

(No Model.)

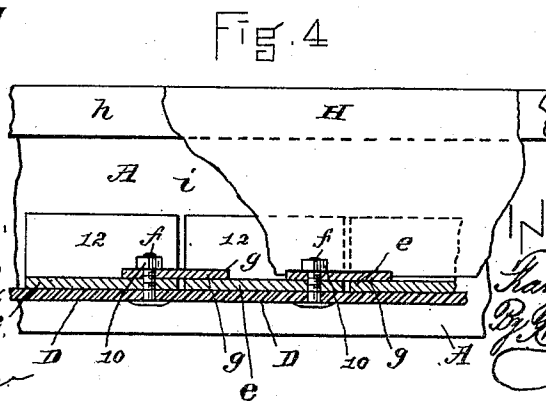
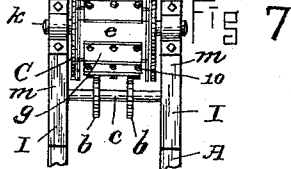
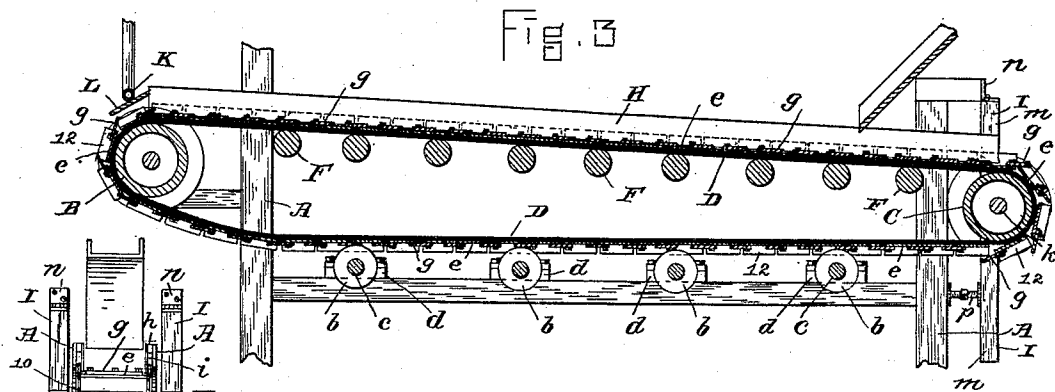
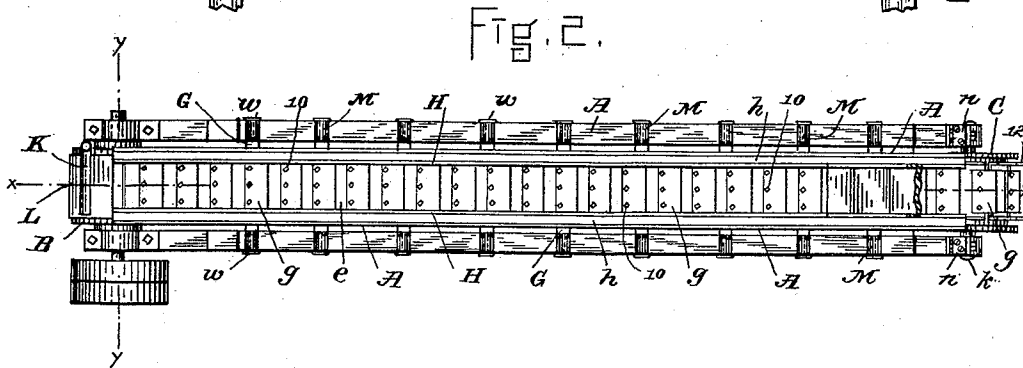
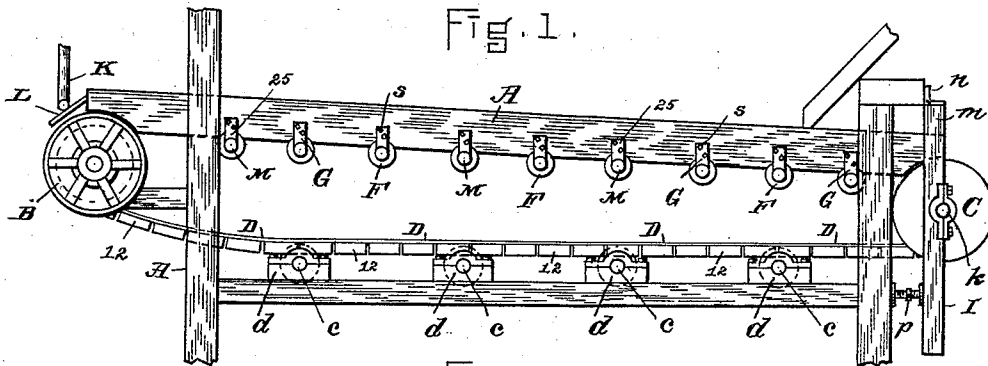
2 Sheets—Sheet 1.

F. ST. CLAIR.

CONVEYER FOR CARRYING CRUSHED STONE.

No. 443,488.

