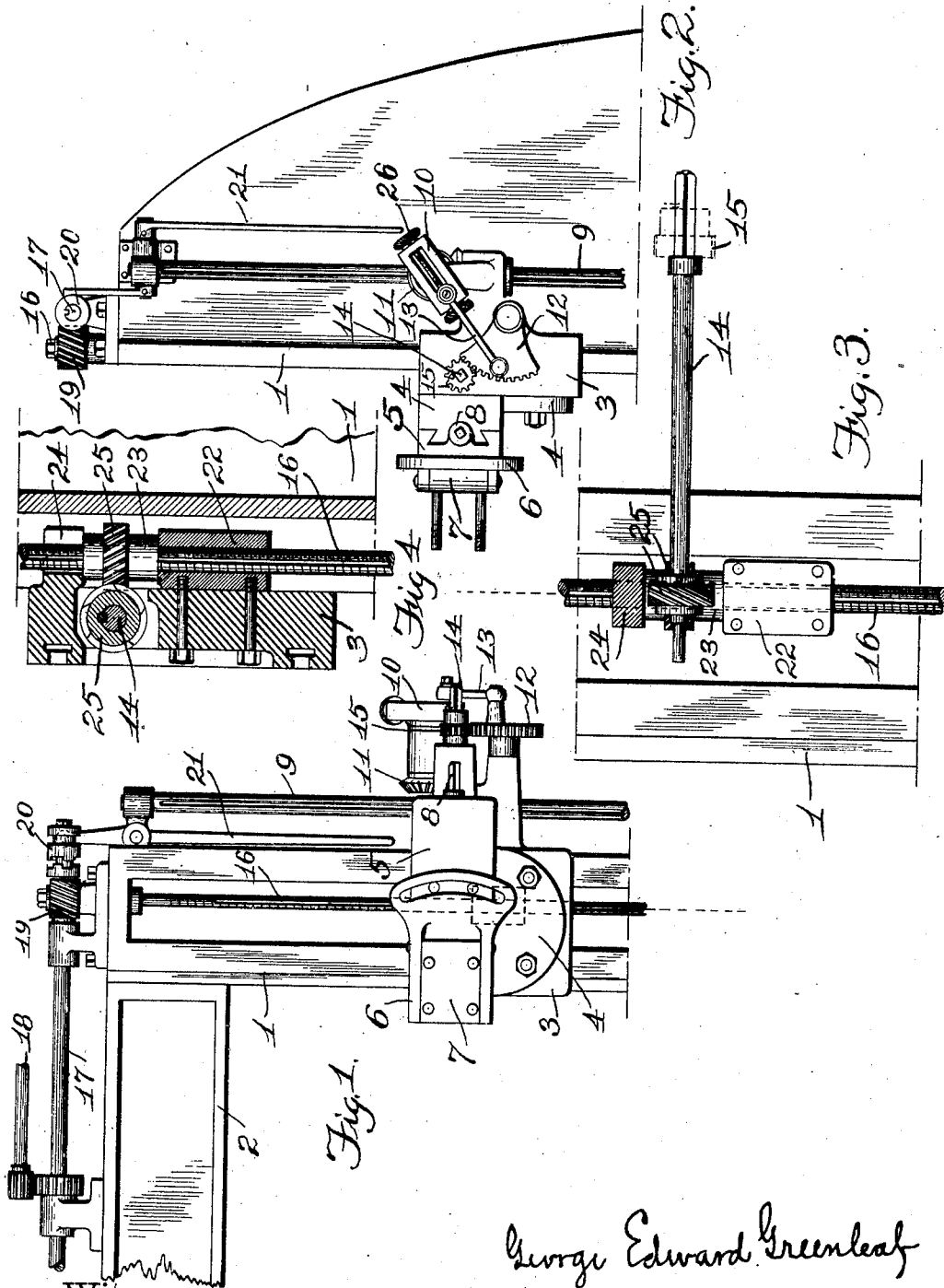


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METAL PLANER.
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METAL-PLANER.

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To all whom it may concern:

Be it known that I, GEORGE EDWARD GREENLEAF, a citizen of the United States, residing at Plainfield, Union county, New Jersey, have invented certain new and useful Improvements in Metal-Planers, of which the following is a specification.

This invention, pertaining to improvements in metal planers and relating particularly to mechanism for adjusting the side-heads, will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a front elevation of a portion of one of the housings and the top brace of the metal planer embodying an exemplification of my improved side-head mechanism: Fig. 2 a side elevation of the same: Fig. 3 a front elevation of the housing and of the side-head mechanism immediately to the rear of the side-head saddle, one of the screw-bearings of the saddle appearing in vertical section in the plane of the face of the housing: and Fig. 4 a vertical section of the housing and saddle.

