(No Model.)

W. D. WHITAKER.

COP DOFFER.

No. 575,084. Patented Jan. 12, 1897.

Fig. 1.

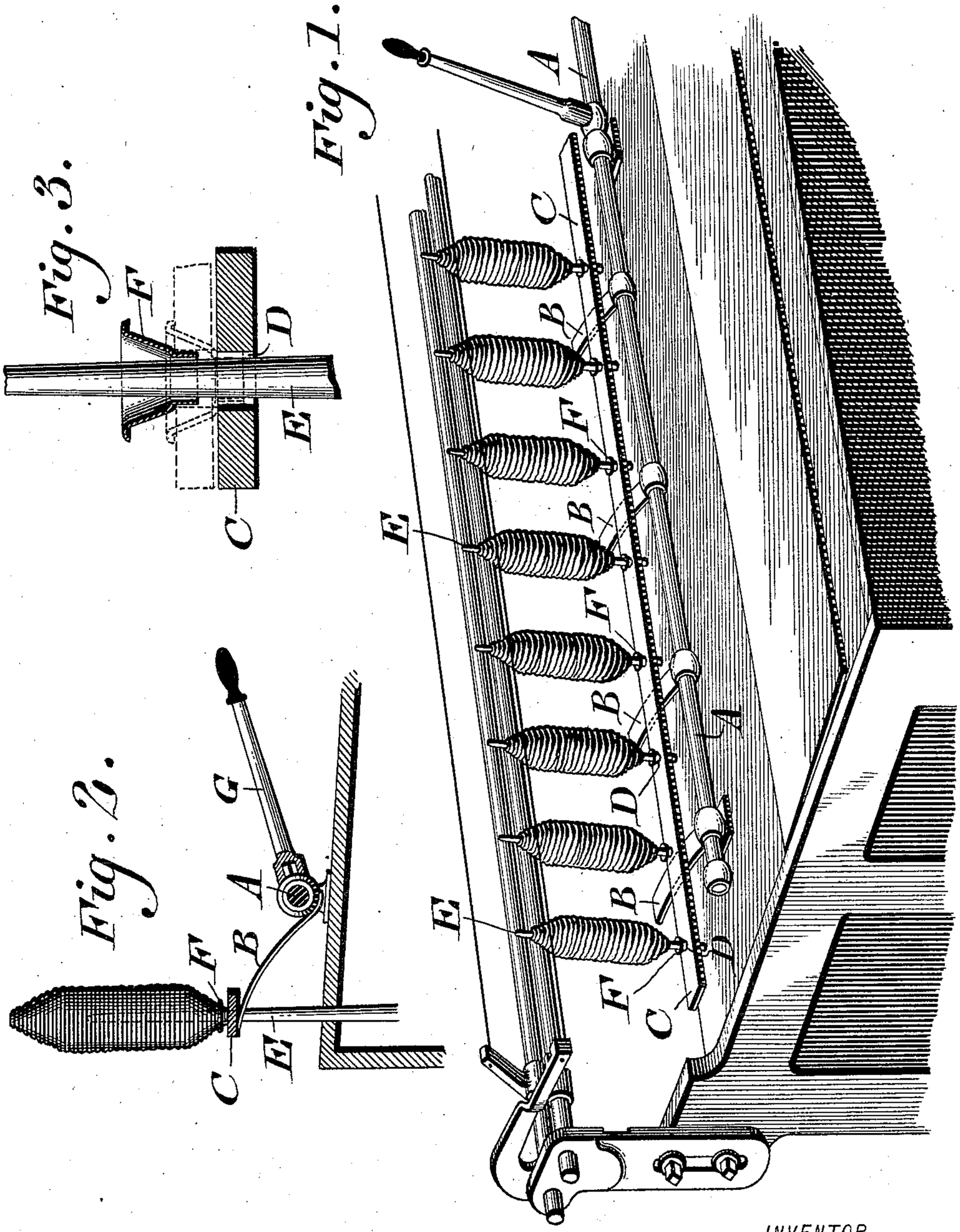

Fig. 2.

Fig. 3.

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COP-DOFFER.

SPECIFICATION forming part of Letters Patent No. 575,084, dated January 12, 1897.

Application filed November 23, 1893. Serial No. 491,722. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. WHITAKER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Cop-Doffers, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a cop-doffer formed of means, substantially as described, for readily raising the cop from the spindle, whereby the same is released or started, so as to be easily stripped from position, said means embodying an independent bar, through which the spindles freely pass, and arms which are connected with a rock-shaft and freely engage said bar, whereby the latter may be raised and lowered true, avoiding binding on spindles and permitting said bar to be removed from the spindles without disturbing the latter or requiring the loosening of connecting devices for the arms and bar, as such devices are avoided.

It also consists of thimbles freely fitted on the spindle for preventing the cops from being forced into the lifting-bar or binding therewith, as will be hereinafter set forth.

Figure 1 represents a perspective view of a cop-doffer embodying my invention. Fig. 2 represents a partial side elevation and partial vertical section thereof. Fig. 3 represents a vertical section of a portion thereof.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a rock-shaft which is suitably mounted in horizontal position on the frame or table A. Projecting from said shaft A are arms B, which are preferably of curved or segmental form and freely engage with the under side of the lifting-bar C, so as to raise the said bar and afterward permit the same to return to its normal position. In said bar C are openings D to receive the cop-winding spindles E, which latter are mounted and operated as usual, so that cops may be wound thereon.

Fitted loosely on the spindles above the bar C, and consequently below the cops, are cups or thimbles F, which are adapted to be raised by said bar and brought into contact with the lower ends of the cops, they also serving as washers to prevent the cops from being forced into the openings D and binding with the bar C.

The operation is as follows: When the cops are formed, the shaft A is rotated by the lever G or other suitable means, whereby the arms B lift the bar C and the latter rides freely upward on the spindles and presses against the thimbles, so that the cops are loosened and sufficiently stripped from the spindles as to be afterward entirely removed by hand or a doffing device, if so desired. The lever G is then let go, so as to return the shaft A when the bar and thimbles descend and assume their normal positions, after which cops may be again formed on the spindles and the operation of doffing repeated. Should the cops work down, they will be restrained by the thimbles F and prevented from binding with the bar C and crowding into the openings D thereof, they also providing deep seats for the lower ends of the cops when raised, so that the preparatory step to complete doffing may be effectively accomplished when the bar C is operated.

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

1. A frame having the rock-shaft A mounted thereon, and the arms B projecting from said shaft, in combination with the independent lifting-bar C, which is formed with vertical openings therein to receive the spindles below the cops, and loosely supported on said arms B, substantially as and for the purpose described.

2. A lifting-bar with an opening receiving the cop-forming spindle, and a thimble freely fitted on said spindle and engaging the opening in the bar, in combination with a rock-shaft, and an arm on said shaft, the latter engaging the lifting-bar, and all operating substantially as described.

3. In a cop-doffer, a thimble and a lifting-bar therefor, a cop-forming spindle on which said thimble and bar are freely fitted, said thimble being adapted to engage the cop and said bar being adapted to engage said thimble and means for operating said bar, the parts being combined substantially as described.

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Witnesses:
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