

(No Model.)

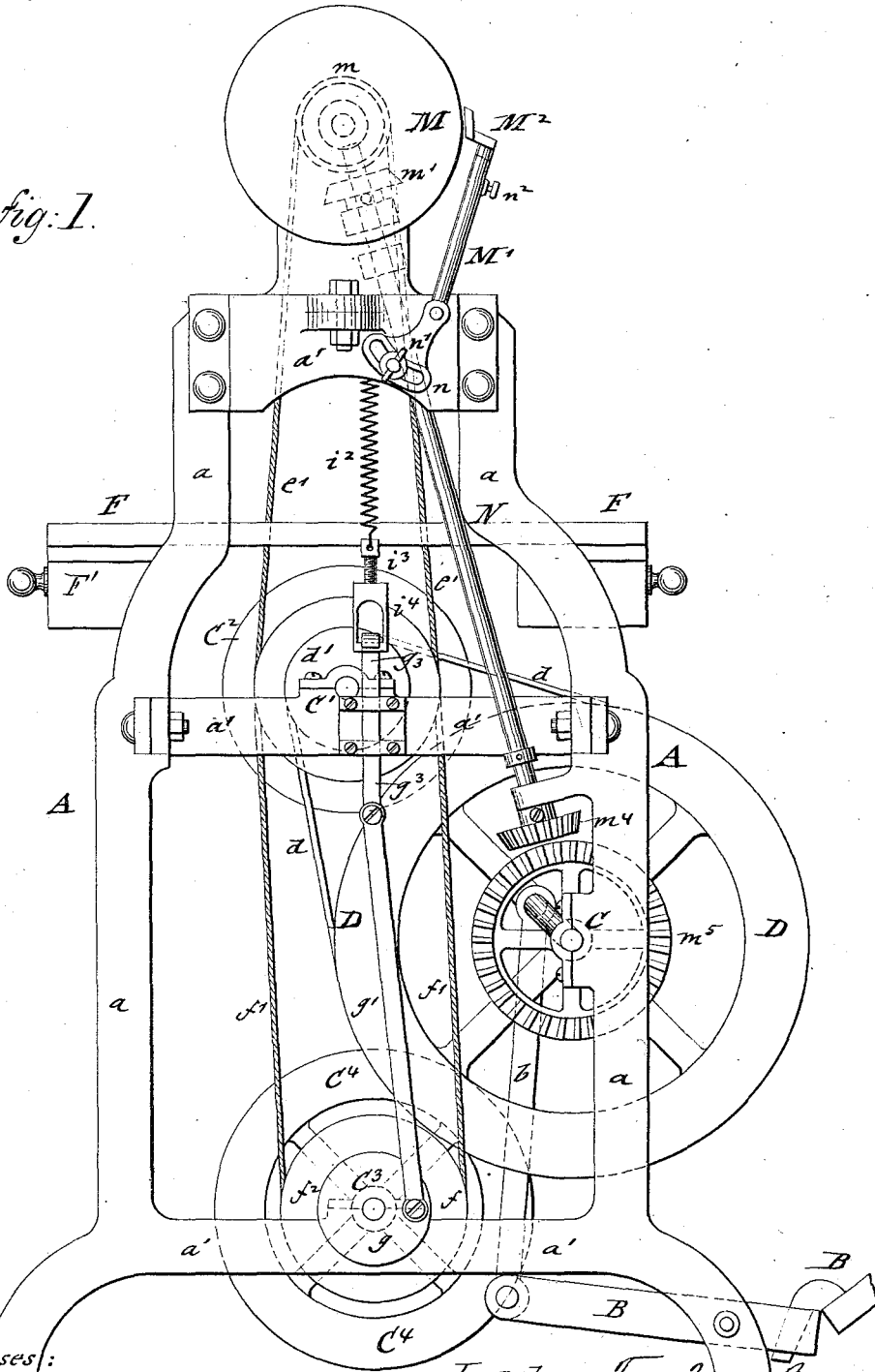
3 Sheets—Sheet 1.

F. J. BRUCKNER.
COMBINED SCROLL SAW AND LATHE.

No. 336,208.

Patented Feb. 16, 1886.

Fig. 1.



