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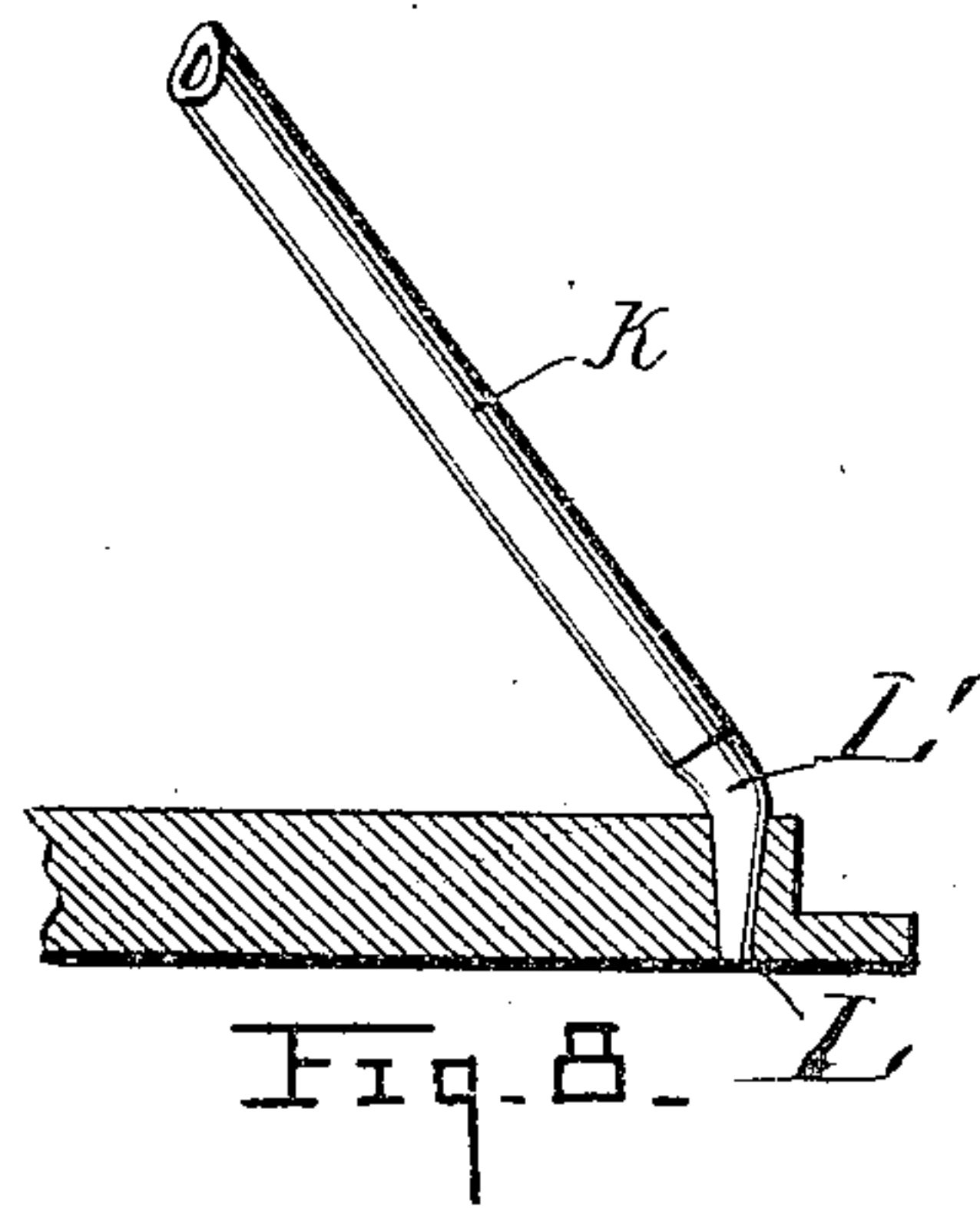
