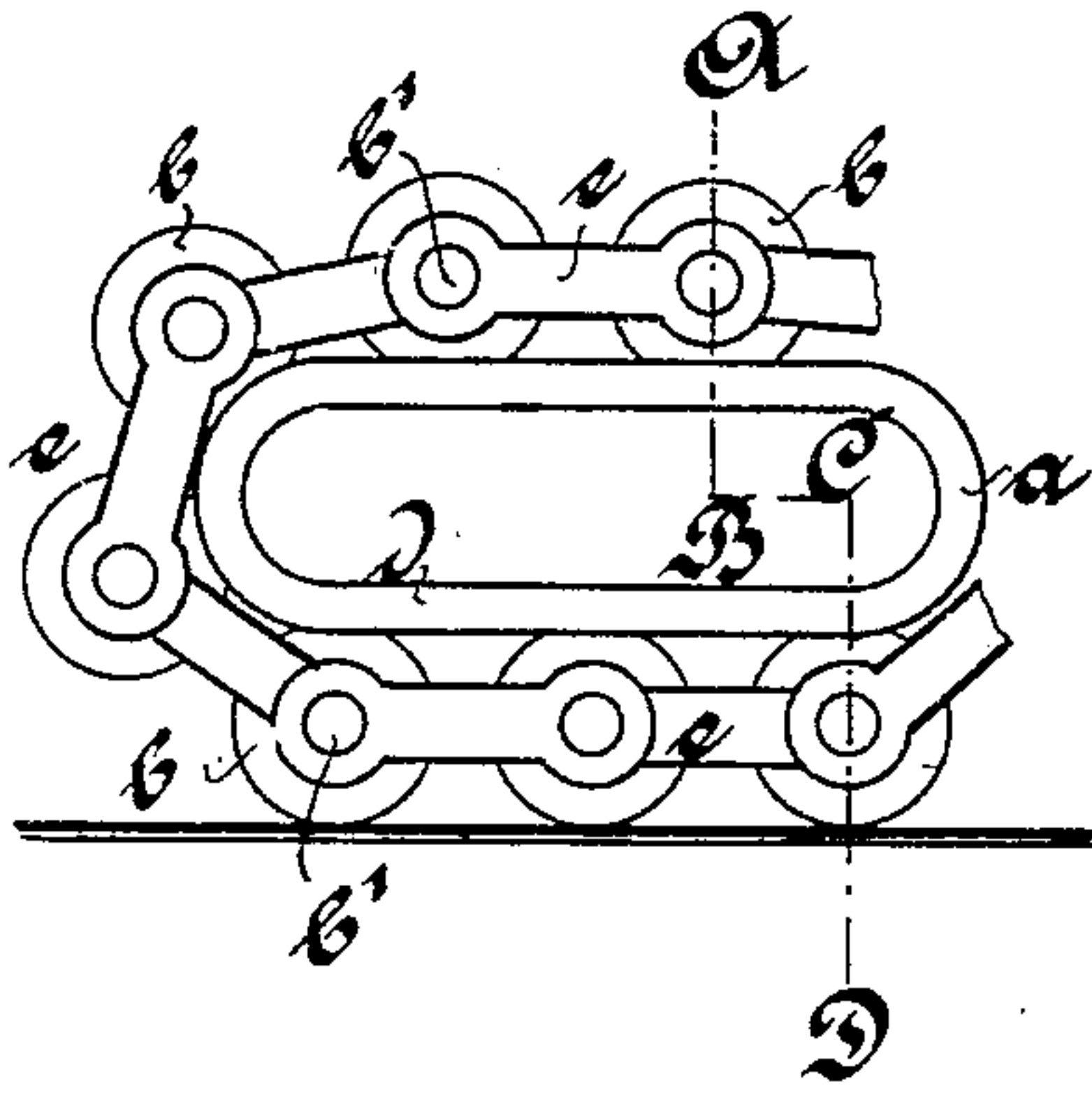


Fig. 2.