Witnesses:

Carl Kay
Ernst Wolff

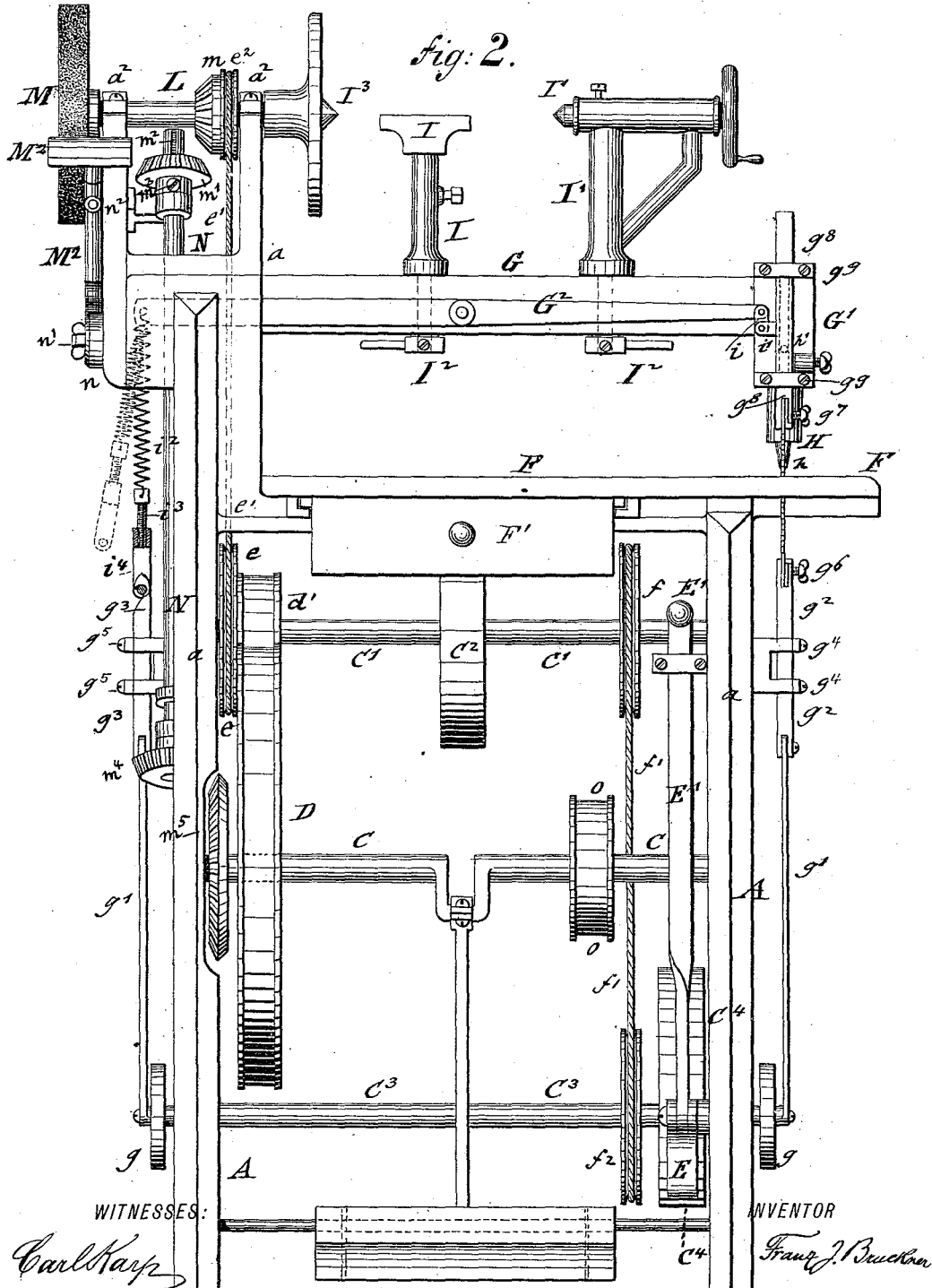
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WITNESSES:
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UNITED STATES PATENT OFFICE.

FRANZ JOSEPH BRUCKNER, OF NEW YORK, N. Y.

COMBINED SCROLL-SAW AND LATHE.

SPECIFICATION forming part of Letters Patent No. 336,208, dated February 16, 1886.

Application filed October 22, 1885. Serial No. 130,587. (No model.)

To all whom it may concern:

Be it known that I, FRANZ JOSEPH BRUCKNER, of the city, county, and State of New York, have invented certain new and useful Improvements in Combination Scroll-Saws and Lathes, of which the following is a specification.

This invention relates to a combined scroll-saw and lathe, which can also be used for boring, grinding, sawing, and other purposes, the parts composing the machine being arranged in such a manner that they take up but a small space and can be readily operated.

The invention consists of a scroll-saw the tension-lever of which is provided with an automatically-unhitching device that disconnects said lever on the breaking of the saw-blade. An air-forcing cylinder is arranged back of the saw-blade and provided with a nozzle, through which air is forced on the work by a piston connected to the upper guide of the saw-blade. A double supporting-arm of the scroll-saw serves as a guide for an adjustable lathe-center and a tool-rest, which are rigidly clamped to said supporting-arm.

