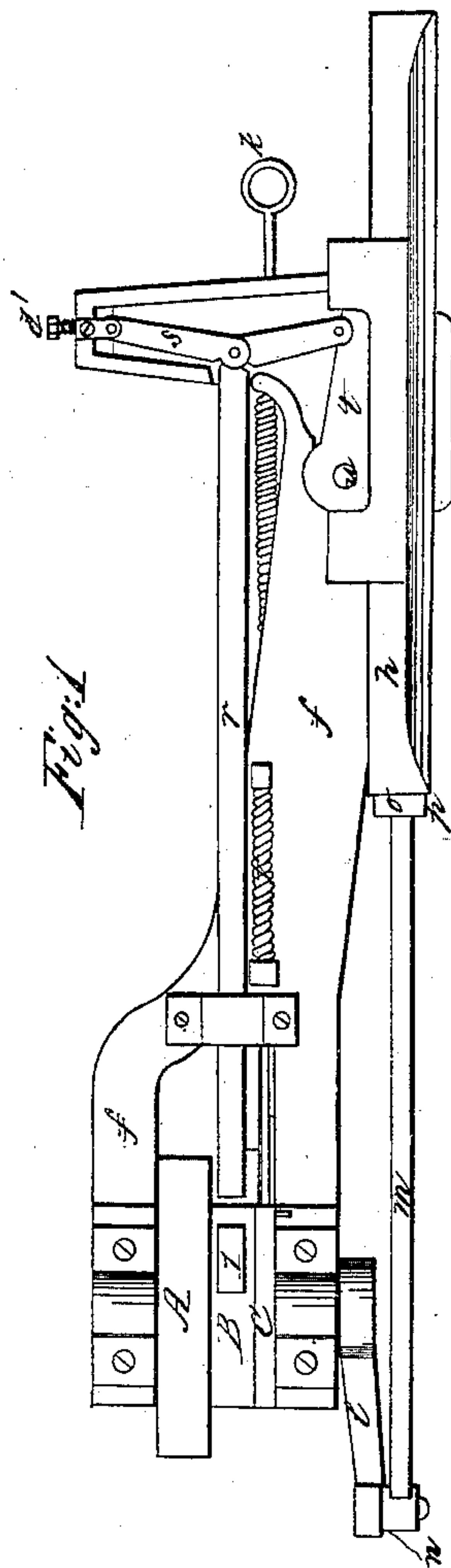


P. D. Cummings,
Making File-Blanks,

N^o 59,561.

Patented Nov. 13, 1866.



