(No Model.) 2 Sheets—Sheet 1.

A. GASSINGER & A. GASSINGER, Jr.

MANY SPINDLE LATHE.

No. 332,509. Patented Dec. 15, 1885.

Fig. 1.

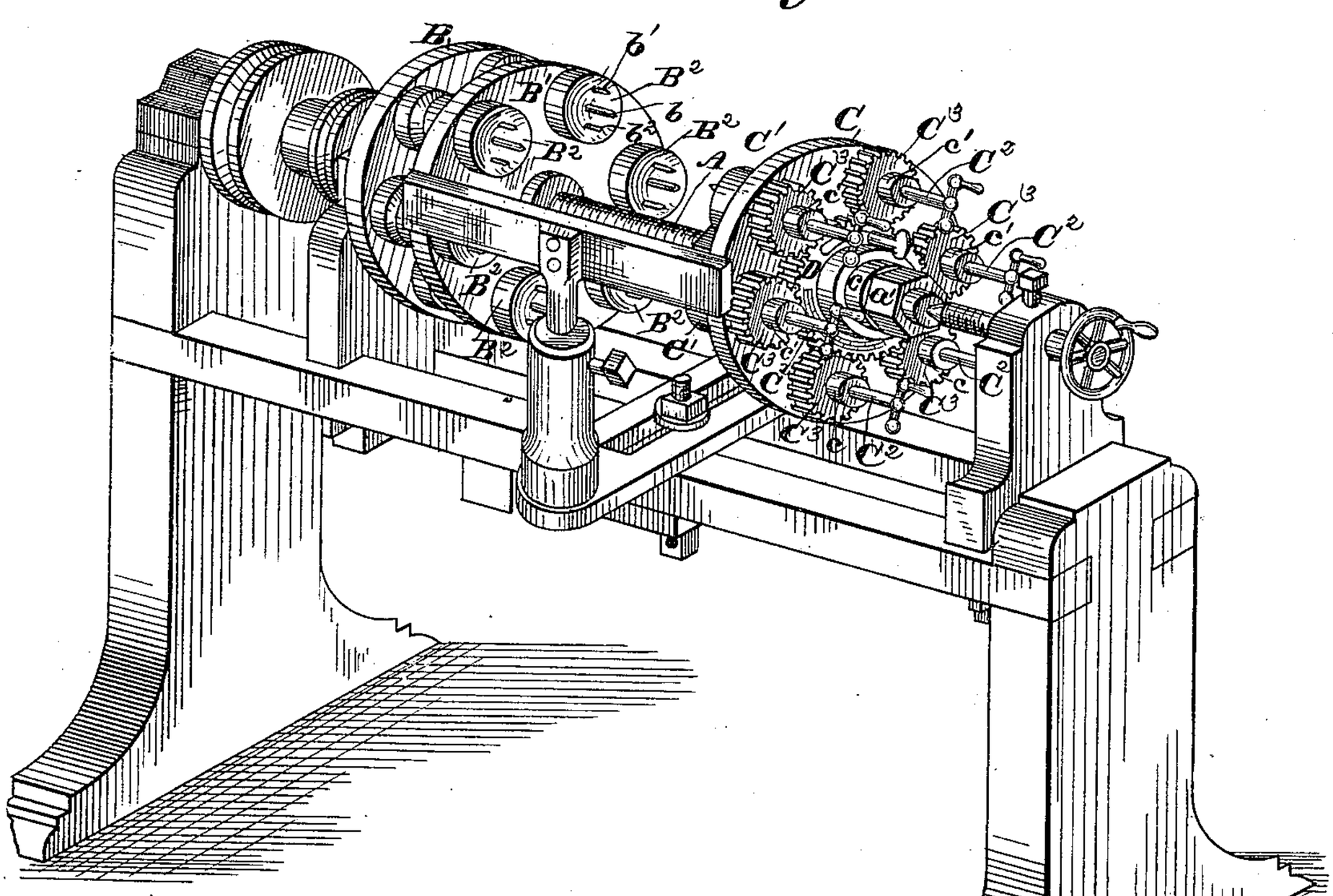
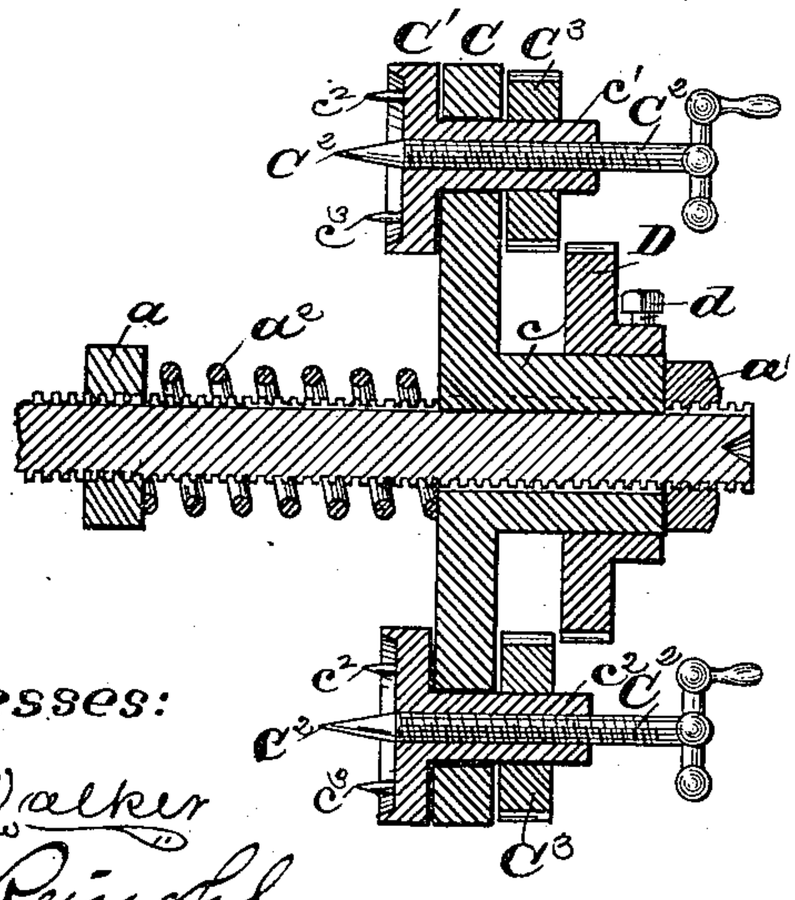


