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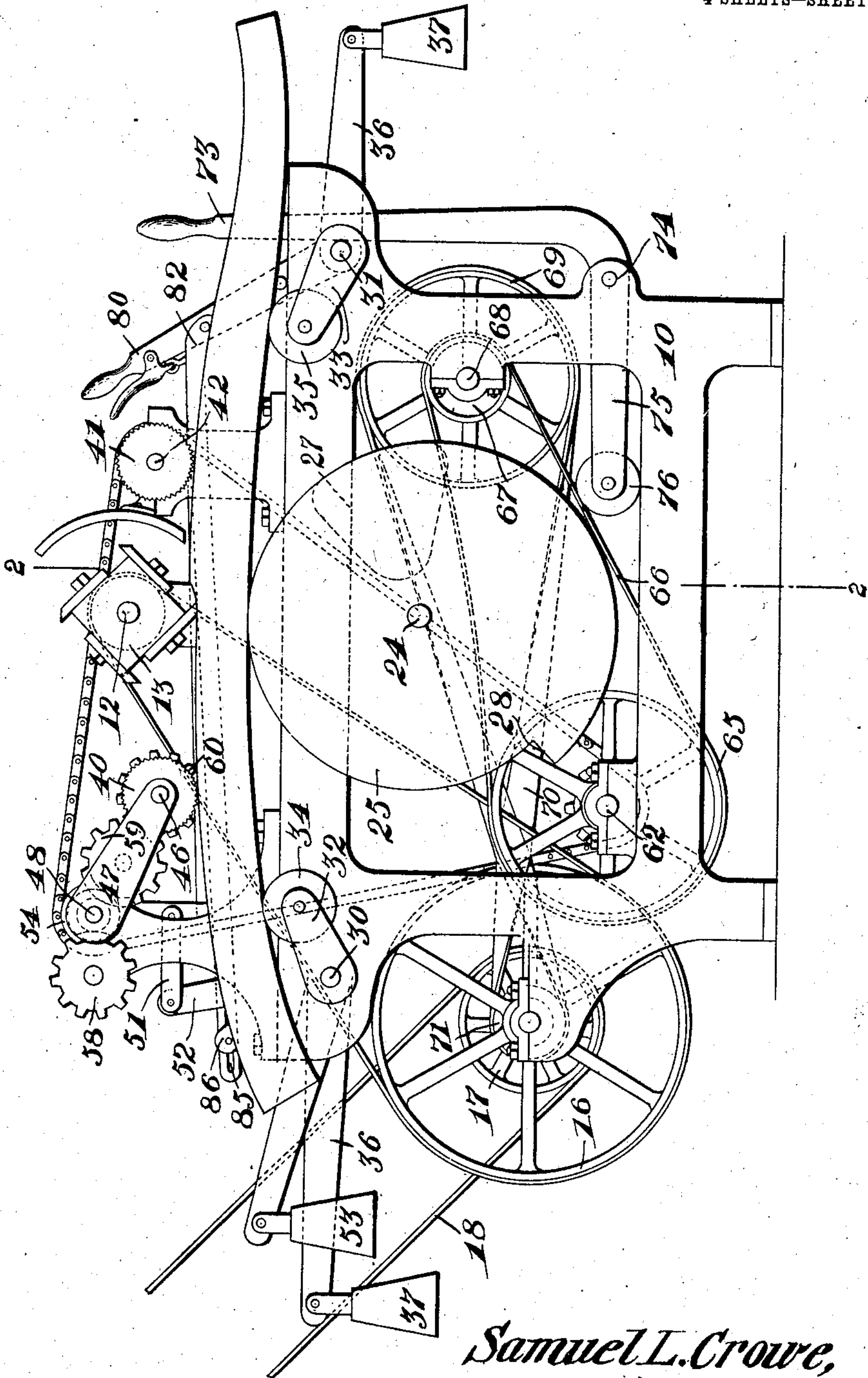
S. L. CROWE.

PLANING MACHINE.

APPLICATION FILED APR. 20, 1906.

4 SHEETS—SHEET 1.

Fig. 1.