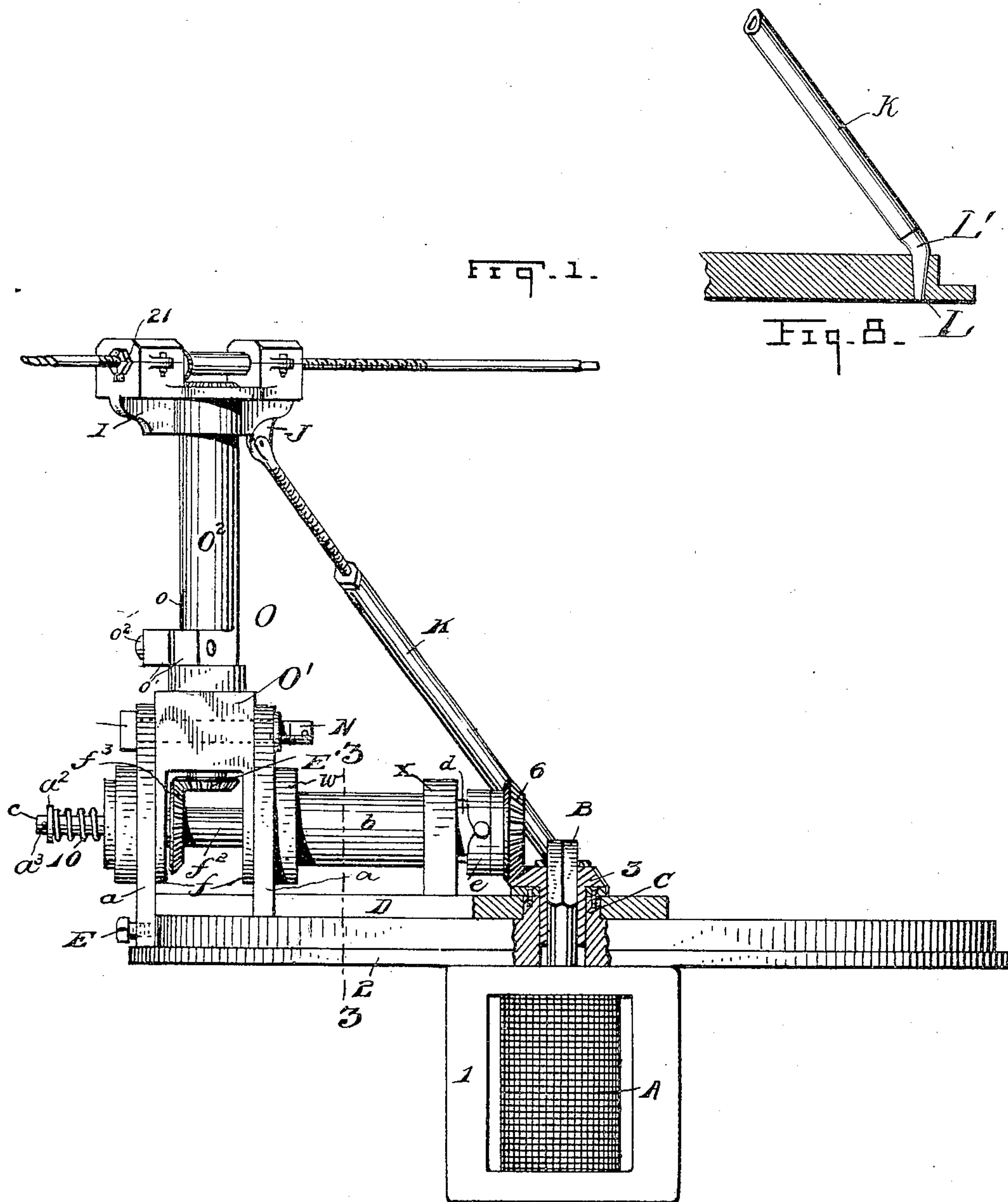
PATENTED OCT. 3, 1905.

