

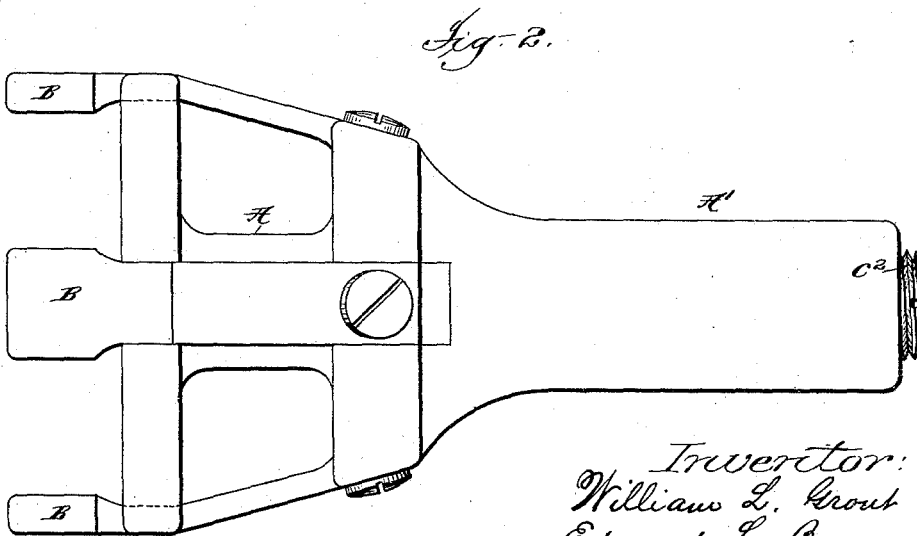
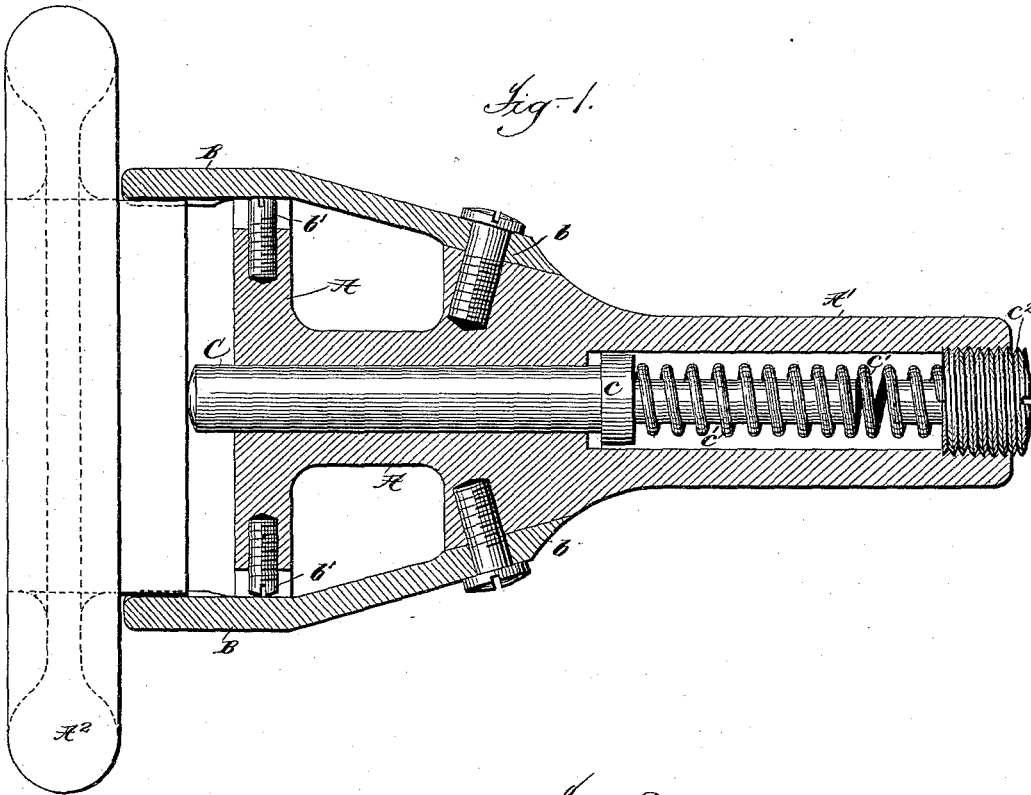
(No Model.)

