(No Model.) 3 Sheets—Sheet 1.

J. H. COON.

DEVICE FOR TURNING AXLES OR SHAFTS.

No. 316,119. Patented Apr. 21, 1885.

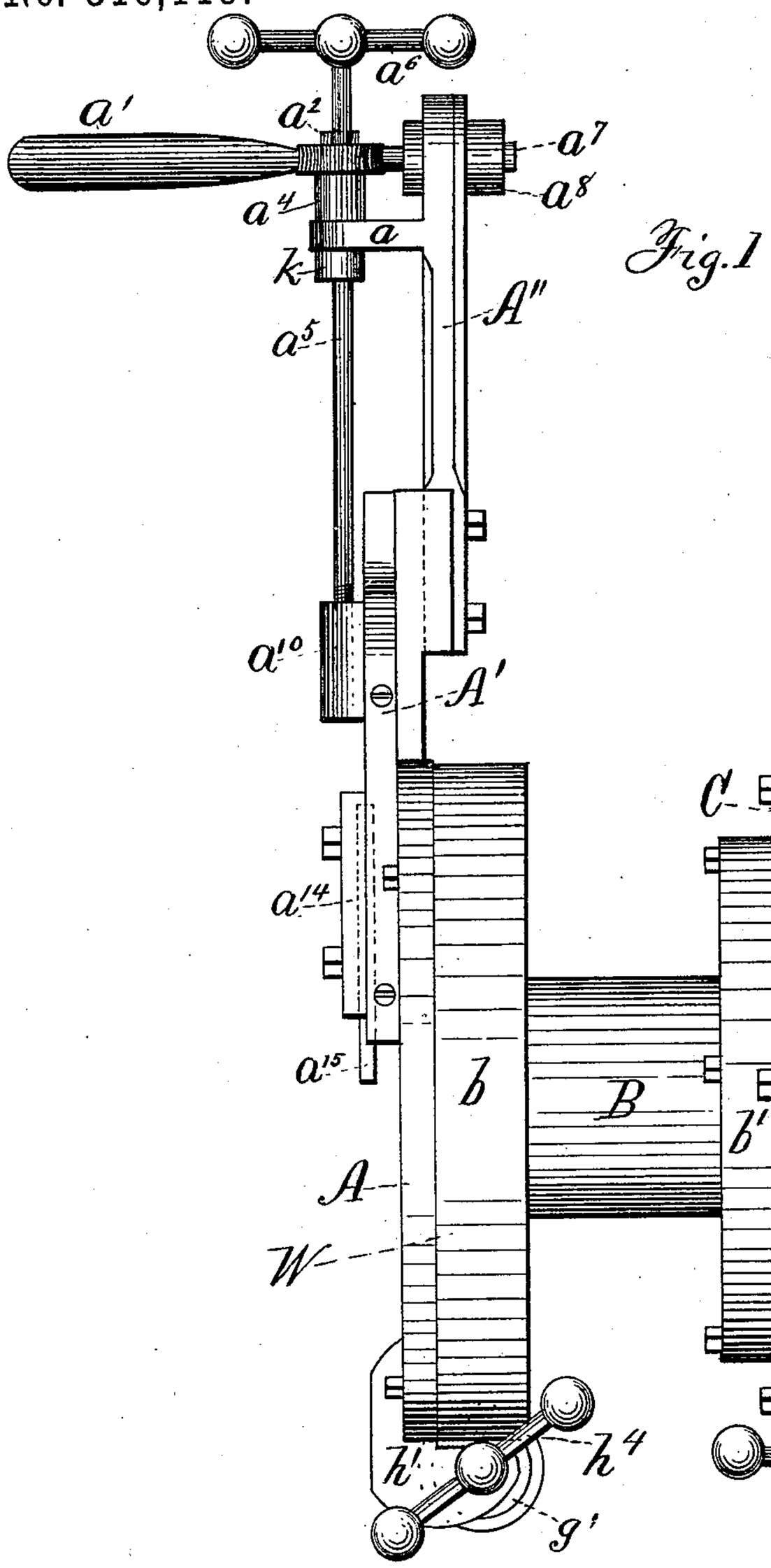

Fig. 1

Witnesses:
John H. Payne
H. E. Coon

Inventor
James H. Coon.

