No. 655,472. Patented Aug. 7, 1900.

G. WISHART.

PLATE GRAINING MACHINE.

(Application filed May 9, 1900.)

(No Model.) 3 Sheets—Sheet 1.

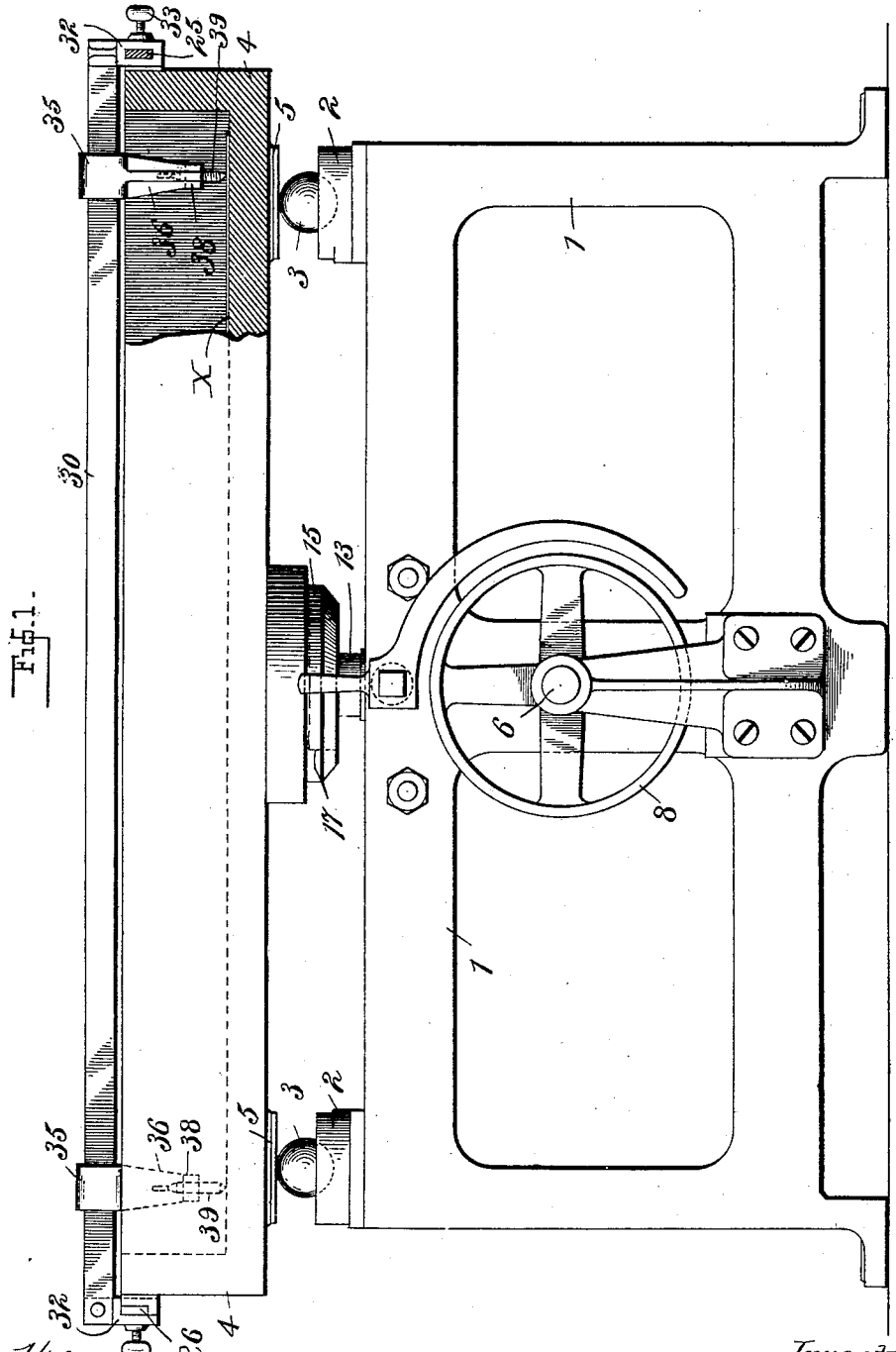


FIG. 1.

