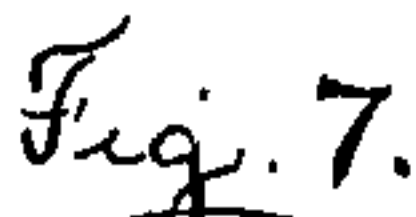
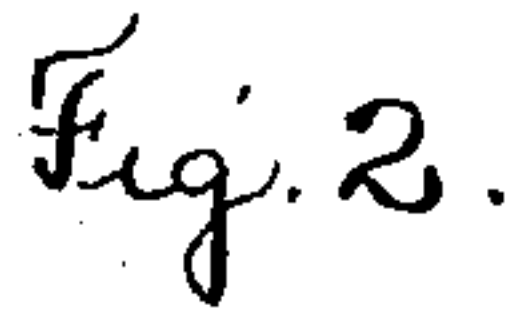
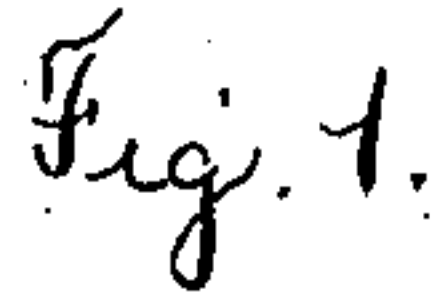


2 Sheets—Sheet 1.

# DRIVING MECHANISM FOR PLANING MACHINES.

Patented Feb. 15, 1898.



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(No Model.)

