

No. 775,981.

PATENTED NOV. 29, 1904.

G. LEUE.

APPLIANCE FOR TRANSPORTING SUPPLIES TO AND FROM SHIPS AT SEA.

APPLICATION FILED MAR. 10, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

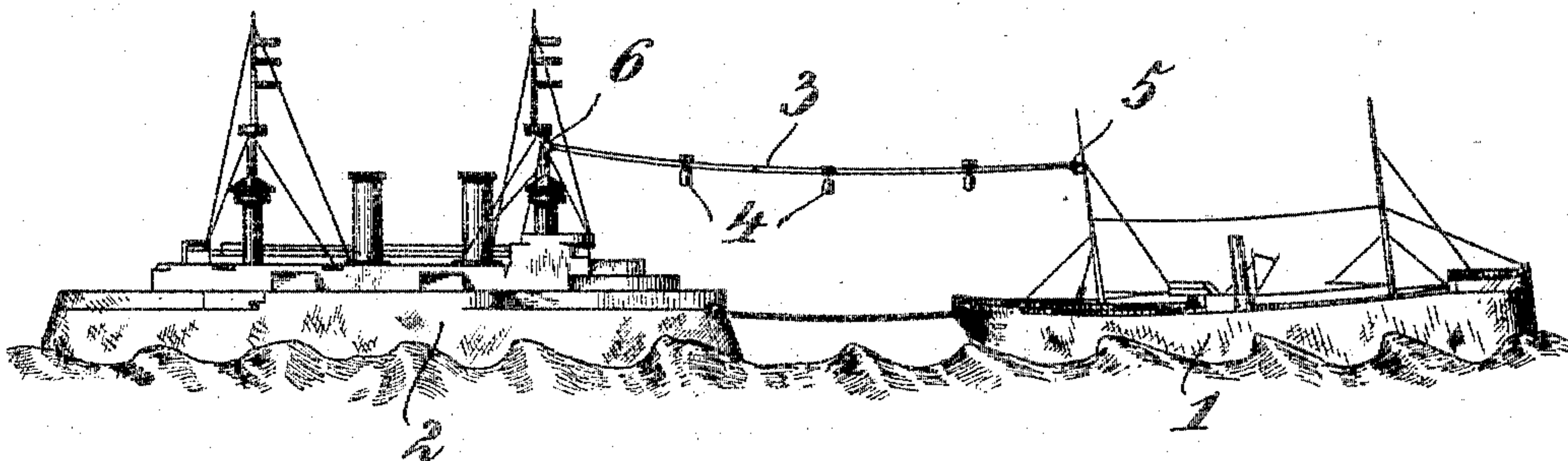
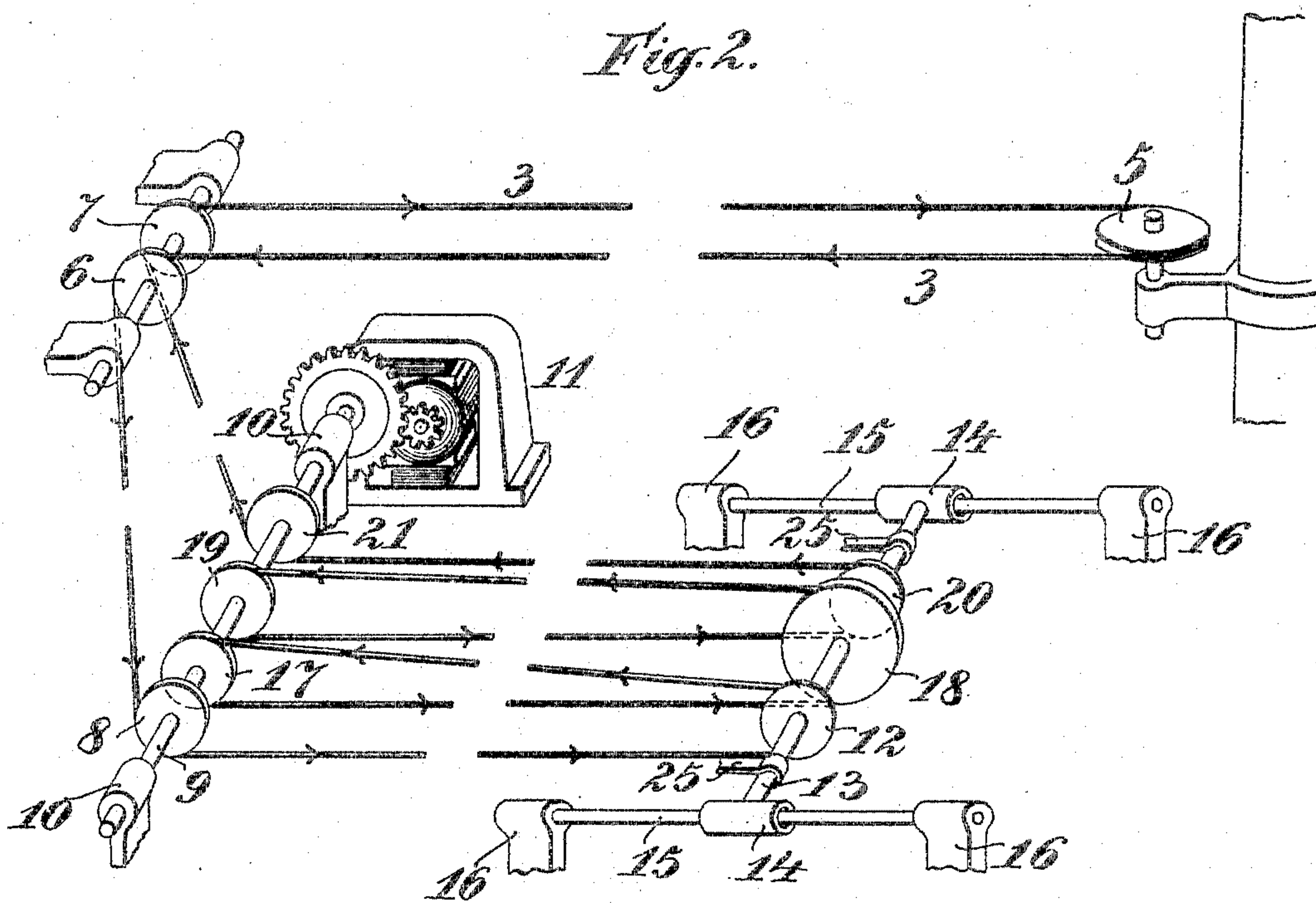