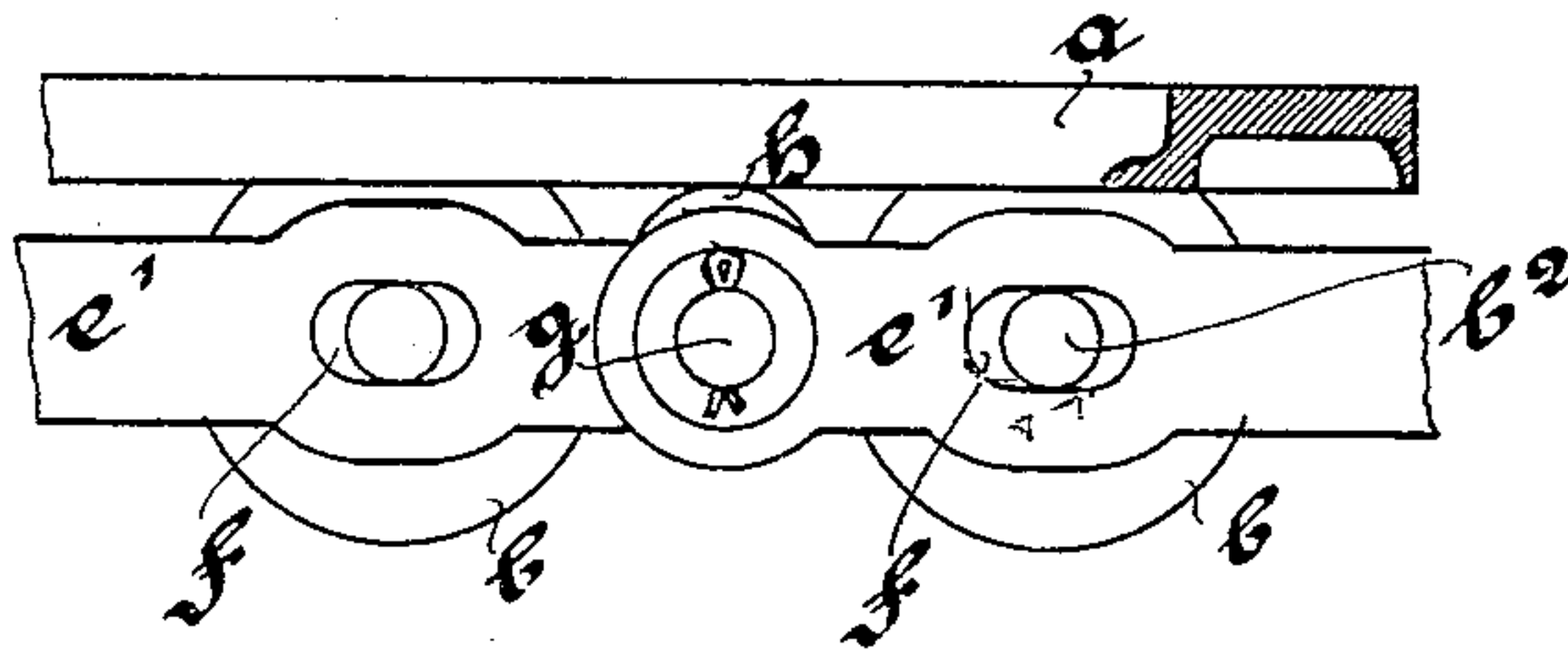