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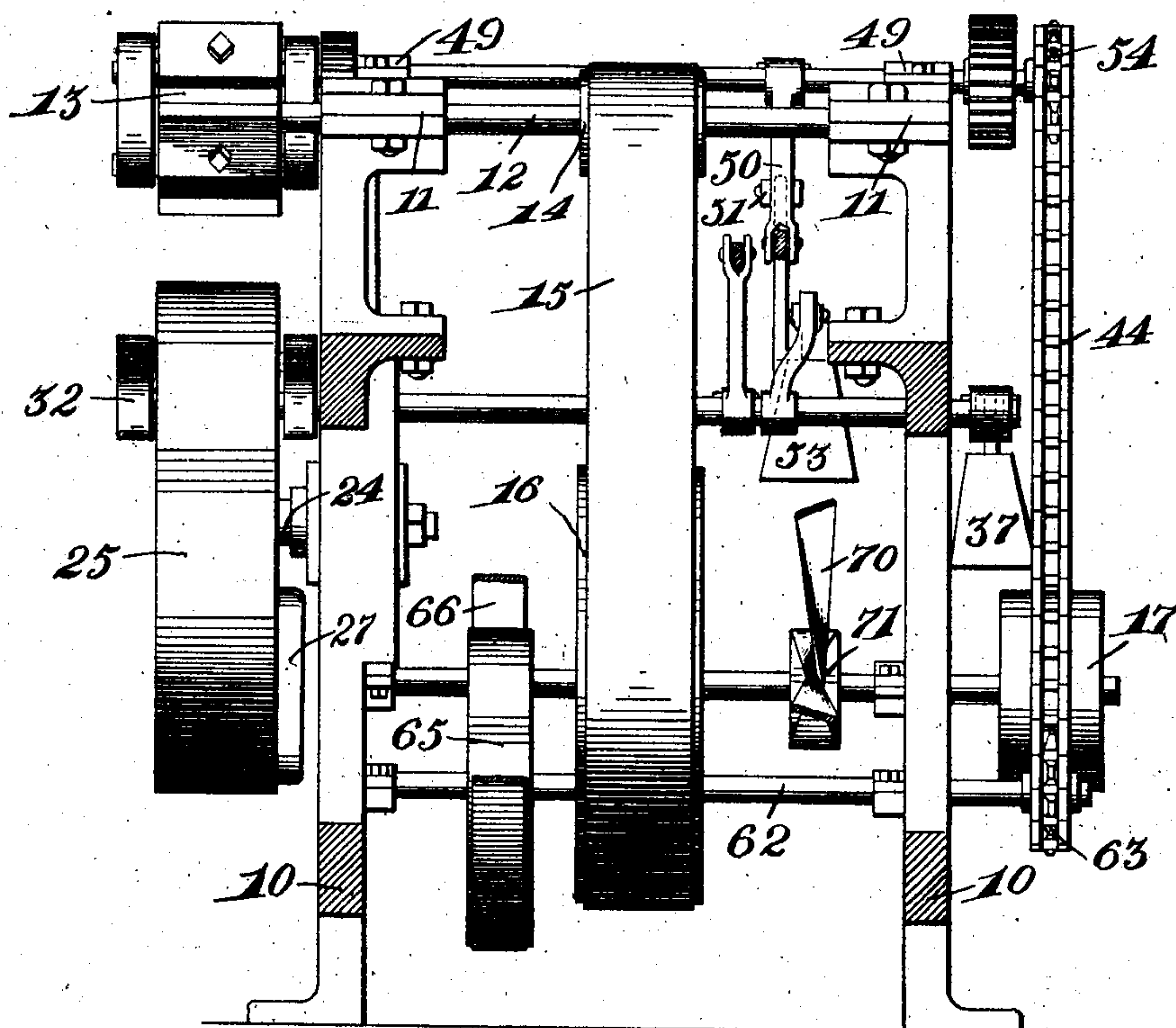
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4 SHEETS—SHEET 2.

Fig. 2.



