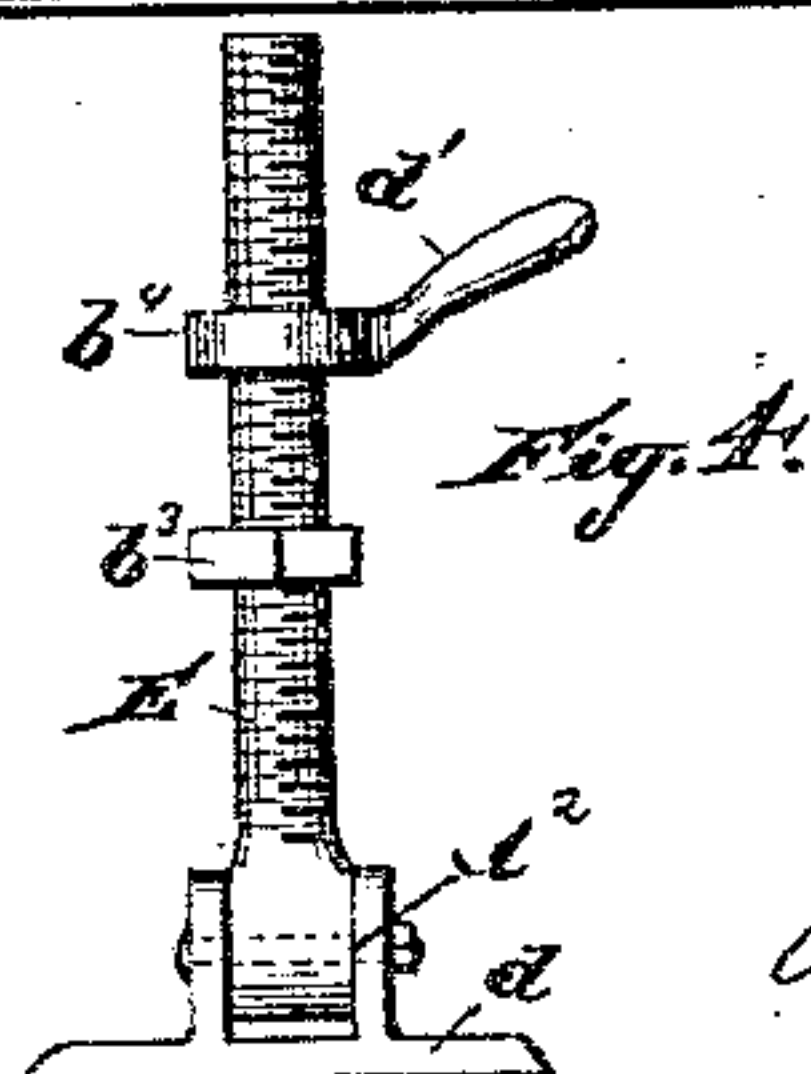
