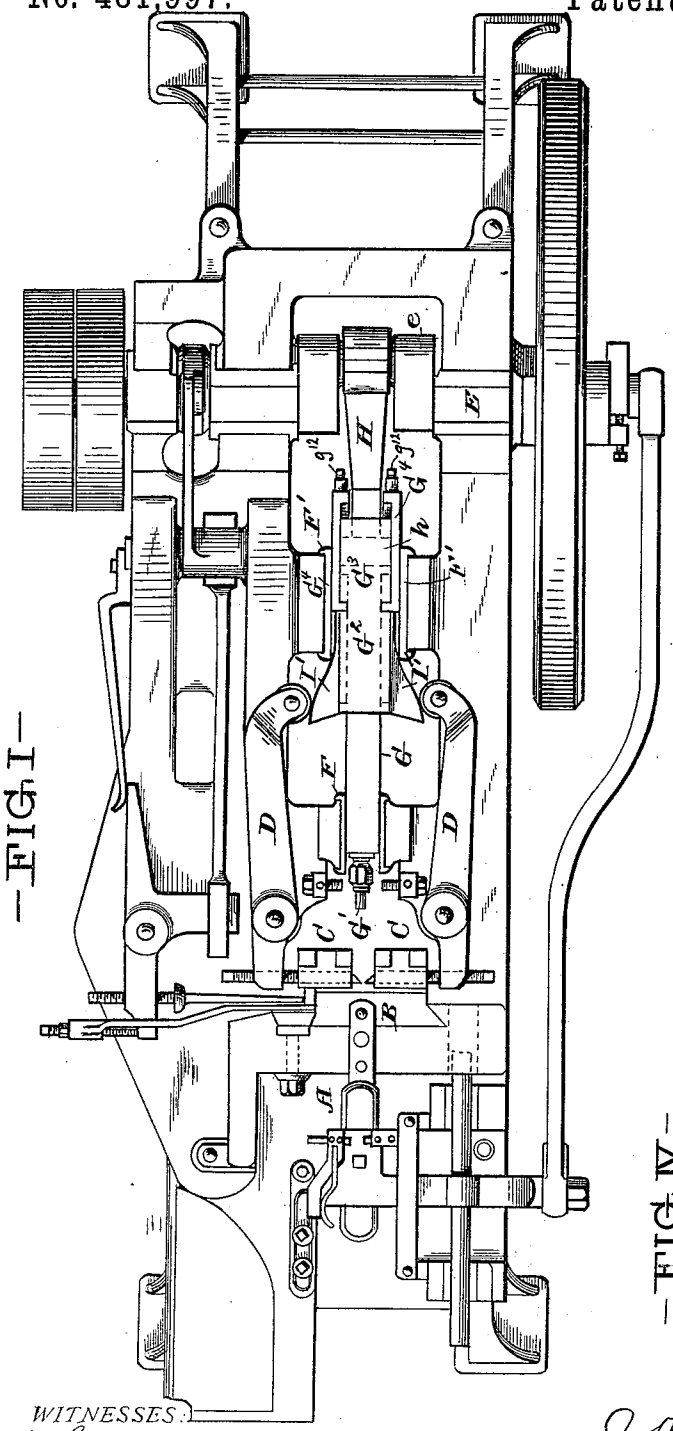
(No Model.) 2 Sheets—Sheet 1.

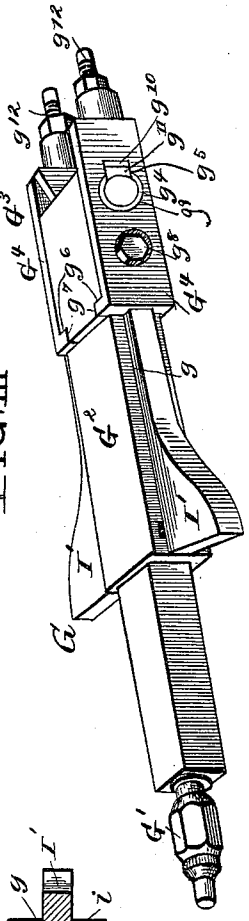
J. M. E. BAACKES & C. RICHARDS.

NAIL MACHINE.

