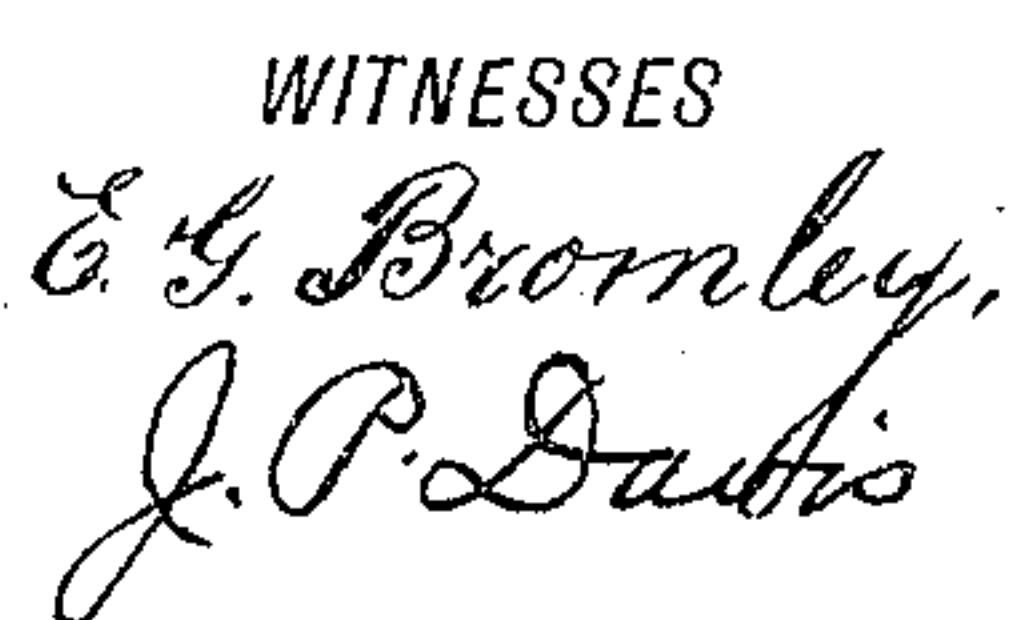


STREET GAGE.

APPLICATION FILED JUNE 5, 1909.

Patented Mar. 29, 1910.

