

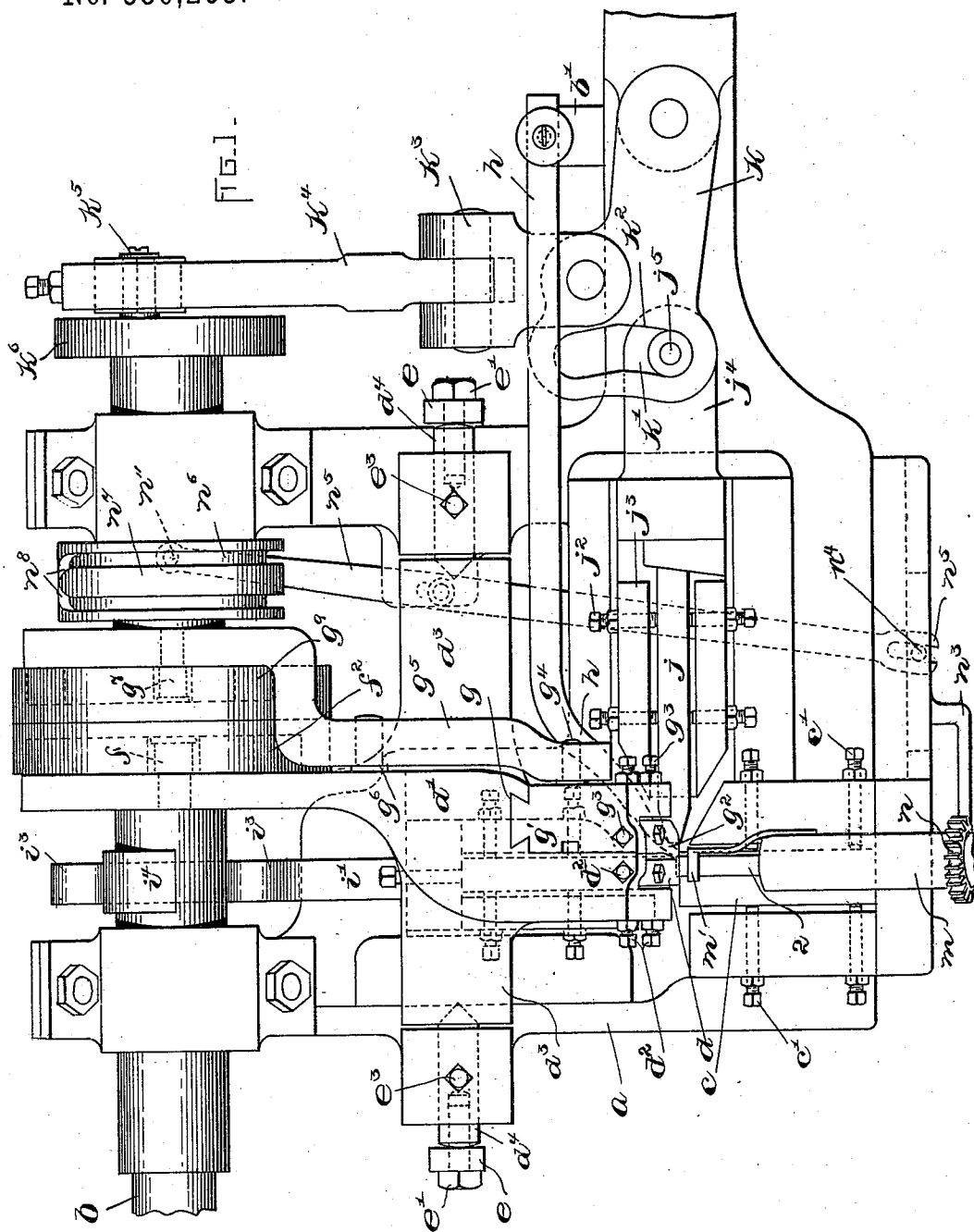
(No Model.)

3 Sheets—Sheet 1.

D. C. FORD.
TACK MACHINE.

No. 550,265.

