

*T. G. Gaylord*  
*Iron Girder*

*N<sup>o</sup> 19,630.*

*Patented Mar. 16, 1858.*

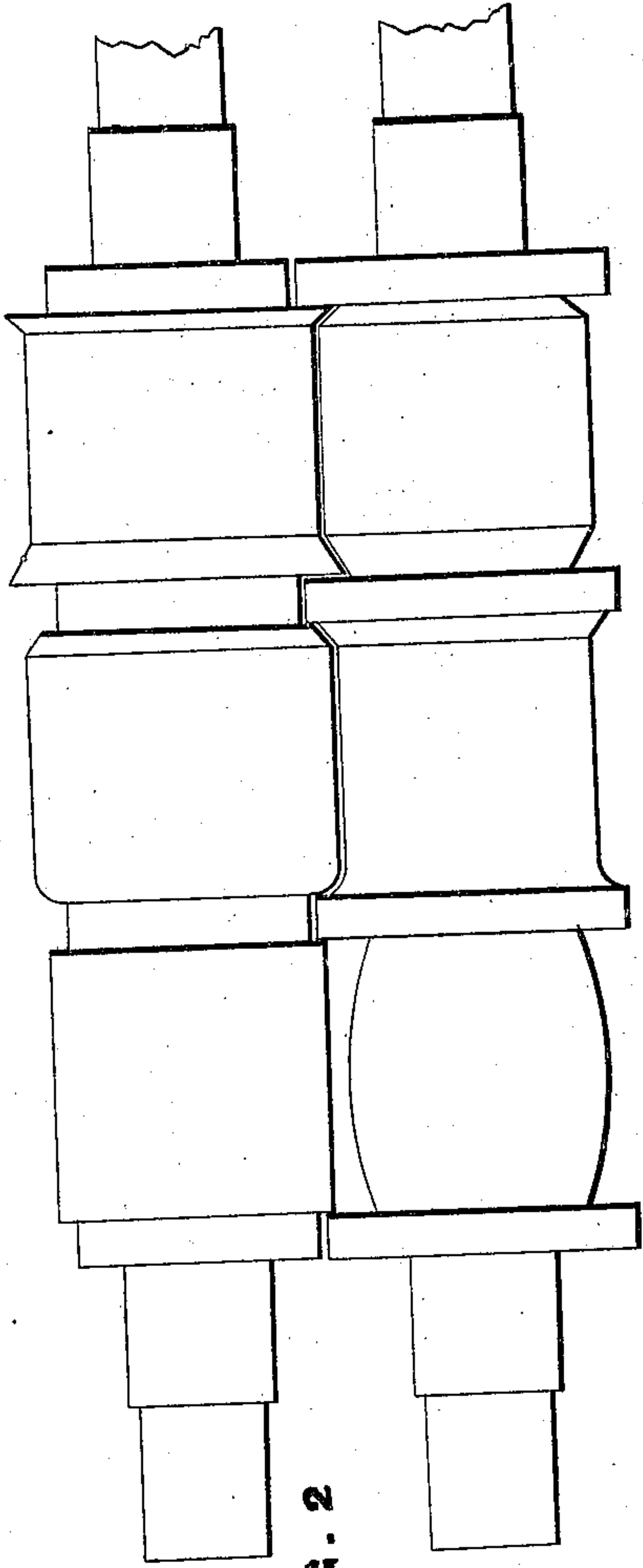


FIG. 2

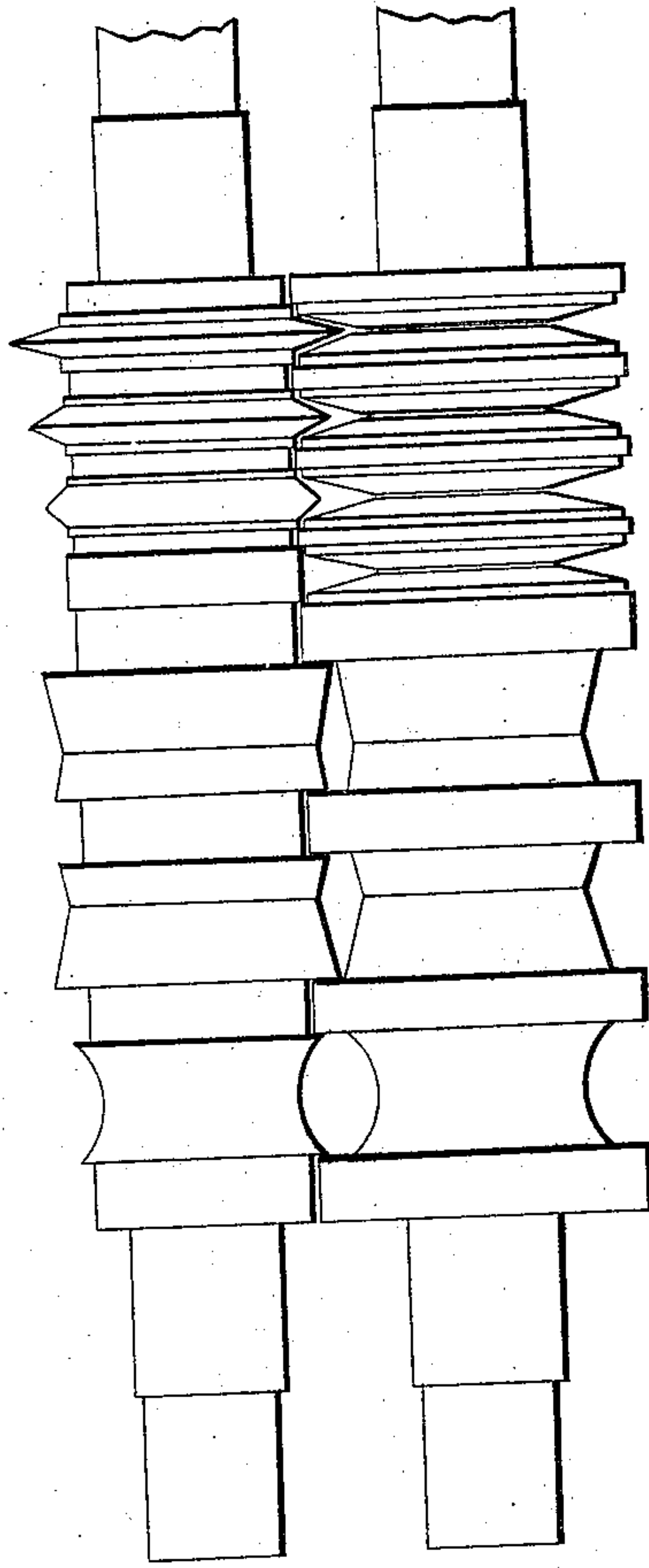