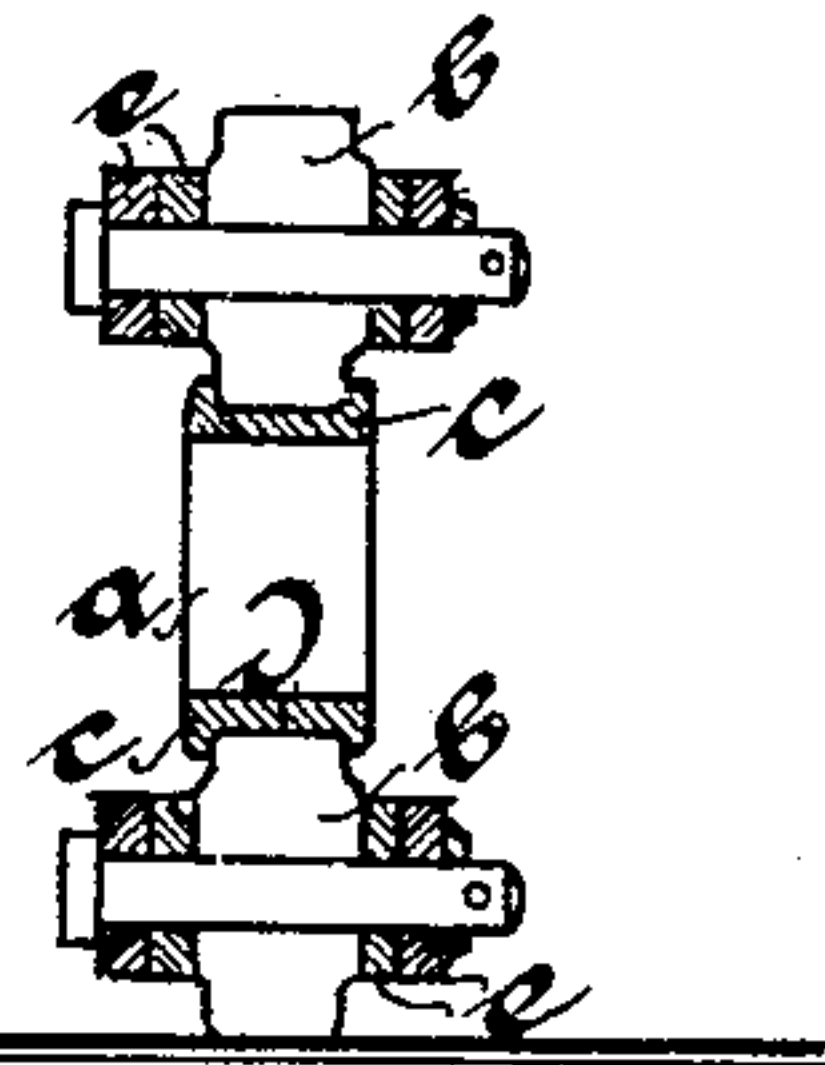


