

(No Model.)

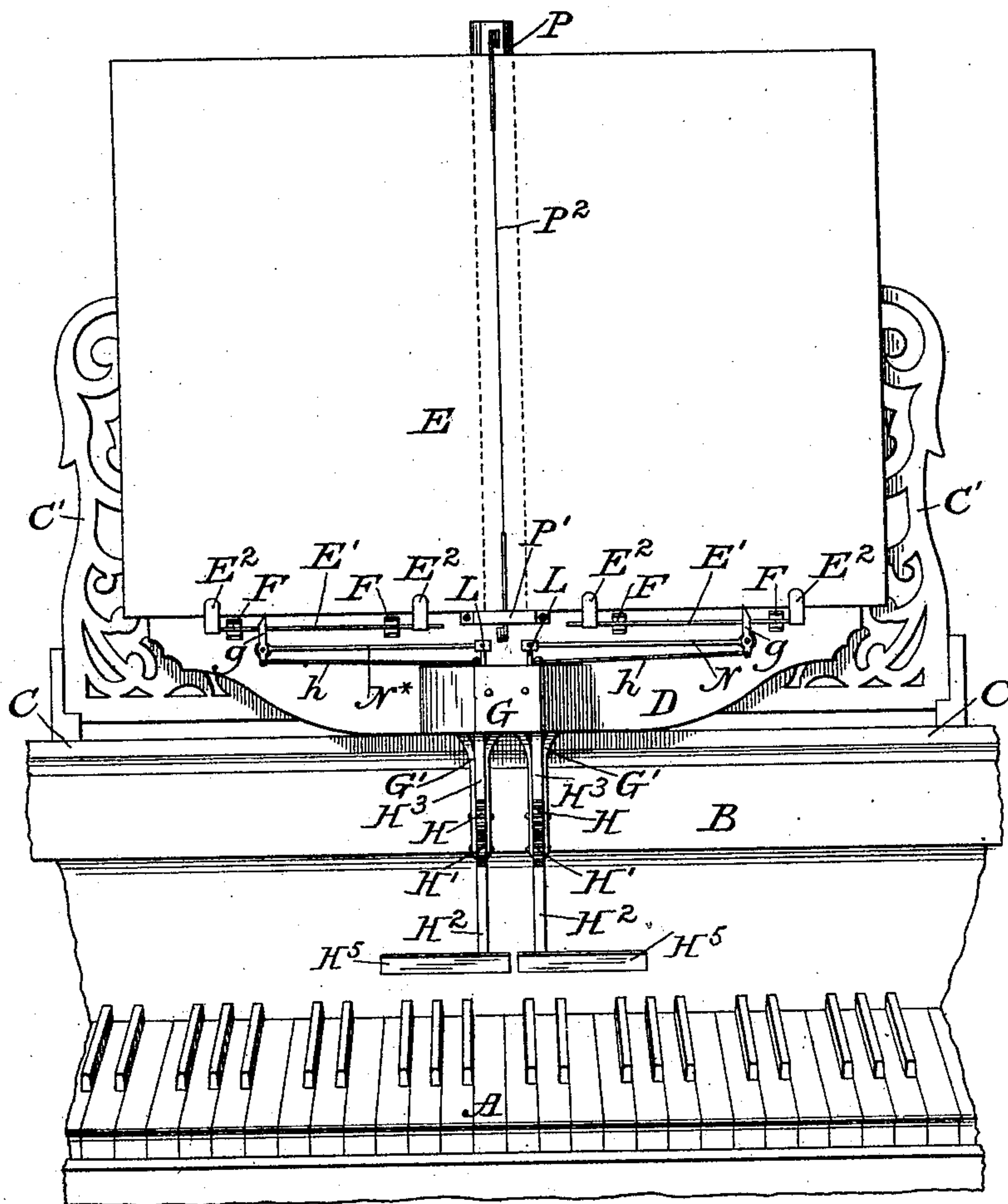
3 Sheets—Sheet 1.

H. & G. BOGUMIL.
MUSIC LEAF TURNER.

No. 467,632.

Patented Jan. 26, 1892.

Fig. 1.



