

(No Model.)

G. S. STRONG

LOCOMOTIVE.

No. 261,061.

Patented July 11, 1882.

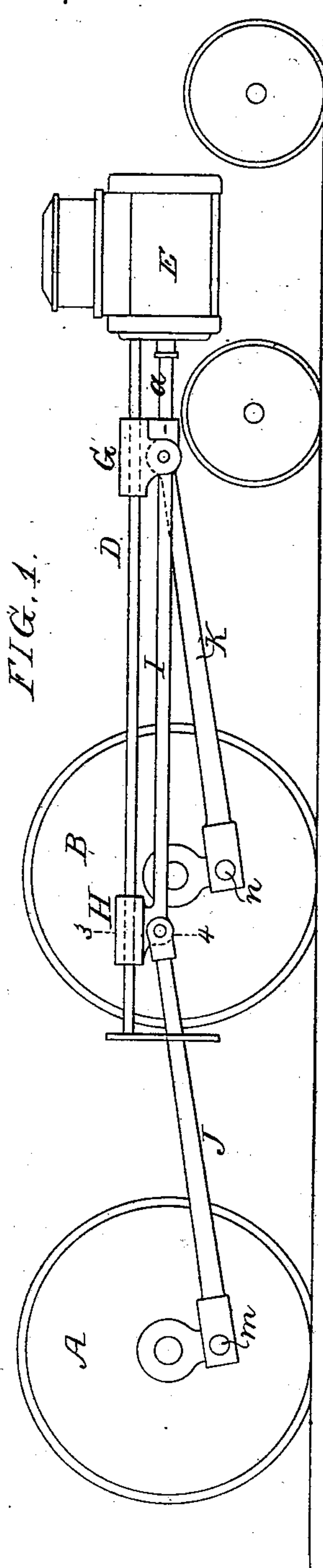


FIG. 1.

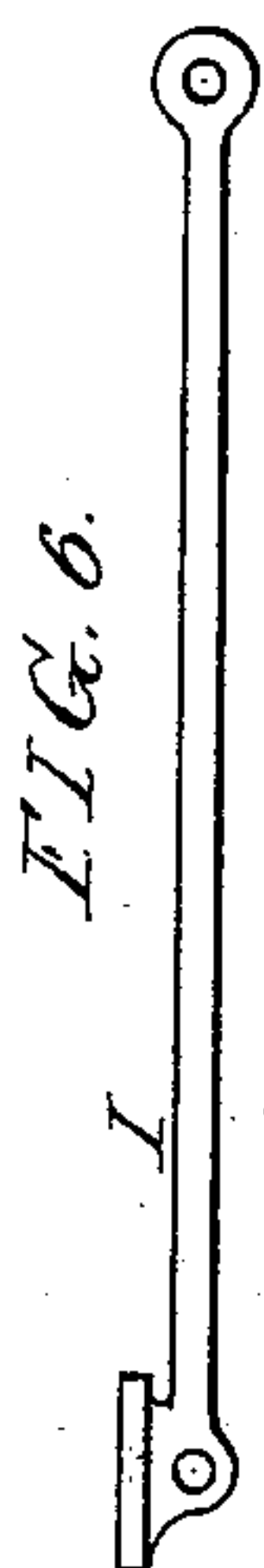


FIG. 6.

FIG. 4.

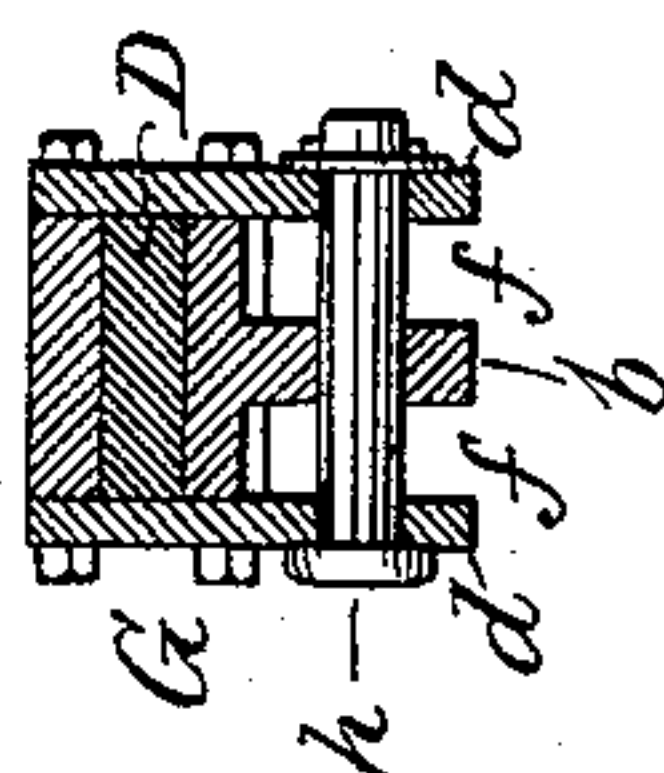


FIG. 3.

