

D. G. ROLLIN.
Carriage-Spring.

No. 19,102.

Patented Jan 12, 1858.

Fig:1.

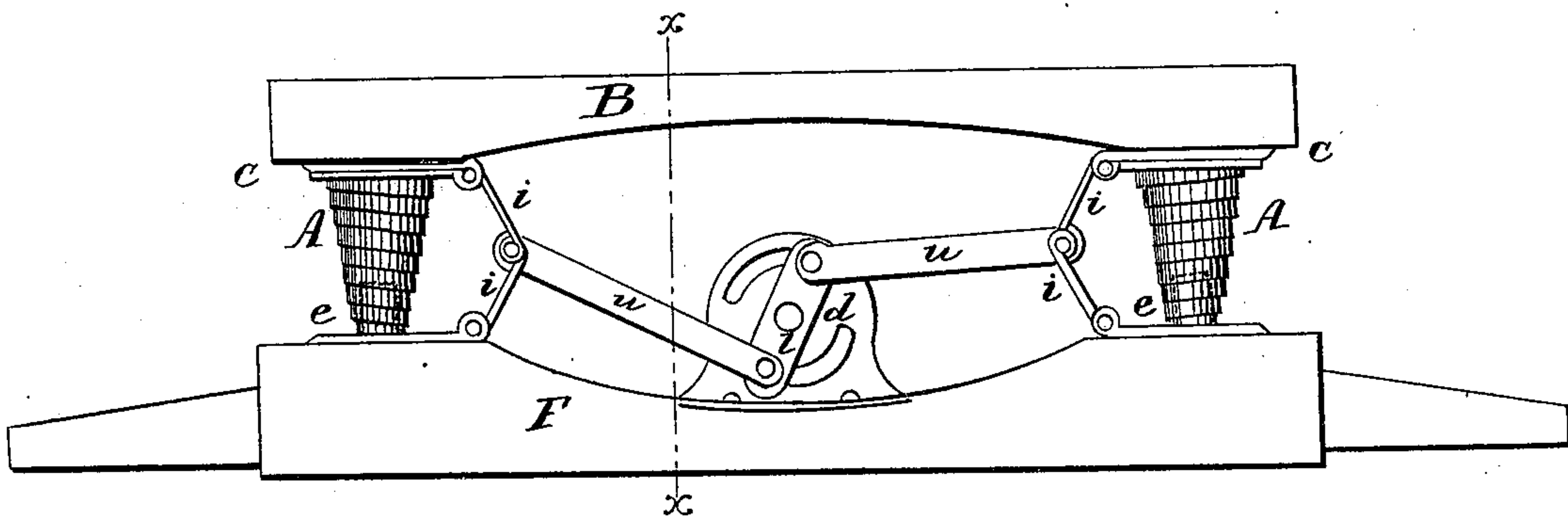


Fig:2.

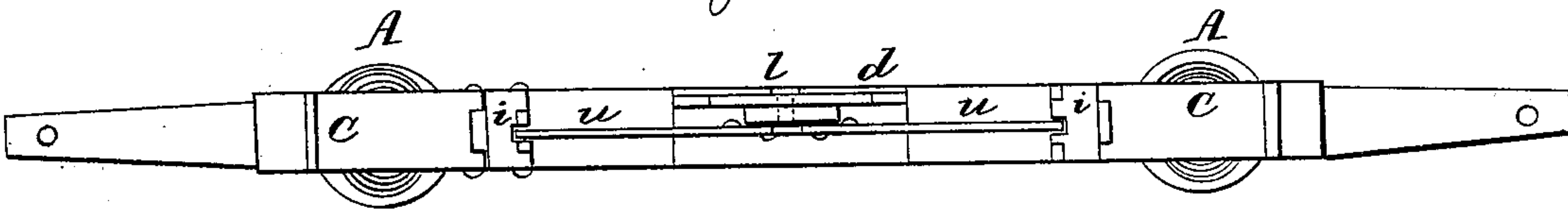
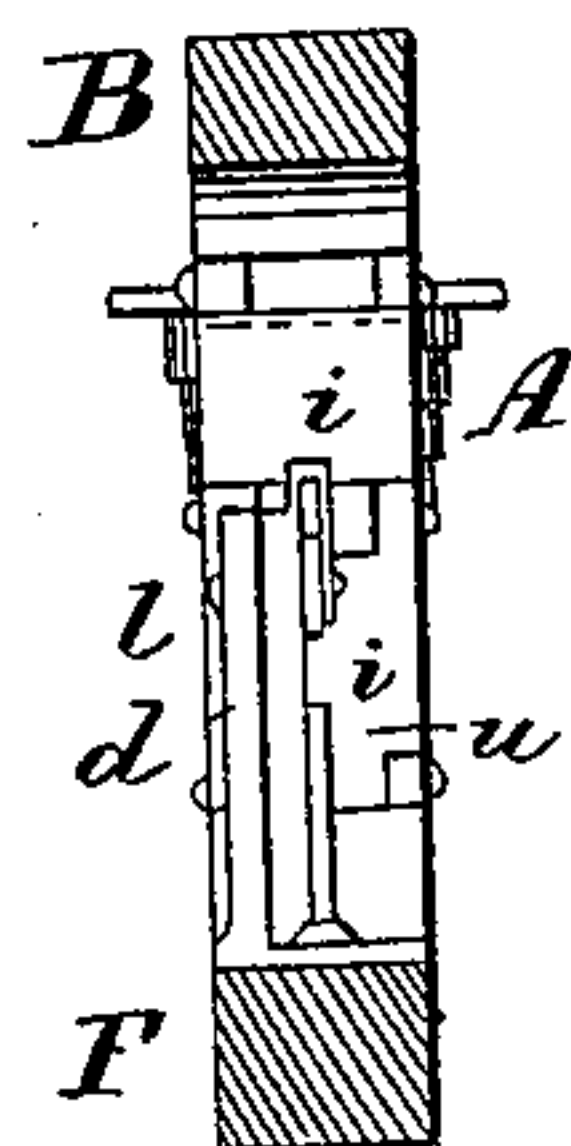


