

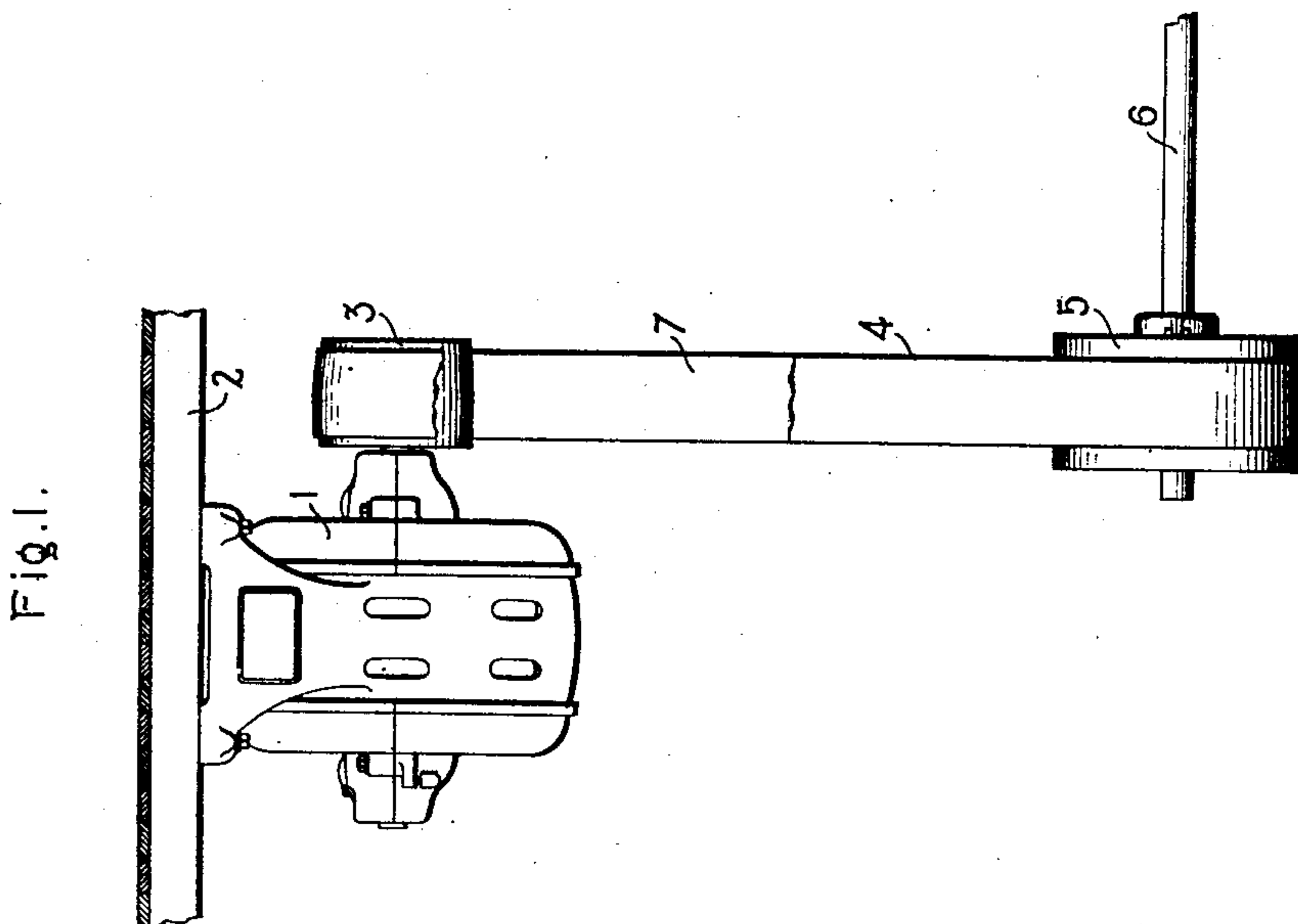