(No Model.) 3 Sheets—Sheet 2.

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Fig. 2

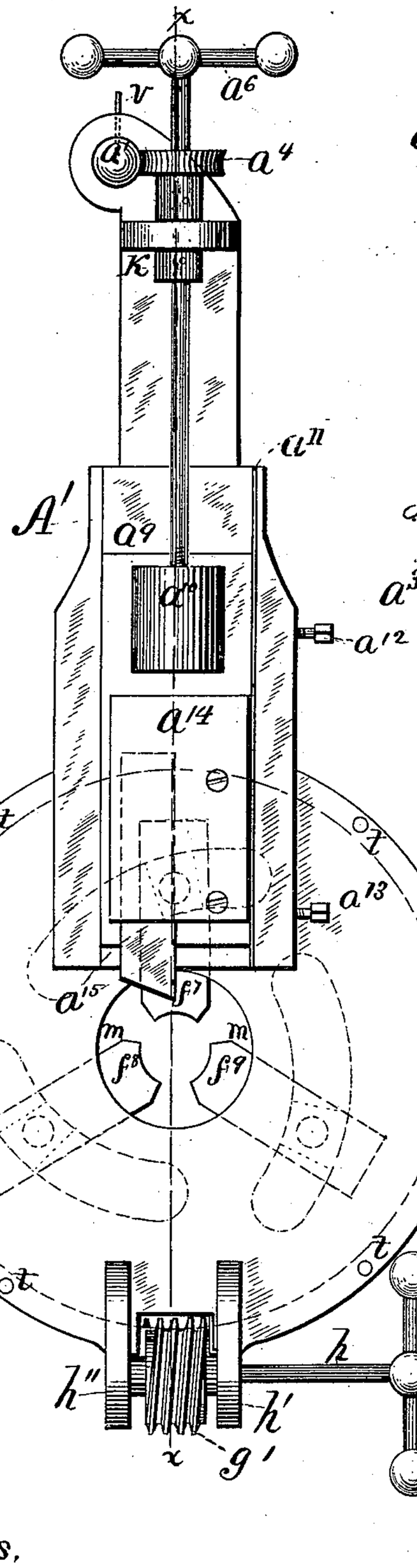


Fig. 4

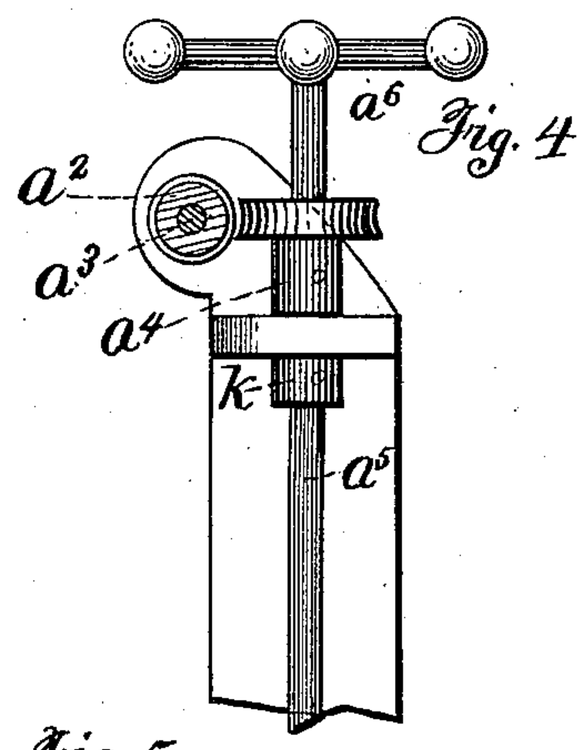
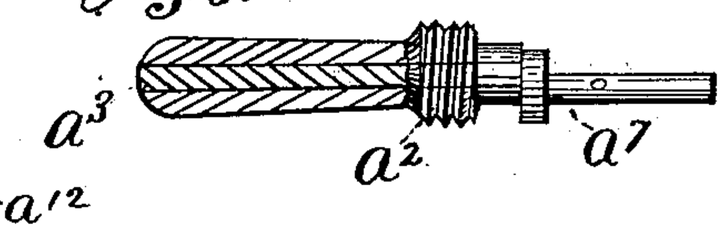


Fig. 5.