The invention consists, further, of certain details of construction and combination of parts, which will be more fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved scroll-saw and lathe. Fig. 2 is a front elevation, and Fig. 3 a side elevation, of the opposite side of the machine.

Similar letters of reference indicate corresponding parts.

A in the drawings represents the supporting-frame of my improved combination scroll-saw and lathe, which frame consists of two upright standards, *a a*, that are connected by braces *a'*, one standard being higher than the other, so as to support the horizontal arm G and the mechanism for operating the scroll-saw, and above the same the lathe-shaft and its accessories. A treadle, B, is fulcrumed to the lower part of the supporting-frame A and connected by a pitman, *b*, to a crank-shaft, C, that carries a fly-wheel, D, which transmits by a belt, *d*, and pulley *d'* rotary motion to an intermediate shaft, C', above the crank-shaft C. The intermediate shaft, C', is provided with a

fly-wheel, C', and with two pulleys, *e f*, of which the pulley *e* transmits rotary motion by a belt, *e'*, and pulley *e''* to the lathe-shaft at the upper part of the machine, while the pulley *f* transmits rotary motion by a belt, *f'*, and pulley *f''* to a second crank-shaft, C'', at the lower part of the supporting-frame A. The crank-shaft C'' is also provided with a fly-wheel, C'', and with a crank-disk, *g''*, at each end, which disks are connected by pivot-rods *g'* to the lower ends of vertically-reciprocating guide-pieces *g'' g''*, that are guided in keepers *g'' g''* of the supporting-frame A. A clamping device, *g''*, at the upper end of the guide-piece *g''* serves to clamp the lower end of the saw-blade, which is passed through a slot of a table, F, that is supported by the frame A. The upper end of the blade is attached by a clamping device, *g''*, to the lower end of a second guide-piece, *g''*, that is guided vertically above the guide-piece *g''* in keepers *g''* of the head G' of a horizontal supporting-arm, G, that is attached to the upper end of the higher standard *a*.

The saw-blade is reciprocated in the slot of the table F by a tension-lever, G'', that is fulcrumed to the horizontal arm G, and connected at one end by a short pivot-link, *i*, with a sidewise-projecting lug, *i'*, on the saw-guide *g''*, and at the opposite end to an unhitching device composed of a spiral spring, *i''*, eye-screw *i''*, and link *i''*, and to the hook-shaped upper end of the vertically-reciprocating guide-piece *g''*, as shown in Figs. 1 and 2. The unhitching device serves to instantly release the tension-lever G'', in case of the breaking of the saw-blade or the accidental releasing of the same from one of its clamping devices, so that the tension-lever G'' and the saw-blade are set at rest by the detaching of the link *i''* from the hook-shaped end of the guide-piece *g''*, as shown in dotted lines in Fig. 2. The unhitching of the tension-lever and stopping of the saw-blade protects the work from injury and facilitates the working of the scroll-saw to a high degree. It can be used with any scroll-saw and forms an important feature of my invention.

To the rear part of the head G' of the horizontal arm G is attached a small vertical cylinder, H, which is provided at its lower end with a downwardly and forwardly inclined

nozzle, *h*, that terminates back of the saw-blade, near the slot of the table. A piston, *H'*, is reciprocated in the cylinder by its piston-rod, which is connected by a pin, *h'*, to the vertically-reciprocating upper guide-piece, *g*³. The cylinder *H* and the piston *H'* act in the nature of an air force-pump that emits with every downstroke of the saw-blade a puff of air, and removes thereby the sawdust, so as to clear the work in front of the saw-blade and permit the more effective action of the same on the work.

The horizontal arm *G* is made of two parallel pieces, between which a space of sufficient width is left so as to form a way for the square shanks of an adjustable tool-rest, *I*, and an adjustable lathe-center or tail-stock, *I'*. Clamping devices *I*² at the lower ends of the shanks of the tool-rest *I* and lathe-center *I'* hold the same rigidly in position on the arm *G*. A second lathe-center or head-stock, *I*³, is applied in line with the center *I'* to the rotary lathe-shaft *L*, which turns in bearings *a*² of the upper forked end of the higher standard *a*. To the outer end of the shaft *L* is applied an emery-wheel, *M*, or a circular saw, or any other suitable tool, while to the inner end of the shaft *L* may be attached a drill in place of the lathe-center, whereby the machine may be used for a number of different operations—such as for turning, grinding, boring, sawing, &c.

