

(No Model.)

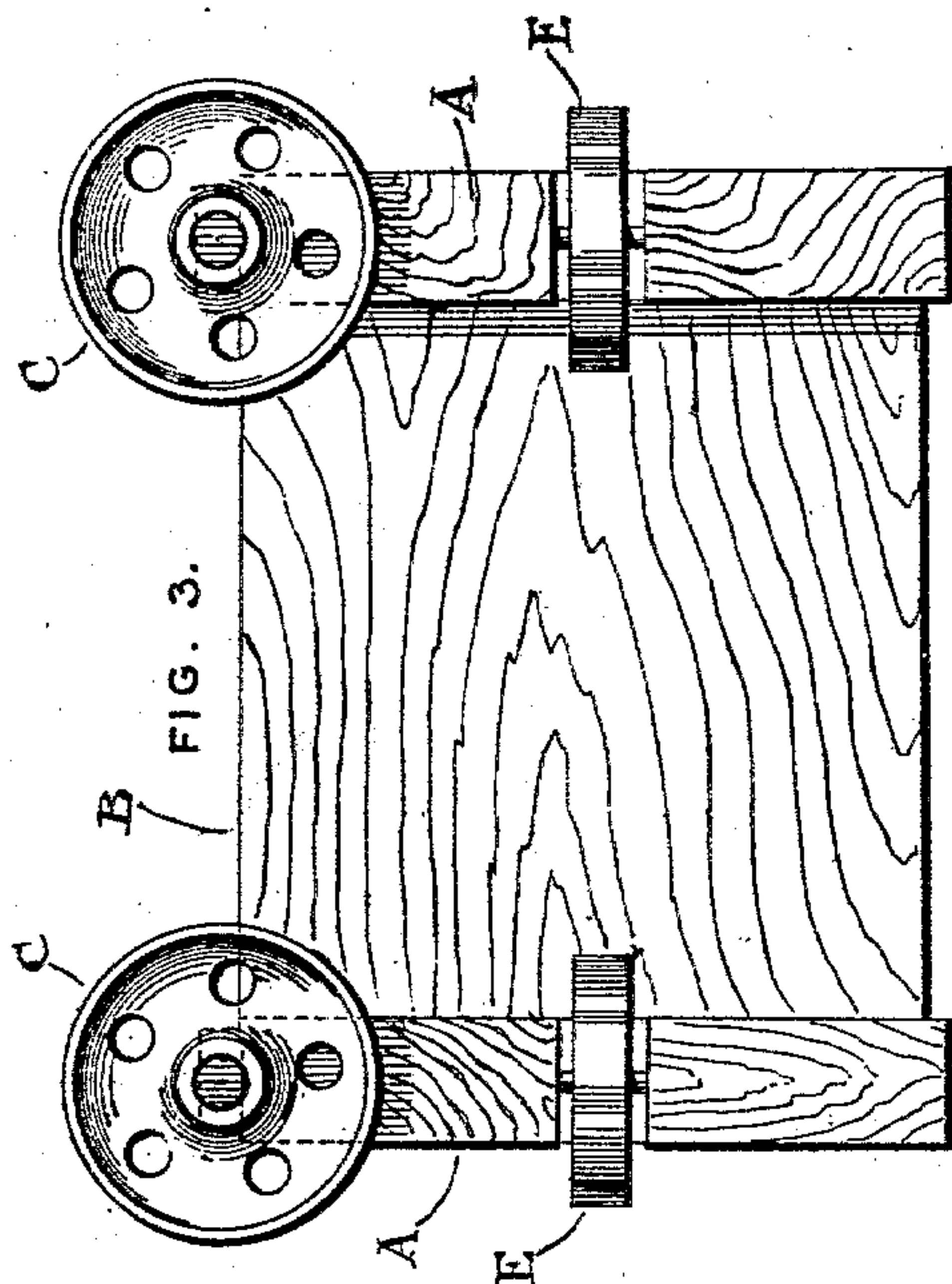
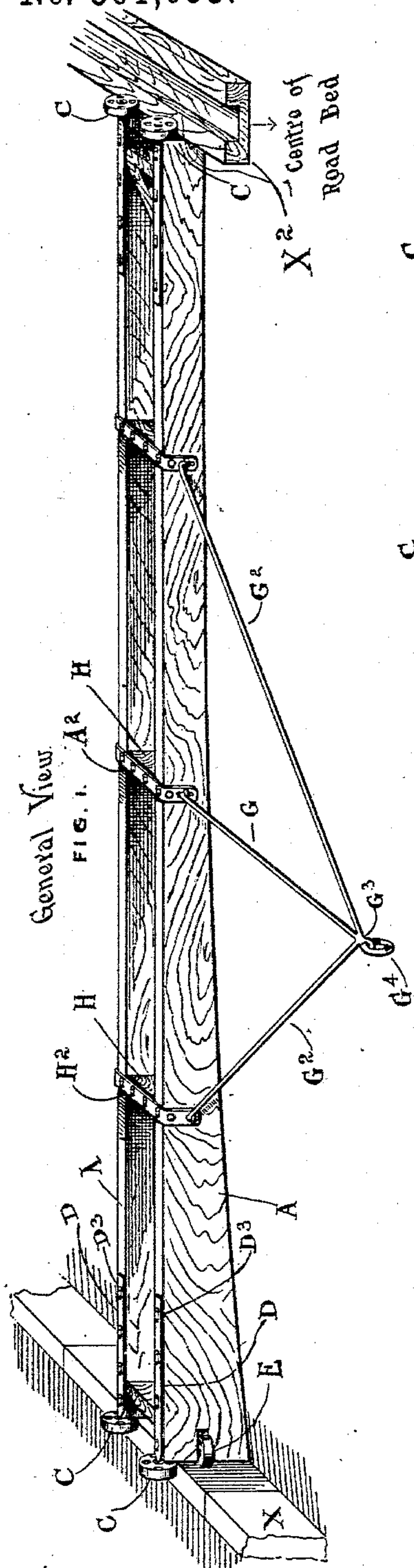
3 Sheets—Sheet 1.