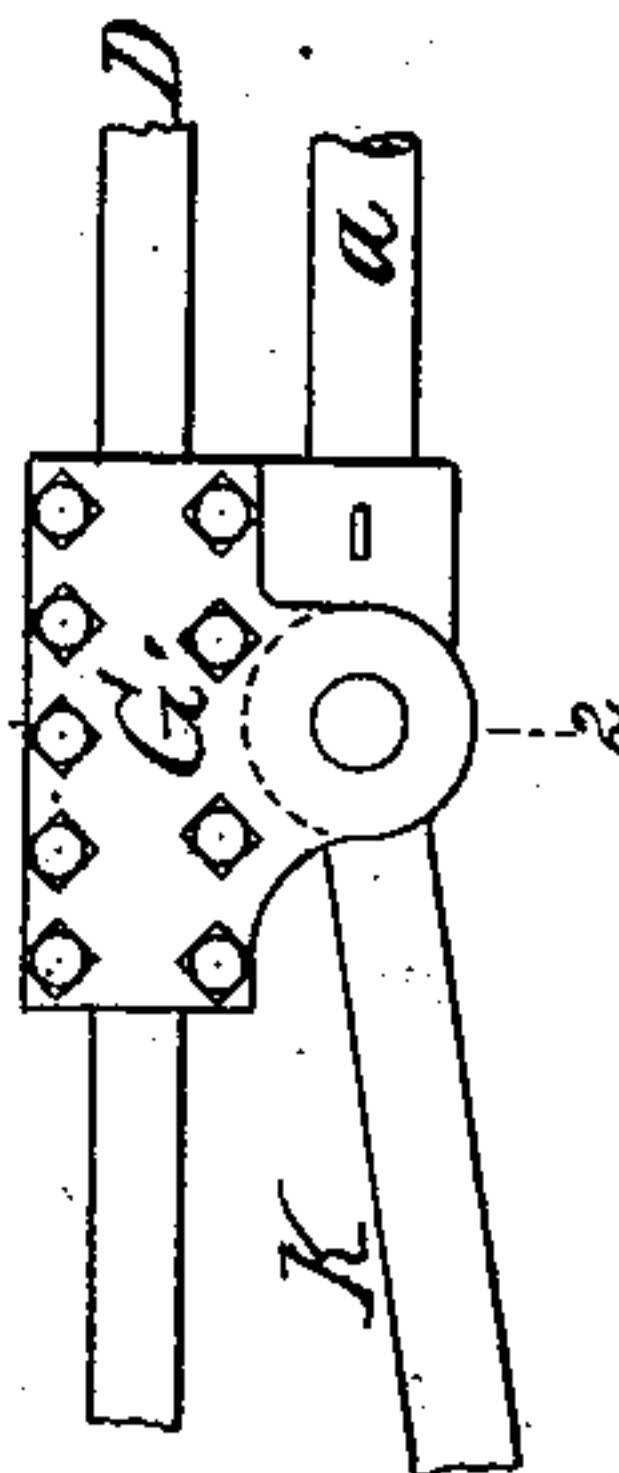


FIG. 5.

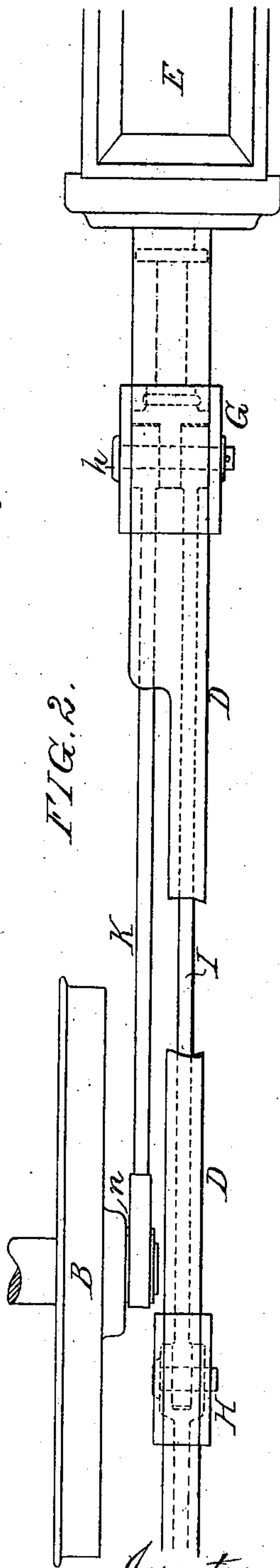
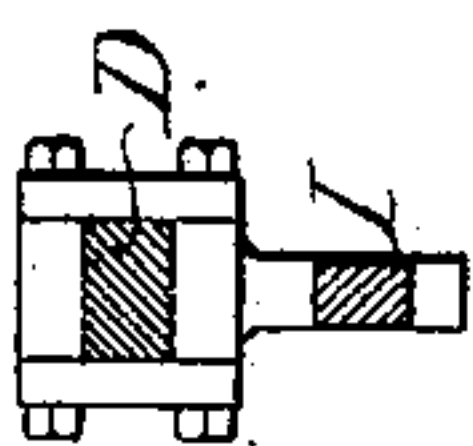