J. H. HUH.N.

MACHINE FOR OPERATING COAL AUGERS.

APPLICATION FILED FEB. 10, 1904. RENEWED MAR. 8, 1905.

3 SHEETS—SHEET 1.



Witnesses:

J. P. Appleman,
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W. L. Davis

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by

John Roland
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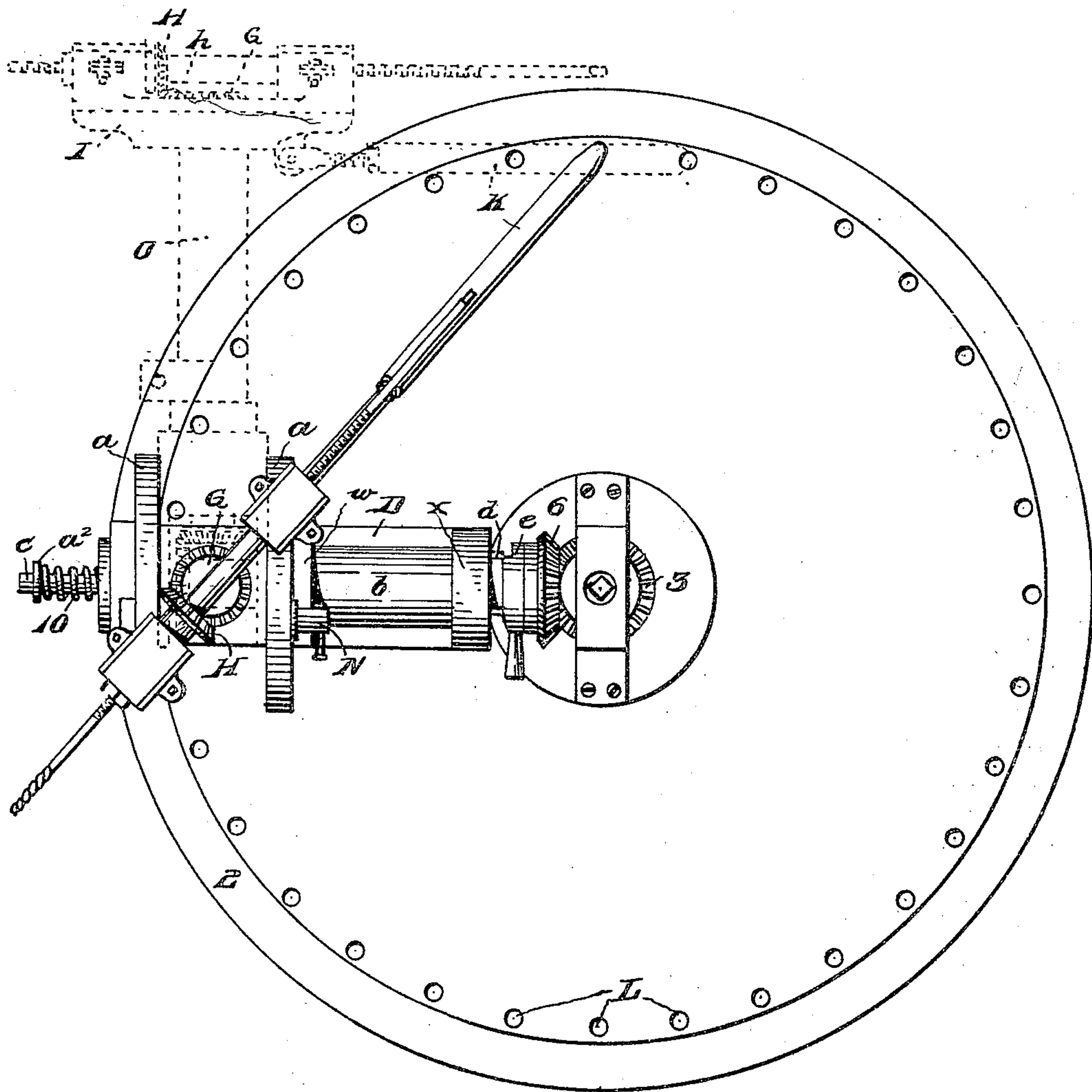
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3 SHEETS—SHEET 2.

Fig. 2.