Fig. 4.



Witnesses:

E. J. Walker

D. C. Reinehl

Inventor:

August Gassinger

August Gassinger Jr.

by their attorney

C. Gill

(No Model.) 2 Sheets—Sheet 2.

A. GASSINGER & A. GASSINGER, Jr.

MANY SPINDLE LATHE.

No. 332,509. Patented Dec. 15, 1885.

Fig. 2.

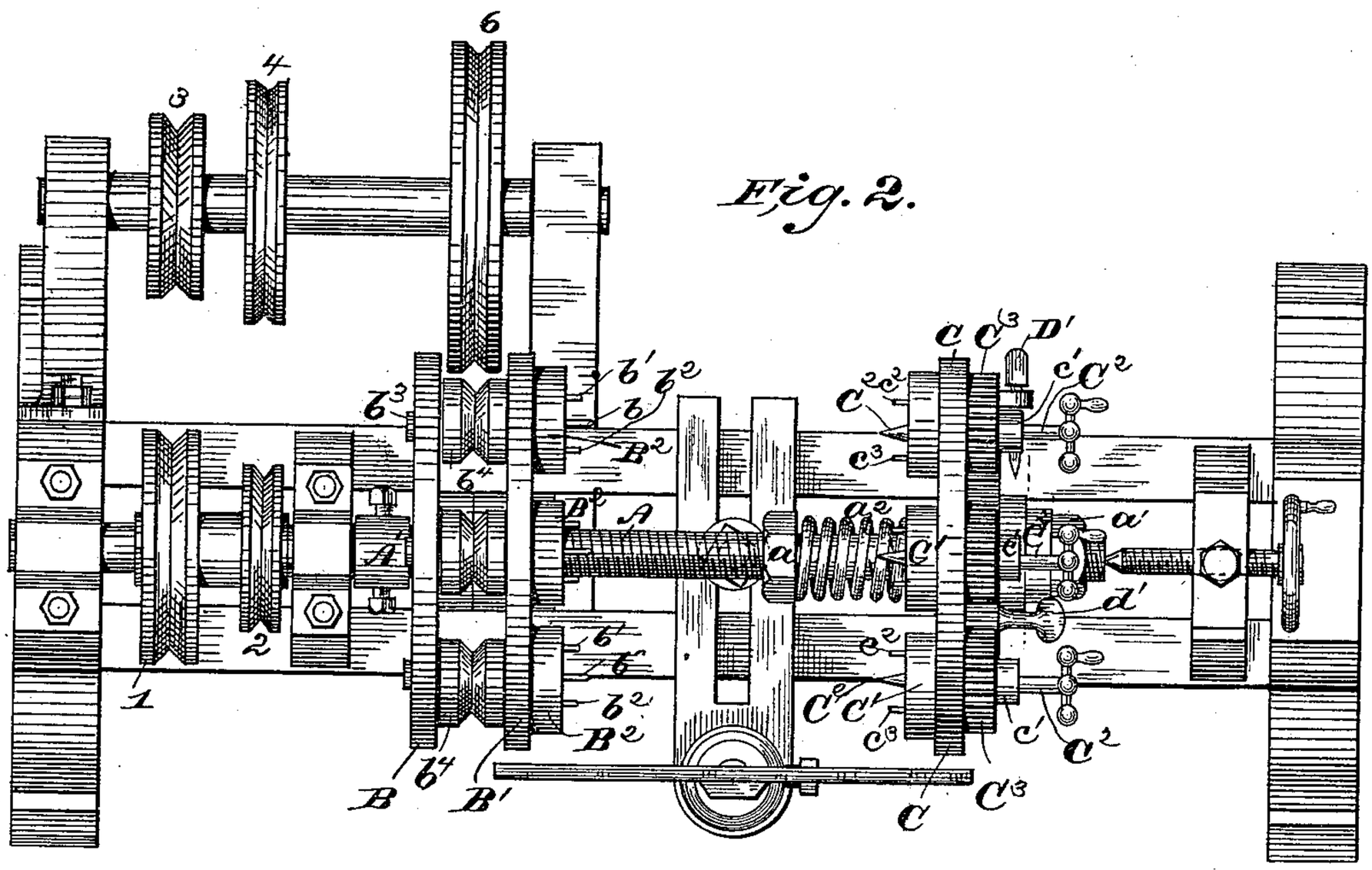
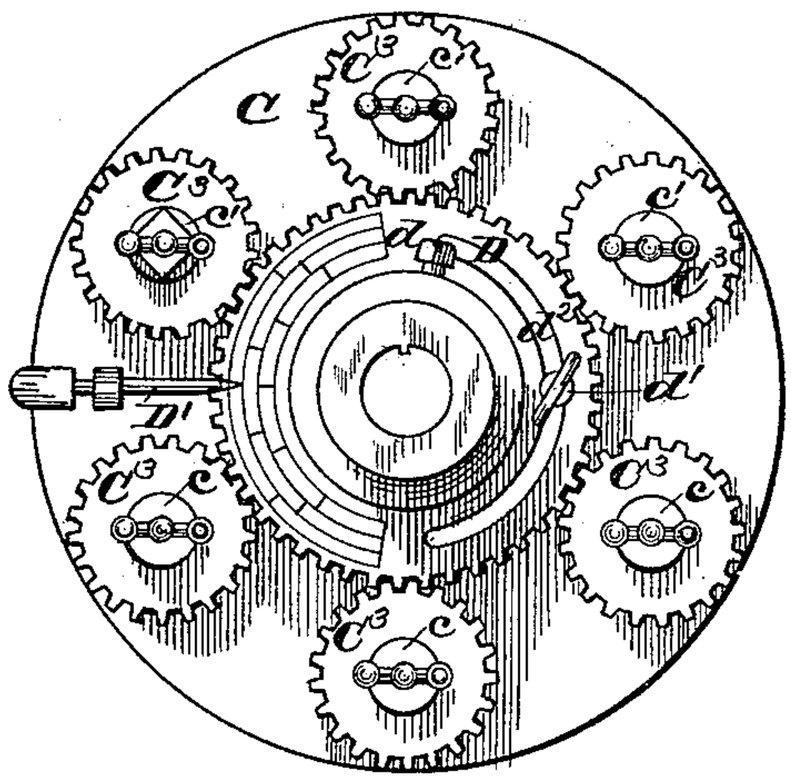


