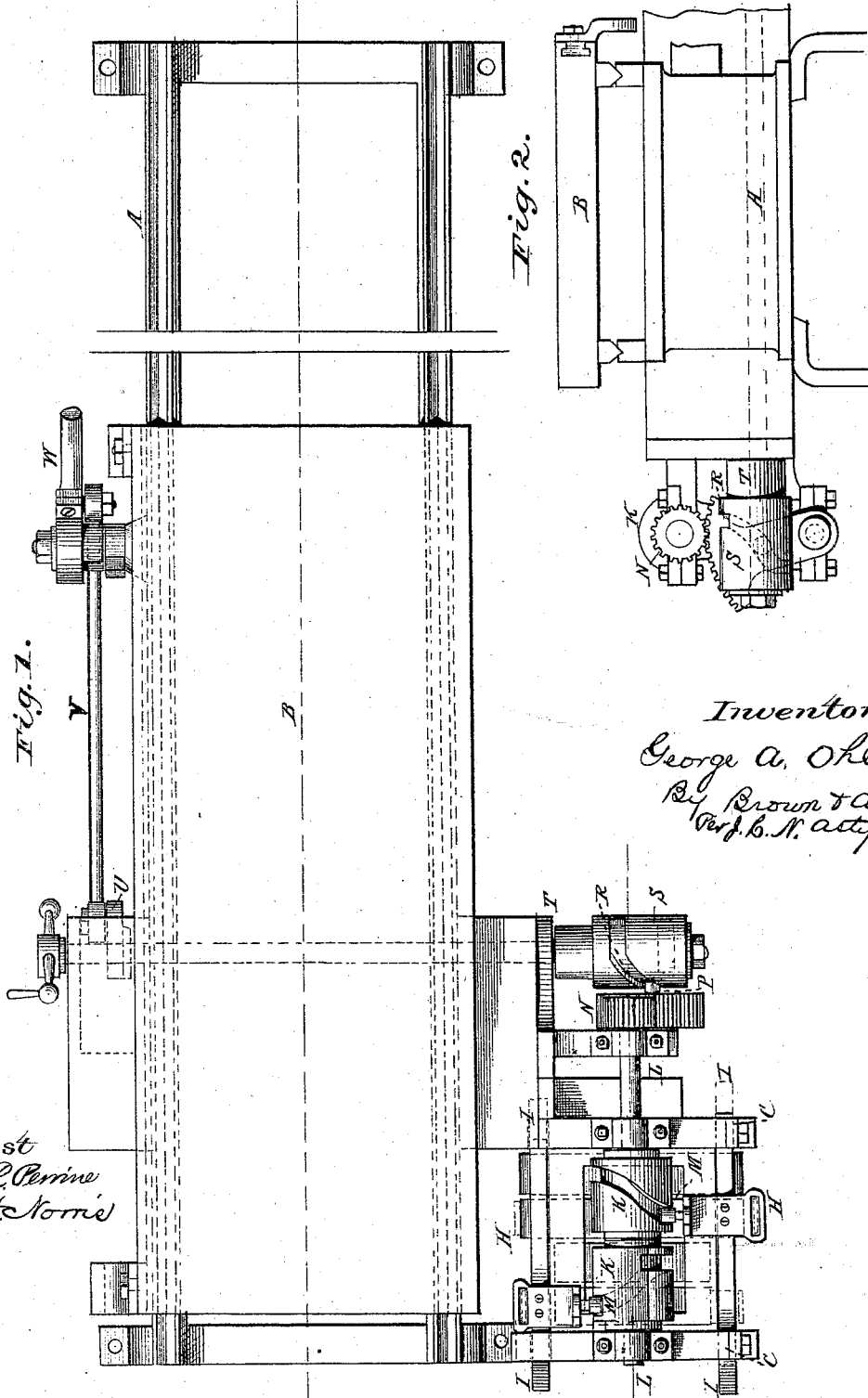


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BELT-SHIFTER.

No. 182,221.