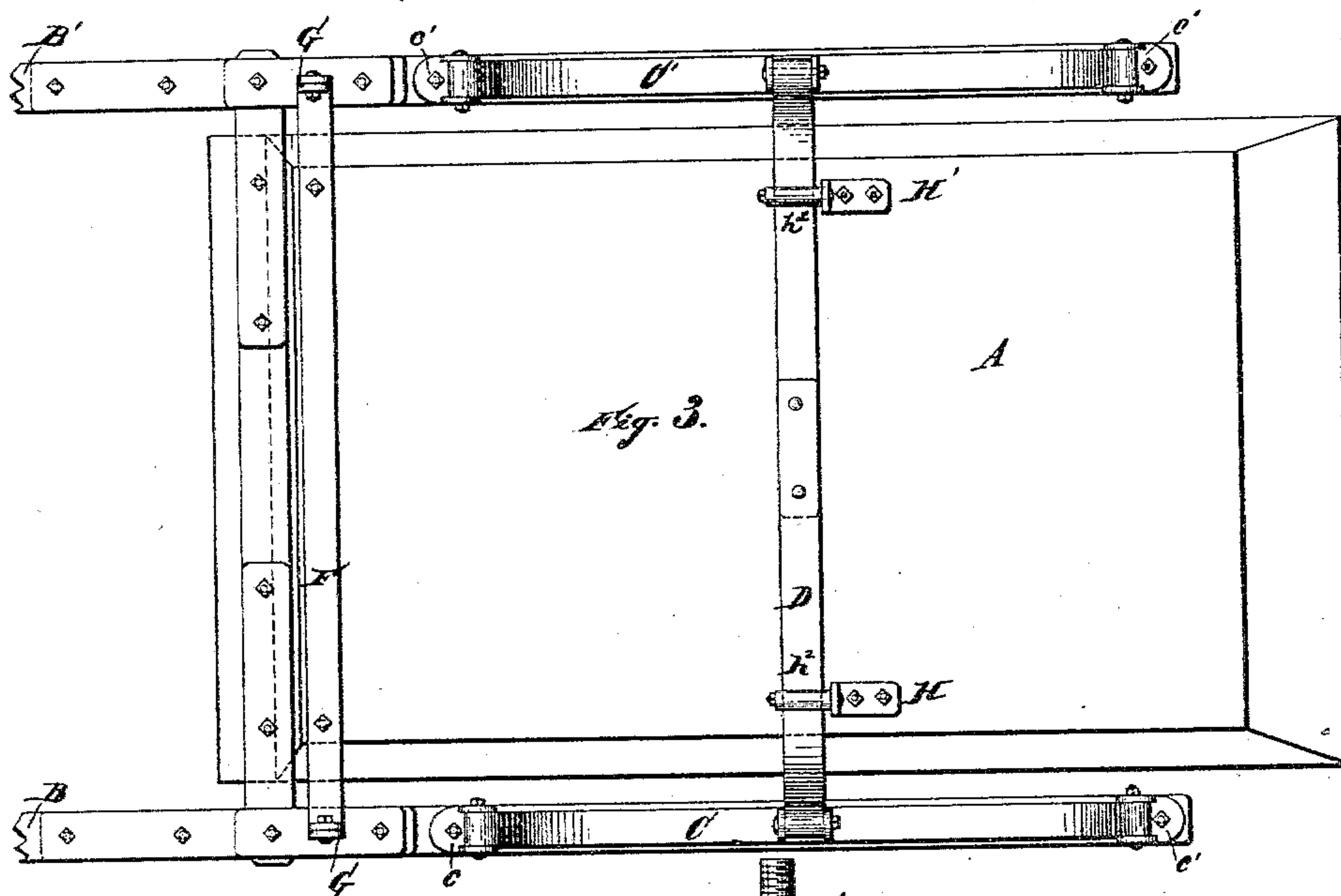
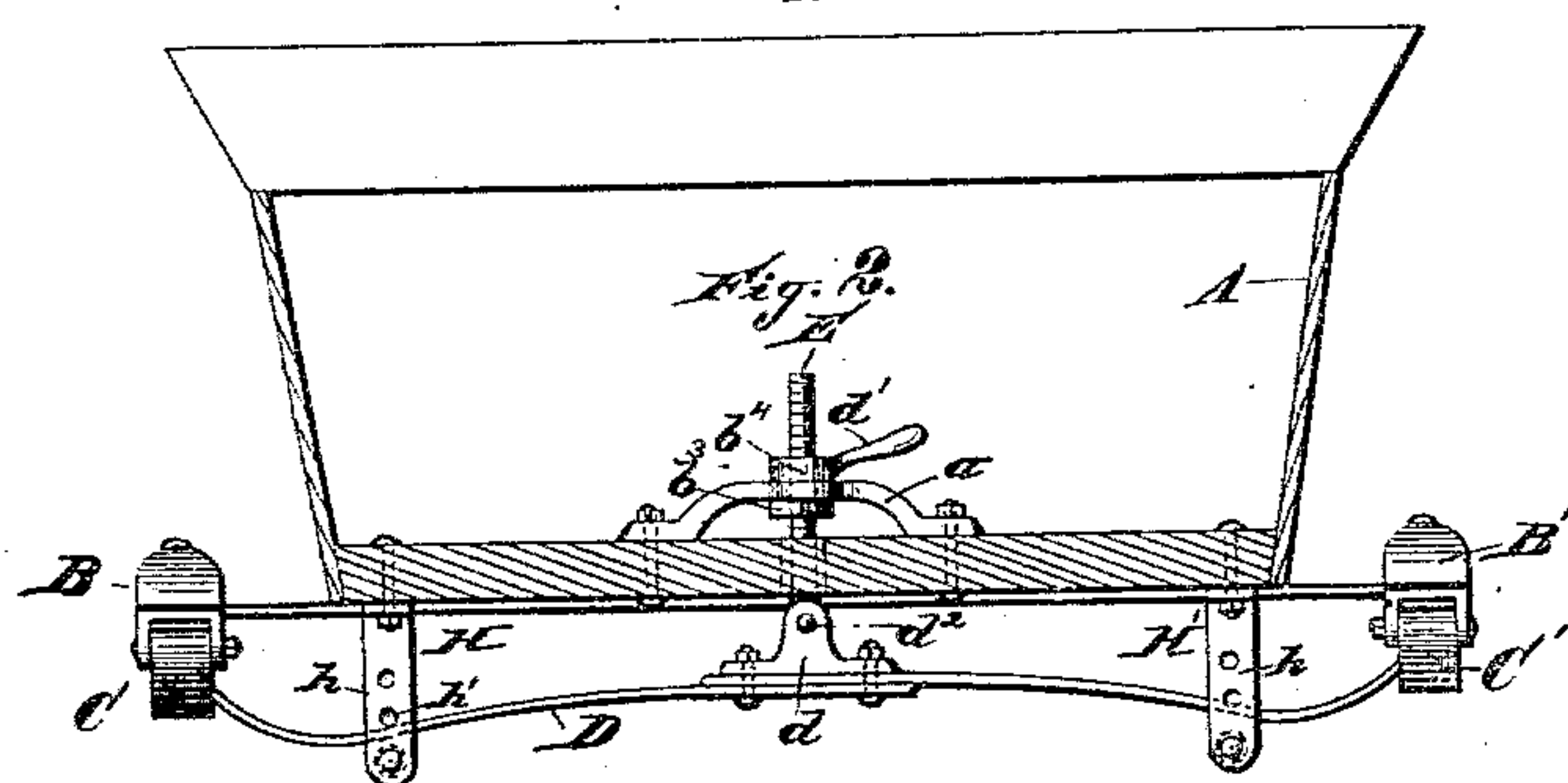
