

(No Model.)

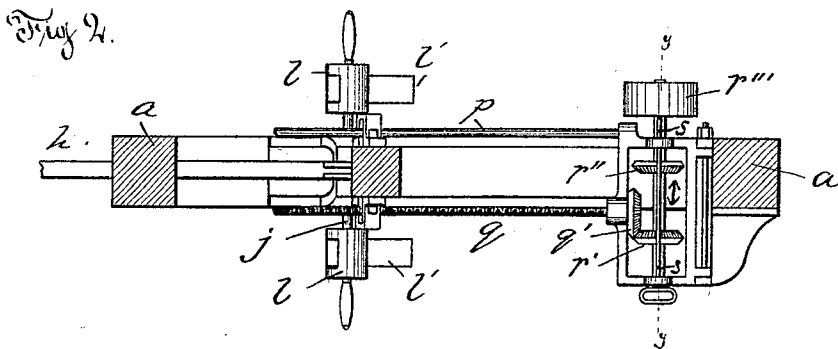
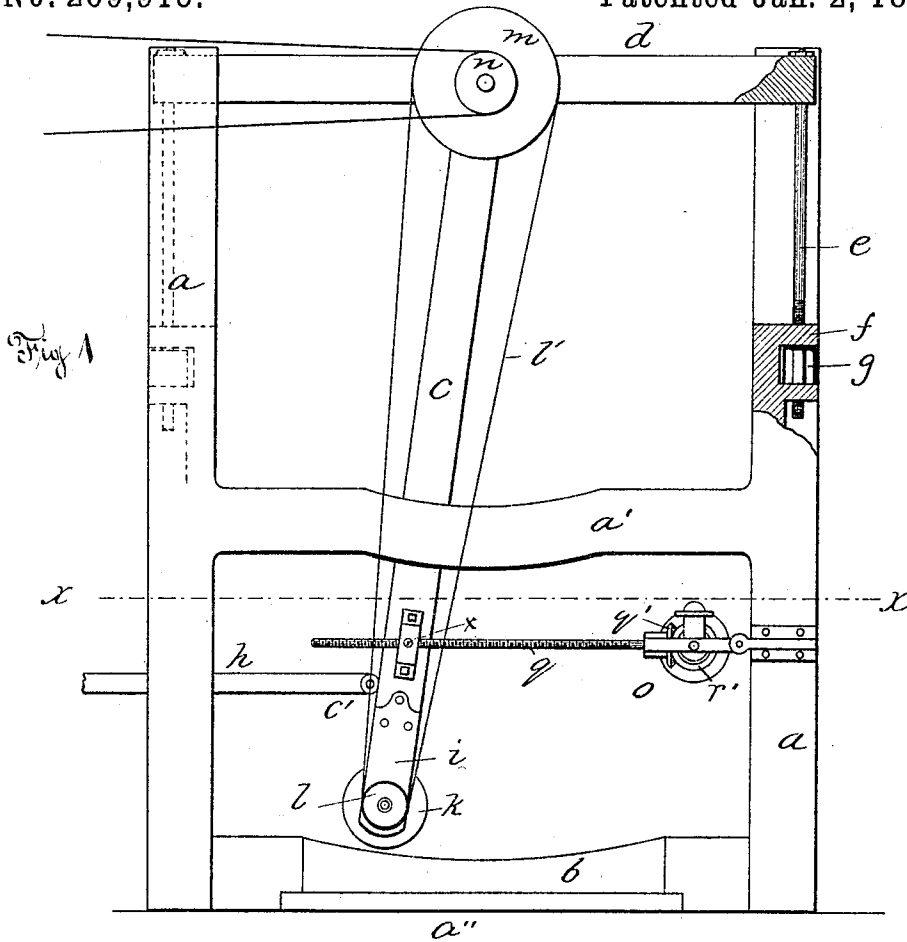
2 Sheets—Sheet 1.

H. F. CASE.

GRINDING FINISHING MACHINE PLATES.

No. 269,915.

Patented Jan. 2, 1883.



Witnesses
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H. H. Marsh.

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Att'y.

(No Model.)

2 Sheets—Sheet 2.

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Fig 3.

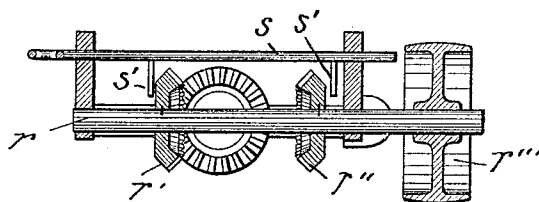
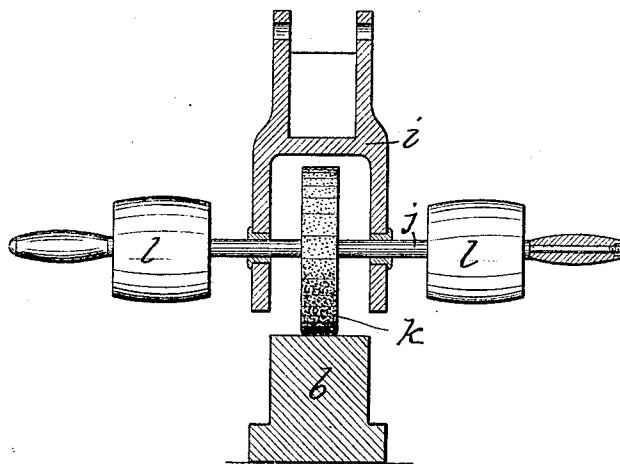


Fig 4.



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UNITED STATES PATENT OFFICE.