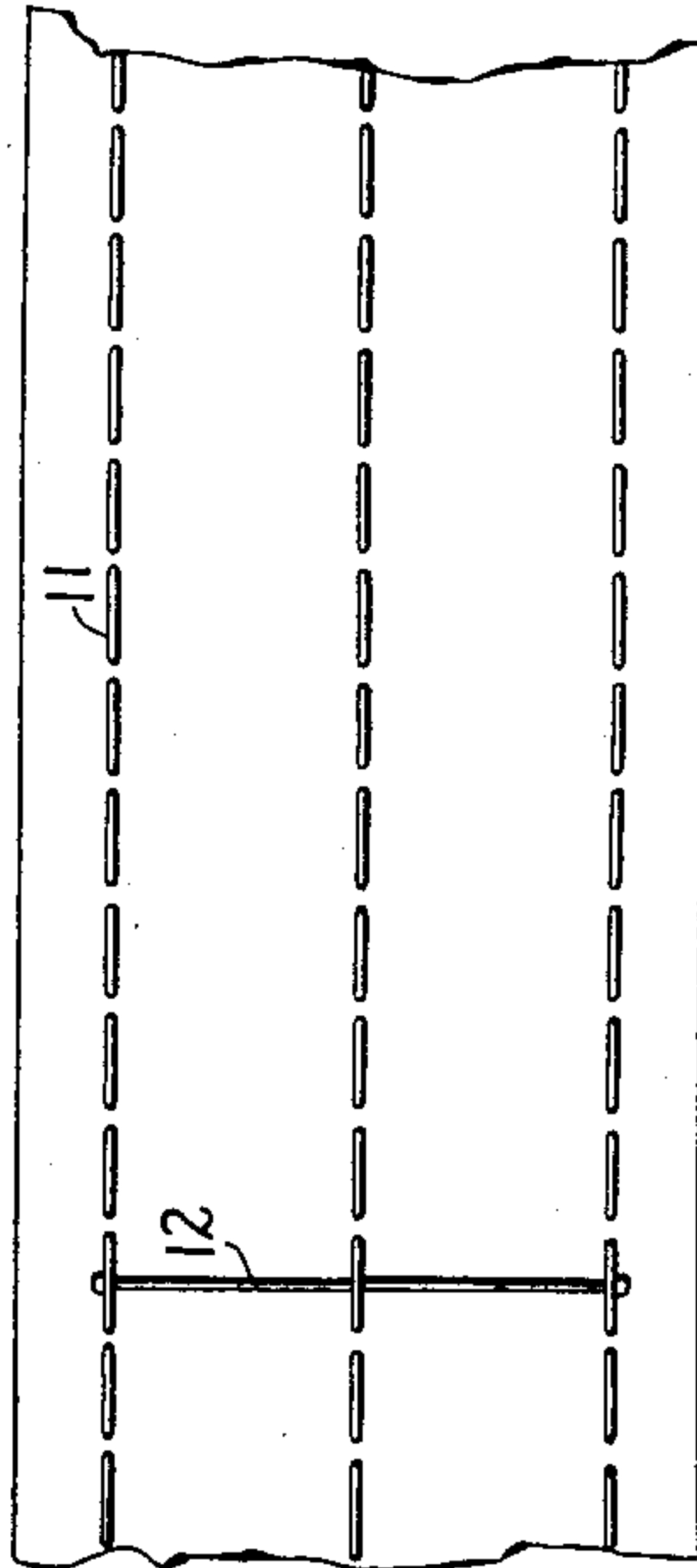
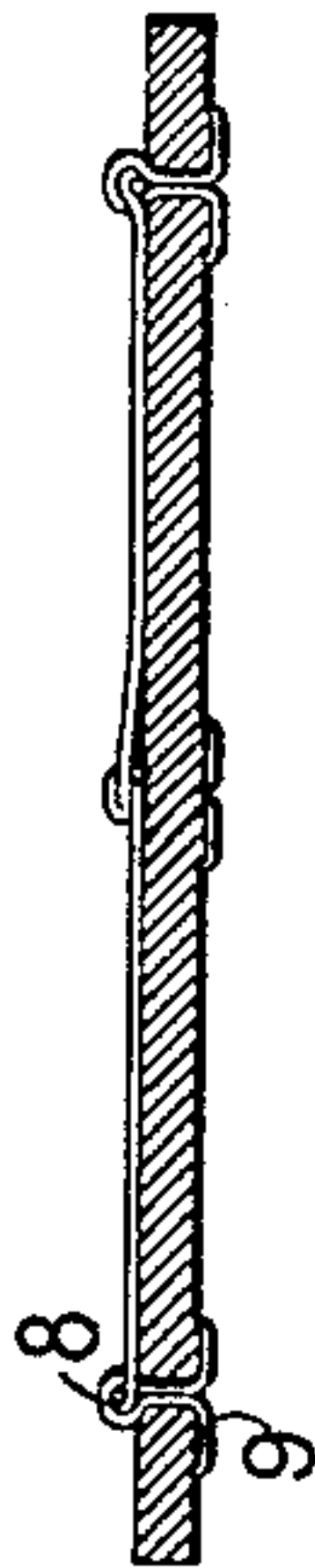
