No. 838,675. PATENTED DEC. 18, 1906.

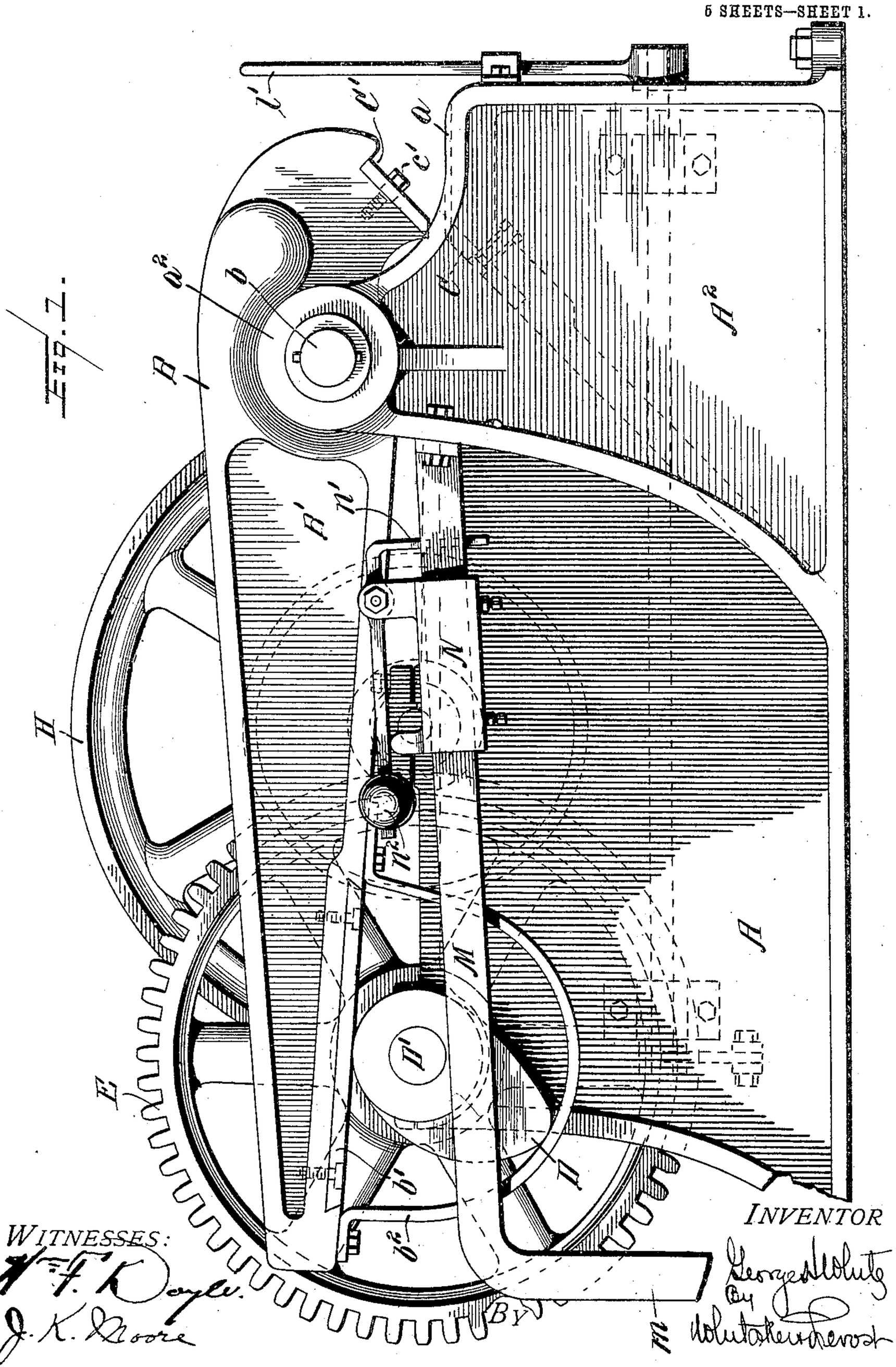
G. H. WHITE.

METAL CUTTING MACHINE.

