

No. 697,570.

Patented Apr. 15, 1902.

D. TRUE.
SPRING GEAR FOR VEHICLES.

(Application filed Oct. 2, 1900.)

(No Model.)

2 Sheets—Sheet 1.

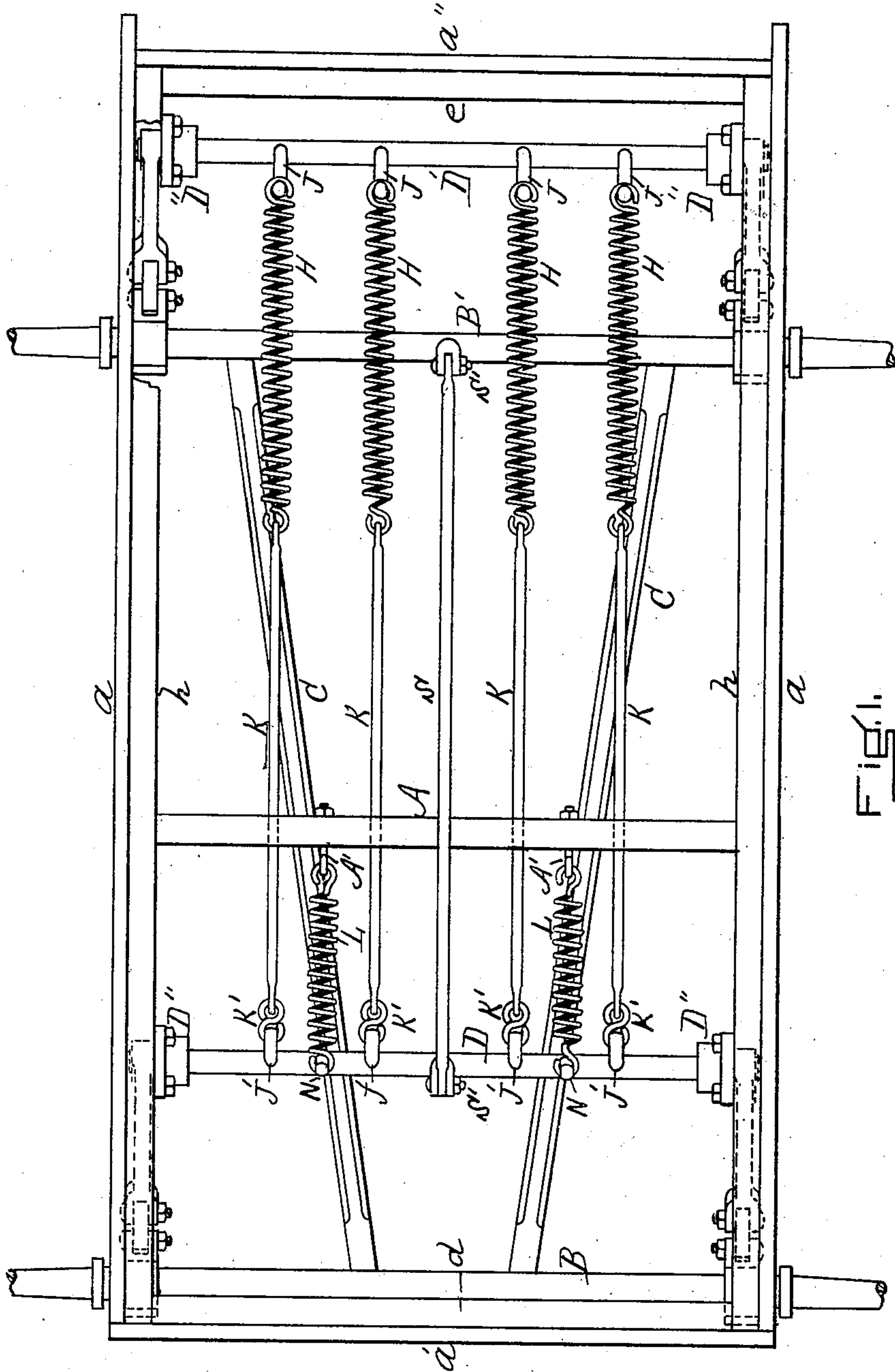


Fig. 1.

