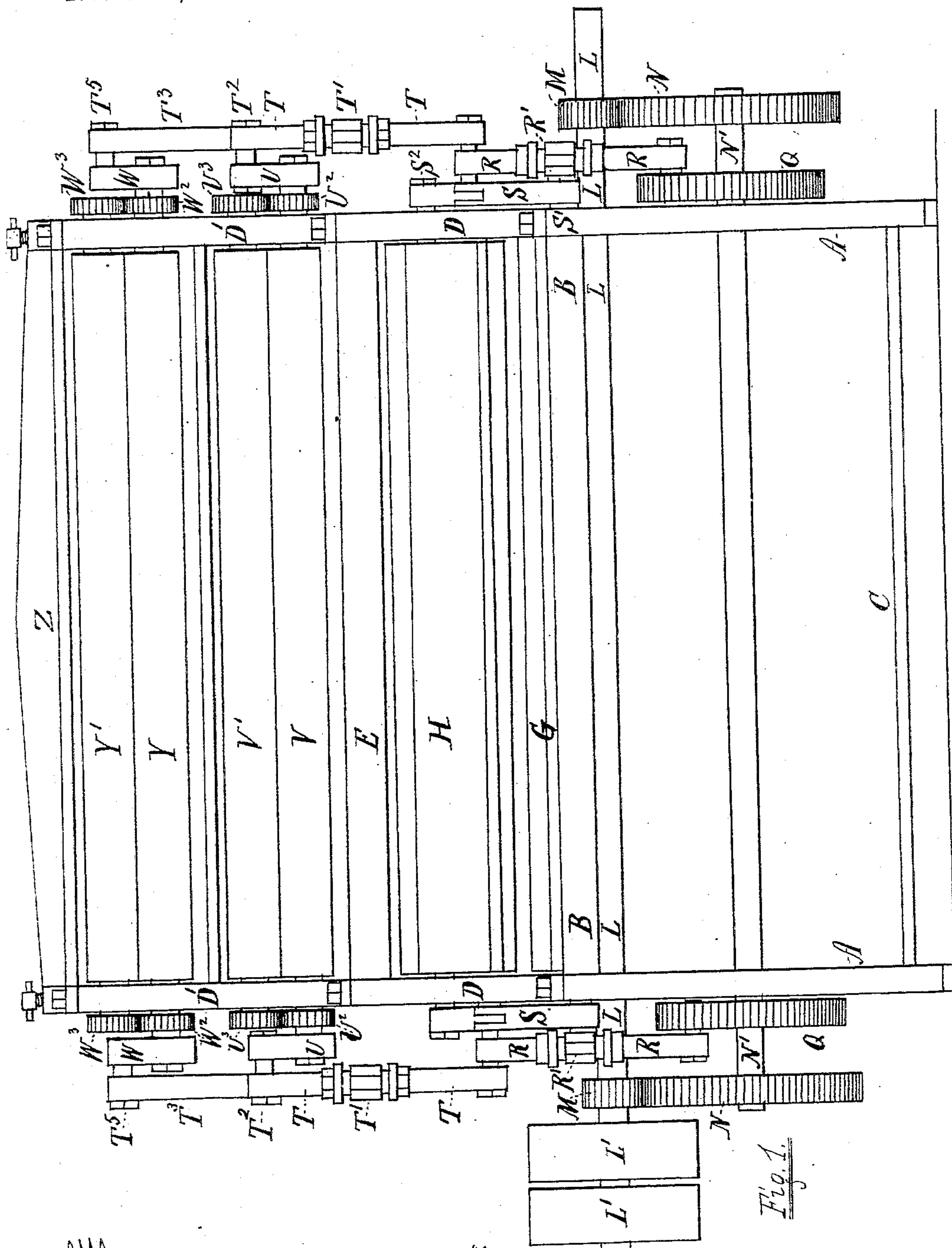


3 Sheets—Sheet 1.

MACHINE FOR SHAPING SHEET METAL FOR ARCHITECTURAL PURPOSES.

Patented Aug. 26, 1884.



Witnesses
Charles S. Burns
Jacob Koch

Inventor Geo Hayes.

(No Model.)

3 Sheets—Sheet 2.

G. HAYES.

MACHINE FOR SHAPING SHEET METAL FOR ARCHITECTURAL PURPOSES.

No. 304,002.

Patented Aug. 26, 1884.

