

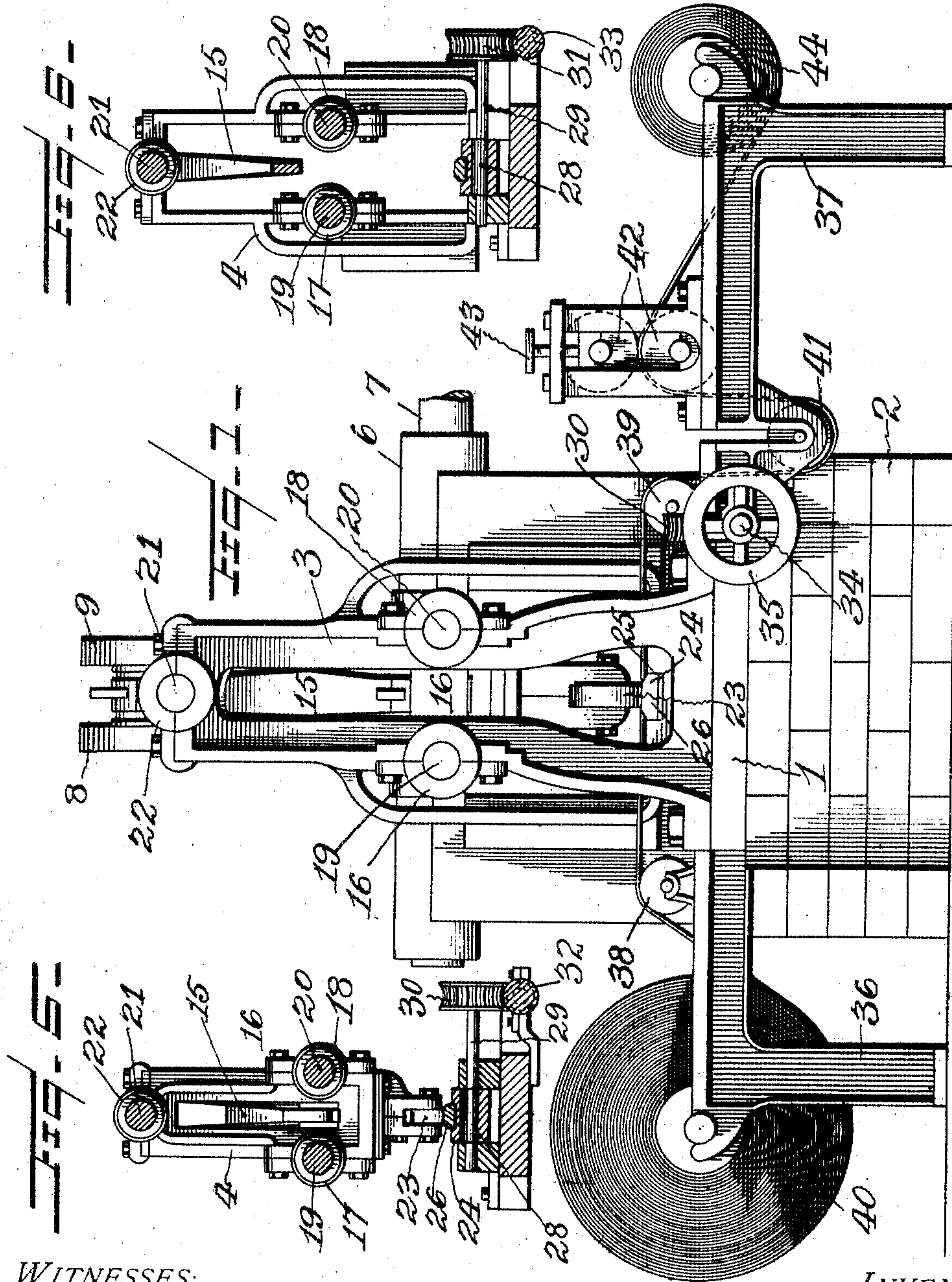
No. 776,887.

PATENTED DEC. 6, 1904.