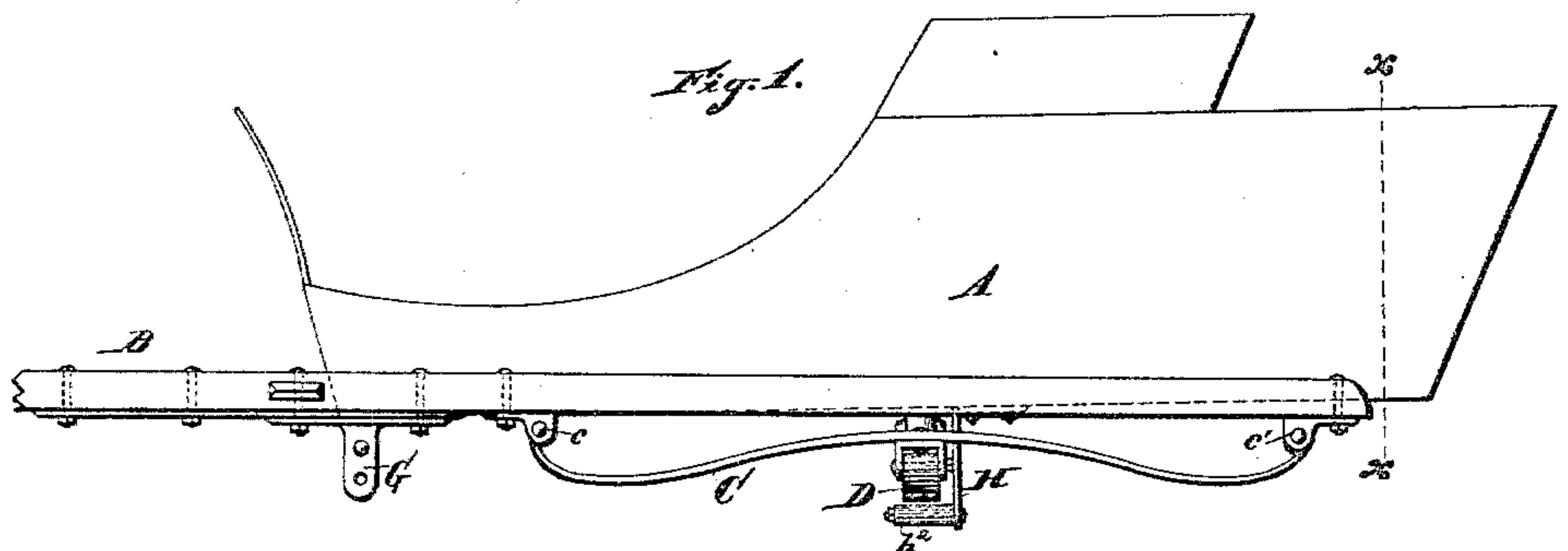