WITNESSES:

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INVENTOR:

David True,
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Henry C. Williams

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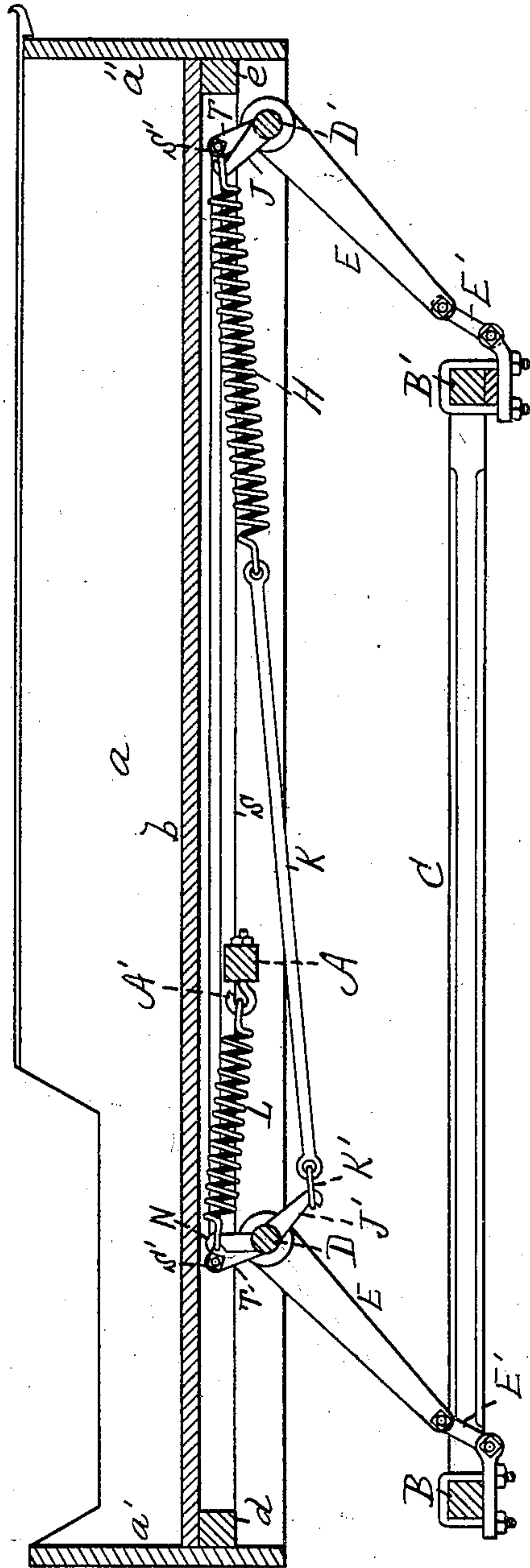


Fig. 2.

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UNITED STATES PATENT OFFICE.

DAVID TRUE, OF AMESBURY, MASSACHUSETTS.

SPRING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 697,570, dated April 15, 1902.

Application filed October 2, 1900. Serial No. 31,772. (No model.)

To all whom it may concern:

Be it known that I, DAVID TRUE, a citizen of the United States, residing in Amesbury, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Spring-Gear for Vehicles, of which the following is a specification.

This invention relates to that class of spring-gear for vehicles, more especially for carriages and wagons, in which the movement of the carriage-body with relation to the running-gear is a purely vertical one, the body being caused by the springs to be moved vertically, remaining always at horizontal planes, and all portions of the body moving up and down at the same time, and the invention relates particularly to improvements in the general style of spring-gear illustrated and described in my Letters Patent of the United States, dated October 16, 1900, No. 659,718, and March 5, 1901, Nos. 669,247 and 669,248, to which reference is made.

In the present invention or improvement I combine a pair of rotative shafts having their bearings in the frame and provided with mechanism whereby the rotation of one shaft imparts rotation to the other, load-carrying springs intermediate with or connecting the shafts, and rods connecting said shafts directly with the running-gear without the interposition of springs of any kind between said rods and the running-gear. I provide neutralizing or compensating springs connecting the rotative shafts with the frame instead of with each other, as in said application bearing the serial number 20,141, and I provide load-carrying springs which are connected at their opposite ends to projections or hooks extending substantially radially from said shafts, but upwardly and downwardly, respectively—that is to say, the projections on one shaft extend upward and engage one end of the springs, while the projections on the other shaft extend downward and engage the opposite ends of the springs.