Witnesses,
John H. Payne
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(No Model.) 3 Sheets—Sheet 3.

J. H. COON.

DEVICE FOR TURNING AXLES OR SHAFTS.

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Fig. 3

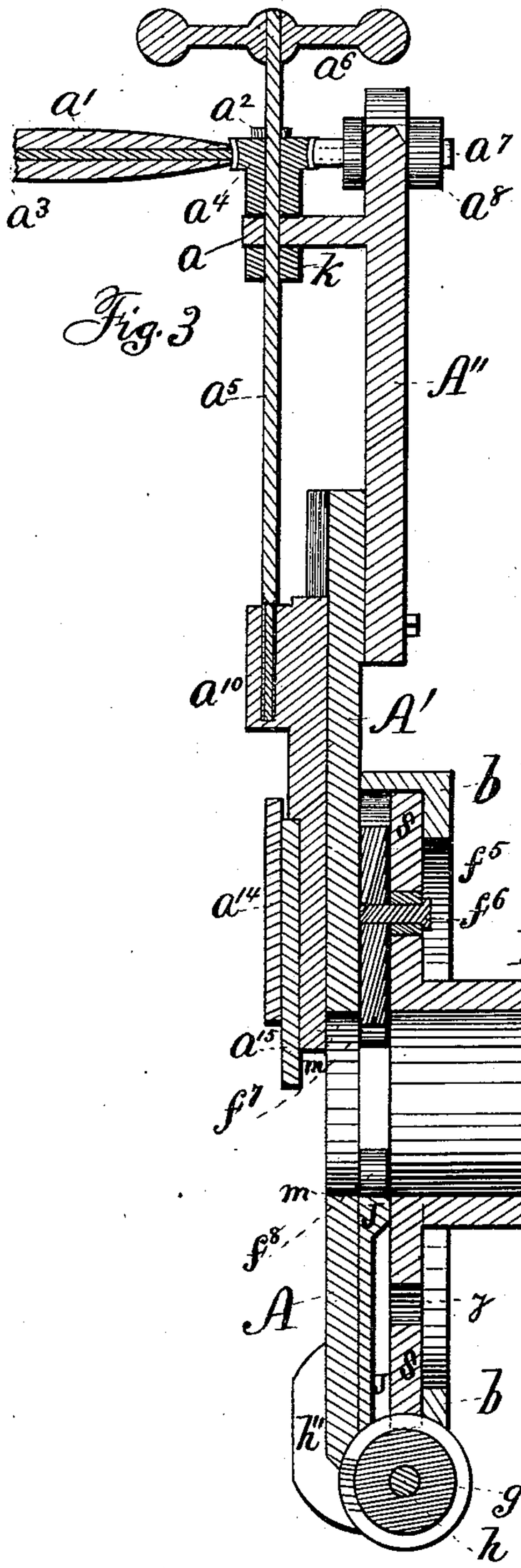
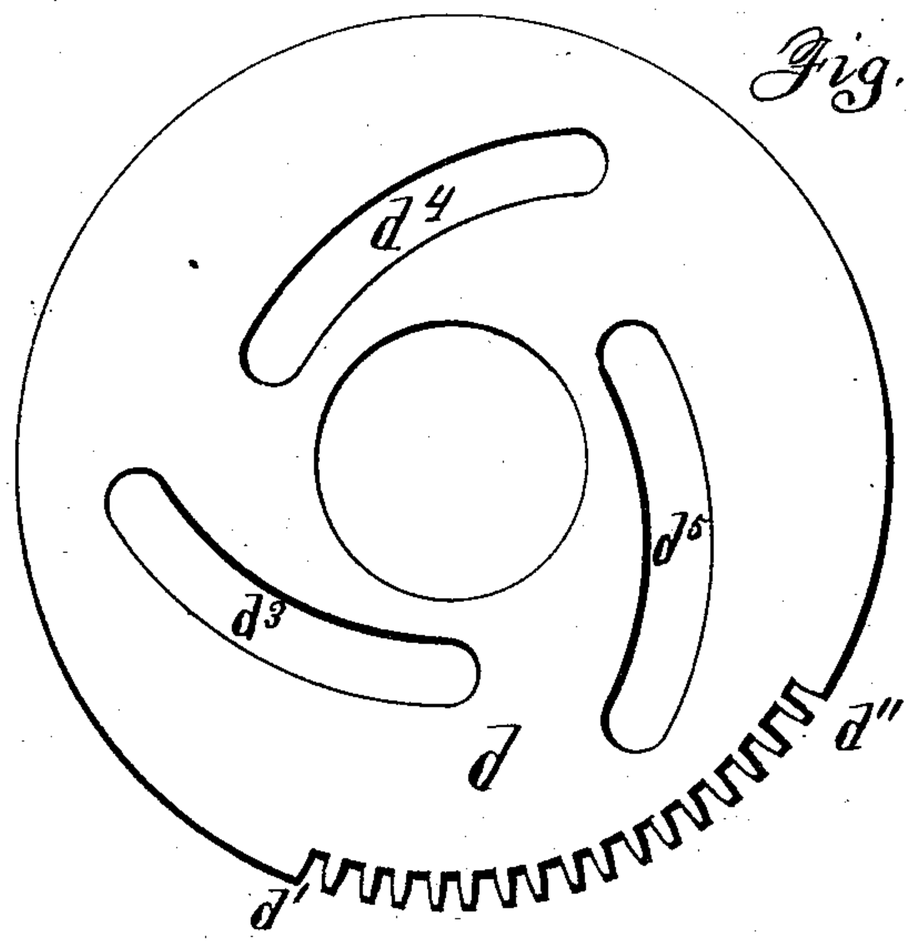