2 SHEETS—SHEET 1.



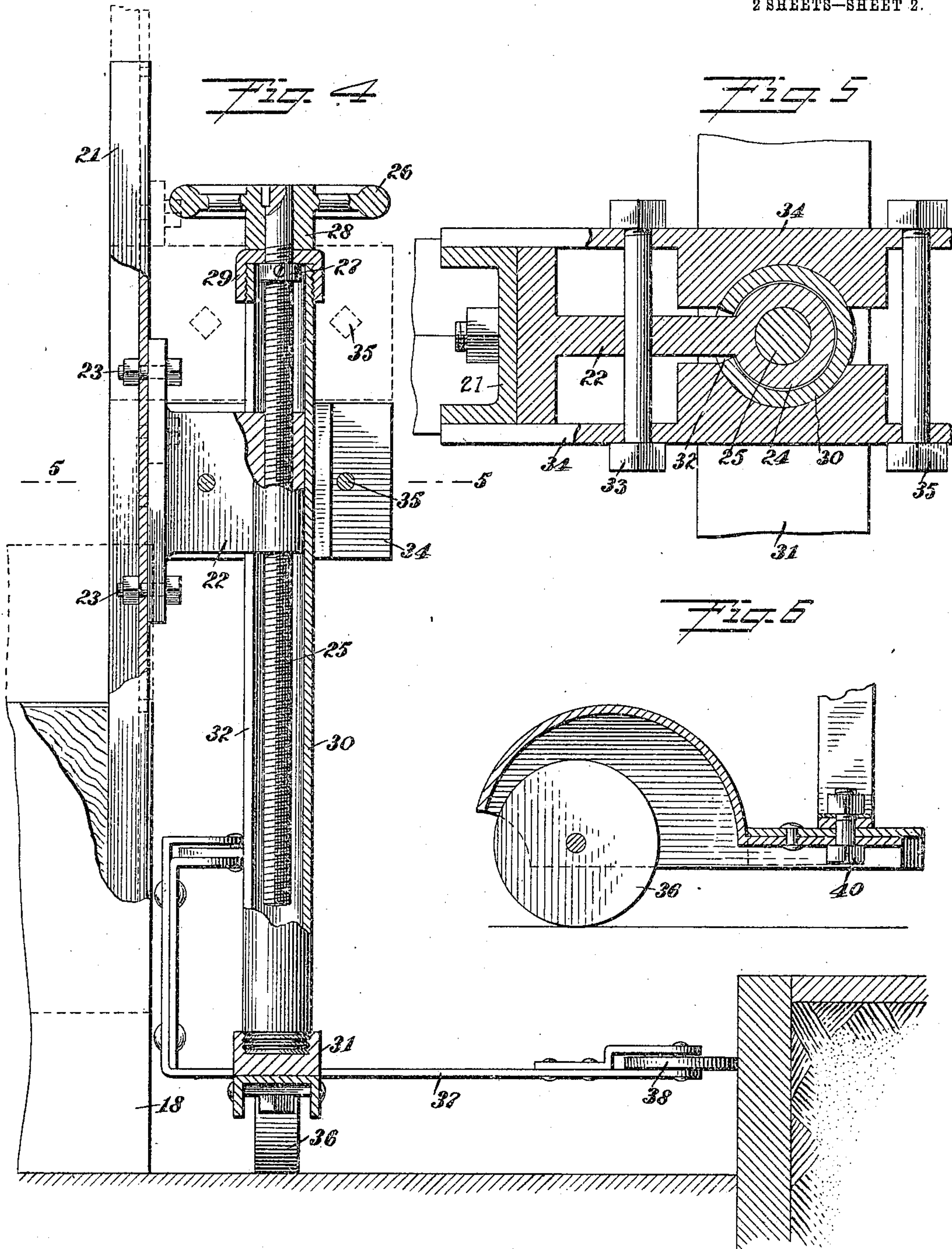
INVENTOR
Patrick Roughen
BY *Munn & Co.*
ATTORNEYS

P. ROUGHEN.
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2 SHEETS—SHEET 2.



WITNESSES
E. G. Bromley
J. P. Davis

INVENTOR
Patrick Roughen
BY Mummolo
ATTORNEYS

UNITED STATES PATENT OFFICE.

PATRICK ROUGHEN, OF FOND DU LAC, WISCONSIN.

STREET-GAGE.

953,490.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed June 5, 1909. Serial No. 500,455.

To all whom it may concern:

Be it known that I, PATRICK ROUGHEN, a citizen of the United States, and a resident of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a certain new and useful Street-Gage, of which the following is a full, clear, and exact description.

The principal objects which the present invention has in view are: to provide a mechanical device to be used as a detector for inequalities in grading of a street pavement; to provide a device of the character specified wherein the height of the crown of a paved street may be mechanically adjusted; to provide a contrivance of the character specified, which is movably and guidably mounted on the street, to be readily shifted over the surface of the street; and to provide a mechanical contrivance for the purpose mentioned, capable of being adjusted to varying street widths.

One embodiment of the invention is disclosed in the construction illustrated in the accompanying drawings, wherein like characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of a gage constructed in conformity with the present invention, showing the same as in operative position on the surface of a street; Fig. 2 is a horizontal section taken on the line 2—2 in Fig. 1; Fig. 3 is a vertical section taken on the line 3—3 in Fig. 1; Fig. 4 is an enlarged detail, partly cut away to show the construction of the adjusting device for setting the gage; Fig. 5 is a horizontal section, taken on the line 5—5 in Fig. 4; and Fig. 6 is a detail view of the mounting and housing of the carrying wheels for the gage.

