

C. E. BEROLD.
MILLING ATTACHMENT FOR PLANING MACHINES.
APPLICATION FILED DEC. 12, 1908.

1,004,620.

Patented Oct. 3, 1911.

2 SHEETS—SHEET 1.

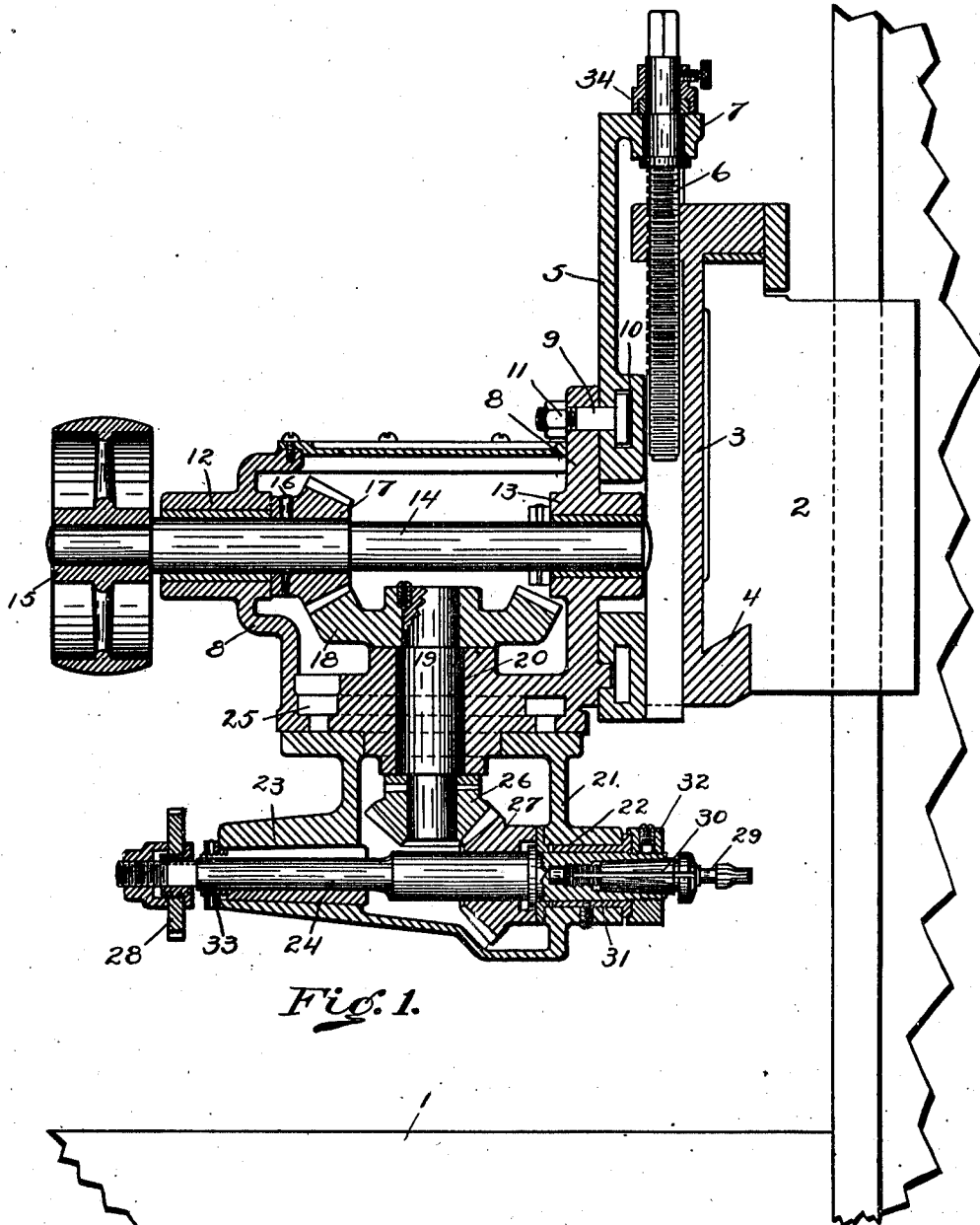


FIG. 1.

Witnesses
C. M. Palmestek
Frank de Kunkel

Inventor
Charles E. Berold
by Alfred M. Allen
Attorney

C. E. BEROLD.
MILLING ATTACHMENT FOR PLANING MACHINES.
APPLICATION FILED DEC. 12, 1908.

1,004,620.

Patented Oct. 3, 1911.

