965,567.

A. COTTOM.

RAILWAY TRACK.

APPLICATION FILED DEC. 15, 1909.

Patented July 26, 1910.

2 SHEETS—SHEET 1.

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2 SHEETS—SHEET 2.

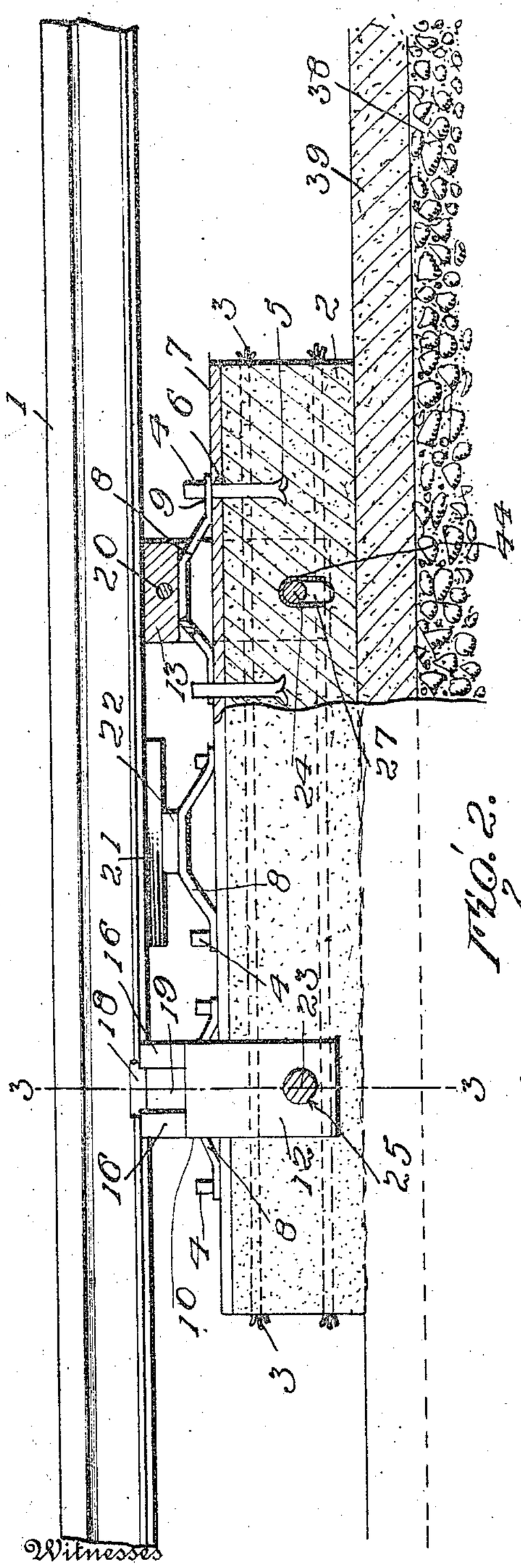

FIG. 1.

