

(No Model.)

H. F. HODGES.
CONVEYER.

No. 604,828.

Patented May 31, 1898.

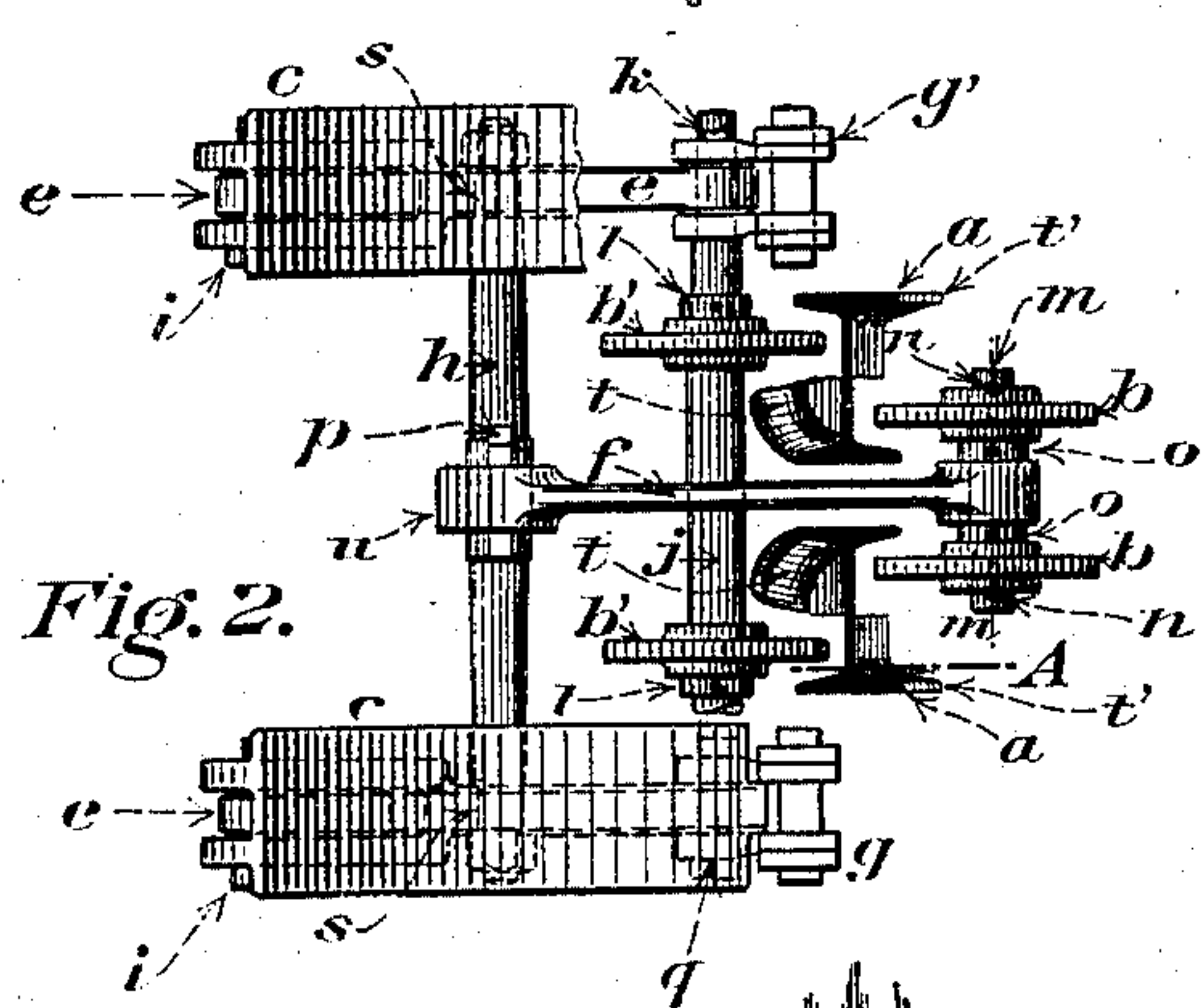


Fig. 2.

Fig. 3.