APPLICATION FILED JAN. 30, 1906.

5 SHEETS—SHEET 1.

Fig. 1.

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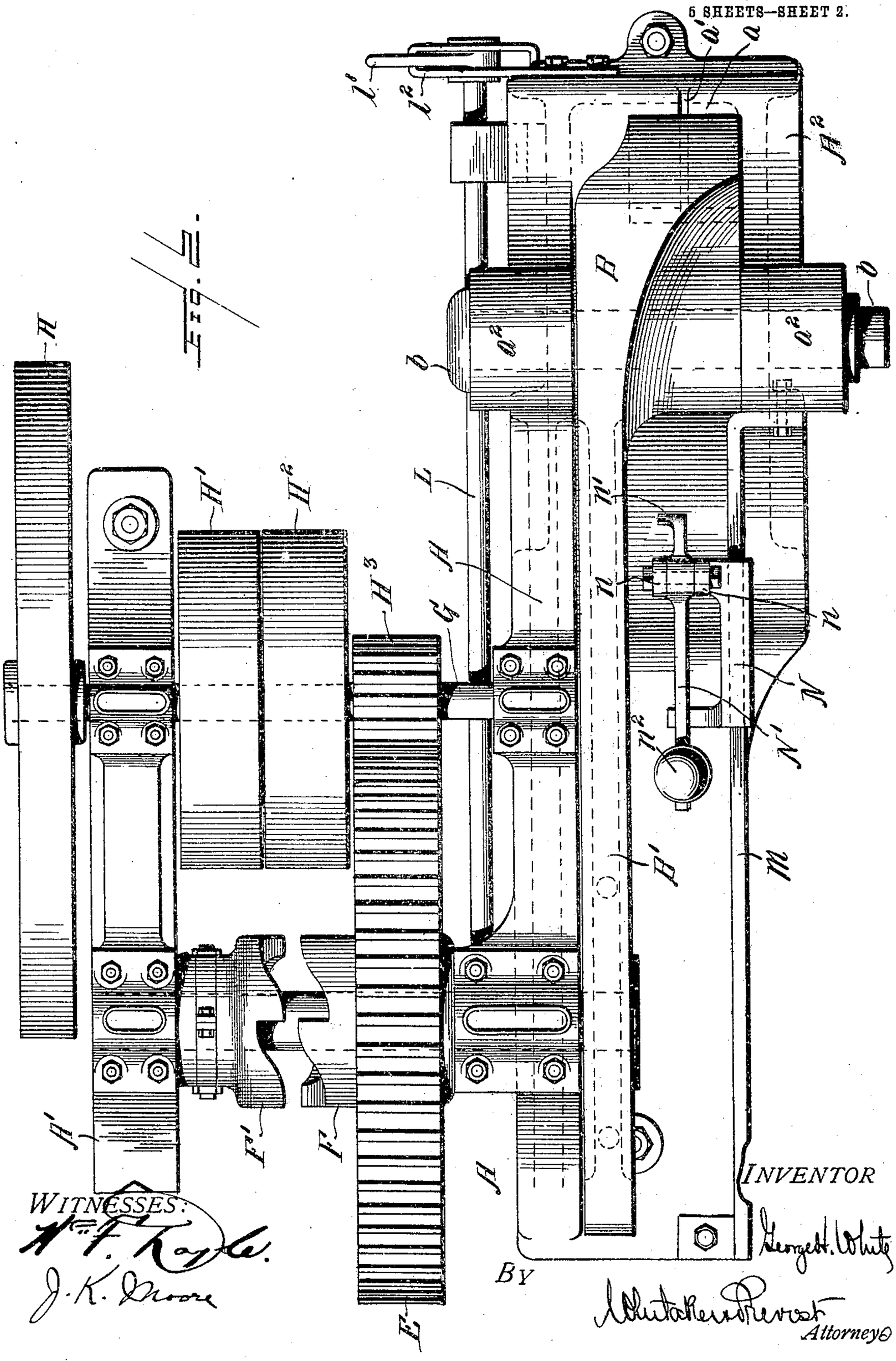
5 SHEETS—SHEET 2.