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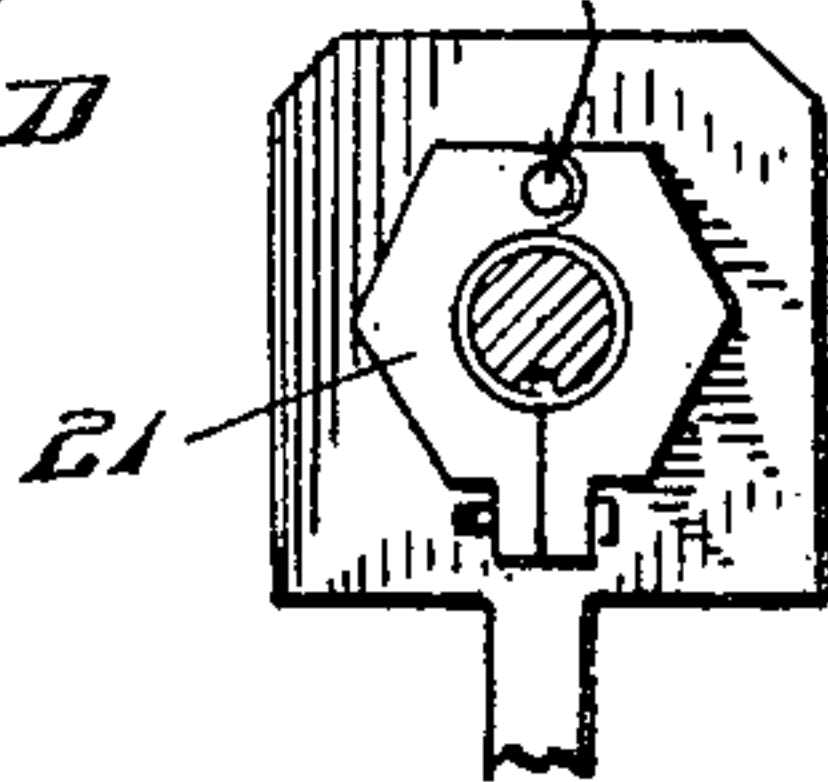
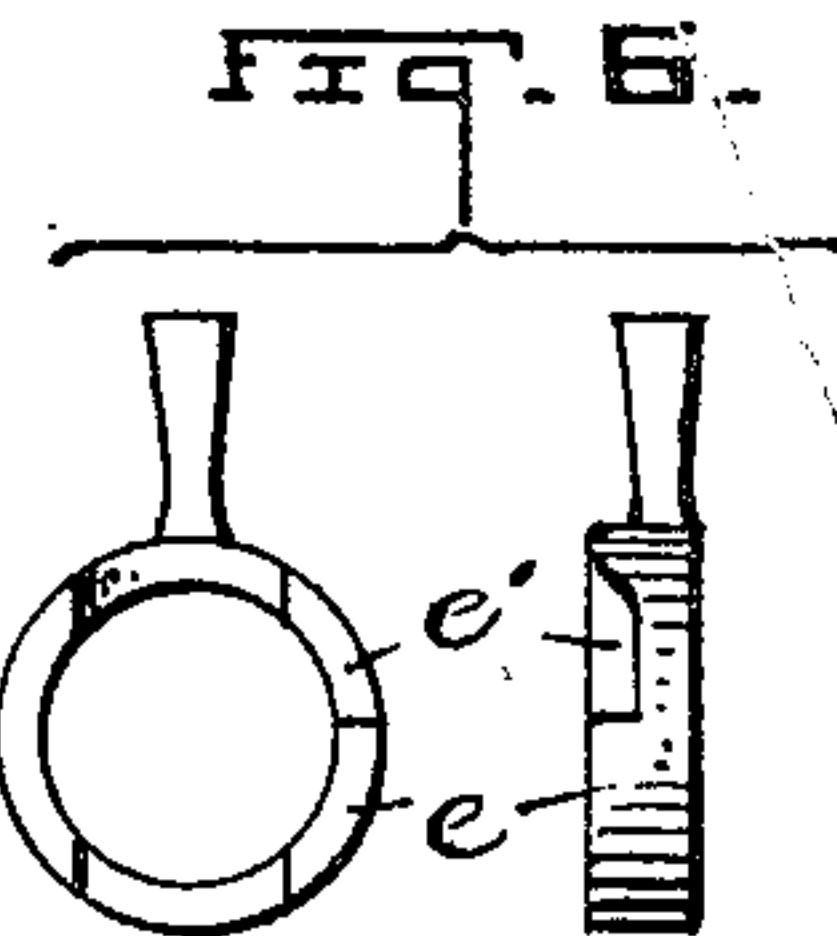