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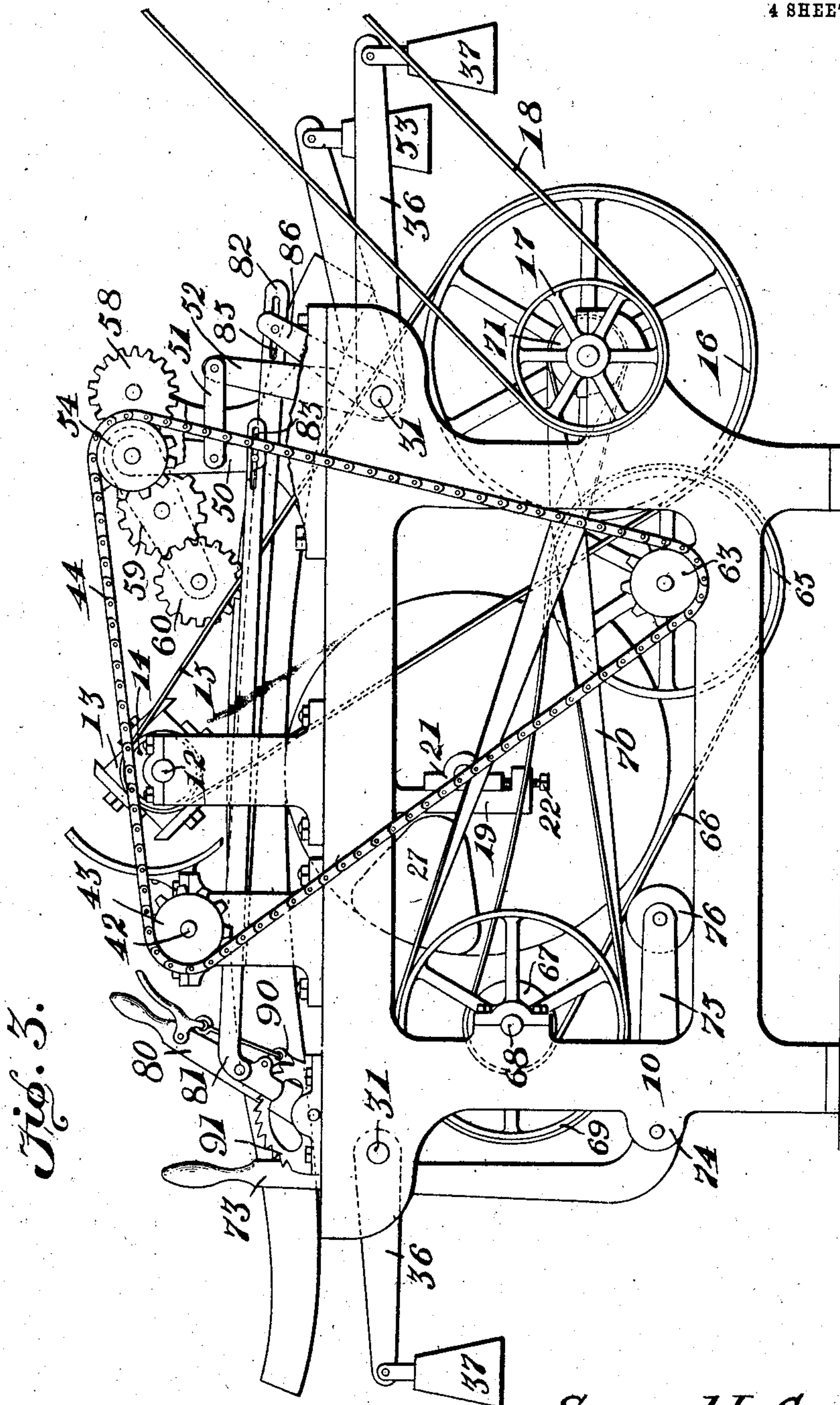
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4 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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PLANING-MACHINE.

No. 834,970.

Specification of Letters Patent

Patented Nov. 6, 1906.

Application filed April 20, 1906. Serial No. 312,830.

To all whom it may concern:

Be it known that I, SAMUEL L. CROWE, a citizen of the United States, residing at Seymour, in the county of Jackson and State of Indiana, have invented a new and useful Planing-Machine, of which the following is a specification.

This invention relates generally to wood-planing apparatus, and particularly to a machine for sizing and shaping rived or split pieces of wood for bent-wood work.

In certain lines of bent-wood industries as now practiced the blanks are rived or split out of the log and reduced by a band-saw or other tool to approximately the correct size. These blanks are then shaped or worked down by hand to the required size. This operation is expensive and in many cases unsatisfactory, owing to the difficulty in securing uniformity of the product by handwork.

The object of the present invention is to take the rived or split blanks after the latter have been shaped to the approximate dimensions and plane such blanks to the desired size and to provide mechanism for turning out a finished blank of uniform thickness or which may be tapered, if desired.

A further object of the invention is to provide a planing-machine having a revoluble work-bed of such construction as to gradually decrease the space between the work-bed and the cutter-head, and thus produce a tapered blank.