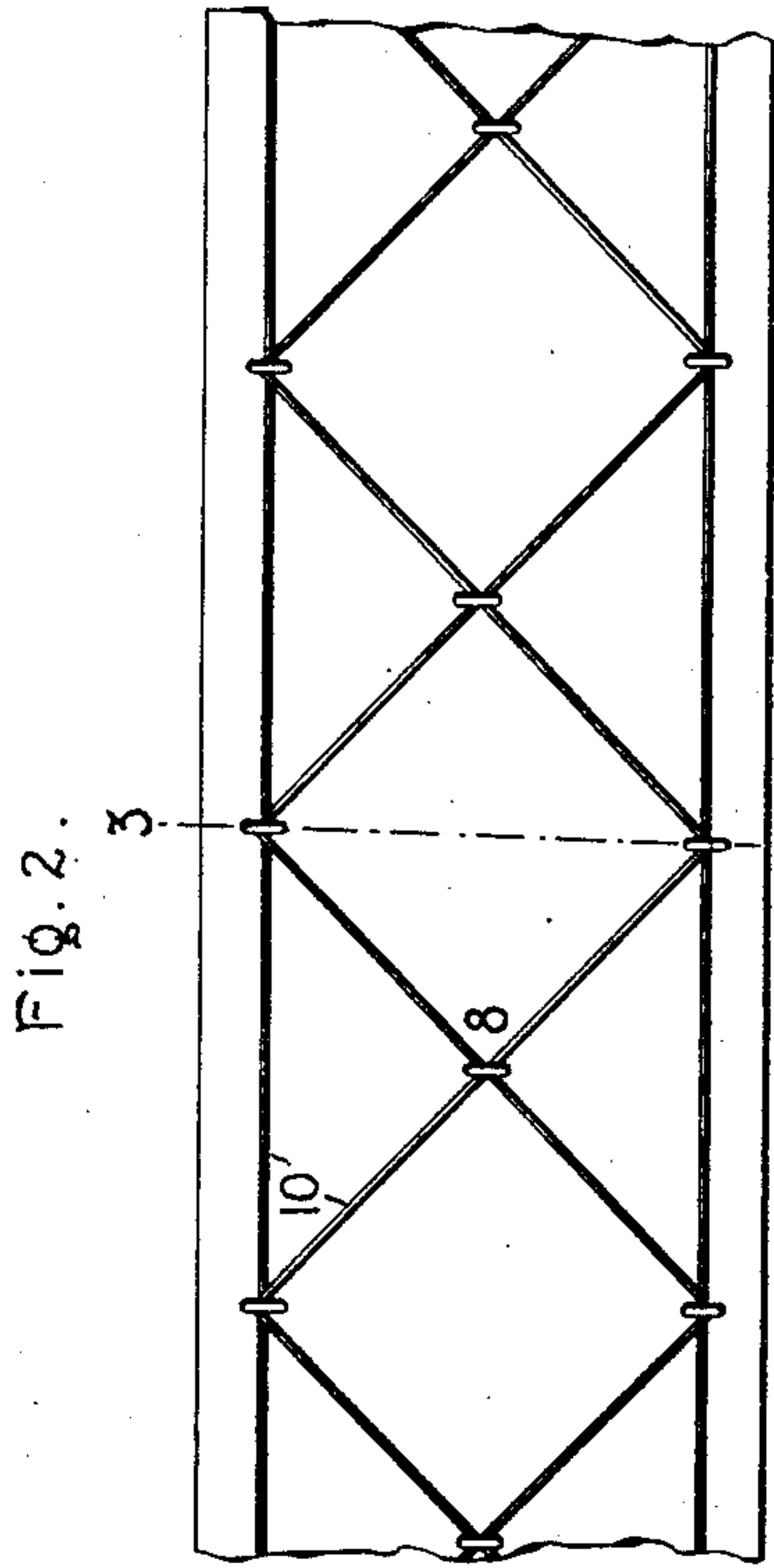
No. 815,814.