Attest:

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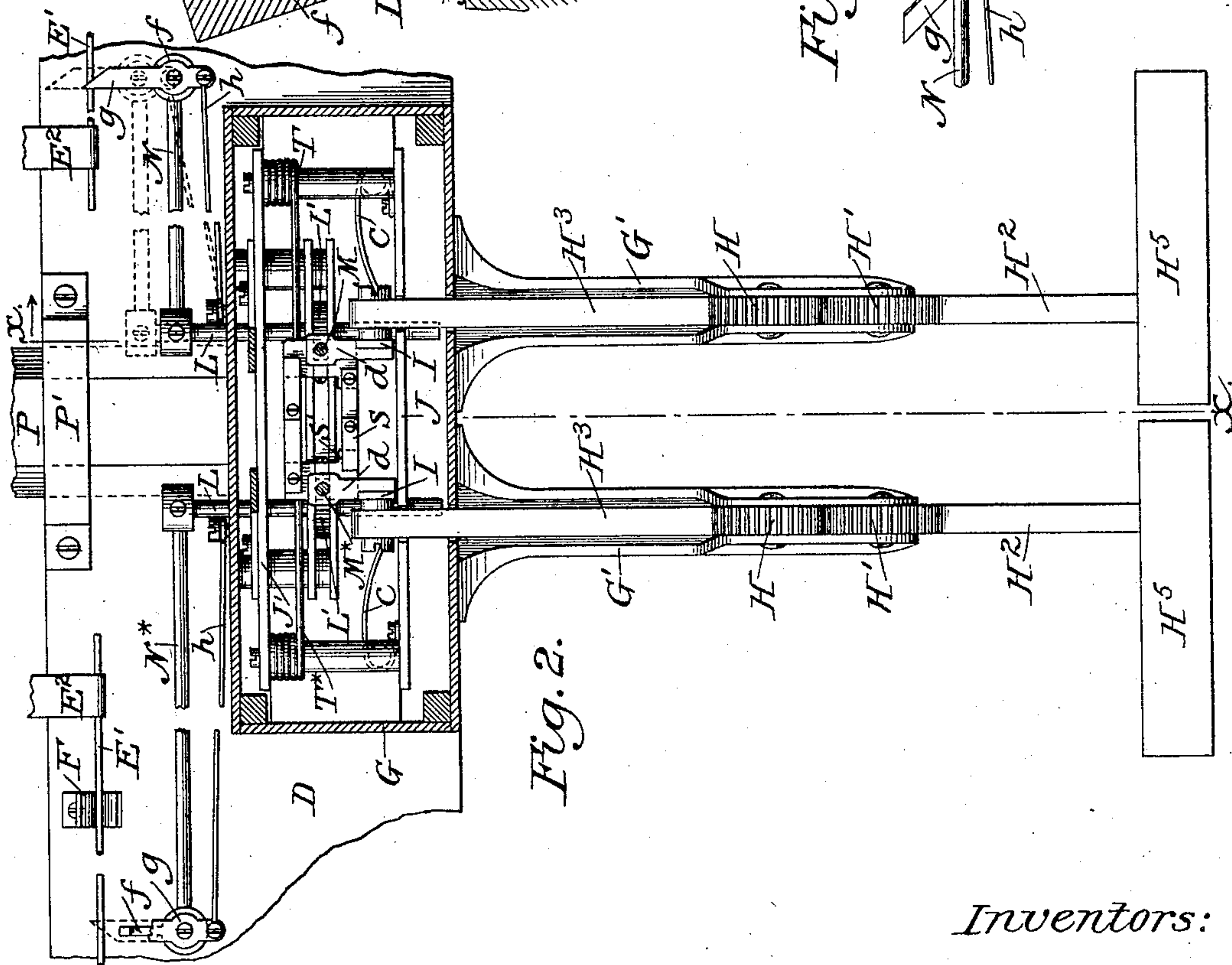
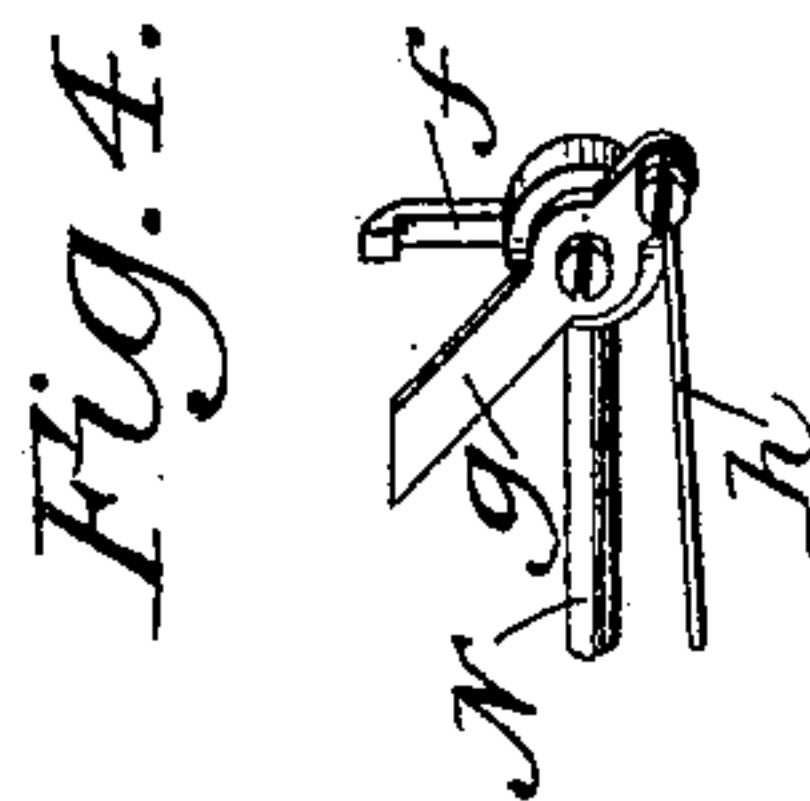