Witnesses.
Wm. A. Courtland
J. Green

Inventor.
George Wishart
By Knight Bros.
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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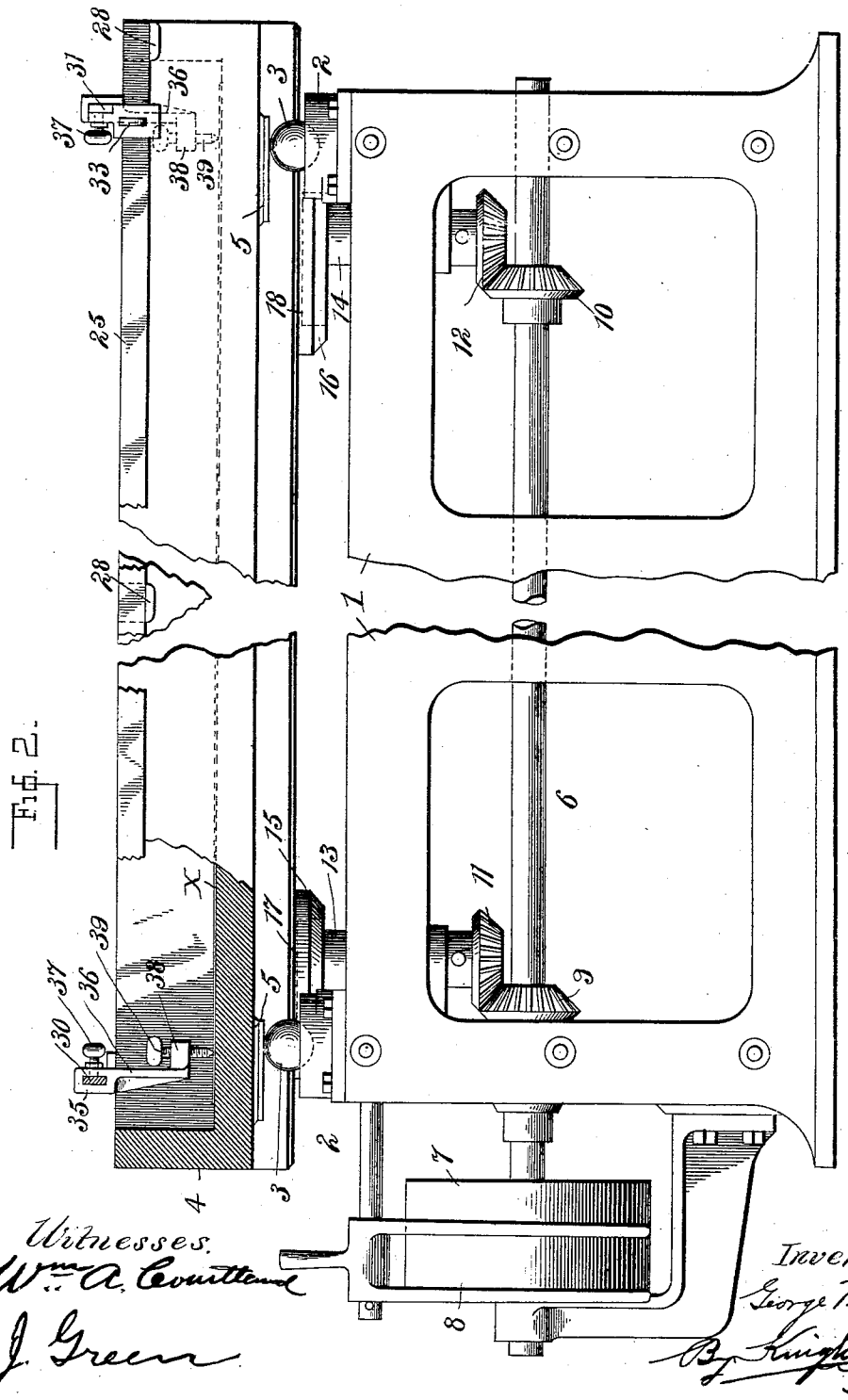


FIG. 2.