FIG. 2.

Witnesses:
James F. Tobin
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by his Attorneys,
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UNITED STATES PATENT OFFICE.

GEORGE S. STRONG, OF PHILADELPHIA, PENNSYLVANIA.

LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 261,061, dated July 11, 1882.

Application filed March 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. STRONG, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented an Improvement in Locomotives, of which the following is a specification.

My invention relates to locomotives having coupled driving-wheels; and the object of my invention is to obviate the well-known evils due to ordinary coupling-rods.

In the accompanying drawings, Figure 1 is a side view of sufficient of a locomotive to illustrate my invention; Fig. 2, a plan view, drawn to a larger scale, of part of Fig. 1; Fig. 3, a side view of one of the cross-heads; Fig. 4, a transverse section on the line 1 2, Fig. 3; Fig. 5, a transverse section of the other cross-head on the line 3 4, and Fig. 6 a detached view of the rod which connects the two cross-heads together.

In locomotive-engines having coupled drivers the two driving-wheels on each side of the engine are coupled together by a rod connected to the crank-pins of the two wheels, and this coupling-rod is always in a horizontal position. Accidents frequently occur owing to the rapid descent of the entire rod and to the abrupt arresting of the rod when the crank-pins reach their lowest points. The frequent breakage of coupling-rods is due to the shocks and strains to which they are thus subjected. I obviate this evil in the following manner:

A and B represent the two driving-wheels on one side of a locomotive, and D is a long guide, which may be secured at one end to the cylinder E, the opposite end being attached to the frame-work by such a connection as the character of the said frame-work may suggest. The piston-rod *a* of the cylinder E is secured to the cross-head G, which is adapted to the guide D, and a second cross-head, H, adapted to the same guide, is connected to the said cross-head G, preferably by a rod, I. A pin on the cross-head H is connected by a rod, J, to the crank-pin *m* of the driving-wheel A, and a similar rod, K, connects a pin on the cross-head G to the crank-pin *n* of the driving-wheel B. It will be seen that the two driving-wheels are effectively coupled together through the medium of the two connecting-rods J and K and the connected and guided cross-heads G and H, and that their unison of

action is as fully assured as if they were coupled together in the usual manner; but, as one end of each of the connecting-rods is always supported and always moves in the same horizontal course, there can be no such detrimental results of their action as are due to the rapid descent of an entire coupling-rod and the abrupt arresting of the same when it reaches its lowest point.

One of the principal advantages of my invention is the facility with which it can be applied to any existing locomotives having coupled drivers.

I prefer to construct the two cross-heads and their connecting-rod I and to adapt them to the ends of the connecting-rods J and K in the following manner:

The cross-head G consists of a T-shaped piece, *b*, having a boss for receiving the end of the piston-rod *a*, two side plates, *d d*, and a top plate, *e*, all being adapted to the guide-rod D, which is increased in width at and near the cylinder end, as seen in Figs. 2 and 4, the cross-head presenting two recesses, *ff*, one for the reception of the end of the rod I and the other for the reception of one end of the rod K, one pin *h* serving to connect both of the rods to the cross-head. The rod I is made T-shaped at its outer end, and forms the under side of the cross-head H, as shown in Fig. 5, top and side plates completing the cross-head, to which is connected the forked end of the rod J. I do not, however, desire to restrict myself to the mode described of connecting the two cross-heads together, although I prefer it as, in my opinion, the most direct and the simplest mode.

I claim as my invention—

The combination, in a locomotive, of two guided cross-heads connected to each other and to the piston-rod, two driving-wheels, A and B, and two rods, one connecting one cross-head to the crank-pin of one driving-wheel and the other connecting the other cross-head to the crank-pin of the other driving-wheel, all substantially as set forth.

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

GEO. S. STRONG.

Witnesses:

HARRY DRURY,
HARRY SMITH.