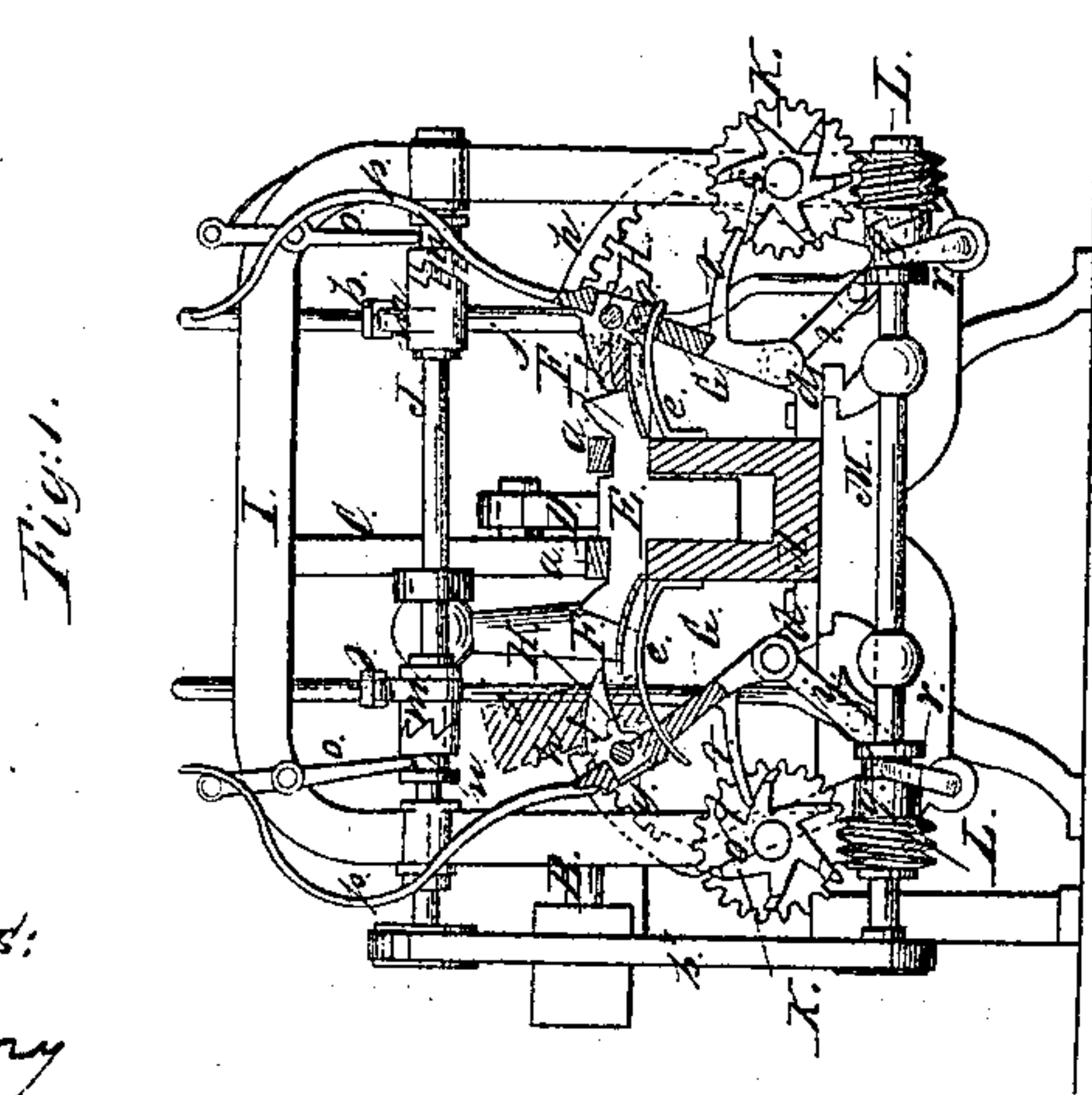
