

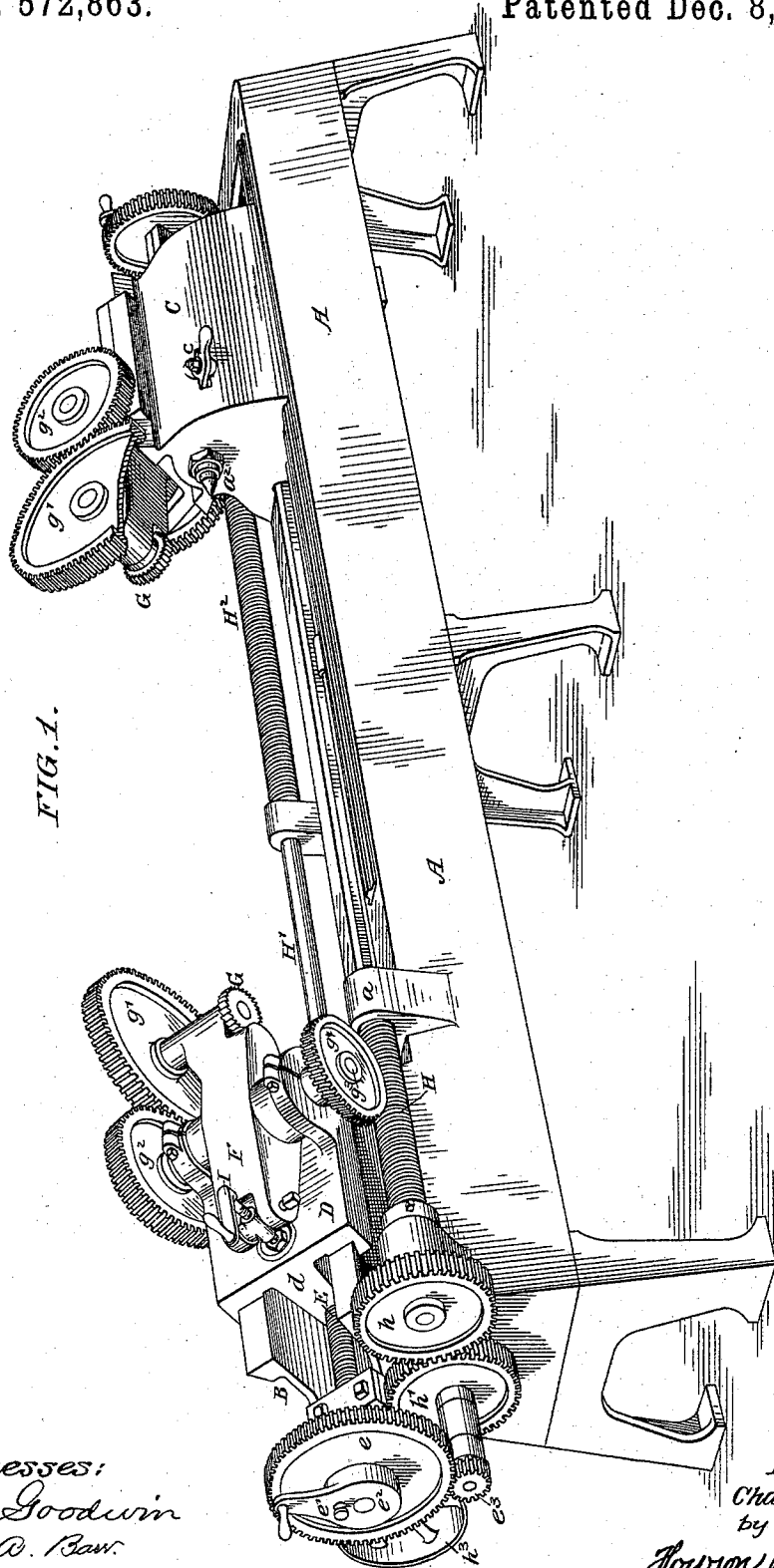
(No Model.)

3 Sheets—Sheet 1.

C. J. CARNEY.
KEY SEATING MACHINE.

No. 572,863.

Patented Dec. 8, 1896.