HENRY F. CASE, OF SOUTH MANCHESTER, CONNECTICUT, ASSIGNOR TO
A. WELLES CASE AND A. WILLARD CASE, OF SAME PLACE.

GRINDING FINISHING-MACHINE PLATES.

SPECIFICATION forming part of Letters Patent No. 269,915, dated January 2, 1883.

Application filed November 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. CASE, of South Manchester, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Grinding Finishing-Machine Plates, of which the following is a description, reference being had to the accompanying drawings, where—

Figure 1 is a side view of a finishing-machine with the pitman broken from the driving-crank, and parts in section. Fig. 2 is a view in horizontal section on plane denoted by line *x x*, Fig. 1. Fig. 3 is a view in section of bevel-gear shaft on plane *y y*, Fig. 2. Fig. 4 is a detail view of the grinder-holder and appurtenant parts, showing partly in vertical section the grinder, shaft, and the handles by which the grinder may be moved laterally of the bed.

My invention relates to the art of paper-making, and especially to finishing of what is known as "press-board." In this special product a firm highly-polished surface is necessary, and it is produced by subjecting the board to pressure and friction between a bed or press-plate and a roller that is passed rapidly over it.

My invention consists in improved devices for and method of facing or grinding the press-plate to the curve of the roller-arm, and for regrinding the same after wear, the details of which are more fully hereinafter described.

In the accompanying drawings, the letter *a* denotes the frame of a finishing-machine formed of any suitable material—as cast-iron—strengthened by a brace, *a'*, and having a bed, *a''*, to which is secured, as by bolting, a press-plate, *b*, made preferably of cast-iron with chilled face.

A roller-arm, *c*, is pivotally attached to a cross-piece, *d*, near its center. This cross-piece is tenoned at its ends, which are adapted to move in the upright parts of the frame *a*. The cross-piece is held in proper position by means of upright bolts *e*, which are secured to the tenoned ends, pass through guides *f* in the frame, and are screw-threaded to fit the nuts *g*. The roller-arm *c* is provided at its lower end with a hardened-steel roll pivoted in a holder secured to the arm by bolts, and it is reciprocated across the press-plate by means of a pit-

man, *h*, which is pivoted to the arm, as at *c'*, and to a crank at the other end, connected with any suitable source of power for finishing purposes.

The upper surface or face of the press-plate is made as nearly as possible to form a curved surface whose radius is equal to the distance from the center on which the arm swings to the lower edge of the periphery of the roller, plus the thickness of the board or paper to be finished.

It is essential to the proper working of the machine that there shall be an equal distance between the path of the roller-face and the plate from end to end of the latter, and that the curved surface of the plate and the curved path of the roller on the vibrating roller-arm shall be substantially concentric. To secure these results by old methods would be very expensive, if not impracticable; but by means of my improvement I face the plate to fit any radius of roller-arm, the only care being to form, preferably by casting, the plate to very near the intended radius. To face the plate it is secured to the bed *a''*, the roller-holder is removed from the arm, and in its place is bolted the holder *i*, which bears a shaft, *j*, to which are fastened a grinder, *k*, preferably of emery, and pulleys *l l*. This grinder *k* is driven by belts *l' l'* from pulleys *m m*, secured to a shaft concentric with the pivot of the roller-arm, and the latter pulley by belts from a main-shaft pulley belted to pulleys *n n*. The pitman is disconnected from the arm, and a reversible feed device, *o*, horizontally pivoted to the frame *a*, and connected by guide-rod *p* and feed-screw *q* to the arm *c*. A shaft, *r*, in the feed device bears the bevel-cogs *r' r''* and the pulley *r'''*, which is driven by a belt from the main shaft. This cross-shaft is longitudinally movable in its bearings, and the gears *r' r''* are thrown into or out of mesh with the gear *q'* by means of the shifter *s*, having arms *s'* projecting below the edges of the gears. The feed-rod *q* passes through a nut which is horizontally pivoted at *x* to a stand secured to the arm, and as the rod revolves the arm is drawn slowly along its path above the plate,

the cutter being rapidly revolved by means already shown, and also moved transversely of the plate by means of the handles on the end of the cutter-shaft. The transverse or lateral movement of the grinder is usually effected by the attendant workman. The cutter is less in thickness than the width of the plate, and its traversing motion across the plate in cutting insures a perfect surface on the latter.

10 As soon as one end of the plate is reached in the grinding operation the gears r' r'' are shifted and a reverse motion given to the feed-rod g . The cutting is continued as long as is necessary to secure a perfect surface on the

15 press-plate. The cutter is then replaced by the roller, the feed device removed, the pitman connected to the arm, and the machine ready for its work in finishing.

My cutter and feed device is applicable to

20 machines having different lengths of roller-arms, and works equally well within wide limits. By it new plates are trued for their function after being placed in the machine in which they are intended to remain, and are

25 afterward reground by the same device whenever necessary.

The automatic reversal of the feed-screw and reciprocation of the cutter are evidently attainable by simple mechanical attachments to the above-described device.

The pressure of the roller upon the press-board is adjustable by means of the rods e and nuts g to any desired degree.

I claim as my invention—

1. In a press-board-finishing machine, a laterally-movable press-plate grinder, k , removably secured to the roller-arm, and moved on the press-plate, while cutting, by feed mechanism o , all substantially as described.

2. In combination, frame a , press-plate b , roller-arm c , frame i , bearing shaft f and grinder k , and feed device o , all substantially as described.

3. In combination, frame a , press-plate b , arm c , bearing the rotary and laterally movable grinder k , vertically-adjustable cross-piece d , and feed device o , all substantially as described.

HENRY F. CASE.

Witnesses:

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