A further object of the invention is to provide improved work holding and guiding means which will support the work in proper position on both sides of the cutter.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation of a planing-machine constructed in accordance with the invention. Fig. 2 is a transverse sectional view of the

same on the line 2 2 of Fig. 1. Fig. 3 is an elevation looking from the side opposite that shown in Fig. 1. Fig. 4 is a plan view of one of the upper feed-rollers and its driving connections. Fig. 5 is an elevation of the adjustable carrying-block for the work-bed. Fig. 6 is a sectional plan view of the dove-tailed guide for said bearing-block.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the machine are supported on a suitable frame 10, the upper portion of which has bearings 11 for the reception of a transversely-disposed shaft 12, that carries at one end a cutter-head 13, which may carry cutters of a contour corresponding to the work to be performed. Near the center of the shaft is a flanged pulley 14, that is connected by a belt 15 to a large pulley 16, mounted in bearings at the lower portion of the rear end of the frame, the shaft of such pulley carrying a driven pulley 17, that receives motion through a belt 18 from any suitable source of power.

At one side of the frame, and preferably forming a part thereof, is a bar 19, having a vertically-disposed dovetailed groove 20, in which is mounted a bearing-block 21, that may be vertically adjusted by a screw 22 and when adjusted may be locked in position by set-screws 23. This bearing-block serves as a support for a shaft 24, on which is mounted a revoluble work-bed 25, the latter having a cam-shaped periphery on which the work rests, and as the work-bed is rotated by the work the space between the periphery of said work-bed and the cutter-head will be slowly decreased, so that the resultant blank will be tapered, and the angle between the opposite sides of the blank may be altered by the employment of work-beds of different contour, the machine being of such nature that a work-bed of one size and contour may be detached and another of different size and contour placed on the carrying-shaft 24. The revoluble work-bed is provided with a counterweight 27, so located that when free from contact with the work the bed will turn by gravity until it assumes an initial position, with the shoulder 28 of the cam-shaped periphery somewhat in advance of the cutter-

head, so that the new blank may first engage with that portion of the periphery of the head nearest the center of rotation.

At points near each end of the machine 5 are arranged transverse shafts 30 and 31, which are provided at one end with rocker-arms 32 and 33, respectively, and said rocker-arms carry work-supporting rollers 34 and 35, on which the work rests at points on opposite 10 sides of the revoluble bed. These rollers are designed to exert upward pressure on the blank, and for this purpose each of the shafts has an approximately horizontal arm 36, from which is hung a counterweight 37.

At suitable points in front and rear of the 15 cutter-head are work-feeding rollers 40 and 41, respectively; the forward roller 41 being mounted on a shaft 42, that is held in fixed bearings in the machine and is provided at 20 one end with a sprocket-wheel 43, over which passes a link-belt 44, receiving motion as hereinafter described.

The rear feeding-roller 40 is carried by a shaft 46, that is mounted at the outer ends 25 of a pair of arms 47, the latter being keyed or otherwise secured to a rock-shaft 48, that is journaled in bearing-blocks 49, carried by the frame, and said shaft has a depending rocker-arm 50, that is connected by a link 51 30 to the approximately vertical arm of a bell-crank lever 52, the horizontal arm of said lever receiving a weight 53, which acts to force the arms 47 and the feed-roller 40 down into engagement with the upper surface of the 35 work. In order to rotate this feed-roller, the end of the shaft 48 carries a sprocket-wheel 54, that is mounted loosely on the shaft and is secured to a gear 55, also loose on the shaft. The spur-gear 55 intermeshes 40 with a spur-gear 56, mounted on a counter-shaft 57, that is also supported in the bearings 49, and at the opposite end of the shaft 57 is a gear 58, which intermeshes through a train of loose gears 59 with a gear-wheel 60, 45 that is secured to the shaft 46 of the feed-roller 40.

In the lower portion of the frame are bearings for the reception of a transversely-disposed shaft 62, having at one end a sprocket- 50 wheel 63, over which the link-belt 44 passes, said belt passing in a triangular course over the sprocket-wheels 43, 54, and 63. The shaft 62 carries a belt-wheel 65, that is connected by a belt 66 to a small pulley 67 on a 55 counter-shaft 68 near the front of the frame, and the shaft 68 has a large belt-wheel 69, that is connected by a crossed belt 70 to a small pulley 71 on the main shaft of the machine.