2 SHEETS—SHEET 2.

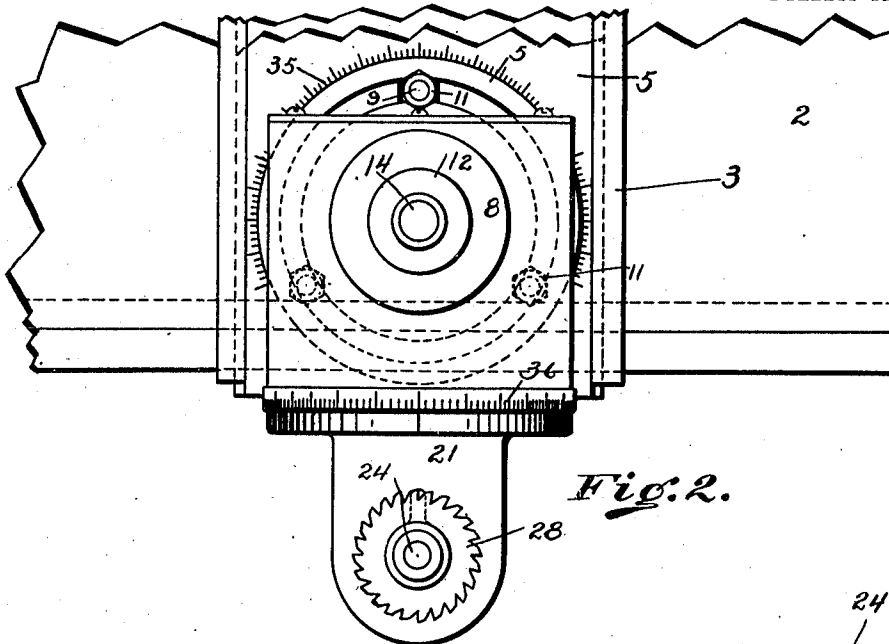


Fig. 2.

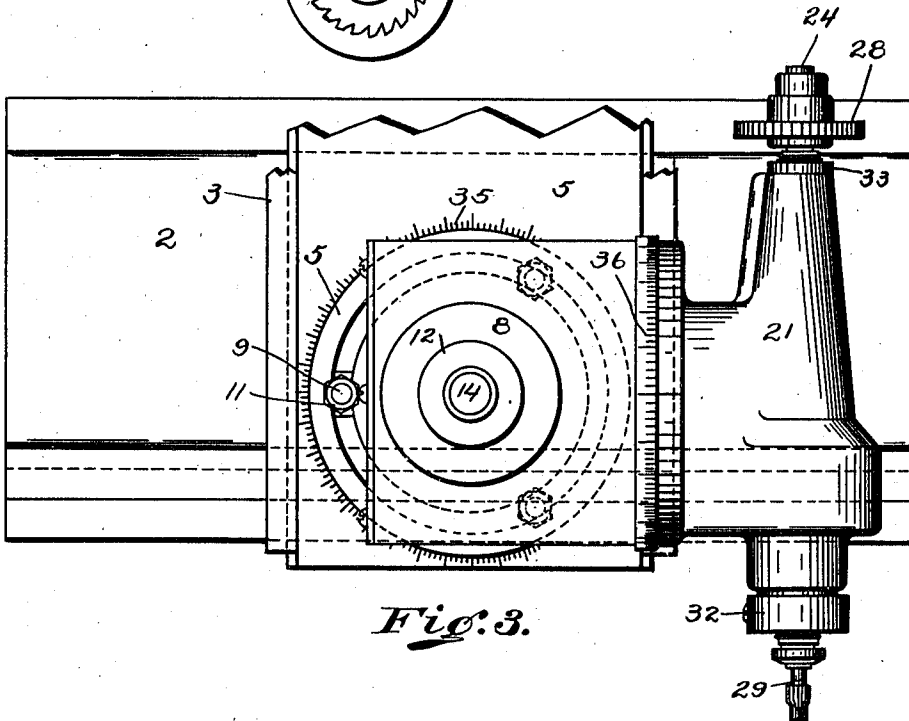


Fig. 3.

Witnesses
C. M. Palmestock
Frank H. Kunkel

Inventor
Charles E. Berold
by Alfred M. Allen
Attorney

UNITED STATES PATENT OFFICE.

CHARLES E. BEROLD, OF CINCINNATI, OHIO, ASSIGNOR TO THE PRINTING MACHINERY COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

MILLING ATTACHMENT FOR PLANING-MACHINES.