Fig. 2.



Witnesses:

Jno R Adams
O. Knight, Jr.

Inventor:

Georg Leue
By Thught Crog
Atty.

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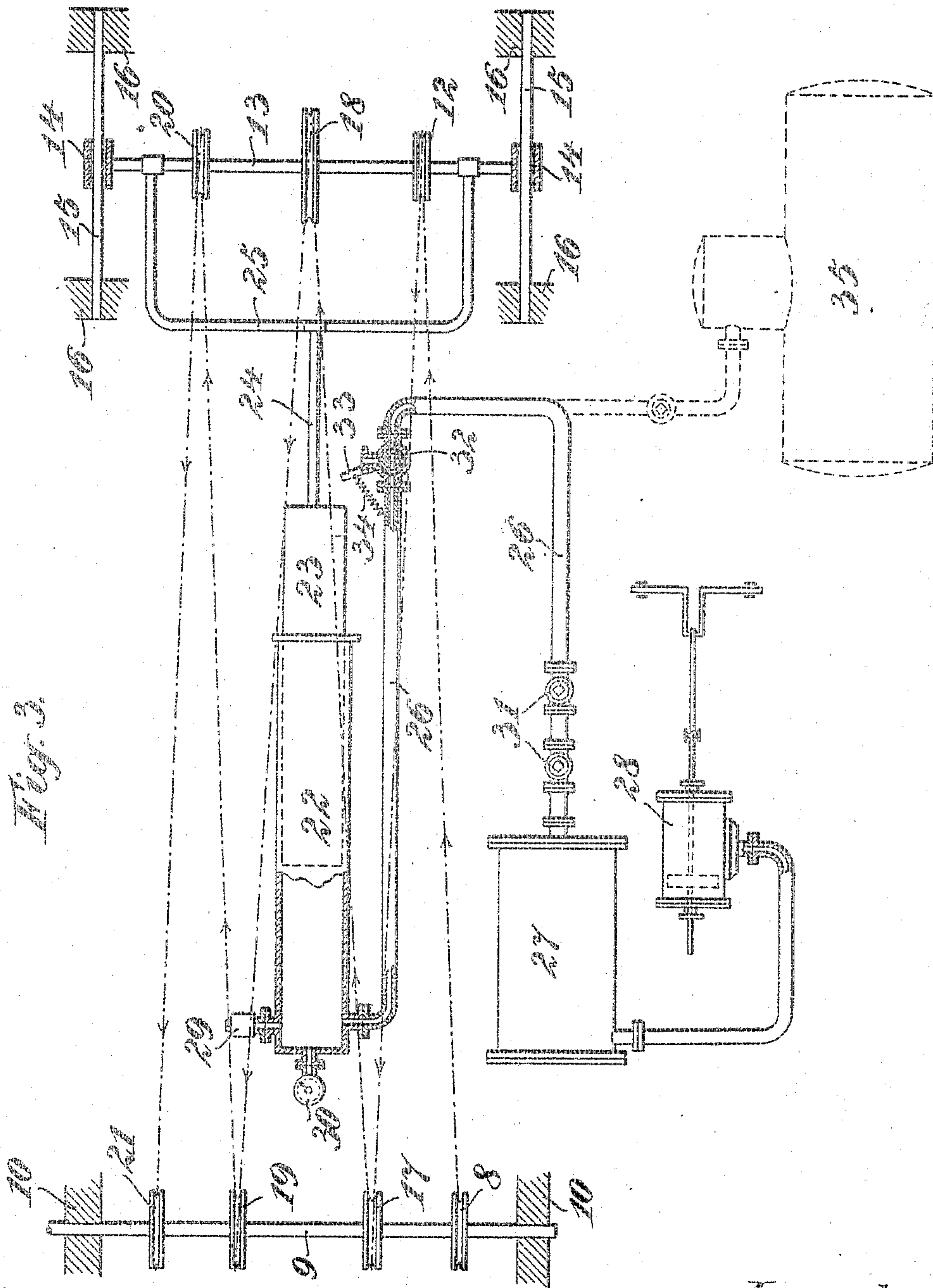
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2 SHEETS—SHEET 2.



