(No Model.) 2 Sheets—Sheet 1.

W. C. MARGEDANT.

MACHINE FOR FINISHING PLOW HANDLES.

No. 325,258. Patented Sept. 1, 1885.

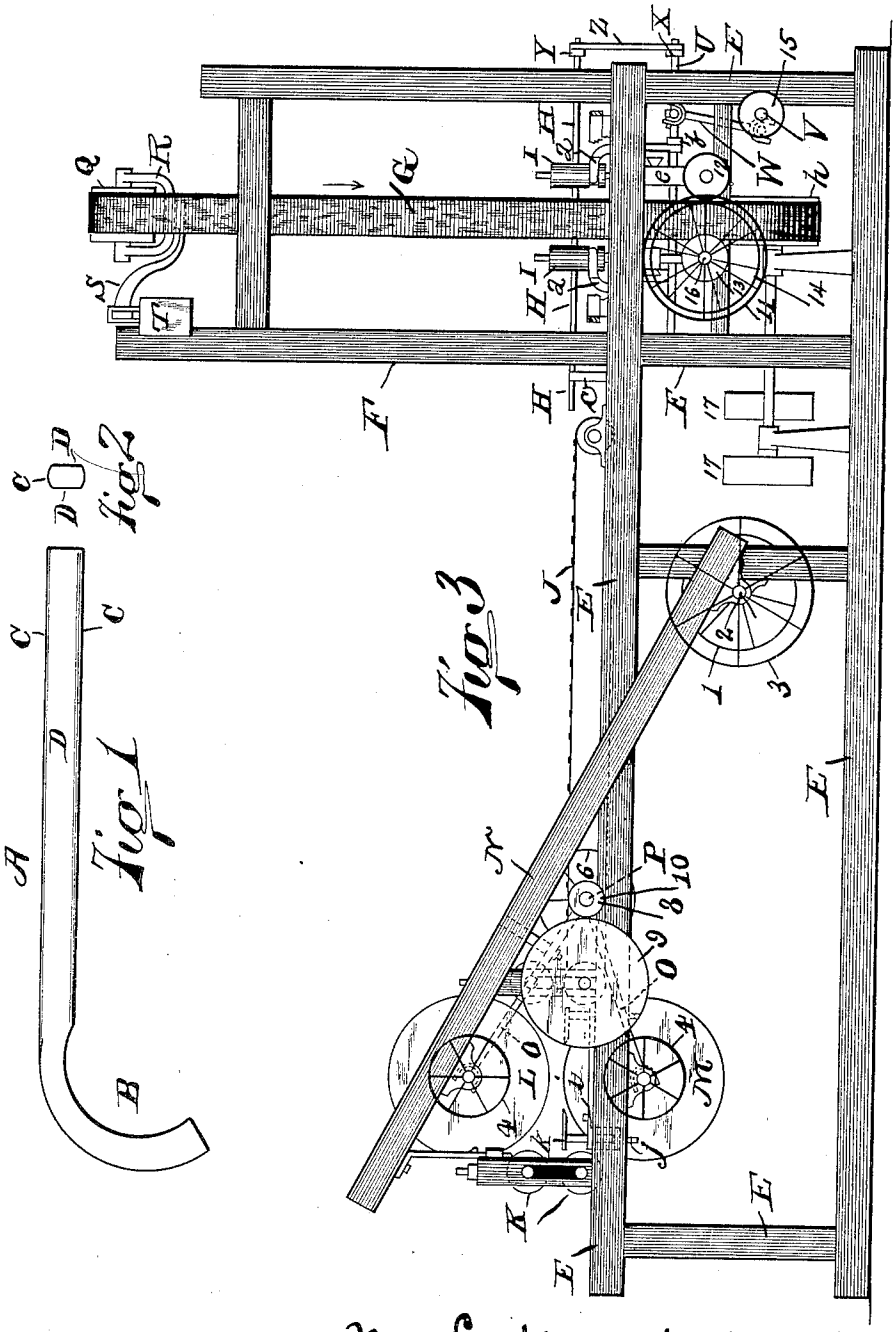


Fig 3

Fig 1

Fig 2

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(No Model.) 2 Sheets—Sheet 2.

