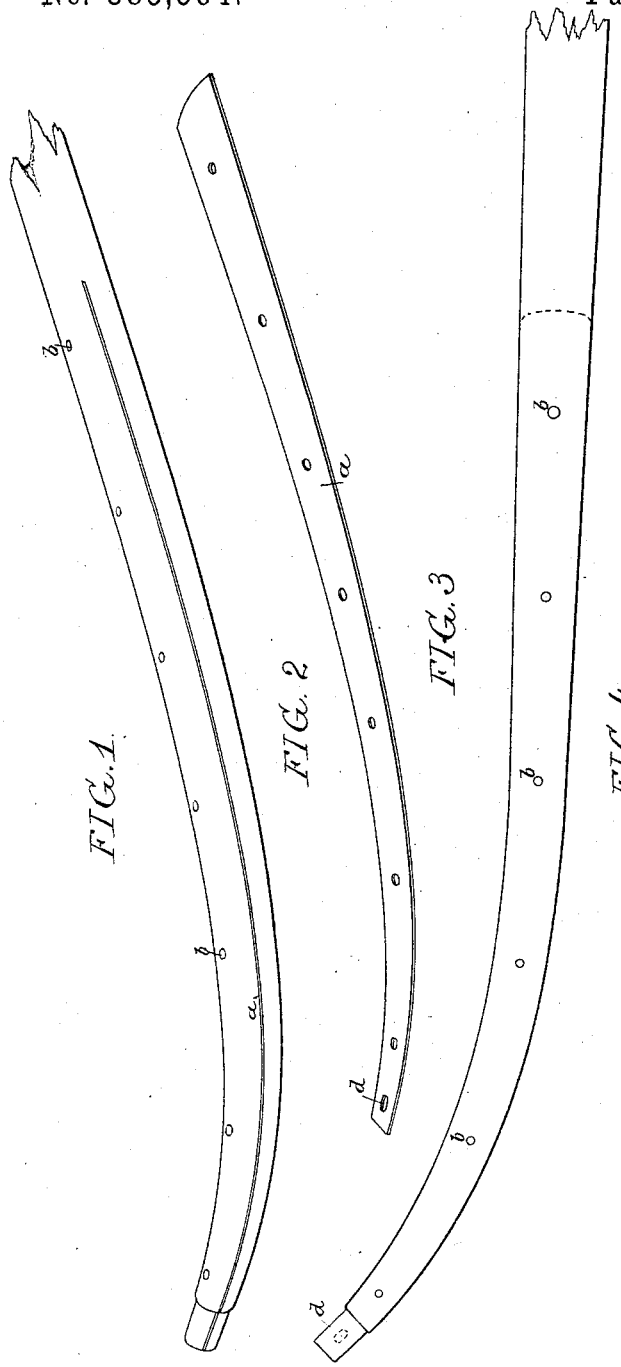
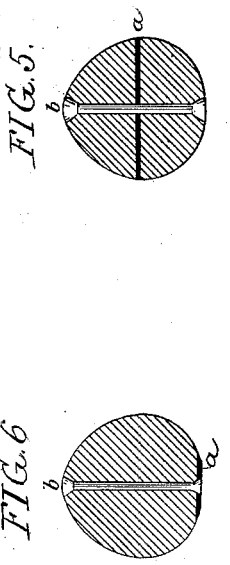
(No Model.)

G. F. McGILL.

VEHICLE SHAFTS.

No. 385,564. Patented July 3, 1888.





Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE F. McGILL, OF CAMDEN, NEW JERSEY.

VEHICLE-SHAFT.

SPECIFICATION forming part of Letters Patent No. 385,564, dated July 3, 1888.

Application filed March 1, 1888. Serial No. 265,815. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. McGILL, a citizen of the United States, and a resident of Camden, Camden county, New Jersey, have invented certain Improvements in Vehicle-Shafts, of which the following is a specification.

The object of my invention is to so stiffen the bent outer end of a vehicle-shaft as to prevent the same from straightening, the stiffening device being such as not to add any undue amount of weight to the end of the shaft or to materially stiffen the same in any other direction than that in which it is bent. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the bent outer portion of a vehicle-shaft with stiffening device applied thereto in accordance with my invention. Fig. 2 is a perspective view of the stiffening-plate removed from the shaft. Fig. 3 is a plan view of the outer portion of the shaft. Fig. 4 is a side view of the same. Fig. 5 is a transverse section on an enlarged scale on the line 1 2, Fig. 4; and Fig. 6 is a like view illustrating a modification of the invention.

The wooden shafts of vehicles usually have their outer ends bent or flared outwardly, as shown in Figs. 1 and 2; but these bent ends straighten out after a time, so that they come in contact with the collar when that forms part of the harness, or they have a tendency to strike the fore quarters of the horse, especially when, as in the case of a trotting-sulky, the shafts are girded closely to the sides of the horse; hence it is advisable to stiffen this outer portion of the shaft to prevent such straightening of the same. Attempts have been made to effect this object by cutting in the shaft a vertical slot extending from the outer end inward as far as the bent portion extends, a metal stiffening-plate being then inserted and secured in this slot by means of suitable bolts. This plan is objectionable, however, because the plate offers only a flatwise resistance to the straightening tendency of the shaft; hence if the plate is thin this resistance is easily overcome and the plate itself is straightened with the shaft, while if, on the other hand, the plate is made so thick as to possess sufficient rigidity to prevent the straightening of the shaft, its weight is extremely objectionable, especially in such shafts as those of trotting-sulkies and other light vehicles.

In carrying out my invention, therefore, I form in the outer bent portion of the shaft a horizontal slot, preferably about midway between the bottom and top of the shaft and extending back from the end of the same some distance beyond the bent or curved portion, to which slot is fitted a plate, *a*, of the same shape as that portion of the shaft to which it is applied, this plate being secured in position by vertical bolts or pins *b*, located at suitable distances apart. By this means the edgewise resistance of the plate is opposed to any straightening tendency of the shaft, and as the plate is confined above and below, so that it cannot buckle, the straightening of the shaft is effectually prevented, as such straightening cannot be effected without tearing out the bolts *b*. The plate *a*, moreover, may be extremely light and thin, so that the slight addition to the weight of the shaft caused by its use will not be objectionable, even to the lightest class of vehicles.

The vertical flexibility of the shaft is not materially affected, however, by the use of my improved stiffening-plate; hence there is no more likelihood of the breaking of the outer portion of the shaft when it is stepped upon by the horse than in an ordinary wooden shaft.

When my improved stiffening-plate is used, the coverings of textile material with which the outer ends of the shafts are sometimes provided may be omitted, although the usual leather sheathing is preferably employed, as this covers and protects the edges of the plate.

Near the outer end of the plate is preferably formed a slot, *d*, as shown in Fig. 2, through which slot passes the screw or pin whereby the metallic tip or cap at the end of the shaft is held in place thereon.

Although I prefer to slot the shaft, as above described, for the reception of the stiffening-plate, the latter may be secured to the bottom of the shaft in some cases—as shown, for instance, in Fig. 6.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. The combination of the laterally-bent outer portion of a vehicle-shaft with the stiffening-plate secured thereto and having the same contour as the bent portion of the shaft, said plate being placed horizontally, whereby it opposes an edgewise resistance to the straightening of the shaft, all substantially as specified.

2. The combination of the shaft having a laterally-bent outer portion with horizontal slot therein, a stiffening-plate fitted to said slot, and bolts or like fastenings for securing said plate, all substantially as specified.

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

GEO. F. McGILL.

Witnesses:

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