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Georg Leue

By Knight Bros

Attys

UNITED STATES PATENT OFFICE.

GEORG LEUE, OF BERLIN, GERMANY.

APPLIANCE FOR TRANSPORTING SUPPLIES TO AND FROM SHIPS AT SEA.

SPECIFICATION forming part of Letters Patent No. 775,981, dated November 29, 1904.

Application filed March 10, 1904. Serial No. 197,478. (No model.)

To all whom it may concern:

Be it known that I, GEORG LEUE, a citizen of the Empire of Germany, and a resident of Berlin, Germany, (whose post-office address is Kurfürstendamm 24,) have invented certain new and useful Improvements in Appliances for Transporting Supplies to and from Ships at Sea, of which the following is a specification.

My invention relates to means for transporting supplies, such as coal or the like, from one ship to another or between a ship and the shore when the distance over which the said supplies are to be transported cannot be kept constant. For transporting the coal or the like contained in bags or other receptacles I employ an endless traveling rope passing around pulleys or sheaves on each ship. In order that the tension of the rope may always be substantially the same, notwithstanding variation of the distance between the two ships, I provide a tightening apparatus on board one of the ships, and to keep the varying movements of the said apparatus small relatively with the corresponding movements of the ships the endless rope is passed around sets of pulleys.

In order that my invention may be fully understood, I will proceed to describe it, reference being had to the accompanying drawings, in which—

Figure 1 is a view illustrating the process of coaling a battle-ship from a collier. Fig. 2 is a diagrammatic view showing the method of passing the endless rope around the sheaves or pulleys. Fig. 3 is a plan view, partly in section, of the tightening apparatus located between the sets of pulleys.

1 is the collier or other transport containing stores, and 2 the ship being supplied.

3 is the traveling rope carrying the coal-bags or the like 4, the said rope passing around a pulley 5 on the transport 1 and around two other pulleys 6 and 7 on the ship 2. From pulley 6 the rope passes downward to the driving-pulley 8, fixed on a shaft 9, located in bearings 10 on or below the deck of the ship 2. Any suitable motor may be employed to drive the shaft 9. In the drawings I have shown an electric motor 11 for

the purpose. From pulley 8 the rope passes to and around a loose sheave 12, mounted on another shaft 13, lying parallel to shaft 9 and provided at both ends with slides 14, mounted on two parallel horizontal bars 15, supported at their ends in bearings. From the sheave 12 the rope passes to and around a sheave 17, loosely mounted upon shaft 9 and from there back to the sheave 18, loosely mounted upon shaft 13, and so on around the sheaves 19, 20, 21, which are likewise loosely mounted upon the shafts 9 and 13, respectively. From the last sheave, 20, the rope passes to the pulley 7. Although I have shown on the drawings three sheaves 12, 18, 20 mounted loosely upon shaft 13 and three sheaves 17, 19, 21 loosely mounted upon shaft 9, it will be obvious that either a larger or smaller number of such sheaves may be employed.