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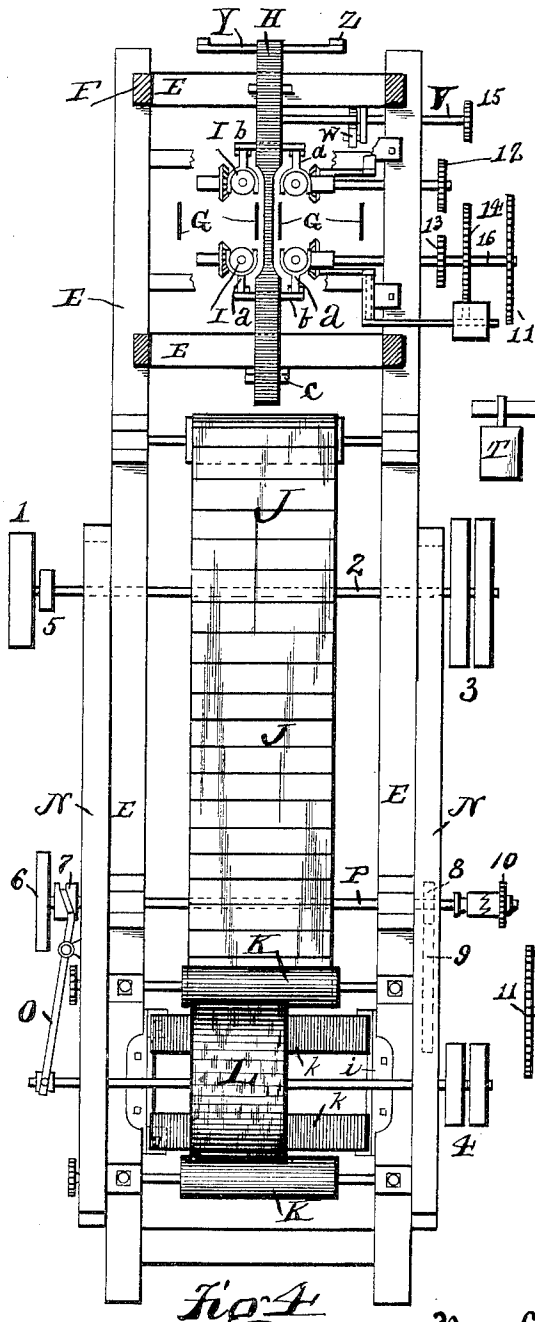