Patented Nov. 26, 1895.



WITNESSES:

H. A. Hall.
P. Davis.

INVENTOR:

Darius C. Ford
Wright, Brown & Quincy
Attys.

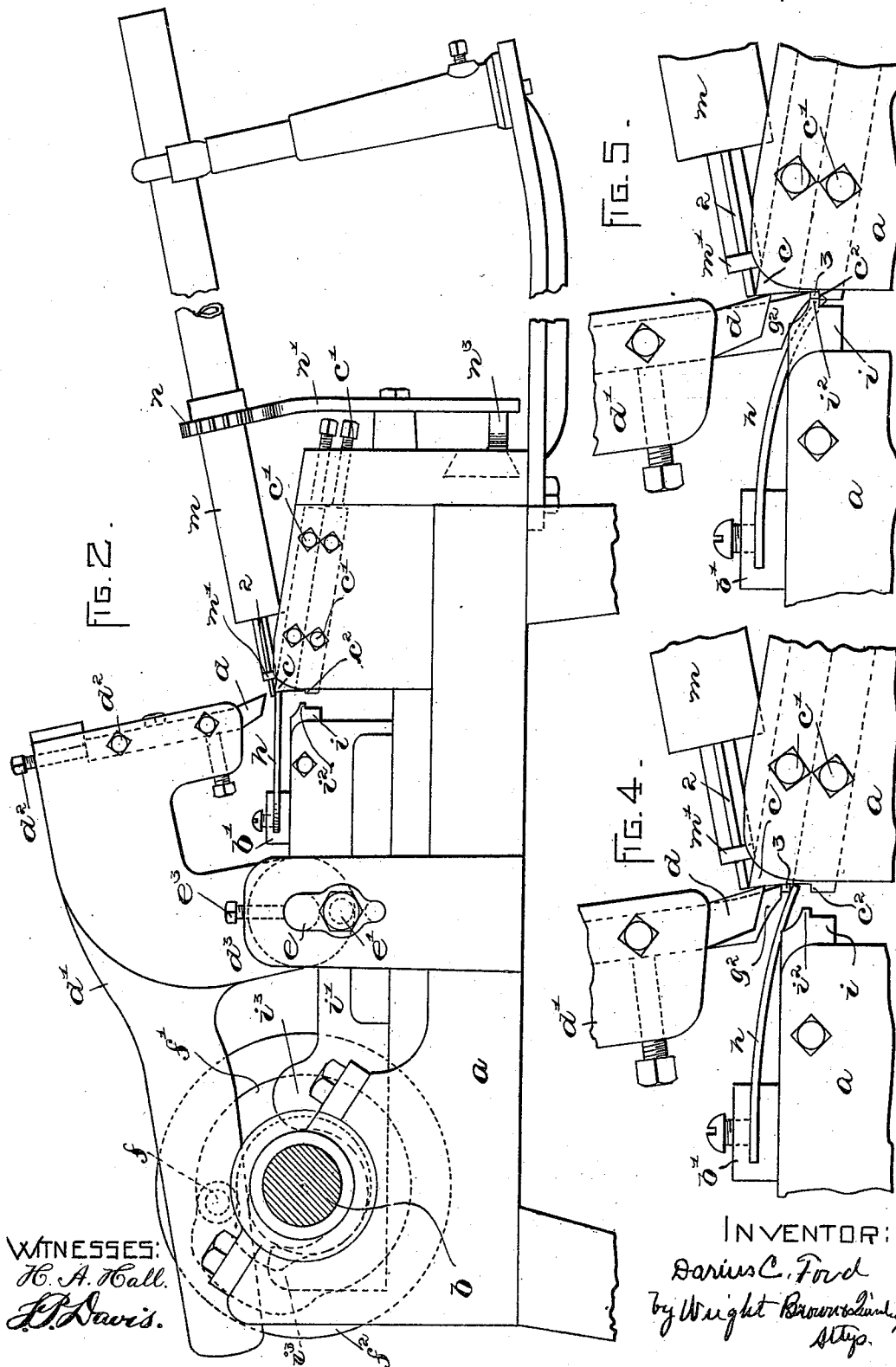