Under normal conditions the belt 66 runs 60 loose and does not impart movement to the feed-roller; but when the device is to be operated the attendant pulls forward a lever 73, that is fulcrumed to a bracket 74 at the front 65 of the machine; and said bracket has a for-

wardly-extending arm 75, carrying a belt-tightening roller 76, which is forced into engagement with the belt 66 and tightens the same to an extent sufficient to enable the belt to transmit movement to the feeding devices. 70

Owing to the upward movement of the roller 34 and the downward movement of the roller 40, it is difficult to introduce work between these two rollers, and in order to spread the rollers when work is to be passed 75 between them a lever 80 is pivoted at the front of the machine and is connected by rods 81 and 82 to the lower carrier. The rear end of the rod 81 is provided with a slot 83, which engages a pin projecting from the 80 rocker-arm 50 of shaft 48, and the rear end of the rod 82 has a slot 85, which engages the pin projecting from a rocker-arm 86, that is secured to the shaft 31, so that while the effect of the counterweight may be temporarily 85 removed and the rollers spread the slots will permit free action of such rollers under ordinary conditions. The lever 80 is provided with a locking-pawl 90, which may engage a rack or quadrant 91 in order to hold the rolls 90 temporarily opened when desired.

In operation the lever 80 is pulled back, and thereby raising the roller 40 and lowering the roller 34 to an extent sufficient to allow the end of the blank to pass between them 95 without coming into contact with such rollers. The blank is then placed between the rollers 35 and 41 and, resting on the revoluble bed 25, the upward pressure exerted by the roller 35 will cause the blank to be pressed up 100 against the roller 41 and down on the revoluble bed 25, which will be turned as the blank moves forward, and when the forward end of the blank has advanced to a position between the rollers 34 and 40 the lever 80 is re- 105 leased, allowing such rollers to engage with the blank, whereupon the blank will be drawn out through the machine, the cutter-head planing the blank to a shape determined by the contour of the revoluble bed. 110 After the blank has passed through the machine the bed-plate returns to its initial position under the influence of the counterweight 27.

I claim— 115

1. In a planing-machine, the combination with a frame, of a revoluble cutter-head, and a revolubly-mounted non-circular work-bed receiving movement from the work, said work-bed being counterweighted and free to 120 return to an initial predetermined position by gravity after each operation.

2. In a planing-machine, the combination with a frame, of a revoluble cutter-head, a revoluble work-bed having a cam-shaped pe- 125 riphery, the work-bed receiving movement from the work, and means for restoring the work-bed to an initial predetermined position after the passage of the work.

3. In a planing-machine; the combination 130

with a frame, of a revoluble non-circular work-bed, a revoluble cutter-head, a work-feeding roller, mounted in fixed bearings in advance of the cutter-head, a yieldably-mounted work-supporting roller in advance of the work-bed, and yieldably-mounted work feeding and supporting rollers arranged beyond or to the rear of the cutter-head and work-bed.

4. In a planing-machine, the combination with a frame, of a revoluble cutter-head, a revoluble non-circular work-bed, a work-supporting roller, a rocker-arm carrying said roller, a shaft carrying said rocker-arm, a weighted rocker-arm on the shaft and acting to force the work-supporting roller upward against the work, and a work-feeding roller arranged in a vertical plane between the work-bed and the supporting-roller.

5. In a planing-machine, the combination with a frame, of a revoluble cutter-head, a revoluble work-support, a pair of yieldably-mounted work-supporting rollers tending to elevate the work from the bed, and a pair of feeding-rollers engaging the upper surface of the work, one of said feeding-rollers being yieldably mounted.

6. In a planing-machine, a frame, a revoluble cutter-head, a revoluble non-circular work-bed, a pair of yieldably-mounted work-supporting rollers arranged one in advance and the other in the rear of the work-bed, and a pair of work-feeding rollers, the rollers being arranged in different vertical planes, respectively.

7. In a planing-machine, a frame, a revoluble cutter-head, a revoluble work-bed, a pair of yieldably-mounted rollers arranged to the rear of the work-bed, and adapted to engage the opposite faces of the work, respectively, and means for holding said rollers in spaced relation for the introduction of the work.

8. In a planing-machine, the combination with a frame, of a revoluble cutter-head, a revoluble work-bed, a pair of yieldably-mounted work-engaging rollers arranged to engage the opposite sides of the work, weighted arms connected to the roller-mountings and tending to force said rollers against the work, and means for spreading said rollers to permit the entrance of the work between them.

9. In a planing-machine, a frame, a revoluble cutter-head, a revoluble work-bed, a work-supporting roller, and a work-feeding roller disposed in different vertical planes, respectively, rocking frames carrying said rollers, rocker-shafts carrying said frames, weighted arms connected to the rock-shafts, an adjusting-lever, and rods extending therefrom and operatively connected to such rock-shaft to permit spreading of the rollers.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL L. CROWE.

Witnesses:

HENRY WERNING,
CHARLES SAUER.