Fig:3.



UNITED STATES PATENT OFFICE.

DANIEL G. ROLLIN, OF NEW YORK, N. Y.

EQUALIZING CARRIAGE-SPRINGS.

Specification of Letters Patent No. 19,102, dated January 12, 1858.

To all whom it may concern:

Be it known that I, DANIEL G. ROLLIN, of the city, county, and State of New York, have invented a new and useful Method of Equalizing the Strain Upon the Springs of Carriages, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, in which—

Figure 1 represents a face view of the hind axle tree and bolster of a carriage with the springs and with my improvement applied thereto. Fig. 2 represents a top view of the same with the bolster removed, and Fig. 3 a cross section at the line xx of Fig. 1.

In the movement of carriages over roads it frequently happens, when a wheel descends into a rut or other depression in the surface of the road, that a much greater strain is brought upon the spring nearest this wheel from the surging of the load than it is required to bear at other times, and this extraordinary strain frequently causes the breaking of the spring. In order to guard against such accidents it is customary to make the springs of much greater strength than is necessary to enable them to sustain the load; the employment of such springs, however, not only increases the first cost of the carriage, but renders it much more rigid or less elastic than it is advisable it should be in order to carry the load with ease.

The object of my invention is to diminish the danger resulting from such strains by equalizing the strain upon the springs; or by propagating a portion of the strain from the spring at one side of the carriage to the corresponding one at the other side thereof, so that when, from any reason, one spring is subjected to an under strain, a portion of this strain is imparted to the other spring.

My invention is peculiarly adapted to the employment of volute springs and is represented as used in connection with such springs in the accompanying drawing, in which the volute springs A, A , are secured by their bases to plates c, c , attached to the under side of the bolster B , so that their ends project downward and bear upon corresponding plates e, e , secured to the upper side of the axle tree. The plates upon the axle tree have guide spindles secured to them, shown in dotted lines in Fig. 1, which project upward within the springs and re-

tain their lower ends in their proper positions. The plate at each end of the after tree is connected with the corresponding plate on the bolster above by a pair of toggle jointed bars $i i$, and the toggle joint of each pair of bars is connected by a rod u with one extremity of an equalizing lever l , which is pivoted to a plate or bracket d , that is secured to the center of the axle tree F . As the toggle joints are arranged so as to bend toward each other, and as the rods from the two toggle joints are connected with the opposite ends of the equalizing lever, it follows that when one toggle joint is flexed its movement laterally is propagated through the connecting rods and equalizing lever to the other toggle joint, which is flexed in a corresponding degree; hence when a strain is experienced sufficient to bend one of the springs at one end of the axle tree and flex the toggle joint thereat, a portion of this strain is propagated through the connecting rods, equalizing lever and other toggle joint to the spring at the other end of the axle tree, which is also caused to bend, so that the strain instead of being borne wholly by one spring is divided between the two. This equalizing apparatus also acts as a stay to prevent excessive surging in a lateral direction, and thus diminishes the chance of breaking the springs by such movement.

It is evident that the known mechanical equivalents of the members of the equalizing apparatus above described may be substituted for them without affecting the principle of my invention; the construction and arrangement of the parts may also be modified as circumstances may require; I do not therefore limit myself to the precise arrangement and construction herein set forth, but

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

The equalizing apparatus for equalizing the strain upon the springs of carriages consisting of toggle joints, connecting rods, and equalizing lever, or their equivalents, constructed and operating substantially as herein set forth.

In testimony whereof I have hereunto subscribed my name.

DANIEL G. ROLLIN.

Witnesses:

WM. COSGROVE,
W. L. BENNEM.