D. A. WALKER.

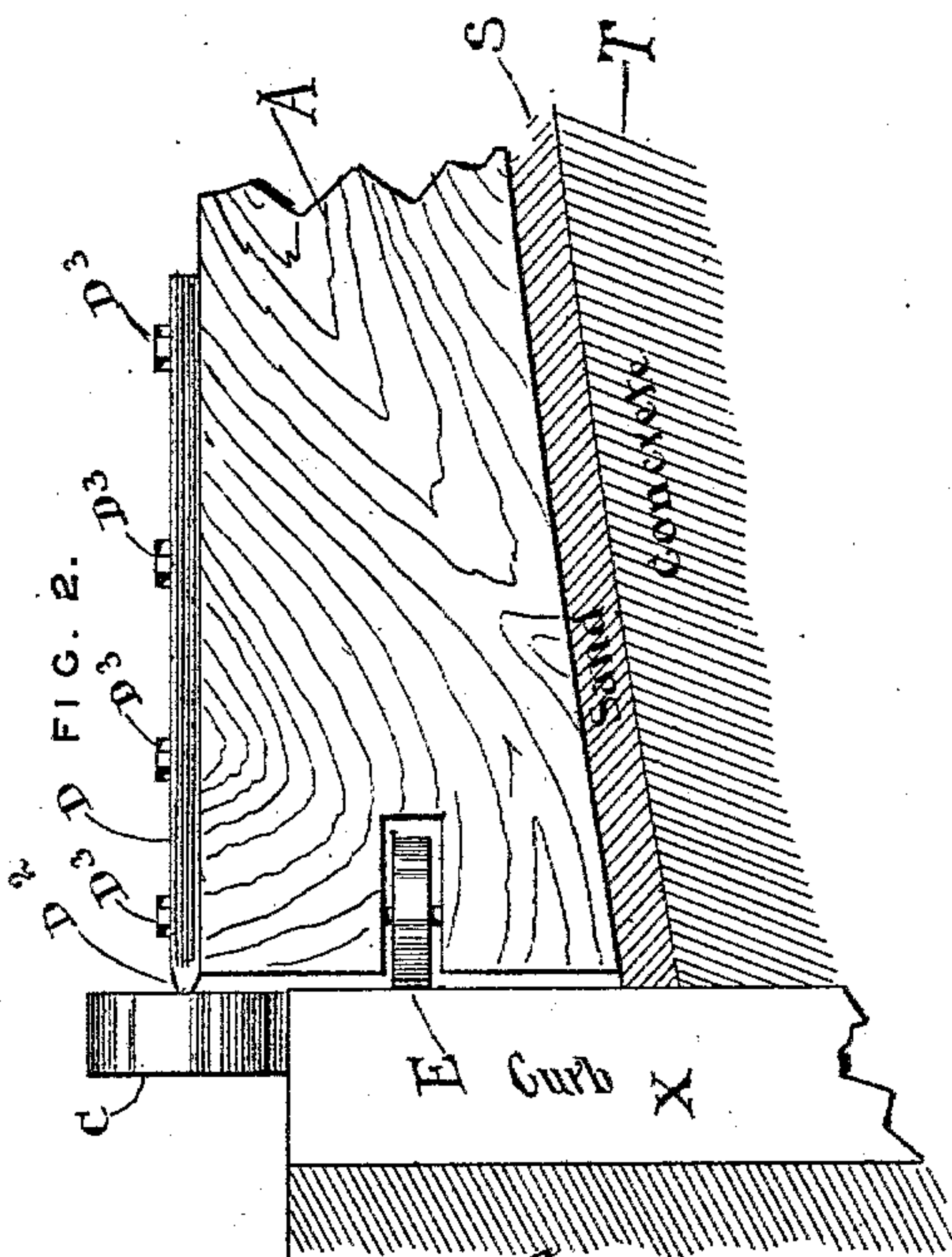
MACHINE FOR SHAPING SURFACES OF ROAD BEDS.

No. 561,633.

Patented June 9, 1896.



Plan of Ends.



Witnesses  
J. C. Lemon  
H. Smith.