Witnesses:
C. D. Goodwin
Will. A. Raw.

Inventor:
Charles J. Carney
by his Attorneys
Howson & Howson

(No Model.)

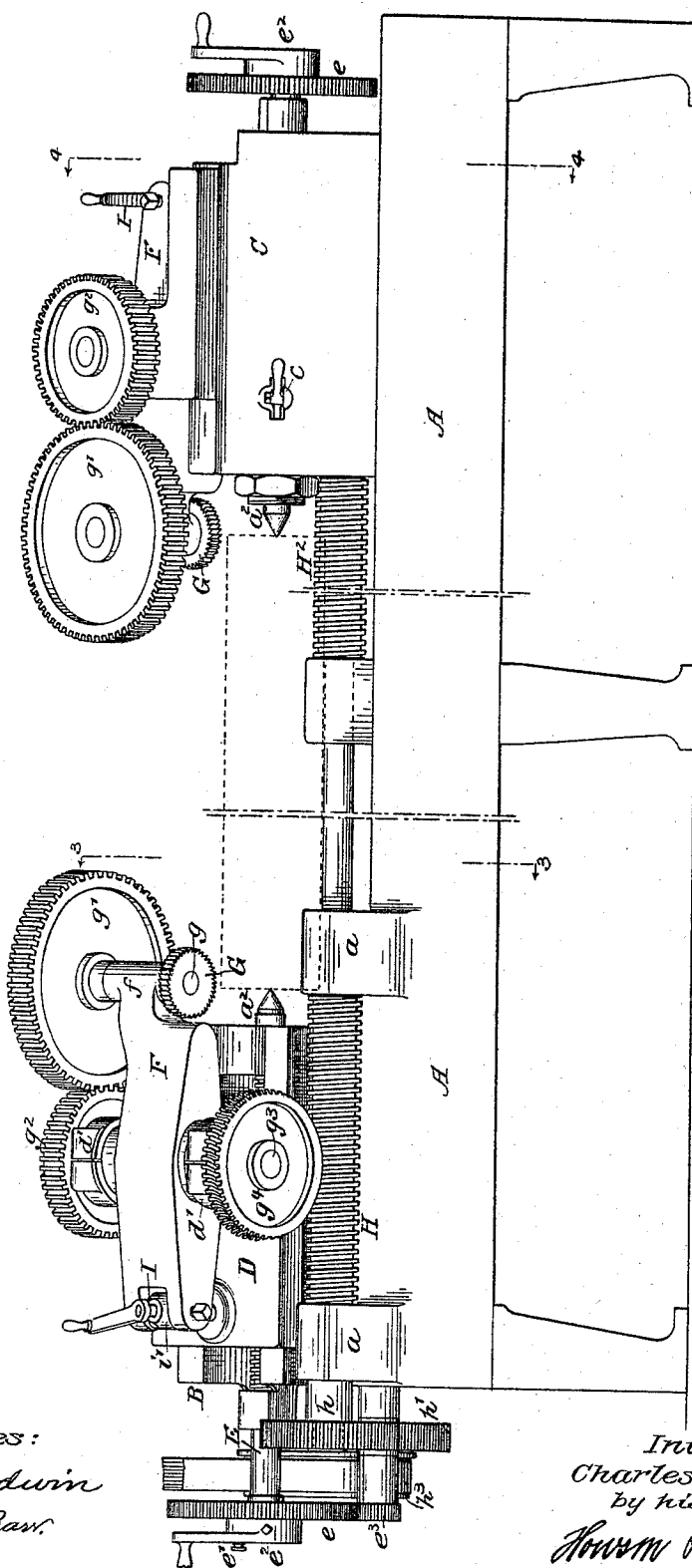
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FIG. 2.



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(No Model.)

3 Sheets—Sheet 3.

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FIG. 4.