3 Sheets—Sheet 1.

W. L. GROUT & E. L. BOWERS.
GRIPPING DEVICE FOR LATHES.

No. 445,696.

Patented Feb. 3, 1891.



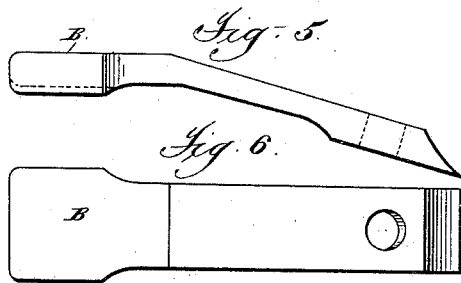
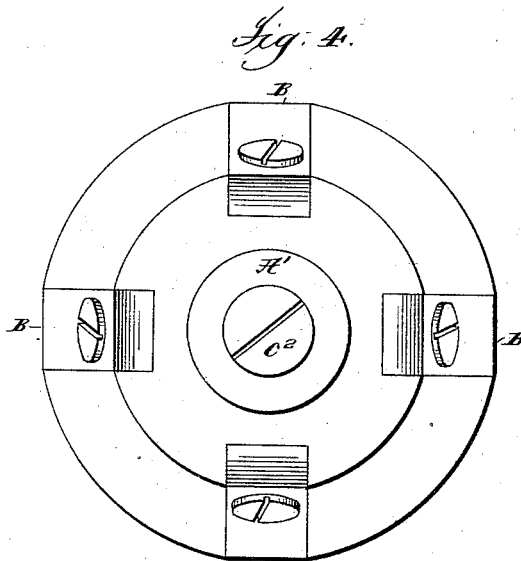
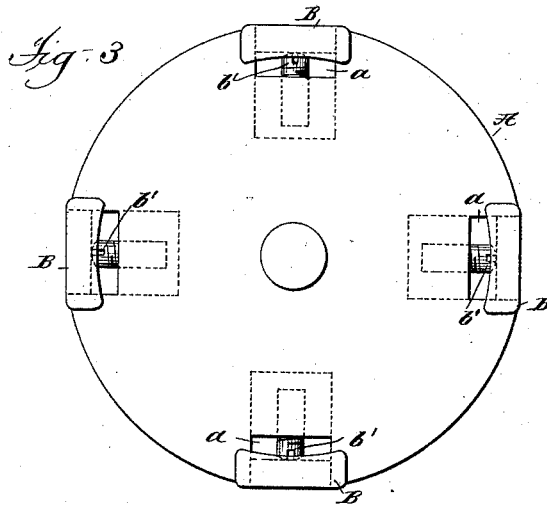
Attest:
Chas. H. Dotts.
Joseph M. Craue