Fig. 6



Witnesses.
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H. E. Coon

Inventor,
James H. Coon.

UNITED STATES PATENT OFFICE.

JAMES H. COON, OF DES MOINES, IOWA, ASSIGNOR TO THE CAPITOL CITY TOOL COMPANY, OF SAME PLACE.

DEVICE FOR TURNING AXLES OR SHAFTS.

SPECIFICATION forming part of Letters Patent No. 316,119, dated April 21, 1885.

Application filed September 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. COON, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Improvement in Hand-Turning Machines, of which the following is a specification.

This invention relates to hand-turning machines adapted to turn cylindrical and round tapering metal shafts.

The invention consists in the peculiar features of construction and novel arrangement and combination of parts, hereinafter fully described and claimed.

The object of the invention is to produce a light, durable, portable hand-machine, adapted to turn or cut off shafting or piping.

Similar letters of reference refer to like parts in the several figures of the accompanying drawings.

Figure 1 is a side elevation of my improved machine. Fig. 2 is a front elevation looking from the left of Fig. 1. Fig. 3 is a vertical section taken on line *x x* of Fig. 2. Figs. 4, 5, and 6 are views of detail parts, and will be hereinafter referred to.

In Fig. 1, W W′ are two universal chucks, united by the hollow cylindrical and flanged piece B, and so arranged that when the chucks are closed upon a round shaft the jaws in chuck W′ will hold the latter chuck firmly to the shaft, so as to prevent any lateral motion of chuck W along the shaft, and so as to allow chuck W and piece B, as part thereof, to rotate freely around the shaft in a plane perpendicular to the axis of the shaft, and this will be true when the shaft is of uniform size from end to end, or when it is tapering. Chuck W is composed of a circular disk, A, having an opening, *m m*, in the center, and a prolongation, A′, on one side, which projects forward from the face of the disk, and is planed out to receive a sliding block or tool-holder, a^9, which is held in adjustment by a gib, a^{11}, and set-screws a^{12} a^{13}, in the usual manner.

To the projection A′ is secured an arm, A″, carrying a handle, *a′*, employed to rotate the chuck W around the shaft operated on.

a^5 is a shaft having a bearing in the lug *a*, which projects from the arm A″. This shaft is screwed into the boss a^{10} of the tool-holder a^9, and by means of the handle a^6 may be operated to feed the cutting-tool a^{15} in toward the center of the shaft or to draw it out.

k is a collar rigidly attached to shaft a^5.

a^4 is a spiral-toothed wheel rigidly secured to shaft a^5, and in connection with *k* forms shoulders that prevent shaft a^5 from moving longitudinally when employed in feeding the cutting-tool in and out.

a′ is a sleeve, which runs loosely upon a stud, a^3, and forms the handle grasped by the operator to rotate the chuck. This sleeve is provided with a worm-wheel, a^2, made preferably integral therewith, and which engages the toothed wheel a^4, and as the chuck is rotated by the operator (the sleeve being firmly held in the hand) the worm a^4 automatically feeds the cutting-tool toward the center of the shaft operated upon. The stud a^3 is made with a crank, one arm of which is in the sleeve *a′*, and the other, a^7, is secured in the arm A″ in such manner that it can readily be turned and secured therein, and is prevented from slipping out of the arm by the collar a^8.

