

Zufelt & Craig

2. Sheets. Sheet 1.

Hub Turning Mach.

No. 85,629.

Patented Jan. 5, 1869.

Fig. 1.

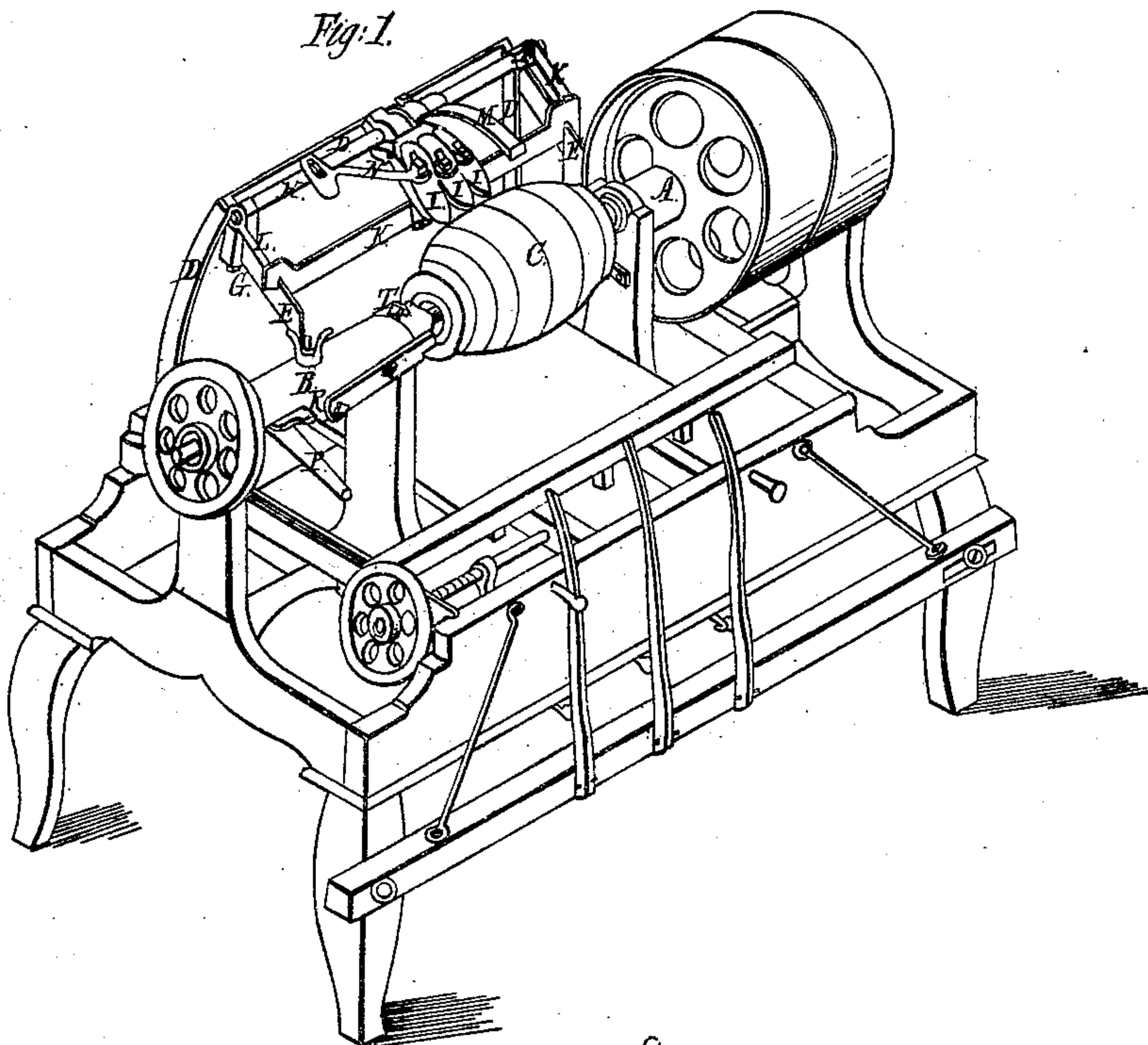
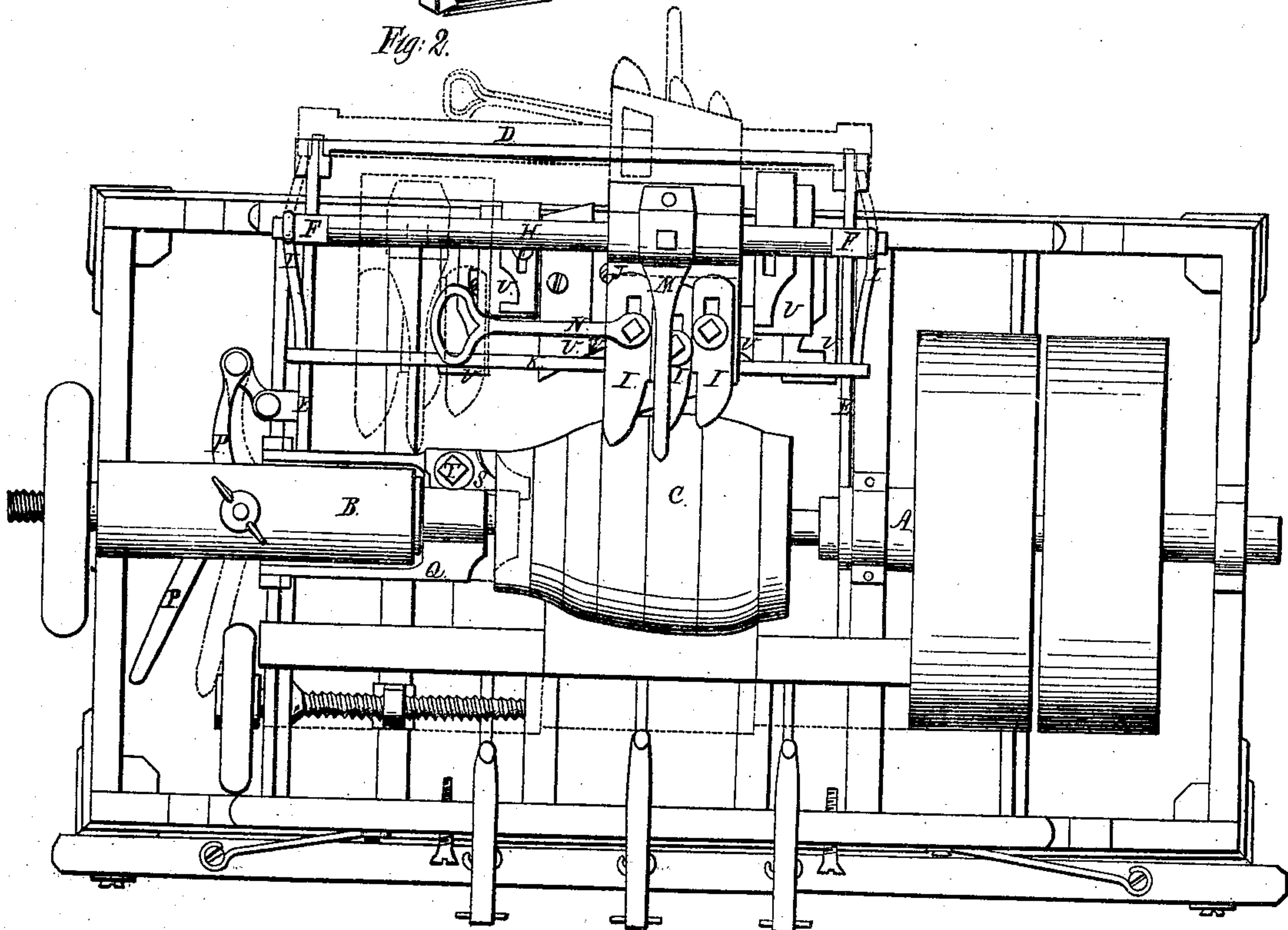