Inventor  
David Addison Walker  
per Wm. Hubbell Fisher,  
Attorney

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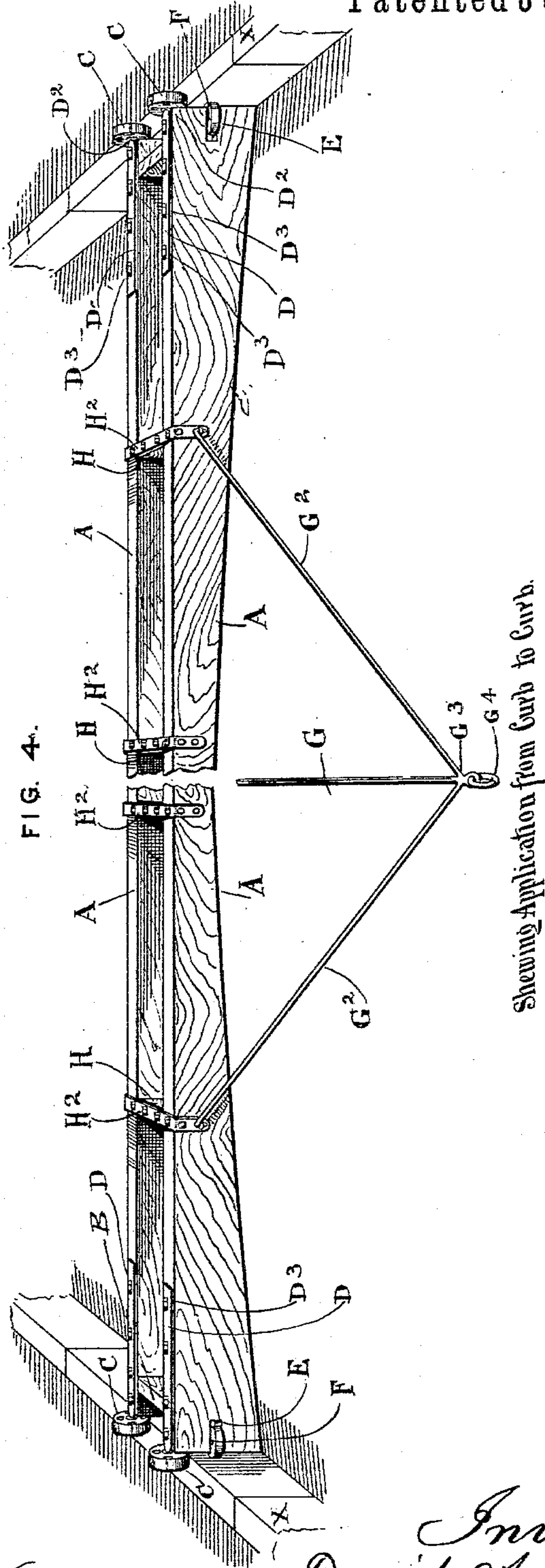
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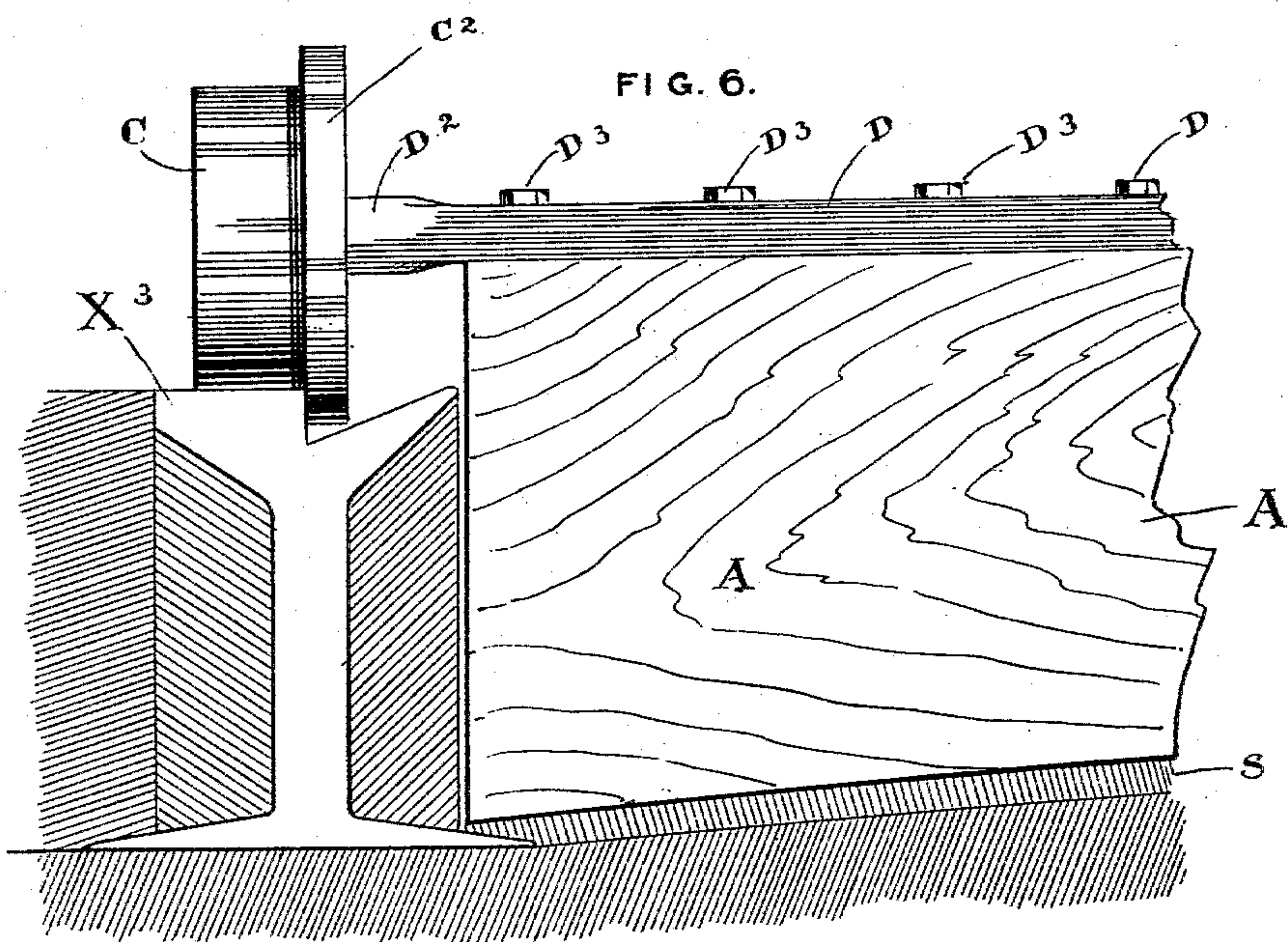
