

(No Model.)

W. F. GOODWIN.

CONSTRUCTION AND OPERATION OF PERMANENT RAILROADS, &c.

No. 326,212.

Patented Sept. 15, 1885.

Fig. 1.

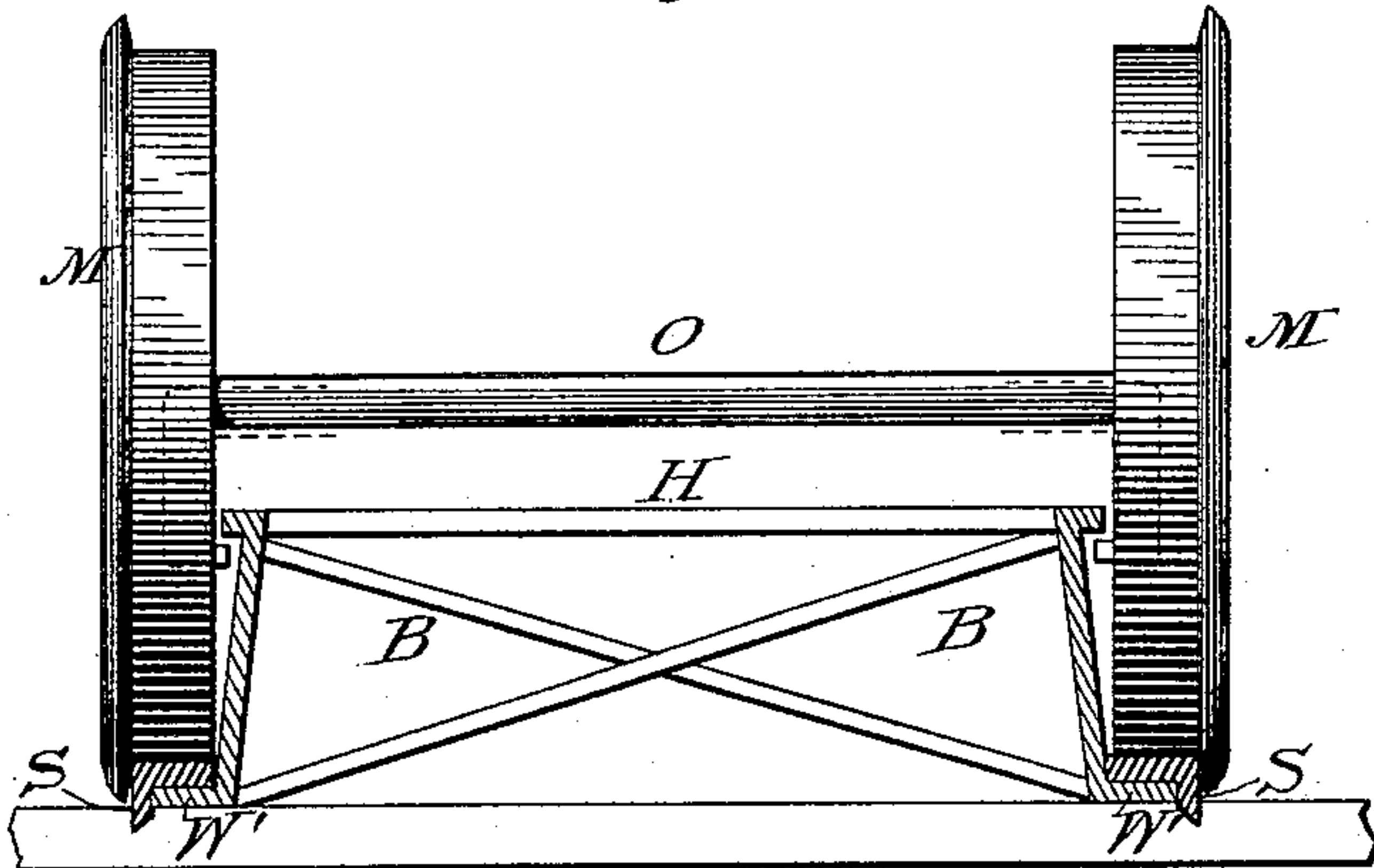


Fig. 2.