PATENTED MAR. 20, 1906.

C. M. GREEN.

MEANS FOR PREVENTING ACCUMULATION OF STATIC ELECTRICITY UPON
BELTING.

APPLICATION FILED FEB. 5, 1903.



WITNESSES:

Harry M. Tilden.
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UNITED STATES PATENT OFFICE.

CHARLES M. GREEN, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

MEANS FOR PREVENTING ACCUMULATION OF STATIC ELECTRICITY UPON BELTING.

No. 815,814.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed February 5, 1903. Serial No. 142,014.

To all whom it may concern:

Be it known that I, CHARLES M. GREEN, a citizen of the United States, residing at Lynn, in the county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Means for Preventing Accumulation of Static Electricity Upon Belting, of which the following is a specification.

In the operation of belt-driven machinery the frictional engagement between a pulley and its belt when the latter is made out of leather, rubber, canvas, or other material which is a non-conductor, or, rather, a poor conductor of electricity, is found to generate static electricity which is accumulated upon the surface of the belt. Under some circumstances this charge may become large. In such cases it is dangerous from its liability to cause fire. It is also apt to damage electrical apparatus which may happen to be in proximity to the belt. In any event the accumulation is a source of inconvenience and annoyance to the attendant or others who may approach the belt because of the discharge which is apt to take place to their bodies.

I have discovered that if belts be treated in such manner as to make their working surfaces fairly good conductors of electricity no charge will be accumulated on the belt in those cases in which the pulleys are also made out of conducting material. When some or all of the pulleys which engage the working surface of the belt are formed of non-conducting material, it is necessary in order to avoid the liability of accumulating a charge upon the belt that the pulleys should also be treated in such manner as to make their working surface electrically conductive or that an electrical connection be made to ground from the belt. When some of the pulleys engaging the working face of the belt are formed of conducting material, a connection to ground may be easily made from one of the conducting-pulleys. When all of the pulleys are formed of conducting material, such as iron, the making of the working surface of the belt conducting is alone sufficient to avoid all liability of accumulations of static electricity upon the belt or pulleys and no grounding is necessary.

One method which I have employed to make the working face of the belt conducting and which I have found to be satisfactory in practice has been to treat it with graphite.

The graphite may be mixed with the belt-grease ordinarily employed to keep the belt in a satisfactory condition. I have found that when graphite is so applied the slip is not excessive, as might be expected.

Other methods may be employed to make the working surface of the belt conducting—as, for instance, by inserting a plurality of metallic contacts in it and connecting these contacts by metallic conductors.

In the accompanying drawings, Figure 1 is an elevation illustrating one form of my invention. Fig. 2 is a plan view of a belt, illustrating a modified form of my invention. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 2, and Fig. 4 a plan view showing another form of my invention.

Referring to Fig. 1, 1 represents a motor secured to a ceiling 2. The motor carries a pulley 3, and a belt 4, passing over the pulley 3, drives the pulley 5 on the shaft 6. Graphite mixed with belt-grease is applied to the working surface 7 of the belt 4. This causes the working surface of the belt to become a conductor. The pulleys 3 and 5, if made out of non-conducting material, such as paper or wood, will also become conductors from the graphite applied to the belt. Under these circumstances no static charge will be accumulated either on the working faces of the belt or pulleys.

In the construction shown in Fig. 2 looped pieces of metallic wire 8 pass through the belt at intervals, the clenched ends 9 being on the working side of the belt. The other ends of these pieces are connected by wires 10 on the outer surface of the belt. With this construction the charge which will accumulate upon the surface of the belt is determined by the farthest distance which it will have to “creep” to reach the ends 9 of the wires 8. This can be made as small as desired by increasing the number of contact-points.

In the construction shown in Fig. 4 longitudinal seams 11 of wire are formed in the belt. The various seams may be connected at one or more points by cross-wires 12, though this is not important.

While my invention is particularly useful in connection with belting, it is not limited thereto, but may be applied wherever two surfaces one of which is normally non-conducting are in frictional engagement with one another.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A belt, and means for rendering its working surface conductive of electricity, 5 comprising a layer of graphite applied to said working surface.

2. In combination, a belt, a pulley engaging said belt, and means for making the surfaces of said pulley and said belt conductive 10 of electricity in order to prevent the accumulation of static electricity upon said surfaces.

3. In combination, a pair of metallic pul-

leys, a leather belt connecting the same, and means for preventing the accumulation of static electricity upon said belt comprising a 15 coating of graphite applied to the working surface of said belt.

In witness whereof I have hereunto set my hand this 3d day of February, 1903.

CHARLES M. GREEN.

Witnesses:

DUGALD McK. McKILLOP,
JOHN J. WALKER.