Fig. 3.

Fig. 4.

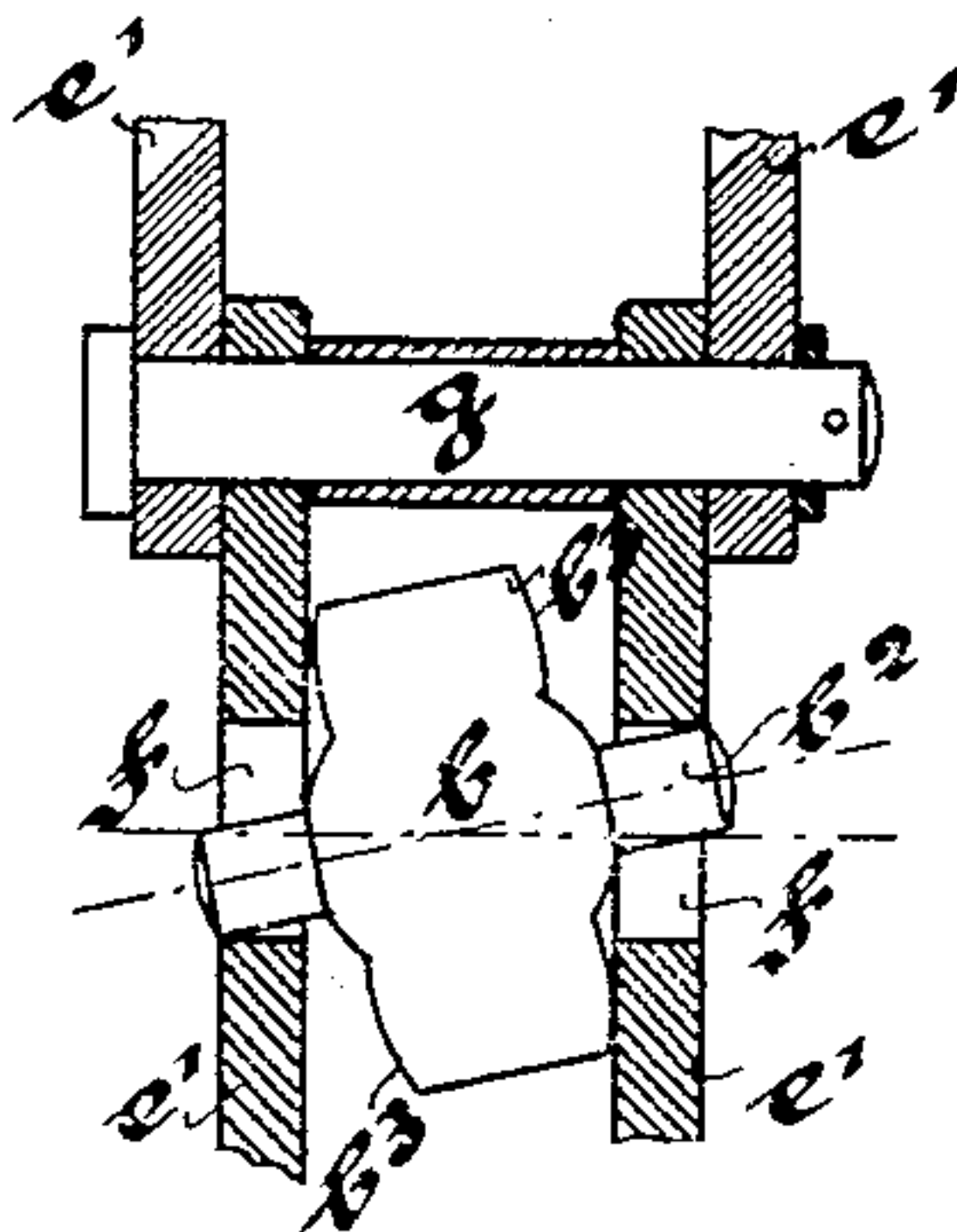