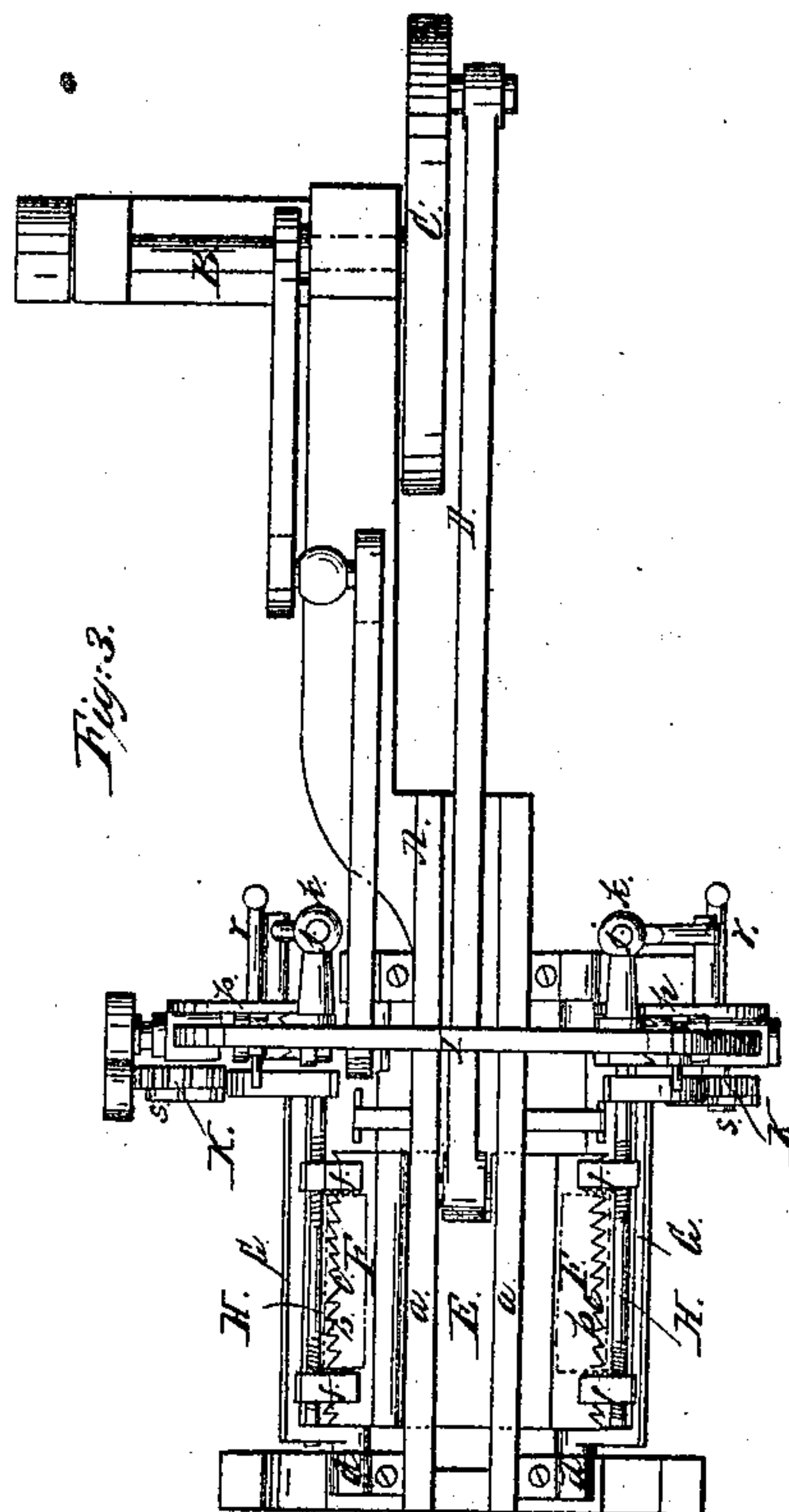