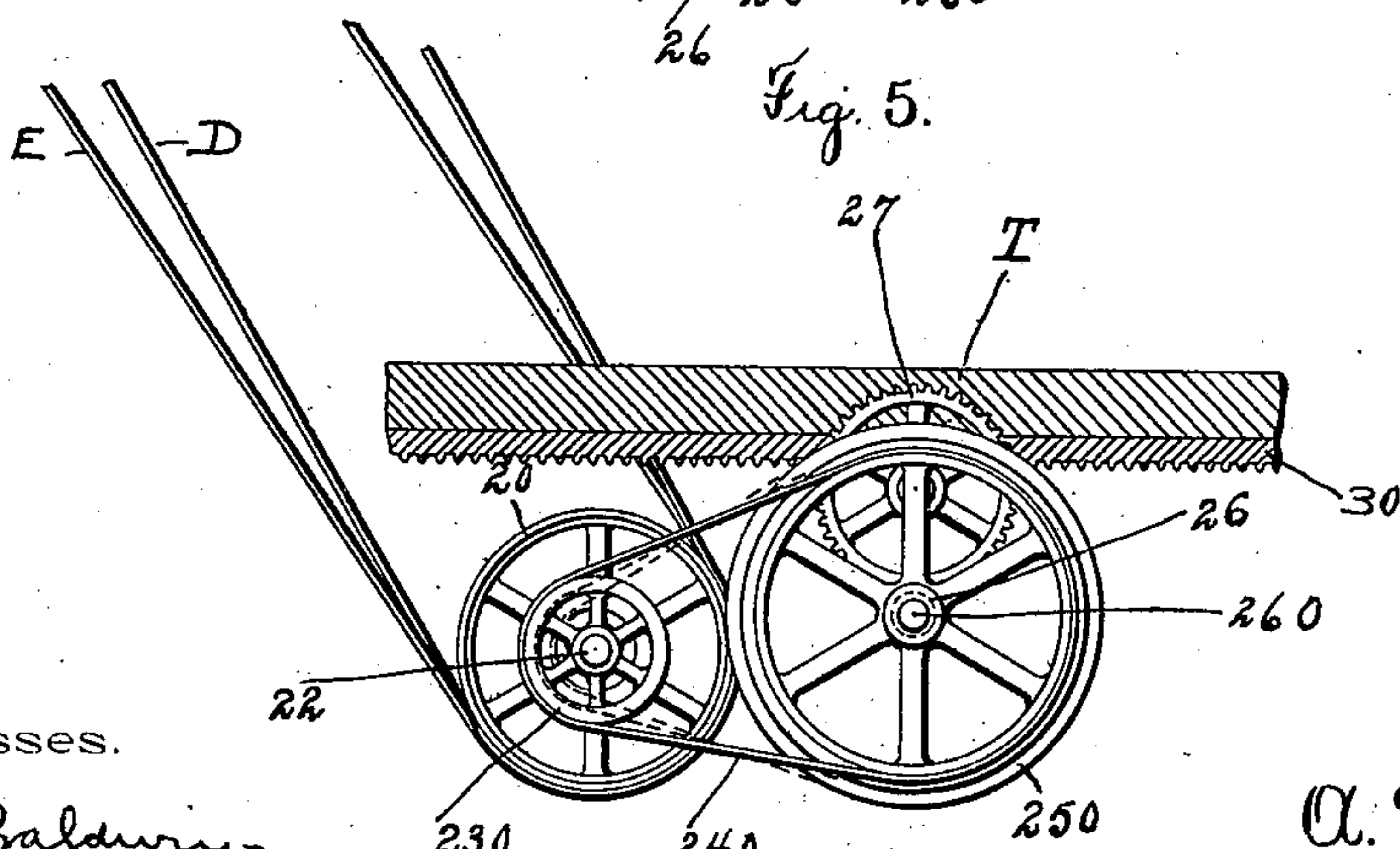
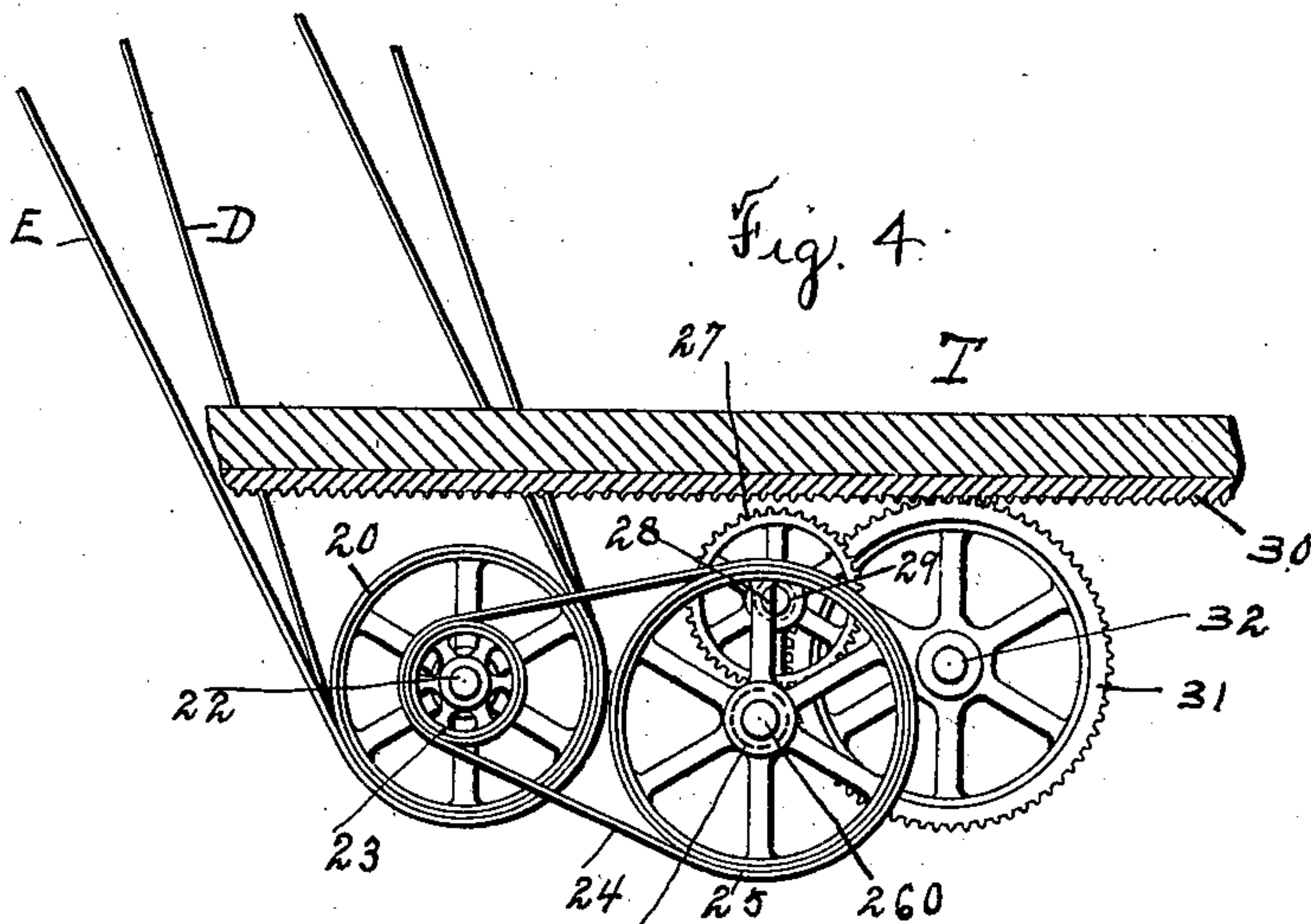
