

No. 672,261.

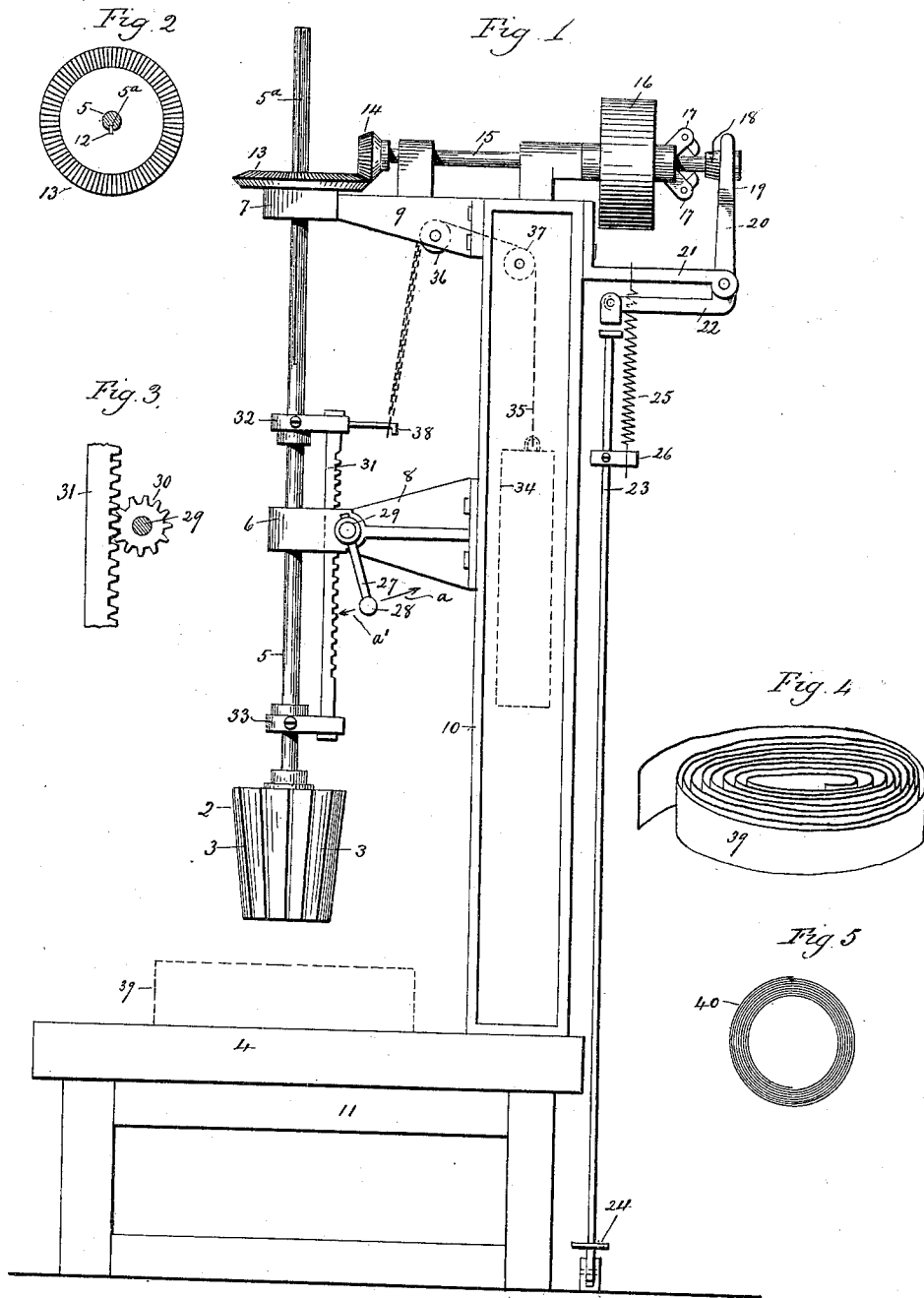
Patented Apr. 16, 1901.

F. S. CHASE.

MACHINE FOR CLOSE COILING LOOSE WOUND COILS OF SHEET METAL.

(Application filed Dec. 28, 1900.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

FREDERICK S. CHASE, OF WATERBURY, CONNECTICUT.

MACHINE FOR CLOSE-COILING LOOSE-WOUND COILS OF SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 672,261, dated April 16, 1901.

Application filed December 28, 1900. Serial No. 41,431. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK S. CHASE, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and Improved Machine for Close-Coiling Loose-Wound Coils of Sheet Metal; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of a machine constructed in accordance with my invention; Fig. 2, a detached plan view showing the bevel-gear and its connection with the vertically-movable spindle of the machine; Fig. 3, a detached broken view showing the meshing of the rack carried by the spindle into the pinion of the crank; Fig. 4, a detached perspective view of a loose-wound sheet-metal coil; Fig. 5, a plan view after the same has been close-coiled in the machine.

