

No. 645,554.

Patented Mar. 20, 1900.

F. DIEHL.  
PLANER ATTACHMENT.  
(Application filed Oct. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

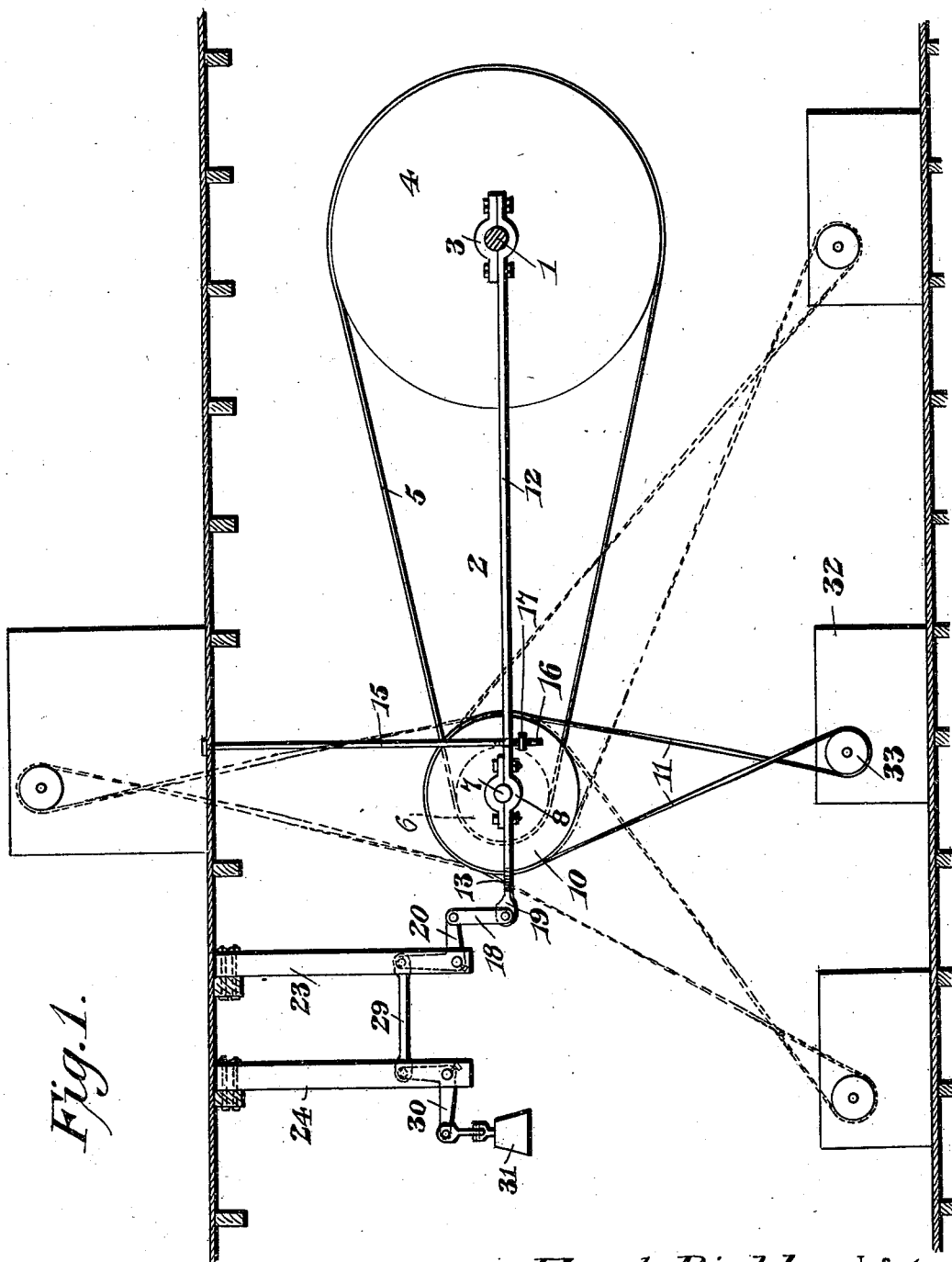


Fig. 1.

