No. 643,461. Patented Feb. 13, 1900.

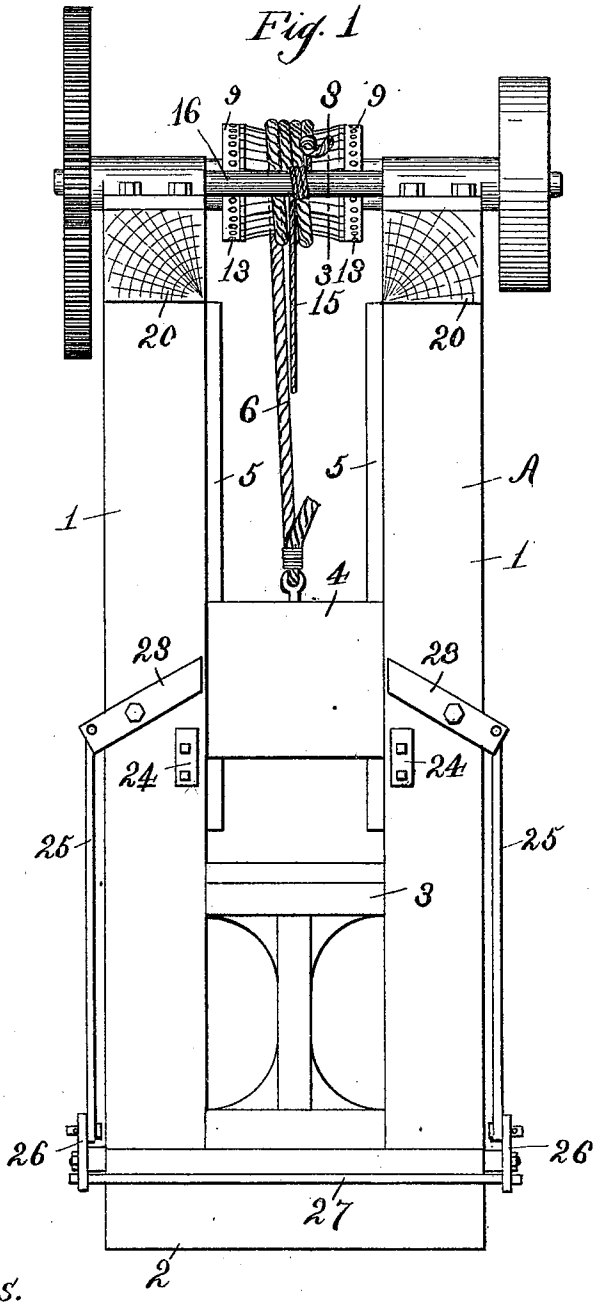
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DROP HAMMER.

(Application filed Oct. 28, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1



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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

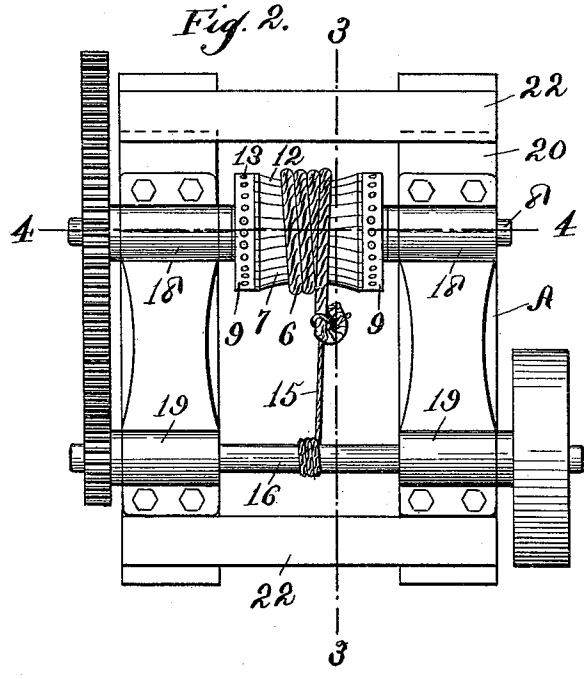
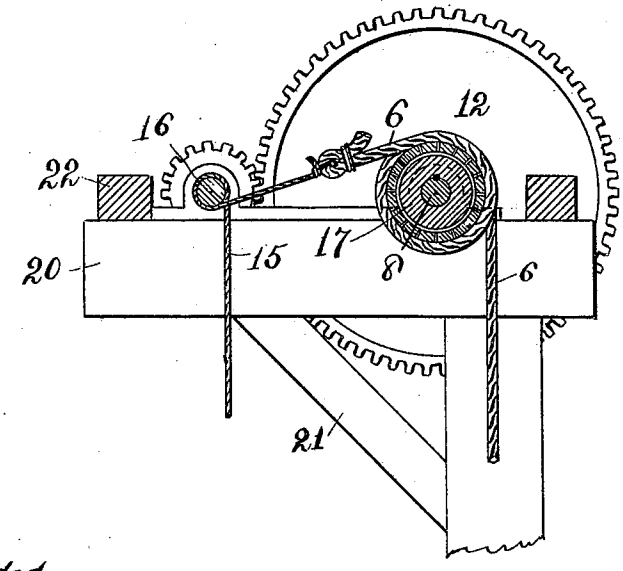


Fig. 3.