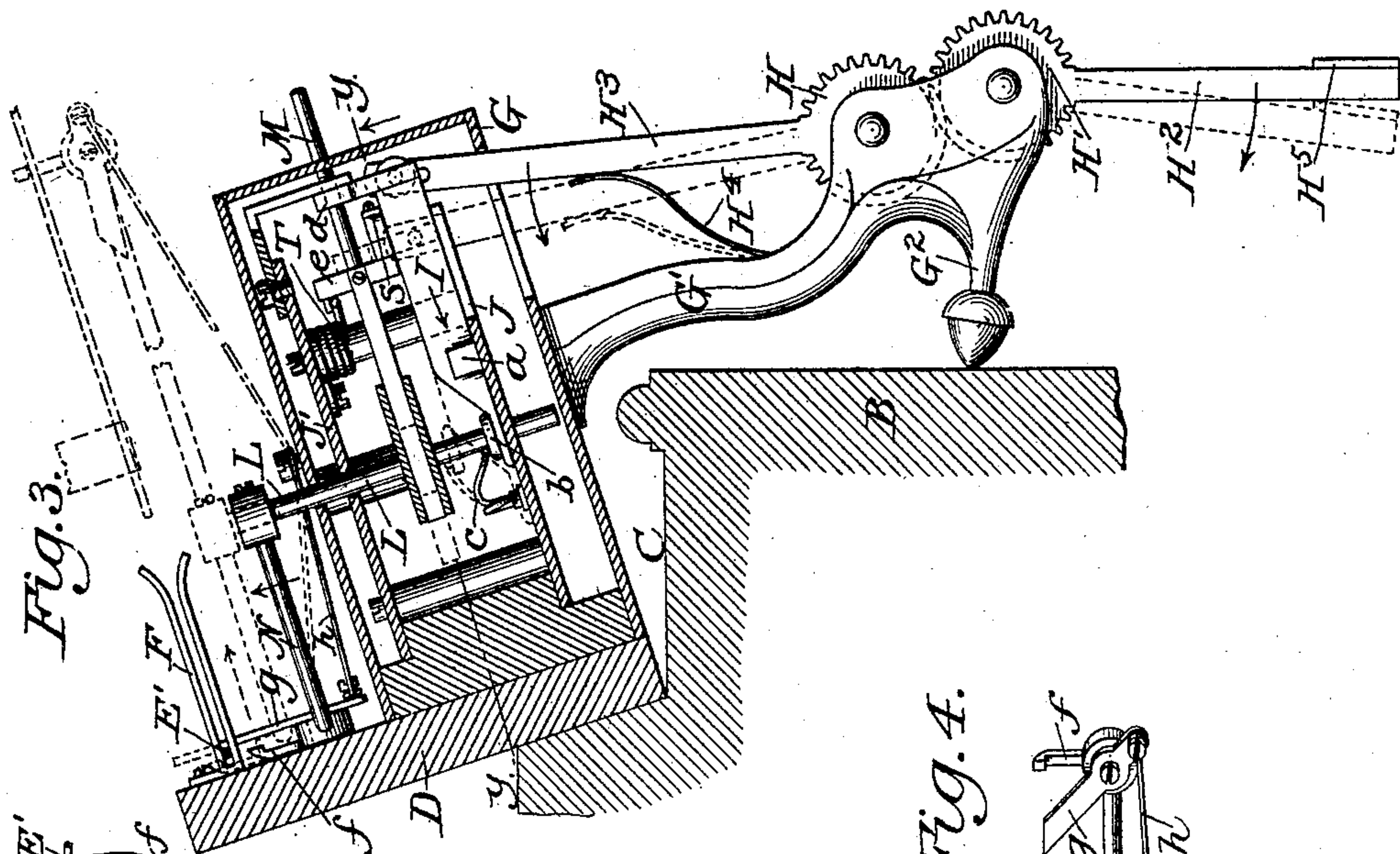
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3 Sheets—Sheet 2.