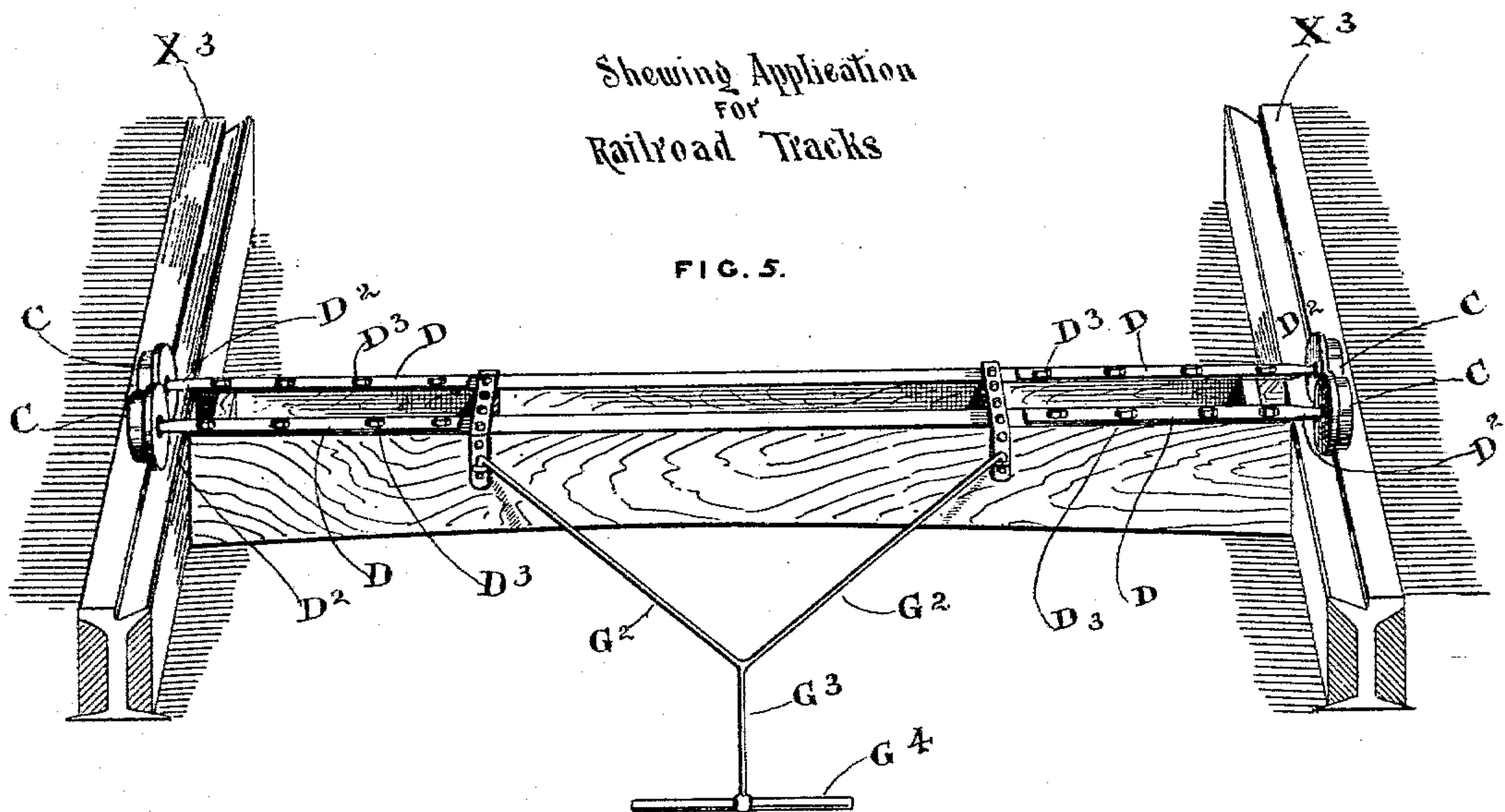
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# UNITED STATES PATENT OFFICE.