Inventor:
William L. Grout
Edward L. Bowers
by *Chas. F. Dane & Co.*
their Attys

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Joseph M. Crane,

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William L. Grout
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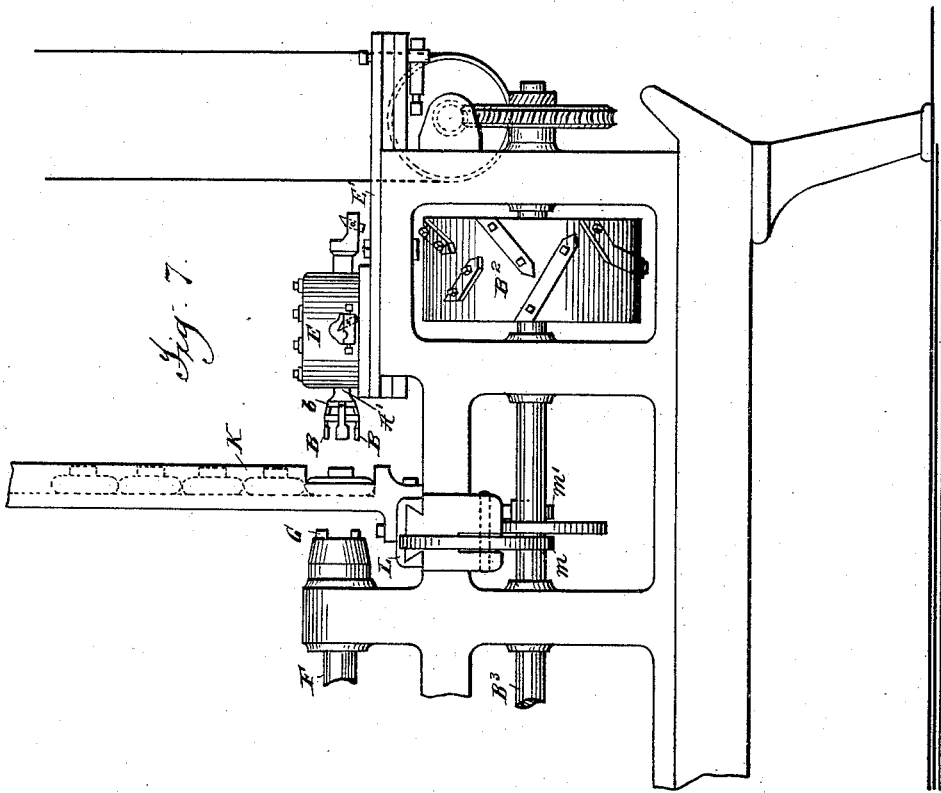
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3 Sheets—Sheet 3.

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Attest:
Geo. H. Botts.
Joseph M. Crane

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by
Chas. F. Davis & Co.
their Attys.

UNITED STATES PATENT OFFICE.

WILLIAM L. GROUT AND EDWARD L. BOWERS, OF ORANGE, MASSACHUSETTS.

GRIPPING DEVICE FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 445,696, dated February 3, 1891.

Application filed May 24, 1890. Serial No. 353,018. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM L. GROUT and EDWARD L. BOWERS, citizens of the United States, residing at Orange, county of Franklin, and State of Massachusetts, have invented a new and useful Gripping Device, of which the following description, taken in connection with the accompanying drawings, is a specification.

Our invention relates to a gripping device constituting a part of the machine shown and described in detail in our pending application, filed of a corresponding date, (marked "Case A;") and it consists of a device provided with suitable gripping-jaws and other parts, to be hereinafter set forth, adapted to be supported by an ordinary tool-carrying turret and be operated thereby through the medium of its operating mechanism.

In accordance with our invention wheels, metal blanks, castings, forgings, or other pieces adapted to be turned, drilled, or otherwise operated upon are placed in a suitable magazine or other receptacle mounted upon a cross-slide, as set forth in our said pending application marked "Case A," which is adapted at the proper time to be moved in position central with the line of the rotating spindle carrying the chuck and the turret carrying our improved gripping device by its operating mechanism. The turret is then carried forward by a movement of its supporting-carriage, causing the jaws of the gripping device supported thereby to enter an opening in said magazine to engage with and retain in its grip one of the objects located therein. The magazine is then moved laterally from its position in line of the turret and rotating spindle and the gripping device moved forward to place the object retained thereby in the chuck, when the latter is either rotating or stationary, to be rotated thereby while it is being operated upon by suitable tools brought in position at the succeeding forward movements of the turret.

Referring to the drawings, in which in the present instance we have shown our improved device as more especially adapted for engaging with wheels for the purpose set forth. Figure 1 represents a longitudinal sectional view through the center of our improved gripping device, showing the balance-

wheel of a sewing-machine supported thereby; Fig. 2, a side elevation; Fig. 3, a front view; Fig. 4, a rear end view; Figs. 5 and 6, a side and a top view, respectively, of one of the jaws; and Fig. 7, a section of a machine, showing our improved gripping device in position in a supporting-turret and its relative position with the magazine and chuck when in position for operation.

