J. C. CORNEIL.

Hub-Boring Machines.

No. 198,081. Patented Dec. 11, 1877.

Fig: 1.

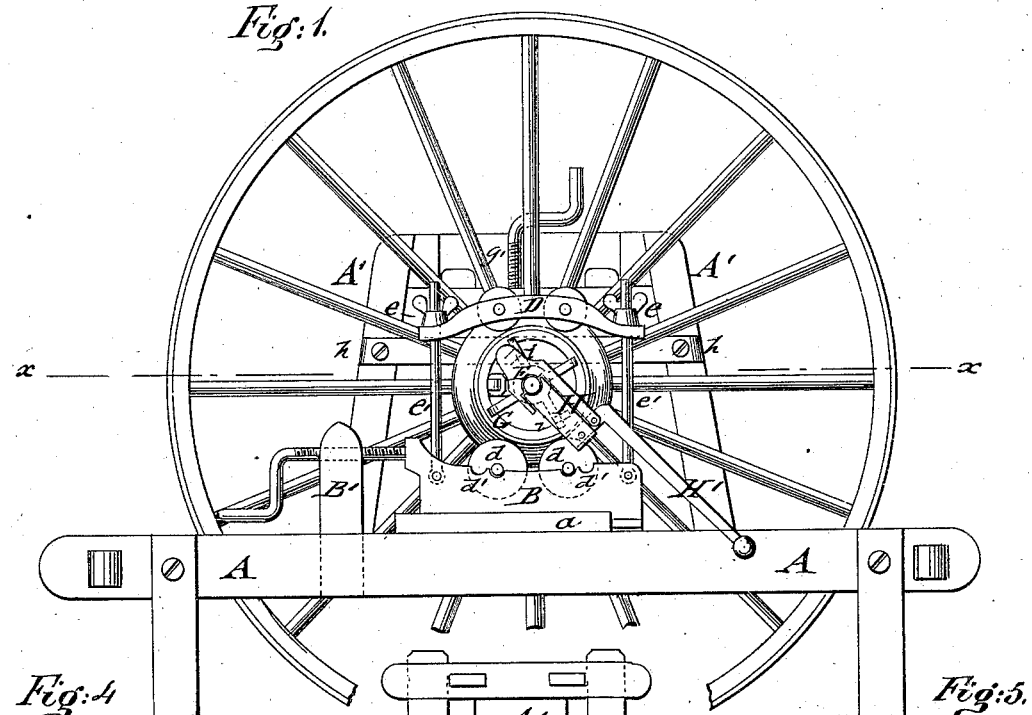


Fig: 4

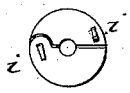


Fig: 5.

Fig: 2.

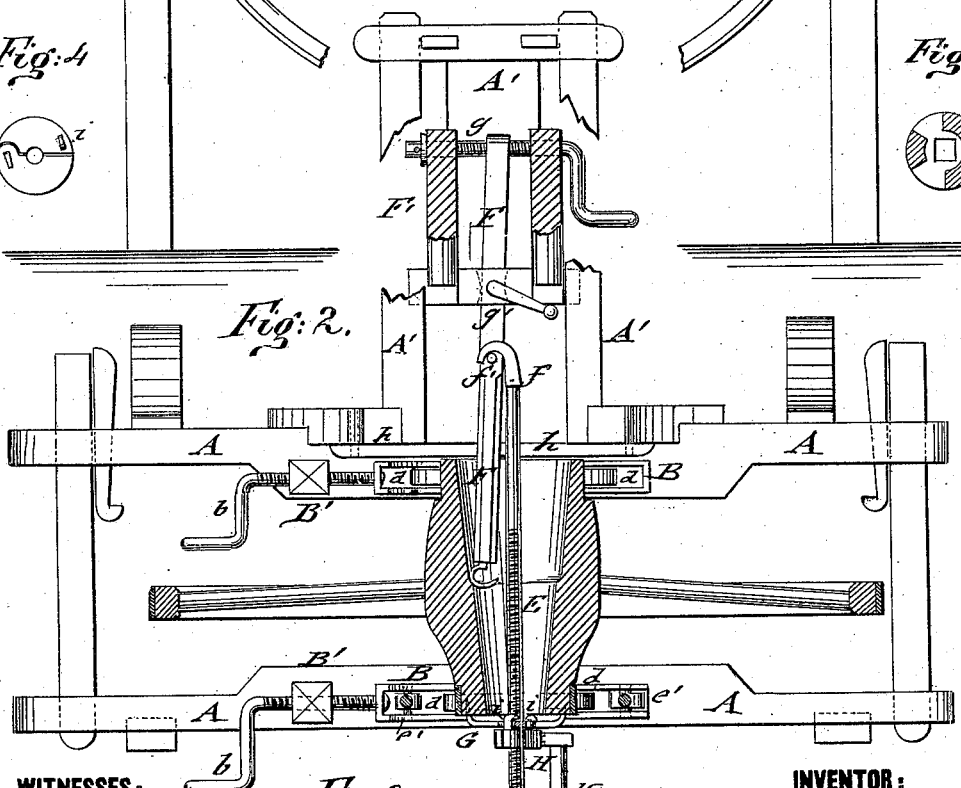
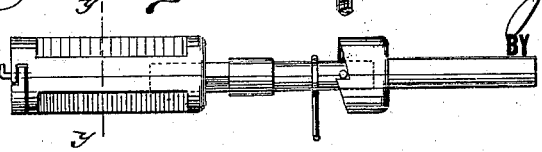


Fig: 3.



WITNESSES:

Chas. Nida

A. F. Terry

INVENTOR:

J. C. Corneil.

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES C. CORNEIL, OF LOWDER, ILLINOIS.

