No. 777,747. PATENTED DEC. 20, 1904.

L. J. ROBB.

CAR HAUL.

APPLICATION FILED JULY 23, 1904.

NO MODEL. 3 SHEETS—SHEET 1.

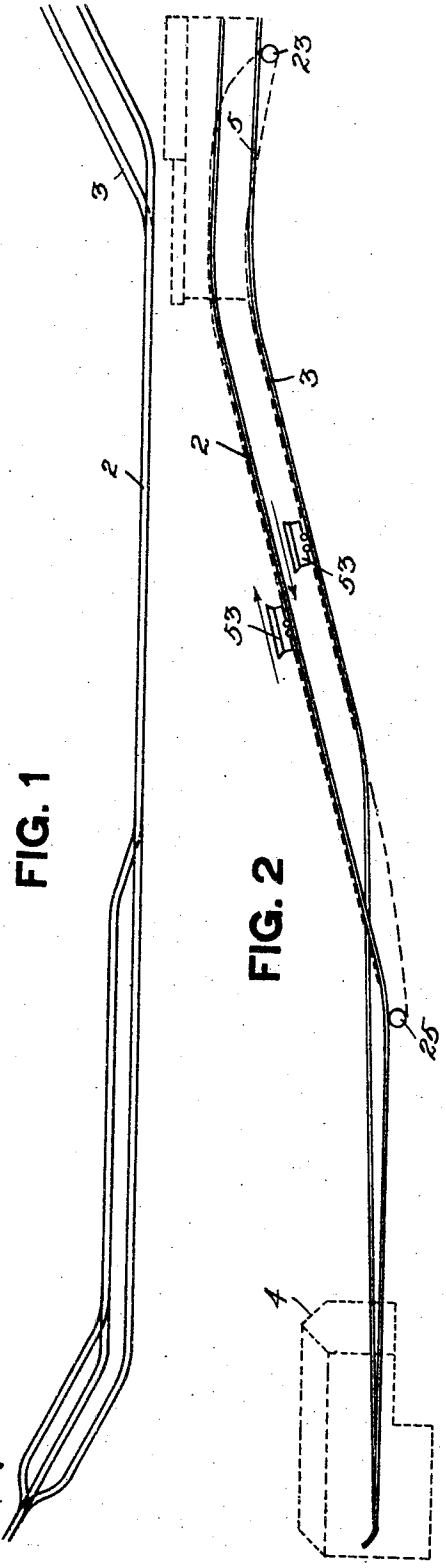


FIG. 1

FIG. 2

WITNESSES.

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NO MODEL. 3 SHEETS—SHEET 2.

