No. 782,103. PATENTED FEB. 7, 1905.

W. L. BRUNER.

WELL DRILLING MACHINE.

APPLICATION FILED JAN. 27, 1904.

2 SHEETS—SHEET 1.

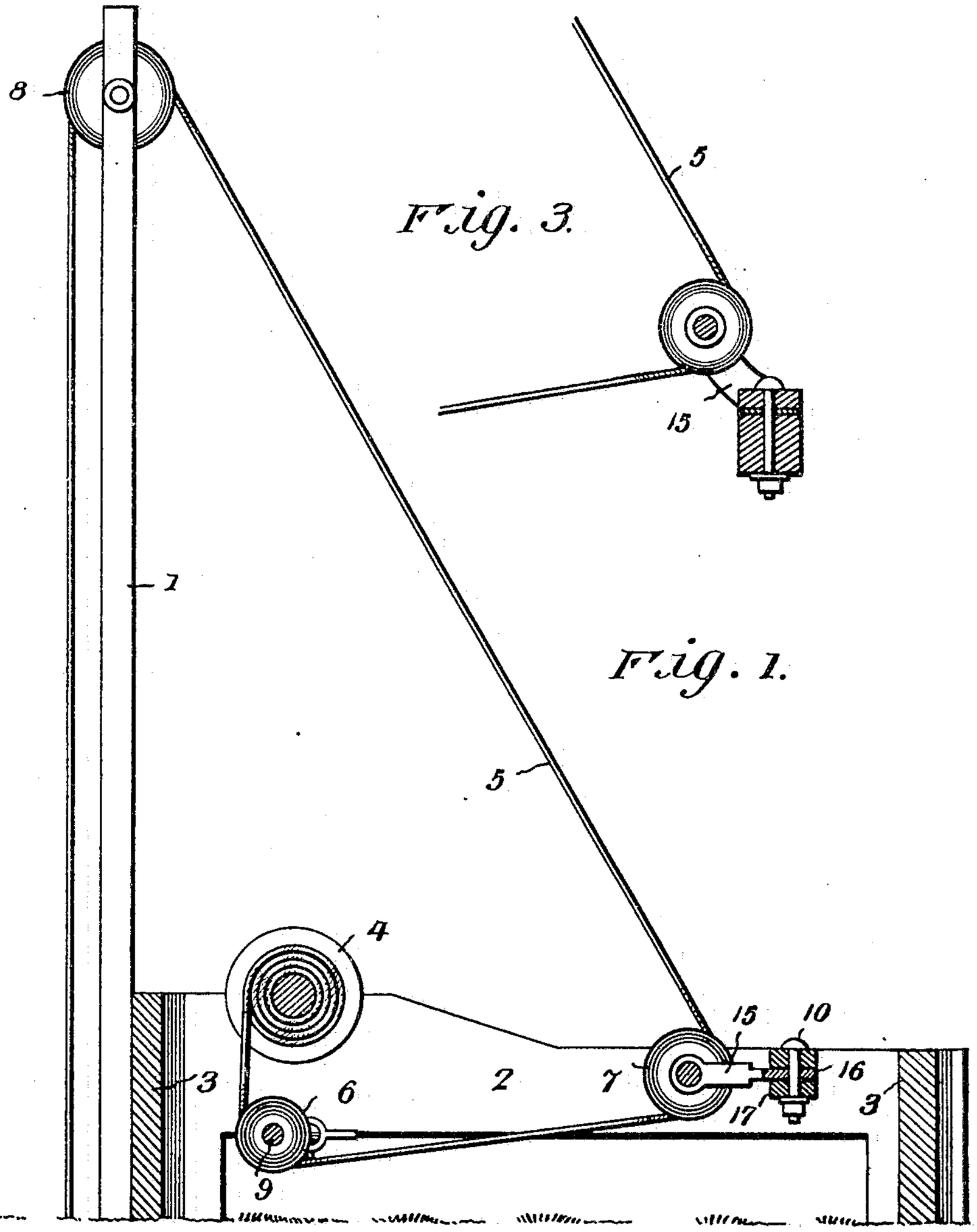

Fig. 3.