Fig. 3.



Witnesses:
E. J. Walker
D. G. Reinehl

Inventor:
August Gassinger
August Gassinger Jr.
by their attorney
C. G. Sieb

UNITED STATES PATENT OFFICE.

AUGUST GASSINGER AND AUGUST GASSINGER, JR., OF BALTIMORE, MD.

MANY-SPINDLE LATHE.

SPECIFICATION forming part of Letters Patent No. 332,509, dated December 15, 1885.

Application filed July 24, 1885. Serial No. 172,548. (No model.)

To all whom it may concern:

Be it known that we, AUGUST GASSINGER and AUGUST GASSINGER, Jr., subjects of the Emperor of Germany, residing at Baltimore city and State of Maryland, have invented certain new and useful Improvements in Many-Spindle Lathes; and we 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.

This invention relates to that type of many-spindle lathes which are adapted for turning polygonal forms.

The objects of our invention are to construct such a lathe that circular as well as polygonal forms may be turned on it, and that the blanks can be centered and the finished articles removed one after another.

To these ends our invention consists of certain novel combinations, set out specifically in the claims at the close of this specification.

In order that our invention may be clearly understood, we have illustrated in the annexed drawings and will proceed to describe a form thereof which we have used successfully in practice.

Figure 1 represents a perspective view of our many-spindle lathe. Fig. 2 represents a plan of the same. Fig. 3 represents a face view of the disk which carries the tail-chucks and set-gearing. Fig. 4 represents an axial section of said disk and adjuncts.

The same letters of reference indicate identical parts in all the figures.

The bed, shears, head-stock and live-spindle, tail-stock and dead-spindle, and tool-rest of the lathe illustrated in the annexed drawings are constructed and associated after the ordinary manner, the live-spindle carrying a set of band pulleys or sheaves, 1 and 2, for instance, so that it may be driven at different rates of speed from reverse sheaves 3 and 4 on the counter-shaft 5.

The work is carried on a reel composed of a mandrel, A, a head formed of two disks, B and B′, and carrying a concentric series of six equidistant head-chucks, B^2, and a tail-disk, C, carrying a concentric series of six tail-chucks, C′, in alignment with the head-chucks. The reel is mounted and centered by its mandrel A on the live-spindle and dead-spindle of the lathe, and fastened to the live-spindle by a suitable coupling, A′. The head of the reel is permanently fixed to the mandrel A; but the tail-disk is connected to the mandrel by feather and groove, so that it may be slid thereon to regulate the distance between the head-chucks and tail-chucks to any length of blanks within the capacity of the lathe. The mandrel is screw-threaded for the greater part of its length and carries two nuts, a and a', and a spiral spring, a^2, by which nuts and spring the tail-disk C is held in position on the mandrel, the spring being located between the nut a and the face of the tail-disk confronting the head of the reel, while the nut a' is screwed up against the elongated hub c on the other face of the tail-disk. It will be observed that the spring facilitates the adjustment of the tail-disk in elongating the reel, and does not interfere with its adjustment in shortening the reel, and that either adjustment can be effected within a considerable range by adjustment of nut a' alone. Each head-chuck B^2 has a centering-point, b, and two shorter eccentric driving-spurs, b' and b^2, and each has an axle, b^3, journaled in the disks B and B′, and carrying between said disks a small sheave, b^4. The sheaves b^4 may be driven by a band from a large sheave, 6, on counter-shaft 5. Each tail-chuck has an elongated tubular hub, c', by which it is journaled in the tail-disk, and which is internally screw-threaded for the reception of a screw-threaded centering-pin, C^2. This centering-pin C^2 is provided with a handle, so that it can be conveniently retracted and projected. Each tail-chuck is also provided with two eccentric driving-spurs, c^2 and c^3.