Fig. 2.

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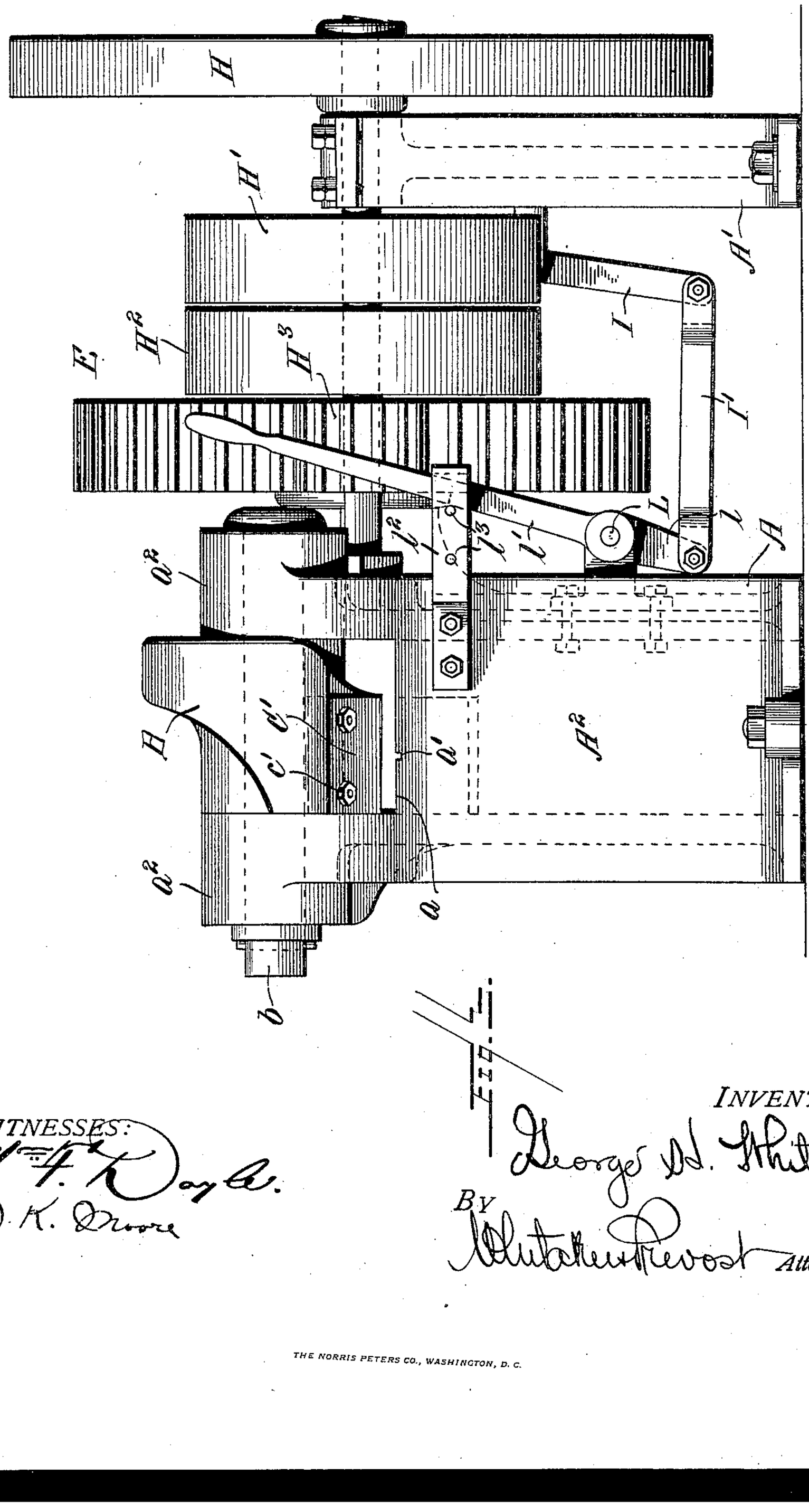
5 SHEETS—SHEET 3.