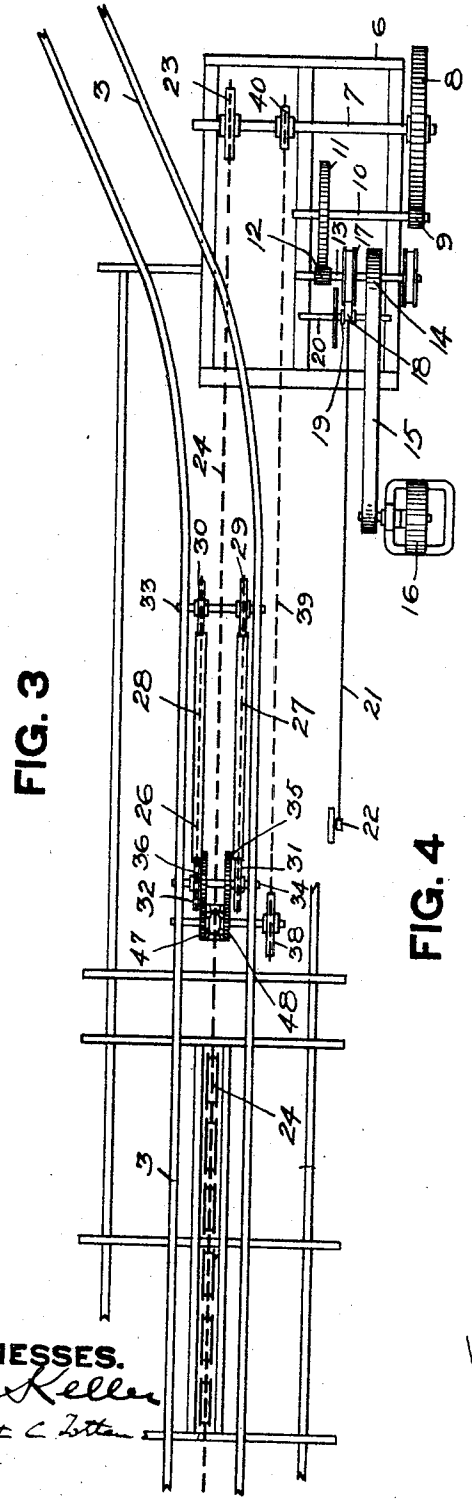


FIG. 3

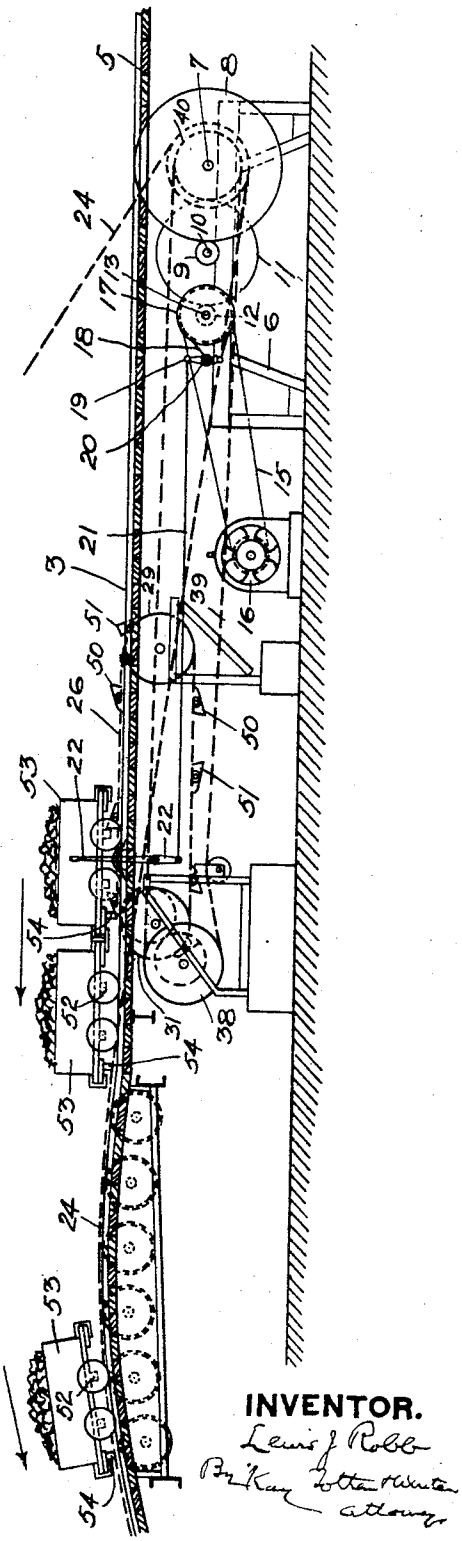


FIG. 4

WITNESSES.

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CAR HAUL.

APPLICATION FILED JULY 23, 1904.

NO MODEL. 3 SHEETS—SHEET 3.