Witnesses.
William H. Clifford
Henry C. Houston

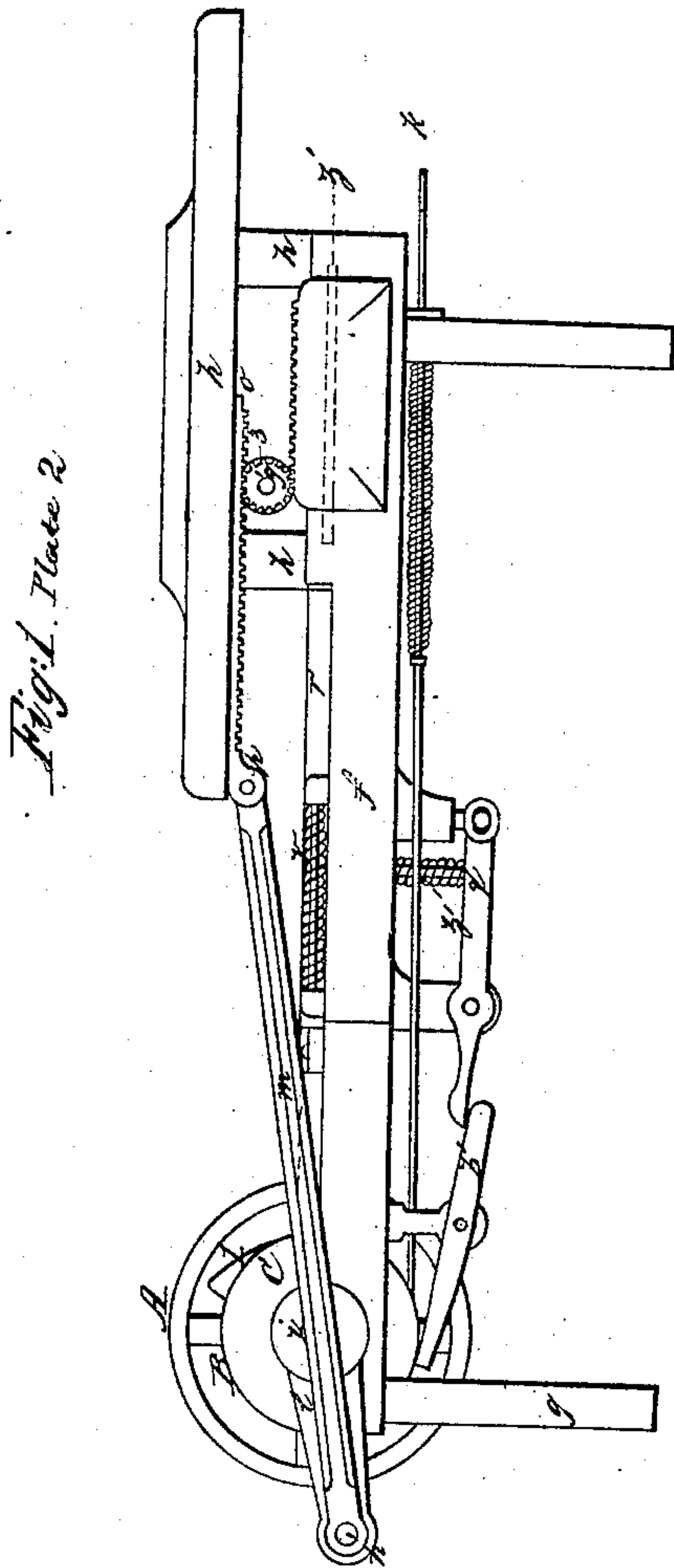
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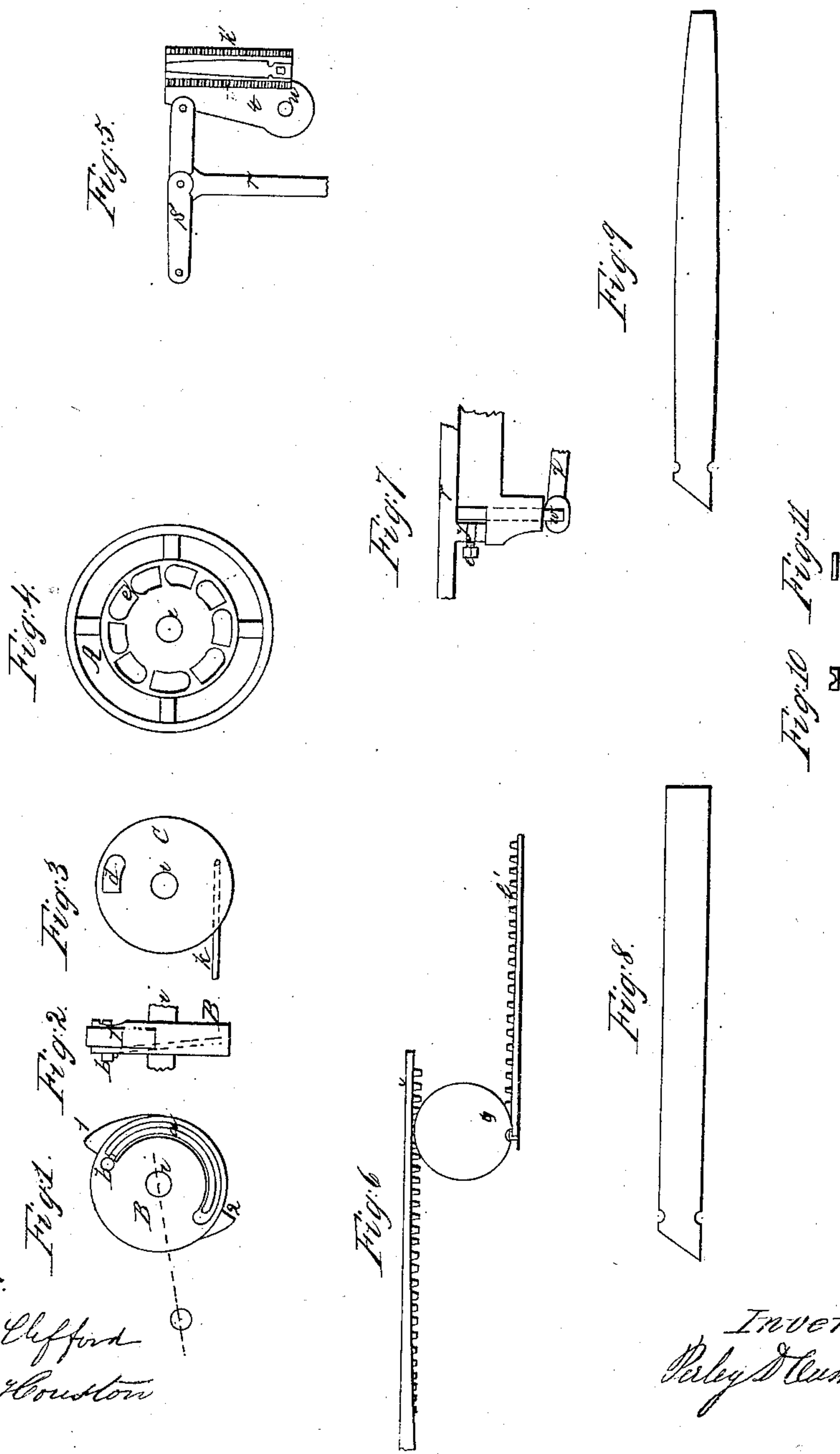
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Inventor:

Perley Cummings

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UNITED STATES PATENT OFFICE

PERLEY D. CUMMINGS, OF PORTLAND, MAINE.