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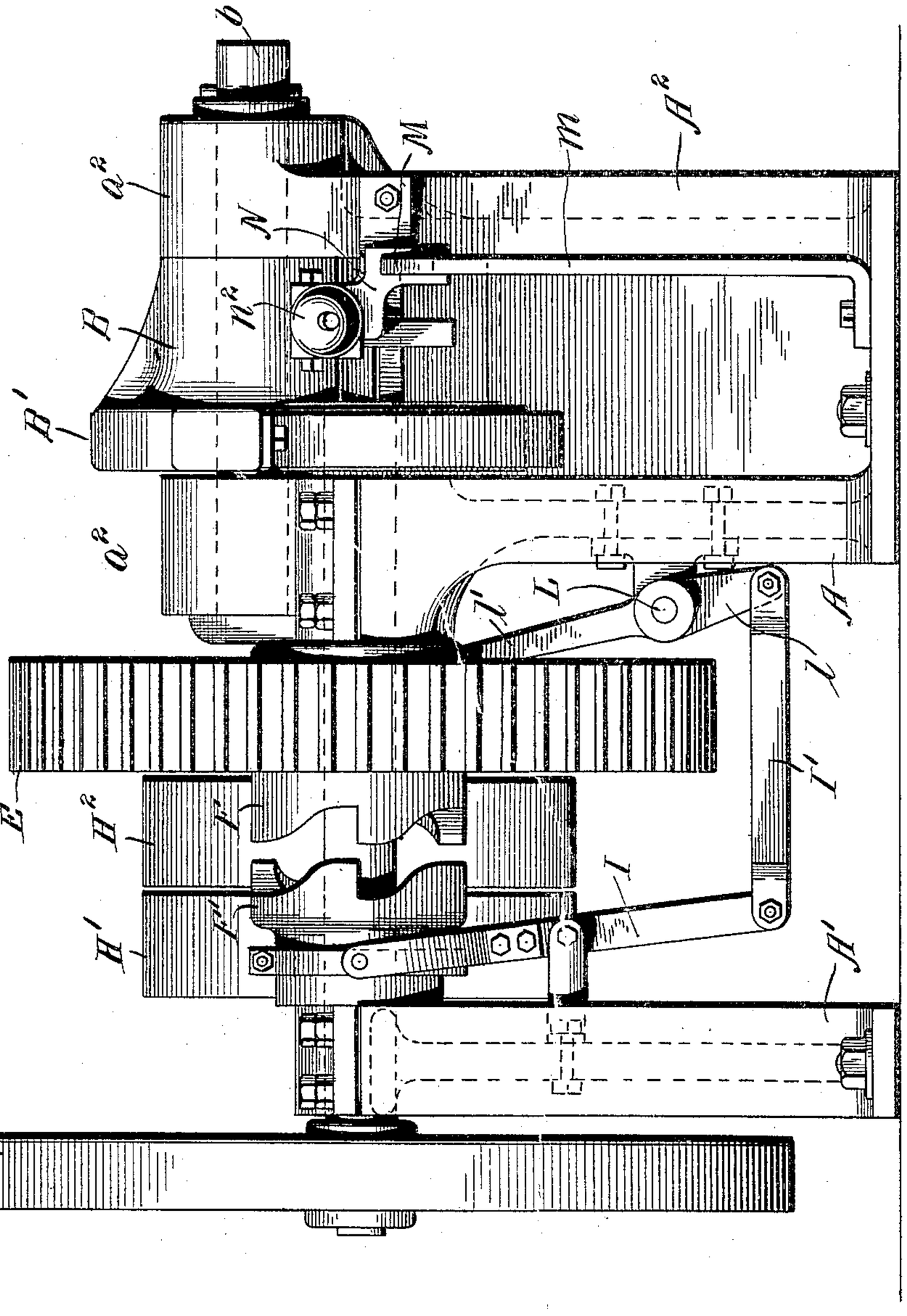


FIG. 4.

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5 SHEETS—SHEET 5.