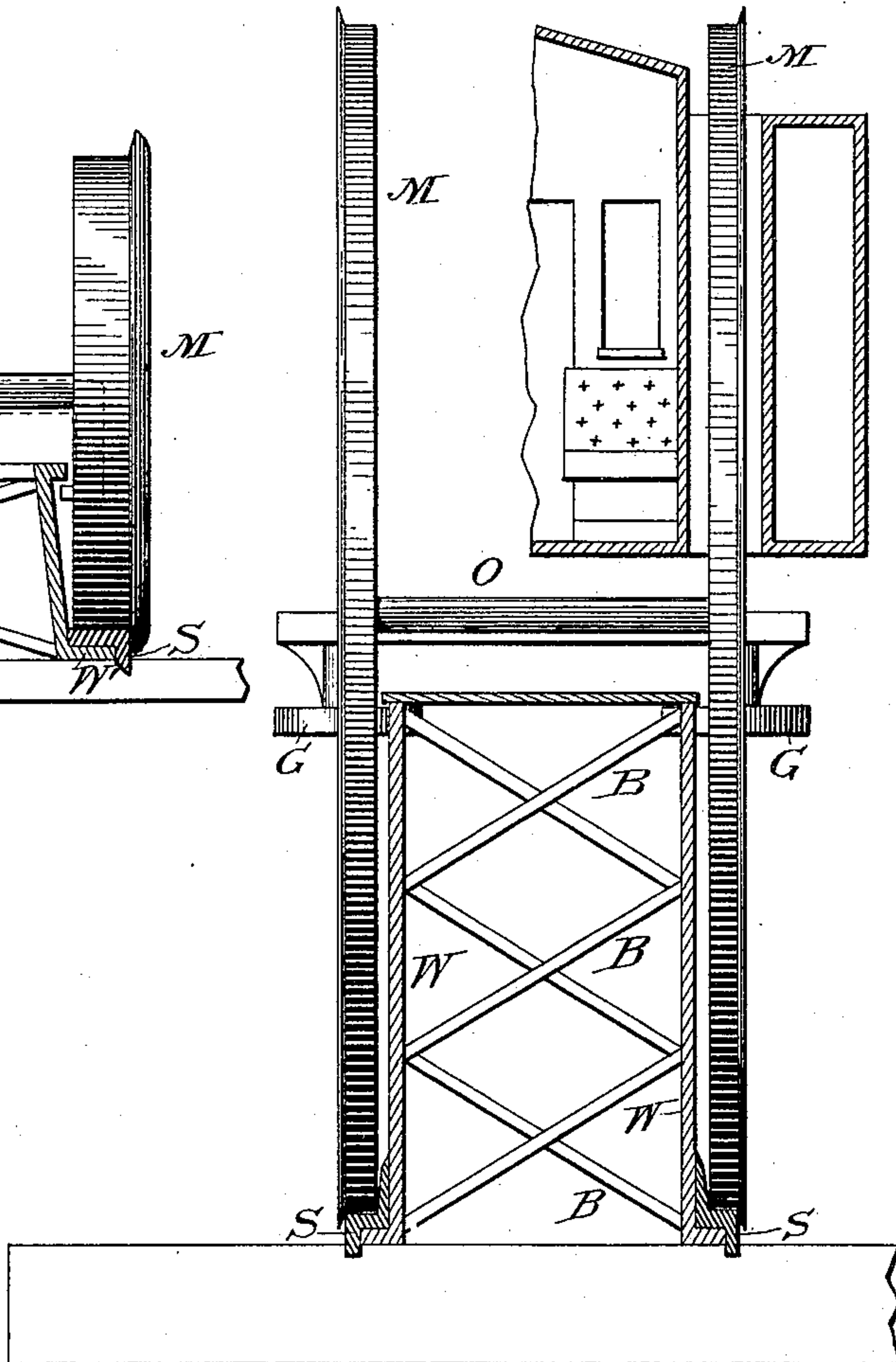
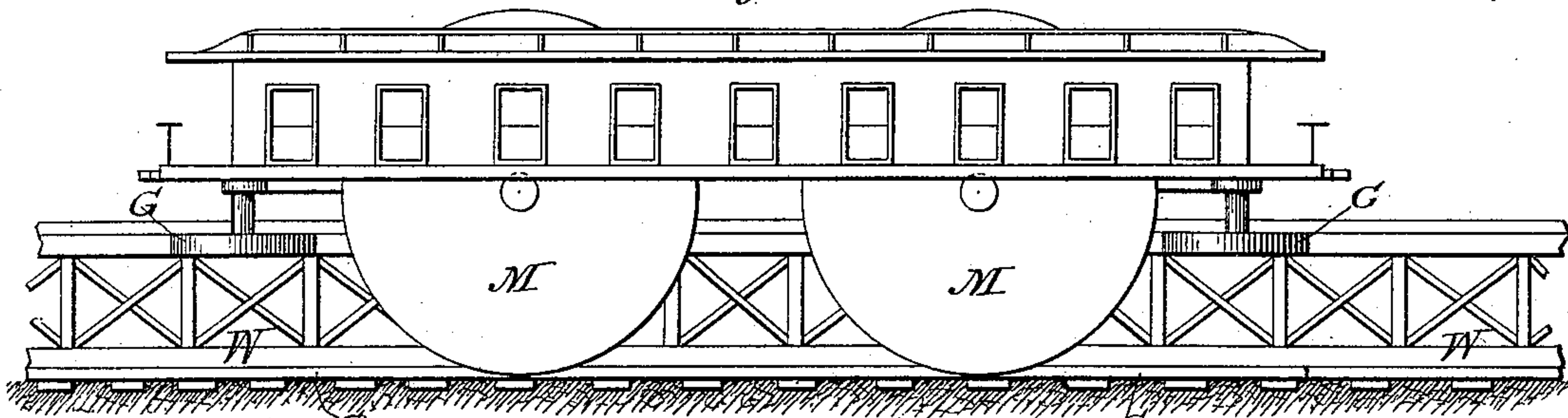