Witnesses.
Wm. A. Countland
J. Green

Inventor.
George Wishart
By Knight Bros.
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

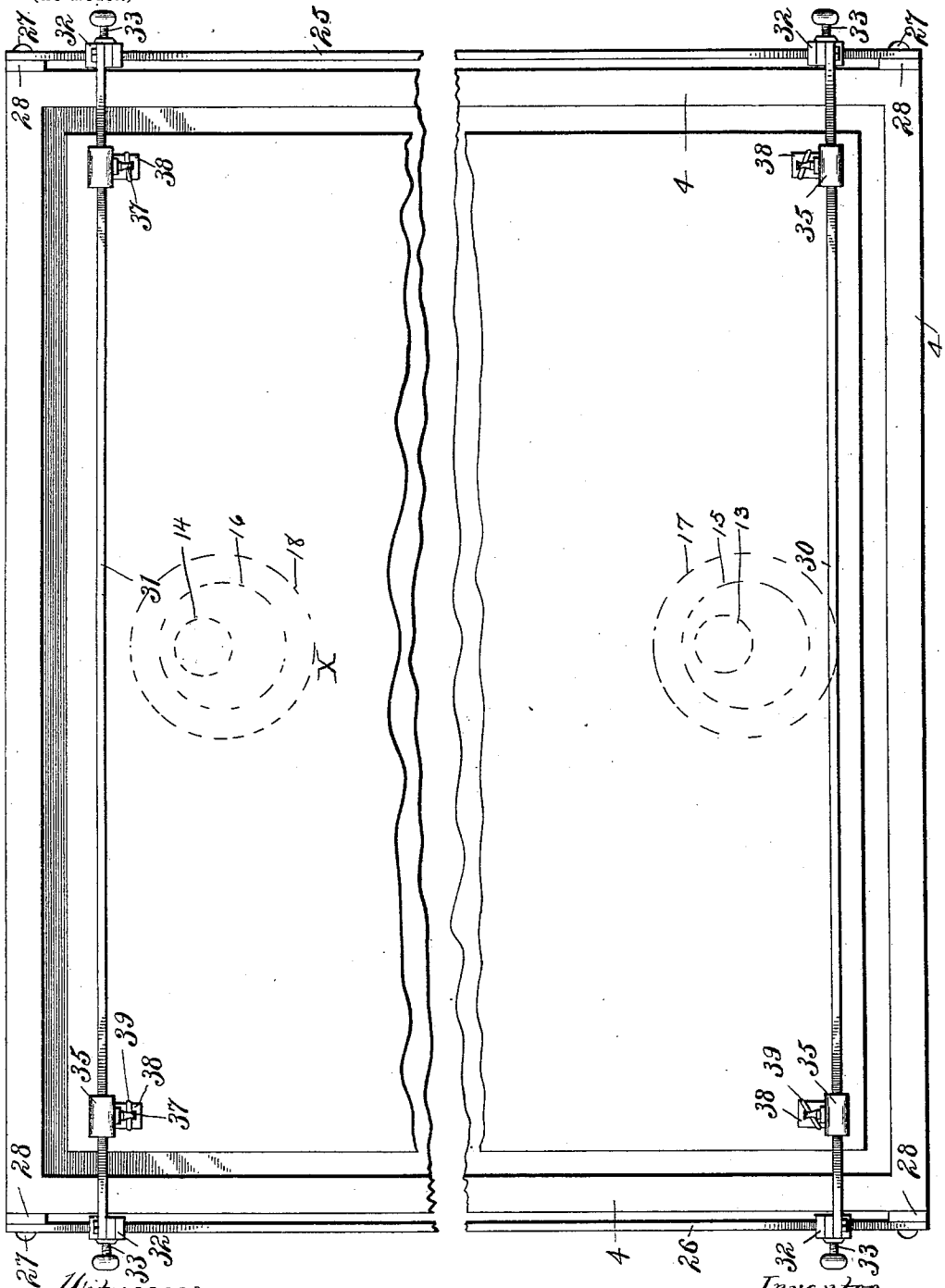
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Witnesses.
Wm. A. Courtland
J. Green

Fig. 5.