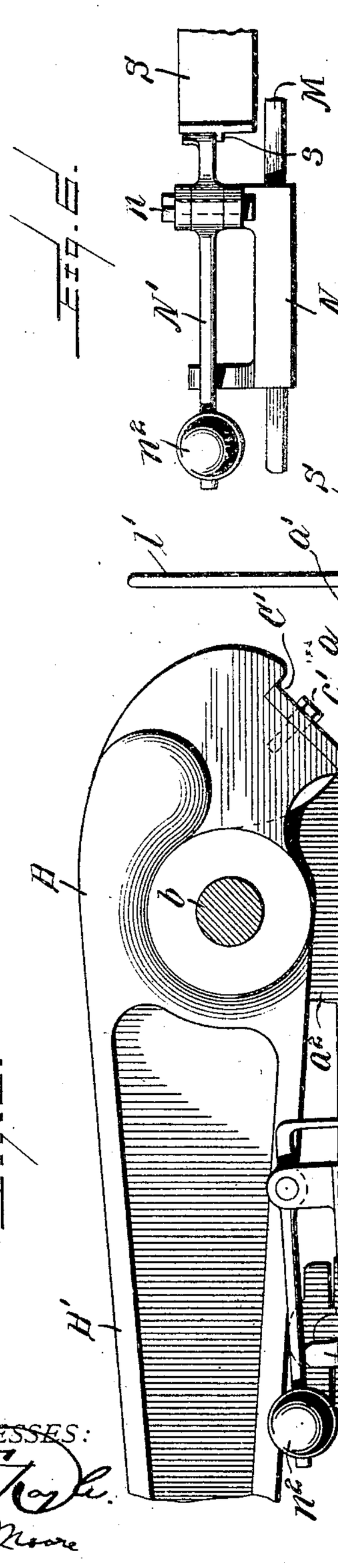


FIG. 6.

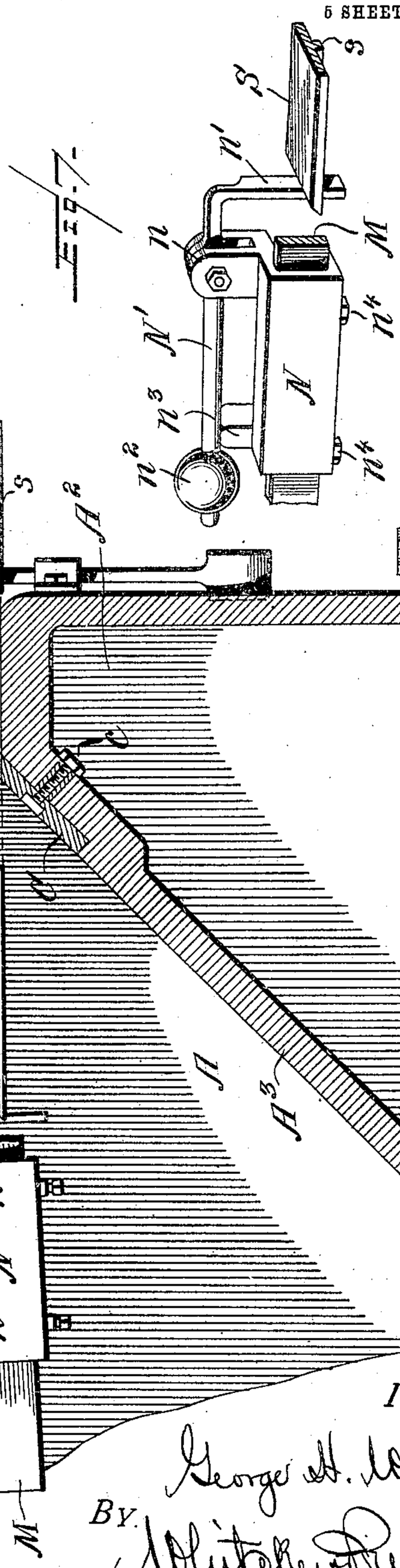


FIG. 7.




FIG. 5.

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# UNITED STATES PATENT OFFICE.