Fig 4

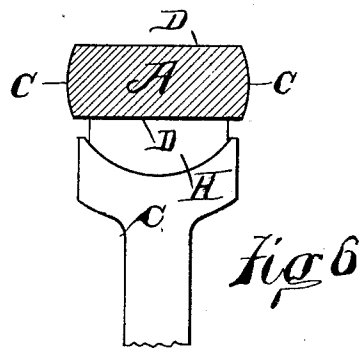


Fig 6

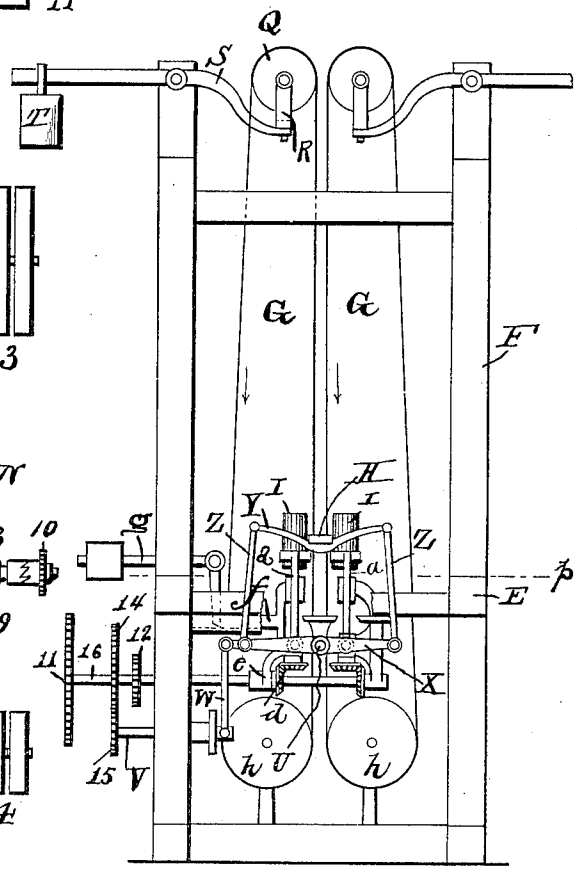


Fig 5

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UNITED STATES PATENT OFFICE.

WILLIAM C. MARGEDANT, OF HAMILTON, OHIO, ASSIGNOR TO THE ECONOMIST PLOW COMPANY, OF SOUTH BEND, INDIANA.

MACHINE FOR FINISHING PLOW-HANDLES.

SPECIFICATION forming part of Letters Patent No. 325,258, dated September 1, 1885.

Application filed June 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. MARGEDANT, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Machines for Finishing Plow-Handles, of which the following is a specification.

This invention relates to a machine for finishing or sandpapering the sides and edges of plow-handles after they have been properly formed.

The invention will be fully understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side view, and Fig. 2 an end view, at the unbent end, of a plow-handle; Fig. 3, a side elevation of my improved machine; Fig. 4, a plan of the same with part of the upright framing in section; Fig. 5, an end view of the same with some of the framing broken away, the end viewed corresponding with the right-hand end of Fig. 3 and the upper end of Fig. 4; Fig. 6, an enlarged view of a plow-handle in section, the rocking table upon which it is supported, and the bearing of the rocking table.

In the drawings, A represents a plow-handle; B, the bent end portion of the same; C, the convex edges of the handle, and D the flat sides of the handle.

The sandpapering by machinery of a handle of this kind presents serious problems by reason of the bent end portion, which prevents its being fed into machinery of known construction, and by reason of its convex edges, which are not adapted to be sandpapered in machinery of known construction.

My improved machine operates upon the side and edges of such handles, but is not intended for finishing the bent portion.

Proceeding with the description: In Fig. 3, E represents the horizontal frame-work of the machine; F, a vertical frame-work forming a portion of the machine-framing at the initial end of the machine—that is, the end to the right of Fig. 3; G, a pair of vertically-arranged sand-belts carried by the frame-work F, and so disposed, as indicated in Fig. 5, that the two belts shall run in close proximity, so as to operate upon the two opposite faces of any article fed horizontally between them, the approximate surfaces of the two belts having a downward direction of motion; H, a narrow table between the sand-belts, and arranged to support the work as it is fed between the belts; I, vertical feed-rolls for carrying the work along upon the table H and between the sand-belts; J, an endless carrier for carrying the work forward after it leaves the table H; K, horizontal feed-rolls near the left end of the machine, for carrying the work forward from the endless carrier; L, a sand-drum arranged horizontally to act upon the upper surface of an article moved forward by the feed-rolls K; M, a similar sand-drum arranged to act upon the under surface of the article; N, a vibrating frame supporting the upper drum; O, levers by which the sand-drums are reciprocated longitudinally as they revolve.