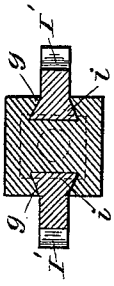
No. 481,997. Patented Sept. 6, 1892.



—FIG. I—



—FIG. III—



—FIG. IV—

WITNESSES:
J. C. Turner
Wm. Fischer

INVENTORS:
J. M. E. Baackes and C. Richards
BY
Hall and Fay
ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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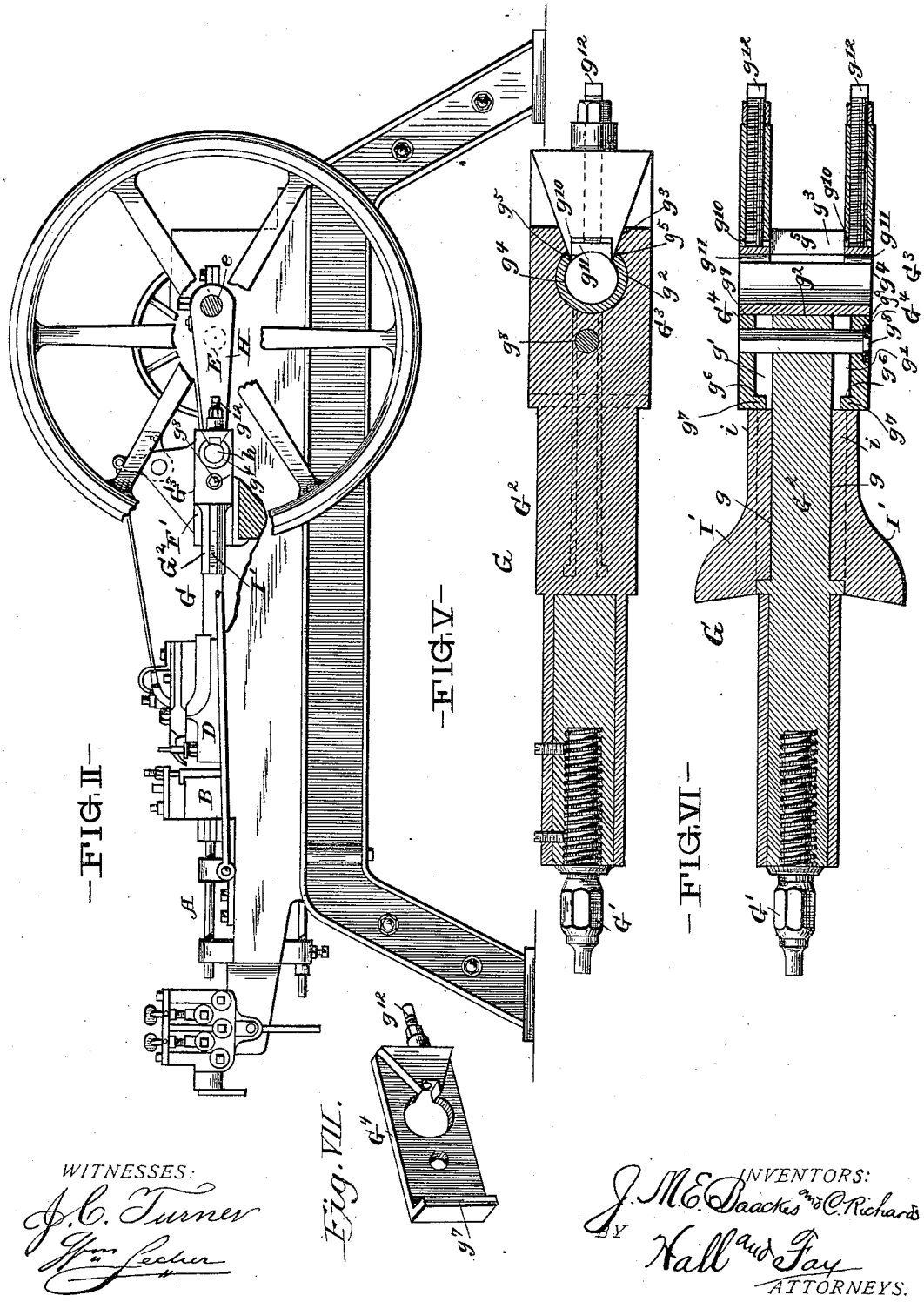

—FIG. II—

—FIG. V—

—FIG. VI—

Fig. VII.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN M. E. BAACKES AND CHARLES RICHARDS, OF CLEVELAND, OHIO.

