(No Model.)

3 Sheets—Sheet 1.

C. SPINDLER.

TREADLE MOTION FOR ROTARY SHAFTS.

No. 501,902. Patented July 18, 1893.

Fig: 1.

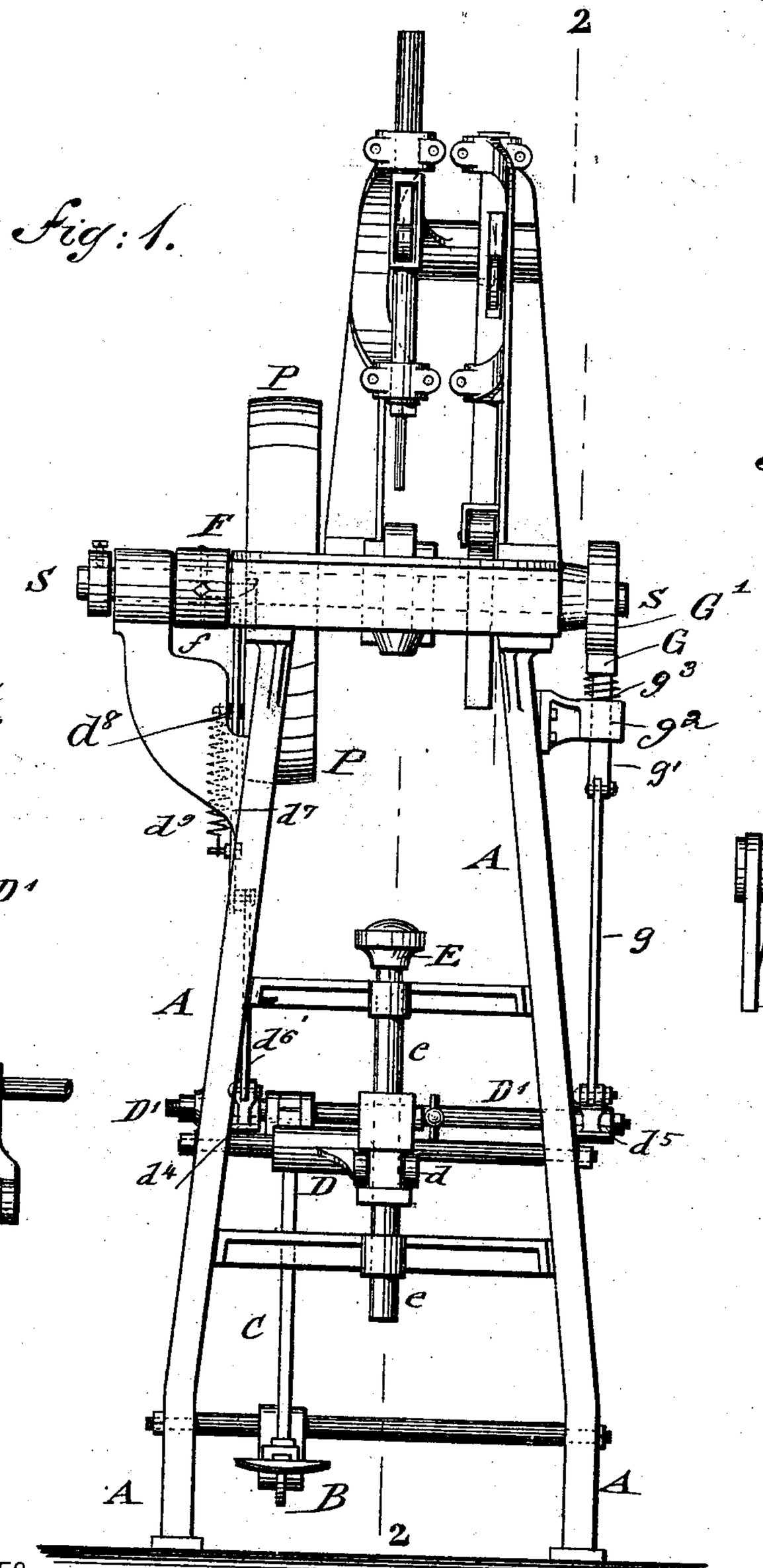


Fig: 10.