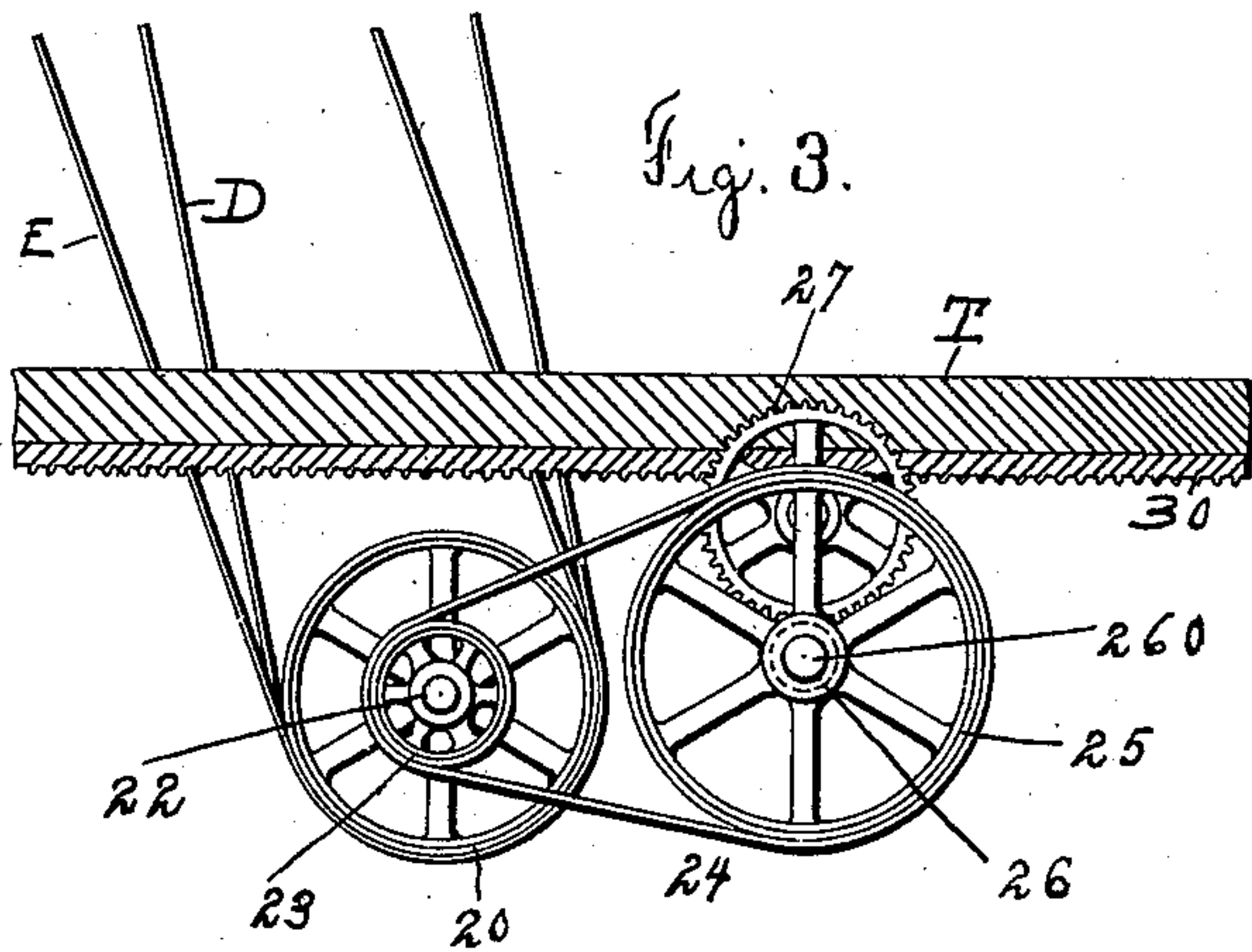
2 Sheets—Sheet 2.