Inventor.
George Wishart
By Knight Bros.
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE WISHART, OF NEW YORK, N. Y., ASSIGNOR TO THE ALUMINUM PLATE AND PRESS COMPANY, OF SAME PLACE AND PLAINFIELD, NEW JERSEY.

PLATE-GRAINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 655,472, dated August 7, 1900.

Application filed May 9, 1900. Serial No. 16,063. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WISHART, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Plate-Graining Machines, of which the following is a specification.

My invention relates to improvements in machines for mechanically graining the surfaces of metallic printing-plates—such as zinc, aluminium, &c.—which are now extensively employed in place of lithographic stone.

The object of my invention is to provide a simple and effective device for engaging and holding the metallic plate in the machine while it is undergoing the graining operation; and to this end my invention consists, essentially, of a plurality of plate-engaging devices mounted upon the box or receptacle of the graining-machine and adjustable longitudinally and transversely thereto to enable them to be placed in any position to engage the edges of plates of different sizes.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings, and afterward point out the novelty in the annexed claims.

In the said drawings, Figure 1 is an end elevation, partly broken away, of a plate-graining machine having my improvements applied thereto. Fig. 2 is a side elevation partly broken away, and Fig. 3 is a plan view of the same.

The graining-machine proper may be of any suitable construction to support the plate and graining materials and subject them to the necessary rotary or reciprocatory motion in the manner well understood in the art. I have shown one suitable form of grainer-machine for accomplishing the desired purpose, my improvements being applied thereto. The machine shown comprises a suitable base-frame 1, having upon its four upper corners cups or bearings 2, in which are supported antifriction-balls 3. The grainer box or receptacle 4 is provided at its four lower corners with bearing-plates 5, which rest upon the antifriction-balls 3. The main shaft 6 is pivoted in the machine-frame 1 and provided with fast and loose pulleys 7 and 8 and gears 9 and 10, which mesh, respectively, with similar gears 11 and 12, keyed to the lower ends of the vertical shafts 13 and 14, said shafts carrying on their upper ends eccentrics 15 and 16, which engage suitable bearing-yokes 17 and 18, secured to the bottom of the grainer box or receptacle 4.

In the operation of the machine as just described the grainer box or receptacle 4, containing the metal printing-plate to be grained and the graining materials, is given a rapid rotary reciprocatory motion to cause the effective graining of every portion of the surface of the printing-plate. This operation is well understood in the art.

Some trouble has been experienced heretofore in properly securing the plate in the bottom of the box or receptacle so as to produce the best graining effects, the plate being usually secured by means of small nails or tacks. Sometimes these nails or tacks come loose, and aside from the objection of releasing the plates in the box or receptacle the nails or tacks are liable to be pressed upon the surface of the plate and produce injurious cutting or scratching of the plate's surface, necessitating the entire surfacing operation to be done over. By my present invention I provide effective devices for securely holding the plate in position in the grainer box or receptacle while it is undergoing the graining operation, said devices being adjustable to enable them to be placed in the required position for engaging plates of various sizes.

Attached to the long sides of the box or receptacle 4 are guide-rails 25 and 26, consisting, preferably, of bars of rectangular cross-section, which are secured at their ends by screws or bolts 27, small blocks or lugs 28 being interposed between the box or receptacle and guide-rails to offset the guide-rails from the sides of the box.

30 and 31 are cross-bars extending transversely across the top of the box or receptacle 4 and having secured to their opposite ends supporting-yokes 32, which embrace and slide upon the guide-rails 25 and 26. Each of the

cross-bars 30 and 31 is mounted at its ends upon two of the yokes 32, and by the movement of the yokes 32 upon the guide-rails 25 and 26 it will be observed that the cross-bars 30 and 31 can be adjusted to any desired position longitudinally of the grainer box or receptacle 4.

33 is a thumb-screw threaded into the wall of each of the yokes 32 to engage the guide-rails 25 and 26 to hold the cross-bars in the desired adjusted position.

Adjustably mounted upon the cross-bars 30 and 31 are four yokes, which are formed integral with the upper ends of the downwardly-projecting arms 36, said yokes 35 embracing the bars 30 and 31, so as to slide thereon transversely of the machine.