The gage is built in two sections hingedly secured at 7, the hinge 7 being rigidly mounted upon laterally extended flanges of short masts 8. The masts 8 are formed from the two sections of angle iron, as shown particularly in Figs. 1 and 2 of the drawings. The mast sections are disposed vertically as shown, with one of the flanges of the angle iron from which said sections are formed being extended parallel with forms 9. The remaining flanges are mount-

ed in the manner shown in Fig. 2, where they are brought together back to back, and when in operative position are secured by bolts and nuts 10. One of the two abutted flanges of the masts 8 is provided with an extension 11, to support a tie rod 12, which is secured to the forms 9 by being bolted thereto at 13. When the tie rod 12 is thus bolted into position, and extended over the extension 11, the forms which are secured to the mast sections by bolts 14 are held rigidly in an outstretched position such as shown in Fig. 1 of the drawings. The forms 9 are further secured to the masts 8 by truss rods 15. The rods 15 are bifurcated and secured to the forms by bolts 16, and at the top are passed through eared brackets 17. The brackets 17 may be adjusted lengthwise on the rods 15, so that the tension on the rods may be increased or diminished. This further compensates for any variation in the angle at which the forms 9 are extended from the masts 8. To provide for the variation of the angle of the extension of the forms 9, I increase the size of the bolt holes, or provide a slit if need be, in the forms 9 or in the flange of the mast to which they are secured, and wherein are mounted the bolts 14. I have not shown this construction in the drawings, for the reason that the variation is so slight at this point, as to be practically impossible of illustration in drawings such as accompany the present application.

The forms 9 are inserted within box-like end pieces 18, made from any suitable metal, perforated as at 19 to receive bolts 20, the forms 9 being provided with bolt holes to receive the bolts 20. With such a construction, the end pieces 18 may be extended farther upon, or drawn out from, the forms 9. In practice, I construct the ends about three or four feet in length, which results in adjustable expansion, permissible to the gage, of six or eight feet. I am not limited to the length of the end pieces, and should the extension prove inadequate, I may readily adopt others of greater length. The end pieces 18 are rigidly secured to upright arms 21, upon which are fixedly secured brackets 22 Fig. 4 through a flange of which are

passed bolts 23. The arms 21 are provided with a series of perforations to receive the bolts 23, so that the brackets 22 may be adjusted lengthwise upon the arms 21, thereby
 5 accommodating an extension of the gage members to a greater depth than that illustrated in Fig. 1.

The brackets 22 are provided with an enlarged end 24 Fig. 5 in which is provided a
 10 vertical screw threaded perforation, to receive in threaded engagement, an adjusting screw 25, provided with a hand wheel 26 by which the said screw is turned, and is also provided with a collar 27. The hand wheel
 15 is provided with an enlarged hub 28, and between the hub 28 and the collar 27 the cap 29 of a pipe standard 30 is held. The pipe standard 30 is constructed from suitable piping, and is threaded at the top and bottom as
 20 shown particularly in Fig. 4 of the drawings.

At the top the threads receive the cap 29, while at the bottom they are inserted within
 25 a screw threaded perforation in a truck bar 31. Each pipe standard 30 is of an internal diameter such as will neatly fit the enlarged end 24 of the bracket 22, and is slotted lengthwise to pass the web of the bracket 22, said slot being shown in Figs. 4 and 5, where
 30 it is indicated by the numeral 32.

When the screw 25 is in threaded engagement with the bracket 22, as shown in Fig. 4 of the drawings, wherein the hub 28 rests upon one side of the cap 29, and the collar
 35 27 is secured rigidly to the screw 25 on the under side of the cap 29, any movement on the part of the screw 25 causes the bracket 22 to rise or fall in the standard 30, to rest upon the surface of the street. The weight
 40 of the forms 9 is carried upon the brackets 22 and the screws 25. Mounted upon the brackets 22 by means of bolts 33, are the clamping jaws 34 provided with solid body portions formed to fit snugly over the pipe
 45 standard 30. At the outer extremity the clamping jaws 34 are held in operative relation by bolts 35.