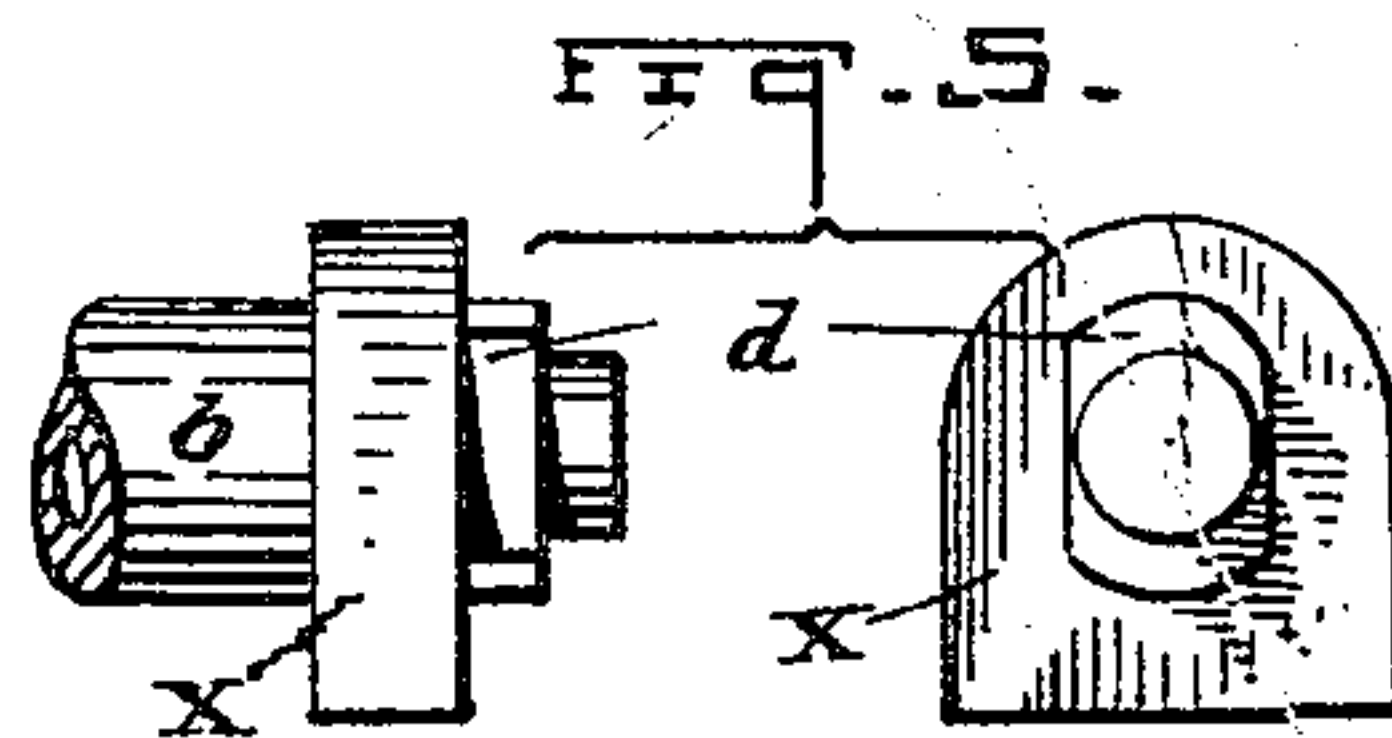
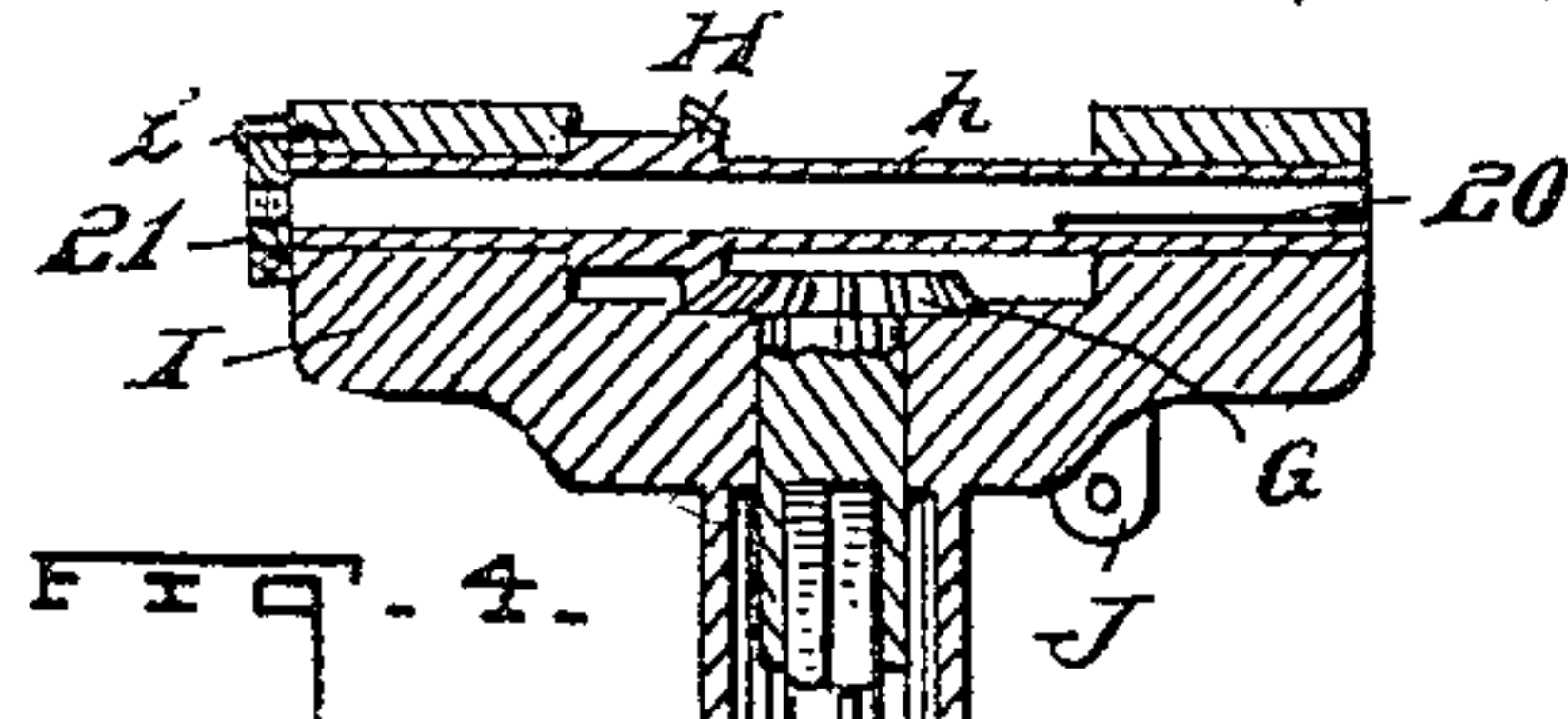