1,004,620.

Specification of Letters Patent.

Patented Oct. 3, 1911.

Application filed December 12, 1908. Serial No. 467,236.

To all whom it may concern.

Be it known that I, CHARLES E. BEROLD, a citizen of the United States, residing in Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Milling Attachments for Planing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to provide a universal milling head for ready and convenient attachment to the cross rail of a planing machine, whereby the milling tools may be presented to the work at any desired angle to the horizontal or vertical planes of the planing machine, so that work of large size may be milled at any desired angle by attachment to the planing machine table.

My invention consists of that certain novel construction and arrangements of parts to be hereinafter particularly pointed out and claimed.

In the drawings Figure 1 is a central vertical section of my improved universal milling attachment. Fig. 2 is a front elevation of same with the driving pulley removed, and with the milling tool adjusted in horizontal position. Fig. 3 is a similar front elevation with the milling tool adjusted in vertical position.

1 is a portion of a planing machine table, and 2 represents the cross rail of the planing machine.

3 is a saddle mounted on the cross rail 2 of the planer in a dove-tailed slot 4, to slide horizontally thereon, and this saddle carries the plate 5 secured thereto and arranged to slide vertically thereon in vertical dove-tailed slots, and this vertical adjustment of the plate is controlled by the screw 6 mounted in the overhanging flange 7 of the plate and in screw threaded engagement with the saddle 3.

8 is the housing or frame for the milling attachment and this frame is secured to the front face of the plate 5 by the T-bolts 9, the heads of which engage the annular T-slot 10, cut in the face of the plate 5. Three of these bolts are provided secured by the nuts 11, and it will be evident from this construction that on loosening the nuts the frame or housing 8 can be rotated on its horizontal axis.

Mounted in suitable bearings 12 and 13 in the housing 8, is the shaft 14, which car-

ries on its outer end the driving pulley 15. On this shaft 14 is also secured within the housing by key and pin 16, the beveled gear 17, which meshes with the beveled gear 18, mounted on the shaft 19, journaled in the bearing 20, in the bottom face of the housing.

21 is the housing in which is mounted in suitable bearings 22 and 23 the spindle 24, of the milling tool. This housing 21 is secured to the bottom plate of the main housing 8, by T-bolts mounted in the annular T-slot 25 cut in the bottom face of the housing 8, so that the housing for the milling tool can be adjusted at any desired angle by rotation on its vertical axis.

The shaft 19 carries the beveled gear 26 keyed and pinned thereto, which gear engages the beveled gear 27 keyed on the spindle 24.

28 is the arbor mill secured on one end of the spindle 24, and 29 is the end mill secured on the other end of the spindle. The end mill is provided with the split cone bushing 30, seated in the cone shaped recess in the end of the spindle, and having the screw threaded end 31 in screw threaded engagement with the spindle so that by screwing up the split bushing the end tool 29 will be clamped securely in the end of the spindle. Each end of the spindle is provided with a nut 32, 33, to hold the spindle in place.

It is obvious from the foregoing description that the milling tool can be set at any desired angle to the planing machine table. By loosening the nuts 11, and rotating the attachment in a vertical plane on the horizontal axis, the milling tool can be turned with the base of the housing 21 in any desired plane at an angle to the horizontal plane, and by loosening the bolts for the T-slot 25 the milling tool can be rotated on this base on the axis of the shaft 19, so that the milling tool can be presented at any angle desired to the work.

Each adjustment for the milling tool is provided with a scale to indicate the amount of movement for the vertical adjustment of the entire apparatus, a micrometer scale is provided at 34, and scales at 35 and 36, for this purpose.

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

In a milling attachment for planing machines, the combination with the cross head

of the planer and a horizontally adjustable saddle therefor, of a plate with a vertical screw mounted thereon engaging the saddle for the vertical adjustment of the plate, a housing with a driving shaft horizontally mounted therein, an annular undercut slot in the vertical face of the said plate, and T-bolts for adjustably securing the housing therein, a shaft mounted in said housing at right angles to the horizontal shaft, a second housing with a milling spindle mounted therein parallel to the driving shaft, and an

annular undercut slot in the base of the driving shaft housing and T-bolts for adjustably securing the milling spindle housing therein, with intermeshing beveled gears mounted on said shafts and milling spindle, for driving the milling spindle, whereby universal adjustment may be provided for the milling tools. 15

CHARLES E. BEROLD.

Witnesses:

FRANK H. KUNKEL,
BESSIE A. BEALL.