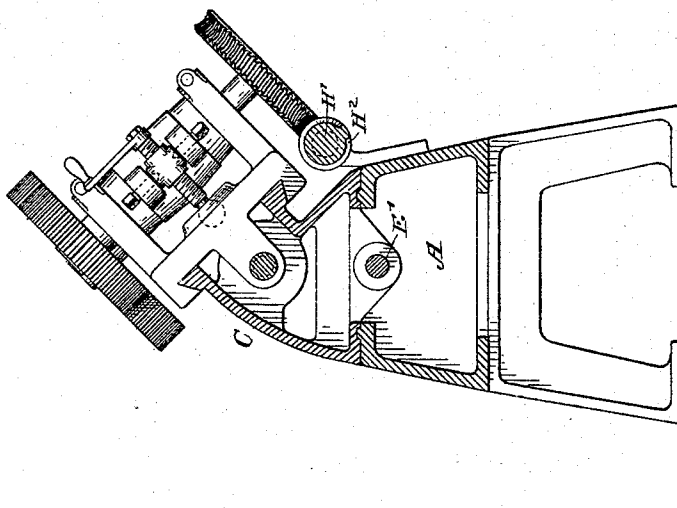
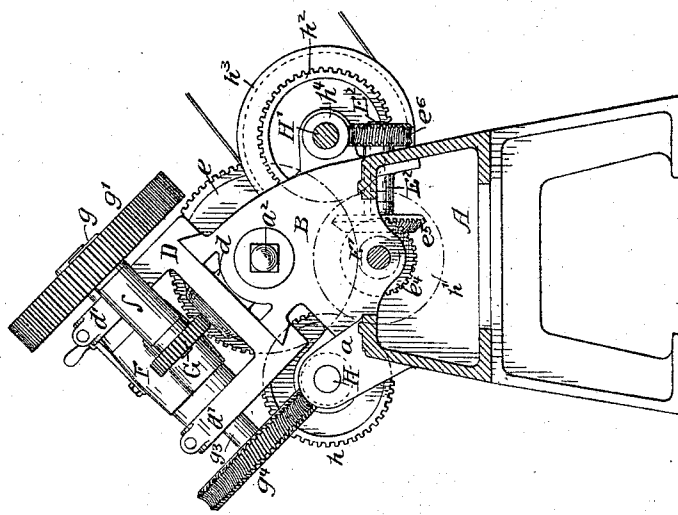


FIG. 3.



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Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES J. CARNEY, OF DUNKIRK, NEW YORK, ASSIGNOR TO THE
BROOKS LOCOMOTIVE WORKS, OF SAME PLACE.

KEY-SEATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,863, dated December 8, 1896.

Application filed March 14, 1896. Serial No. 583,245. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. CARNEY, a citizen of the United States, and a resident of Dunkirk, New York, have invented certain
5 Improvements in Key-Seating Machines, of which the following is a specification.

The object of my invention is to construct a key-seating machine for cutting the key-seats at right angles to each other. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved key-seating machine. Fig. 2 is a side
15 view. Fig. 3 is a section on the line 3 3, Fig. 2; and Fig. 4 is a section on the line 4 4, Fig. 2.

My invention is especially applicable to cutting the key-seats in the axles of driving-
20 wheels of locomotives, where accuracy is required, but it will be understood that my invention can be used to cut key-seats in any shaft or axle in which seats are to be cut one at an angle to the other.

25 A is the bed-plate of the machine, mounted upon suitable legs.

B is the fixed head of the machine, and C is the movable head, adapted to ways on the bed.

30 c is the ordinary tail-stock clamp by which the movable head is secured to the ways after adjustment.

On the head B is a carriage D, having a threaded projection d, to which is adapted a
35 feed-screw E, which feeds the tool the proper distance as it is cutting the key-seat.

On the carriage is a pivoted carrier F, journaled in bearings d' on the carriage, and on the outer end of this carrier F is a bearing f
40 for the spindle g of the cutter G. This spindle g has a gear-wheel g', meshing with a gear-wheel g² on the shaft g³, extending through the journals of the carrier F, and on the opposite end of this shaft is a worm-wheel
45 g⁴, meshing with a worm-shaft H, adapted to bearings a a on the bed. This shaft has a gear-wheel h, meshing with an intermediate gear h', which in turn meshes with a gear-wheel h² on the driving-shaft H', adapted to
50 bearings on the opposite side of the machine.

On the driving-shaft are the ordinary belt-pulleys h³.