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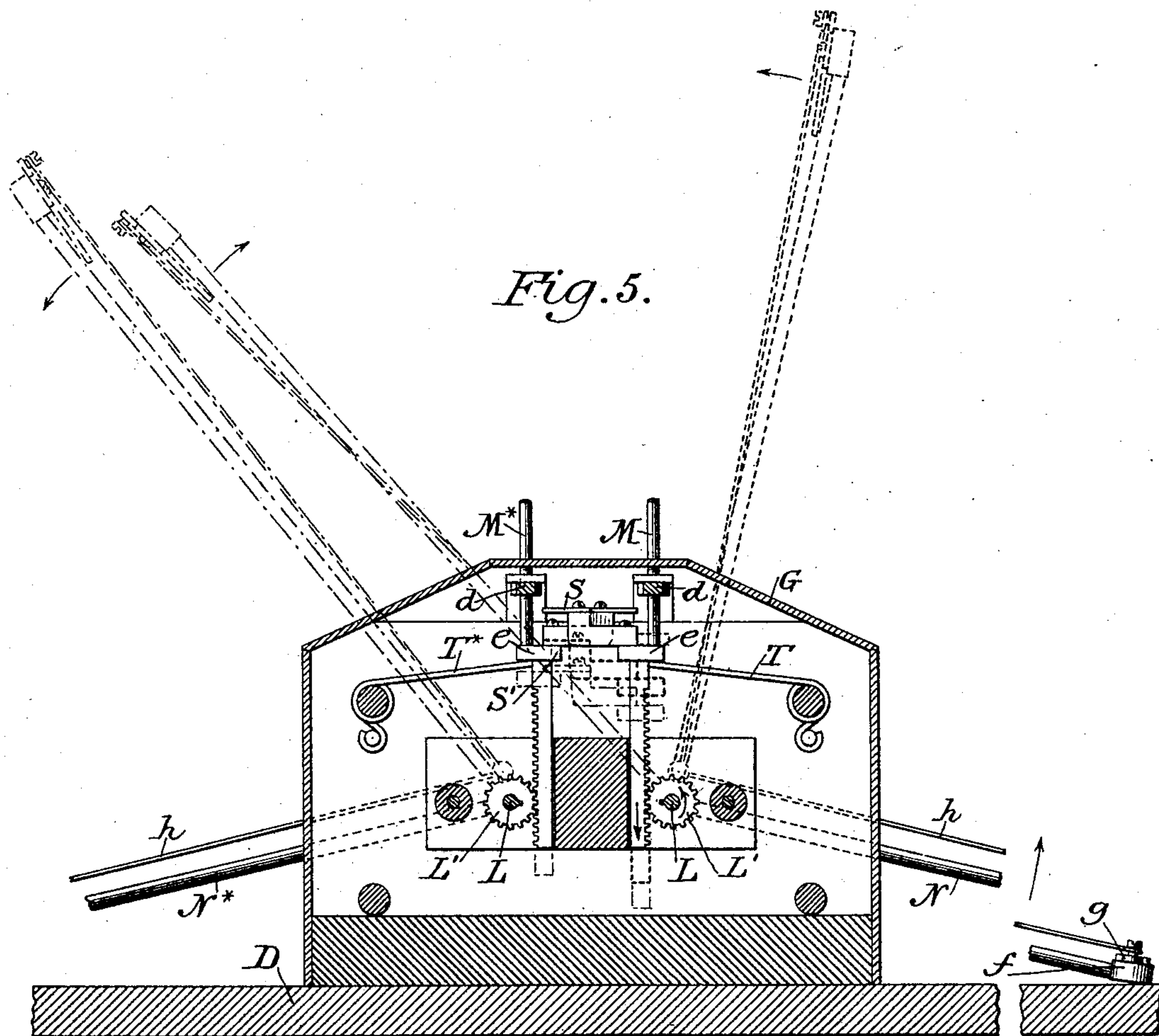
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