GEORGE HENRY WHITE, OF OIL CITY, PENNSYLVANIA, ASSIGNOR TO S. R. DRESSER MANUFACTURING COMPANY, OF BRADFORD, PENNSYLVANIA.

## METAL-CUTTING MACHINE.

No. 838,675. Specification of Letters Patent. Patented Dec. 18, 1906.

Application filed January 30, 1906. Serial No. 298,728.

*To all whom it may concern:*

Be it known that I, GEORGE HENRY WHITE, a citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Metal-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying the said invention, and the invention is fully disclosed in the following description and claims.

Referring to the drawings, Figure 1 represents a side elevation of a metal-cutting machine embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a front elevation of the machine. Fig. 4 is a rear elevation of the machine. Fig. 5 is a detail sectional view of a portion of the machine, showing the stationary and movable jaws and the adjustable guide for the stock, a piece of "skelp" being shown in position to be cut off and a portion thereof being broken away to show the guiding-groove in the platen. Fig. 6 is a top plan view of the guide detached, showing the end of a steel skelp to be cut in engagement therewith. Fig. 7 is a perspective view of the same.

The cutting apparatus herein shown and described is designed for cutting off flat bars of iron or steel, and especially skelp, such as is used in the manufacture of metal rings, the skelp herein shown being provided on one face with a longitudinal bead, as shown in Figs. 6 and 7, in which S represents a section of the skelp, and *s* the longitudinal bead referred to. In the manufacture of metal rings it is desirable to cut the skelp so that the end portions of the severed blank will be parallel and inclined to the faces thereof, and this apparatus is therefore constructed to cut the skelp in a plane at an angle to the top and bottom of the latter.

In the drawings, A A′ represent the main frame of the machine, the said parts being in this instance detached and separately mounted upon a suitable base of concrete or other material. (Not shown.) The main section A of the frame is provided at its front end with a laterally-offset portion $A^2$ and which forms the rigid jaw of the apparatus and is provided with the stationary knife or cutter C, secured in an inclined position by means of suitable bolts *c* in a recess in the rigid jaw. Forward of the cutter C the said jaw is provided with a guiding surface or platen *a*, which is provided with a longitudinal groove *a′* of substantially the same width and depth as the bead *s*, heretofore referred to, and adapted to receive said bead and guide the skelp as it is pushed into the cutter. The front end of the frame portion A is also provided with perforated lugs $a^2$ $a^2$, which receive the heavy pivot-pin *b*, upon which the cutting-lever B is mounted, as shown. The forward end of the cutting-lever B forms the movable jaw and is provided with the inclined cutter C′ or blade secured in a recess in the jaw by bolts *c′*, and said movable jaw lies between the lugs $a^2$ $a^2$ of the offset portion of the frame A. The portion of the lever B in rear of the point of pivoting (indicated at B′) extends rearwardly in line with one side of the movable jaw and out of line with the cutters or knives C C′, (see Fig. 2,) so that any desired length of skelp can be pushed through the jaws of the machine before cutting off without interfering with the cutting-jaws or any of the mechanism for operating the movable jaw.

The rear end of the lever B′ of the movable jaw is provided on its under face with a removable wearing-plate *b′*, of hardened steel, having its end portions beveled to engage a dovetailed recess in the lever and further secured in position by screws, as shown. This wearing-plate engages a cam D, rigidly secured to a cam-shaft D′, mounted in bearings in the frame members A and A′ of the machine. The shaft D is provided with a gear-wheel E, loosely mounted thereon and provided with a clutch member F, and said shaft is also provided with a movable clutch member F′, secured to the shaft by means of a key or feather, so as to be capable of longitudinal movement thereon while rotating therewith.

G represents the driving-shaft of the machine, mounted in bearings in the frame members A and A′ and provided with a

heavy balance-wheel H, fast and loose pulleys H′ and H², and pinion H³, meshing with the gear E. The clutch member F′ is operated by a yoke I, pivotally secured to the frame member A′ and connected by a link I′ (see Fig. 4) to an arm *l* at the rear end of a horizontal shaft L, which is supported in bearings secured to the frame member A and extends to the front end of the machine, where it is provided with a hand operating-lever *l′*, by which the clutch may be thrown in or out. The hand-lever *l′* (see Fig. 3) extends through a horizontal guide *l²*, which is perforated to receive stop-pins *l³* for holding the lever *l′* in operative or inoperative position when desired.