In order that motion may be imparted to the feed-screw shaft E, I mount on this shaft a gear-wheel e, which is loose on the shaft and
55 connected thereto by a pin e' on the crank-handle e², fast to the shaft, so that this wheel can be thrown out of gear with the screw-shaft when it is wished to stop the feed of the carriage and can be thrown into gear when
60 the carriage is to be fed.

The gear-wheel e meshes with a pinion e³ on the feed-shaft E', on which the intermediate gear h' is loosely mounted. This feed-shaft is adapted to bearings in the bed of the
65 machine and is geared to a shaft E² by bevel-gears e⁴ e⁵, and this shaft E² has a worm-wheel e⁶, meshing with a worm h⁴ on the driving-shaft H'.

The carrier F can be adjusted to and from
70 the work by the handled screw I, adapted to a swivel-nut i' on one end of the carrier F, the opposite end of the screw having a ball adapted to a socket in the carriage D.

It will be seen that the carriage D can be
75 moved along the work and the tool can be adjusted toward and from the center to cut a deep or shallow key-seat and both adjustments are under the control of the operator.

The heads B and C have centers a² on which
80 the axle is mounted. The adjustable head C with its devices is in many respects the counterpart of the head B. Its screw-shaft for feeding its carriage is geared to the feed-shaft E' in the same manner as the shaft E, and
85 the shaft carrying the cutting-tool is geared to the driving-shaft H', on which is the worm H², in the same manner as the tool-shaft g, and the adjustment of the shaft toward and
90 from the center is accomplished in the same manner, the only difference being that the slides on the heads are arranged at right angles one to the other.

The operation of the machine is as follows:
95 If the axle to be key-seated is set in the machine on the center and the tool-head properly adjusted, the driving-shaft is then set in motion. The operator adjusts the tools by the hand-screw I, so that they will cut to the
100 depth desired. The feed-screws of each head

are then coupled to the feed-shaft E' by throwing in the clutch-pins on the hand-levers, and the carriages will gradually move toward each other, cutting the key-seat in the axle or shaft, one at an angle to the other.

After the key-seats have been cut the proper distance the feed-screws can be uncoupled and the carriages returned to their normal position.

While I have described my invention as especially applicable to cutting the key-seats at right angles to each other, it will be understood that the machine may be made for cutting the key-seats at any angle one to the other, and, in fact, in some instances the machine may be constructed so as to cut the key-seats on line.

I claim as my invention—

1. The combination in a machine for cutting key-seats in axles, &c., of the two heads, means for holding the axle between the said heads, a longitudinally-movable carriage on each head, a tool-carrier mounted on each carriage, a tool-shaft on each carrier having a cutting-tool thereon, adjusting devices for the carrier so as to regulate the depth of cut, means for driving the cutting-tools and means for feeding the carriages, substantially as described.

2. The combination in a key-seating machine adapted to cut two seats simultaneously one at an angle to the other, of the two heads, centers thereon upon which the axle is mounted, a carriage on each head, a carrier on each carriage, a cutting-tool on each carrier, devices for adjusting the tool to the work and means for feeding the carriages toward and

from each other and means for driving the tools, substantially as described.

3. The combination in a key-seating machine, of the bed-plate, the fixed head having ways thereon, the adjustable head also having ways, a carriage adapted to the ways of each head, a fixed carrier mounted on each carriage, a hand-screw for adjusting the said carrier, a tool-shaft on each carrier, cutting-tools thereon, a worm-shaft at each side of the machine, one worm geared to the cutting-tool of one carriage and the other worm geared to the cutting-tool of the other carriage, a feed-screw in each head engaging with the carriage, a feed-shaft geared to the set-screws and means for throwing the screws into and out of gear with the shaft, substantially as described.

4. The combination in a key-seating machine, of the two heads, centers thereon for the axle, a carriage on each head, means for driving the carriages in unison, a tool-carrier mounted on each carriage, a milling-tool thereon and means for revolving said milling-tool, the mechanism for driving the milling-tool being geared to the mechanism for feeding the carriage so that the milling-tool will be fed along the shaft as it is revolving, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES J. CARNEY.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.