Between the shafts 9 and 13 is located the rope-tightening apparatus, which forms the essential feature of my invention. This apparatus consists of a pressure-cylinder 22, Fig. 3, in which reciprocates the plunger 23, the rod 24 of which is rigidly connected to the sliding shaft 13 by means of a yoke 25, the ends of which embrace the said sliding shaft. The cylinder 22 is connected, by means of a pipe 26, with a receptacle 27, containing compressed air, which is fed to it by a compressor 28, driven by any suitable means. The cylinder is provided with a safety-valve 29 and pressure-gage 30. The air may be compressed to about one hundred to one hundred and fifty atmospheres, and reducing-valves 31 are provided in the pipe 26, whereby the air may be suitably reduced before entering the cylinder 22.

As long as the distance between ship and transport remains uniform the rope 3 will be taut and will tend to draw the shaft 13 toward the parallel shaft 9 against the action of the compressed air in cylinder 22. If, however, the distance between ship and transport is suddenly diminished through any uncontrollable cause, the rope 3 will slacken and the pressure in the cylinder 22 will drive out the plunger 23, thus forcing the shaft 13 away from the shaft 9, so that the tackle portion of the rope will be lengthened, while the main

or conveying portion between pulleys 6, 7, and 5 will be shortened, and therefore its slack taken up. This tightening action will continue until the pressure in the cylinder, owing to the counter pull of the conveying portion of the rope, has increased to the maximum permissible, whereupon the safety-valve 29 will open and compressed air escape until the pressure is again sufficiently reduced. In this manner the rope can always be maintained in a state of substantially uniform tension. Breakage of the rope is altogether prevented, since the compressed air acts as an elastic cushion or buffer.

To prevent the plunger 23 being forced unduly far out of the cylinder 22, a three-way cock 32 may be inserted in the air-pipe 26. The lever 33 of this cock lies in the path of the plunger, so that when the latter reaches its extreme position it throws over the lever 33, and thus automatically opens the cock 32, whereupon compressed air escapes from the cylinder. On return of the plunger the lever is brought back into its normal position by means of a spring 34. It will be understood that in place of the lever-and-spring device shown any other suitable means may be employed for automatically actuating the cock.

In place of compressed air another gas, such as steam, may be employed to feed the cylinder 22. In such case the pipe 26 is carried direct to a boiler 35, as shown by dotted lines in Fig. 3.

Having thus described my invention, what I claim is—

1. In appliances for transporting supplies to and from ships at sea, in combination, an endless rope, a shaft, a driving-pulley, and loose pulleys, mounted thereon, a shaft mounted parallel to the first said shaft and sliding to and from the same, loose pulleys mounted thereon, the said rope passing around all the

said pulleys, a cylinder, a piston reciprocating therein and rigidly secured to the said sliding shaft, a safety-valve on the cylinder, and means for supplying a gas to the latter, substantially as described.

2. In appliances for transporting supplies to and from ships at sea, in combination, an endless rope, a shaft, a driving-pulley, and loose pulleys, mounted thereon, a shaft mounted parallel to the first said shaft and sliding to and from the same, loose pulleys mounted thereon, the said rope passing around all the said pulleys, a cylinder, a piston reciprocating therein and rigidly secured to the said sliding shaft, a safety-valve on the cylinder, means for supplying a gas to the latter, a three-way cock located in the gas-supply pipe and automatically actuated by the piston on its outward stroke so as to allow gas to escape from the cylinder, and means for automatically returning the cock to its normal position on the return stroke of the piston, substantially as described.

3. In appliances for transporting supplies to and from ships at sea, in combination, an endless rope, a shaft, a driving-pulley, and loose pulleys, mounted thereon, a shaft mounted parallel to the first said shaft and sliding to and from the same, loose pulleys mounted thereon, the said rope passing around all the said pulleys, a cylinder, a piston reciprocating therein and rigidly secured to the said sliding shaft, a safety-valve on the cylinder, a compressed-air reservoir connected to the latter, and an air-compressor feeding the reservoir, substantially as described.

The foregoing specification signed at Kiel this 17th day of February, 1904.

GEORG LEUE.

In presence of—

JULIUS RÖPKE,
HEINRICH SCHEEL.