FIG. 1

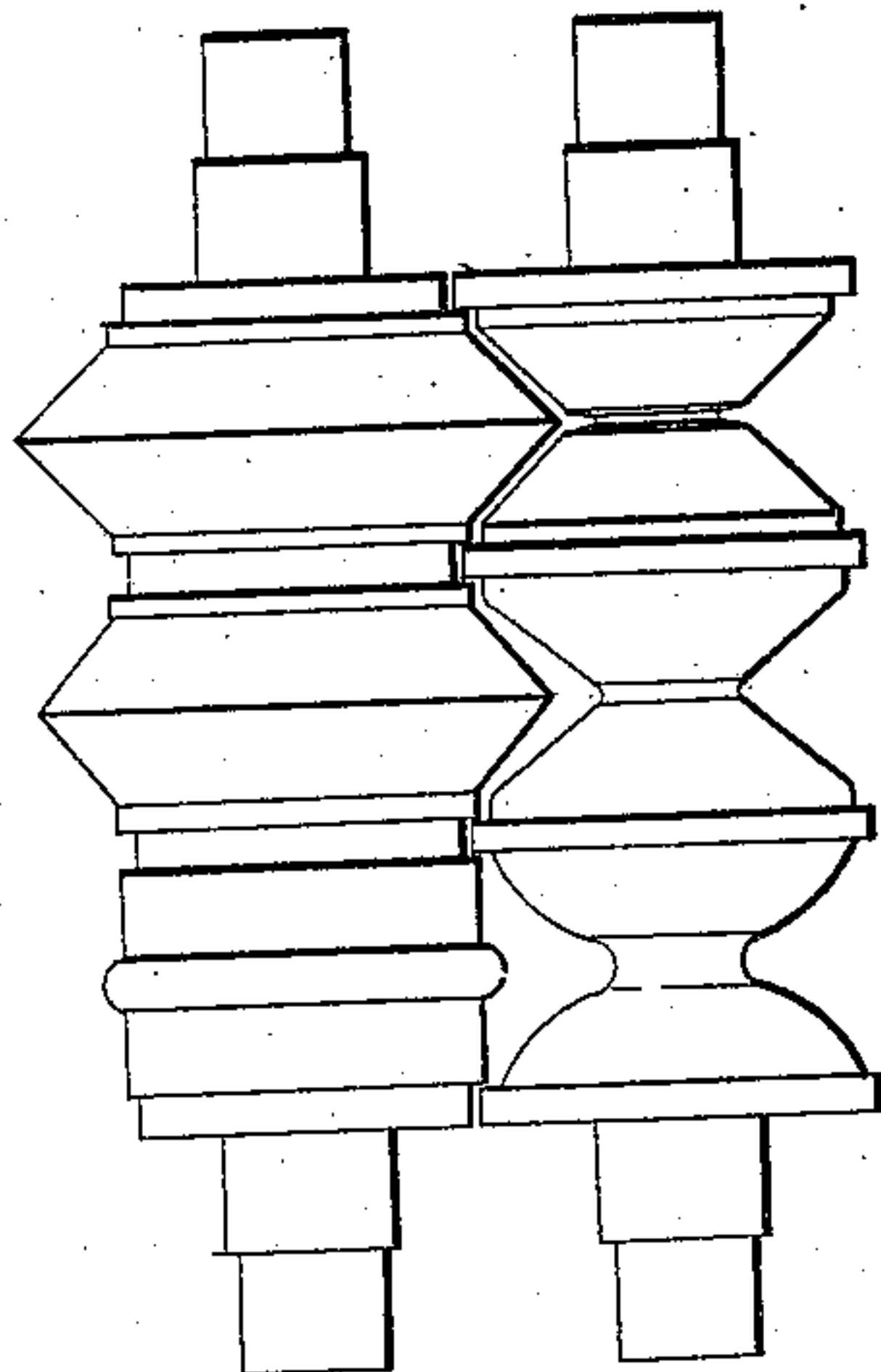
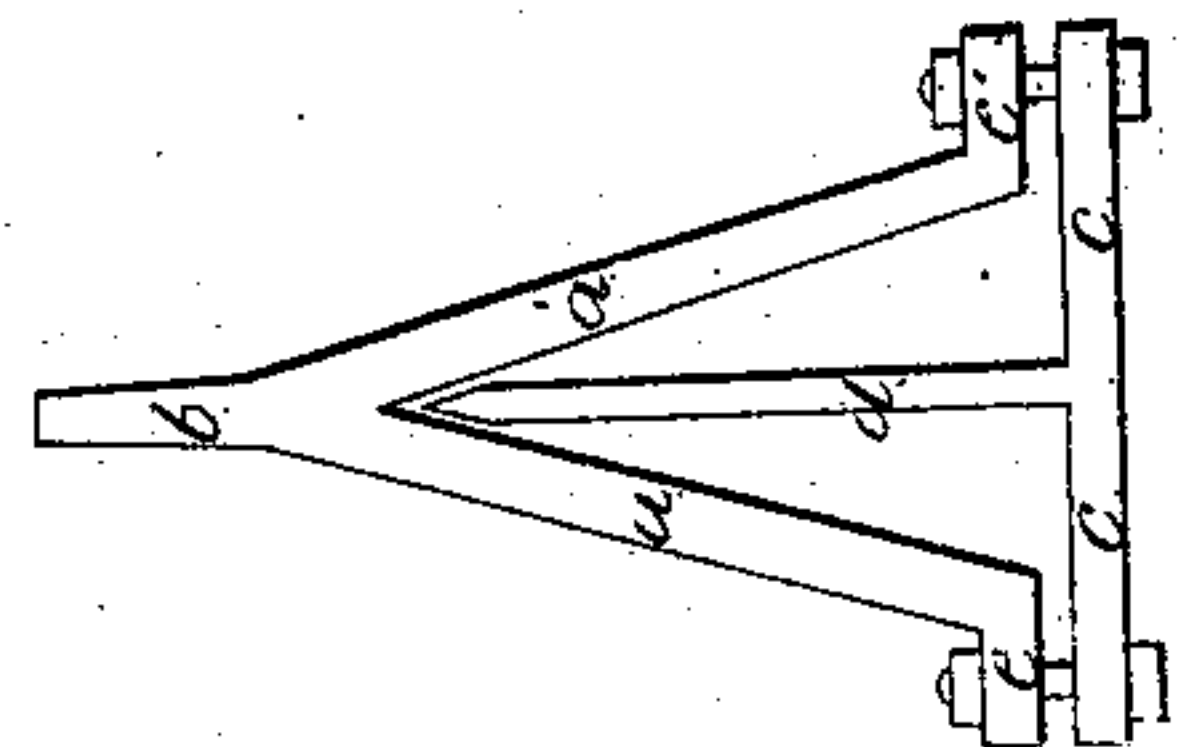