HERMAN BOGUMIL AND GEORGE BOGUMIL, OF NEW YORK, N. Y.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 467,632, dated January 26, 1892.

Application filed April 6, 1891. Serial No. 387,823. (No model.)

To all whom it may concern:

Be it known that we, HERMAN BOGUMIL and GEORGE BOGUMIL, both of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Automatically Turning the Leaves of Music either in Sheet or Book Form; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

Our invention relates to apparatus for automatically turning, by the simple pressure of the operator's finger upon a key, the leaves of music placed upon an instrument or music-stand.

It has for its object to furnish a simple effective device for the purpose; and it consists in the combination and arrangement, substantially as is hereinafter described and claimed, of a system of levers and intermediate gearing whereby the depression of the lever will produce a swinging movement of another lever in engagement with the lower edge of the leaf or sheet of music, and a movement of the gripping-fingers by which the leaf is caught to produce their release.

In the accompanying drawings, Figure 1 is a front view of a portion of the finger-board and music-rack of a piano with our improved music-leaf turner in operative position thereon. Fig. 2 is a front elevation, upon an enlarged scale, of our apparatus detached, with its face-plate removed; Fig. 3, a transverse central section of the same in line *xx* of Fig. 2 looking toward the right; Fig. 4, a detail in perspective of the fingers on end of the turning-rod; Fig. 5, a sectional bottom view of the complete device on the irregular plane indicated by the line *yy* of Fig. 3 with the movements of the turning-rods illustrated in dotted lines.

Similar letters indicate like parts in all of the figures.

A in Fig. 1 represents the key-board of a piano, above which our device is placed; B, the vertical plate of the piano back of the keys; C, the ledge for the support of the music, and C' the customary piano music-rack.

D represents the back board or strip of our improved music-leaf turner, the lower edge of

which is adapted to rest for support upon the ledge C of the piano. This back board is preferably of a length nearly equal to that of an open sheet of music E, as shown in Fig. 1, and it carries near to its upper edge four clips F F F F, one of which is shown in side elevation in Fig. 3, adapted to engage and support slender wires E', attached by means of loops E² to the bottom of each leaf of the music book or sheet.

At the center of the lower portion of the back board D is formed or fitted a box or casing G to contain the operative mechanism of the apparatus, and from this box depend two brackets G' G', so shaped as to furnish projections G² G², adapted to rest against the vertical plate B of the piano and thereby steady and support the device. These projections are preferably tipped with rubber or other soft material to prevent them from defacing the polished surface of the piano.

Each bracket affords pivotal bearings for two loose pinions H and H' or toothed segments as equivalents therefor placed one above the other, and which are geared together. From each pinion an arm is made to extend radially, the one H² to depend at a right angle with the keys and above them and the other H³ to project upwardly into the casing G. The dependent arm H² is fitted with a plate H⁵ to be struck or pressed inward by the performer's finger when it is desired to turn the music-leaf, said arm and its plate thus serving as the operating-key for the device.

The mechanism which is operated by the key on each bracket is the duplicate for that actuated by the key on the other bracket, the one actuating the turning-rod for the music-leaves on the right and the other those on the left. We need therefore describe the mechanism connected with but one of them, the same description being applicable to both, with this difference only that the swinging rod actuated by the one moves normally from right to left and of the other from left to right in turning the music.

