(No Model.) 3 Sheets—Sheet 1.

H. H. TAYLOR.

SCREW TAPPING MACHINE.

No. 399,353. Patented Mar. 12, 1889.

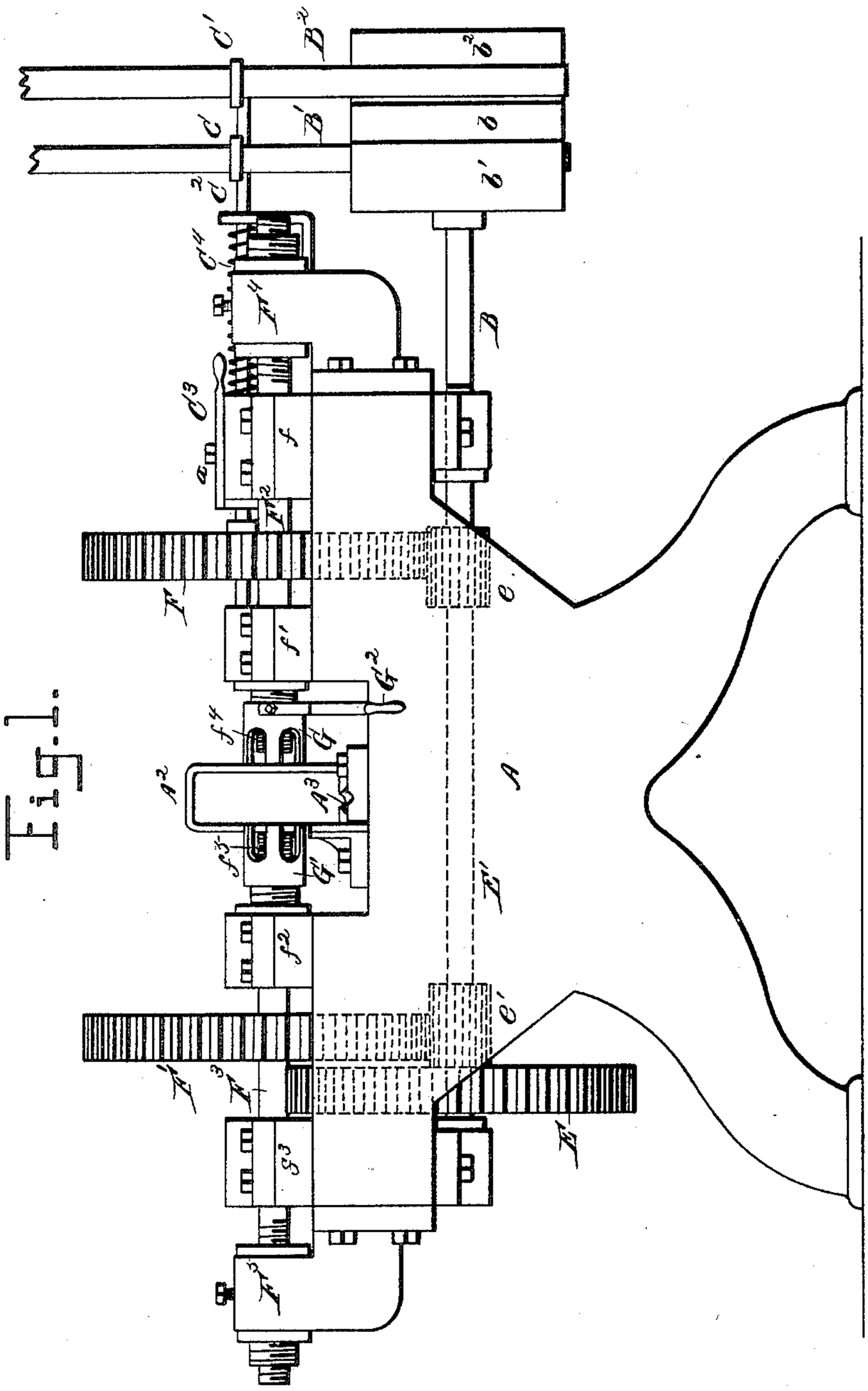


Fig. 1.

Attest.
John E. Wiles.
Charles F. Salow.

Inventor.
Harrison H. Taylor
By Rewell & Wright
Attorney.

(No Model.) 3 Sheets—Sheet 2.

H. H. TAYLOR.

SCREW TAPPING MACHINE.

No. 399,353. Patented Mar. 12, 1889.

