

(No Model.)

T. S. MILLER.
CONVEYING APPARATUS.

No. 545,807.

Patented Sept. 3, 1895.

Fig. 1.

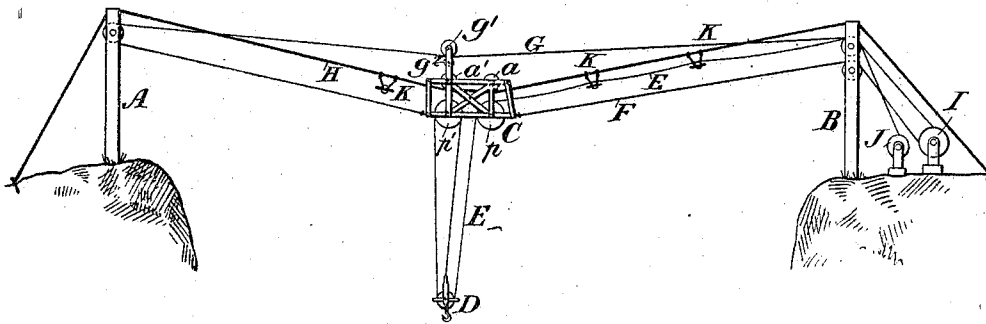


Fig. 2.

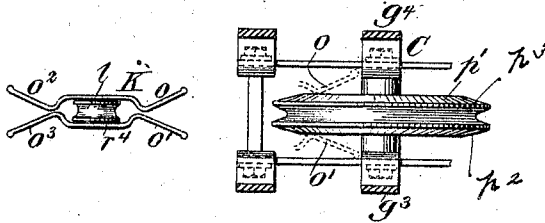


Fig. 3.

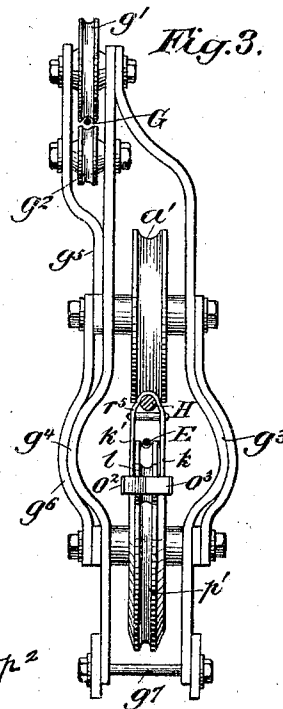


Fig. 4.

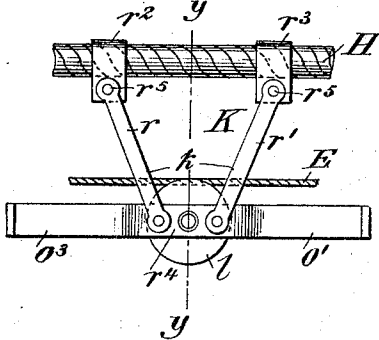
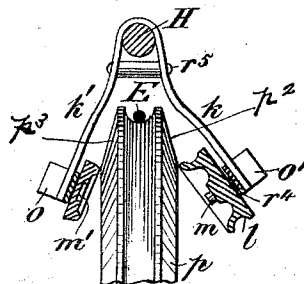


Fig. 5.



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UNITED STATES PATENT OFFICE.

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CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 545,807, dated September 3, 1895.

Application filed May 27, 1895. Serial No. 550,799. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SPENCER MILLER, a citizen of the United States, and a resident of South Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Conveying Apparatus, of which the following is a specification.

My present invention relates to conveying apparatus, in which hoisting or hauling rope-carriers are fixed upon or with respect to a cable or track. In Letters Patent No. 496,203, granted to me April 25, 1893, a form of such apparatus was shown on Sheet 2 of the drawings of said patent and claimed. In said patent a modification was also shown on Sheet 1 of the drawings of the patent, but the differences in said modification from said first form were not claimed and constitute a distinct invention, which consists in so constructing the carrier that it is as it passes the carriage split in two parts, one part being deflected to one side and the other to the other side, and it also consists in other features hereinafter pointed out.

In the accompanying drawings, Figure 1 is a general side view of an apparatus containing my present invention. Fig. 2 is a sectional plan of a portion of the carriage and the rope carrier, showing the position of the parts as the carriage is approaching the rope-carrier. Fig. 3 is an end view of the same from the left of Fig. 2, but showing the carriage and rope-carrier complete. Fig. 4 is a side view of the rope-carrier. Fig. 5 is a cross-section of the same on the line *y y* of Fig. 4, but in its split position as when passing the carriage and with its construction modified to the extent of having the clamps extending over the cable made in one piece with the hangers instead of in separate pieces, as in Fig. 4.

A and B are the towers, C is the carriage, D is the fall-block, E is the fall-rope, F is the inward hauling-rope, G is the outward hauling-rope, H is the cable or trackway, I is the drum for the inward and outward hauling-ropes, J is the drum for the fall-rope, and K are the rope-carriers, all of which are fixed upon the cable H or a stationary rope supplemental thereto with proper spaces between them.