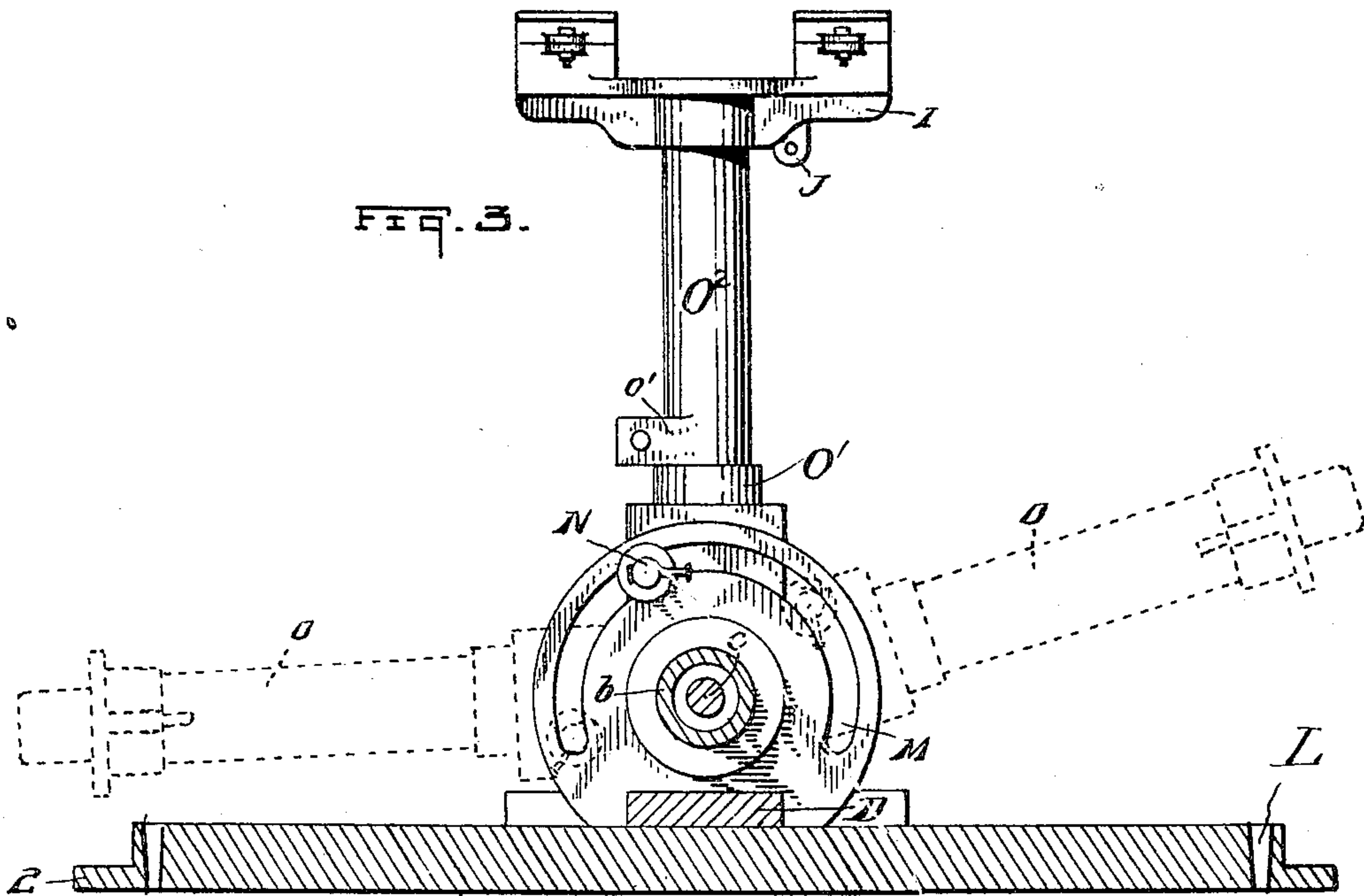
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MACHINE FOR OPERATING COAL AUGERS.