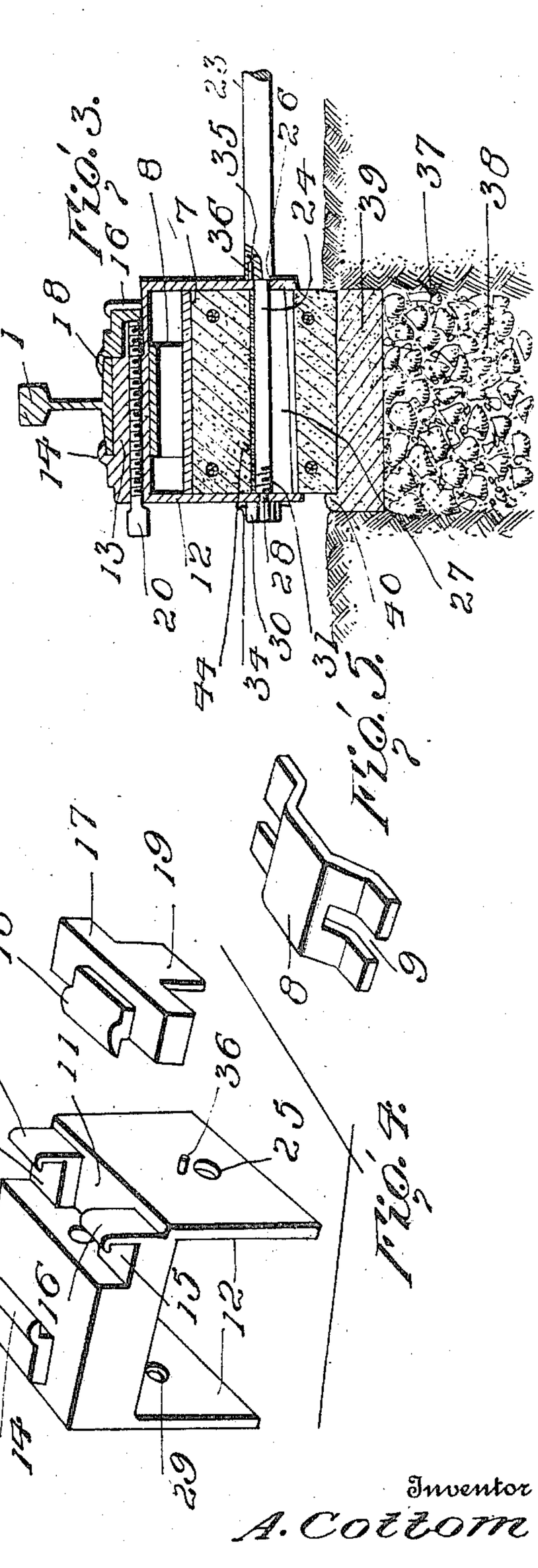

FIG. 2.

FIG. 3.

FIG. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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RAILWAY-TRACK.

965,567. Specification of Letters Patent. Patented July 26, 1910.

Application filed December 15, 1909. Serial No. 533,241.

To all whom it may concern:

Be it known that I, ALBERT COTTOM, a citizen of the United States, residing at Chillicothe, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Railway-Tracks, of which the following is a specification.

The present invention comprehends certain new and useful improvements in tracks for railways, and relates particularly to the improved structure embodied in my prior Patent No. 861,269, dated July 30, 1907.

One of the objects of the invention is a track in which the rails are yieldably supported upon longitudinal cement stringers by means of interposed metallic bowed springs which afford a maximum yielding action between the parts, the springs being designed to supersede the customary wooden blocks which have heretofore been employed for this purpose and which have been found quite objectionable on account of their rapid deterioration through exposure to the weather.

Another object of the invention is a device of this character that consists of comparatively few parts which embody to a marked degree the characteristics of simplicity, durability and strength, and which are not liable to injury by the weather or to destruction by fire, the parts being capable of being easily and quickly assembled and requiring very little subsequent attention, whereby to materially decrease the cost of construction and maintenance of the track.

The track forming the subject matter of the invention includes in addition to the superstructure above mentioned, a particular form of road-bed that provides a rigid and efficient support for the sections of the stringers upon which the rails are mounted, the road-bed embodying means for preventing the stringer sections from spreading apart thereon, so as to insure of the maintenance of the proper gage of the track.

With these and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and then point out the novel features of in the appended claims.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a sectional perspective view of my improved railway track; Fig. 2 is a longitudinal section thereof; Fig. 3 is a transverse section on the line 3—3 of Fig. 2; Fig. 4 is a detail perspective view of one of the clips; Fig. 5 is a similar view of one of the springs; and, Fig. 6 is a transverse section of the road-bed, the section being taken on the line 6—6 of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In accordance with the present invention the rails 1 of the track are supported on longitudinal stringers that are constructed in a plurality of sections 2, the sections being spaced apart longitudinally at suitable intervals and being disposed opposite to and in transverse alinement with corresponding sections of the other stringer. The sections 2 are preferably formed of cement or some similar plastic material, and may be reinforced, if desired, in any approved manner, as for instance, by means of wires 3 that are embedded longitudinally therein.