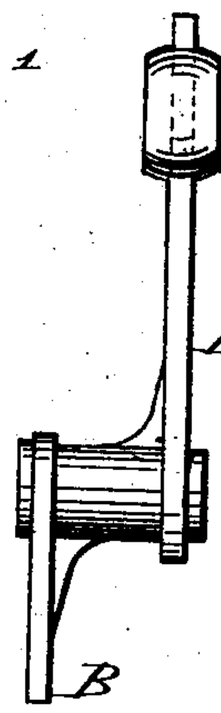
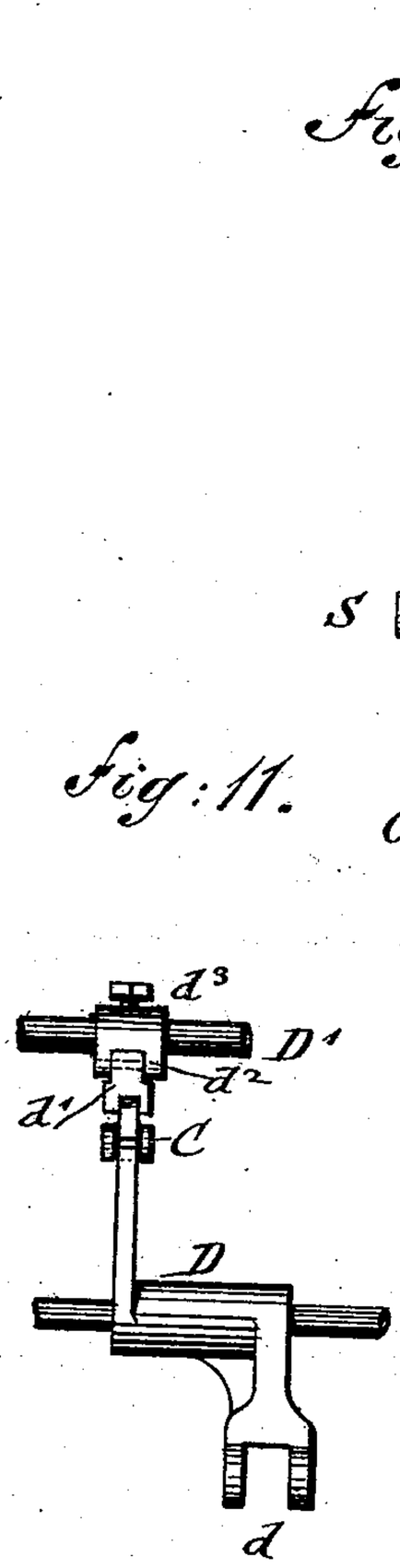


Fig: 11.



WITNESSES:

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Marion Hall

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(No Model.)

3 Sheets—Sheet 2.

C. SPINDLER.

TREADLE MOTION FOR ROTARY SHAFTS.

No. 501,902. Patented July 18, 1893.

Fig: 2.