When it is desired to rotate the lathe-shaft *L* at a slower speed, especially when larger pieces of wood have to be turned, a bevel-wheel, *m*, of the shaft *L*, is thrown into mesh with a gear-wheel, *m'*, at the upper end of an inclined transmitting shaft, *N*, that turns in bearings of the supporting-frame *A*, as shown in Figs. 2 and 3. The adjustable bevel-wheel *m'* is guided by a spline in a groove, *m*², at the upper end of the inclined shaft *N* and rigidly secured thereto after adjustment by a clamp-screw, *m*³, that engages said groove. By setting the bevel-wheel *m'* higher or lower at the upper end of the transmitting-shaft *N*, the latter is shifted in its bearings so that a gear-wheel, *m*⁴, at the lower end of the shaft *N* is thrown into or out of mesh with a bevel-wheel, *m*³, at the end of the crank-shaft *C*. When the shaft *N* is thrown into gear with the crank-shaft *C* it is rotated and transmits rotary motion to the lathe-shaft *L* at much slower speed than when rotated by the belt *e'* and pulleys *e*², so that larger articles can be mounted on the lathe and the same be more carefully worked on than with a high speed of the shafts.

In front of the emery-wheel *M* is arranged an adjustable tool-rest, *M*², which is fulcrumed to the upper part of the higher standard *a*, and adjusted therein laterally by its slotted lower end, *n*, and a set-screw, *n'*, and in upward direction by a shank that is guided in a tubular socket, *M'*, having a set-screw, *n*², as shown. A drawer, *F'*, slides on supporting-guides at the under side of the table *F*, and serves as a storage-receptacle for a screw-driver, wrench,

saw-blades, and the detachable tools used in connection with the lathe portion of the machine.

A brake shoe, *E*, is fulcrumed to the lower part of the frame in front of the fly-wheel *C*⁴ and operated by a lever, *E'*, which is pivoted to the rear end of the fulcrumed shoe and guided in a keeper of the supporting-frame. The brake-shoe *E* is brought in contact with the fly-wheel *C*⁴ of the lower shaft, *C*³, whenever the handle of the lever *E* is pushed down, whereby the machine is instantly stopped. As soon as the handle *E'* is released the brake-shoe *E* is lifted by a spiral spring, *E*², that is secured to the brake-shoe *E* and to the supporting-frame *A*, as shown in dotted lines in Fig. 3. When the machine is to be worked by power, motion is transmitted by a belt to a pulley, *o*, on shaft *C*, in which case the treadle and its pitman may be disconnected and dispensed with.

When the machine is to be used by amateur scroll-saw workers, it can be considerably simplified by dispensing with the shaft *N* and its bevel-wheel transmission, also with the emery-wheel and the tool-rest in front of the same.

The machine combines in a simple and convenient form a scroll-saw and lathe with other tools, and can be used to advantage in small shops or by amateur scroll-saw workers, owing to its wide range of application and its compact shape.

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

1. The combination of vertically-reciprocating guide-pieces having clamping devices for the saw-blade, a fulcrumed tension-lever connected at one end to the upper guide-piece, an automatic unhitching device connected to the other end of said tension-lever, a rotary shaft having crank-disks at each end, and pivot-rods connecting the lower guide-pieces and said unhitching device with the crank-disk of said shaft, substantially as described.

2. The combination of vertically-reciprocating guide-pieces having clamping devices for the saw-blade, a fulcrumed tension-lever connected at one end to the upper guide-piece, a rotary shaft having crank-disks at each end, an unhitching device connected to the other end of said tension-lever and composed of a spiral spring, a screw-eye, a link, and vertically-reciprocating rod having a hook-shaped end, and pivot-rods connecting the lower guide-piece and the hook-rod with the crank-disks of said shaft, substantially as set forth.

3. The combination of a scroll-saw-supporting frame having a fixed horizontal arm made of two parallel pieces, an adjustable tail-stock supported by said arm, a clamping device for said adjustable tail-stock, an adjustable tool-rest, also supported on said arm, a clamping device for said tool-rest, and a rotary lathe-shaft supported in bearings above

the horizontal arm, and having a tail-stock in line with the adjustable lathe-center, substantially as set forth.

4. The combination of a scroll-saw-support-
5 ing frame having a horizontal arm made of two parallel pieces, an adjustable tail-stock, an adjustable tool-rest, both supported on said arm, clamping devices for securing the tail-stock and tool-rest to said arm, a head-
10 stock supported in bearings above said arm and having a tail-stock in line with the adjustable center, and an inclined shaft having bevel-

wheels meshing with bevel-gears on the lathe-shaft and driving-shaft, said inclined shaft being adapted to be shifted in its bearings for throw- 15
ing the bevel-wheels in or out of gear with the driving-shaft, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRANZ JOSEPH BRUCKNER.

Witnesses:

RUDOLPH FUCHE,
JOSEPH GLOGAU.