Upstanding from the upper face of each of the sections 2 is a series of longitudinally alining pins 4. The pins are permanently secured to the sections 2 and for this purpose have their lower ends embedded therein in the process of manufacture thereof, the lower ends of the pins being bifurcated, as indicated at 5, and the bifurcations being deflected laterally, as shown, in order to obtain a broad bearing in the cement and thus insure against withdrawal therefrom. The pins of the series are arranged in three pairs, the said pairs being spaced apart longitudinally at suitable intervals and the pins of each of the various pairs being substantially the same distance apart. The pins project upwardly through apertures 6 formed at requisite points in a metallic face plate 7 which rests upon and is substantially co-extensive with the upper face of the stringer section and which is held in position on such face by the pins. Spring bars 8 extend longitudinally between the upper ends of the pins of the respective pairs and are formed at their ends with slots 9 for the reception of such pins. The end portions

of the springs rest upon the metallic face plate 7, while the intermediate portions of the springs are bowed upwardly in spaced relation to the face plate, as shown, the upper portions of the springs being substantially flat and being designed to support the rail 1. Attention is here directed to the fact that the slots 9 are elongated to afford the ends of the springs limited longitudinal movement so that the middle portions of the springs can yield downwardly against the face plate when subjected to excessive pressure, it being necessary to space the adjacent pins of the pairs apart sufficiently to insure against the ends of the springs interfering with each other during such movement. It will be, of course, apparent that the springs afford a maximum yielding action between the rail and the cement stringer, and are more efficient than the wooden blocks heretofore employed for this purpose.

The rail is secured to the end or extreme springs by means of clips 10 which are similar to the corresponding parts in the patent hereinbefore referred to. Each clip consists of a horizontally disposed base plate 11 rigidly secured to the flat upper portion of the spring and formed at its opposite sides with depending flanges 12 that embrace the cement section and lie snugly against the opposite sides thereof whereby to guide the clip in its vertical movement in the operation of the spring. Disposed at the upper face of the base plate 11 is a bearing block 13 which forms a support for the base of the rail and which is provided at one side with an integral hooked lip 14 fitting over the basal flange on one side of the rail. Spaced extensions 15 project laterally from the opposite side of the bearing block and are relatively shorter than the same and are formed at their outer ends with upwardly extending stops 16 which have a hooked formation, as shown. Resting upon the extensions 15 between the stops 16 and the bearing block 13 and lying flush with the upper face of the latter is a longitudinal clamping bar 17. The clamping bar is formed upon its upper face with a rail-engaging member 18 substantially similar to and coöperating with the lift 14 to clamp the rail securely in place. A wing 19 projects downwardly from the clamping bar and fits between the extensions 15 and is movable between the same when the clamping bar is rocked about a longitudinal axis preparatory to being removed from position. A clamping bolt 20 works transversely through the bearing block 13 and is arranged to bear at its extremity against the wing 19 to retain the clamping bar against rocking movement, so as to hold the rail-engaging member 18 in an operative position.

Between the clips 10 the rail rests upon a bearing plate 21 that is riveted or otherwise firmly secured to the upper portion of the intermediate spring 8. In practice it may be necessary to interpose a filling block 22 between the bearing plate 21 and the corresponding spring in order to compensate for the thickness of the bearing blocks 13 and normally support the bearing plate flush with the upper surfaces of the said blocks to afford an even bearing for the rail. The end portions of the bearing plate project longitudinally beyond the filling block and are arranged to rest upon the adjacent pins 4 upon the depression of the corresponding spring, whereby the pins serve to materially reinforce the structure to effect the thorough distribution of strain.

Extending transversely between opposite stringer sections 2 and connecting corresponding clips 10 are the tie rods 23 that are preferably round in cross section. Each of the tie rods is reduced at its ends to form stems 24 which pass through apertures 25 in the inner flanges 12 and which provide oppositely facing shoulders 26 engaging the said flanges. The stems are accommodated in the transverse openings 27 in the sections 2 and are reduced at their extremities to constitute threaded studs 28 that project through apertures 29 in the outer flanges 12 and are capped by nuts 30, the nuts serving to clamp the outer flanges securely against the shoulders 31 at the inner ends of the studs 28. The openings 27 in the sections 2 are enlarged vertically, as shown, for the purpose of affording the stems 24 vertical play, so as not to interfere with the vertical movement of the clips 10 upon the operation of the springs, the stems being normally held against the upper walls of the openings to limit the upward movement of the clips under the influence of the springs. The tie rods not only connect the opposite stringer sections to maintain the proper gage of the track, but also tend to cause the corresponding clips 10 on the opposite stringer sections 2 to have a corresponding vertical movement so as to preserve the desired level of the track.