The upper end of the upper arm H³ is pivoted to a bar I, fitted to slide upon a partition-plate J, which extends parallel with the bottom plate of the casing G to the rear thereof, said bar being guided between two lugs *a a*, one of

which is shown in Fig. 3. The inner or rear end of this sliding bar is beveled off to pass as a wedge under the collar *b*, fixed upon the lower end of the upright spindle *L*, which is mounted to have free play in the line of its axis and to revolve freely in bearings provided for it in the plate *J* and in an upper parallel plate *J'*, as well as in the top plate of the casing *G*, through which it is made to project, as shown. A spring *c* is fitted to bear upon the upper face of the collar *b* to hold the spindle down and resist its uplift as the beveled end of the sliding bar *I* moves under it. The sliding bar *I* is moved inwardly by pressing the finger-plate *H*⁵ on the lower arm *H*² inwardly, for this inward movement of the lower arm will, by reason of the intervening toothed gear *H H'*, operate to swing the upper end of the upper arm *H*³, pivoted to said sliding bar *I*, inward with it. A spring *H*⁴ is fitted to bear against said upper arm and operate by its stress to force the arm automatically outward and return it to the first position as soon as the finger-plate *H*⁵ is relieved from pressure.

A pinion *L'* is fitted upon the spindle *L* above its collar *b* and connected thereto by a spline, so as to produce its rotation in unison therewith and yet permit its independent movement in the line of the axis. This pinion *L'* gears with a rack formed laterally upon the inner edge of the sliding rod *M*, mounted parallel with the sliding wedge-bar *I*, to reciprocate in the line of its axis in suitable bearings in the casing *G* and its frame. An offset *d* from the sliding bar *I* embraces the plain portion of the rod *M* and slides freely over it for a short distance, whereupon it strikes against a shoulder-plate or abutment *e* on the rod, and by pressing against said abutment is made in its farther movement to carry the rod *M* with it, which motion of the rod, transmitted by the rack to the pinion, will produce a revolution of the spindle *L*. Thus the movement of the sliding rod *I*, produced as described, will first, as the offset *d* is carried toward the abutment *e* on the rod *M*, operate by the action of its beveled end under the collar *b* of the spindle to lift the spindle, and then by moving the rod *M* with it to the end of its stroke produce a revolution of the uplifted spindle. The rod *M* will be automatically returned to its first position when released and the revolution of the spindle *L* be reversed by means of a spring *T*.

To the upper end of the spindle *L*, projecting above the top of the casing *G*, an arm or turning-rod *N* is fixed to extend therefrom at a right angle therewith far enough to reach nearly to the outer edge of the leaf of the sheet of music *E*, supported centrally above the casing, and the outer end of this swinging turning-rod *N* is armed with an upright finger *f*, beveled off at its upper end to pass readily under a music-leaf. A second finger *g* is pivoted to the lower end of the upright finger *f*, which is enlarged for the purpose

(see Fig. 4) to swing from a position parallel with and overlying the first finger, (see Fig. 2,) to a position at an angle therewith. (See Figs. 4 and 5.) In the first position of the outer oscillating finger *g* the two fingers are adapted to embrace between them the lower edge of the music-leaf, or the wire *E'*, attached thereto in the manner as described, and in the second position said outer finger *g* is moved far enough to be free from said lower edge or wire and leave the way clear for the fingers to swing away from it. The movement of the oscillating finger *g* to clear it from the music-leaf is produced automatically as the turning-rod swings out and over to turn the leaf by means of a wire *h*, which couples the lower end of the finger below its pivot with the top plate of the casing at a point slightly in front of the bearing for the spindle *L*, so as to be eccentric thereto. This rod operates to throw the movable finger into its first or upright position parallel with the upright finger *f*, when the turning-rod is in its normal position of rest in readiness to take hold of the music-leaf, and then, as the turning-rod swings forward, carrying the leaf with it, the movable finger is gradually swung over into a horizontal position, or nearly so, (see Fig. 4 and dotted lines, Fig. 3,) so as to be wholly removed from in front of the music-leaf, thereby leaving the latter free to drop away from the turning-rod after it has been carried over beyond the center.

The sheets or leaves of music *E* to be turned are preferably supported in the middle or fold thereof by means of a bar *P*, (see Fig. 1,) fitting at its lower end in a socket *P'* in the middle of the length of the back board *D* of the apparatus, so as to project vertically therefrom to a height exceeding that of the music book or sheets. This bar *P* is provided with a strong elastic cord *P*², attached to the upper end and which is adapted after being brought down over the music, to be attached to the foot of the bar, as shown in Fig. 1.