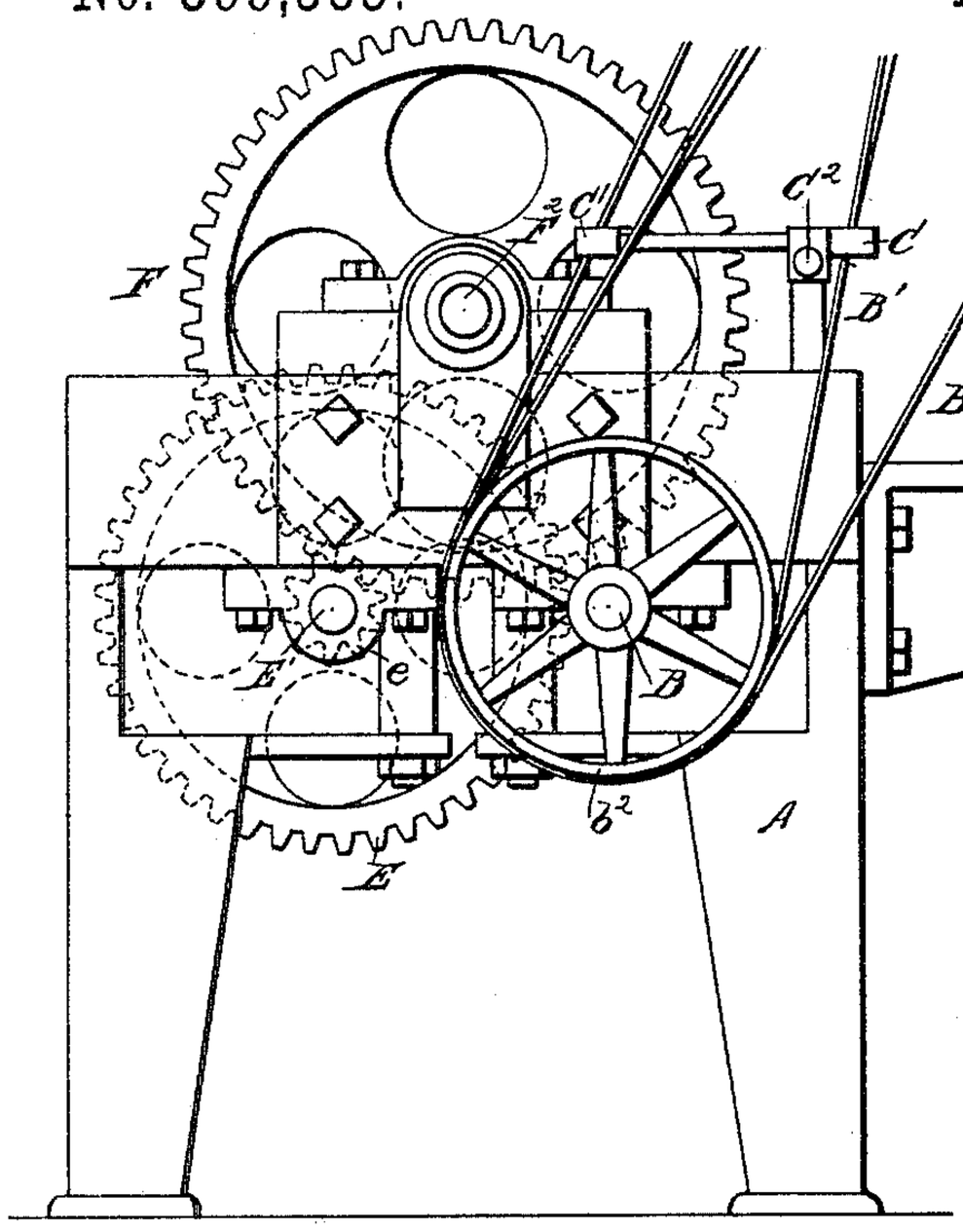


Fig. 2.