DAVID ADDISON WALKER, OF CINCINNATI, OHIO.

## MACHINE FOR SHAPING SURFACES OF ROAD-BEDS.

SPECIFICATION forming part of Letters Patent No. 561,633, dated June 9, 1896.

Application filed July 2, 1894. Serial No. 516,275. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID ADDISON WALKER, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Machine for Shaping the Surface of Street-Beds and Road-Beds in the Process of Constructing the Street or Road, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use, conjointly or otherwise, will be apparent from the following description and claims.

In the accompanying drawings, making a part of this application, and in which similar letters of reference indicate corresponding parts, Figure 1, Sheet 1, is a front view in perspective of a machine, illustrating my invention and adapted for use in a street from a curb to the middle (center) of the street. Fig. 2, same sheet, is an enlarged elevation of one end of the said machine and showing in section a part of a street-pavement in process of construction. Fig. 3, same sheet, is a plan or elevation of either one of the ends of the machine shown in Fig. 1. Fig. 4, Sheet 2, is a view in perspective of a machine embodying my invention and illustrating the application of my invention in a machine extending across the street from curb to curb. Fig. 5, Sheet 3, shows in perspective the mode in which my invention can be applied with the best advantage to form the road-bed between the railroad-tracks at the desired level and height. Fig. 6 is an enlarged view, partly in elevation, partly in section, and illustrating the mode in which my machine shown in Fig. 5 operates.

I will now more particularly describe my invention.

Where there are no tracks or rails in the street, the machine shown in Figs. 3 and 4 is the one preferred.

A and A<sup>2</sup> indicate parallel beams, located edged downward and united together near each end by the respective cross bridge-pieces B B. This structure A A B B is supported at each end on wheels or rollers C C, adapted to roll upon the top of the adjacent curb X. These wheels are suitably connected to the structure or forming part A A<sup>2</sup>. The preferred means are the iron bars D, bolted as

shown at D<sup>3</sup>, the top of the beams A A<sup>2</sup> extending in the form of axles D<sup>2</sup> over the curb. On these axles, respectively, run the rollers C.

To avoid friction and to prevent the ends of the beams from scraping against the curbs, to which each is respectively adjacent, the horizontal rollers E are present, and each rotates on its vertical axle or spindle F. It will be understood that each roller projects somewhat beyond the adjacent end of the beam to which it is connected.

Means for the traction of the machine are provided. A preferred description of such means is shown, and consists of the mid-traction bar G, fastened to the beams A A at their mid-length, and the oblique traction bars or rods G<sup>2</sup> G<sup>2</sup>, connected at their rear ends to their respective sides of the beams almost midway between the mid-length of the beam and the end of the latter. All of these bars G G<sup>2</sup> G<sup>2</sup> converge and are connected together at a point, as G<sup>3</sup>, at a distance in front of the beams A A. In Fig. 4 of the drawings the connection of the central traction to the beams is to be understood, because the beams are centrally broken away and approximated to bring their ends and the curbs of the street within the limits assigned for the drawing.