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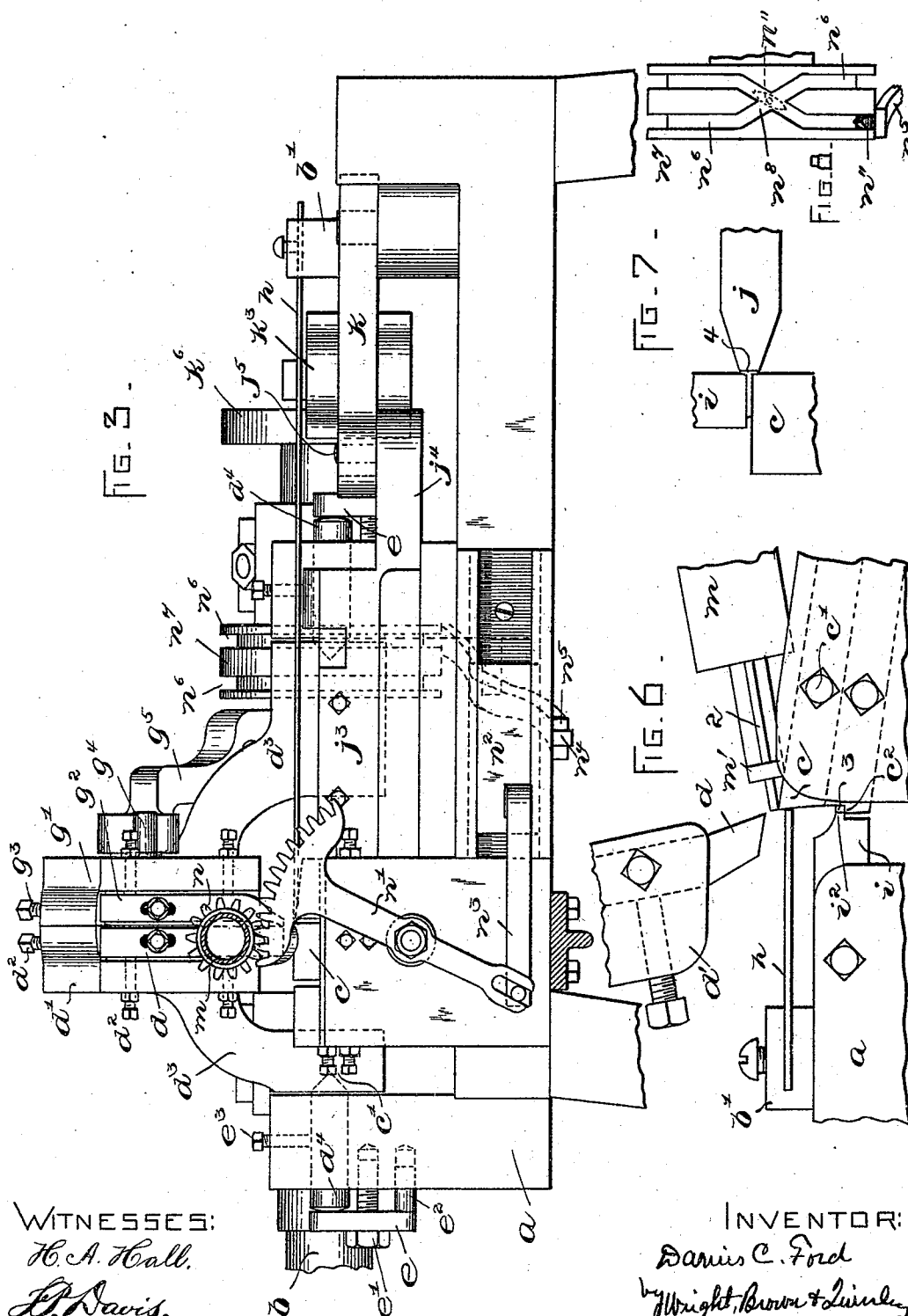
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TACK MACHINE.