Patented Sept. 12, 1876.



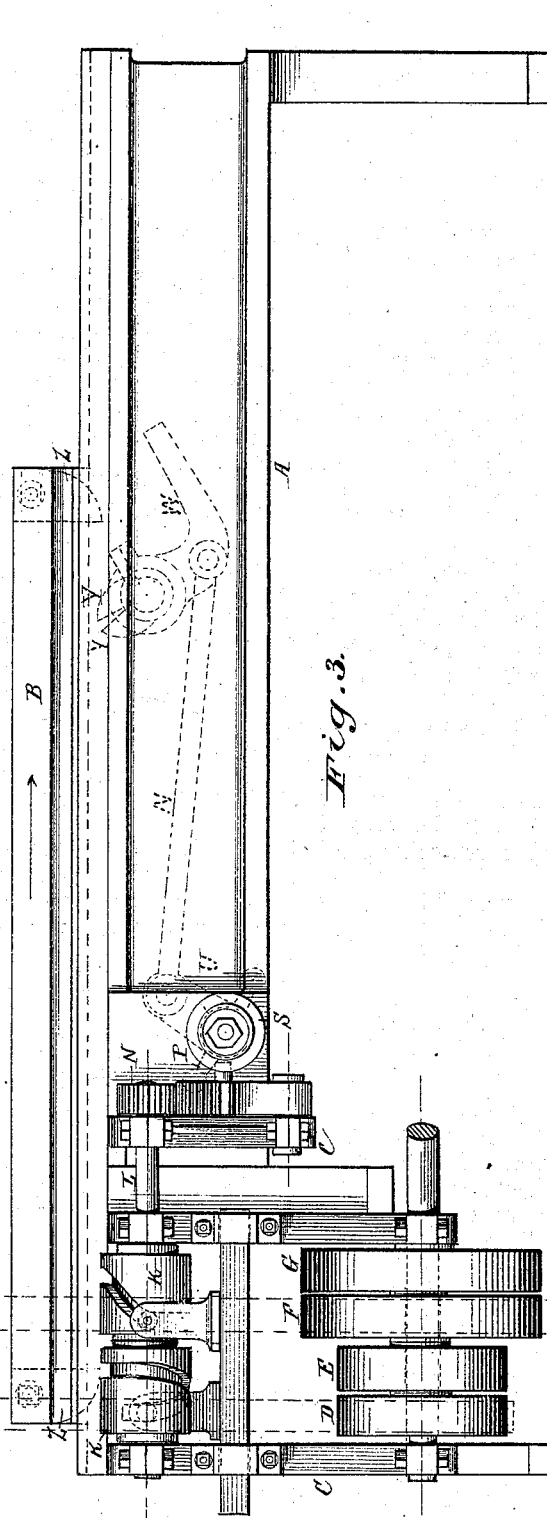
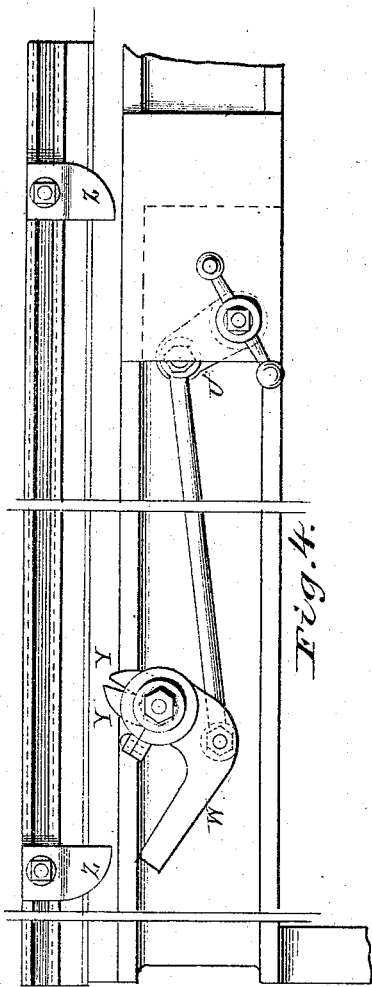
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# UNITED STATES PATENT OFFICE.