Between the end bridging B B intermediate bridging-pieces H are present between the beams A A, and iron straps, as H<sup>2</sup>, bolted to these bridging-pieces H and to the beams A A, substantially as shown, secure the beams and bridging firmly together in one compact whole. At the junction G<sup>3</sup> of the traction-bars G G<sup>2</sup> G<sup>2</sup> is located a ring G<sup>4</sup> or a handle. Traction-power is here applied. The lower edges or bottoms of the beams are shaped alike, and in the same plane at any given point on a line running parallel to the length of the street. The shape or contour of the bottoms of the beams A will correspond to that of the street to be made. Inasmuch as streets are ordinarily higher in the middle than at the curb the beams will usually be concave at their lower edge. The higher the crown of the street the more concave will be the beams.

In practice the height of the crown of the street above its height at the curb will vary from one to six inches. The depth of the bar (vertically) is sufficient to reach down to the



point where the leveling is to be done by the machine.

I will now describe the operation of my invention.

5 Where the pavement consists, first, of a sub-  
foundation of concrete, secondly of a layer of  
sand superimposed thereon, and, lastly, of  
vitrified brick or granite blocks or the like  
set on this sand. The sand or equivalent  
10 bedding is then laid upon the concrete. My  
machine is then pulled over the sand. The  
rollers C C rest on the top of the curb and  
the rollers E E each revolve against the inner  
side of the adjacent curb. The lower edge  
15 of the front beam A forces all superfluous  
sand before it and reduces the sand every-  
where to the proper height for laying thereon  
the stone or brick blocks wherewith the street  
is to be paved. The upper surface of the  
20 sand or equivalent substance here laid on  
will then have substantially the shape or con-  
formation shown in Fig. 2, and this will be  
the fact, although the upper surface of the  
concrete below the sand is uneven and does  
25 not carry out the proper curve—viz., the curve  
the upper surface of the street is to assume.  
To thus shape the upper surface of the sand,  
&c., in readiness for the paving to be set  
thereon is with my machine the work of only  
30 a few minutes. Heretofore such shaping has  
been done in pieces by means of what is  
known as a "loop," a small instrument doing  
but a portion of the width of the street at a  
time, and compelling frequent retractions of  
35 the loop over the same place and over the  
joining spaces between this place and others  
run over with the loop. The work accom-  
plished by the loop is also less symmetrical  
than that accomplished by the use of my in-  
40 vention.

I will now describe the other machines  
made according to my invention.

In Fig. 1 is shown a machine adapted to  
shape the surface of the street bedding or  
45 layer S for one-half the width of the street at  
a time—viz., between the curb and the cen-  
ter of the street. In this instance the wheels  
C C of one end rest upon the curb X and the  
horizontal wheels E rest against the side of  
50 the curb. At the center of the street I lay  
down a temporary center beam or rail X<sup>2</sup>.  
This latter is preferably of iron. Upon this  
rail run the adjacent vertical wheels C C of  
the machine, and against the side of this beam  
55 run the horizontal wheels E E. (Not seen in  
Fig. 1 because hidden by the beam X<sup>2</sup>.) As  
fast as one portion of the street is shaped the  
beam is advanced along the center of said  
street and the machine again moved forward.  
60 The other side of the street is duly shaped in  
like manner.

Fig. 5 illustrates a machine adapted to form  
the surface of the street between rails I of a  
track. In such a case the rollers C may have  
65 flanges C<sup>2</sup> and the end horizontal rollers be  
omitted, the flanges of the wheels C keeping

the ends of beams A at a proper distance  
from the track-supports. A similar device  
can be used between adjacent rails of two  
parallel street-tracks. Inasmuch as these 70  
machines do not differ in principle nor sub-  
stantially in detail of construction from that  
shown in Fig. 4, already described, I dismiss  
further description of them with the observa-  
tion that the bottom surface of the beams A 75  
of each one is formed so as to properly shape  
that portion of the street for which they are  
especially designed.