No. 550,265.

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WITNESSES:

H. A. Hall.
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INVENTOR:

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UNITED STATES PATENT OFFICE.

DARIUS C. FORD, OF BRIDGEWATER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN M. STETSON, OF SAME PLACE, AND LUTHER LITTLE, OF BOSTON, MASSACHUSETTS.

TACK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 550,265, dated November 26, 1895.

Application filed August 24, 1894. Serial No. 521,172. (No model.)

To all whom it may concern:

Be it known that I, DARIUS C. FORD, of Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Tack-Machines, of which the following is a specification.

This invention relates to machines for making tacks, and the principal object is to obtain greater speed in the operation of machines of this character.

The accompanying drawings illustrate an embodiment of the invention and form part of this specification.

Figure 1 shows a plan view of the complete machine. Fig. 2 shows a side elevation of the machine with the driving-shaft in section. Fig. 3 shows a front elevation of the machine with the feed-barrel in section. Figs. 4, 5, 6, and 7 show the parts which act directly on the work in the different positions they assume at different stages of the operation. Fig. 8 shows a detail of a cam for actuating the work-turning means.

The letter *a* designates the base-frame of the machine, and *b* the driving-shaft in bearings thereon. A cutter-bar *c* is fixedly supported between uprights on the base-frame and may be adjusted by means of screws *c'*. This cutter is set on a slight inclination, and its inner-end face is substantially perpendicular and is formed with a horizontal ledge *c²*. The movable cutter *d*, which coacts with this fixed cutter in severing the stock, is carried in the front-end face of a lever or pivotal frame *d'*, and is made adjustable therein by means of screws *d²*. The frame *d'* has a pendent bifurcated portion, whose arms *d³* are pivoted on cones at the ends of studs *d⁴*, which are introduced through upstanding ears on the base-frame and are made adjustable by means of plates or buttons *e* bearing against their ends and connected with the frame by screws *e'*. Said plates have guiding projections *e²*, which enter sockets in the frame, and the studs *d⁴* are locked by means of set-screws *e³*.

The frame *d'* near its rear end carries a roller-equipped pin *f*, which engages a cam-groove *f'* in one side of a disk *f²* on the driving-shaft, and through this means the said

frame is oscillated vertically and the cutter *d* caused to coact with the fixed cutter *c*.

In the front face of the frame *d'* there is formed a slideway *g*, which is engaged by a slide *g'*, and the latter holds a carrier-bar *g²*, which takes the severed blank down onto the ledge *c²*. Said carrier-bar may be adjusted in the slide *g'* by means of screws *g³*. The slide *g'* has a laterally-projecting pin *g⁴*, which is engaged by the bifurcated end of a lever *g⁵*, pivoted intermediate of its ends to the base-frame, as shown at *g⁶*, and carrying near its rear end a roller-equipped pin *g⁷*, in engagement with a cam-groove in a disk *g⁸* on the shaft *b*. The form of this cam-groove is such as to produce movement of the slide *g'* in the slideway *g* and cause the carrier-bar *g²* to advance after a blank has been severed and take this blank down onto the ledge *c²*.

A long flat spring *h* is fastened at one end to a fixed support *b'* at one side of the base-frame, and at its opposite end bends under the carrier-bar *g²*, and is designed to catch the severed blank and yield to the said bar in its descent upon this blank.

A tack-clamping bar *i* is adjustably secured in a slide *i'*, which fits in a slideway on the base-frame, and said clamping-bar is formed with a rib *i²* on its front end to come against the tack-blank resting on the ledge *c²*. The slide *i'* extends rearwardly and is formed with a pair of lugs *i³* on its upper side. A cam *i⁴* on the shaft *b* operates between these lugs and reciprocates the slide by acting alternately against them.