Fig. 3.



Witnesses:

A. Goodwin.
Anom Drom

Inventor:

Wm F Goodwin

UNITED STATES PATENT OFFICE.

WILLIAM FARR GOODWIN, OF STELTON, NEW JERSEY.

CONSTRUCTION AND OPERATION OF PERMANENT RAILROADS, &c.

SPECIFICATION forming part of Letters Patent No. 326,212, dated September 15, 1885.

Application filed July 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FARR GOODWIN, a native citizen of the United States, residing at Stelton, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Railroads and their Rolling-Stock, of which the following is a specification.

My invention relates to improvements in railroads, whereby larger wheels are rendered practicable and greater speed attained than ever before known; and its objects are to attain greater speed and safety in the transportation of passengers and freight than is possible with any other known system of railroad transportation; and its mechanical construction and organization consist in the adaptation of the roadway to the enlarged wheels, so that the guiding mechanism will guide and secure the train in its course safely at a speed commensurate with the great diameter of the wheels when the latter are making the same number of revolutions as the wheels of the ordinary fast through trains on the ordinary railroad.

The essential mechanism of my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical transverse section of the improved roadway, showing the enlarged wheels M in their proper position relative to their guide-flanges or side rails, W; also showing the inclined position of the guide-flanges W and the relations of the latter to the tread-rails W' and wearing tread-rails S. Fig. 2 is a similar view of the same, (on an extremely large scale in proportion to the width of the track,) showing a slight modification of construction and the mode of guiding and supporting "laterally" the extremely high wheels M, with the assisting horizontal guide-wheels G G, also a section of part of a car-box. Fig. 3 is a side view of the same, showing the improved car in its proper position in relation to its guiding mechanism W and tread-rail S.