The application of my invention is quite  
wide and farther reaching than heretofore 80  
indicated. One instance of this is in relation  
to asphalt. Where the latter substance is to  
form the upper surface of the pavement, my  
machine is successfully employed to form its  
uppersurface. The asphalt when first laid and 85  
spread down on the foundation is of a gran-  
ular nature. Then my machine is quickly  
drawn over it and at once shapes it, so that  
no further labor is required in shaping it, and  
it (the pavement) is ready after the proper 90  
time in which the asphalt will harden has  
elapsed for the heavy roller to be applied.

Where the street or road-bed to be shaped  
has no curbs, temporary rails may be em-  
ployed in lieu thereof. 95

The length of the beam or beams A may  
vary.

Where there is a street-track or there are  
street-tracks, the curb may be utilized at one  
end of the beam A and also the track-rail 100  
nearest the other end of the said beam for  
supporting the rollers on wheels C.

Instead of two beams A A there may be one  
large single beam A; but the latter construc-  
tion is likely to be unwieldy and is obviously 105  
not so mechanically excellent as the com-  
pound construction shown in the drawings.

Under the title "traction power" is in-  
cluded the drawing of the device by hand or  
by horse, or by steam-engine or the traction- 110  
motor, &c.

What I claim as new and of my invention,  
and desire to secure by Letters Patent, is—

1. A machine for shaping road and street  
beds, consisting of the piece A, having its 115  
bottom conformed to the curve which the sur-  
face street in cross-section is to have, and pro-  
vided at its ends with vertical rollers C, and  
with the horizontal rollers E, substantially as  
and for the purposes specified. 120

2. A machine for shaping road and street  
beds, consisting of the piece A having its  
bottom conformed to the curve which the sur-  
face street in cross-section is to have, and pro-  
vided at its ends with vertical rollers C, and 125  
with the horizontal rollers E, and with con-  
nected means for moving it along, substan-  
tially as and for the purposes specified.

3. In a machine for shaping the surface of  
the road or street bed, the beam A having at 130  
each end the vertical rollers C and horizontal  
rollers E, and adapted to make the curb or



curbs of the street guideway and support of the beam, roller C being located on the curb, and the lower edge of the piece A being sufficiently deep below the top of the curb to reach and shape the portion S of the street being paved, substantially as and for the purposes specified.

4. In a machine for shaping a road-bed, the beams A, A, and intervening bridgings B and the metal pieces D, secured to the beams and each terminating in an axle D<sup>2</sup>, carrying a wheel or roller C, substantially as and for the purposes specified.

5. In a machine for shaping a road-bed, the beams A, A, and intervening bridgings B and the metal pieces D, secured to the beams and each terminating in an axle D<sup>2</sup>, carrying a wheel or roller C, each end of a beam A carrying a horizontal roller E, substantially as and for the purposes specified.

6. In a machine for shaping a road-bed, the beams A, A, and intervening bridgings B and the metal pieces D, secured to the beams and each terminating in an axle D<sup>2</sup>, carrying a wheel or roller C, and the strap-pieces H, and

draft irons or pieces as G, G<sup>2</sup>, substantially as and for the purposes specified.

7. In the construction of a road or street bed, having curbs, the following apparatus, the beam A whose length is a part of the width of the street and provided at each end with the supporting-wheels C and horizontal wheels E, and the shiftable temporary rail X<sup>2</sup>, substantially as and for the purposes specified.

8. In a machine for shaping road and street beds, the portion A having its under side conforming to the shape of the street to be made, and provided at each end with vertical rollers for supporting the portion A, and also provided at one end with the horizontal roller E for abutting against the structure or support upon which the adjacent vertical wheel rolls and thereby avoiding friction with said support, substantially as and for the purposes specified.

• DAVID ADDISON WALKER.

Attest:

A. S. LUDLOW,  
K. SMITH.