In the drawing:—1, indicates the usual planer housing: 2, the usual top-brace: 3, the usual side-head saddle sliding vertically on the face of the housing: 4, the usual swing angularly adjustable on the face of the saddle: 5, the usual tool-slide adjustable in and out on the swing: 6, the usual tool-box angularly adjustable on the slide: 7, the usual tool-apron pivoted in the tool-box: 8, the usual screw for adjusting the slide in and out on the swing: 9, the usual oscillatory feed shaft disposed vertically alongside the housing and making a complete or partial turn in one direction or the other as the planer reverses: 10, a crank supported by the saddle and moving up and down with it, and adjustable in degree and time of stroke: 11, gearing connecting the feed-rod 9 with crank 10 so that the crank is given a full or partial turn corresponding with the turning of the feed-shaft: 12, a toothed sector pivoted on the saddle: 13, a link connecting crank 10 with the sector: 14, a horizontal shaft journaled in the saddle and projecting outwardly past the sector and having its outer end adapted to receive a removable hand-crank: 15, a combined pinion and click-box removably engaging the outer end of shaft 14, the pinion being adapted to engage sector 12:

16, a splined screw vertically journaled in the front recess of the housing: 17, a horizontal shaft journaled in fixed bearings at the top of the housing: 18, a shaft geared thereto and typifying means by which shaft 17 may be given continuous rotation in either direction: 19, gearing, illustrated as of spiral type, connecting horizontal shaft 17 with splined screw 16, the gear on the shaft being normally loose so that screw 16 may be at rest while shaft 17 is turning: 20, a clutch by means of which gearing 19 may be made effective in causing shaft 17 to turn screw 16: 21, a lever extending down outside the housing and arranged for engaging and disengaging clutch 20: 22, the saddle-nut, secured to the back of the saddle and engaging splined screw 16: 23, a hub feathered on splined screw 16 over the saddle-nut: 24, a bearing carried by the back of the saddle and engaging splined screw 16 above hub 23: 25, a pair of gears, illustrated as of spiral type, connecting the inner end of shaft 14 with hub 23: and 26, the screw for adjusting the crank-pin of crank 10.

Assume click-pinion 15 to be removed or to be withdrawn from engagement with sector 12. Clutch 20 is normally disengaged and splined screw 16 at rest, and sector 12 makes a rocking stroke at each reversal of the planer, these strokes, however, being idle, owing to the disengagement of click-pinion 15. By applying a hand-crank to shaft 14 and turning that shaft, splined screw 16 may be turned in saddle-nut 22, whereby the saddle may be fed by hand up and down the housing. If, now, the click-pinion be put into engagement with the sector, the rocking of the sector will bring about the intermittent turning of shaft 14, in direction according to the adjustment of the pawl in the click-pinion, whereby an intermittent vertical feeding motion of the side-head upon the housing is produced. Assume, again, that click-pinion 15 is removed or disengaged from the sector, and that shaft 17 at the top of the planer is in continuous rotation in the desired direction. Clutch 20 may be now thrown into engagement whereupon splined screw 16 is turned by power, thus providing for the so called fleeting or comparatively quick shifting motion of the side-head up and down on the housing.

Crank 10 has been referred to as adjustable regarding the degree and time of stroke. The crank-pin to which link 13 is connected slides in the slot of the crank and is adjustable by means of screw 26. By means of this screw the crank-pin may be shifted to give a feed stroke varying all the way from zero to maximum. If the crank-pin is at a certain side of the axis of the crank the feeding motion will take place when the planer starts on its cutting stroke, while if the pin be adjusted to the opposite side of the axis of the crank the feeding will take place when the planer starts on its backing stroke. Screw 26 thus serves, not only in adjusting the degree of feed, but also the time when the feeding shall take place. Crank 10 rises and falls with the side-head and is within reach of the operator at the side-head. Screw 26 is provided with a turning-handle at each of its ends so that the operator may conveniently manipulate the screw in various positions of the crank. The operator may thus, by adjusting the click of the click-pinion, determine whether the feeding shall be up or down, and, by adjusting the crank-pin to one side or the other of the center, may determine whether the feed shall take place at the beginning or the end of the cutting stroke, and, by adjusting the crank-pin a selected distance from the axis of the crank, may determine the degree of feed.