A. W. CASE.  
PAPER FINISHING MACHINE.  
APPLICATION FILED DEC. 17, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



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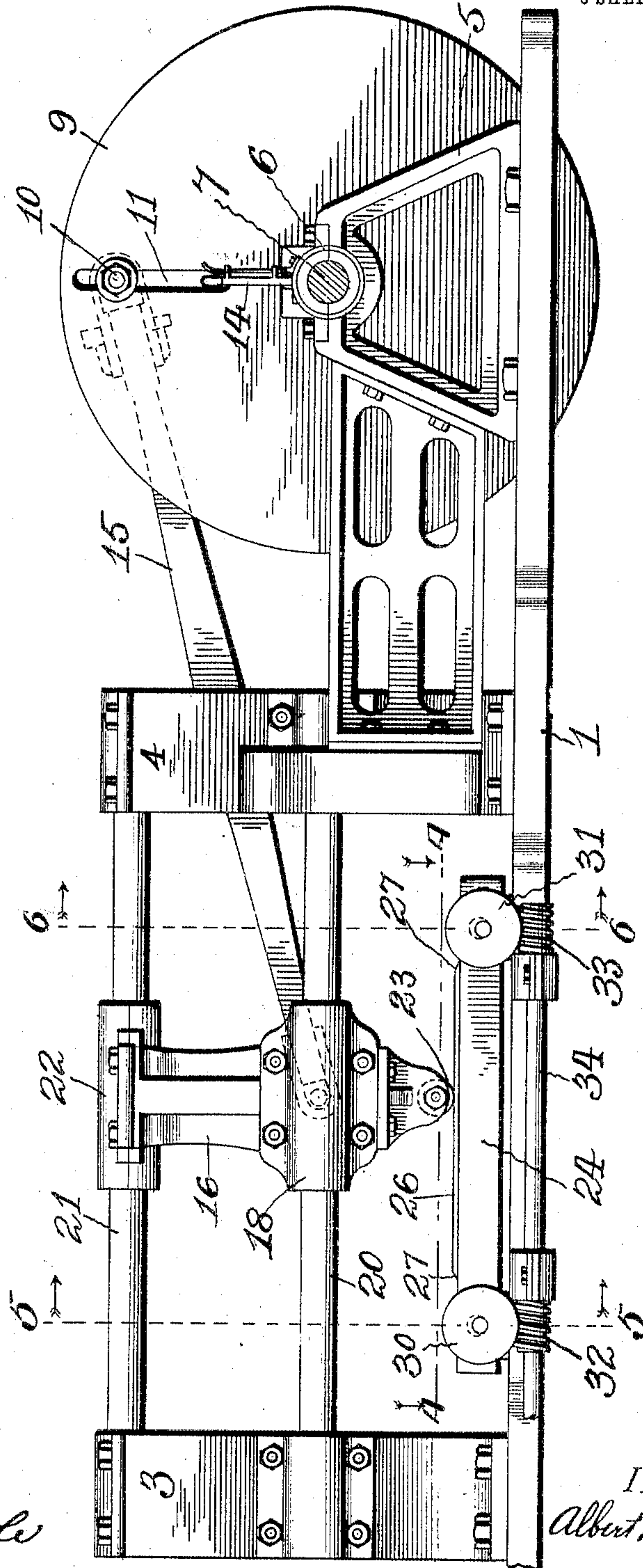
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3 SHEETS—SHEET 2.