To avoid superimposing the leaves of the music-sheet one upon the other outside of the fingers of the turning-rod on that side of the apparatus toward which the leaves are carried when turned, the turning-rod, toward which each leaf is carried in the operation of the device, is made to swing out automatically on the approach of the leaf far enough to allow the leaf to pass under it. This movement is illustrated by the dotted lines in Fig. 5, and is produced by affixing to the rod *M*, preferably at or near its abutment *e*, a projection *S*, which shall come into contact with an offset *S'* (see Fig. 2 and dotted lines Fig. 5) on the corresponding rod *M*^{*}, operating the twin turning-rod *N*^{*} at the moment the first has carried the leaf past the central line in turning, and by pressing against said offset *S'* will, in its continued movement to the end of its stroke, cause the second turning-rod to swing out toward the central line until it meets the first turning-rod as it is completing its stroke.

Both turning-rods will be automatically returned to their first positions by the springs T T* as soon as the key which operated them is released, and, since the movement of said key is a short one, the movement of the turning-rods effected thereby, in manner as described, are quickly produced.

We claim as our invention—

1. The combination, in a music-leaf turner, of a vertical rotative spindle, a turning-rod extending from its upper end at a right angle therewith, a pinion attached to said spindle to revolve with it, a rod sliding at a right angle with the spindle and carrying a rack to engage the pinion thereon, an arm pivoted upon a fixed support, connections between said arm and sliding rod, a second arm pivoted to a fixed support and carrying a finger-plate, and gearing intermediate said arms, substantially in the manner and for the purpose herein set forth.

2. The combination, in a music-leaf turner, with its turning-rod and the rotative spindle carrying said rod, of a spring-actuated key-lever pivoted at its inner end and having teeth upon an arc concentric with its pivot, a transmitting-lever pivoted at its inner end and in the plane of the key-lever and having teeth concentric with its axis to gear with the teeth on said key-lever, a bar mounted to slide at a right angle with the spindle of the turning-rod and formed with a rack at one end, a pinion on said spindle engaged by said rack, and a movable block pivoted to the free end of the transmitting-lever and traveling loosely on the outer plain end of said rack-bar into engagement with an offset thereon, substantially in the manner and for the purpose herein set forth.

3. The combination, in a music-leaf turner, of a vertical spindle mounted to revolve and to have play in the line of its axis in its bearings, a turning-rod extending from its upper end, an offset or collar encircling its lower end above its bearing, a bar having a beveled or wedge-shaped end mounted to slide at a right angle with the spindle to and from under its collar, a transmitting-lever pivoted to the outer end of the sliding bar, and a key-lever geared to the transmitting-lever, whereby pressure upon the key-lever shall operate to lift the spindle in its bearings, substantially

in the manner and for the purpose herein set forth.

4. The combination, in a music-leaf turner, of a vertical spindle mounted to revolve and to have play in the line of its axis in its bearings, a turning-rod extending from its upper end, an offset or collar encircling its lower end above its bearing, a pinion fitted loosely upon the spindle and connected thereto by a spline, a bar having a beveled or wedge-shaped end mounted to slide to and from the spindle at a right angle therewith and carry said end under the offset or collar of the spindle to lift it, a rod parallel with said bar and sliding with it and carrying a rack in engagement with the pinion on the spindle to revolve it, an offset from the wedge-bar embracing and traveling loosely upon the rack-rod to contact with a shoulder on the latter after the wedge-bar has lifted the spindle, and levers operating said wedge-bar, substantially in the manner and for the purpose herein set forth.

5. The combination, with the turning-rod in a music-leaf turner and with the spindle serving as its axis, of a fixed finger on the free end of the rod, a second finger pivoted to the base of the first to swing in a parallel plane, and a wire extending from the lower end of the swinging finger below its pivot to a point on the casing in front of and in close proximity to the spindle, substantially in the manner and for the purpose herein set forth.

6. The combination, with the turning-rod in a music-leaf turner and with fingers on the free end of said rod, the one fixed and the other movable, and a wire rod attached to the lower edge of each sheet to be turned, of clips fixed to the back plate of the apparatus to project longitudinally above the rod and engage and guide the wire rods, substantially in the manner and for the purpose herein set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HERMAN BOGUMIL.
GEORGE BOGUMIL.

Witnesses.

A. N. JESBERA,
A. WIDDER.