Planers provided with sideheads are sometimes rather lofty machines, the workman frequently standing on a scaffold or ladder so that he can be in the neighborhood of the sidehead when adjusted to high position on the housing. With the present construction of side-head mechanism he can, without descending from his elevated position, feed the side-head vertically by hand, or cause it to be fed vertically by power, or cause it to be vertically flected by power, or can alter the direction or degree of the power-feeding motion, or can adjust the feed mechanism so that the feeding will take place at the beginning or at the end of the cutting stroke, as he desires.

I claim:—

1. Side-head mechanism comprising, a sidehead mounted to slide vertically on a housing of the machine, a vertical screw mounted in the planer housing and having threaded connection with the sidehead, a power-shaft journaled at the top of the housing, means for turning said power-shaft, gearing and a clutch connecting said power-shaft and screw, a lever for operating said clutch extending downwardly alongside the housing, means carried by the sidehead for operating the threaded connection between the screw and the sidehead for raising and lowering the sidehead by hand, power-feed mechanism for feeding the side-

head intermittently by power, and detachable gearing carried by the sidehead and connecting said power-feed mechanism and screw, combined substantially as set forth.

2. Sidehead mechanism comprising, a sidehead mounted to slide vertically on a housing of the machine, a splined screw journaled in the housing to the rear of the sidehead, a nut carried by the sidehead and engaging said splined screw, a power-shaft journaled at the top of the housing, means for turning said power-shaft, gearing and a clutch connecting said power-shaft and splined screw, a hand-shaft journaled in the side-head and projecting outwardly therefrom sideways of the housing, gearing connecting said hand-shaft and splined screw, power-feed mechanism for turning said hand-shaft intermittently by power, and detachable gearing connecting said power-feed mechanism and said hand-shaft, combined substantially as set forth.

3. Side-head mechanism comprising, a sidehead mounted to slide vertically on a housing of the machine, a splined screw journaled in the housing to the rear of the sidehead, a nut carried by the sidehead and engaging said splined screw, a power-shaft journaled at the top of the planer, means for turning said power-shaft, gearing and a clutch connecting said power-shaft and splined screw, a hand-shaft journaled in the sidehead and projecting outwardly therefrom sideways of the housing, gearing connecting said hand-shaft and splined screw, an oscillatory splined power feed-shaft supported by the housing, a crank journaled in the sidehead, gearing connecting said splined shaft and crank, a toothed sector pivoted on the sidehead, a link connecting said sector and crank, and a removable click-pinion on said hand-shaft and engaging said sector, combined substantially as set forth.

4. Sidehead mechanism comprising, a sidehead mounted to slide vertically on a housing of the machine, a screw journaled vertically in the housing and connected with the sidehead for raising and lowering the sidehead, a horizontal hand-shaft journaled in the sidehead and so connected with the screw mechanism as to bring about the raising and lowering of the sidehead by the turning of the hand-shaft, an adjustable-stroke crank carried by the sidehead and rising and falling with it, mechanism connecting the pin of the crank with the hand-shaft to cause the oscillation of the crank to turn the hand-shaft, an oscillatory feed-shaft disposed vertically alongside the housing and arranged to be traversed by the sidehead, and gearing connecting the oscillatory shaft with said crank, combined substantially as set forth.

5. Sidehead mechanism comprising, a

sidehead mounted to slide vertically on a housing of the machine, a screw journaled vertically in the housing and connected with the sidehead for raising and lowering the sidehead, a horizontal hand-shaft journaled in the sidehead and so connected with the screw mechanism as to bring about the raising and lowering of the sidehead by the turning of the hand-shaft, a crank carried by the sidehead and rising and falling with it and radially slotted across its axis, a crank-pin sliding in the slot of the crank, a screw mounted in the crank and serving to adjust the crank-pin to various distances either side of the axis of the crank, a removable click-pinion on the hand-shaft, an oscillating sector mounted on the sidehead and engaging the click-pinion, a link connecting the crank-pin and sector, a vertical power-driven feed-part supported by the housing and extending throughout the path of vertical movement of the sidehead on the housing, and gearing connecting said power-

driven feed-part with said crank, combined substantially as set forth. 25

6. Sidehead mechanism comprising, a sidehead mounted to slide vertically on a housing of the machine, a vertically extending moving part mounted on the housing and vertically traversed by the sidehead for fleeting the sidehead on the housing, a second vertically extending moving part mounted on the housing and traversed by the sidehead for feeding the sidehead on the housing, means connecting both said moving parts with the sidehead, and means within reach of the operator while at the sidehead in any of the vertical positions of the sidehead for controlling the action of said two moving parts upon the sidehead, combined substantially as set forth. 30 35 40

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Witnesses:

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