The operation of the clamping jaws 34 and the bolts 33 and 35 is as follows: When
 50 adjusting the forms to the grade furnished by the engineers, the screw 25 has been turned to cause the bracket 22 to travel up or down on the standard 30, and having arrived at the proper height, the bolts 33 and
 55 35 are drawn taut by the nuts with which they are provided, causing the body portions of the clamps 34 to bind hard upon the standard 30 and the sides of the arms 21, and thus render it impossible or exceedingly
 60 difficult to shift the position of the said arms, and the standard 30. A slight turn, or at most two turns, of the nuts upon these bolts, will at any time release the clamp upon the standard 30 sufficiently to permit the

screws 25 to be rotated to raise or lower the
 65 arms 21 and the forms 9.

The truck bar 31 is extended transversely to the stretch of the forms 9 and is provided with rollers 36, mounted in the extreme ends
 70 of the truck bars 31. The rollers 36 are so disposed that they travel lengthwise of the street being graded.

With the gage thus constructed and mounted, it will be seen that it may be moved lengthwise of the street upon the
 75 rollers 36 with ease.

Extended crosswise from the truck bars 31 are fender bars 37 provided with rollers 38, pivotally mounted in the outer end thereof. The fender bars 37 are suitably pro-
 80 vided with a series of bolt holes 39, through which a bolt 40 passes, and by which the fender bars are secured to the truck bars 31. By means of these series of holes, the fender bars 37 may be adjusted to lengthen
 85 or shorten their projection from the truck bars 31. The fender bars 37 are each provided with a vertical extension 41, horizontally extended from which is a wheel 42. By this construction, should the gage line
 90 be set back of a guide member, the fender bars 37 may be placed over the guide members and the wheels 42 rest against the back of said guide member.

The outer sides of the standard 30 are
 95 provided with gage markings 43, by means of which the engineer in charge may set his instructions so that the mechanic in charge of the grading being done upon the street,
 100 can readily adjust the standards 30, to comply with the specifications of the engineer.

A feature in the present construction which has been worked out carefully is to provide a construction which may be readily and quickly knocked down. The masts
 105 8 may be disconnected from the forms 9 by removing the bolts 14 and the brackets 17. The tie rod 12 is removed from the forms by releasing the bolts 13 and the truss rods 15 are removed from the forms by releas-
 110 ing the bolts 16. The forms are withdrawn from the end pieces 18 by removing the bolts 20 and withdrawing them from the said end pieces. In this condition, the masts 8 and the rods 15 and 12 and the two forms
 115 9 are in a separated condition and may be packed together. The end pieces 18 are dismantled by withdrawing the standard 30 from engagement with the bracket 22, which is accomplished by removing the cap 29
 120 from the said standard. The knockdown condition of the end pieces 18 would, in this condition, leave the truck bar 31 and the parts connected therewith, including the standard 30, in one part, while the ends 18
 125 with the arms 21 would constitute the other part.

With an apparatus constructed as herein

described, and as shown in the accompanying drawings, the operation is as follows: The form having had mounted thereon the end pieces 18 and connected parts, having been suspended from the masts 8, as shown in Fig. 1 of the drawings, the end pieces 18 are adjusted laterally on the forms 9 until the wheels 38 on the fenders 37 strike against the curb, or guiding member marking the full width of the street. In this position, the apparatus is moved along the length of the street, the forms 9 constituting the gage for the surface thereof. If the gage is to be used to determine the thickness of the pavement, this is accomplished by setting the forms up on the standards 30 to the required thickness for the body of the pavement, it being presumed that the wheels 35 are tracking in the gutter, or on the foundation of the pavement. As the apparatus is moved from point to point over the surface of the pavement, it is easy to detect any areas which are out of true.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A street gage, comprising truck members mounted upon wheels adapted to be moved lengthwise of the street and at either side thereof, forms hingedly connected to each other adapted to extend across the said street and to be connected with said truck members, and adjustable connections for said hinged members to said truck members, for regulating the height of the said hinged members.