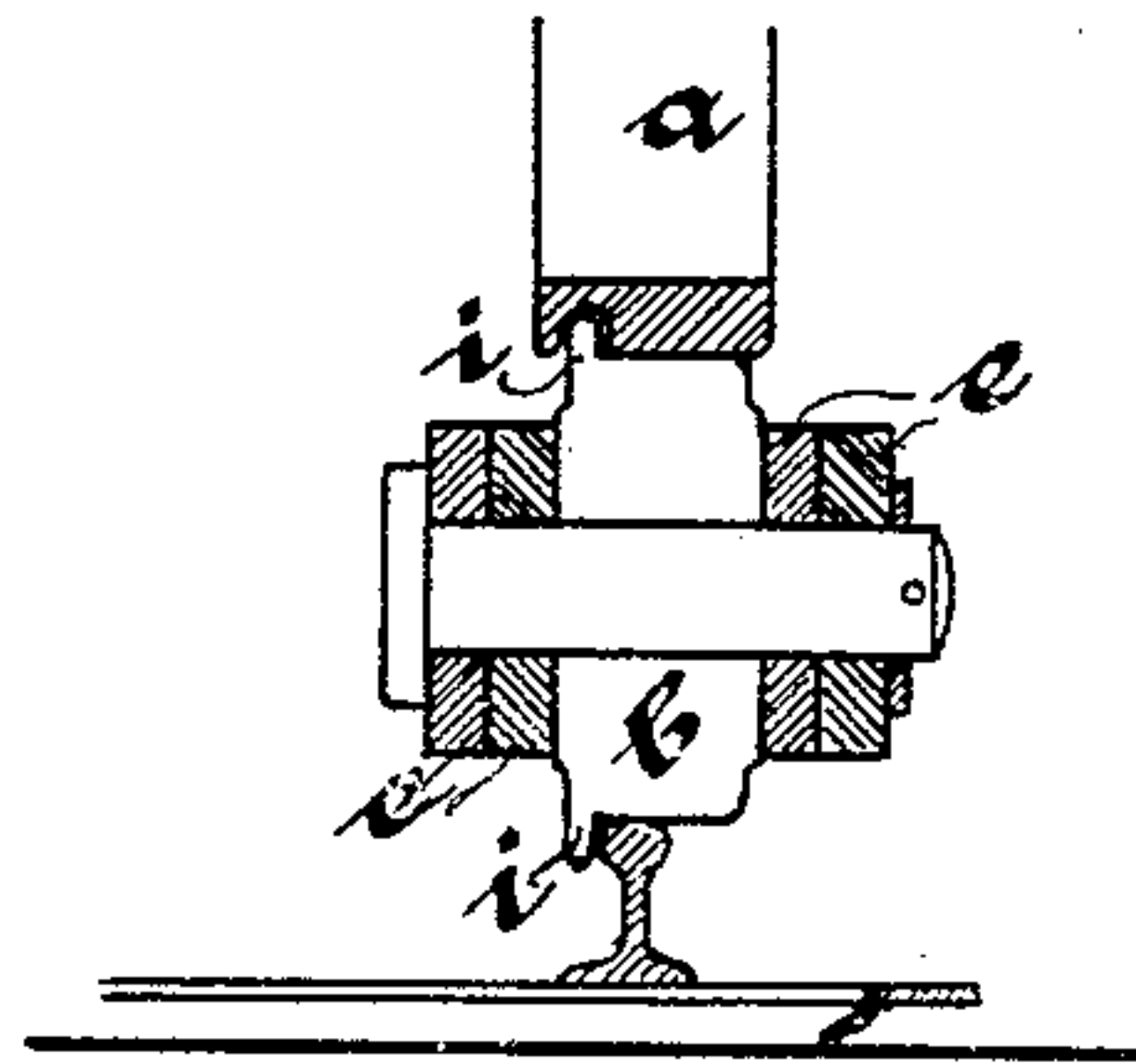