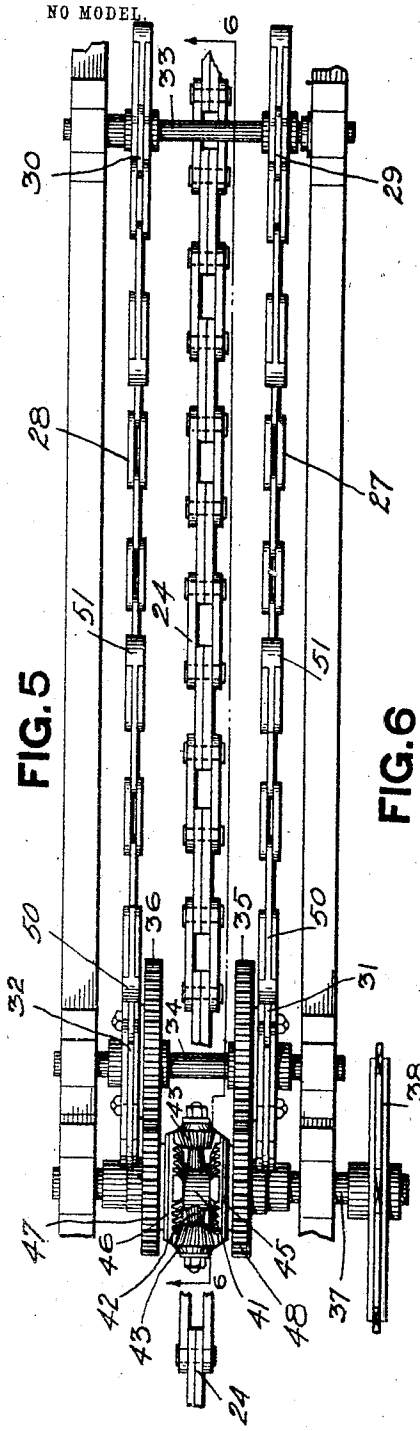


FIG. 5

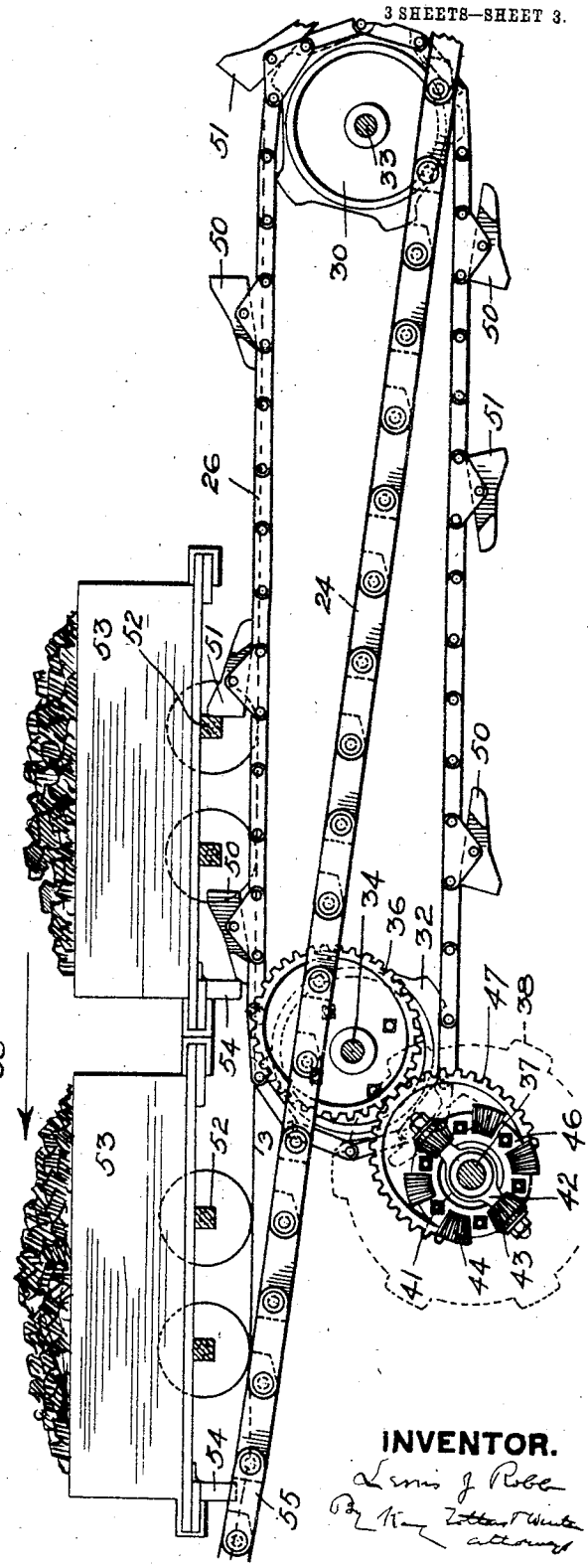


FIG. 6

WITNESSES.