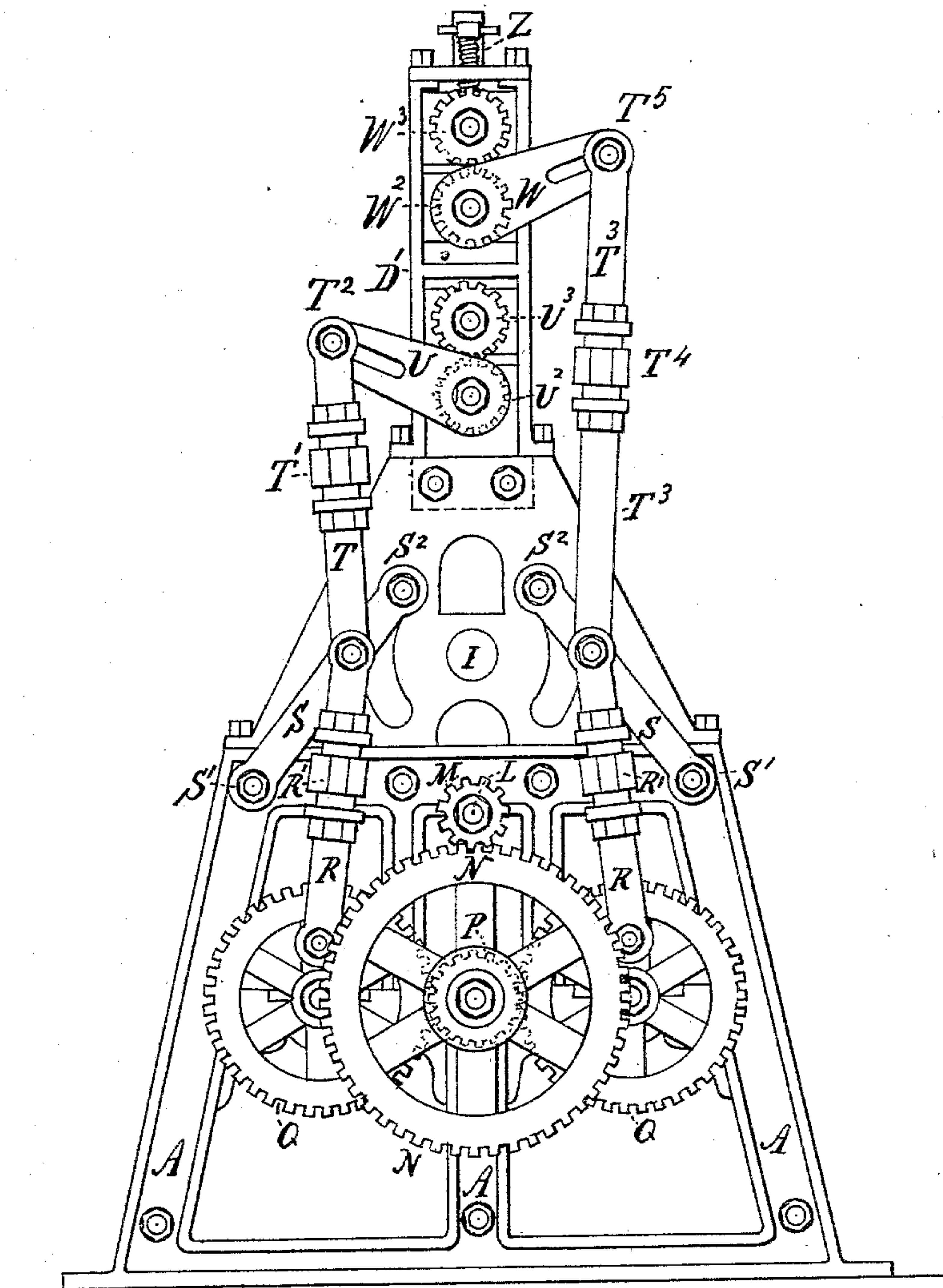


Fig. 2.

Witnesses
Charles A. Burns.
Jacob Koch

Inventor
G. Hayes.

(No Model.)

3 Sheets—Sheet 3.

G. HAYES.

MACHINE FOR SHAPING SHEET METAL FOR ARCHITECTURAL PURPOSES.

No. 304,002.

Patented Aug. 26, 1884.