A. WHITCOMB.

DRIVING MECHANISM FOR PLANING MACHINES.

No. 598,967.

Patented Feb. 15, 1898.



Witnesses.

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E. M. Healy.

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# UNITED STATES PATENT OFFICE.

ALONZO WHITCOMB, OF WORCESTER, MASSACHUSETTS.

## DRIVING MECHANISM FOR PLANING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 598,967, dated February 15, 1898.

Application filed March 16, 1897. Serial No. 627,831. (No model.)

*To all whom it may concern:*

Be it known that I, ALONZO WHITCOMB, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Driving Mechanism for Planing-Machines, of which the following is a specification.

The object of my invention is to provide an improved driving mechanism for planers which shall be effective and of few parts.

To this end my invention consists in providing a driving mechanism which consists of the ordinary driver-shaft, on which are mounted tight and loose pulleys, with which a belt-shifting mechanism coöperates, so that said shaft is driven alternately in opposite directions, in the usual manner, with a pulley, which connects by a belt to a driven pulley, from which latter pulley gearing is arranged to operate the planer-table.

By making the belt connection preferably a reducing connection—that is, the pulley on the driver-shaft smaller than the driven pulley—a mechanism is provided which is very efficient, as the same is arranged between the tight and loose pulleys and the planer-table.

It is necessary in the present practice to drive the belts from the counter-shaft at high speed in order to get enough power, and it is the usual practice to put a pinion or gear directly on the driver-shaft. This pinion, turning at high speed, is apt to become quickly worn out, and so the usual mechanism, which consists of rigid gearing between the driver-shaft and the planer-table, affords no yield when the driving-belts are reversed. This causes the driving-belts to slip on the tight pulley and to make a great deal of noise. The reverse of the table under these conditions is also accompanied with a great deal of jar and vibration. Both of these last-named evils are obviated by my improvement.

I preferably place the belt between the pulley on the driver-shaft and the driven pulley on the opposite side of the planer-bed from the tight and loose pulleys, so that the same will be out of the way of the operator. In some instances I make the pulley on the driver-shaft and the driven pulley in the form of step-cone pulleys, so that the planer-table can be adjusted to run at various speeds with-

out affecting the driving-belts, the counter-shaft, or the belt-shifting mechanism—a very desirable point. Further, in some instances I provide a belt-driving mechanism.

The best form of machine now known to me for carrying out the principle of my invention is illustrated in the accompanying two sheets of drawings, in which—

Figure 1 is a side elevation of a planer constructed according to my invention. Fig. 2 is a plan of the bed with the table and uprights removed. Fig. 3 is a diagrammatic view of the driving mechanism. Figs. 4 and 5 are views similar to Fig. 3, illustrating slight modifications. Fig. 6 is a plan view of the pulleys used in the mechanism shown in Fig. 5, and Fig. 7 is a view of a belt-driving mechanism which I sometimes use.

Referring now to the drawings for a specific description of my invention, B represents the usual planer-bed, which has the usual shears S S. T represents the usual table, which is fitted so as to be capable of reciprocation on the shears S S. U U represent the usual uprights, which are bolted to the sides of the bed B. C designates the usual cross-rail, which is fitted on the uprights U and which carry the usual tool-heads A. These parts are of the ordinary construction.

10 and 11 designate dogs which are adjustably secured to one side of the table T and which are arranged to engage a roller 12, mounted on a rocker 13, which has an extending arm 14, which latter connects by link 15 to a shipper-rod 16, which is fitted to slide in the bed B, and which shipper-rod carries the usual belt-shippers 17 and 18. D and E designate the driving-belts, one of which is crossed, which are driven from the counter-shaft in the usual manner. 19 and 20 designate two loose pulleys, and 21 a tight pulley, arranged on a shaft 22, which is journaled in the bed B, which shaft I call the “driver-shaft.” These parts are so arranged that as the machine is operated the dogs 10 and 11 will engage the rocker and its various connections to ship either the open belt E from the loose pulley 19 onto the tight pulley 21 or the cross-belt D from the loose pulley 20 onto the tight pulley 21, throwing the belt which had previously been used off, so that the planer-table will be reciprocated. The shaft 22 is



carried out through the bed B on the back side of the planer, as shown, and has thereon a small pulley 23.