IMPROVEMENT IN MACHINES FOR ROLLING FILE-BLANKS.

Specification forming part of Letters Patent No. 59,561, dated November 13, 1866.

To all whom it may concern:

Be it known that I, PERLEY D. CUMMINGS, of Portland, in the county of Cumberland and State of Maine, have invented a new and Improved File-Blank-Rolling Machine; and I hereby declare the following to be a full, clear, and exact description thereof, making reference to the accompanying drawings, constituting part of these specifications, in which—

Figure 1, Plate No. 1, shows a top plan of my invention. Fig. 1, Plate No. 2, shows a side elevation of the same. Fig. 1, Plate No. 3, shows an interior side view of the wheel having the cams 1 and 2, curved spring *a*, and bolt *b*; Fig. 2, Plate No. 3, an edge view of the same; Fig. 3, Plate No. 3, the inside of the movable face of the wheel B, having the rod *c* and recess *d*. Fig. 4, Plate No. 3, shows a view of the main wheel having the ratchet *e*. Fig. 5, Plate No. 3, shows a plan of the jaws in which the blank is placed and the method of opening and closing the same; Fig. 6, Plate No. 3, a sectional elevation of the rolling apparatus. Fig. 7, Plate No. 3, illustrates the method of holding and releasing the bar which opens and closes the jaws; Figs. 8 and 9, Plate No. 3, views of file-blanks; Figs. 10 and 11, Plate No. 3, views of the forms into which the blanks are pressed under the different operations of the machine.

Same letters refer to like parts in all the plates and figures.

My invention has for its object the production of a machine for rolling file-blanks.

Three chief and general functions are performed by my invention; and the machine consists of three leading parts or combinations for the performance of these offices: First, certain devices for imparting motion to the roller; second, certain devices to confine and hold the blank in its bed; third, certain devices for releasing the blank when desired.

There are other portions of my machine operating in conjunction with the portions thus classified and referred to, which will be described more minutely hereinafter.

My machine is set upon a frame or stand having uprights or legs, and horizontal parts connecting the uprights. The upright and horizontal portions are illustrated at *f* *g*, Plates 1 and 2, respectively. The part shown at *h*, which confines the roller, should be made of

sufficient strength, as the whole pressure of the roller is here exerted.

Upon the shaft *i*, set in the horizontal part of the frame, are the power or motive wheel A, the wheel B, and movable face to the wheel C. Constant revolution is imparted to the wheel A by a band or other convenient or usual means. As this wheel revolves, it conveys no motion to the wheel B C until the rod *k* is first pulled outwardly by the operator.

Upon the interior face of the disk C is the recess *d*, before mentioned, one end of which is vertical; and the other forms an inclined plane, as illustrated in the drawings, Fig. 3, Plate 3.

Upon the wheel B, which is rigidly affixed to the shaft *i*, and upon the face thereof toward C, is the spring *a* and bolt *b*, before referred to.

When the rod *k* is pulled, as above specified, the effect is as follows: The wheel or face C is turned somewhat on the shaft *i*. The bolt *b*, resting in the recess *d*, is, by the turning of C, carried up the inclined plane in the recess, and thrust through the wheel B in an aperture for that purpose. When thus thrust through B toward the wheel A, it is caught in the ratchet *e*, Fig. 4, Plate 3, of the wheel A, and thus the motion of the wheel A is imparted to the wheel B, and consequently to the shaft *i*, to which it is rigidly attached. To the shaft *i* is rigidly attached the crank *l*, and to this crank the connecting-rod *m*, at the joint *n*. To the other extremity of the connecting-rod *m* is attached the sliding rack *o*, at the joint *p*. The rack *o* moves in a groove or channel on the under side of *h*. Thus the revolution of the shaft *i* imparts motion to the sliding rack *o*.