Witnesses

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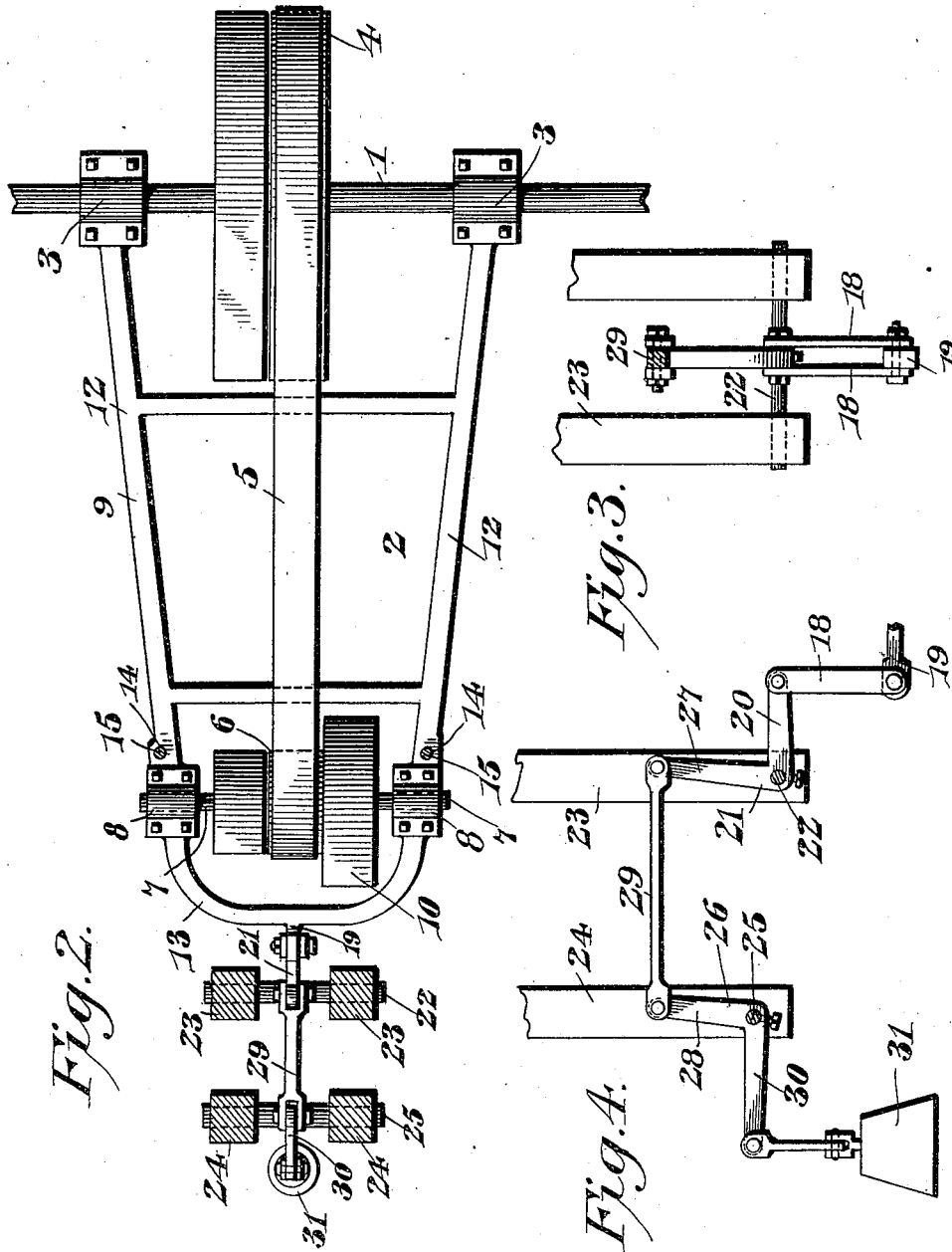
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

FRANK DIEHL, OF SHEBOYGAN, WISCONSIN.