In the operation of this machine a plow-handle is started bent end foremost, and with the bend upward, into the right end of the machine on the table H, between the first pair of vertical feed-rolls, which feed-rolls, however, do not at present grasp it, being set too far apart. The bend of the handle is pushed through between the sand-belts and between the second pair of vertical feed-rolls, and then the handle is turned upon its side, after which operation the vertical feed-rolls take hold of it and feed it properly through between the sand-belts, which act in an obvious manner upon the edges of the plow handle. While the handle is being thus fed the vertical feed-rolls reciprocate up and down. This gives to the plow-handle a rotatory motion upon its axis, the table H having a rocking motion in conformity to the rotatory motion of the handle. By this means, which will be more fully described, the convex edges of the plow-handles become properly dressed by the sand-belts, and the handle is delivered upon the carrier J, which delivers it to the horizontal feed-rolls, which feed it between the two sand-drums, which finish the side surfaces of the handles, after which the handle leaves the machine. While the sand-drums are acting upon the handle they are reciprocated longitudinally by means of a cam acting on levers O, whereby sand-streaking of the finished surfaces is guarded against.

It is obvious that in finishing handles whose edges are not convex no rotatory motion of the handle or means for its accomplishment will be needed.

From the above preliminary description the general construction and mode of operation of the machine should be understood. A more detailed description will now be proceeded with.

In the drawings, P represents a shaft in front of the first pair of horizontal feed-rolls; Q, the top pulleys of the sand-belts; R, a pivoted yoke for each top pulley Q, in which the pulley is journaled; S, a lever pivoted to the upright framing upon a pivot with a horizontal axis, and having the yoke R pivoted upon a vertical axis to its inner end; T, a strain-weight fitted to adjust along the outer end of lever S, of which, with its accessories, there is one for each of the sand-belts; U, a longitudinal shaft at the sand-belt end of the machine, lying between the acting faces of the two sand-belts and disposed some distance below the table H; V, a crank-shaft disposed below the plane of the shaft U; W, a connecting-rod reaching upward from the crank upon the shaft V to an arm or lever secured to the longitudinal shaft U; X, a double-ended horizontal lever secured to the front end of shaft U; Y, a double-ended horizontal lever secured to the table H; Z, links connecting the ends of lever X to the ends of lever Y; *a*, vibrating rods vertically arranged and engaging circumferential grooves in the vertical feed-rolls, which feed-rolls are free to reciprocate upon the spindles which drive them; *b*, double-ended horizontal levers secured to the shaft U and connected to the lower ends of the rods *a*; *c*, a bearing secured to the frame of the machine and supporting the rear end of the rocking table H; *d*, actuating bevel-gearing at the foot of the spindles of the vertical feed-rolls, by which motion is imparted to them through cross-shafts; *e*, the housings which carry the spindles of the vertical feed-rolls upon each side of the table H; *f*, shanks projecting horizontally from the housings *e* into supporting-sockets secured to the framing; *g*, weighted bell-crank levers pivoted to the framing and arranged to press the housings *e* toward the table H; *h*, the base-pulleys of the two sand-belts; *i*, castings secured to the frame at the sand drums, and provided with vertical sockets; *j*, set-screws worked upward into these sockets, and *k* horizontal tables arranged between the sand-drums and provided with shanks fitting the sockets.

By means of the yoke-and lever arrangement at the top of the frame the sand-belts are kept uniformly and automatically strained, and the yokes R, being pivoted, permit the top pulleys to maintain themselves in alignment with the base pulleys, the sand-belts being at all times at liberty to yield vertically, and consequently laterally, to suit the width of the work upon which they operate. The shaft V, through its crank and connecting-rod, serves to give a partial rotation to the shaft U, and thus oscillate the levers X and *b*, which are secured to it. The lever X, through the medium of the links Z and lever Y, rocks the table H in such manner as to properly present the convex edges of the plow-handle to the action of the sand-belts. The levers *b*, through the medium of the rods *a*, serve to reciprocate vertically the vertical feed-rolls, and thus impart the proper motion to the plow-handle as it is fed by the rolls, the feed-rolls being splined to their spindles, so as to be revolved by them, but be at liberty to reciprocate upon them. As the plow-handle is fed between the sand-drums, it rests upon the tables *k*, which can be adjusted vertically, so as to subject the under side of the plow-handle to the proper action of the lower sand-drum. The vibratable frame N, carrying the upper sand-drum, is freely pivoted, and the upper sand-drum is thus at liberty to accommodate itself to the upper surface of the plow-handle.