FIG. 3

FIG. 4



# UNITED STATES PATENT OFFICE.

THOMAS G. GAYLORD, OF CINCINNATI, OHIO.

## WROUGHT-IRON GIRDER.

Specification of Letters Patent No. 19,630, dated March 16, 1858.

*To all whom it may concern:*

Be it known that I, THOMAS G. GAYLORD, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Wrought-Iron Girders; and I hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention consists in the production of an improved girder by the combination of two pieces of wrought iron of peculiar construction. In the formation of wrought iron tubes for girders or any similar purpose it is a matter of great importance as much as possible to avoid joints so as to lessen the waste and especially the extra weight of metal which they involve, to accomplish which ends and also to so dispose such joints as cannot be dispensed with that they will not materially weaken the girder are the objects of the following described process.

In the accompanying drawings Figure 1 is a front elevation of the rolls employed in the manufacture of the angular plate *a, b, c*. Fig. 2 is a similar view of rolls employed for the production of such angular plate in sections for purposes where it is required to be of much larger size. Fig. 3 is intended to illustrate a modification of the rolls exhibited in Fig. 1. Fig. 4 is an end view of a girder, the parts being somewhat detached, to exhibit their construction.

*a, a' b c c'* is a plate or bar of angle iron having flanges as, represented, produced by rolling in one piece by means of rolls shown in Fig. 1.

*c d*, is a bar of T iron, also without joint, whose ridge *d*, is adapted to fit closely within the apex of the angular plate, its base being at either edge attached to the flanges

*c, c'*, by means of screw bolts or nuts as represented. The T bar, being a form of iron in familiar use may be produced by rolling in the customary way.

It being impossible to produce (of wrought iron) the structure exhibited in Fig. 4 without longitudinal joints between the upper and lower portions, they are here so disposed that vertical pressure tends to compress rather than to open them, they therefore have no weakening effect. Lateral joints are entirely avoided by rolling the respective portions of the girder in entire lengths. This dispenses with the principal portion of laps and rivets which beside weakening the tube add to its weight, so that a girder as constructed by me, not being partially cut away by rivets and having less weight of its own to support is able to sustain with safety a greater strain, or a given amount of material can be applied to a larger span.

I do not claim as new anything in the external form of the metallic tube or bar here exhibited, knowing that there has existed a structure somewhat similar in its general principles, in which however a different combination of the parts is employed.

I claim as new and of my invention herein:—

The duplex girder or beam composed of an upper piece having the form of an inverted Y and a lower piece having the form of an inverted T, whose stem or "comb" is adapted to fit closely within the apex of the upper piece substantially as set forth.

In testimony of which invention I hereunto set my hand.

THOS. G. GAYLORD.

Attest:

OCT. KNIGHT.

AND J. HUSTON.