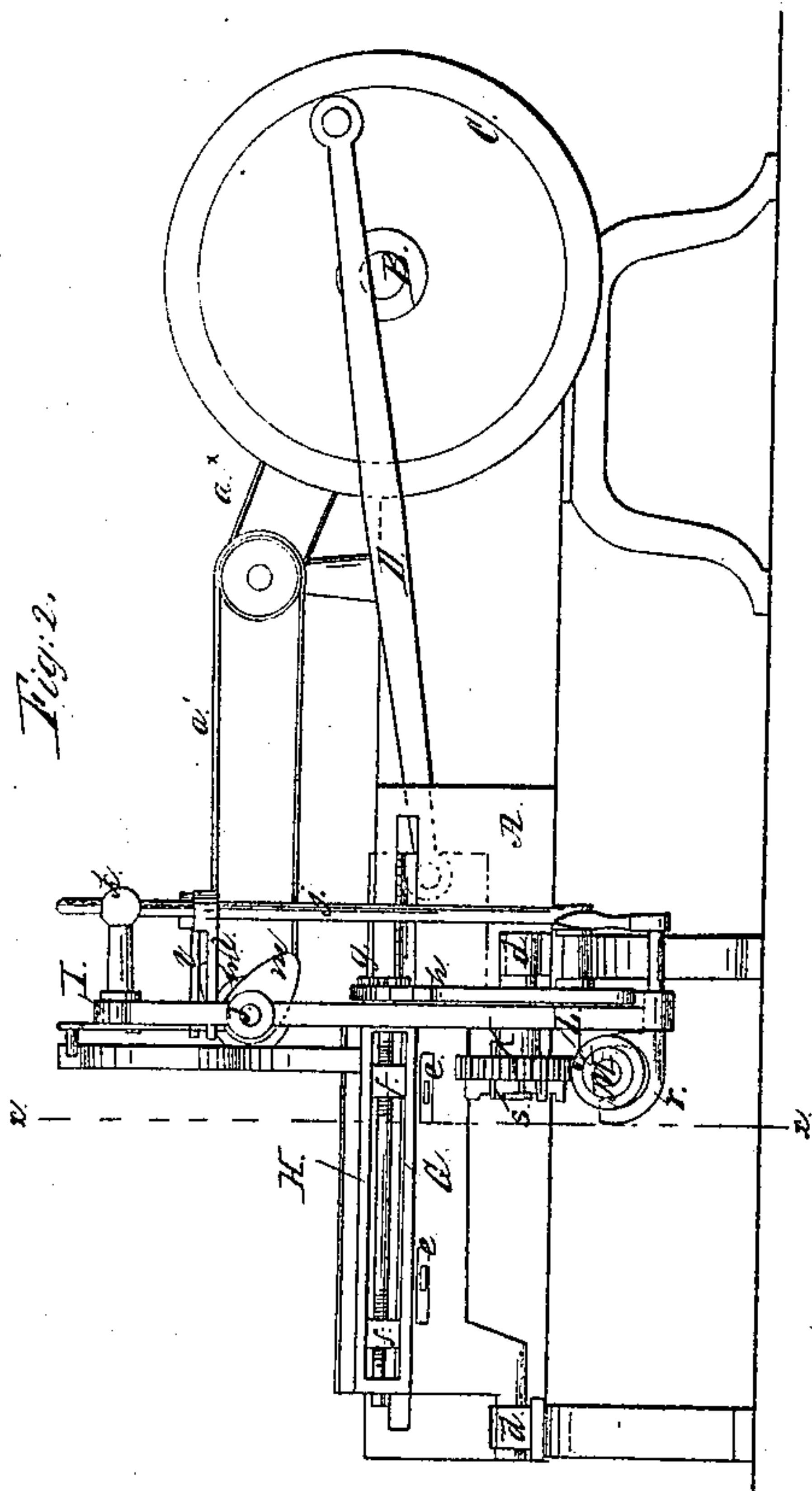