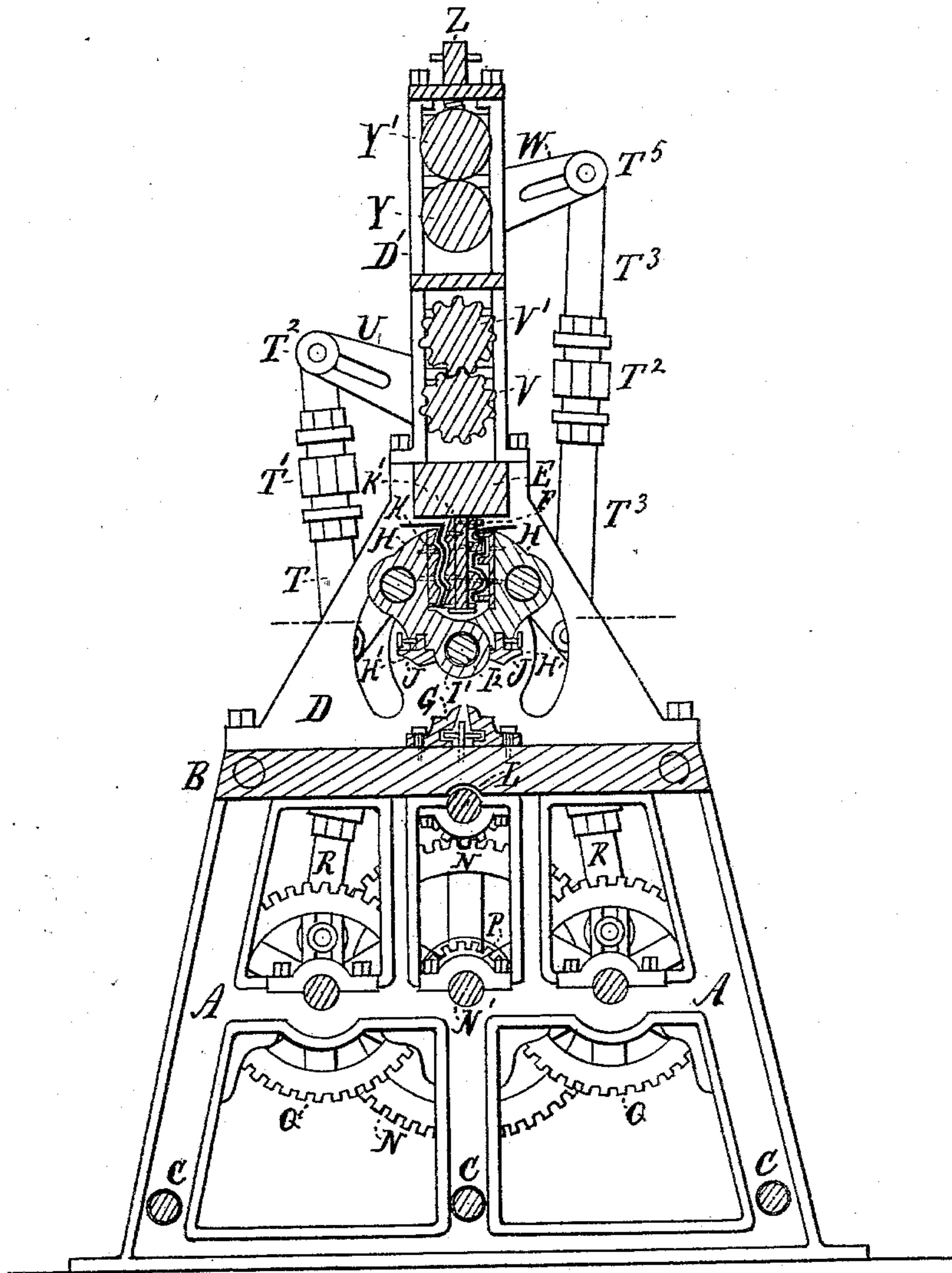


Fig. 3.

Witnesses

Charles A. Burns

Jacob Koch

Inventor

G. Hayes

UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF NEW YORK, N. Y.

MACHINE FOR SHAPING SHEET METAL FOR ARCHITECTURAL PURPOSES.

SPECIFICATION forming part of Letters Patent No. 304,002, dated August 26, 1884.

Application filed February 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HAYES, a resident of the city, county, and State of New York, have invented a new and useful Machine for
5 Bending, Molding, and Folding Sheet Metal into Shapes for Architectural and Building Purposes, of which the following is a specification.

The object of this machine is to construct
10 or "form up," by bending, molding, and folding sheet metal into cornices, casings, rafters, sash-bars, corrugated plates, &c., for building purposes, analogous to my application No. 97,243; and it consists of additions to the in-
15 vention therein claimed.

Figure 1 is an elevation of one front of the machine. The opposite to this forms also a front, as the machine may be used from either face. Fig. 2 is an end elevation of the ma-
20 chine. The opposite end corresponds therewith. Fig. 3 is a vertical section crosswise the machine.

A represents the end standards of the machine and supports for the working parts,
25 gearings, shafts, bed, &c. These are the main standards.

B is the bed (or bed-plate) of the machine, connecting the standards at their upper ends; C, brace-rods connecting the standards below
30 the bed, and of which there may be as many as required for strengthening the frame.

D represents superstandards resting on the main standards A and secured thereto.

E represents a cross-head connecting the
35 superstandards D at their upper ends and bolted thereto.

F represents a tongue or mandrel die-holder suspended from the cross-head and extending the entire length between the superstand-
40 ards D.

G represents dies or formers, resting upon the bed B, in two parts, adjustable as to their distance apart by any suitable means.