Patented Dec. 23, 1890.



WITNESSES.

Henry Marshall
Henry H. Wilson

INVENTOR

F. St. Clair
D. C. Schumacher
Atty

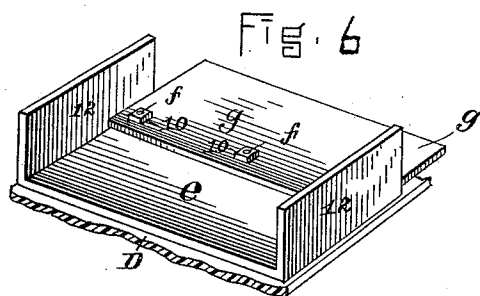
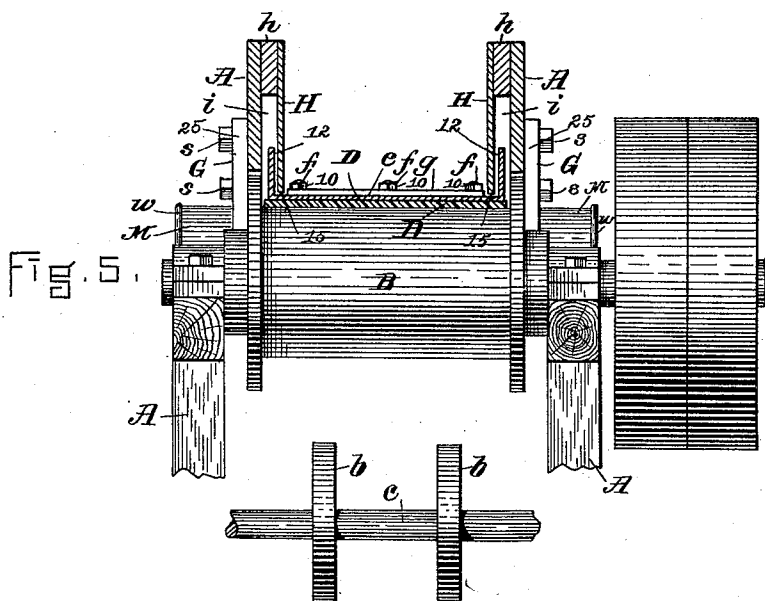
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Henry March
Harry H. Shuman

INVENTOR,

Frank St. Clair
By J. E. Schumacher
Att'y

UNITED STATES PATENT OFFICE.

FRANK ST. CLAIR, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF TO JOHN B. VARICK, OF SAME PLACE.

CONVEYER FOR CARRYING CRUSHED STONE.

SPECIFICATION forming part of Letters Patent No. 443,488, dated December 23, 1890.

Application filed April 28, 1890. Serial No. 349,817. (No model.)

To all whom it may concern:

Be it known that I, FRANK ST. CLAIR, a citizen of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain Improvements in Conveyers for Carrying Crushed Stone, Ore, Coal, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of a conveyer constructed in accordance with my invention. Fig. 2 is a plan of the same. Fig. 3 is a longitudinal vertical section on the line *xx* of Fig. 2. Fig. 4 is an enlarged vertical section of a portion of the endless carrying-belt and its projecting plates. Fig. 5 is a transverse vertical section, enlarged, on the line *yy* of Fig. 2. Fig. 6 is a perspective view of one of the belt-protecting plates or lags detached. Fig. 7 is a rear elevation of the apparatus.

My invention relates to conveyers for carrying crushed stone, ores, coal, grain, or other substances requiring to be moved from one point to another, and has for its object to provide a simple, durable, and effective apparatus of this description which will perform its work in a rapid and reliable manner and in which the bearings and movable parts will be effectually protected from injury by dust or grit.

To this end my invention consists in a conveying apparatus embodying certain novel combinations of parts and details of construction, as hereinafter fully described, and specifically pointed out in the claims.

In the said drawings, A represents the frame-work of the conveyer, at the opposite ends of which are placed two flanged drums B C, over which is loosely stretched an endless carrying-belt D, composed of leather, rubber, or other suitable flexible material, the shaft of the drum B, by which the belt D is driven, being provided with fast and loose pulleys, over which passes a driving-belt. (Not shown) The upper tight or straight part of the belt D, which is adapted to receive and carry from one point to another crushed stone, coal, ore, grain, or other sub-

stance which may be allowed to fall thereupon, is supported by and runs upon a series of plain wooden rollers F, protected and strengthened at their ends by metal rings 55 and provided with gudgeons or journals which run in boxes G, bolted to the sides of the frame-work A. The lower or slack portion of the belt is carried upon a series of metallic disks or pulleys *b*, mounted upon shafts 60 *c*, the journals of which run in boxes *d*, secured to the lower side bars of the frame-work A, as seen in Fig. 1.