## PLANER ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 645,554, dated March 20, 1900.

Application filed October 10, 1899. Serial No. 733,179. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK DIEHL, a citizen of the United States, residing at Sheboygan, in the county of Sheboygan and State of Wisconsin, have invented a new and useful Planer Attachment, of which the following is a specification.

This invention relates to planer-jacks; and the object of the same is to provide means of an efficient and compact form for transmitting driving motion to one of the heads of what are known as "double-headed" planers and automatically control the tension of the transmitting-belt by mounting the jack in pivotal relation to a line-shaft and attaching it to the extremity opposite the attached end thereof, controlling mechanism including a counterpoise, the device being adapted for use with one or more planers below the same or above the level thereof.

Other objects and advantages will appear in the subjoined disclosure of the structural features of the invention and the novelty will be hereinafter claimed, a preferred embodiment of the invention being illustrated in the accompanying drawings, wherein—

Figure 1 is a diagrammatic view in sectional elevation illustrating a number of planers at different elevations and the improved jack in side elevation. Fig. 2 is a top plan view of the improved jack, showing hangers for a part thereof in section. Fig. 3 is a transverse vertical section through the controlling mechanism. Fig. 4 is a longitudinal section through the controlling mechanism.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a line-shaft, to which the jack 2 is movably fastened by boxes 3. The jack hangs horizontally in a plane at right angles to the said line-shaft 1 and is automatically adjustable above and below said plane and controlled by mechanism which will be presently described. On the line-shaft, between the boxes 3, is a driving-pulley 4, adapted to be traversed by a belt 5, which runs to a receiving-pulley 6, fixed on a jack-shaft 7, mounted in boxes 8 on the outer extremity of the jack-frame 9. The motion of the shaft 7 is transmitted to different points by means of one or more pulleys 10, traversed by suitable

belts, as 11, which are crossed to obtain the proper direction of rotation, and although only one pulley 10 is shown on the shaft 7 it is obvious that a number could be used or a compound pulley capable of receiving a number of belts might also be employed. These are mechanical substitutions well understood in the art of pulleys and shafting and have not been specifically disclosed in the drawings for this reason.

The jack-frame 9 comprises opposite side bars 12, having their rear extremities connected to the boxes 3 and at the front are made continuous by means of a yoke 13. The side bars 12 preferably converge from the box 3 toward the yoke 13, and adjacent the box 8 vertical openings 14 are formed in the said side bars 12 to receive oppositely-disposed safety-rods 15, which are hung from the flooring above or any other suitable support and have their lower extremities threaded to receive nuts 17. The openings 14 are large enough to permit the rods to have play or to allow the jack-frame to elevate or be depressed without binding, and an adjustment can be acquired by moving the nuts 17 on the screw-threaded extremities 16, as will be readily apparent. The purpose of these safety-rods is to prevent the jack from falling in the event of disconnection of the boxes 3 or breakage of the frame, and thus avoid serious consequences to workmen below should such severance take place.

To the central part of the yoke 13 a pair of links 18 are pivotally connected and at their points of attachment embrace a lug 19. The upper ends of the links are movably secured to the arm 20 of a bell-crank lever 21, which is fulcrumed on a rock-shaft 22, journaled at opposite extremities in the lower portions of a pair of hangers 23, also depending from the floor above and adjacent which are another pair of hangers 24 to provide a bearing for a second rock-shaft 25 in their lower extremities, on which is fixed a bell-crank lever 26. The arm 20 of the bell-crank lever 21, to which the links 18 are connected, extends in the direction of the jack, and the arm 27 of said bell-crank lever is connected to the upper arm 28 of the bell-crank lever 26 by a connecting-rod 29. To the other arm 30 of the bell-crank lever 26 a counterpoise-weight 31