H represents die-holders, double and hinged
45 together at I by a rule-joint, consisting of intersecting rings I', through which is a rod, I², upon which the die-holders may be swung. The rod is journaled at each end to the superstandards D. At the heel of the die-hold-
50 ers H are secured dies H' by any suitable means which will permit of ready removal

for changing forms. The interior faces of the die-holders H are furnished with dies K, also secured thereto by any suitable means which will permit of ready removal for chang- 55 ing forms. The tongue F is also faced both sides with dies K', secured thereto by any suitable means which will permit of ready removal for changing form. They are intended to co-operate with the dies K, and their shape 60 corresponds therewith, so that a sheet of metal may be properly formed between them as the die-holders H are swung up and close upon the tongue-like jaws through the application of power, as hereinafter described. The dies H', 65 when the die-holders H are thrown backward or downward, co-operate with the dies G upon the bed B to act upon a sheet of metal placed between them. Their forms or contour must correspond to enable them to coact in forming 70 the bend or bends in the metal. The die-holders H are opened from and shut toward (or upon) the tongue F above the joint I, and at their heel are opened from and shut upon the dies G of the bed below the joint I alter- 75 nately; or the dies of the one side may be operated while the other remains stationary; or they may be operated each side alternately, as desired, by adjusting for that purpose the means through which power is applied thereto. 80

L represents the main driving-shaft, with belt-pulleys L'.

M represents cog-wheels on the driving-shaft gearing, with larger cog-wheels N on a central shaft, N'. On the central shaft N' at 85 P is a small cog-wheel gearing with larger cog-wheels Q. If less power or speed is required, the central shaft, N', may be used as a driving-shaft, and provided with belt-pulleys. In this case the shaft L and cog-wheels 90 M N would be dispensed with.

From the cog-wheels Q extend upward connection or pitmen rods R, adjustably connected to the wheels Q, and formed in two lengths, connected by a sleeve, R', threaded on the two 95 approaching ends, by the turning of which the rod may be lengthened or shortened. The upper ends of these rods are pivoted to the joint of the toggles S. The lower ends of said toggles are pivoted at S' to the main standards 100 A, and the upper ends at S² to the die-holders H, the connecting-pivot passing through a

curved slot in the superstandards D, so as to work freely therein, while swinging the die-holders H (or jaws) open and shut.

Above the superstandards D are arranged
 5 one or more sets of rolls, supported by extension or roll standards D', being properly journaled therein at each end of the machine. These rolls may all be die-faced, or such as
 10 or have corrugated faces, according to the kind of work required of them. Two such rolls comprise a set, two sets being shown in the drawings. The lowermost set have motion communicated through an extension-rod,
 15 T, pivoted at its lower end to the joint of the toggles S, and is in two lengths, provided with connecting and adjusting sleeve T', and its upper end at T² is pivoted to (by an adjustable connection) an arm, U. This arm U is secured
 20 properly to the shaft of one of the lower set of rolls. The two rolls are geared together by cog-wheels U² and U³, so that as the arm U is vibrated upward and downward the rolls will be oscillated at the same time. These
 25 rolls are marked V and V'. The upper set of rolls are operated in a similar manner through (or by) extension-rods T³, adjustable by sleeve T⁴, connected at T' to arm W, (adjustably,) which arm is connected at its inner end to
 30 shaft of lower roll. These two rolls are also geared together at each end by cog-wheels W² and W³. These rolls are marked Y and Y'. The roll-standards are provided with suitable cross-head Z.

35 It is not material which set of rolls are die-

faced; neither is the particular form of die-facing.

Either set of rolls may be operated while the other remains stationary by adjusting the operating devices.

The rolls are useful in working sheet metal, smoothing it, curving it, flattening folds, corrugating, &c., and when faced with special dies (or having specially-cut faces) molding and forming it into special shapes for many
 45 architectural and building purposes. Forms which have been worked up into certain shapes within the jaws below may herein receive a finish by passing such through or partially
 50 through the rolls or die-faced cylinders.

I do not claim herein the jaws or double-acting die-holders or their tongues, (or mandrel-dies,) as I have claimed such devices in my application, Serial No. 97,243.

What I claim as new, and desire to secure
 55 by Letters Patent of the United States, is—

1. The combination of the shaft L, gear-wheels M N P Q, rods R, toggles S, extension-rods T, arms U, gear-wheels U² and U³, and rollers V and V', substantially as shown and
 60 described.

2. The combination of shaft L, gear-wheels M N P Q, rods R, toggles S, extension-rods T³, arms W, gear-wheels W² and W³, and rollers Y and Y', substantially as shown and described. 65

GEO. HAYES.

Witnesses:

JACOB KOCH,
 RICHARD H. REILLE.