(No Model.)

J. F. SCHWARTZ.
TWO WHEELED VEHICLE.

No. 318,807.

Patented May 26, 1885.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN F. SCHWARTZ, OF ALMA, MICHIGAN.

TWO-WHEELED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 318,807, dated May 26, 1885.

Application filed March 11, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. SCHWARTZ, of Alma, county of Gratiot, State of Michigan, have invented a new and useful Improvement in Shaft-Springs; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of the combinations of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a vertical cross-section. Fig. 3 is an inverted plan view, and Fig. 4 is a separate view.

My invention has for its object to provide improved shaft-springs for the attachment of shafts to two-wheeled vehicles.

Heretofore a common objection to the use of two-wheeled vehicles has been the fact that the motion of the horse is communicated to the vehicles, as ordinarily constructed, making them hard to ride in. The objection has also been raised that such vehicles are incapable of proper adjustment to suit different sizes of horses—a vehicle suitably arranged for use with a large horse being an uncomfortable device with a small horse, and vice versa. My invention is designed to remedy these difficulties by enabling the shafts to be easily raised or lowered relative to the vehicle-body, at the same time to avoid the horse motion. My invention is also designed to provide a vehicle perfectly safe in its construction, and by which the occupant will avoid the liability of being thrown out should one or more of the ordinary springs be broken. I accomplish these purposes by the peculiar combination for attaching the springs, and their attachment to the vehicle-body and shafts, as herein shown and described.

I carry out my invention as follows:

In the drawings, A represents the vehicle-body.

B represents the shafts or pole.

C and C' represent the shaft-springs, secured to the shafts at their extremities in any suitable manner—as, for instance, by means of

the bearings *c* and *c'*. I do not limit myself to any particular mode of engaging said shaft-springs with the shafts.

D represents a cross-spring, which may either be made in a single leaf connecting the two shaft-springs intermediate of their ends or the cross-springs may be made of two leaves engaged with each other at their inner extremities, as shown, and at their outer extremities, with the shaft-springs intermediate of their ends. As so constructed they may be adjustably connected at their inner ends, so that they may be made wider or narrower, as may be preferred.

E represents an oscillatory adjusting-bolt. This bolt is constructed of a base-section, *d*, secured by clips or bolts, or in any proper manner, to the cross-spring intermediate of its ends. If two leaves are used, their inner ends and the base-section of the bolt may all be engaged together by the same bolts or clips, as shown in Fig. 2.