An upsetting-bar *j* is adjustably fastened by means of screws *j²* in a slide *j³*, which works transversely of the machine and has an outwardly-projecting arm *j⁴*, carrying a roller-equipped pin *j⁵*. A link *k*, pivoted at one end to the frame of the machine, is formed at its other end with a cam-slot *k'*, approximately arc-shaped, with one side *k²* angular, which slot receives the pin *j⁵* on the slide *j³*. The link *k* is connected through a shackle *k³* with a pitman *k⁴*, and the latter is fitted to a wrist-pin *k⁵* on a crank-disk *k⁶* affixed to the shaft *b*.

The crank, through the connections described, oscillates the link *k* and thereby reciprocates the slide *j³*. In the movement of the slide which carries the upsetting-bar

against the blank the angular side k^2 of the slot k' acts against the roller-equipped pin j^5 and a sudden motion of the bar ensues, which has the effect of a blow.

5 The stock, in the form of a long strip, is fed through a tube or barrel m in the usual way and the strip is turned over for each cut by partially rotating said barrel in opposite directions through means which will presently
10 be described. The strip 2 near its extremity is embraced by an oblong loop or collar m' , which is fastened to the barrel.

A pinion n , affixed to the barrel, is engaged by a segment n' , pivoted to the frame, and a
15 slide n^2 in ways on the front of the machine has an arm n^3 , with a pin in engagement with the lower end of the segment, which is bifurcated. A pin n^4 on said slide is engaged by the bifurcated front end of a lever n^5 , pivoted
20 to oscillate in a horizontal plane and carrying at its rear end a pivotal elongated shoe n'' , in engagement with a double cam-groove n^6 in the periphery of a disk n^7 on the driving-shaft b . This cam-groove has intersecting
25 cross-over portions n^8 , as best shown in Fig. 8, and in the revolution of the disk first one part of the double groove and then the other engages the shoe n'' , and the latter is caused to cross over in each revolution of the disk,
30 the length of said shoe being sufficient to prevent its deviation. Thus the lever n^5 is shifted either to the right or left in each cycle of the machine's operation, and the feed-tube or barrel consequently turned so as to reverse
35 the stock.

The general operation of the machine is as follows: The strip 2 is fed forward to the desired extent through any suitable means so as to project slightly beyond the cutting-edge
40 of the fixed cutter c . The cutter d descends and by coaction with the cutter c severs a piece from the strip of the proper size to form one tack, and this severed piece lies upon the spring h . The carrier-bar g^2 advances beyond the cutter d and pushes the blank 3 down,
45 depressing the said spring, as illustrated in Fig. 4, and said blank is carried down upon the ledge c^2 , as shown in Fig. 5, and the bar

i moves forward and clamps the blank between its rib i^2 and the face of the cutter c while
50 said blank is on the ledge. The carrier-bar g^2 and cutter d then recede. (See Fig. 6.) The blank is held with a portion of it projecting laterally from the cutter c and bar i , and the upsetting-bar j strikes a blow against the projecting
55 end of the blank and upsets the metal against the sides of the cutter-bar c and clamping-bar i , thereby forming a head 4 (see Fig. 7) and completing the tack.

During the operation above described a
60 regular portion of the cam-groove n^6 is in engagement with the shoe n'' , and upon the completion of the operation a cross-over portion of said groove comes into action and the feed-tube is turned so as to reverse the stock for
65 the next cut.

The absence of springs for actuating the moving parts of the machine is to be specially noted. All parts are positively driven and the machine is capable of great speed. It is
70 to be further noted that the driving-shaft and the several parts which act directly on the work are all on about the same level, and the complication incident to the ordinary arrangement of an elevated driving-shaft is avoided.
75

What I claim as my invention is as follows:

In a tack-machine, the combination of a knife-carrying lever having a vertical slide-way in its front end; a knife fastened on the
80 front end of the lever to one side of said slide-way; a follower engaging the slide-way and aligning transversely with the knife; a cam co-acting with the knife-carrying lever; a lever engaging the follower; a cam co-acting
85 with that lever; a fixed knife; and a yielding rest for the severed piece.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of
90 August, A. D. 1894.

DARIUS C. FORD.

Witnesses:

HORACE BROWN,
WILLIAM QUINBY.