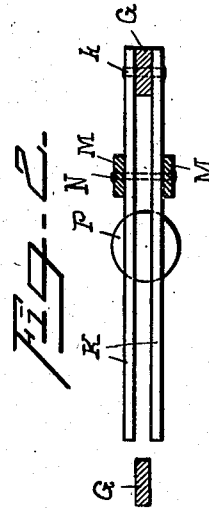
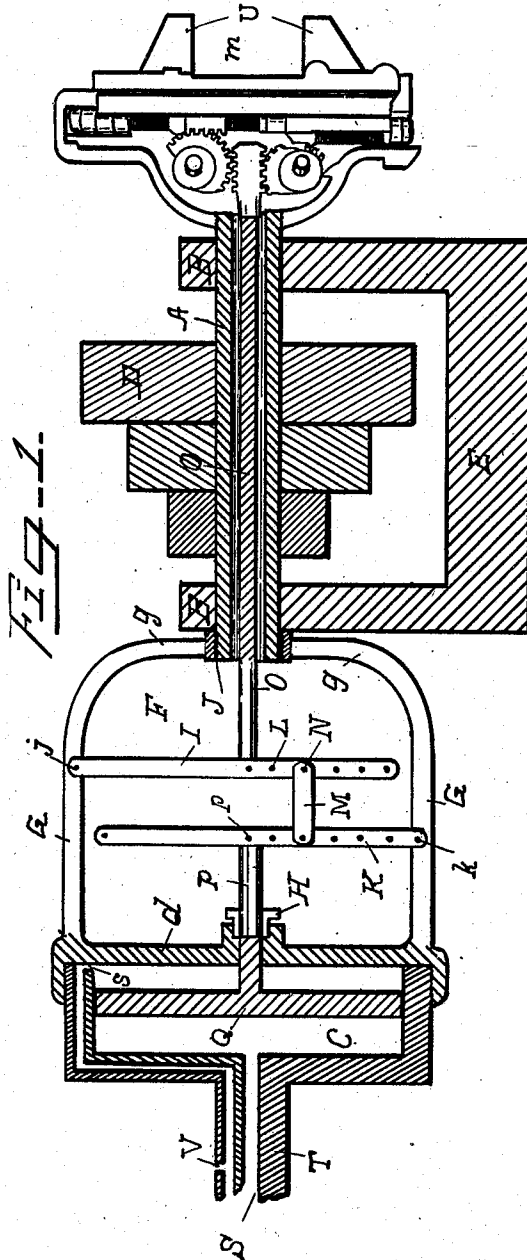


J. JECKLIN & C. W. SCHREIBER.
 MEANS FOR OPERATING CHUCKS.
 APPLICATION FILED AUG. 17, 1903.

900,856.

Patented Oct. 13, 1908.



WITNESSES:

E. E. Cady
 M. R. Hemmel

INVENTORS:

Jacob Jecklin
 Charles W. Schreiber
 M. M. Cady
 ATTORNEY.

UNITED STATES PATENT OFFICE.

JACOB JECKLIN AND CHARLES W. SCHREIBER, OF DUBUQUE, IOWA.

MEANS FOR OPERATING CHUCKS.

No. 900,856.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed August 17, 1903. Serial No. 169,840.

To all whom it may concern:

Be it known that we, JACOB JECKLIN and CHARLES W. SCHREIBER, citizens of the United States, residing at Dubuque, in the county of Dubuque and State of Iowa, have invented new and useful Improvements in Means for Operating Chucks, of which the following is a specification.

One of the objects of our invention is to provide means for operating a chuck or other grasping device by air or other fluids, which shall be simple in construction, easily and quickly controlled, strong and effective in operation and can be removably attached to a hollow spindle or hollow spindle lathe.

Another object is to so control the power, that the chuck will hold the work by a greater or less grasp, according as the character of the work operated on demands, without change of pressure from the source of power.

It consists essentially in a yoke to which is secured a cylinder provided with a piston and valve for admitting the operating fluid and adapted to be removably attached to the fluid supply.

It further consists in a lever secured within the yoke and connected with a piston rod of the cylinder and the pull-bar of the spindle and also in means for removably attaching the yoke to the spindle.

Figure 1 is a longitudinal section of the cylinder and spindle of the lathe with a plan view of the yoke attached to the spindle. Fig. 2 is a section through line X. X. of Fig. 1.

Like letters of reference denote corresponding parts in each of the figures.

Referring to the drawings, A designates a hollow spindle which I have shown as adapted to rotate in bearings B of a rotating spindle lathe.

D is the driving pulley and E the frame of the lathe. The outer end of the spindle is screw-threaded and there is screwed thereon a yoke F. This yoke is formed of a frame G rounded at its forward end *g* and of rectangular shape at its rear end and attached to the head *d* of a cylinder C presently to be described. A substantial and economical mode of constructing the yoke is to cast the frame G and cylinder head *d* in one piece.

Through the cylinder head *d* is an opening within which is set a packing box H. There is also an opening J through the forward end of the yoke which is screw-threaded to fit the

spindle to which it is to be removably attached.