H. H. Evans,
Making Stares.

N^o 24,079.

Patented May 17, 1859.



Witnessed:
Lynd Berry
Fred. H. Martin

Inventor:
Harry H. Evans

UNITED STATES PATENT OFFICE.

H. H. EVARTS, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND P. E. MERRIHEW, OF
SAME PLACE.

MACHINE FOR SAWING STAVES FROM THE BOLT.

Specification of Letters Patent No. 24,079, dated May 17, 1859.

To all whom it may concern:

Be it known that I, H. H. EVARTS, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Stave-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a transverse vertical section of my invention taken in the line x, x , Fig. 2. Fig. 2 a side view of ditto. Fig. 3, a plan or top view of ditto.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement in that class of stave machines in which reciprocating saws are used for cutting the staves from the bolt.

The invention more especially relates to an improvement on a stave machine for which Letters Patent were granted to me bearing date March 23d, 1858.

The object of the within described invention is to expedite the cutting of the staves from the bolt and render the operation of the working parts automatic throughout.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a framing which may be constructed in any proper way to support the working parts of the machine. B, is a driving shaft placed on one end of said frame and having a crank pulley C, attached to it. To this crank pulley a connecting rod D, is attached, said rod driving a carriage E, which is fitted in or between guides a, a , on the framing. To each side of the carriage E, a saw F, is placed, said saws being each provided with teeth b , which have reverse positions at each side of the centers c , of the saws in order to enable them to cut while moving in either direction, see Fig. 3.

To each side of the framing A, a swinging frame G, is placed. These frames have the journals at their lower ends fitted in eyes or bearings d , and the frames G, G, move in arcs of circles which are concentric with circles of which the saws F, F, are segments, see Fig. 1, and to each side of the framing just below the plane of the movement of the saws F, F, curved bearings e, e , are attached, the distance between said bearings and the

saws being equal to the thickness of the staves to be cut. The bearings e, e , pass through slots in the frames G, G.

In the upper part of each frame G, a right and left screw rod H, is placed, and two jaws or dogs f , are placed on the screws of each rod as shown clearly in Fig. 3. To the inner end of each rod H, a pinion g , is attached, and into these pinions curved racks h , gear, one in each. The lower ends of the racks h , are attached to arms i , that are fitted on the inner journals of the frames G, and these arms are attached to the lower ends of rods j , the upper parts of which slide freely in bearings k , that are secured to a bow-shaped bar I, attached transversely to the framing A, as shown clearly in Fig. 1. To each rod j , a horizontal arm l , is attached, and these arms rest on cams m , which are placed loosely on a shaft J in the bar I, and are connected with said shaft at the proper time by a clutch n . To the clutches n, n , levers o, o , are attached one to each, and to each frame G, an upright bar p , is attached.

At the lower part of the bow-shaped bar I, and at each end a worm-wheel K, is attached, and into each wheel a screw L, gears. These screws are placed loosely on a shaft M, attached to the lower part of the bar I, and are connected with said shaft so as to rotate with it at the proper time by means of clutches q , that are actuated by levers r, r .

To one side of each worm-wheel K, a wiper wheel s , is attached, and to each frame G, a projecting arm t , is attached against which the wiper wheels act.

The shaft J, is rotated from the driving shaft B, by means of belts u , and the shaft M, is rotated from the shaft J, by means of a belt v .

The operation is as follows:—A bolt, shown in red, is placed between the jaws f, f , of each rod H, and the levers r, r , are moved so as to throw the clutches q , in gear with the screws L, L, and connect the same with the shaft M. Motion is then given the shaft B, in any proper manner and a reciprocating movement communicated to the saws F, F. The bolts are fed to the saws in consequence of the arms of the wiper wheels s , acting against the projecting arms t , of the frames G, and gradually elevating them until the saws have cut through the bolts, the frames G, then fall back by their own gravity, the arms of the wipers that elevated

them having passed the projections *t, t*, of the frames *G*, and the bars *p*, strike the levers *o*, and actuate the clutches *n, n*, so as to connect the cams *m*, with the shaft *J*,
 5 said cams then raising the arms *l, l*, and rods *j*, the latter during their ascent moving the segment racks *h, h*, which by means of the pinions *g, g*, turn the rods *H*, and release the bolts of their jaws *f, f*, thereby allowing
 10 the bolts to descend on the bearings *e*. The bolts are then redogged or fastened by the falling back of the segment *h*, after the prominence of the cams *m*, have passed the arms *l, l*, and succeeding arms of the wipers
 15 *s*, act on the projections *t*, and the operation is repeated, a succeeding stave being cut in the same way as the first.

The staves are all cut in a smooth and perfect manner, and transversely of a proper
 20 curved form corresponding to the sweep of the frames *G, G*.

I do not claim the employment or use of

reciprocating saws of curved form to cut the staves in a corresponding shape from the bolt, for this has been previously done; 25 but,

I do claim as new and desire to secure by Letters Patent,

1. The employment or use of the reciprocating saws *F, F*, in connection with the 30 swinging bolt frames *G, G*, operated by the wiper wheels *s*, or their equivalents, substantially as and for the purpose set forth.

2. The employment or use of the segment racks *h*, operated substantially as shown 35 and connected by the pinions *g*, with the right and left screw rods *H*, having jaws *f, f*, placed thereon, for the purpose of dogging and undogging the bolts at the proper time as described.

HARRY H. EVARTS.

Witnesses:

GEO. W. BERRY,
 FREDK. DALTON.