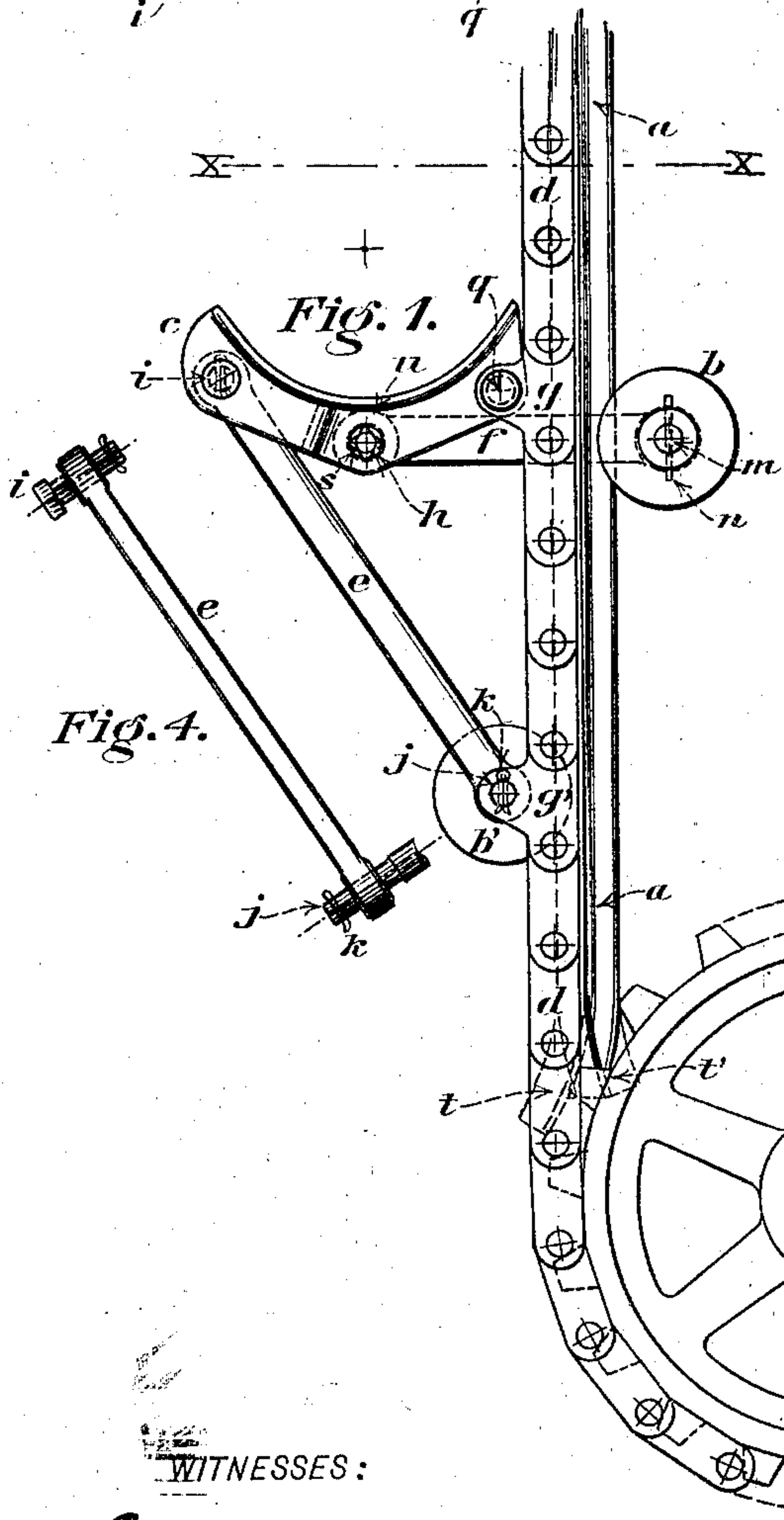
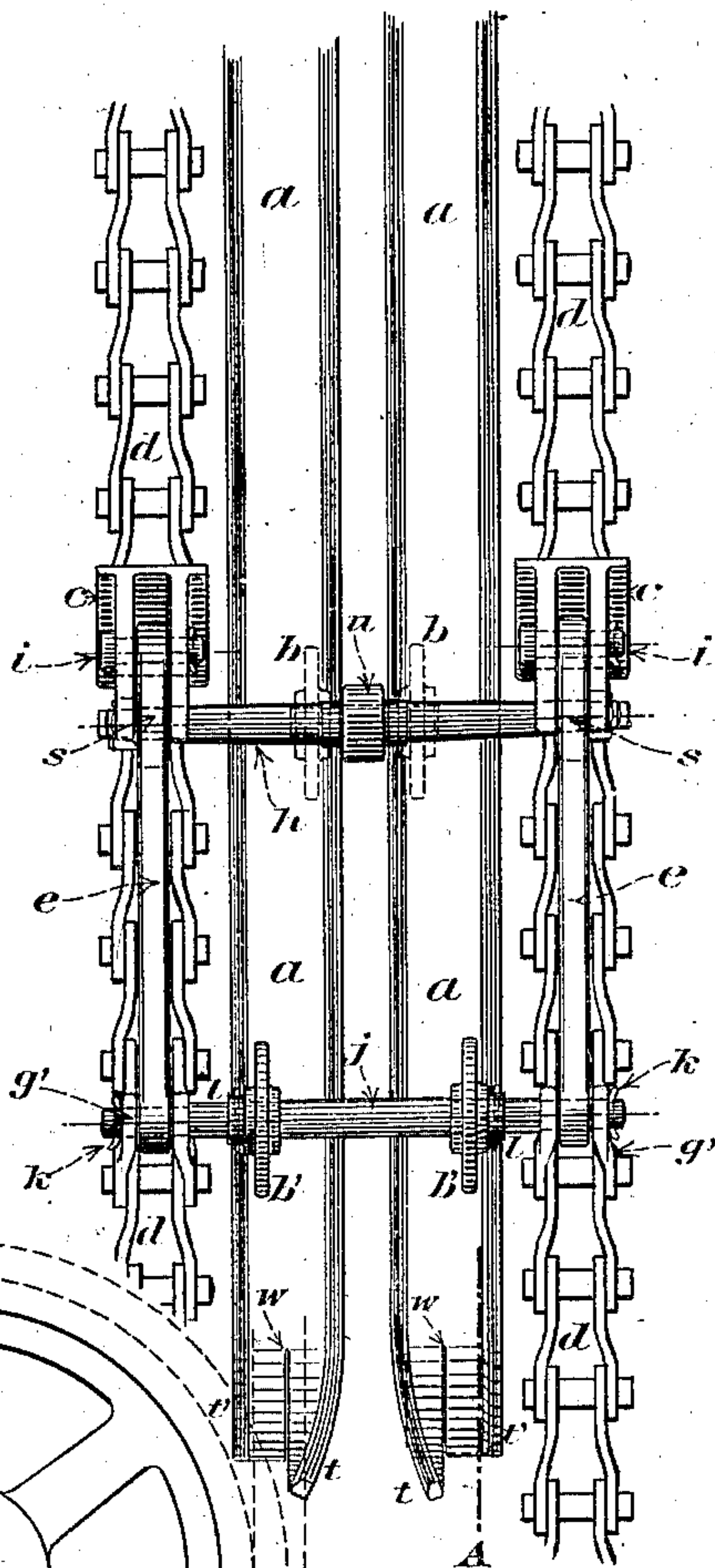