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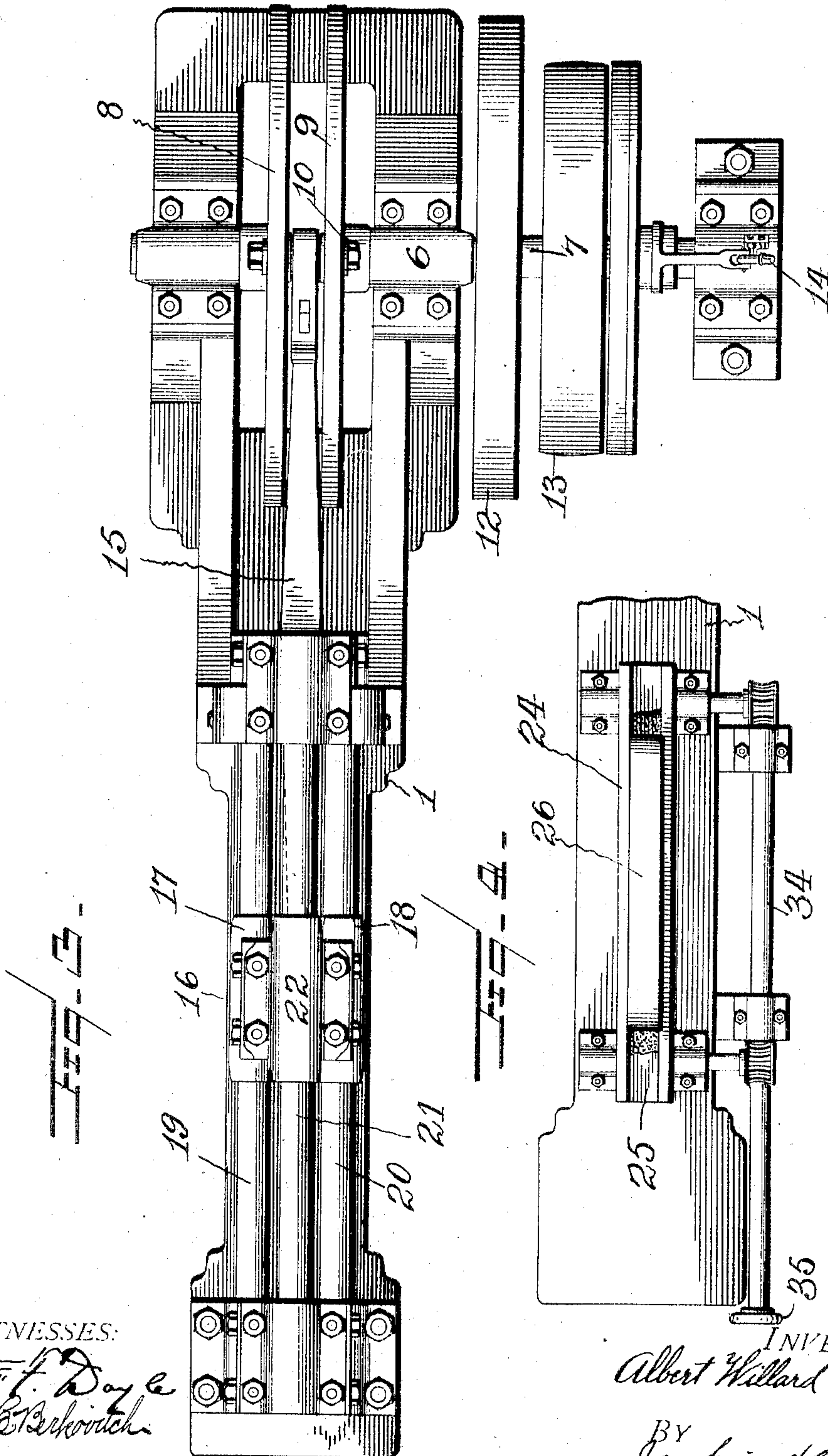
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

ALBERT WILLARD CASE, OF HIGHLAND PARK, CONNECTICUT.

## PAPER-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 776,887, dated December 6, 1904.

Application filed December 17, 1903. Serial No. 185,493. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT WILLARD CASE, a citizen of the United States, and a resident of Highland Park, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Paper-Finishing Machines, of which the following is a specification.

The invention relates, generally speaking, to a machine for finishing paper—that is, to provide a higher finish than is produced in the ordinary method of manufacturing paper—and while belonging to the general class of paper-finishing machines it should perhaps be more properly called a “glassing-machine.”

The object of the invention is to provide such a machine through which a web or strip of paper may be passed and will be acted upon as to its surface by a glassing-flint as it is passed through the machine, thus securing an unusually high finish for the surface of the paper.

A still further object is to provide a mechanism for operating a glassing-flint that will always hold said flint in perfect and true alinement with reference to the surface of the paper acted upon.

A still further object is to provide an adjustable bed or platen which may easily be moved into position to bring the glassing-flint into operative position with reference to the paper and vary the amount of pressure exerted by said flint without in any way changing the position of the flint or its alinement in action.

Another object of the invention is to provide a platen-bed which is adjustable with reference to the glassing-flint and provides a means for securing therein interchangeable platens of various sizes and material and at the same time to vary the length of stroke of the glassing-flint when the machine is used with platens of different sizes.

Referring to the drawings, Figure 1 is a view in end elevation of the machine, showing the method of passing the paper through it. Fig. 2 is a detail side view of the parts of the glassing-machine shown in Fig. 1. Fig. 3 is a plan view of the parts shown in Fig. 2,

the platen-bed and platen being removed. Fig. 4 is a detail plan view of the platen and platen-bed seen as indicated from the section-lines 4 4 of Fig. 2. Fig. 5 is a detail sectional view on the line 5 5 of Fig. 2 looking in the direction indicated by the arrow. Fig. 6 is a similar view in cross-section on the line 6 6 of Fig. 2.