On the hub c' of each tail-chuck is fixed a spur-pinion, C^3, and these pinions, all of the same size, are adapted to be engaged by a spur-wheel, D, mounted on the hub c of the tail-disk, and, say, twice as large as the pinions, so that a half-turn of wheel D will impart a full turn to each pinion. Spur-wheel D may be slid on hub c to throw it in gear or out of gear. When in gear with pinion C^3, and fastened by set-screw d, so as to turn with the tail-disk, it will hold all the pinions C^3 locked, and prevent rotation of the tail-chucks on the

tail-disk. When spur-wheel D is thrown out of gear, the tail-chucks may freely rotate on the tail-disk.

The spur-wheel D is used in turning polygonal forms, both for the purpose of preventing the rotation of the chucks in forming any one side of the blanks, and for accurately setting the blanks for forming successive sides thereof. To the latter end a portion of the outer or exposed face of spur-wheel D has a scale, the divisions of which represent degrees on the pitch-line of pinions C^3, and the tail-disk carries a fixed pointer, D'. By these means the operator can accurately set the blanks each time a side has been formed by turning wheel D on hub *c* until the pinions C^3 have been advanced the required number of degrees.

In addition to set-screw *d*, or in lieu of it, wheel D may be clamped to the tail-disk by a clamping-bolt, *d'*, a sectoral slot, d^2, of suitable length being cut through the wheel to permit all required circular adjustments.

When the lathe is to be used for turning polygonal forms, the band is thrown off sheave 6, and the reel may be rotated at the higher rate of speed given by sheaves 4 and 2. When the lathe is to be used, on the other hand, for turning circular forms, spur-wheel D is thrown out of gear, the band placed on sheave 6, to drive sheaves b^4, so as to rotate the chucks and blanks at a high rate of speed on the reel, and the reel is preferably driven at the lower rate of speed given by sheaves 3 and 1.

In mounting the blanks the tail-disk is moved back just far enough to let the blanks enter clear of the driving-spurs of the chucks, so that the blanks may first be properly centered on the fixed centering-points *b* of the head-chucks, and the adjustable centering-pins C^2 of the tail-chucks, after which the tail-disk is moved up to force the driving-spurs of the chucks into the blanks.

To remove the finished articles from the lathe, the tail-disk should be moved back far enough to release the articles from the driving-spurs of the chucks, after which the articles may be removed one after another by successively retracting the adjustable centering-pins.

We have illustrated our invention as embodied in a hand-lathe; but it is obvious that it may be used on and we do intend to apply it to lathes having an automatic feed.

We claim as our invention—

1. In a many-spindle lathe of the character described, the combination, substantially as before set forth, of the reel, the series of head-chucks, the axle of each of which carries a fixed sheave, the corresponding series of tail-chucks, each of which carries a fixed spur-pinion, the mandrel of the reel, and the both circularly and laterally shiftable spur-wheel on the said mandrel, which combination provides for turning either circular or polygonal forms on such lathe.

2. In a many-spindle lathe of the character described, the combination, substantially as before set forth, of the reel, the fixed head carrying the head-chucks of the reel, the mandrel of the reel, the laterally-shiftable tail-disk carrying the tail-chucks, and the nuts and spring on the said mandrel for adjusting said tail-disk.

3. In a many-spindle lathe of the character described, the combination, substantially as before set forth, of the reel, the head-chucks having each a centering-point and shorter driving-spurs, the tail-chucks having each an adjustable centering-pin, the mandrel of the reel, and the shiftable tail-disk carrying said tail-chucks.

In testimony whereof we affix our signatures in presence of two witnesses.

AUGUST GASSINGER.
AUGUST GASSINGER, JR.

Witnesses:
FRANZ SCHANDELLE,
JOHN G. ROLL.