GEORGE A. OHL, OF NEWARK, NEW JERSEY.

## IMPROVEMENT IN BELT-SHIFTERS.

Specification forming part of Letters Patent No. 182,221, dated September 12, 1876; application filed October 9, 1875.

### *To all whom it may concern:*

Be it known that I, GEORGE A. OHL, of the city of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Belt-Shifters, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in belt-shifters for machinery of various kinds, its object being to shift the belt by a direct rectilinear motion, whereby the belts are more quickly and accurately shifted than by the ordinary swinging shifter moving in a curved line.

My invention consists in the combination, with the shaft carrying the cams for operating the shifter, of a pinion secured to the end of said shaft, and gearing into a sector operated by means of a cam secured to a rock-shaft, which is oscillated automatically by the motion of the apparatus for the purpose of shifting the belts, as more fully hereinafter set forth.

The invention also consists of other features, which will be fully hereinafter described, and specifically pointed out in the claims.

In the drawing, Figure 1 is a top view of a metal-planing machine with my improvements applied; Fig. 2, an end view, and Fig. 3 a side elevation, of the same.

In the present instance I have represented my improved shifter applied to a metal-planer.

The letter A represents the frame of the planer, and B its reciprocating bed. C represents a supplemental frame carrying the pulleys D E F G, and the belt-shifting arms H H, mounted upon the reciprocating slides I I, on opposite sides of the said frame C. K K represent two cams adjustably secured upon a shaft, L, journaled in suitable bearings at each side of the frame C, parallel with and between the reciprocating slides, which carry the shifting-arms. The said arms are provided with projections or pins M, secured to their upper ends, which set and work in the grooves in the cams K K, and provide for the proper reciprocating motion of the shifters, as the cams are oscillated.

To the end of the shaft L is secured a pinion, N, into which a toothed sector, pivoted to the frame C, is made to gear. The said sector is provided with a pin or projection, P, upon its face, which sets into the groove

R on a cam, S, which is mounted on the end of the rock-shaft T, extending across the frame of the planer in which it is journaled.

The opposite end of said shaft is provided with a crank, U, which is connected by means of a rod, V, to a lever, W, pivoted to a boss secured to the frame of the planer.

Said lever is provided with two cams, Y Y, arranged in opposite directions in such positions as to be alternately shifted by the projections Z on the reciprocating bed of the planer, and transmit through the medium of the lever, connecting-rod, and crank, an oscillating motion to the shaft T, and through the medium of the cam thereon, and the sector gearing with the pinion on the shaft L, a corresponding oscillating movement to said shaft, and through the medium of the cams imparting the proper reciprocating motion to the belt-shifters.

The cams K K are made adjustable for the purpose of regulating the motion of the belt-shifters, as may be desired.

As thus constructed, it will be perceived that the belt will be shifted by a direct rectilinear motion, instead of in a curved line, as by the use of the ordinary swinging shifters.

Although I have represented the belt-shifter as applied to a planing-machine, it is evident that it may be employed with equal advantage in other machines to which belt-shifters are applicable, and I therefore do not limit myself to the device in connection with a planer; but

What I claim, and desire to secure by Letters Patent, is—

1. In combination with the rock-shaft carrying the cams for moving the belt-shifters, the pinion on the end of said shaft and sector gearing in said pinion, and the cam secured to the rock-shaft extending across the planer and operated by the reciprocating bed thereof, substantially as described.

2. In combination with the rock-shaft T, for transmitting motion to the cams which drive the belt-shifters, the crank U, crank-rod V, and lever W, the latter provided with the reversely-arranged cams Y Y, and the projections Z on the reciprocating bed of the planer, for operating said lever, substantially as described.

GEORGE A. OHL.

Witnesses:

R. C. WEILBACHER,  
GEO. W. FREY.