The outer or carrying surface of the belt D is covered with a series of narrow metallic 55 protecting plates or lags *e*, extending transversely across the same and secured thereto by bolts *f* and nuts 10, as seen in Fig. 4, said lags being arranged closely together and having the joints or spaces between their adjoining 70 edges covered by narrow metallic strips *g*, each of which is secured to one of the plates *e* by the same bolts *f*, which hold the latter to the belt in such manner that it will lap over the edge of the adjoining plate, as 75 seen in Fig. 4, the belt being thus provided with a continuous metallic surface, which effectually protects its surface from abrasion and wear while carrying the material from point to point, and in no wise interferes with 80 its flexibility, thus permitting it to pass freely around the driving and supporting drums B C, as required.

The heads of the bolts *f* are extremely flat, so that when drawn up tightly against the 85 belt they will lie close to its surface and present no obstruction to its free movement as it passes over the drums and rollers, and the disks or pulleys *b* are so arranged upon their shafts with respect to the projecting ends of 90 the bolts *f* and the nuts 10 on the opposite side of the belt as to avoid interference therewith as the said belt is carried around.

The ends 12 of the plates or lags *e* are turned up at right angles, as shown in Figs. 95 4, 5, and 6, and to an inwardly-projecting strip or portion *h* on each side of the frame-work A is secured a long metallic strip H, forming a stationary shield or side piece, the lower portion of which overlaps the inner side 100 of the ends 12 of the plates *e*, which are turned up on the outside of the said plate H, as seen

in Fig. 5, the lower edge 15 of the latter extending down so as to almost touch the upper surfaces of the lags *e*, a space *i* being thus left between the said strip II and the frame A, through which the turned-up ends 12 of the lags move freely while the belt is in motion. The plates II, arranged, as described, at the opposite edges of the belt, thus form stationary side pieces or guards, which effectually retain all the material which is dropped on the metallic covering of the belt and prevent it from rolling off at the sides or getting into the bearings of the supporting-rollers.

The shaft *k* of the carrying-drum C at the lower end of the conveyer is hung in a frame I, composed of side pieces *m*, which are independently hinged or pivoted to the frame-work A at *n*, and the lower ends of the side pieces *m* are made adjustable toward and from the frame-work A by means of screws *p*, Figs. 1 and 3, by turning which either end of the drum C can be moved independently to tighten either side of the belt D, which can in this manner be caused to run evenly upon its drums, as desired.

The carrying-drum B, which is located at the outer or higher end of the conveyer, is driven by its belt at a proper speed to convey and elevate at any desired angle all material dropped from a stone-crusher or other machine located over the lower end of the endless belt and deliver the said material, when the outer side of the driving-drum is reached, into a bin or cart, as may be desired, and at this point, during its fall into the said bin or cart, the material is, if desired, thoroughly sprinkled or wet down by a spray of water discharged thereupon from a perforated sprinkling-tube K and falls upon an inclined board L, from the lower edge of which it drops directly onto the material immediately after it has left the belt, the board L being so placed as to intercept the water and prevent any liability of its coming into contact with and wetting the belt, which would be injured thereby if composed of leather. For instance, in the operation of crushing granite or other rock for macadamizing purposes it is desirable to have the crusher inside of a building or shed and to deliver the crushed stone outside and at a height sufficient to enable it to fall into a cart and at the same time wet it down thoroughly to prevent a large quantity of small particles from being blown away and into the moving parts and bearings of the machine. With my improved machine all these advantages are gained in an exceedingly simple and inexpensive manner.

The above-described conveyer may be used for conveying material of various kinds and for an infinite variety of different purposes and will be found effective and reliable under all conditions, while it is simple, inexpensive, and free from liability to get out of order.

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

1. In a conveyer, an endless flexible carrying-belt supported on rollers or drums and provided on its outer or carrying surface with metallic protecting plates or lags secured thereto and extending transversely across the same, in combination with stationary side plates or shields arranged at the edges of said belt and extending down nearly to the level of the same, whereby the material being carried is prevented from dropping off at the edges of the belt, substantially as set forth.

2. In a conveyer, an endless flexible carrying-belt provided on its outer or carrying surface with metallic protecting plates or lags secured thereto and extending transversely across the same and having their opposite ends turned up, substantially as described, and the joints between said plates being protected by narrow metallic covering-strips, each secured to one plate at its edge and lapping over the edge of the plate contiguous thereto, in combination with stationary side plates or shields arranged at the edges of said belt and extending down over the inner sides of the turned-up portions of the protecting-plates, substantially as described.

3. In a conveyer, the combination, with an endless flexible carrying-belt D, supported on rollers or drums, of a series of transverse metallic covering plates or lags *e*, secured thereto on its outer or carrying surface, and having their opposite ends 12 turned up at an angle, the joint-covering plates *g* each bolted to the upper side of one of the plates *e* and lapping over the edge of the adjoining plate, and the stationary plates or shields II, secured to the sides of the frame-work and projecting down nearly to the level of the belt and overlapping the inner sides of the turned-up ends 12 of the plates *e*, said ends traveling in the spaces *i* between the plates or shields II and the sides of the frame-work, substantially as described.

Witness my hand this 23d day of April, A. D. 1890.

FRANK ST. CLAIR.

In presence of—

WILLIAM H. DRURY,
ROBERT J. PEASLEE.