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Fig. 5.

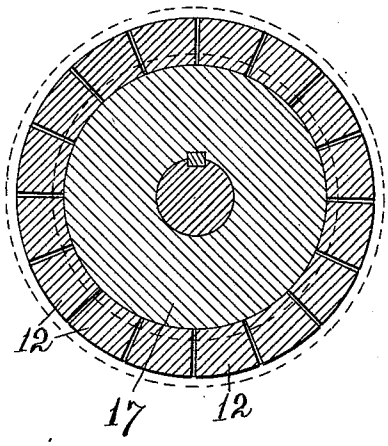


Fig. 6.

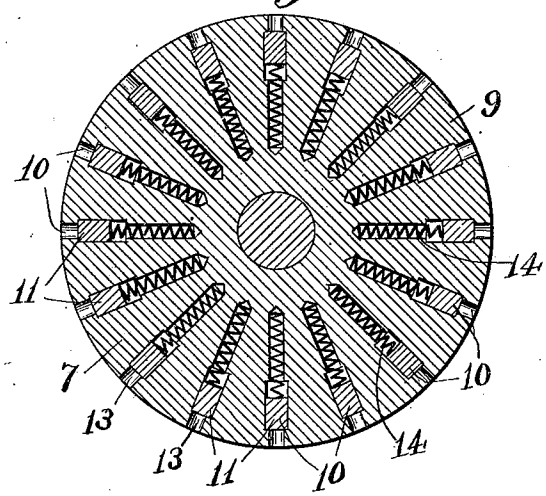
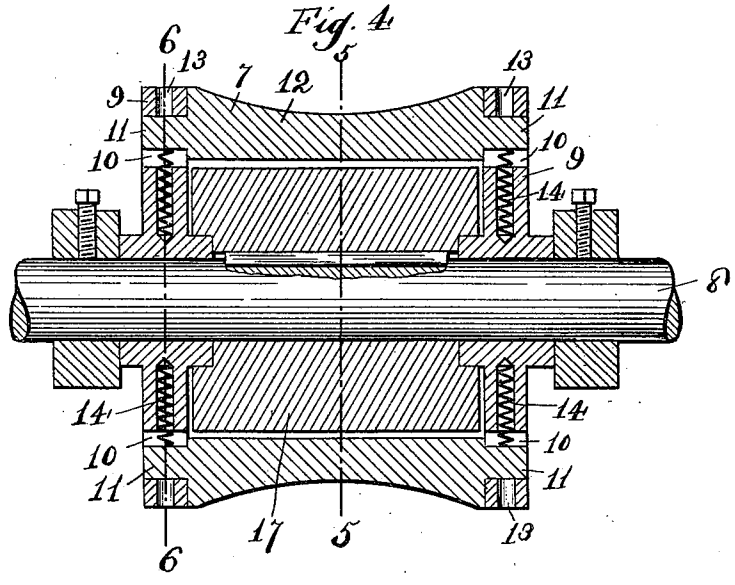


Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK F. BISCHOFF, OF CHICAGO, ILLINOIS.

DROP-HAMMER.

SPECIFICATION forming part of Letters Patent No. 643,461, dated February 13, 1900.

Application filed October 28, 1899. Serial No. 735,018. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK F. BISCHOFF, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Drop-Hammers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel construction in a drop-hammer, the object being to provide a simple and efficient device of this character in which the hammer can be raised to any desired height and released, thereby overcoming the objection usually presented in machines of this character—viz., that the stroke of the hammer must be adjusted and cannot be changed without stopping operations; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a front elevation of my drop-hammer with a top cross-piece removed. Fig. 2 is a top plan view of same. Fig. 3 is a fragmentary vertical section on the lines 3 3 of Figs. 1 and 2. Fig. 4 is a sectional view on the line 4 4 of Fig. 2. Figs. 5 and 6 are detail sectional views on the lines 5 5 and 6 6, respectively, of Fig. 4.