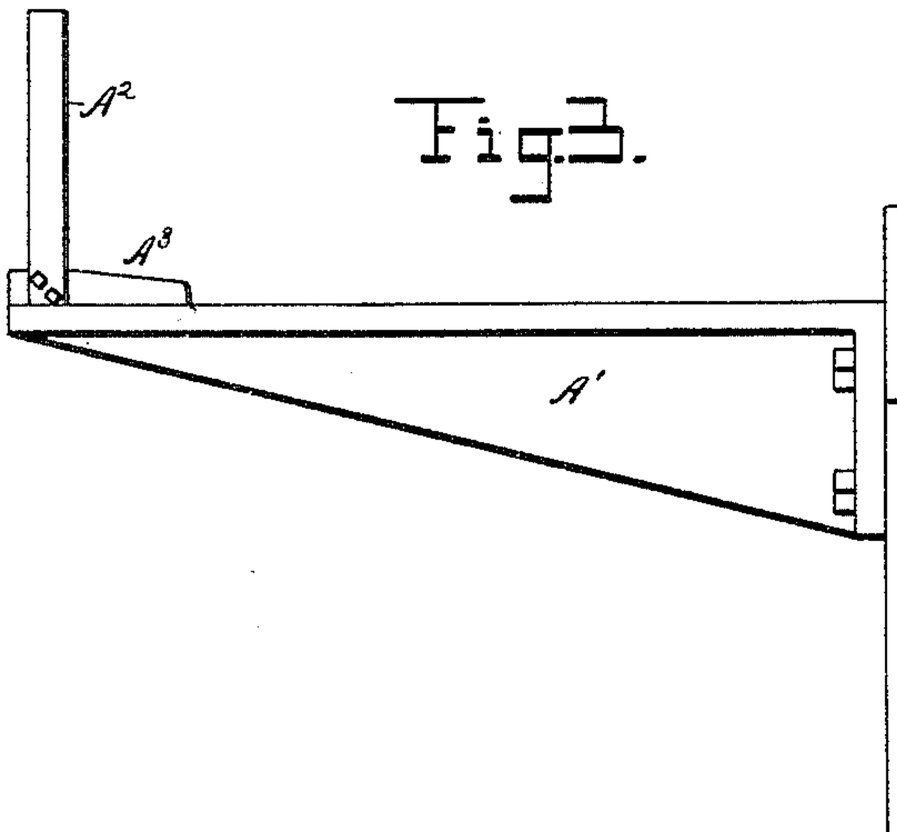
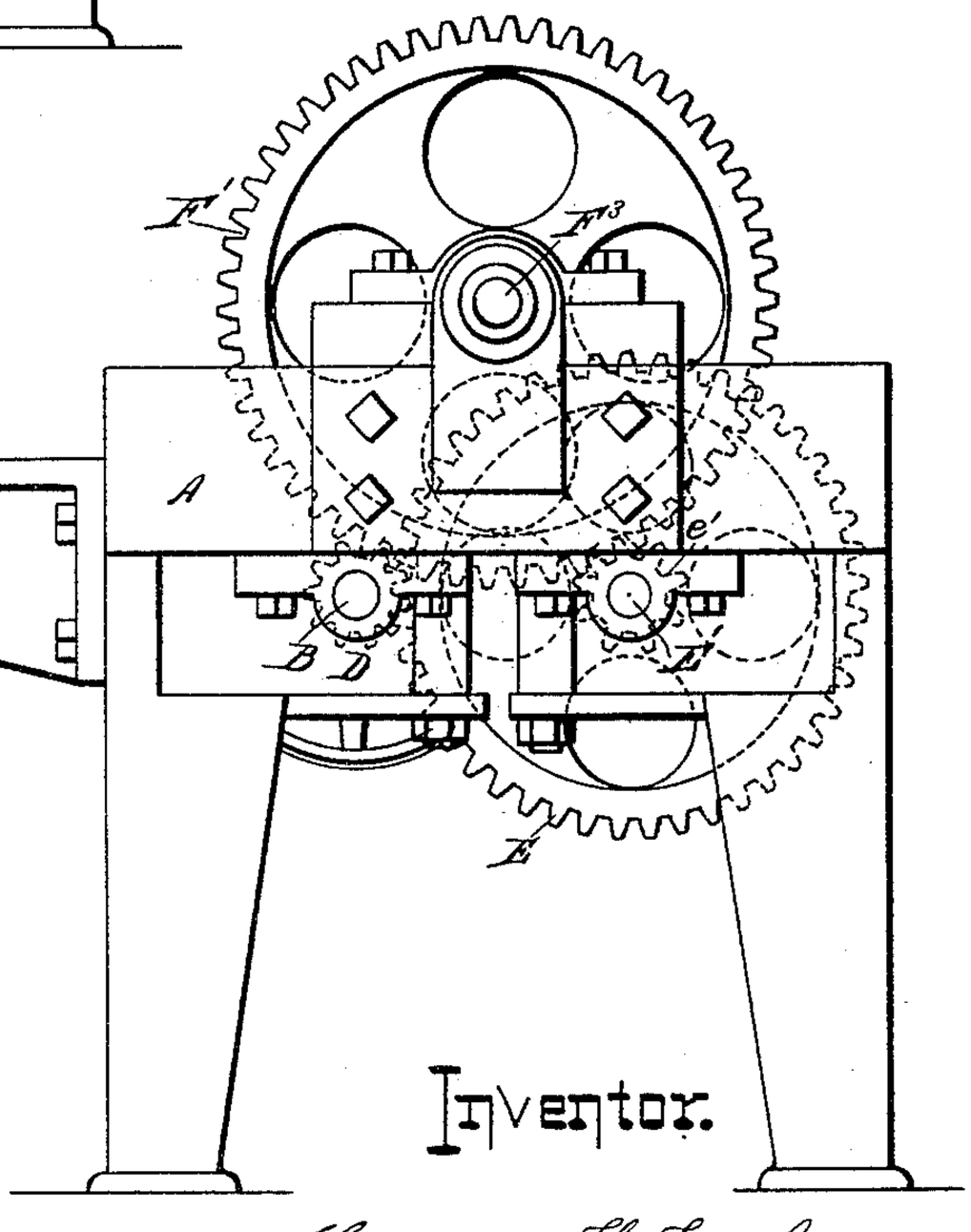