It is to be understood that the nuts 30 may be retained in adjusted position by any approved type of nut lock, but this object is preferably attained through the medium of the construction illustrated in the drawings in which the corners of the nuts are formed at their inner faces with grooves 32, one of which is designed to register at each quarter turn of the nut with a vertical groove 33 in the face of the outer flange 12. Keys 34 are inserted in the registering grooves 32 and 33 whereby to lock the nuts to the adjacent outer flanges 12. For the purpose of holding the tie rods against possible turning movement as might result in the loosening of the nuts 30, the shoulders 26 are

with recesses or sockets 35 for the reception of projections 36.

As before premised, the superstructure of the track is laid upon a particularly prepared road-bed which is provided beneath the rails with longitudinal trenches 37 in which is packed suitable ballast 38, the ballast in each trench having a concrete upper surface 39 and forming, in effect, a longitudinal foundation wall providing a smooth and substantial bearing surface for the sections 2 of the corresponding stringer to rest upon. The concrete surfaces 39 are formed along the outer sides of the sections 2 with upstanding longitudinal copings or abutments 40 which effectually maintain the superstructure of the track against lateral displacement, as is likely to occur on curves, the copings being spaced apart longitudinally at intervals, as shown, so as to provide an outlet for water collecting between the stringers. The longitudinal trenches 37 are connected at suitable intervals by cross trenches 41, the latter being provided for the reception of concrete 42 in which are embedded reinforcing elements 43 that extend into the main trenches in order to check any tendency of the longitudinal foundation walls to spread apart.

Among the many advantages residing in a railway track constructed in accordance with my invention, attention is particularly directed to the fact that the metallic springs support the rails in a particularly efficient manner upon the longitudinal concrete stringers, while the metallic face plates serve as permanent bases for the springs and protect the stringers from the direct impact thereof and from being worn away through frictional contact therewith. Furthermore, by virtue of the general arrangement of the parts, the pins are relieved of excessive lateral strain whereby to preclude the possibility of splitting the stringer sections.

As a precautionary measure, longitudinally split metallic thimbles 44 are sprung into position in the respective openings 27 in the cement sections 2 to protect the walls of said openings from frictional contact with the stems 24 of the tie rods.

Having thus described the invention what is claimed as new is:

1. In a railway track, the combination of a stringer, a vertically yieldable spring mounted upon the stringer, and a rail supporting member independent of the stringer and supported upon the spring in vertically spaced relation to the stringer.

2. In a railway track, the combination of a stringer, a leaf spring mounted upon the stringer and formed in its ends with slots, pins secured to and upstanding from the stringer and projecting through the respective slots, the spring being bowed upwardly intermediate of its ends, and a bearing plate supported upon the bowed portion of the spring and having its vertical movement limited by the pins.

3. In a railway track construction the combination of a stringer, a series of spaced springs mounted upon the stringer, rail clamping means supported upon certain springs of the series, and a bearing plate mounted upon another spring of the series, for supporting the rail between the clamping means.

4. In a railway track construction, the combination of a stringer, a longitudinal series of springs mounted upon the stringer, vertically yieldable clips mounted upon the extreme springs of the series and comprising base plates and flanges depending from the base plates and embracing the stringer to guide the clips in their vertical movement, a rail extending in the direction of the springs and resting upon the base plates, and a bearing plate mounted upon the intermediate spring of the series for supporting the rail between the clips.

5. In a railway track, the combination of a stringer, a vertically yieldable spring mounted upon the stringer, a rail supporting member independent of the stringer and yieldably supported upon the spring in vertically spaced relation to the stringer, and means for limiting the yielding movement of said member.

6. In a railway track, the combination of a stringer, a vertically yieldable spring mounted upon the stringer, a rail supporting member yieldably supported upon the spring in vertically spaced relation to the stringer, and means for securing the spring to the stringer, said securing means serving to limit the yielding movement of the rail supporting member.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT COTTOM. [L. S.]

Witnesses:

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