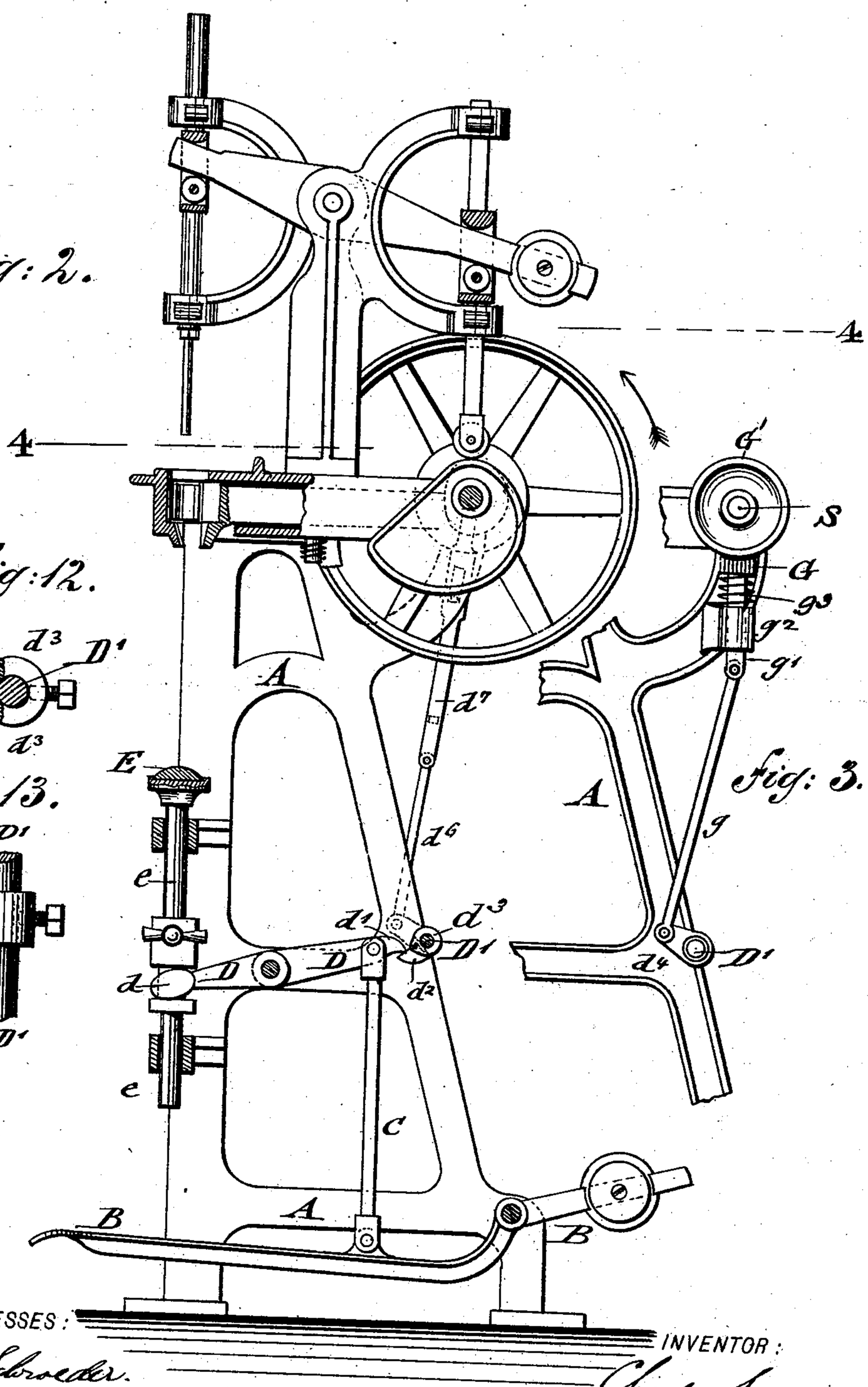
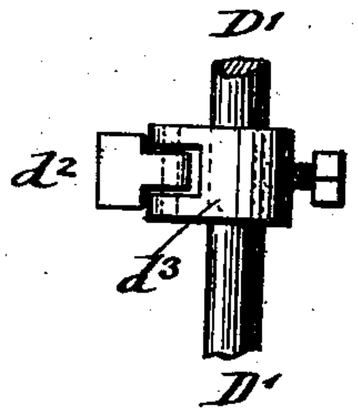


Fig: 3.

Fig: 12.

Fig: 13.



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(No Model.) 3 Sheets—Sheet 3.

C. SPINDLER.

TREADLE MOTION FOR ROTARY SHAFTS.

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Fig: 4.