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No. 777,747. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

LEWIS J. ROBB, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HEYL & PATTERSON, INCORPORATED, OF PITTSBURG, PENNSYLVANIA, CHARTERED UNDER THE LAWS OF PENNSYLVANIA.

CAR-HAUL.

SPECIFICATION forming part of Letters Patent No. 777,747, dated December 20, 1904.

Application filed July 23, 1904. Serial No. 217,848.

To all whom it may concern:

Be it known that I, LEWIS J. ROBB, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Car-Hauls; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to car-hauls.

The object of my invention is to provide mechanism for propelling a train of cars adjacent to the main chain of a car-haul and for the bringing of the cars into position to be propelled by the main chain at a speed approximately the same as that of the main chain, so as to relieve the car of any sudden jolt or jar when taken up by the main chain to be propelled thereby.

To these ends my invention comprises the novel features hereinafter set forth and claimed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figures 1 and 2 are diagrammatic views of a car-haul embodying my invention. Fig. 3 is a plan view of the upper portion of the haul where the cars are engaged by the main chain. Fig. 4 is a longitudinal sectional view of same. Fig. 5 is an enlarged plan view of the chain mechanism for advancing the car to be engaged by the main chain. Fig. 6 is a sectional view on the line 6 6, Fig. 5.

Like numerals indicate like parts in each of the figures.

In the drawings the numeral 2 designates the track up which the empty cars are brought after they have been dumped, and 3 the track down which the loaded cars are taken to the tipple-house 4, where the loaded cars are dumped. At the upper end of the car-haul is the platform 5, with the track 3 laid thereon. In the framework 6, beneath said platform 5, is journaled the shaft 7, which has at one end the gear-wheel 8, engaged by the pinion 9 on the shaft 10. This shaft 10 has the gear-wheel 11, engaged by the pinion 12 on the shaft 13. On this shaft 13 is a pulley 14, which is connected up by a belt 15 with the pulley-wheel of the motor 16. Upon the shaft 13 is the band-wheel 17, which is connected by the band 18 to the arm 19 on the shaft 20. A rod 21 connects the arm 19 with the lever 22. This is a well-known form of braking mechanism and forms no part of my present invention.

Mounted on the shaft 7 is the sprocket-wheel 23, with which the main chain 24 engages, said main chain engaging a sprocket-wheel 25 at the lower end of the car-haul. My invention is illustrated in connection with a chain haul in which the same chain which propels the cars down the incline also acts to bring the empty cars up the incline, as illustrated in Fig. 2. Located slightly in the rear of the point where the main chain is adapted to engage the loaded car is the auxiliary chain or car-feeder 26, which comprises the chains 27 28, engaging the sprocket-wheels 29 and 30 at one end and the sprocket-wheels 31 and 32 at the opposite end. The sprocket-wheels 29 and 30 are mounted on the shaft 33, while the sprocket-wheels 31 and 32 are mounted on the shaft 34. On the shaft 34 are the elliptical gear-wheels 35 and 36. A shaft 37 has the sprocket-wheel 38 rigidly secured thereto, said shaft being driven by the chain 39, which engages the sprocket-wheel 40 on the shaft 7.

Rigidly secured to the shaft 37 is the collar 41, which has the arms 42 with the bevel-pinions 43 thereon. These bevel-pinions 43 are adapted to mesh with the gear-sections 44 on the disks 45 and 46, which are connected to the gear-wheels 47 and 48, respectively, mounted loosely on the shaft 37. These gear-wheels 47 and 48 are engaged by the gear-wheels 35 and 36 upon the shaft 34. By this construction the power is transmitted to the shaft 37, and through the arm 42 and bevel-gears 43 rotary motion is imparted to the elliptical gear-wheels 47 and 48, which in turn meshing with the gear-wheels 35 and 36 impart rotary movement to the shaft 34, upon which the sprocket-wheels 31 and 32 are mounted. In case undue strain is brought on

one or the other of the chains 27 and 28 the arm 42 and bevel-pinions 43 will act to equalize the strain.