The nature of the invention is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the spring-gear embodying my improvements with the sides, front, and end of the carriage-body applied.

Fig. 2 is a longitudinal vertical section, the floor of the body being shown in position.

Similar letters of reference indicate corresponding parts.

a represents the sides, *a'* the front or dashboard, and *a''* the back or end-gate of the carriage-body, and *b* the floor, all constructed as usual.

d represents the front bar, *e* the rear bar, and *h* the side bars, constituting the frame.

A represents a cross-bar extending across the frame beneath the floor, preferably somewhat in front of the center of the carriage-body.

B represents the cross-bar, which is adapted to be supported by the front axle, and *B'* represents the rear axle, said cross-bar and rear axle being connected by suitable reach-rods *C*.

Supported in suitable boxes *D''*, sustained by the side bars *h*, are rotative rods *D* and *D'*, said rods being somewhat at the rear of the front and rear axles, respectively. The two rotative rods or shafts *D D'* have rigidly secured to them at their opposite ends arms *E*, pivotally connected at their lower ends with shackles *E'*, the latter being pivotally connected at their lower ends with the rear axle *B'* and the cross-bar *B* adapted to be supported by the front axle, respectively. These connections *E E'* are not new in this invention; but they are selected as the best for the purpose, principally because they produce what are practically positive, direct, and non-elastic connections, as distinguished from connections which have intermediate springs between them and the axles.

H H are load-carrying springs which are connected at their opposite ends with the rotative shafts *D D'*, the connections with the shaft *D'* being substantially radial hooks *J*, rigid on said shaft, and the connections with the shaft *D* being rods *K* and hooks *J'*, extending from the shaft *D* and similar to the hooks *J*. The length of the springs *H* can be varied as desired, the rods *K* being shortened or lengthened accordingly. The forward ends of these rods are connected with the hooks *J'* by *S* hooks or links *K'*, but other suitable means of connection may be employed. The rotative rods *D D'* are connected by a bar *S*,

whose opposite ends are pivotally secured at S' to the radial arms T, rigidly secured to the rotative rods. As these arms both extend upward from the rods the rotation of one rod
 5 imparts similar rotation to the other. Should it be desired to impart reverse rotation, the arms should extend from opposite sides of the rods D D', as in the application filed January 27, 1900, Serial No. 3,002, above referred to.

10 L L are compensating springs, one end of each of which is attached to a suitable hook A', secured to the cross-bar A, and the other end is caught on a radial hook N, rigidly secured to the shaft D.

15 In operation as the carriage-body is depressed by the load the jointed connections E E' impart rearward rotation to the rods D D', with the effect of expanding the load-carrying springs H. The rod D swings the hooks
 20 N rearward and contracts the compensating springs L, the compensation or neutralization being in proportion to the number and power of said springs as compared to the number and power of the springs H.

25 Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a spring-gear for vehicles, a frame above the axles for supporting the carriage-
 30 body; a pair of rotative rods or shafts sup-

ported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby the rotation of one imparts rotation to the other; load-supporting springs intermediate with and connected with said
 35 rods or shafts; and neutralizing or compensating springs connecting said rods or shafts with the frame, substantially as described.

2. In a spring-gear for vehicles, the frame above the axles for supporting the carriage-
 40 body; the rotative rods or shafts D, D' supported by and having their bearings in the frame; mechanism intermediate with said rods or shafts whereby rotation of one imparts similar rotation to the other; the sub-
 45 stantially radial hooks or catches J, J', the former rigidly secured to and extending upward from the rod D', and the latter rigidly secured to and extending downward from the rod D; and springs intermediate with said
 50 rotative rods and each having one end connected with one of the upwardly-extending hooks J, and the other end connected with one of the downwardly-extending hooks J', substantially as set forth.

DAVID TRUE.

Witnesses:

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