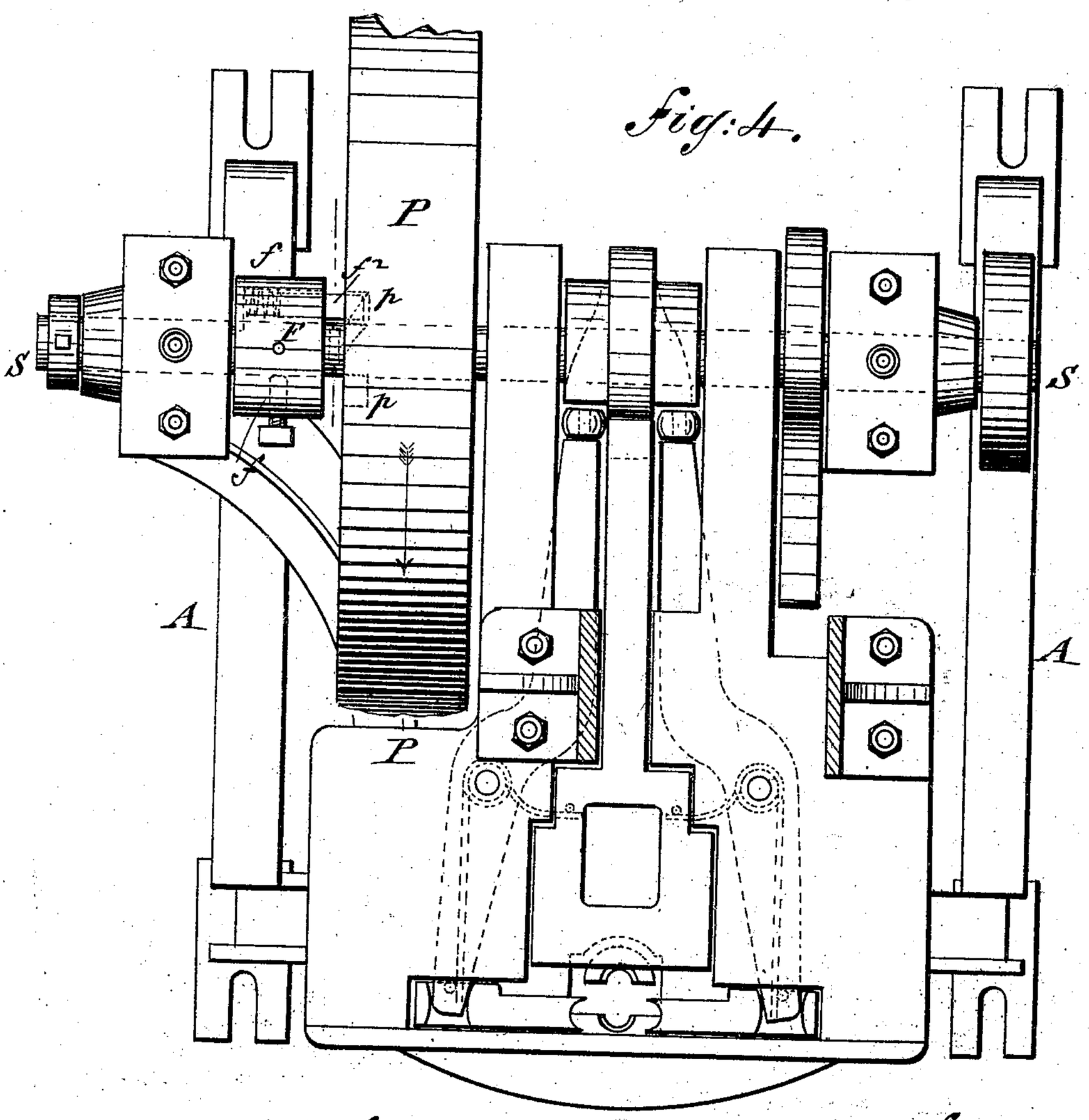

Fig: 7.

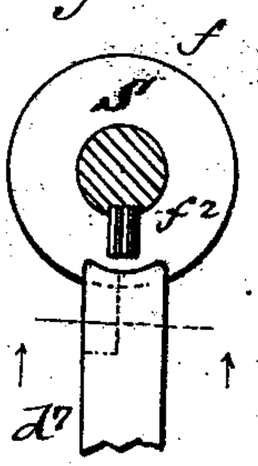

Fig: 5.

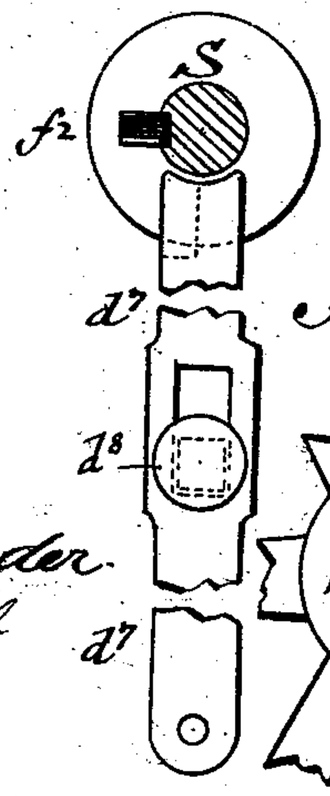

Fig: 6.

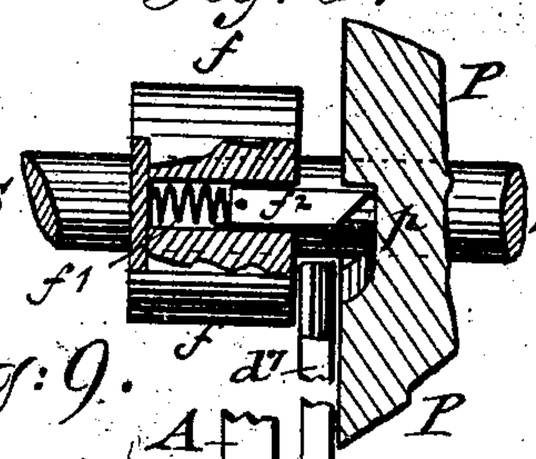

Fig: 8.