25 designates a large pulley which is journaled on a stud or shaft 260. This pulley 25 is driven by belt 24 from the pulley 23. Also turning with the pulley 25 is a pinion 26, which engages with gear 27, secured on the end of shaft 28, which is journaled in the bed B. Mounted on the middle of the shaft 28 is a pinion 29, which engages a rack 30, secured to the under side of the table T. By these connections the table T will be reciprocated.

The belt 24, arranged between the pulleys 23 and 25, I have found to be an admirable device for transmitting power from the driver-shaft 22 to the gearing which operates the table, as the same provides a slight yield to the parts when the table is reversed, and as the pinion 26 can run at a slower speed than the driver-shaft 22 the same will not so quickly wear out as if the first pinion were placed on the driver-shaft.

In Fig. 4 I have shown a large gear 31, mounted upon a shaft 32, which large gear engages the rack 30 and into which large gear the pinion 29 engages instead of engaging the rack 30. This is the preferred form of construction in some styles of planers.

In Fig. 5 I have shown in lieu of the pulleys 23 and 25 step-cone pulleys 230 and 250 and a belt 240, arranged between said step-cone pulleys, so as to be adjusted up or down to drive the pinion 26 at different speeds. This forms a very desirable mechanism, because, as previously stated, the speed at which the planer-table T is reciprocated can be adjusted and varied without changing the speed of the counter-shaft, the driver-shaft, or the operation of the belt-shifting mechanism.

I contemplate using with either belt 24 or 240 in some cases a belt-tightening device. A desirable form of this device is shown in Fig. 7, in which loose pulleys 51 and 54 are journaled on studs 52 and 53, one or both of said studs being mounted in adjustable frames, as frame 55, which is adjustably held to the planer-bed by bolt 56. This mechanism gives a tight wrap to the belt around the pulleys and provides a simple means by which the tension of the belt can be adjusted.

It is advantageous to arrange the intermediate belt 24 or 240 on the side of the planer shown, as the same is there out of the way of the operator, who usually stands on the other side of the machine.

The device herein shown and described can be varied without departing from the scope of my invention as expressed in the claims. Having thus fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. The combination in a planer-driving mechanism of the driver-shaft having tight and loose pulleys, a belt-shifting mechanism cooperating therewith, a pulley mounted on said driver-shaft, a driven pulley, a belt arranged between said pulleys, and gearing from said driven pulley for operating the planer-table, substantially as described.

2. The combination in a planer-driving mechanism of a driver-shaft extending transversely with respect to the planer-bed, tight and loose pulleys arranged on said driver-shaft at one side of the planer-bed, belt-shifting mechanism cooperating therewith, a pulley secured on said driver-shaft at the opposite or rear side of said planer-bed, a driven pulley, a belt arranged between said pulleys, and gearing from said driven pulley for operating the planer-table, substantially as described.

3. The combination in a planer of the bed B, the table T having a rack, the driver-shaft 22 arranged transversely with respect to the bed B, tight and loose pulleys carried by said driver-shaft at one side of the planer-bed, a pulley 23 mounted on said driver-shaft at the other side of the planer-bed, a driven pulley 25, a belt 24 arranged between the pulleys 23 and 25, a pinion 26 turning with said driven pulley 25, a gear 27 engaging said pinion 26, and a pinion 29 turning with said gear 27 and engaging the rack on the table T, substantially as described.

4. The combination in a planer-driving mechanism of the driver-shaft having tight and loose pulleys, belt-shifting mechanism cooperating therewith, a step-cone pulley mounted on said driver-shaft, a driven step-cone pulley, a belt arranged between said step-cone pulleys, and gearing from said driven step-cone pulley for operating the planer-table, substantially as described.

5. The combination in a planer-driving mechanism of the driver-shaft having tight and loose pulleys, belt-shifting mechanism cooperating therewith, a pulley mounted on said driver-shaft, a driven pulley, a belt arranged between said pulleys, gearing from said driven pulley for operating the planer-bed, and a device for adjusting the tension of said belt, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALONZO WHITCOMB.

Witnesses:

LOUIS W. SOUTHGATE,  
PHILIP W. SOUTHGATE.