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

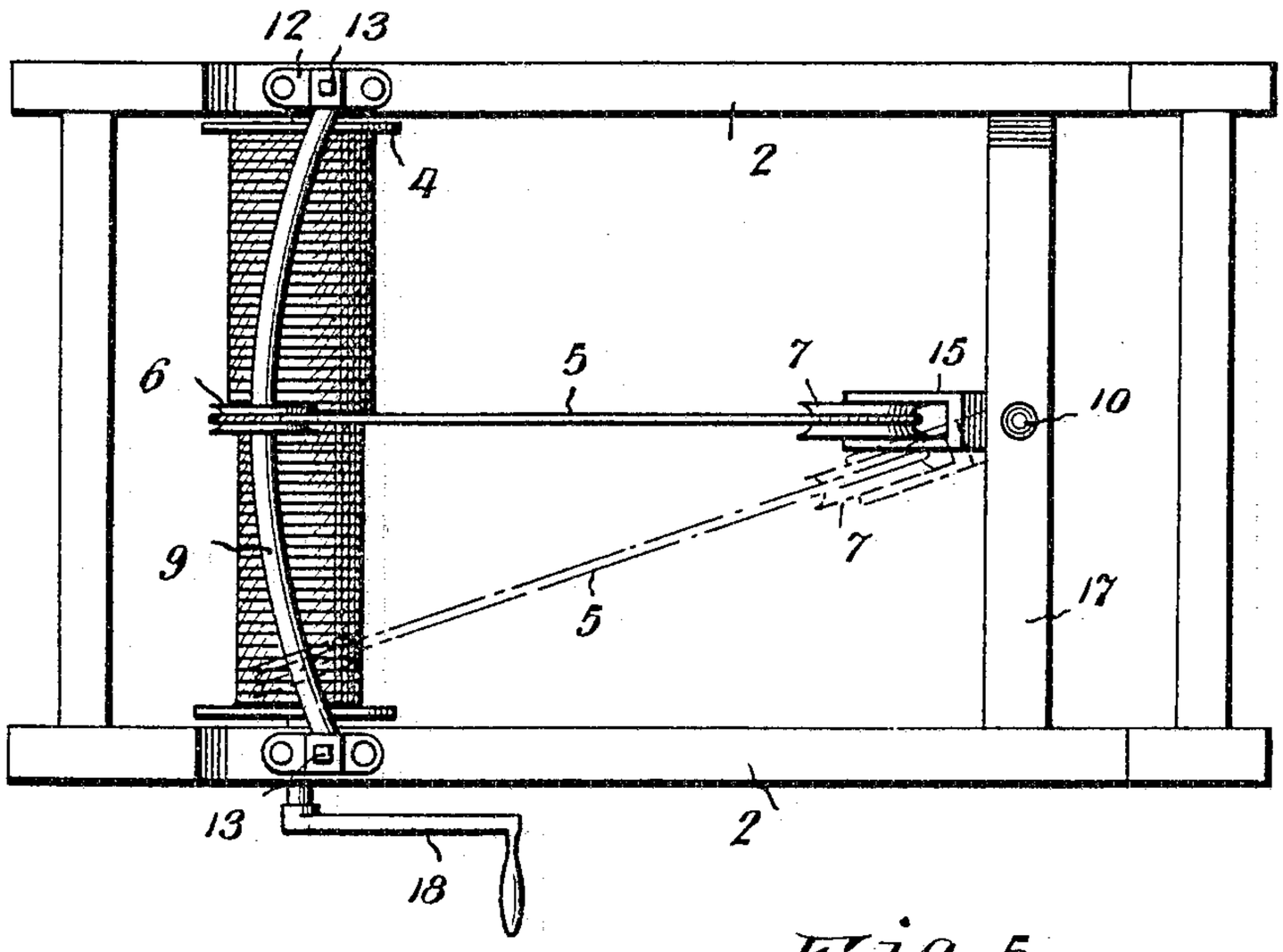


Fig. 5.

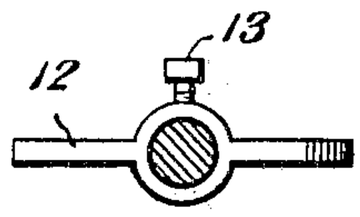
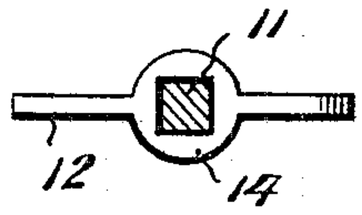


Fig. 4.

Fig. 6.



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No. 782,103. Patented February 7, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM LESLIE BRUNER, OF SHELTON, NEBRASKA.

WELL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 782,103, dated February 7, 1905.