The carrier consists of two hanges adapted in normal position to support the roller *l* centrally below the main cable H. They are shown in the drawings as spring-arms, so that each arm acts both as a hanger and spring mechanism interposed between the hangers to pull them together; but any arrangement which will admit of their separating at the bottom and will give them a tendency to return together, will answer. Each hanger may consist of the two members *r r'*, Fig. 4, inclining fore and aft from the piece *r'*, carrying the bearing of the roller *l*, and clamped to the supporting-rope by loops *r² r³*, each of which is held in clamping position by a cross-bolt *r⁵*. Upon the bottom of one of these hangers as *k*, is permanently mounted one journal of the roller *l* and the opposite journal *m* is provided with a bearing at *m'* on the lower end of the hanger *k'*, so arranged that when the lower ends of the hangers approach each other the journal *m* will rest in the bearing *m'*, but that when the hangers are thrown apart there shall be no attachment to prevent the journal separating from its bearing, as shown in Fig. 5. A guard-piece *o'* is connected with the hanger *k'* opposite the roller-bearing, and a guard-piece *o* is similarly connected with the hanger *k*. These guard-pieces extend horizontally fore and aft, but are bent, as shown in Fig. 2, so as to deflect the lower ends of the hangers *k* and *k'* on either side as the carriage passes. Deflecting surfaces are placed upon the carriage to co-operate with the guard-pieces *o* and *o'* in producing this result. For this purpose I prefer to use the edges of the fall-rope sheaves *p p'*, which may be beveled, as shown at *p² p³*, so that when the guard-pieces *o o'* strike these beveled surfaces the guard-pieces will be deflected, as indicated in dotted lines of Fig. 2, so as to carry the roller *l* and its journals on one side of the vertical parts of the fall-rope and the bearing *m'* on the other side thereof. The beveled edges of the sheave *p* form substantially deflector-pieces *p² p³*, which, in the preferred form, as shown, are a part of the wheel itself, but their being a part of the wheel itself is not necessary. In fact, they may in some cases be omitted entirely, dependence being then placed upon the deflecting action of the guard-pieces attached to the rope-car

rier in conjunction with some part moving with the carriage, or vice versa. It is possible to omit the guard-pieces from the rope-carrier and depend upon deflecting mechanism on the carriage alone for entering between the hangers $k k'$ and splitting them apart.

In operation when the carriage is at a distance from any particular rope-carrier the rope-carrier will be in the position shown in Fig. 3, wherein the fall-rope is held in the space bounded by the roller l below and the hangers k and k' on each side. When, however, the carriage comes up to the rope-carrier, so that it becomes necessary for the rope-carrier to avoid collision with the vertical strands of the fall-rope suspending the fall-block and also with any parts moving with the load-carriage, the rope-carrier will split apart and a few parts moving with the carriage and the vertical portions of the fall-rope to pass through without collision. The two parts of the fall-rope carrier, however, are urged to return to their normal position by mechanism, such as the spring of the hangers $k k'$ in the form shown, so that as soon as the carriage has passed the two parts will immediately close together. The hangers $k k'$ extend far enough down, so as to bring the roller l substantially below the top of the carriage fall-rope sheave or sheaves $p p'$, so that when the fall-rope carrier closes up the roller l will always be below the fall-rope and the hangers $k k'$ on each side thereof, preventing its escape from control, the rope h , whereby the fall-rope carrier is supported, being, as the carriage passes, above the level of the fall-rope and fall-rope sheave. The rope H , by which the fall-rope carriers are supported, engages with the sheaves or wheels $a a'$, which, being mounted upon the carriage above the top level of the fall-rope sheaves $p p'$, insures that the support of the fall-rope carrier as it passes the carriage will be steadied relatively to the carriage above the fall-rope.

I claim—

1. In a conveying apparatus, in combination, a load carriage, a fall-rope-carrier, a support for said fall-rope-carrier, and deflecting mechanism whereby the hangers of said fall-rope-carrier are split apart as the carriage passes; said fall-rope-carrier consisting of hangers extending downward from said support on each side of the fall-rope and a fall-rope-rest connected with one of said hangers and normally held near the other hanger, substantially as described.

2. In a conveying apparatus, in combination, a carriage, a fall-rope-carrier, a support for said fall-rope-carrier, a fall-rope-sheave

mounted upon said carriage, means mounted upon said carriage above said fall-rope-sheave whereby said carriage engages with said fall-rope-carrier-support, and deflecting mechanism whereby the hangers of said fall-rope-carrier are split apart as the carriage passes; said fall-rope-carrier consisting of hangers extending downward from said support on each side of the fall-rope below the top level of said fall-rope-sheave and a fall-rope-rest connected to one of said hangers and normally held near the other, substantially as described.

3. A fall-rope-carrier consisting of the hangers $k k'$, a loop whereby the same are adapted to be clamped to a supporting-rope, a roller l connected with one of said hangers and deflecting pieces o and o' connected with both of said hangers, substantially as described.

4. In a conveying apparatus, in combination, a load-carriage, a fall-rope-carrier, a support for said fall-rope-carrier, hangers for said fall-rope-carrier normally held toward each other by a spring tension, and deflecting mechanism whereby said hangers are split apart in antagonism to said spring tension as the carriage passes; said fall-rope-carrier being constructed of hangers extending downward from said support on each side of the fall-rope and a fall-rope-rest connected with one of said hangers, substantially as described.

5. In a conveying apparatus, the combination of a cable or track, a carriage depending therefrom, a fall-rope-sheave mounted thereon, two hangers suspended from a point above the level of the fall-rope-sheave extending downward on each side of the fall-rope, a fall-rope-rest mounted upon one of said hangers below the level of the fall-rope and means whereby said hangers are split apart while the carriage passes, substantially as described.

6. In a conveying apparatus, in combination, the cable or track, a carriage depending therefrom, a fall-rope-sheave mounted thereon, two hangers suspended from a point above the level of the fall-rope sheave and normally tending to approach each other, a fall-rope-rest mounted upon one of said hangers, and means whereby said hangers are deflected apart while the carriage passes, substantially as described.

Signed at New York, in the county of New York and State of New York, this 21st day of May, A. D. 1895.

THOS. SPENCER MILLER.

Witnesses:

FRANK B. KNIGHT,
CHAS. G. MUNIER.