The lever B′ is also provided with a cam-engaging strap *b²* to insure the downward return movement of the lever after a cut has been made.

M represents a horizontally-disposed guide-supporting bar extending from the offset portion A² of the frame member A rearward to the end of the machine, where it extends downward, as at *m*, and is secured at its lower end to the base of the frame member A. On this bar M is supported the adjustable trip-guide. This guide comprises a sliding block N, adapted to slide on the bar M and provided with perforated ears *n*, in which is pivoted a lever N′, having its forward end bent downwardly and forming the guide proper, *n′*. The rear end of the lever N′ is provided with a counterbalance-weight *n²*, (or spring,) which holds the lever normally in contact with a stop or support *n³* on the block N. One edge of the guide proper, *n′*, is exactly in line with one edge of the recess *a′* in the platen, and this guide *n′* performs the double function of determining the length of the skelp which is cut off and also alining the skelp, so that the cut is made perpendicularly to the lateral edges of the skelp.

It will be seen that the skelp is cut angularly, and as the bead *s* is on the lower side a small portion of the bead will project beyond the end of the plane portions of the skelp, as clearly shown in Fig. 6. In feeding the skelp forward over the platen *a* into the machine it is pushed in until the end engages the guide *n′* (which has been previously set at the desired point) by means of set-screws *n⁴ n⁴*, and the projecting portion of the bead *s* is placed against that edge of the guide *n′* which is in line with an edge of the groove *a′*. The skelp is thus held by said guide *n′* and by the groove *a′* in a position to be cut straight across perpendicularly to its lateral edges.

To produce a cut, the operator throws the lever *l′* to the left, (viewed from the front of the machine, see Fig. 3,) thus moving the clutch member F′ into engagement with the clutch member F and causing the cam-shaft D′ and cam D to rotate, elevating the lever B′ and lowering the movable jaw B and cutter C′. As the skelp is cut diagonally or in a downwardly and rearwardly inclined direction, the effect of the cut is to push the severed piece of the skelp rearwardly. The rear end of the severed portion is in engagement with the guide proper, *n′*, and as the severed piece is pushed rearwardly the lever N′ is rocked on its pivot, the guide *n′* moving rearwardly and the weight *n²* being elevated, thus allowing the severed piece to clear the guide and drop. As it falls its front or forward end strikes an inclined portion A³, (see Fig. 5,) forming the rear face of the laterally-offset portion of the frame portion A, and thus the severed portion will be pushed to the rear and will fall upon the bottom plate or flange of the frame portion A out of the way and may be removed from the machine. As soon as the cut has been made and the cam has lowered the lever B′ and raised the movable jaw into open position the operator will move the clutch-lever *l′* to the right, Fig. 3, thus throwing the clutch member F′ out of engagement with the member F and stopping the cutting apparatus, although the driving-shaft may be permitted to run continuously when the machine is in use. The skelp is then pushed in until it engages the guide *n′*, (which is restored to normal position by the weight *n²* as soon as a severed piece is discharged,) and the operation is repeated.

The heavy balance-wheel on the driving-shaft, which is driven at considerable speed, acquires a considerable momentum, which assists in effecting the cut when the clutch is thrown in without perceptibly slowing down the machine.

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

1. In a metal-cutting machine, the combination with the main frame, of a movable jaw pivotally mounted therein, and provided with a cutting-blade arranged in a plane parallel with the pivotal axis of the jaw, said machine providing a straight unobstructed path therethrough for the material, perpendicular to the said blade and in a horizontal plane passing between the cutting-blades, and operating mechanism for said movable jaw, located laterally of said path, substantially as described.