Fig. 2.



*Ziffelt & Cnig,*

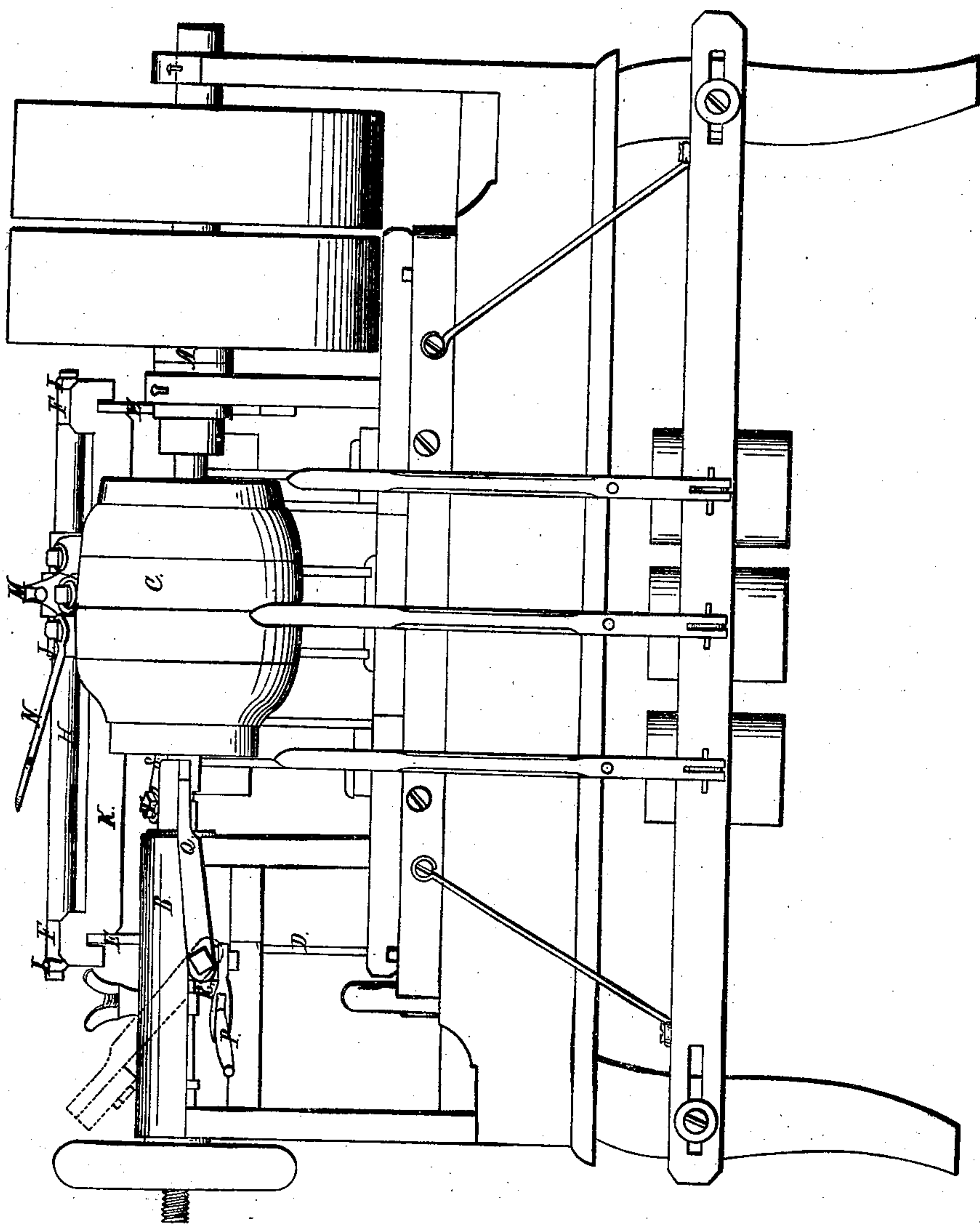
*2. Sheets, Sheet 2.*

*Hub Turning Mach.*

*No. 85,629.*

*Patented Jan. 5. 1869.*

*Fig. 3.*





# United States Patent Office.

J. J. ZUFELT AND R. CRAIG, OF SHEBOYGAN FALLS, WISCONSIN.

Letters Patent No. 85,629, dated January 5, 1869.

## IMPROVEMENT IN HUB-TURNING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, J. J. ZUFELT and R. CRAIG, of Sheboygan Falls, in the county of Sheboygan, and State of Wisconsin, have invented a new and useful Improvement in Hub-Turning Machines; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of our machine.

Figure 2 is a plan of the same.

Figure 3 is a front elevation.

Our invention consists in a combined roughing, turning, and cupping-machine, by the continuous operation of which a suitable block of wood is converted into a finished hub, without rehandling, and while upon the same mandrel and cutters.

That others may fully understand its construction and operation, we will particularly describe it.

In this application, our improvements are represented as attached to a machine similar in construction to the machine patented to A. Goodyear, August 23, 1864, though it will appear evident that the construction of the frame-work and the arrangement and mode of operating the finishing-knives U are entirely immaterial and unimportant.

For the purposes of this application, it will not be necessary to enter into an extended description of the construction of the machine, further than concerns those parts which we have invented.

The mandrel A and tail-stock B are mounted, in the usual way, upon suitable heads or blocks, and the hub C, after being bored, is placed upon a suitable mandrel, and is hung upon the centre in the lathe.

Heretofore it has been customary to rough-shape the blocks with an axe, though machines have sometimes been employed to perform this operation, separate and distinct from the operation of shaping and smoothing; and when the axe is employed for this purpose, it has rendered it necessary to impose so much labor upon the shaping and smoothing-knives, that they have become dulled and inefficient very quickly.