When it is desired to adjust the cutting-tool by sliding the tool-holder a^9, the stud a^3 is turned outward from the toothed wheel a^4, as shown in Fig. 4, thus leaving shaft a^5 free to be rotated by the handle a^6, and when the adjustment has been made the stud a^3 is turned back again and the worm brought into mesh with the toothed wheel a^4 and the stud secured in position by a pin, *v*, or any other suitable means. There is a groove made in the sliding block a^9, (shown in dotted lines in Figs. 1 and 2,) into which the cutting-tool a^{15} is placed, and it is held therein by a plate, a^{14}, secured by cap-screws to the sliding block. The disk A is provided with a projection, J, on its rear face, made concentric with the opening *m m*, and the cap *b* is made to fit over this projection. Into this projection three radial slots are made equidistant from each other and in which the jaws f^7 f^8 f^9 are fitted. The depth of the slots is equal to the thickness of the jaws. These jaws are made of steel, and each jaw is provided with a stud, the latter being surrounded by rollers or blocks fitting the curves of the cam-grooves. (Shown in dotted

lines in Fig. 2 and in section in Fig. 3.) These cam-grooves are made in the flange S on the coupling B for chuck W, as shown at *y*, Fig. 3, in section. The diameter of the flange above referred to is equal to that of the projection J, and a cap, *b*, surrounds the flange and the projection, and is attached rigidly to the disk A by cap-screws *t t t t*. A portion of the circumference of flange S is made with worm-teeth, and a worm-wheel, *g'*, mounted on a shaft, *h*, which has its bearings in the lugs *h' h''*, made integral with disk A, engages the teeth above referred to, and by rotating the shaft *h* rotary motion is communicated to the flange S, and the jaws f^7 f^8 f^9 operated in and out, as required, in adjusting the machine to its work.

C is a disk provided with an annular flange, J', made concentric with the opening *m' m'* in its center, and is secured to the sleeve B by a cap, *b'*, the flange S' on sleeve B being nearly equal in diameter to the annular flange J, and is arranged to rotate under the cap *b'* freely. The cap *b'* is cut into two pieces to allow it to be placed over the flange S', and is secured in position by suitable cap-screws. Disk C is also provided with a boss or projection, J'', in which are made three radial slots at equal distances around the circumference from each other for the jaws of this chuck. The construction in detail of chuck W' is like that of W, already described, except that the cam-disk *d*. having the toothed segment *d' d''*, is employed to operate the jaws instead of the flange on sleeve B. Disk *d* is given a rotary motion by means of the worm-wheel *g*, secured on shaft *h*, having its bearings in lugs projecting from disk C. Cap *c* is employed to secure cam-disk *d* in its proper position relative to disk C and to hold them both concentric with each other.

The operation of this machine will be readily understood from the foregoing description.

This machine may be employed for cutting off piping or round bars of metal too large to be cut with a cold-chisel to advantage; but it is more especially adapted to turning up new shoulders on carriage-arms that have been worn until there is too much lateral play on the arms.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The rotating arm A' A'', with means for mounting and feeding forward a cutting-tool, in combination with two automatic chucks, substantially as described, and for the purpose set forth.

2. The cutting-tool a^{15}, with means for rotating it around a shaft, and means for feeding it inward toward the center of the shaft continuously as it rotates, in combination with chucks adapted to direct the cutting-tool around the shaft in a plane at right angles to the axis of the shaft, substantially as shown and described.

3. The cutting-tool a^{15}, with means for rotating it around a shaft, and means for feeding it inward toward the center of the shaft continuously as it is rotated, in combination with chucks W and W', adapted to direct the cutting-tool around the shaft in a plane at right angles to the axis of the shaft, and to prevent its being moved laterally along the shaft while operating, substantially as described, and for the purpose set forth.

JAMES H. COON.

Witnesses:
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H. E. COON.