Referring now to said drawings, A indicates a frame comprising two uprights 1, mounted upon a base 2. Between said uprights and upon said base a table or anvil 3 is mounted upon which the object to be subjected to the action of the hammer 4 is laid. Said hammer 4 is vertically movable on guides 5 on said uprights 1 and is raised by means of a rope 6, turned around a friction-drum 7, adapted to be clutched upon a shaft 8, as follows: Said friction-drum 7 consists of two parallel disks 9, loosely mounted upon the shaft 8 and provided with a plurality of radial slots 10, in each of which the end 11 of a drum-segment 12 is slidingly held. Radial openings 13 are bored in each of said disks 9, which intersect said radial slots 10. Each of said radial openings 13 contains a spring 14, which bears at its outer end against one of said ends 11 of said segments 12, thus normally holding said segments at the outer limits of their movement. Said rope 6 is given several turns around said drum and its other end is connected with a rope 15, coiled around a drive-shaft 16, geared to said shaft 8, the other end of said rope 15 depending loosely from said drive-shaft. A drum or collar 17 is rigidly mounted upon said shaft 8 between said disks 9, and upon the same said segments are adapted to be forced to clutch the same, whereby said segment-drum is set in motion. Said shaft 8 and drive-shaft 16 are journaled in bearings 18 and 19, respectively mounted upon horizontal arms 20, carried by said uprights 1 and extending rearwardly therefrom, the rear ends of said arms being supported by braces 21. Cross-pieces 22 connect said arms 20. By pulling upon the loose end of said rope 15 the same is drawn tight or clutched upon said drive-shaft 16, thereby causing the latter to draw the other end connected with said rope 6 toward it, thereby exerting a powerful pull on said rope 6 and drawing same tightly over said segmental drum and contracting the latter to clutch said drum 17, thereby causing said segmental drum to turn in unison with said shaft 8 and raising said hammer 4. By releasing or slacking said loose end of said rope 15 the shaft 16 is released and the rope 6 is likewise slacked, thereby releasing said segmental drum from engagement with said drum 17 and permitting the hammer 4 to drop. By means of this arrangement the stroke of said hammer can be controlled and light or heavy blows administered at will.

I have also provided devices for supporting the hammer above the anvil 3 to permit the material to be hammered to be adjusted. Said devices consist of levers 23, pivoted between their ends upon said uprights 1 and adapted to project into the path of said hammer 4, the said projecting end portions being supported by lugs 24 on said standards. The outer ends of said levers 23 are pivotally connected with links 25, pivoted at their other ends to the ends of levers 26, pivoted between their ends on the lower ends of said standards 1, the other ends of said levers 26 being connected by a rod 27. By depressing said rod

27 the said levers 23 are turned so that their inner ends project into the path of said hammer 4.

I claim as my invention—

1. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a cord connected with said hammer at one end, a drum revolubly mounted upon a shaft carried by said frame and around which said cord is adapted to be wound, said drum being provided with devices adapted to be actuated by pulling on the free end of said cord for clutching same fast with said shaft to raise said hammer.

2. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a cord connected with said hammer at one end, a drum revolubly mounted upon a shaft carried by said frame and around which said cord is adapted to be wound, a drum mounted rigidly on said shaft within said first-named drum, said first-named drum being provided with a plurality of radially-movable members adapted to be actuated by pulling on the free end of said cord and moved radially inwardly to engage said inner drum to clutch said first-named drum rigid with said shaft, to raise said hammer.

3. In a drop-hammer, the combination with a frame and a hammer vertically movable in said frame, of a shaft journaled in bearings on said frame, a drum loosely mounted on said shaft, a rope wound around said drum and connected at one end with said hammer, a shaft geared to said first-named shaft, a cord wound around said counter-shaft and connected at one end with said rope and having its other end depending loosely, and devices actuated by the tension of said rope for clutching said drum fast with said shaft to turn said drum whereby said hammer is raised, substantially as described.

4. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a shaft, a drum loosely mounted thereon and comprising two parallel disks and a plurality of radially-movable segments mounted therein, and springs for normally holding said segments at the outer limits of their movement, a collar or drum rigidly mounted on said shaft between said disks upon which said segments are adapted to bear when moved radially inwardly, to clutch the same, and a rope wound around said segmental drum and connected at one end with said hammer, whereby when said rope is drawn taut said segmental drum is clutched fast with said shaft and said hammer is raised, substantially as described.

5. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a shaft, a drum loosely mounted thereon and comprising two parallel disks and a plurality of radially-movable segments mounted therein, and springs for normally holding said segments at the outer limits of their movement, a collar or drum rigidly mounted on said shaft between said disks upon which said segments are adapted to bear when moved radially inwardly, to clutch the same, a cord wound around said segmental drum and connected at one end with said hammer, and devices connected with the other end of said cord to aid the operator to draw same taut to move said segments inwardly to clutch said segmental drum fast with said shaft, whereby said hammer is raised, substantially as described.

6. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a shaft, a drum loosely mounted thereon and comprising two parallel disks and a plurality of radially-movable segments mounted therein, and springs for normally holding said segments at the outer limits of their movement, a collar or drum rigidly mounted on said shaft between said disks upon which said segments are adapted to bear when moved radially inwardly, to clutch the same, a shaft geared to said first-named shaft, a cord wound around said drum and connected at one end with said hammer, and a cord connected with the free end of said first-named cord and wound around said last-named shaft, the other end of said last-named cord depending loosely from said last-named shaft, substantially as described.

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

FREDERICK F. BISCHOFF.

Witnesses:
E. F. WILSON,
RUDOLPH WM. LOTZ.