Application filed January 27, 1904. Serial No. 190,854.

To all whom it may concern:

Be it known that I, WILLIAM LESLIE BRUNER, a citizen of the United States, residing at Shelton, in the county of Buffalo and State of Nebraska, have invented new and useful Improvements in Well-Drilling Machines, of which the following is a specification.

This invention relates to well-drilling machines, the object being to provide special means whereby the drill-rope is adapted to work with greater ease and certainty and to be wound properly upon a real or windlass and unwound therefrom, the invention having reference particularly to the guiding sheaves or pulleys whereby the latter are kept in proper alinement and working relation to the drill-rope.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a sectional elevation of a well-drilling machine constructed in accordance with the present invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a detail sectional elevation showing a modified form of bracket for the swing-pulley. Fig. 4 is a plan view of a portion of the traveler rod or shaft. Figs. 5 and 6 illustrate different forms of brackets or holders for the traveler rod or shaft.

Like reference-numerals designate corresponding parts in all the figures of the drawings.

Referring to the drawings, it will be seen that the machine comprises an upright or derrick 1, the lower end of which is connected with and supported by a base-frame comprising the longitudinal timbers or side bars 2 and the end pieces or cross-bars 3. Mounted in suitable bearings on the base-frame is a windlass 4 upon which the drill-rope 5 is wound. The drill-rope after passing off the windlass 4 passes around a traveler-sheave 6, arranged just beneath the windlass, and thence outward toward and around a swing-pulley 7, thence upward and over an upper guide-pulley 8, mounted in suitable bearings at the upper end of the derrick or upright 1. The machine thus constructed is in practice arranged close to the well to be driven, so that the tools and pipe-sections may be attached to and controlled by the downwardly-extending terminal portion of the drill-rope in a manner that will be readily understood by those familiar with the art to which this invention appertains.

In carrying out the present invention the traveler sheave or pulley 6 is mounted on a traveler-rod 9, which, as shown in Figs. 2 and 4, is curved on the arc of a true circle of which the pivot 10 of the swing-pulley 7 is the center. The traveler-shaft 9 extends horizontally across the base-frame and has its extremities 11 secured in a pair of shaft brackets or holders 12, which are securely fastened to the side bars of the base-frame, while the shaft 9 is held stationary or prevented from rotating or turning in its bearings in the holders 12 either by means of set-screws 13 or by providing said holders with squared openings 14 to receive the correspondingly-squared extremities of the traveler-shaft, as indicated in Fig. 6.

The traveler sheave or pulley 6 is adapted to move freely lengthwise on the traveler shaft or rod 9 as the drill-rope 5 is wound upon or unwound from the windlass 4, as will be apparent from Fig. 2, and it will be observed by reason of the relation existing between the traveler sheave and shaft and the swing-pulley 7 that the said pulleys and the drill-rope will always be kept in perfect alinement with each other, no matter what the position of the traveler-sheave may be.

The swing-pulley 7 is mounted in a swinging bracket 15, the shank 16 of which is connected, by means of a bolt or pivot 10, with a cross-bar 17, extending between the side timbers 2 of the base-frame. Now as the traveler-shaft 9 is curved on the arc of a circle of which the pivot 10 is the center the peripheries of the pulleys 6 and 7 are always maintained in alinement with said pivot, which enables the drill-rope to run perfectly upon and around said pulleys as it is wound upon or unwound from the sheave. 18 designates a crank-handle for operating the windlass, although any other desired means may be employed, either hand or motive power.

Instead of providing the bracket 15 with a straight shank 16, as shown in Fig. 1, the bracket may be curved upwardly and inwardly, as shown in Fig. 3, the essential feature of the invention residing in curving the traveler rod or shaft 9 on the arc of a circle of which the pivot of the swing-pulley is the center.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

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

In a well-drilling machine the combination of a frame having side and cross bars, a windlass journaled in the side bars, a swing-pulley having a shank, a pivot-pin connecting the shank with one of the cross-bars, brackets on the side bars, a traveler-rod held immovably in the brackets, said rod being bent on the arc of a circle with the pivot-pin as its center, a sheave longitudinally movable on the traveler-rod, and a flexible element passing around the windlass, sheave and swing-pulley, whereby the peripheries of the sheave and swing-pulley are maintained constantly in alinement with the pivot-pin.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM LESLIE BRUNER.

Witnesses:

MARION R. LUX,

JESSE BRUNER.