Fig. 3.



Attest.
John E. Wiles.
Charles F. Salow.

Inventor.

Harrison H. Taylor
By Newell S. Wright.
Attorney

(No Model.) 3 Sheets—Sheet 3.

H. H. TAYLOR.

SCREW TAPPING MACHINE.

No. 399,353. Patented Mar. 12, 1889.

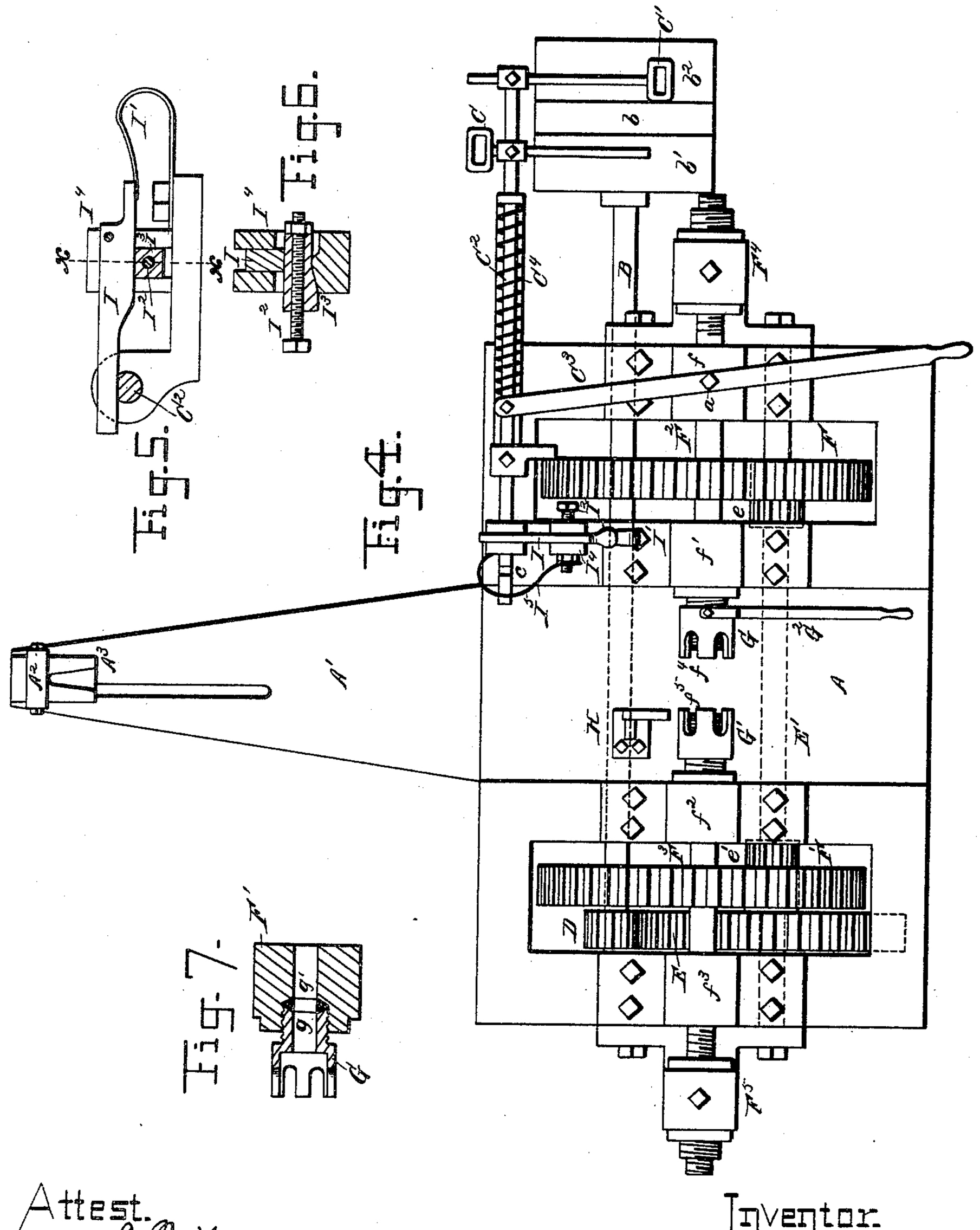


Fig. 5.

Fig. 6.

Fig. 4.

Fig. 7.

Attest.
John E. Wiles.
Charles F. Salow.

Inventor.
Harrison H. Taylor
By Newell & Wright.
Attorney.

UNITED STATES PATENT OFFICE.

HARRISON H. TAYLOR, OF DETROIT, MICHIGAN, ASSIGNOR TO THE MICHIGAN RADIATOR AND IRON MANUFACTURING COMPANY, OF SAME PLACE.

SCREW-TAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 399,353, dated March 12, 1889.

Application filed August 8, 1888. Serial No. 282,275. (No model.)

To all whom it may concern:

Be it known that I, HARRISON H. TAYLOR, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Screw-Tapping Machines; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object an improved screw-tapping machine more especially designed for simultaneously screw-tapping the opposite hubs of a radiator-loop to receive a threaded connecting-nipple. I do not, however, confine myself to such a use of the machine alone, as I contemplate, broadly, the provision of a screw-tapping machine for various purposes to which it may be found adapted.

For the purpose of illustration and description I will herewith refer to the machine as applied to tapping a radiator-loop.

Accordingly Figure 1 is a front elevation of the machine. Fig. 2 is an end elevation looking to the right of Fig. 1. Fig. 3 is an elevation of the opposite end. Fig. 4 is a plan view. Fig. 5 is a detail view of the clutch. Fig. 6 is a sectional view of the same along *x x*, and Fig. 7 is a view showing details of the construction and arrangement of one of the tightening-heads.

My invention consists of the combinations of devices and appliances, as more fully shown in the drawings, and more particularly pointed out hereinafter in the following specification and claims.