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

ARTHUR SCHULZ, OF FRIEDENAU, GERMANY.

MEANS FOR MOVING HEAVY LOADS.

SPECIFICATION forming part of Letters Patent No. 704,387, dated July 8, 1902.

Application filed April 12, 1902. Serial No. 102,686. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR SCHULZ, a subject of the German Emperor, residing at Friedenau, near Berlin, Germany, have invented certain new and useful Improvements in Means for Moving Heavy Loads, of which the following is a complete specification.

My invention has reference to improvements in means for moving heavy loads, and relates more especially to a contrivance for transporting heavy loads by means of endless roller-chains; and the object of the invention is to provide a conveying means of the type indicated which will do away with the disadvantages of the single-roller method now in use; and it consists of the construction and arrangements of parts hereinafter described and claimed, reference being had to the accompanying sheet of drawings and the letters of reference marked thereon.

The method now used extensively for moving heavy loads—such as ships, buildings, machinery, and the like—consists in placing and rolling the load upon independent rollers, which are constantly carried by hand from the rear to the front again after the load has rolled over them once, an operation which entails considerable loss of time and requires constant attention to keep the rollers in the proper position. By means of the present invention these disadvantages are done away with and the load can be transported continuously without any special care with regard to the rollers.

In order to carry out my invention, I journal the rollers parallel to one another at either end in link-cheeks and form an endless chain thereof similar to the sprocket-chain used in bicycles. This endless roller-chain is placed around the load and travels with and around the load during the forward movement of the latter, always bringing new rollers again underneath the forward end of the load. This method of using the endless roller-chain, however, is restricted to certain forms of the load. The chain by removing or adding links may be lengthened or shortened to adapt itself to the size or form of the load.

For variously-formed loads, especially of large dimensions, I interpose a frame between the chain and the load, so that the end-

less chain only comes in contact with this frame, which in turn carries the load.

In order to make my invention more readily understood, I have illustrated it on the accompanying sheet of drawings, in which—

Figure 1 represents a side elevation of the frame arrangement, some of the roller-links being broken away. Fig. 2 is a sectional elevation on line A B C D of Fig. 1. Fig. 3 is a fragmentary side elevation of a modification. Fig. 4 is a longitudinal sectional elevation of Fig. 3, the roller *b* being angularly displaced. Fig. 5 represents a vertical sectional elevation of another modification.

The frame *a* is in the shape of an oblong link and is provided with circumferential rim-flanges *c*. The lower longitudinal portion *d* is of larger diameter than the corresponding parallel upper portion, as is clearly shown in Fig. 2. The rollers *b*, journaled upon pins *b'*, are connected by means of link-cheeks *e*, the pins *b'* passing through the cheek ends and the rollers at the same time. The width of the running face of the rollers corresponds to the distance between the circumferential flanges *c*, so as to admit of easy travel of the rollers upon the frame between the flanges. The load to be moved is to be secured to the frame in any desirable manner. The axles of a vehicle or platform carrying the load, for instance, may be secured each one in one of these frames. In suspended rails the trucks or the like may be suspended from the frame. The described arrangement, however, is only suitable where the road-bed is straight or shows only curves of relatively large radius, since it does not admit of turning sharp angles or curves.

A construction which allows of greater freedom of movement is shown in Figs. 3 and 4. The rollers in this construction are shown journaled with trunnions *b²* in oblong slots *f*, provided in the link-cheeks, and are decreased in thickness toward the circumference. The link-cheeks *e'* are connected midway between the rollers by means of the pins *g*. In turning sharp curves the rollers are angularly displaced, as shown in Fig. 4. Ribs *h*, provided upon the ends of the link-cheeks, tend to keep the cheek ends at the proper distance from the frame *a* and stiffen the whole arrangement by sliding on the frame.

The modification shown in Fig. 5 represents a construction of rollers when rails are provided. In this case the rollers *b* are shaped like an ordinary car-wheel, with peripheral flange *i*, and the frame *a* contains a corresponding groove. The roller in the drawings shows only one such peripheral flange; but it is obvious that two such flanges, one at either side, may be provided, in which case, naturally, the frame *a* also shows two corresponding grooves.

The construction shown in and described with reference to Fig. 5 is especially suitable for transporting excessively heavy loads, such as vessels across land, heavy machinery, entire buildings, and the like.

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

1. In means for moving heavy loads, the combination of a frame adapted to carry the load and circumferentially grooved in its outer face, and an endless chain composed of link-cheeks pivotally connected at their ends, having central longitudinal elongated slots, and spaced-apart and trunnioned rollers jour-

naled and engaging in the groove of the frame, in said slots, said rollers being of decreasing thickness from their centers toward their circumferences, substantially as and for the purposes set forth.

2. In means for moving heavy loads, the combination of a frame, adapted to carry the load, circumferential flanges on the said frame and an endless chain, comprising link-cheeks, pins pivotally connecting the said link-cheeks, rollers tapering toward the circumference, trunnions centrally secured to the said rollers and journaled in oblong slots in the said link-cheeks, and ribs on the ends of the said link-cheeks, adapted to travel on the said circumferential rim-flanges, the parts being constructed, arranged and working substantially as and for the purpose set forth.

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

ARTHUR SCHULZ.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.