In the accompanying drawings the numeral 1 denotes a bed-plate properly secured upon the base 2 and having end frames 3 4. At one end of the bed-plate is arranged a journal-frame 5, in bearings 6 of which is mounted the main shaft 7. This is a divided shaft and terminates at its adjacent ends in disks 8 9, between which is secured a crank-pin 10. The plates each have a radial slot 11, along which this crank-pin may be adjusted and secured at any desired radial distance from the center of the shaft and disks. Outside of the frame and upon one of the shaft-sections is a fly-wheel 12, which aids in securing a uniform and steady rotation of the parts. The shaft is driven through any suitable means, as by belt in connection with a pulley 13, which is preferably of the friction type and has an operating-handle 14 for causing it to drive or release the main shaft.

A connecting-rod 15, suitably journaled on the crank-pin, extends to a cross-head 16, which is of peculiar construction. This cross-head is made up in sections and has at each side and substantially in the plane of the axis of the main shaft 7 a pair of sliding bearings 17 18 of cylindrical form, which inclose and slide upon bars 19 20. These bars 19 20 are secured at either end in the frames 3 and 4, and a third guide-bar, 21, is arranged above the bars 19 20 and in a plane substantially midway thereof. A third sliding bearing 22, arranged at the top of the cross-head 16, forms an auxiliary guide for said cross-head. It will be observed that the arrangement of the bars or slideways is substantially triangular with the base of the triangle lying in a plane parallel with the base of the machine 1. This triangular arrangement gives a very rigid construction and provides a cross-head slide which will be maintained in abso-



lute alinement at all times. At the bottom of the cross-head and suitably secured therein is a glassing-flint 23, which may be of any desired form, although a cylindrical flint is preferably used.

Adjustably arranged upon the bed 1 and within range of the glassing-flint is a platen-bed 24, which is preferably grooved, as at 25, to receive a platen 26, the latter being secured within the groove in any desired manner and having its opposite ends rounded or beveled, as at 27. In practice this platen 26 rests upon a thin web of resilient material placed between it and the platen-bed 24. The bed is bored at a number of places, as shown herein, at each end, and within these bores rest the eccentric portions 28 of shafts 29, which at their outer ends terminate in worm-wheels 30 31. These worm-wheels engage worms 32 33, carried upon a shaft 34, and the latter is provided at its extremity with a hand-wheel 35, by which the worms may be turned and through the movement of the worm-wheels and connected shafts will raise and lower the platen-bed and its contained platen.

At either side of the bed 2 are arranged frames 36 37, which support the paper to be finished as well as the feed mechanism for drawing said paper across the platen. At either side of the bed are guide-rolls 38 39, and the paper to be glassed is fed from a reel 40 across these rolls and the platen which lies intermediate thereof and about a roll 41. From the roll 41 the paper passes through a pair of feed-rolls 42, provided with a means, as 43, for tensioning the rolls with reference to each other, and from this point the web of paper passes to a reel 44.

In the operation of the device the web of paper is fed slowly across the platen, and the cross-head, with its glassing-flint, is reciprocated rapidly along the upper surface of the paper, pressing it down upon the platen, and thus giving it a very high finish. It will be observed that the cross-head and flint never change position with reference to the bed, but that the desired pressure is secured by raising the platen-bed and platen.

The feed-rolls 42 and the reels are driven in any suitable manner, and of course it is understood that the speed of the paper through the machine as well as the speed of the main shaft 6 and consequent reciprocations of the cross-head may be varied at will to suit the exigencies in any particular case. Thus a greater or less degree of gloss or finish may be produced for various sorts of paper.

Of course it is perfectly obvious that in lieu of feeding a web or strip of paper transversely of the platen and glassing-flint individual sheets of paper might be subjected to treatment with equal facility. These sheets of course would be fed over the platen and subjected to the action of the glassing-flint in any

desired manner and by any desired mechanism for accomplishing the result automatically or may be passed through the machine by an operator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a paper-finishing machine, in combination, a main shaft, a plurality of cylindrical guide-bars operatively arranged with reference to said shaft, a cross-head having bearings embracing said guide-bars, a connecting-rod for reciprocating said cross-head, an adjustable platen arranged below the cross-head and means for adjusting said platen without varying the angle of its working face.