Fig. 1.

Fig. 4.

WITNESSES:

Ernst Engelke
Emil J. Maurer

INVENTOR

H. F. Hodges

UNITED STATES PATENT OFFICE.

HARRY F. HODGES, OF NEW YORK, N. Y.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 604,828, dated May 31, 1898.

Application filed January 5, 1898. Serial No. 665,679. (No model.)

To all whom it may concern:

Be it known that I, HARRY F. HODGES, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Conveyers, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to mechanism to be used in connection with conveyers for the purpose of keeping the carriers in line and in preventing any lateral strain from bearing upon the conveyer chain, rope, or belt; and it consists in connecting to the carriers guiding devices, which, acting in connection with rigid fixed guides or ways, give a firm lateral support to the carriers when they are doing their work.

The construction and operation of my invention are illustrated in the accompanying drawings, in which—

Figure 1 shows in side elevation one of my carriers and its connections complete and also shows a part of a conveyer-chain, a guide or driving wheel, and a part of one of the rigid fixed guides or ways. Fig. 2 is a horizontal section taken on line X X of Fig. 1. Fig. 3 shows in front elevation the carrier device and parts of the conveyer-chains and the fixed guides or ways. Fig. 4 shows one of the details.

The drawings show the application of the invention to a hoist in which the flexible parts consist of two chains *d d*, passing around sprocket-wheels, of which the lower set only is shown at *r*. A similar set of sprocket-wheels is supposed to be placed at the top of the hoist, the power being applied to the shaft of either set.

The carrier, as shown, comprises two trays *c c* of a shape suited to the articles or material to be hoisted or conveyed, attached to the chains *d d* by pins *q q* at the special links *g g* and supported at their free ends by struts *e e*. The trays *c c* are connected by a brace *h* passing through them and squared or otherwise so keyed that it cannot turn in its bearings in the trays. The struts *e e* are fastened to the trays *c c* by pins *i i*, are connected together at their lower extremities by a brace *j*, and are fastened to the chains *d d* by pin-joints, the pins of which are formed by the extremities of the brace *j*, passing through

the eyes of the special links *g' g'* and through the eye at the end of the struts *e e*. The trays *c c*, the struts *e e*, and the braces *h j*, together with certain rollers or sliding contact-pieces to be hereinafter described, constitute the carrier, which by rotation of its parts about the pin-joints at *i i*, *g g*, and *g' g'* can shape itself to the sprocket-wheels as it passes around them.