At the back of the main frame we erect a strong wrought-iron frame, D, and from the upper portion of this frame we extend the brace-bar guides E forward, and connect them to the head and tail-blocks, so as to render not only the frame D rigid, but the guide-bars also very firm.

These guide-bars are dressed smooth and true, and upon each is mounted a sliding head, F, which travels upon said guides, to bring the roughing-cutters to or from the work.

The sliding heads F are each provided with a set-screw, G, by means of which they may be clamped to the guide-bars at any point, as they only require shifting to adapt the machine to the turning of large or small hubs.

The cylindrical shaft H connects the sliding heads, and is rigidly secured to each.

This shaft is the guide upon which the roughing-cutters I I I travel, when moving from end to end of the hub-block.

The cutters I I I (being in number greater or less than three, as desired) are secured directly to the traveller J, by screw-bolts which permit the cutters to be adjusted forward or backward, to regulate their depth of cut, or to compensate for wear.

The traveller J is mounted upon the shaft H, and secured in proper position thereon by a strap, which passes over said shaft, and is secured to the traveller on either side thereof.

The front end of the traveller lies upon the rest K, the ends of which are connected with the ends of the shaft H by means of the arms L L, and they are also so notched as to fit over the edges of the guide-bars E, and be thereby prevented from sliding or moving endwise during the operation of the machine.

The handles M N, also secured to the traveller J, enable the attendant to control the operation of the roughers from either the front or end of the machine.

A strap, O, is secured to the lower side of the traveller J, and passes beneath the rest K, so as to hold said traveller and rest in contact, and yet permit the traveller to move freely upon said rest, from end to end thereof.

The operation of this part of our invention will be easily understood.

The traveller J, being drawn to one end of the shaft H, the rough block is placed in the lathe, and the machine started.

Each succeeding cutter I cuts deeper than its predecessor, and, in passing once across the block, it is reduced from its rough form to a true but rough-surfaced cylinder, and is ready for the shaping and smoothing-knives, which, carried upon suitable carriages, are brought up to the work by arrangements of mechanism which are well known.

When the roughing-cutters have performed their office, they are placed out of the way by turning the traveller J and rest K bodily back upon the shaft H, until the upper sides of the cutters rest upon the edge of the frame D.

This reversal of position, as well as the direct movement during operation, is shown in red lines in fig. 2. In this position they remain until required for use upon a fresh block.

The roughing, shaping, and smoothing having been finished, the next operation is to form the cup in the outer end of the hub.

My apparatus to perform this operation is attached to the tail-stock of the lathe, and is operated by a hand-lever, P, attached at one end by a link to the foot of the brace-bar E, as shown in fig. 2.

The yoke Q, to which this lever P is attached, is pivoted at the ends of its branches to a sliding head, R, which slides upon the tail-stock of the lathe.

At the front end of the yoke, it is formed to fit over



the convex cylindrical surface of the mandrel which holds the hub, and to this part of said yoke is secured, by a set-screw, a cutter, S, of proper form to shape the interior face of the cup.

During the preceding operations of roughing and shaping, the cupping-tool and its yoke are raised up and turned back upon the tail-stock, as shown by red lines in fig. 3, so that it is entirely out of the way.

When the shaping and smoothing-tools have finished their task, they are pushed back out of the way, and the yoke Q is brought over to its working-position, its front end resting upon and sliding on the mandrel which holds the hub.

By means of the lever P, the cupping-cutter S is then pressed against the end of the block, and the cup is quickly formed.

When completed, the cupping-tool is run back, and the yoke raised to the position indicated by red lines in fig. 3.

The cutter 3 is forged in the form shown in the drawings, *i. e.*, with its edge turned up, and with solid corners, so that a continuous cutting-edge is secured from end to end.

The set-screw G passes through a slot in the cutter, and into the yoke, so that the cutter may be adjusted

forward or backward, as desired or found to be necessary.

Having described our invention,

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

1. In combination with the shaping and smoothing-cutters of a hub-turning machine, the roughing-cutters I I I and traveller J, mounted upon a guide-frame, D E, or its equivalent, which will permit the free movement of said cutters in a line parallel with the axis of the hub to be turned, and with an adjustment to or from said axis, substantially as set forth.

2. The combination and use, in a single machine, of the roughing-cutters I I, shaping and finishing-tools U U, and the cupping-tool S, substantially as set forth, so that, by a continuous operation, without changing the velocity of the revolution of the hub being shaped, the same may be roughed, shaped, smoothed, and cupped, substantially as set forth.

J. J. ZUFELT.  
R. CRAIG.

Witnesses:

NEWTON GOODELL,  
JNO. P. HUNTLEY.