APPLICATION FILED FEB. 10, 1904. RENEWED MAR. 8, 1905.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JOHN H. HUHN, OF GYPSY, WEST VIRGINIA.

MACHINE FOR OPERATING COAL-AUGERS.

No. 800,920.

Specification of Letters Patent.

Patented Oct. 3, 1905.

Application filed February 10, 1904. Renewed March 8, 1905. Serial No. 249,122.

To all whom it may concern:

Be it known that I, JOHN H. HUHN, a citizen of the United States of America, residing at Gypsy, in the county of Harrison and State of West Virginia, have invented certain new and useful Improvements in Machines for Operating Coal-Augers, of which the following is a specification.

This invention relates to boring and drilling, and particularly to a device for cutting coal and stone in mining operations.

An object of this invention is to provide novel means for permitting the oscillation of the cutter and head and its standard, whereby a cut may be effectively reached from the floor around the ceiling and down to the floor on the opposite side of the head.

Furthermore, an object of the invention is to provide novel means for transmitting power to the drill and for periodically disconnecting the gearing and for throwing it into action by simple mechanism under the control of an operator.

Furthermore, an object of the invention is to provide novel means for bracing the standard and head at the varying positions thereof during their oscillation.

Finally, an object of the invention is to produce a device of the character described which will possess advantages in points of efficiency and durability, proving at the same time simple in construction and comparatively inexpensive to manufacture.

With the foregoing and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and specifically claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote corresponding parts throughout the several views, in which—

Figure 1 is a view in elevation of a platform, partly in section, and a drilling apparatus applied thereto. Fig. 2 is a top plan view thereof. Fig. 3 is a section taken on the line 3-3 of Fig. 1, the standard and head being shown in elevation. Fig. 4 is a vertical sectional view of the device shown in Fig. 3. Fig. 5 is a detail view of the side and end of the shaft-bearing. Fig. 6 illustrates a front and side view of the shaft-adjusting device. Fig. 7 is a detail view of the means for feeding the drill. Fig. 8 is a fragmentary cross-section of the base, showing a part of the brace in ele-

vation, illustrating the connection between the two.

In the drawings, 1 indicates a motor-casing to contain an electric motor A, and the armature B of such motor projects through the base 2 and being provided with an end which is angular in cross-section receives the beveled gear-wheel 3, which rotates with the armature. The central portion of the base 2 has a boss C, through which the armature B projects and on which is rotatably mounted an arm D, which terminates at the edge of the base. The arm D is for the purpose of supporting and gearing the mechanism of the drill, and said arm is rotatable around the surface of the base.

Suitable brackets *a* extend upwardly from the arm and support a hub *b*, in which the shaft *c* is mounted and is slidable. One end of the hub *b* is reduced, and said reduced portion *y* is adapted to fit in an aperture in the inner bracket *a* and be supported on one of said hubs. The opposite end of the hub is provided with a collar *x*, having an enlarged and flattened body portion adapted to rest on the arm D and be secured thereto by a bolt or other means *z*. The object of this collar *x* is obvious. An annular flange *w* is formed on the hub, which, together with the shoulder formed by the reduced portion *y*, limits the movement of said hub within the inner bracket *a*. The outer surface of the hub at one end is provided with longitudinally-disposed ribs *d*, with which the cam *e* coacts, the said cam being in the shape of a ring fitted on the end of the hub and having recesses *e'*, which are designed to receive the ribs *d* when the said cam is in one position, the said cam riding over the ends of the ribs when in another position, as shown in Fig. 1. The cam is designed to bear against the hub of the gear-wheel 6, which gear-wheel is mounted on the shaft *c* and is rotatable therewith, and the said wheel 6 is designed to mesh with and be driven by the gear-wheel 3. The shaft *c* extends beyond the end bracket and has near its end a washer *a²* thereon, held by a pin *a³*. The spiral spring 10 embraces the shaft *c* between the bracket and the washer and exerts sufficient pressure therebetween to throw the gear-wheel 6 out of engagement with the gear-wheel 3 when the cam is rotated with the ribs registering with the recesses.

The standard O is composed of two sections O' and O². The section O' has a bifurcated lower end, and the two extensions *f* thereof

are fitted between the brackets a , and said extensions f have bearings f' , in which is journaled a sleeve f^2 , which carries a bevel-gear f^3 . The sleeve is rotated through the medium of the shaft c , which shaft has shoulders c' , which are caused to engage angular sockets f^4 of the sleeve f^2 . It will thus be seen that with the thrust of the shaft c the portions c' of the shaft will be caused to engage and disengage the sleeve, so that said sleeve will be rotated or will remain at rest, according to the position of the said portion c' of the said shaft. The means for controlling the shaft having been described as being accomplished by the operation of the cam, the upper end of the section O' is reduced, and fitting over said reduced portion is the lower end of the section O^2 . To secure the two sections together, a slit or cut-away portion o is provided in the end of the section O^2 , and projecting from the sides thereof are parallel lugs o' , adapted to be engaged by the clamping-screw o^2 , the operation of which will be clearly apparent.

The arm D is held in different positions on the base by means of the set-screw E being threaded in the outer bracket a .