37 is a thumb-screw threaded into each of the yokes 35 and adapted to engage the cross-bar 30 or 31 and hold the bracket-arms 36 in the desired adjusted position. The bracket-arms 36 project downwardly into the grainer box or receptacle 4 and are provided at their lower ends with horizontal ears or lugs 38, through which are threaded the vertical plate-engaging thumb-screws 39, said screws being preferably formed with pointed ends, as shown in Fig. 2.

X indicates a printing-plate held in the bottom of the grainer box or receptacle 4.

It will be clear that with my improved plate holding the devices a plate of any size can be securely fastened in the bottom of the grainer-box and held therein while it is subjected to the grainer action. The adjustment of the cross-bars 30 and 31 upon the guide-rails 25 and 26 makes it possible to place the plate-engaging screws in any desired position longitudinally of the grainer-box, while the adjustment of the bracket-arms 36 upon cross-bars 30 and 31 makes it possible to place the plate-engaging screws at any desired point transversely of the grainer-box.

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

1. In a device of the character described, the combination of a box or receptacle adapted to contain the graining materials and the plate to be grained, with suitable brackets adjustable longitudinally and transversely upon the box or receptacle, means for securing said brackets in the desired adjusted positions, and plate-engaging devices mounted upon said adjustable brackets, substantially as and for the purpose set forth.

2. In a device of the character described the combination of a box or receptacle adapted to contain the graining materials and the plate to be grained, with suitable bracket-arms adjustable longitudinally and transversely upon the box or receptacle and projecting downwardly therein toward the bottom thereof, and screws threaded into said bracket-arms and adapted to engage and hold the plate upon the bottom of the box or receptacle, substantially as set forth.

3. In a device of the character described, the combination of a box or receptacle adapted to contain the graining materials and the plate to be grained, with suitable bracket-arms adjustable longitudinally and transversely upon the box or receptacle and projecting downwardly therein toward the bottom thereof, horizontally-projecting ears or lugs upon the lower ends of said bracket-arms, and vertical plate-engaging screws threaded through said ears or lugs and adapted to rigidly engage and hold a plate, substantially as set forth.

4. In a device of the character described, the combination of a box or receptacle adapted to contain the graining materials and the plate to be grained, with the cross-bars supported upon and transversely of the box or receptacle, and adjustable longitudinally thereon, bracket-arms mounted upon said cross-bars and projecting downwardly into the box or receptacle, and suitable plate-engaging devices carried by said bracket-arms, substantially as and for the purpose set forth.

5. In a device of the character described, the combination of a box or receptacle adapted to contain the graining materials and the plate to be grained, with the cross-bars supported upon and transversely of the box or receptacle and adjustable longitudinally thereon, means for securing said cross-bars in the desired adjusted positions, bracket-arms mounted upon said cross-bars and projecting downwardly into the box or receptacle, and suitable plate-engaging devices carried by said bracket-arms, substantially as and for the purpose set forth.

6. In a device of the character described, the combination of a box or receptacle adapted to contain the graining materials and the plate to be grained, with the guide-rails secured to the sides of the box or receptacle, the cross-bars mounted upon said guide-rails and adjustable thereon longitudinally of the box or receptacle, bracket-arms mounted upon the cross-bars and adjustable transversely of the box or receptacle, and devices carried by said bracket-arms and adapted to engage the plate in the bottom of the box or receptacle and hold it firmly therein, substantially as and for the purpose set forth.

7. In a device of the character described, the combination of a grainer box or receptacle, with the guide-rails secured to and offset from the sides of the box or receptacle, the yokes embracing the guide-rails, the cross-bars mounted upon the yokes and extending across the box or receptacle, bracket-arms mounted upon the cross-bars and adjustable transversely of the box or receptacle, and devices carried by said bracket-arms adapted to engage the plate in the bottom of the box or receptacle, substantially as set forth.

8. In a device of the character described, the combination of a grainer box or receptacle, with the cross-bars adjustably mounted thereon, the bracket-arms formed with yokes which embrace the cross-bars and thereby adjustably support the bracket-arms, and devices carried by said bracket-arms and adapted to engage a plate in the bottom of the box or receptacle, substantially as and for the purpose set forth.

GEO. WISHART.

Witnesses:
J. GREEN,
P. W. HALL.