To explain the construction of our improved device in detail, A represents the supporting-shank (more clearly shown in Fig. 1) by which several parts forming the device are supported, provided with a stem A', by which the device is adapted to be secured in its operating-turret (represented at E in Fig. 7) in the usual manner, and B represents the gripping-jaws, secured at or near one end at *b* to the said shank or support A and at their opposite end projecting beyond the face of the support A a sufficient distance to properly grasp the object (located in the magazine K) to be engaged thereby, said object in the instance shown being the band-wheel of the balance-wheel A². By reason of their being slightly reduced in size between their ends and secured to the frame or support, as clearly shown in Figs. 1, 2, and 5, at one end only, said jaws spread apart or yield slightly upon engagement with an object and hold the same firmly with an elastic pressure, as will appear obvious. Said jaws at their free end are held in position laterally by means of grooves or depressions *a* in the shank-support A, in which they are adapted to be seated.

To adjust the tension of the jaws in order that they may grip with more or less pressure the object to be engaged, or to adjust the space between the same to allow for objects of different size, we provide the adjusting-screws *b'*, located in the shank or support A adjacent to the free end of the jaws, as clearly shown in Figs. 1 and 3, by which the latter may be adjusted, as will be readily understood.

C represents a pushing device (more clearly shown in Fig. 1) consisting of a rod located in a central longitudinal opening in the support A and when in a normal position slightly projecting at its outer end beyond the face of said support A in the center of the space between the jaws, not, however, sufficient to

engage with any degree of pressure the object retained by said jaws, and is provided near its inner end with a flange or collar *c* thereon, against which a coiled spring *c'* has its bearing at one end and at its opposite end against an adjusting-screw *c²*, secured in the end of the stem *A'* of the support *A*, and is adapted to operate or to be compressed to exert a forward pressure upon the rod *C*, as follows:

When the gripping device is moved forward by the turret *E* and carriage *E'* (said carriage being operated through the medium of the operating-cams located on the pulley *B²*, the latter being driven by the driving-shaft *B³*) to place the object retained by the jaws *B* in the chuck *G*, adapted to receive the same, and after the said object has been placed, or partially so, in the chuck, the gripping device has a slight continued forward movement, causing the end of the rod *C* to exert an elastic pressure upon the said object by reason of the compression of the said coiled spring, causing it to exert a forward pressure upon said rod to press the object firmly in position in the chuck, as will be readily understood by those skilled in the art. By the use of the adjusting-screw *c²* as a bearing for the spring *c'* the tension of the latter may be adjusted to act with a greater or less degree of pressure upon the rod *C*.

Having thus set forth our invention, we do not wish to be understood as confining ourselves to the specified number or form of gripping-jaws as shown, nor to the particular form of the frame or support, as it is obvious that the number and form of the jaws may be varied for the different objects for which they may be adapted to engage and the form of the support may be constructed to correspond

thereto without departing from the spirit of our invention.

What we claim is—

1. In combination with a turret and operating mechanism, a gripping device consisting of a supporting-shank provided with jaws attached thereto and a spring-actuated rod or pushing device, arranged substantially as described, and for the purpose set forth.

2. In combination with a turret and operating mechanism, a gripping device consisting of a supporting shank or frame provided with yielding gripping-jaws secured thereto and a spring-actuated rod or pushing device projecting the front end thereof, substantially as described, and for the purpose set forth.

3. In combination with a turret and operating mechanism, a gripping device consisting of a supporting shank or frame provided with gripping-jaws secured thereto, screws for adjusting the free ends of said jaws, and a centrally-located spring-actuated rod or pushing device projecting the front end thereof, substantially as described, and for the purpose set forth.

4. The combination, in a turret-lathe, with the turret and carriage, a chucking device, magazine, and operating mechanism, of a gripping device carried by said turret, consisting of a supporting shank or frame provided with gripping-jaws secured thereto and projecting the front end thereof and a spring-actuated rod or pushing device, arranged substantially as described, and for the purpose set forth.

WILLIAM L. GROUT.
EDWARD L. BOWERS.

Witnesses:

CHAS. F. DANE,
JOSEPH M. CRANE.