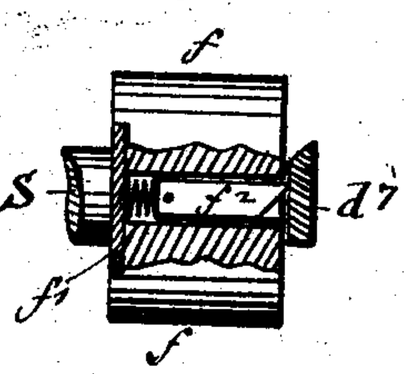

Fig: 9.

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UNITED STATES PATENT OFFICE.

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TREADLE-MOTION FOR ROTARY SHAFTS.

SPECIFICATION forming part of Letters Patent No. 501,902, dated July 18, 1893.

Application filed July 7, 1892. Serial No. 439,265. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SPINDLER, a subject of the Emperor of Germany, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Treadle-Motions for Rotary Shafts, of which the following is a specification.

This invention relates to an improved treadle-motion for rotary shafts, which motion is applicable to bottle-corking machines, drop-presses, and other machinery in which intermittent rotary motion is to be transmitted into vertically-reciprocating motion; and the invention consists of a treadle-motion for rotary shafts, which will be fully described hereinafter and the novel features pointed out in the claims.

In the accompanying drawings, Figure 1 represents a front-elevation of my improved treadle-motion, shown as applied to a bottle-corking machine. Fig. 2 is a vertical longitudinal section on line 2 2, Fig. 1. Fig. 3 is a detail side-elevation of the brake-device, shown as applied to the shaft. Fig. 4 is a plan-view, drawn on a larger scale and partly in horizontal section on line 4 4, Fig. 2. Figs. 5, 6, 7, 8 and 9 are details of the clutch-mechanism by which the rotary shaft is disconnected from the driving pulley. Figs. 10, 11, 12 and 13 are details of different parts of my improved treadle-motion.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the supporting-frame of a bottle-corking machine, drop-press or other suitable machine in which the continuous rotary motion of the driving-shaft is to be transmitted into a vertically-reciprocating motion of the plunger.

To the lower part of the frame A is fulcrumed a treadle B which is weighted at its rear part back of its fulcrum so as to be returned into normal position as soon as it is released by the foot. A connecting-rod C is pivoted to the treadle-lever and to the rear part of a fulcrumed lever D that engages by its front forked end d the shank e of the platform E on which the bottle or other article is placed, so as to operate the same in conjunction with the cork-pressing and delivering-devices. The rear-end of the lever D is provided with a toe d' that engages a nose d^2 which is pivoted into a recess of a collar d^3 that is keyed to a rock-shaft D′ which turns in bearings of the supporting-frame A. The nose d^2 is made straight at its upper edge and curved in the nature of a quadrant of a circle at its lower edge, so that the toe d' can readily engage the nose d^2 when moved in downward direction by the treadle, but can lift the nose so as to pass beyond the same when the lever D is returned into its normal position of rest.

The construction of the nose d^2 and its pivot-connection with the collar d^3 is clearly shown in Figs. 2, 11 and 12. To one end of the rock-shaft D′ is applied a short crank which serves for operating the clutch-mechanism between the driving-pulley and the rotary shaft. A second crank d^5 at the opposite end of the rock-shaft D′ serves for withdrawing a spring-actuated brake-shoe from a brake-wheel applied to the rotary driving-shaft. The crank d^4 is connected by a pivot-rod d^6 with a slide rod d^7 which latter is guided by a keeper d^8 on the supporting-frame A, the upper end of the slide-rod engaging a clutch-device F that is located on the rotary driving-shaft S adjacent to the loose driving-pulley P of the same. When the treadle is lowered, the slide-rod d^7 is withdrawn and the instant meshing of the clutch with the driving-pulley P obtained. The clutch F is composed of a sleeve-shaped collar f which is keyed to the rotary shaft S and provided with a longitudinal socket or recess f', in which is guided a sliding and spring-actuated latch f^2, the outer end of which is beveled off so as to be readily re-engaged by the upper end of the slide-rod d^7 when the treadle is released and returned into its normal position. To the slide-rod d^7 is applied a strong helical spring d^9, the upper end of which is attached to a fixed point on the supporting-frame A, said spring serving for the purpose of lifting the slide-rod as soon as the treadle is released and the toe d' has passed the nose d^2 on the rock-shaft D′. The spring-actuated latch engages segmental recesses $p\ p$ in the hub of the driving-pulley P, as shown clearly in Figs 6 and 9. The upper end of the slide-rod d^7 is made arc-shaped