IMPROVEMENT IN HUB-BORING-MACHINES.

Specification forming part of Letters Patent No. **198,081**, dated December 11, 1877; application filed April 16, 1877.

To all whom it may concern:

Be it known that I, JAMES C. CORNEIL, of Lowder, in the county of Sangamon and State of Illinois, have invented a new and Improved Hub-Boring Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved hub-boxing machine; Fig. 2 a horizontal section of the same on line *x x*, Fig. 1; Fig. 3, a detail view of the shafting for driving the machine by power; and Figs. 4 and 5 are, respectively, an end view and a cross-section on line *y y*, Fig. 3, of the power-shaft attachment.

Similar letters of reference indicate corresponding parts.

This invention has reference to an improved hand or power machine for cutting or boring out the hubs of all kinds of wheels for the insertion of the boxes in a rapid and economical manner; and the invention consists of a bench, with sliding carriages supporting the hub or friction-rollers, and retaining the same by top band and rear brace.

An adjustable cutting-knife is carried along the inside of the revolving hub by a feed-screw and hook-shaft, operated by a detachable hand-crank or power attachment.

In the drawing, A represents the supporting-bench of my improved boxing-machine, which is laterally adjusted to the size of the hub by slides and wedge-pieces.

On the bench are arranged the adjustable carriages B, which are guided in fixed rails *a* and adjusted toward fixed posts B′ by screw-bolts *b* with operating hand-cranks.

The hub of the wheel is placed on friction-rollers *d* of the carriages B, which rollers turn in recesses *d′* of the carriages, and are placed either in the inner or outer set of recesses or notches, according as the hub is supported with its smaller or larger end thereon. The changing of the friction-rollers in the carriages admits the support of the hub in horizontal position, whether the thinner end of the hub is seated in one or the opposite direction on the carriages.

When the hub is placed in position on the carriages, the top band D, which is also provided with friction-rollers, is placed on the top of the hub, and screwed tightly by thumb-screws *e* turning on the pivoted screw-rods *e′* of the front carriage, which enter recesses of band D. The hub is thus retained firmly in position on the bench, but allowed to turn axially by the friction-rollers.

The feed-shaft E is then placed through the hub, and attached by its hook-shaped end *f* to studs *f′* of the knife-shaft F, which is secured at the outer end to a lateral cross-bolt, *g*, of a sliding frame, F′, and adjusted by top and bottom crank-screws *g′* in the same, so as to be set to the exact height required.

The frame F′ is guided on an extension, A′, of bench A, against a lateral brace, *h*, of which the hub rests when in position on the carriages.

A pronged grab, G, is next driven into the end of the hub after being passed by its center hole over the feed-screw E, to which the adjustable hand-crank H is then applied by being closed around the feed-screw shaft by its pivot-lever H′, which operates a movable tap of the crank against a fixed tap of the same. The taps of the crank H are provided with hooks *i*, which engage the grab G, so that by turning the lever the taps engage the feed-screw, and the hooks the grab, producing the motion of the feed-screw shaft simultaneously with the turning of the hub.

The knife-shaft is provided with a suitable detachable and interchangeable cutting-knife, which is carried against the inner side of the hub, and drawn through the same by the action of the feed-shaft and crank so as to bore out the hub to the required degree for the insertion of the box.

The proper taper of the hole is obtained by adjusting the carriages B of the bench by means of their cranks in such a manner that the axis of the hub forms a small angle of inclination with the transverse axis of the bench. In this manner, any required degree of taper may be obtained for the bore-hole in quick manner. The knife-shaft is adjusted to the hub by the set-screws of slide-frame F′ in vertical or horizontal direction until the proper position for cutting is obtained, and also the hub to the knife by the sliding carriages. The hub may be bored from the larger or smaller end, it being readily reversed on the carriages

by changing the position of the friction-rollers into the outer or inner notches or recesses.

When the hub is bored about half-way the crank is taken off by turning the lever slightly in opposite direction, to produce the opening of the taps and admit the easy clearing of the feed-screw. The slide-frame is then pulled back, and if the hole is not large enough the knife and hub are reset until the desired size and taper are obtained.

The friction-rollers facilitate the easy turning of the hub against the cutting-knife by means of the detachable crank. The crank may be made in different ways, provided it closes tightly by its tap sections on the feed-shaft, when turning the hub in one direction, but releases the feed-shaft when turned in opposite direction.

The machine may also be used with steam or other power, for which the attachment shown in Figs. 3, 4, and 5 is used. The hook ends engage the grab in the same manner as before, while the feed-rod runs into a hollow or socket part when boring. The socket part connects with a shaft and clutch mechanism to admit the throwing in and out of gear with the driving-shaft, and enabling the operator to interrupt the cutting of the knife without stopping the motion of the driving-shaft.

The hubs may be thus bored out in easy, quick, and accurate manner, and thereby considerable time and labor saved in boxing wheels.

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

1. A hub-boxing machine, consisting of a bench, with adjustable hub-supporting carriages, fastening top band, adjustable cutting-knife, connecting feed-screw shaft and hub, revolving grab and crank mechanism, substantially in the manner set forth.

2. The adjustable hub-supporting carriages B, having inner and outer notches *d* for shafts of friction-wheels, to support hub in level position, with smaller or larger end toward knife, substantially as described.

3. The combination of the sliding carriage B, having friction-rollers *d* and pivot-bolts *e'*, with a top band, D, slotted at the ends, and provided with binding thumb-nuts *e* and friction-rollers, substantially as specified.

JAMES CORNEILUS CORNEIL.

Witnesses:
FRANK CATHRAN,
PERRY F. BECK.