Figs. 1, 2, and 3 show the wheels M mounted upon their guide-road in such manner that they are guided in their course and prevented from leaving their track-rails S without any sliding contact of the wheels M or the body of

the vehicle with the stationary guide-road, except the rolling of the bottom of the inside of the wheel M against the bottom of the guide-flange W.

It is essential that the guide-flange W incline from a vertical line from the inside of the wheel M, so as to clear all parts of the latter except the lower inside edge of the periphery-rim, which guides the wheel, in order to avoid sliding friction of the rim of the wheel against the guide at points above the margin of the tread-rail S and bottom of the guide W. When the guide-wheels G are used, the inclined guide W may be formed on the margin of the tread-rail S, and the guide for the wheels G rise up from the inside of the inclined guide, as shown in Fig. 2.

In all the figures of the drawings the improved guide rails or flanges are mounted upon and secured to common cross-ties by any suitable fastenings. (No fastenings are shown.) The ties are shown as covered between the guide-flanges W and even with the tops of the latter. The covering H is not essential to the working of the invention, but prevents obstructions from lodging between the tread-rails, and would preserve the ties by keeping them dry. (Ties and covering H are not claimed as new.)

The guides W are braced with braces B. Any suitable means of securing the guides would serve the purpose. (The braces B are not claimed as new.)

The wheels M have flanges shown on the outside of their rims for convenience of running the cars on ordinary rails about shops and sidings, but take no part in guiding the train at high speed, and would not serve the latter purpose; and where the guide-flanges W are employed exclusively the flanges on the wheels M can be dispensed with. (They are not claimed as new or essential.) The drawings show the wheels M connected with an axle, O. Two axles O are employed, one to each wheel M, mounted in a frame, one in advance of the other, for the purpose of affording independent action to the wheels M when the latter are very large, the wheels M of one side of the train being slightly in advance of their mates of the other side.

My invention consists, essentially, in guiding

the train by means of flanges W upon the inside of the tread-rails S or W', (instead of flanges on the rims of the wheels,) and adapting the guiding-flanges W to the enlarged wheels M and the large-wheeled vehicles to the guiding-flanges W, which latter project upwardly from the inside of the tread-rail S or W', close to the lower side of the wheel M, and inclined from a vertical line from the side of the wheel M, and extending upwardly alongside of the latter sufficiently high to act as a guide vertically as well as laterally and to cause the wheels M to return to their track-rails S in case they should be lifted up from the latter by any cause and let fall again by gravitation, (arranged substantially as illustrated;) and the nature of my invention consists in the combination and organization of enlarged wheeled vehicles with a suitable roadway in such manner that the tread-rails S cannot break or spread or throw the train from the track, and in such manner that the wheels M cannot leave the track-rails S laterally, and in such manner that the train is not liable to be impeded in its progress by running off the track or falling upon or coming in contact with any stationary object with any part of the train except the periphery-rim of the rolling wheels, and in such manner that a higher speed can be attained with greater safety than is possible with the ordinary wheels and roadways. Therefore the peculiar nature of the invention requires many changes from the plans of construction and operation of the ordinary railroads and their vehicles, some of which are as follows:

It is necessary that the width of the track between the tread-rails S be increased to correspond with the diameter of the wheels M. This change makes it necessary that the wheels of one side of the train act independently of the wheels of the other side. This is accomplished by mounting the wheels upon independent axles, the latter mounted in a frame, one in advance of the other, as before explained. (This, being the subject-matter for a separate patent, is not shown in the drawings.)