In carrying out my invention, A represents any suitable supporting bed or frame.

B is a driving-shaft, preferably provided with a tight pulley, *b*, intermediate the loose pulleys b' b^2.

B′ and B^2 are driving-belts running in opposite directions through guides C C′, adjustably engaged upon a clutch-bar, C^2.

The driving-shaft is suitably journaled upon the bed A, and preferably extends across the bed, and is provided toward its end opposite the driving-pulleys with a pinion, D, meshing with a gear, E, upon a shaft, E′, also extending across the bed and suitably journaled thereupon. The shaft E′ is provided toward each extremity with pinions *e e′*, meshing, respectively, with gears F F′, mounted upon shafts F^2 F^3, said shafts being movable endwise to and from their adjacent ends. To effect this movement, each said shaft F^2 F^3, besides being suitably journaled upon the bed, as shown at f f' f^2 f^3 has a screw-connection upon the bed, preferably at the respective outer ends, as shown at F^4 F^5. It will thus be evident that as the shafts F^2 F^3 are rotated they will have an endwise movement to and from each other, according to the movement of the driving-shaft. For this reason the pinions *e e′* on the shaft E′ are constructed of sufficient breadth to mesh with the gears F F′, respectively, at any point of the movement of said gears. The shafts F^2 F^3 are provided, respectively, with taps f^4 f^5 for simultaneously tapping the two opposite hubs of the radiator-loop as the taps are advanced toward each other in the manner described.

To properly hold the loop in position between the taps, the shafts F^2 F^3 may each be provided with a tightening-head, as shown at G G′. The head G may have a screw-threaded engagement in the adjacent boxing f' f^2, as shown at *g*, the said head being provided with an operating-lever, G^2, by which the head may readily be suitably tightened upon the loop when in place and loosened therefrom when the loop is to be removed.