When the wheel B has made a single revolution the bolt *b* sinks once more into the recess *d* and out of the ratchet in the wheel A, and the wheel A then, in consequence, continues to turn independent of, or without carrying with it, the shaft *i*. Resting and sliding upon the top of the horizontal part of the frame *f* is the thrusting-beam *r*. This beam works the toggle *s*, which swings the lever *t* turning on the pivot *u*. The lever *t* forms one side of the jaws in which the file-blank is placed for rolling, and thus the beam, toggle, and lever, or movable jaw *t*, serve to compress and release the blank. The thrusting-beam *r* is

moved forward and the toggle is straightened by the cam 1 on the wheel B, and when released is returned by the force of the spring *v*. (See Plate No. 1.) When pressed forward by the cam 1 on the wheel B, and when the toggle *s* is thus straightened, the thrusting-beam *r* is held in this position by the bolt or upright bar *w* attached to the lever *x*. (See Plate No. 2.) The upright bar *w* rises behind the projection *y* on the under side of the beam *r*, and is so raised by the spring *z*.

The thrusting-beam *r* is allowed to be pulled back by the spring *v* as follows: When the wheel B revolves with the wheel A its revolution brings another cam, 2, Fig. 1, Plate No. 3, in contact with the lever *b'*. This contact forces the end of the lever *x*, to which the upright bar *w* is attached, downward, thus drawing the bar *w* downward and from behind the projection *y* on the beam *r*, and so allows the beam *r* to be pulled backward by the spring *v*. Thus the toggle *s* is crooked and straightened and the jaw *t* opened and closed. (See Plate No. 2.)

The extent to which the thrusting-beam *r* is moved is regulated by the screw *e'* on the projection *y* by turning the screw in or out, Fig. 7, Plate No. 3. The space between the jaws can be increased or diminished by the screw *d'*, by which the toggle can be moved toward or from the jaws. (See Plate No. 1.)

The jaws in which the blank is placed are seen at Fig. 5, Plate No. 3, having one movable side, as hereinbefore specified, and one fixed, as illustrated in the drawings. Upon the sides of these jaws are laid the tracks *k' l'*, Fig. 5, plate No. 3. These are for the reception of the geared roller *g'*. (Seen in Fig. 1, Plate No. 2.) The geared roller moves between these stationary tracks and the sliding rack *o* before mentioned. On the center of the roller and fitting into the space between the jaws, and intended to press upon the blank, is a projection, 3, extending the whole circumference of the roller. The roller is carried backward and forward over the jaws and on the tracks by the movement of the sliding rack *o* before described.

The bed of the channel between the jaws is made inclined, both on the sliding rack *o* and the stationary jaw beneath it, so that the outer end of the file is thinner than the butt, as is well known.

The butt of the blank is received by certain projections in the end of the space between the jaws. These projections fit into nicks in the end of the blanks as commonly made. This is clearly illustrated in Fig. 5, Plate No. 3, and in Fig. 6, same plate.

The operation of my invention is as follows: Suppose the wheel A to be revolving, as before specified. Place the blank, after being heated red-hot, in the jaws, draw out the rod *k* so as to impart the motion of the wheel *k* to B. The cam 1 immediately presses forward the thrusting-beam *r* and straightens the toggle *s*. The bolt *w* rises behind the projection *y* and holds the blank firmly in the jaws. The revolution of the shaft *i* carries the roller over the blank and back. When the roller returns to the position from which it started the cam 2 on the wheel B strikes the lever *b'*, which draws the bar or bolt *w* downward and allows the spring *v* to pull the thrusting-beam *r* backward, which releases the hold of the jaw *t* upon the blank, and the operation is complete.

When first compressed, before rolling, the blank will present the appearance at the sides shown in Fig. 10, Plate No. 3, but the roller will restore it to the form seen in Fig. 11, same plate. A short distance below the movable side of the jaws to receive the blank is the aperture *z'*, to receive the particles detached from the surface of the blank by oxidation. Formation is indicated by the dotted lines in Plate No. 2.

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

1. The combination and arrangement of the wheels A B C, spring *a*, bolt *b*, rod *a*, shaft *i*, crank *l*, connecting-rod *m*, and sliding rack *o*, all constructed and operating as and for the purposes hereinbefore set forth.

2. In combination with the subject of the first claim, the combination of the sliding rack *o*, geared roller *g'*, tracks *k' l'*, with the inclined channel between the same, as and for the purposes set forth.

3. The combination and arrangement of the wheels A B C and rod *k*, operating as described, cams 1 and 2, with thrusting-beam *r*, toggle *s*, jaw *t*, levers *b' x*, bolt *w*, spring *z* and spring *v*, all operating as and for the purposes set forth.

4. The combination and arrangement of the screw *e'* in the projection *y* with the screw *d'* on the toggle *s*, as and for the purposes set forth.

5. The combination of the part *h*, sliding rack *o*, geared roller *g'*, tracks *k' l'*, and projection 3 on the roller, for the purpose of submitting the blank to the necessary pressure.

PERLEY D. CUMMINGS.

Witnesses:

WILLIAM H. CLIFFORD,
HENRY C. HOUSTON.