The standard has suitable bearings for the vertical shaft F, which is driven through the medium of the gear-wheel F' engaging the gear-wheel f^3 , and the upper end of the shaft F has a gear-wheel G, which drives the gear-wheel H of the sleeve h , the said sleeve having a feather 20, which engages the drill, so as to cause the rotation of the drill with the said sleeve h . The drill is fed through the medium of the split nut 21, which has its two sections mounted on the pivot i , extending into the head I. A lug J is formed integral with the head I, and a brace K is pivoted to the said lug. This part of the head and the brace being fully disclosed in a former application, Serial No. 167,764, and dated the 31st day of July, 1903, will not be described further in detail. The free end of the brace is turned downwardly, as at L' , at approximately right angles to engage the sockets L in the base, so that the head I may be adjusted at varying angles and be moved from side to side and be braced regardless of its position.

The standard is trunnioned in the brackets a , and said brackets are provided with curved slots M, through which the binding-bolt N projects, the said binding-bolt being carried by the standard. The object of this bolt N is to bind the standard at varying adjustments, as shown in Fig. 3, from which illustration it will be observed that the said standard may be oscillated from side to side, so as to bring the drill which is carried by the head of the standard down to the floor of the cut and up to the roof thereof, and the said bolt N permits the said standard to be secured in the several adjusted positions.

Having fully described the invention, what

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

1. In a drilling apparatus, a suitable base, a standard suitably mounted to be rotated around the base, means for bracing the standard in varying positions, means for permitting the oscillation of the standard, a drill carried by the standard, and means for driving the drill.

2. In a boring apparatus of the character described, a suitable base having sockets in its edge, a standard mounted to be rotated with relation to the base, means for permitting the oscillation of the standard, a drill mounted on the standard, means for driving the drill, a gear-shifting mechanism for throwing the driving mechanism into and out of engagement, a brace suitably connected to the standard and adapted to engage the sockets in the base.

3. In a boring apparatus of the character described, a base, an arm rotatable on the base, a hub carried by the arm, a shaft therein, a gear-shifting cam on the hub, a gear-wheel on the shaft engaged by the cam, a standard mounted on the arm and having a pivotal connection, means for retaining the standard in different adjustments, a suitable head carried by the standard, a drill operated therein, and suitable power-transmitting means for rotating the drill.

4. In a boring apparatus of the character described, a base, an arm having one end mounted centrally of the said base to permit its being rotated, means for adjustably securing the arm in different positions, a standard adjustably mounted on the arm, means for retaining the standard at different adjustments, a suitable head carried by the standard, a drill operated therein and suitable power-transmitting means for rotating the drill.

5. In a boring apparatus of the character described, a suitable base having sockets in its edge, a standard mounted to be rotated with relation to the base, means for permitting the oscillation of the standard, a head rotatably mounted on the standard, a lug on the head, a drill supported by the head, means for driving the drill, and a brace pivoted at one end to the lug on the head, the free end of said brace being bent at an angle to engage the sockets in the head.

6. In a boring apparatus of the character described, a suitable base, a standard suitably mounted to be rotated around the base, means for permitting the oscillation of the standard, a drill rotatably carried by the standard, means for driving the drill and means for bracing the drill in its different positions.

7. In a boring apparatus, a suitable base, a standard suitably mounted to be rotated around the base, said standard being formed in sections, means for bracing the standards in different positions, means for permitting the oscillation of the standard, a drill carried

by the standard, and means for driving the drill.

5 8. In a boring apparatus, a suitable base, a standard suitably mounted to be rotated around the base, said standard being formed by a plurality of sections removably secured, one to the other, means for bracing the standards in different positions, means for permitting the oscillation of the standards, a drill 10 carried by the standard, and means for driving the drill.

15 9. In a boring apparatus, a base, an arm rotatable on the base, brackets on the arm, one of said brackets having a perforated extension on its lower end, a set-screw passing through the aperture of the extension and adapted to bear against the base, a standard mounted on the arm, a drill carried by the standard, and means for driving the drill.

20 10. In a boring apparatus, a base, an arm

rotatable on the base, brackets on the arm, each of said brackets having a slot, a standard trunnioned in the brackets, a binding-bolt carried by the standard and adapted to engage the slots in the brackets, a drill carried by the standard, and means for driving the drill. 25

11. In a boring-machine, a base, a boss on said base, an arm pivotally held by the said boss, a standard on the arm, means for permitting the oscillation of the standard, a drill 30 carried by the standard, and means for driving the drill.

In testimony whereof I affix my signature, in the presence of two witnesses, this 9th day of February, 1904.

JOHN H. HUHN.

Witnesses:

JOHN NOLAND,
J. P. APPLEMAN.