On the chains 27 and 28 are the dogs 50 and 51, the dogs 51 being adapted to engage the axles 52 of the cars 53, while the dogs 50 are adapted to prevent the car from running ahead until the time for their being released from the car-feeder 26 arrives. Each car 53 is provided with a downwardly-extending projection 54, which is adapted to enter between the links 55 of the main chain, so as to be moved along thereby.

When my improved car-haul is in use, the loaded cars are run from the mine along the track 3, which may be at a slight incline, so as to bring the cars by gravity to a point where they are engaged by the car-feeder 26. When the loaded car reaches the car-feeder 26, the dog 51 will come up in position to engage the axle 52 of the car, whereupon the train of cars will be advanced along the track, and owing to the elliptical form of the gears 35 and 36, 47 and 48, the car will be advanced with a gradually-increasing speed by the dog 51, said car attaining substantially the same speed as that of the chain haul 24 by the time the dog 51 disengages itself from the said car. The cars, however, are arranged so that one car will propel or push another along the track 3 into position to be engaged by the main chain, as illustrated in Figs. 4 and 6. In Fig. 6 the front car has been advanced by the rear car and has attained substantially the speed of the main chain, so that when the projection 54 engages the links of the main chain the said car will be taken up by said main chain and propelled without a sudden jolt or jar to the car, and thereby relieving the strain upon the car and chain. The dogs on the car-feeder 26 are so arranged as to engage the axle of the car at approximately the lowest speed of said car-feeder, whereupon said speed gradually increases, owing to the elliptical gearing mechanism, the highest speed of said car-feeder being attained at the time that said dog is free from said car and the preceding car has been pushed forward so as to engage the main chain at approximately the speed of said chain. If the axle 52 should not be exactly straight or the dogs 51 should for any reason be slightly out of line, a greater strain would be brought on one chain of the car-feeder than the other, which will be cared for by the action of the arm 42, carrying the bevel-pinions 43, for by its action the strain on the chains will be equalized and the excess strain upon the different parts relieved.

What I claim is—

1. In a car-haul, the combination of a main chain, an auxiliary endless chain in such position with reference to said main chain to engage and advance the cars into position to be engaged thereby, and means for varying the speed of said auxiliary chain.

2. In a car-haul, the combination of a main chain, an auxiliary endless chain in such position with reference to said main chain to engage and advance the cars into position to be engaged thereby, and means for gradually increasing the speed of said auxiliary chain.

3. In a car-haul, the combination of a main chain, an auxiliary endless chain in such position with reference to said main chain to engage and advance the cars into position to be engaged thereby, and means for gradually increasing the speed of said auxiliary chain to substantially that of the main chain.

4. In a car-haul, the combination of a main chain, an auxiliary haul comprising two power-driven endless chains adapted to engage the cars and advance them to be engaged by said main chain, and means for equalizing the strain on said chains.

5. In a car-haul, the combination of a main chain, an auxiliary haul comprising two power-driven endless chains adapted to engage the cars and advance them to be engaged by said main chain, a shaft, an arm rigidly mounted on said shaft, bevel-pinions on said arm, gear-wheels loosely mounted on said shaft, gear-wheels on the auxiliary haul-shaft with which said loosely-mounted gear-wheels mesh, and the pinions on said arm engaging teeth on the faces of said loosely-mounted gear-wheels.

6. In a car-haul, the combination of a main chain, an auxiliary chain adapted to advance the cars to said main chain, an elliptical gear-wheel on the auxiliary-chain shaft, a power-driven shaft, and an elliptical gear-wheel on said power-shaft engaging said first-named gear-wheel.

In testimony whereof I, the said LEWIS J. ROBB, have hereunto set my hand.

LEWIS J. ROBB.

Witnesses:
ROBERT C. TOTTEN,
JOHN R. KELLER.