The increased diameter of the wheels M demands increased facilities for guiding and securing them to their track-rails S and in their course while speeding at a speed commensurate with the diameter of the wheels; hence the guiding-flanges are necessarily placed upon the roadway, (instead of the rims of the wheels,) and the roadway so arranged in relation to the wheels M and their vehicles that no obstructions could find lodgments upon the track-rail S to throw the train from the track. The guide-flange W, standing up from the edge of the rail S close to the wheel M, would prevent the wheel M from obstructing the train if it should break its axle and fly off, and the wheels being independent, one wheel could be spared from the car without stopping the progress of the train, and if the rail S should break the rail W' would sustain the wheels M and the train would proceed; but

with the plan of rails shown in the drawings the rails are not liable to break, neither the axle, for the reason that the cause is removed. 70

The journal-bearings can be supplied with unguent automatically by means of oil-tanks situated in each car, and connected with the journal-boxes by means of pipes, through which the oil flows by gravitation to the journals and passes into a receptacle, from which it is returned by means of pumps to the tank. 75

I am aware that supporting-girders rising up between the tread-rails and above the latter, so as to bring their top flanges close to the axle or bottom of the ordinary car and engine on the ordinary elevated railroad, so as to catch the falling car on the top flanges of the girders and support and prevent it from turning over or falling down upon the track or to the ground in case some accident should occur—such as the breaking of a rail or a wheel, or the wheels leaving the track—have been patented; but with such an arrangement it is necessary that some accident shall occur before it is brought into use. It is not designed to guide the train and prevent any accident from occurring, but only to catch and support a broken car or engine or prevent the train from falling from its elevated roadway in case it leaves the track or rails. In the above-described arrangement the common rails and wheels are used. The latter, being guided by small flanges on their rims acting against the side of the rail, are liable (as often occurs) to run over and off the rail, and no provision is made or contemplated to prevent the latter. Therefore the wheels are small in diameter to prevent their leaving the track, and the smaller the safer. Such an arrangement would not serve to increase the speed and safety together, because enlarged wheels would leave the rails at the first attempt at great speed, and the speed would cease, and only safety would be availed. Such an arrangement would not accomplish any of the purposes of my invention, and I do not claim anything of the kind. My invention prevents the occurrence of such accidents as above enumerated, and dispenses with the necessity of such an arrangement for supporting a falling car. 105 110 115

In my invention the girders necessary for supporting the track over spans are not employed to support a disabled car, or in any wise related to my improved guiding mechanism, except when the guide-wheels G G are employed to act laterally against the sides of the high flanges or guiding sides W, which latter are provided for lateral guides, but will serve to strengthen the rail and support the latter instead of the common girder. Without the wheels G G an elevated guide-rail above the tread-rail could not be used to guide the train for the reason that sliding friction would act like a brake to stop the car, and the friction would generate intense heat instantaneously. 120 125 130

The essential construction and arrangement

of my invention is to avoid sliding frictional contact of the speeding train with its stationary guides or roadway, and to avoid the possibility of the train stopping by running off the track, or obstructions lying on the rails to impede its progress.

While it is possible that the ordinary train can operate to advantage as to safety on my improved road, (constructed for the purpose,) it is not possible that the enlarged wheels could operate on the ordinary railroad at the speed and with the safety contemplated for my improvement. My invention removes the impediments and dangers of higher speed in railroad travel, and raises the limits of attainable speed to a point above the possible speed of the ordinary train on the ordinary railroad.

I do not claim anything ever before known or used.

What I claim as my invention is—

1. In a railway for quick transportation, the rails S, combined with the guides W and

wheels M, of large diameter, said guides rising from the margin of the rails to near the axles of the wheels, to insure the wheels against derailment when running at a greatly increased speed, as set forth.

2. In a railroad for quick and safe transportation, the combination of the rail S and carrying rail or flange W' with the guide-flange W, constructed and arranged in relation to the wheels M in the manner and for the purpose substantially as described.

3. In a railroad for quick and safe transportation, in combination with the high guides W and high wheels M, the guide-wheels G G, arranged in the manner and for the purpose substantially as described and illustrated.

In witness whereof I have hereunto set my hand this 30th day of June, A. D. 1884.

WILLIAM FARR GOODWIN.

Witnesses:

E. M. MARBLE,
C. S. HYER.