and concentric to the axis of the rotary shaft S and one side edge of the upper end is beveled, as shown clearly in Figs. 5, 6 and 7. On the return of the slide-rod d^7 by the action of its spring the upper end of the same abuts against the under side of the latch, which latter rides over the arc-shaped upper end of the slide-rod d^7 until it clears the same by the rotary motion of the shaft. During this time the brake-shoe G is prevented from acting on the brake-wheel G′, the brake-action of which takes place as soon as the latch has passed over the upper end of the connecting-rod E. The brake-shoe acts then on the brake-wheel and retards the motion of the driving-shaft until the latch abuts at the upper end of the slide-rod d^7 and is withdrawn by the beveled edge of the same from engagement with the recess p in the hub of the pulley P, upon which the motion of the shaft is instantly interrupted as the connection between the clutch and pulley is interrupted. The brake prevents concussion or blows which would take place by the sudden withdrawing of the latch, and prevents the momentum of the pulley from carrying the main-shaft beyond the proper position when arriving at the end of an entire rotation. The driving-pulley P is thereby instantly clutched to the rotary shaft S, so that a cam on the same operates by intermediate lever-mechanism a vertically-reciprocating plunger, die, or other suitable tool, as shown clearly in Fig. 2. Each depression of the treadle B produces thereby one full rotation of the rotary shaft S and consequently the operation of the working parts of the machine. The crank d^5 at the opposite end of the rock-shaft D′ is connected by a pivot-rod g with the lower end of the stem g' of the brake-shoe G. The stem or spindle g' of the brake-shoe is guided in a suitable keeper g^2 to the supporting-frame A, a suitable spring g^3 being interposed between the shoe and the keeper, so as to return the brake-shoe into contact with a brake-wheel G′ on the driving-shaft S, as soon as the nose d^2 is released by the toe d' at the rear end of the fulcrumed lever D. The brake serves for the purpose of arresting the motion of the shaft S as soon as the clutch is withdrawn from the hub of the driving pulley P, so as to prevent the momentum of the pulley from moving the shaft beyond the position required by the working parts of the machine. The clutch F and the brake G G′ are operated simultaneously, as they are both controlled by the rock-shaft D′, they being withdrawn at the same time by the lowering of the slide-rod d^7 and pivot-rod g, so that the clutch is permitted to engage the hub of the pulley, while the brake-shoe releases the circumference of the brake-wheel. As soon as the nose d^2 is released, the slide-rod d^7 and the brake-shoe G are returned into their normal position, the former returning the latch into the socket of the collar and preventing power from being transmitted to the rotary shaft by the pulley, while the latter acts on the brake-wheel so as to stop the shaft S. At each depression of the treadle B, the clutch is thrown into engagement with the driving-pulley P and one full rotation of the driving-shaft S produced thereby, so that the working parts of the machine which are operated by the cams on the driving-shaft accomplish their respective motions. As soon as the full rotation of the shaft S is completed, all the parts are returned into their normal position ready for the next action of the treadle.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an oscillating treadle, an intermediate fulcrumed lever having a toe at its rear-end, a pivot-rod connecting the treadle and lever, a rock-shaft provided with a pivoted nose that is adapted to be engaged by the toe of the lever, a crank on said rock-shaft, a guided and spring actuated slide-rod applied to said crank, a rotary driving-shaft, a driving-pulley on said shaft, and a clutch arranged on said driving shaft adjacent said pulley, said clutch engaging the hub of the pulley when the slide rod is withdrawn and released from the pulley when the same is returned to its normal position, substantially as set forth.

2. The combination of an oscillating treadle, an intermediate fulcrumed lever having a nose at its rear end, a pivot-rod connecting the treadle and lever, a rock-shaft provided with a nose pivoted to a collar on said shaft, a crank on said rock-shaft, a guided and spring-actuated brake-shoe, a pivot-rod connecting the crank with the stem of the brake-shoe, a rotary driving-shaft and a brake-wheel on said shaft, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of two subscribing witnesses.

CHAS. SPINDLER.

Witnesses:

PAUL GOEPEL,

CHARLES SCHROEDER.