The guides, as shown, consist of two metal I-beams *a a*, parallel to the chains *d d*. Instead of I-beams any suitable metal or wooden beams may be employed, and the number of guides may be suited to the number of sliding contact pieces or rollers used, as hereinafter described. To the upper brace *h* an arm *f* is so attached by a key or other suitable device that it cannot turn on the brace. The drawings show the attachment as effected by an eye *u* and key *p*. The arm *f* passes between the adjacent flanges or faces of the guides *a a*. To the free end of the arm *f* a shaft *m* is attached, provided with rollers *b b*, designed when in action to bear against those faces of the guides *a a*, which look away from the carrier and which will hereinafter be called the "rear" faces of the guides and to roll upon the same either by rotation on the shaft *m* or by rotation of the shaft *m* in its bearing in the arm *f*. The rollers *b b* are shown as confined on the shaft *m* by collars *o o* and pins *n n*. Any suitable method may be employed. Instead of the rollers *b b* alternative sliding contact-pieces may be used, designed when in action to bear against the rear faces of the guides *a a* and to slide along the same. Instead of attaching the rollers *b b* or alternative sliding contact-pieces to the brace *h* by the arm *f* they may be attached to any portion of the upper part of the carrier or to the flexible member near the point of attachment of the tray.

To the lower brace *j* two rollers *b' b'* are attached, designed when in action to bear against those faces of the guides *a a* which look toward the carrier and which will hereinafter be called the "front" faces of the guides and to roll upon the same either by rotation on the brace *j* or by rotation of the brace in its bearings at *g' g'*. The rollers *b' b'* are shown in the drawings as rotating on the brace *j* and as secured on the same by

shoulders and collars *l l*. Any suitable attachment may be used. Instead of the rollers *b' b'* alternative sliding contact-pieces may be used, designed when in action to bear 5 against the front faces of the guides *a a* and to slide along the same. Instead of attaching the rollers *b' b'* or the alternative sliding contact-pieces to the brace *j* they may be attached to any portion of the lower part of the 10 carrier or to the flexible member near the lower point of attachment of the carrier.

The guides *a a* may extend throughout the entire path of the carrier, but in general will extend through the loaded or upward branch 15 of the path, being usually unnecessary on the unloaded or downward branch. When used only on the loaded or upward branch, the extremities which first received the carriers as they passed around the sprocket- 20 wheels *r* are shaped, as shown at *t t t' t'*, in such manner as to lead the rollers *b b b' b'* or the alternative sliding contact-pieces readily and smoothly into the positions which they should occupy on the upward or loaded 25 branch of the path. To do this, the guides near these extremities are divided, as shown at *w w*, and the halves *t t*, upon which the upper rollers *b b* or the alternative sliding contact-pieces are designed to bear, are bent 30 to the front away from the paths of these rollers or contact-pieces, while the halves *t' t'*, upon which the lower rollers *b' b'* or the alternative sliding contact-pieces are designed to bear, are bent to the rear away from the paths 35 of these rollers or contact-pieces. A portion of the adjacent faces of the inside halves *t t* is also splayed in such manner as to lead the arm *f* smoothly into place.

When the chains *d d* or other flexible members are absolutely straight, there is a small amount of play between the rollers *b b b' b'* or the alternative sliding contact-pieces and the faces of the guides against which they bear when in action.

45 While two chains only are shown, any suitable number may be used with a corresponding number of sprocket-wheels, or instead of chains the flexible part of the hoist may consist of bands, ropes, or other suitable flexible 50 members, actuated by drums, wheels, or pulleys adapted to the particular member used.

Instead of two trays, two struts, and two

braces, as shown in the drawings, any number of trays and struts may be connected by any number of braces.

The drawings show the carrier of a vertical hoist before the load has been applied. After the application of the load its weight acting downward tends to produce rotation of the carrier, forcing the upper part outward or 60 from the chains or other flexible members and the lower part inward or toward the chains or other flexible members. When no guides or contact-pieces are used, as is the case in the ordinary flexible hoist or conveyer as now 65 applied, there is nothing to resist this tendency except the tension in the flexible members due to the loads in action. In consequence the carrier tips until the moment of the stress in the upper and lower parts of the 70 flexible member, which becomes a broken line instead of a straight one, equilibrates the tipping moment due to the load. This distortion is accompanied by danger of spilling the load and by great increase of stress in 75 the flexible members. When guides with rollers or alternative sliding contact-pieces, as hereinbefore described, are used, the tipping is restrained within the limits fixed by the play allowed between these parts, and 80 the stress in the flexible members is reduced to but little more than the actual weight of the load in action.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is— 85

In a conveyer of the class described, the combination of fixed guides having front and rear faces, a conveyer-chain running near and parallel to said fixed guides, and a carrier 90 attached to said chain, said carrier comprising contact devices at its upper part adapted to engage the rear faces of the guides, and contact devices at its lower part adapted to engage the front faces of the guides, substantially as set forth. 95

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 22d day of December, A. D. 1897.

HARRY F. HODGES.

Witnesses:

E. O. DIEZELSKI,
EMIL F. MAURN.