This invention relates to an improved machine for close-coiling loose-wound coils of sheet metal, the object being to provide a simple and easily operated machine for doing this work in place of doing it by the manual method now employed.

With this end in view my invention consists in a machine having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claim.

In carrying out my invention I employ a gripping-cone 2, preferably corresponding in length to the width of the metal to be coiled and traversed by longitudinal grooves 3, adapting it to take hold of or bite the metal of the inner member of the coil. However, the exterior surface of the cone may be adapted in some other way to take hold of the metal to be close-coiled. This cone is located over a platen or table 4, on which the coiling is done, and secured to the lower end of a vertically-movable and rotatable spindle 5, mounted in horizontally-arranged bearings 6 and 7, respectively located at the ends of brackets 8 and 9, secured to the upright arm 10 of the machine-frame, which also includes a base 11. The upper end of the spindle is formed with a groove 5^a for the reception of a key 12,

by means of which it is loosely connected with a bevel-gear 13, so as to be free to be vertically reciprocated with respect to the said gear, with which, however, it is coupled for rotation by the said key. The said gear 13 is meshed into by a pinion 14, located at the forward end of a horizontally-arranged shaft 15, carrying at its opposite end a pulley 16, constantly driven from any convenient source of power and coupled to the shaft as required by means of a clutch of any approved construction and shown as consisting, essentially, of the arms 17 and a movable cone 18, the latter being mounted in the fork 19 of the arm 20 of a bell-crank lever pivotally mounted upon a bracket 21 and having its arm 22 connected with the upper end of an operating-rod 23, the lower end of which is connected with a treadle or foot-lever 24, by means of which the clutch aforesaid is thrown into operation. A spring 25, attached at its upper end to the arm 21 and at its lower end to a block 26, secured to the rod 23, is provided for throwing the clutch out of operation and so stopping the transmission of power to the spindle 5. The said spindle 5 is raised and lowered by means of a crank 27, furnished with a handle 28 and secured to a short shaft or stud 29, also carrying a pinion 30, which meshes into a vertically-arranged rack 31, extending parallel with the spindle 5 and connected at its upper and lower ends therewith through heads 32 and 33, mounted thereupon. The spindle 5 is normally maintained in an elevated position by means of a weight 34, secured to a cord or belt 35, running over idle pulleys 36 and 37 and having its opposite end connected to a hook 38, mounted in the head 32, before mentioned.

In operating my improved machine a loosely-coiled strip of metal 39 is placed upon the table 4 in a central position under the gripping-cone 2. The crank 27 is now turned in the direction of the arrow *a*, so that through the pinion 30 and the rack 31 the spindle 5 is caused to descend, whereby the gripping-cone 2 is entered into the center of the coil 39, the central coil of which it firmly engages. The treadle 24 is now depressed, with the effect of operating the clutch, so as to couple the continuously-driven pulley 16 to the shaft 15, whereby the spindle 5 is started in rota-

tion, which effects the rapid and compact winding of the coil 39 into a close or tight coil 40. Pressure upon the treadle 24 is now relieved, permitting the spring 25 to throw off
5 the clutch and stop the rotation of the shaft 15 and spindle 5, after which the crank is turned in the direction of the arrow *a'* for lifting the spindle 5, and thus disconnecting
10 the cone 2 from the close-wound coil 40, which is removed from the table 4 and replaced by another loose-wound coil, corresponding to 39, and so on.

By means of my improved machine I am enabled with very great rapidity to close-wind
15 loose-wound coils of metal without injuring or bruising the same and with great economy of time and labor.

It is apparent that in carrying out my invention some changes from the construction
20 herein shown and described may be made, and I would therefore have it understood that I do not limit myself to exactly the forms shown, but hold myself at liberty to make such departures therefrom as fairly fall with-
25 in the spirit and scope of my invention.

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

In a machine for close-coiling loose-wound coils of sheet metal, the combination with a
30 table upon which the coils are placed, of a gripping-cone adapted to centrally enter the loose-wound coils, a vertically-movable and longitudinally-rotatable shaft to the lower
35 end of which the said cone is secured, manually-operable means connected with the said shaft for moving it longitudinally to enter the said cone into a loose-wound sheet-metal coil,
power connections for rotating the said shaft, including a gear-wheel through which it is
40 free to move up and down, and means for cutting in and cutting out the said power connections.

In testimony whereof I have signed this specification in the presence of two subscrib-
45 ing witnesses.

FREDERICK S. CHASE.

Witnesses:

JNO. S. NEAGLE,
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