is attached and by original arrangement and intention exerts sufficient stress on the controlling mechanism of which it forms a part to hold the jack at a predetermined point and create the necessary tension on the belts employed to transmit motion from the jack-shaft 7. The arm 20, to which the links 18 are connected, is the shorter arm of the bell-crank lever 21, and the arm 28 of the bell-crank lever 26 is its shorter arm. It is therefore apparent that the arm 27 of the bell-crank lever 21 being longer than the arm 28 of the bell-crank lever 26 it is necessary to locate the shaft 22 in a plane below that of the shaft 25 in order to have the connecting-rod 29 work in a horizontal plane, which is essential in view of the fact that the reverse arrangement of the bell-crank lever increases the sensitiveness of the controlling mechanism and establishes a compensatory combination of elements that will conjointly work in a practical manner to attain the desired result.

From an observation of the showing in Fig. 1 it will be seen that the planers can be belted either up or down or at any angle desired. When upper planers are belted to the jack, the counterpoise or weight 31 must be lighter than when the jack is belted to a planer beneath the same, and it is obvious that the belts will be run through the flooring when the planers are above the jack, and such other appliances as may be necessary will be used and of a form well known in the art to assist in the direction of the belts. Referring now more particularly to the under planer, (designated 32,) it will be observed that the belt 11 runs downwardly to the planer-cylinder 33, and in some instances it will be preferred to have the said cylinder directly under the jack, as in the particular one of the planers which has been referred to. In all the arrangements the jack works automatically through the medium of the counterpoise or weight 31, and, again referring to the planer 32, when the planer-bed is lowered the jack swings downwardly with the strain of the belt 11 at an angle to the said planer and a distance corresponding with the adjustment of the bed. This downward movement of the jack is exerted against the resistance of the counterpoise or weight 31, and when the planer-bed is raised to its highest point the said counterpoise or weight raises the jack. The other planers shown below the jack on opposite sides of the planer 32 will also produce a similar movement of the jack when their beds are raised or lowered, as well as the planer shown overhead or above the jack, wherein, for instance, the planer-cylinder is up, and the adjustment of the bed in a similar direction will raise the jack against the resistance of the weight 31, and a depression of the bed of this

planer will allow the jack to return to its normal horizontal position. This same adjustable characteristic of the jack is followed out uniformly in the several arrangements of the planers, and the weight 31 is varied to suit different arrangements, and particularly in connection with the overhead planer, as before indicated.

Having thus described the invention, what is claimed as new is—

1. The combination with a power-shaft, of an automatically-adjustable jack mounted thereon and disposed in a normal horizontal position, said jack including in its organization a shaft at its extremity farthest from the power-shaft and having motion transmitted thereto from the said power-shaft, and adapted to be taken therefrom to other mechanism, and weight-controlled levers movably connected to the extremity of the jack having the motion-receiving shaft therein.

2. The combination with a line-shaft having a driving-pulley thereon, of a horizontally-disposed jack movably attached to the said shaft and supporting a shaft with power receiving and conveying pulleys in connection therewith, the power-receiving pulleys having motion imparted thereto from the driving-pulley on the line-shaft, a counterpoise mechanism connected to the extremity of the jack opposite that attached to the line-shaft and suspending devices adjustably attached to the extremity of the jack to which the counterpoise mechanism is connected.

3. The combination with a shaft, of a jack having one extremity movably connected thereto and supported in a horizontal plane and having mechanism to receive and transmit driving power, and suspending-rods engaging the extremity of the jack farthest from said shaft.

4. The combination with a power-shaft having a driving-pulley thereon, of a jack movably connected to the said shaft and including in its organization a shaft at its freely-adjustable end having thereon power receiving and transmitting pulleys and operated by the said power-shaft, controlling mechanism comprising rock-shafts each having a lever thereon, the shafts and levers being mounted independently of the jack, means for connecting one of said levers with the jack, a counterpoise attached to the opposite lever, and means for connecting the levers to each other.

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

FRANK DIEHL.

Witnesses:

R. B. MELVIN,  
J. H. NICKEL.