2. In a metal-cutting machine, the combination with the main frame provided with fixed jaw carrying a cutting-blade of a movable jaw, pivotally mounted in said frame and provided with a cutting-blade, said blades being disposed in a plane parallel to the pivotal axis of said movable jaw, said machine having a straight unobstructed path therethrough for the material, perpendicular to said blades and in a horizontal plane passing between the cutting-blades, an operating-

lever for the movable jaw located at one side of said path, and operating mechanism for said lever, located on the same side of said path, whereby any desired length of material can be fed between said blades, before cutting off, substantially as described.

3. In a metal-cutting machine, the combination with the main frame provided with a lateral offset portion, forming the fixed jaw, and provided with a cutting-blade, a movable jaw above said offset portion of the frame pivotally mounted therein and provided with a cutting-blade, said blades being arranged parallel with the pivotal axis of the movable jaw, said machine providing a straight unobstructed passage for the material in rear of said offset portion of the frame, and perpendicular to the blades and in a horizontal plane passing between the cutting-blades, an operating-lever for said movable jaw extending rearwardly therefrom at one side of said path, and operating mechanism for said lever, mounted in the main frame at one side of said path, substantially as described.

4. In a metal-cutting machine, the combination with the main frame, of a movable jaw pivotally mounted therein, and provided with a cutting-blade arranged in a plane parallel with the pivoted axis of the jaw, said machine providing a straight unobstructed path therethrough for the material, perpendicular to the said blade, and operating mechanism for said movable jaw, located laterally of said path, a support for an adjustable stop located at one side of the path of the material through the machine, and an adjustable stop mounted on said support, and having a part extending into the path of the material in line with the cutting-blades, substantially as described.

5. In a metal-cutting machine, the combination with the main frame, of a movable jaw pivotally mounted therein, and provided with a cutting-blade arranged in a plane parallel with the pivotal axis of the jaw, said machine providing an unobstructed path therethrough for the material, perpendicular to the said blade, and operating mechanism for said movable jaw, located laterally of said path, a support for an adjustable stop located at one side of the path of the material through the machine, and an adjustable stop mounted on said support and having a yielding part in the path of the material, substantially as described.

6. In a metal-cutting machine, the combination with a stock-engaging platen or support, provided with a narrow longitudinally-disposed guiding-groove in its upper face, located between the lateral edges of said platen, and a pair of cutting-blades arranged adjacent to said platen, and disposed transversely with respect to said guiding-groove, substantially as described.

7. In a metal-cutting machine, the combination with a stock-engaging platen or support provided with a narrow, longitudinal, web-engaging, guiding-groove in its face between its lateral edges, a pair of cutting-blades of substantially the width of the platen arranged adjacent to said platen and disposed transversely with respect to said groove, and a guide for the end of the stock located on the side of said blades opposite to the platen, and having a web-engaging edge in line longitudinally with one edge of said guiding-groove, substantially as described.

8. In a metal-cutting machine, the combination with the main frame having a laterally-offset portion provided with a horizontal platen having a longitudinally-disposed guiding-groove thereon, and a fixed cutting-blade located in rear of the said platen and disposed transversely thereto and obliquely to the face of said platen, a movable jaw mounted in said offset portion of the frame and provided with a cutting-blade disposed transversely of and obliquely to said platen, said movable jaw having an operating-lever located at one side of said cutting-blades, and operating mechanism for said lever having all its parts out of the path of the stock as it is fed over said platen into the machine, substantially as described.

9. In a metal-cutting machine, the combination with the main frame having a laterally-offset portion provided with a horizontal platen having a longitudinally-disposed guiding-groove therein, and a fixed cutting-blade located in rear of the said platen and disposed transversely thereto and obliquely to the face of said platen, a movable jaw mounted in said offset portion of the frame and provided with a cutting-blade disposed transversely of and obliquely to said platen, said movable jaw having an operating-lever located at one side of said cutting-blades, operating mechanism for said lever having all its parts located out of the path of the stock as it is fed over said platen, a longitudinally-disposed guide-bar, a block adjustably mounted thereon, a lever pivoted to said block and provided at one end with a guide depending therefrom into the horizontal plane of the platen and having one edge in line with one edge of the guiding-groove therein, and its other end provided with a counterbalance, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE HENRY WHITE.

Witnesses:
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