To the frame G there is pivoted by pivot pins *j* two plates I one on each side of the frame. These plates I extend across the yoke nearly to the opposite side. Upon the opposite side of the yoke are pivoted by a pivot pin *k* two other plates K similar to the plates I which extend across nearly to the opposite side of the frame. These plates I and K are provided with numerous openings L and are loosely connected together by plates M adapted to be removably secured in the openings L at each end by pivot pins N. It will be noticed that the outer ends of the plates I and K are free and do not extend quite to the opposite side of the yoke. These plates with their connection form a compound lever and the power that it is adapted to exert is determined by the position the plates M are pivoted on the plates I and K through the openings L. To the plates I is pivoted a pull-bar O which extends through the openings J in the yoke into the spindle A and to the outer end of which is attached a chuck *m* or some device for holding the work.

We have shown a spindle adapted to rotate the chuck *m*, but the device can be removably attached to any spindle through which the pull-bar can operate a stationary chuck such as are used for holding work to be drilled and the like, in which case the spindle might be only a block or table with an opening therethrough and provided with means for removably attaching the yoke thereto.

The plates K are pivoted by pivot pins *p* to the piston rod P which extends through the packing box H and attached to a piston Q. To the rear end of the frame of the yoke is attached a cylinder C which is provided with a piston Q and terminates in a stem T. Through the stem T is an opening S which connects with the fluid pressure supply and near the top of the cylinder is another opening *s* which passes down around the inner side of the cylinder and partly through the stem T and opens out of the side of the stem T which is also connected with a fluid supply. Around the end T is loosely attached a valve (not shown) in which the cylinder is adapted to revolve whenever the attachment is used with a rotating spindle lathe.

The manner of operating our device is substantially as follows: The fluid is ad-

mitted through the opening S into the cylinder at the base of the piston Q and forces the piston forward and as the piston is forced forward, it moves forward the plates K and this in turn, through the plates M pivoted to the plates I, forces forward the plates I and also forces forward the pull-bar O and separates the jaws U of the chuck.

When the piston has been moved to nearly the forward end of the cylinder, the fluid is admitted through the opening V and passes into the upper side of the piston, through the opening s and draws the piston backward and with it the plates and the pull-bar and closes the jaws of the chuck upon the work.

If the work is of such a character that it has to be grasped by the normal pressure power of the fluid, then the plates M are pivoted over the pivot holes p and through the ends of the pull-bar and the piston rod when it will have a direct pull and thrust on the pull-bar. If it is desired to have a greater grasp upon the work, then the plates M are moved to the right of a line of the piston and pull-bar viewed from the rear of the yoke, and pivoted in some one of the holes L according to the amount of pressure desired. If it is desired to have a less pressure than the normal, then the plates M are pivoted in some one of the holes L upon the left of the center line of the piston rod and pull-bar. In this manner the pressure upon the pull-bar to grasp the chuck can be increased or decreased at will by moving the plates M along on the plates I and K and the pressure in the cylinder against the piston need not be changed but may always remain normal.

It will be observed that this attachment can be secured to any hollow spindle whether it is a rotating spindle or otherwise by simply screwing the yoke to the spindle and the pressure upon the work can be increased or decreased at will without any change in the fluid pressure.

Having now described our invention, what we desire to secure by Letters Patent is:—

1. In a device of the character described, a rotatable yoke, a spindle connected to, and rotatable with the yoke, a pull-bar, a fluid-pressure device connected to the yoke and rotatable therewith for operating the pull-

bar, connections between the pull-bar and the fluid-pressure device, and means connected with the pull-bar and yoke for varying the pull and thrust on the pull-bar without change in the pressure in the fluid of the fluid-pressure device.

2. In a device of the character described, a rotatable yoke, a spindle connected to and rotatable with the yoke, a pull-bar, a rotatable cylinder provided with a piston, connections between the cylinder and the pull-bar, means for operating the piston by fluid-pressure, a lever interposed in the pull-bar, and connected with the pull-bar and yoke for varying the pull and thrust of the pull-bar without change in the pressure of the fluid, connections between the lever and piston, and means for changing the leverage.

3. In a device of the character described, a yoke, a pull-bar, a chuck provided with jaws coupled to the pull-bar, a lever consisting of plates each pivoted at one end to the opposite sides of the yoke respectively and provided with means for connecting the plates together at various places along the plates to vary the pressure upon the pull-bar to which the plates are attached, a cylinder attached to the yoke and provided with a piston, a piston rod connecting one of the plates with the piston, the other plate being connected to the pull-bar and connection with the fluid-pressure.

4. In a device of the character described, a spindle carrying a chuck, a yoke removably attached to the spindle and rotatable therewith, a pull-bar, connections between the pull-bar and yoke, a fluid-pressure device connected to the yoke and rotatable therewith, consisting of a cylinder and piston in the cylinder, connections between the piston and the pull-bar, and connections between the fluid-pressure device and the yoke and rotatable with the yoke.

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

JACOB JECKLIN.
CHARLES W. SCHREIBER.

Witnesses:

M. M. CADY,
GEORGE YOUNG.