2. In a paper-finishing machine, in combination, a frame or support, a plurality of independent guide-bars secured at their opposite ends in said support, a cross-head journaled on each of said guide-bars, a connecting-rod for driving said cross-head, and means for varying the length of reciprocation of the cross-head.

3. In a paper-finishing machine, in combination, a base or support, a guideway of triangular form including three cylindrical guide-bars, a cross-head having bearings arranged to embrace and slide upon said guide-bars, means for reciprocating said cross-head, a platen operatively arranged with reference to the cross-head, and means for feeding a strip of paper between the platen and the cross-head and transversely thereof.

4. In combination in a paper-finishing machine, a reciprocating cross-head and means for operating it, a platen-bed, means for simultaneously raising and lowering both ends of the bed without varying the angle of its working face, and a platen operatively arranged with relation to said platen-bed.

5. In combination in a paper-finishing machine including an adjustable platen, a glassing-flint and means for moving it, a platen operatively arranged with reference to said flint, and means for adjusting said platen toward or away from the flint, said means including a plurality of shafts having eccentric cam-surfaces for positively raising or lowering the platen, and means for simultaneously moving said cams.

6. In combination in a device of the class specified, including a glassing-flint and means for moving it over the material to be finished, a platen-base operatively arranged with reference to said flint and provided with a recess, a platen seated in the recess, a resilient material intermediate the platen and platen-bed, and means for varying the height of the working face of the platen.

7. In combination in a device of the class specified, including a glassing-flint and means for moving it over the material to be finished, a platen-base operatively arranged with reference to said flint and provided with a recess,



a platen arranged within the recess, the resilient material intermediate the platen and platen-bed, and means for raising and lowering said platen without varying the angle of its working face.

8. In combination in a paper-finishing machine, a platen-bed, means for simultaneously raising and lowering said platen-bed without varying the angle of its working face, a platen mounted in the platen-bed, a resilient cushion interposed between the platen and the platen-bed, a cross-head arranged above the platen and bearing a glassing-flint, and means for reciprocating said cross-head.

9. In combination in a paper-finishing machine, a base or support, a platen mounted upon said bed, a guideway of triangular form including three cylindrical guide-bars arranged above said platen, one of said bars being arranged substantially over the longitudinal center of the platen and the other of said bars arranged outside of said center, a cross-head having bearings embracing each of said guide-bars, and means for reciprocating said cross-head.

10. In a paper-finishing machine, in combination, a base or support, a platen adjustably arranged thereon, a guideway of triangular form including three cylindrical guide-bars, one of said bars arranged substantially over the longitudinal center of said platen, a cross-head having bearings embracing each of said guide-bars, and means for reciprocating said cross-head.

11. In combination in a paper-finishing machine, including an adjustable platen, a glassing-flint and means for moving it, a platen operatively arranged with reference to said flint and having appurtenant thereto cylindrical openings, a plurality of shafts operatively arranged with reference to said openings, and provided with eccentric cam-surfaces ar-

ranged within the openings, and means for simultaneously rotating said shafts.

12. In combination in a paper-finishing machine, a base or support, a platen-bed operatively arranged thereon, a platen mounted in said bed, a recess formed in the platen-bed, a shaft arranged eccentric to said recess and provided with an eccentric portion within the recess, and means for rotating said shaft and eccentric.

13. In combination in a paper-finishing machine, a base or support, a plurality of shafts journaled in said support, a platen-bed having recesses embracing said shafts, eccentric cam-surfaces arranged upon said shafts and filling said recesses, means for simultaneously rotating the shafts and eccentrics, a cross-head, and means for reciprocating it, and a glassing-flint borne upon said cross-head.

14. In combination in a paper-finishing machine, including a platen, three separate guide-bars supported at their opposite ends and extending over said platen, a sectional cross-head having removable bearings embracing each of said cross-bars, and means for reciprocating said cross-head.

15. In combination in a paper-finishing machine, including a reciprocating cross-head and glassing-flint borne thereby, a platen-bed operatively arranged with reference to said cross-head, a platen mounted in said bed, a plurality of eccentric cams borne in said platen-bed, shafts operatively arranged with reference to said cams, and means for simultaneously rotating said shafts whereby the platen-bed may be raised or lowered without varying the angle of the working face of the platen.

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