d' is the upper section of the bolt hinged to the base-section, as shown at *d''*, threaded at its upper end and provided with adjusting-nuts *b³* and *b⁴*. These adjusting-nuts may be located the one above and the other below the sill of the body, or the body may be provided with a standard, *a*, and the adjusting-nuts be located the one above and the other below it, as shown. This construction of the oscillatory bolt, it will be observed, enables the cross-spring to which the shaft-springs are secured to be raised and lowered, thus raising and lowering the rear ends of the shafts. It is also obvious that the hinge in the bolt permits the oscillation laterally to relieve cross-spring from being strained unduly whenever either wheel runs into a rut. I do not, however, confine myself to the use of the bolt with one section hinged to another, as a straight T-bolt may be used, if preferred, permitting the vertical adjustment of the cross-springs. The cross spring or springs may be engaged with the shaft-springs intermediate of their ends in any suitable manner; nor do I limit myself to the use of a single T-bolt or oscillatory adjusting-bolt connected with the cross-spring midway of its outer extremities, as more may be used, if preferred. The shafts are pivotally engaged with the vehicle-body forward of the cross-spring in any suitable manner—as, for

instance, by means of a cross-bar, F, pivotally engaged with bracket-arms G, the bracket-arms being preferably provided with a series of bolt-orifices, so that the shafts may be adjusted at this point also with the vehicle-body. By making the pivotal engagement of the shafts with the forward end of the body an adjustable one the shafts can be raised and lowered at these points also relative to the body, so as to keep the body level.

H and H' represent spring-reliefs, constructed of a pendent arm, h, secured to the body in any proper manner, said arm provided with one or more bolt-holes, h', into which is engaged a stud or bolt, h², said bolt being preferably incased with rubber to form an elastic cushion and to render the device noiseless.

It will be evident that in getting into or out of the vehicle a person will depress the rear end of the shaft, and as the shaft is pressed down the spring-relief will catch the cross-spring and hold it firm until the body may assume its proper equilibrium. Shafts provided with these side springs, C C', and the cross-spring D may be secured to any vehicle-body without interfering in any manner with the ordinary springs with which the body may be provided, whatever may be the style employed, and by so doing the vehicle is not only made free from the jogging motion of the horse, but is also made safer, as should one of the springs break the shafts would only drop onto the axle.

What I claim is—

1. The combination of the side shaft-springs, C C', each connected intermediate of its extremities with a cross-spring, and the cross-spring provided with means of engagement with the vehicle-body, whereby it may be vertically adjusted therewith, said side springs adapted at their extremities to be secured to the vehicle-shafts, substantially as described.

2. The side springs, C C', each connected intermediate of its ends with a cross-spring, said cross-spring provided with oscillatory means of engagement with a vehicle-body, whereby it may be vertically adjusted therewith, said side springs adapted at their extremities to be secured to the vehicle-shafts, substantially as described.

3. The side springs, C C', each connected intermediate of its ends with a cross-spring, said cross-spring provided with an oscillatory adjusting-bolt, whereby it may be engaged with the vehicle-body, said sidesprings adapted at their ends to be secured to the vehicle-shafts, substantially as described.

4. The combination, with a vehicle-body, of shafts pivotally engaged with the forward end of the body, sidesprings, C C', engaged at their extremities with said shafts, each of said springs connected intermediate of its ends with a cross-spring, said cross-spring adjustably engaged with said body, substantially as described.

5. The combination, with vehicle-shafts, of a pivotal support for the forward end of the vehicle-body, and springs C C', engaged at their extremities with said shafts, each of said shaft-springs connected intermediate of its ends with a cross-spring, said cross-spring provided with means of engagement with the vehicle-body, whereby it may be vertically adjusted in connection therewith, substantially as described.

6. The combination, with vehicle-shafts, of a support for the forward end of the vehicle-body, having an adjustable and a pivotal connection with said shaft-springs C C', secured at their ends to said shafts, each of said springs connected intermediate of their ends with a cross-spring, said cross spring provided with mechanism whereby it may be adjustably connected with the vehicle-body, substantially as described.

7. The combination, with a vehicle-body, of shafts pivotally connected with the forward end of the body, springs C C', secured at their extremities with said shafts, each of said springs engaged with a cross-spring connected with the vehicle-body, and spring-reliefs engaged with said body adjacent to said cross-springs, substantially as and for the purpose described.

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN F. SCHWARTZ.

Witnesses:

GEORGE W. ABBOTT,
JAS. GARGETT.