It is probably sufficient to say to the skilled machine-constructer that provision should be made for imparting the driving motions to the various parts; but it may not be out of place to indicate the means employed in the arrangement of driving apparatus in the construction shown in the drawings. The motion may be transmitted by belting, or gearing, or chain belting, and the general arrangement will be understood from a very brief reference to the drawings. Pulley 1 receives a belt from the line-shaft or any other suitable driving-shaft of the factory. This pulley is fast to shaft 2, which carries pulleys 3, which are to be belted to pulleys 4 on the two sand-drums. Belt on pulleys 5 and 6 drives shaft P, to which is secured cam 7, which oscillates the levers for reciprocating the sand-drums. Shaft P transmits motion through gears 8 and 9 to the first pair of horizontal feed-rolls, which rolls drive the carrier J, and may transmit motion to the second pair of horizontal feed-rolls by chain, belt, or gears. Shaft P carries clutched sprocket-wheel 10, the purpose of the clutch being to enable the motion transmitted from its sprocket-wheel to be stopped or started at pleasure. Chain belt on wheels 10 and 11 revolves shaft 16, which drives the rear pair of vertical feed-rolls, the cross-shaft which drives the front pair of vertical feed-rolls being driven by a chain belt on wheels 12 and 13. Chain belt on wheels 14 and 15 drives the shaft V. Pulleys 17 are on the shafts of the base pulleys of the sand-belts, and are to receive motion from a proper counter-shaft.

While this machine has been invented for the special purpose of finishing plow-handles, and while I call it a "plow-handle machine," I anticipate its utility in the treatment of other articles of similar sectional form.

I have set forth in the above specification certain improvements in the art of finishing plow-handles, and certain improvements in

machinery adapted for the execution of the improvement in the art.

I do not herein claim any improvements in the art, but reserve the same as a subject-matter of another application for Letters Patent.

I claim as my invention—

1. In a plow-handle-finishing machine, a pair of vertically-arranged sand-belts, a supporting-table between the acting faces of the belts, vertical feed-rolls at the sides of said table, a pair of horizontal sand-drums, horizontal feed-rolls at the sand-drums, and a carrier disposed between said sand-belts and said sand drums, combined substantially as and for the purpose set forth.

2. In a plow-handle-finishing machine, a horizontal sand-drum, a second horizontal sand-drum disposed above the first, a vibrating frame supporting said second sand-drum, horizontal feed-rolls at said sand-drums, and a cam and lever or equivalent means for reciprocating said sand-drums, combined substantially as and for the purpose set forth.

3. In a plow-handle-finishing machine, a pair of sand-belts, base pulleys for the same, top pulleys for the same, and a weighted straining-lever supporting said top pulleys, combined substantially as and for the purpose set forth.

4. In a plow-handle-finishing machine, a pair of sand-belts, base pulleys and top pulleys for the same, pivoted yokes supporting said top pulleys, and straining-levers supporting said pivoted yokes, combined substantially as and for the purpose set forth.

5. In a plow-handle-finishing machine, a pair of sand-belts, a supporting rocking table located between said sand-belts, a crank and lever mechanism, substantially as described, for imparting a rocking motion to said table, and feeding-rolls for carrying work between said sand-belts and upon said rocking table without interfering with the rocking of the work as it moves along upon the table, combined substantially as and for the purpose set forth.

6. In a plow-handle-finishing machine, a pair of sand-belts, a supporting rocking table disposed between said sand-belts, and reciprocating feed-rolls at the sides of said table, combined substantially as and for the purpose specified.

7. In a plow-handle-finishing machine, a pair of sand-belts, a supporting-table located between said sand-belts, and feed-rolls at the sides of said table, arranged and combined substantially as set forth, in such manner that the space above the table, between the feed-rolls, is open for the insertion edgewise of a plow-handle to be fed by said feed-rolls impinging upon the edges of the handle after the handle shall have been turned flatwise upon the table.

WM. C. MARGEDANT.

Witnesses:
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J. W. SEE.