2. A street gage, comprising truck members mounted upon wheels adapted to be moved lengthwise of the street and at either side thereof, means for guiding the said truck members with relation to the street curb, forms hingedly connected to each other adapted to extend across the said street and to be connected with said truck members, and adjustable connections for said hinged members to said truck members for regulating the height of the said hinged members.

3. A street gage, comprising truck members mounted upon wheels adapted to be moved lengthwise of the street and at either side thereof, adjustable means for guiding the said truck members with relation to the street curb, said means being adjustable to vary the distance of the said truck from the said curb, forms hingedly connected to each other adapted to extend across the said street and to be connected with said truck members, and adjustable connections for said hinged members to said truck members, for regulating the height of the said hinged members.

4. A street gage, comprising truck members mounted upon wheels adapted to be

moved lengthwise of the street and at either side thereof, fender bars for guiding the said truck members with relation to the street curb, said fender bars being reversible to contact with the curb on the inner or outer side thereof, forms hingedly connected to each other adapted to extend across the said street and to be connected with said truck members, and adjustable connections for said hinged members to said truck members, for regulating the height of the said hinged members.

5. A street gage, comprising truck members mounted upon carrying wheels adapted to be moved lengthwise of the street and at either side thereof, forms hingedly connected to each other adapted to extend across said street to be connected with said truck members, a vertical mast mounted on said form intermediate the ends thereof, truss rods connected to the upper portion of said extension and the outer ends of the said hinged members, and means for fastening the said hinged members in the extended position.

6. A street gage, comprising truck members mounted upon wheels adapted to be moved lengthwise of the street, and at either side thereof, forms hingedly connected to each other adapted to extend across said street to be connected with said truck members, a vertical mast mounted on said form intermediate the ends thereof, supporting members connected to the upper portion of said extension and the outer ends of the said hinged members, and a tie rod connected to said hinged members in the outer end thereof and extended across a lateral extension of the said hinged members at their hinge connection.

7. A street gage, comprising truck members mounted upon carrying wheels, adapted to be moved lengthwise of the street, and at either side thereof, box-like end pieces mounted on said truck members, forms hingedly connected to each other and extended between the said end pieces and adjustably connected therewith, and means for retaining the said forms and end pieces in adjusted position.

8. A street gage, comprising forms hingedly connected each to the other, a vertical mast mounted on said forms at the hinged joint thereof, truss rods connected at the ends of the said forms removed from the hinged connection with the said vertical mast, carrying trucks for said gage arranged to track at the sides of the street, end pieces adjustably mounted on said trucks and provided with perforations longitudinally arranged, and connecting means adapted to extend through the said perforations to connect the said end pieces and forms.

9. A street gage, comprising truck mem-

bers mounted on carrying wheels, arranged to track lengthwise of the street and at either side thereof, lateral extensions mounted on said truck members and having horizontally
5 extended wheels to bear against the side of the curb of the said street, end pieces adjustably connected to said trucks, forms hingedly connected to each other arranged to extend across the said street when extended,
10 and adjustably connected with said end pieces, and means for holding the said forms and end pieces in locked relation.

10. A street gage, comprising a plurality of forms hingedly connected, arranged to extend when unfolded across the street being
15 graded, a vertical mast near the hinge of said forms, truss-rods connecting the said vertical mast and the outer ends of said forms to partly support said ends from said
20 vertical mast, truck members mounted upon carrying wheels arranged to move lengthwise of the street and at either side thereof,

and means for holding the said forms on the said truck members in locked relation thereto.

25 11. A street gage, comprising trucks mounted upon wheels adapted to be moved lengthwise of the street and at either side thereof, a plurality of forms hingedly connected to each other extended between the said trucks,
30 end pieces adjustably mounted upon said forms and at the outer ends thereof to vary the length thereof, adjustable connections for the said end pieces with the said trucks, and indicators fixedly mounted on said
35 trucks to register with the said end pieces.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PATRICK ROUGHEN.

Witnesses:

WILLIAM J. RYAN,
F. F. DAFFY.