As shown in Fig. 7, I prefer to provide suitable packing, as at *g′*, to prevent dirt from running into the adjacent journal. The taps, it will be seen, extend through the tightening-heads respectively.

An arm, A′, may be engaged upon the bed to support the outer end of the radiator-loop while the opposite end is being tapped. Said arm may be provided with any suitable device for holding the end of the loop firmly—as, for instance, with an encircling-band, A^2, and recessed plate A^3, conforming to the shape of the loop. As so constructed the adjacent end of the loop may be readily located in position within the band and upon the recessed plate and removed therefrom. An additional guide, H, may be employed, if desired.

The clutch-bar C^2 is provided with an operating-lever, C^3, and a retracting-spring, C^4, the lever being pivotally engaged upon the bed, as shown at *a*.

To automatically retract the taps when they have done their work, any suitable mechanism may be employed, like the following, for instance:

I represents a latch to engage a corresponding recess, *c*, in the clutch-bar, a spring I′, effecting the engagement when the parts are properly related. To actuate the latch, I provide an adjustable pin or bolt, I^2, engaged with a sliding wedge-faced or angular block, I^3, in a support, I^4, with which also the latch is engaged, as shown in Figs. 6 and 7. It will be observed that when the gear F advances, as shown in Fig. 4, the gear will press against said bolt I^2, crowd forward the angular block I^3, Fig. 5, whereby the latch will be gradually lifted from its engagement with the clutch-bar. When the latch is released, the spring C^4 will instantly throw the clutch-bar in the corresponding position or into the position shown in Fig. 4. By this movement of the clutch-bar the belt-guides C C′ thereto attached will be shifted correspondingly to throw the corresponding belt upon the tight pulley, and vice versa to rotate the driving-shaft. In this manner the taps are run into and out of the hubs of the radiator-loop. As the gear F recedes from the bolt I^2, a spring, I^5, will retract the block I^3 into its normal position.

When the loop is in position to be tapped, the operator, seizing the lever c^3, throws the clutch in the desired direction, engaging it with the latch I. The taps will then advance to their work and be automatically retracted, as above described. This manner of simultaneously reciprocating the shafts bearing the taps, so that both the hubs of a radiator-loop will be tapped at the same time, is simple, convenient, and expeditious.

What I claim is—

1. In a screw-tapping machine, the combination, with a supporting-bed, of rotatable reciprocatory shafts or spindles, said spindles provided with taps and tightening-heads upon their adjacent ends, substantially as described.

2. In a screw-tapping machine, the combination, with a supporting-bed, of rotatable and reciprocatory spindles provided with taps and tightening-heads, one of said heads made reciprocatory, substantially as described.

3. In a screw-tapping machine, the combination, with a supporting-bed, of rotatable reciprocatory spindles journaled thereupon and provided with taps and tightening-heads to embrace the work, one of said heads having a screw-threaded engagement upon the bed, whereby it may be moved to and from the work, substantially as described.

4. In a screw-tapping machine, the combination, with rotatable reciprocatory tap-spindles, of a driving-shaft geared with said spindles, a clutch-rod, C^2, a latch to engage one end of said clutch-bar, and a sliding block to raise said latch and release said clutch-bar, the said sliding block being operated by one of the gears upon the tap-spindles, substantially as set forth.

5. In a screw-tapping machine, the combination of the tap-spindles F^2 F^3, having a screw-threaded engagement upon the supporting-bed of the machine, a shaft, E′, geared with said spindles, and a driving-shaft geared with the shaft E′, substantially as described.

6. In a screw-tapping machine, the combination, with suitably-journaled taps, of tightening-heads for clamping the work between said taps, substantially as set forth.

7. In a screw-tapping machine, the combination, with suitably-journaled taps, of tightening-heads for holding the work in position, said taps working through said heads, substantially as set forth.

8. In a screw-tapping machine, the combination, with the tightening-heads having a screw-threaded engagement with their supports, of suitably-journaled taps working through said heads, substantially as set forth.

9. In a screw-tapping machine, the combination, with rotatable reciprocatory tap-spindles, of a driving-shaft geared with said spindles, a clutch-rod, C^2, a spring-actuated latch to engage one end of said clutch-rod, a sliding block to raise said latch and release it from said clutch-rod, and a pin or arm having an adjustable engagement with said sliding block, the said sliding block operated by a gear upon the tap-spindles, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

HARRISON H. TAYLOR.

Witnesses:
N. S. WRIGHT,
CHAS. F. SALVER.