NAIL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,997, dated September 6, 1892.

Application filed October 13, 1891. Serial No. 408,590. (No model.)

To all whom it may concern:

Be it known that we, JOHN MICHAEL ENGELBERT BAACKES and CHARLES RICHARDS, citizens of the United States, and residents of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Nail-Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which we have contemplated applying that principle, so as to distinguish it from other inventions.

The objects of our invention are to provide improved means for operating the cutters of a nail-machine and to provide an improved hammer-stock for such a machine.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In the annexed drawings, Figure I represents a top plan view of a nail-machine provided with our improvements; Fig. II, a side view with portions broken away to show the hammer-stock; Fig. III, a perspective view of the hammer-stock; Fig. IV, a cross-section of the same, taken through the portion having the cams secured in it; Fig. V, a longitudinal vertical section of the hammer-stock; Fig. VI, a longitudinal horizontal section of the same, and Fig. VII a perspective view of one of the cheek-pieces for the same.

In the drawings, the letter A indicates the wire-feeding mechanism; B, the dies; C, the cutters; D, the cutter-actuating levers, and E the drive-shaft of the machine. All of these parts are of the same general construction and operate in substantially the same manner as the corresponding parts of the majority of nail-machines of this type, usually termed the "German" type of wire-nail machines.

The main frame of the machine has two registering longitudinal guide-bearings F and F', in which the hammer-stock G slides. A pitman H is pivoted to the crank *e* of the drive-shaft and is formed with a cross piece or knuckle *h* at its forward end. The forward portion of the hammer-stock is provided with a header or hammer G' of any suitable or desired shape, and the edges of the middle portion G^2 of the stock are formed with two dovetailed grooves *g*, which extend into the side of the rear head G^3 of the stock in the form of wide straight-sided grooves *g'*. Two cams I' I' have dovetailed feet *i* and are inserted with said feet into said dovetailed grooves, being first inserted in the wide grooves *g'* and slid forward into the dovetailed grooves. The rear portion of the head is formed with a bearing g^2, which opens rearward into a flaring mouth g^3. A segmental bushing g^4 fits into said bearing and has a slot g^5 in its rear side, which corresponds to the flaring mouth g^3. The cross-head of the pitman has its bearing in the bushing and bearing and the pitman has vertical swing or play in the flaring mouth of the hammer-stock head. The sides of the hammer-stock head have vertical grooves g^6 at their forward edges, and two inwardly-projecting flanges g^7 upon the forward edges of two cheek-pieces G^4 project and fit into said vertical grooves, locking the cams in the dovetailed grooves by closing the rear ends of the same. These cheek-pieces are flat plates and are secured against the sides of the hammer-stock head by a countersunk bolt g^8, passing through the cheek-pieces and head. The cheek-pieces have circular holes g^9, corresponding to and registering with the bearing in the head, and the ends of the bushing project into said holes. The sides of the holes corresponding to the slot in the bushing are formed into rectangular notches g^{10}, into which bushing-sections g^{11} are fitted, completing the bushing around the ends of the cross-head. Screws g^{12} pass through the cheek-pieces from their rear edges and serve to hold the bushing-sections in place and to tighten the same against the ends of the cross-head as the parts wear and become loose. The inner faces of the cheek-pieces are formed with truncate triangular enlargements, the inner ends of which fit into the flaring mouth of the head, closing the outer portions of the same and bearing against the bushing-sections and the ends of the cross-heads of the pitman and serving as lateral guides for the pitman. The hammer-stock head, with its cheek-pieces, slides in the rear guide F' of the frame, and said cheek-pieces are thus held in place by said guide and besides by the bolt g^8. The cheek-pieces lock the

cams and the pitman in place, and all parts are thus perfectly secured in their proper places. While thus serving as locking-pieces for the movable parts of the pitman and hammer-stock, the cheek-pieces also serve as wear-plates for the hammer-stock, being more easily replaced when worn than the entire hammer-stock. The cams may be easily inserted or removed by removing the cheek-pieces and sliding the cams into or out of their grooves, so that repair or renewal of the cams when worn or injured may be performed with comparatively slight labor in a short space of time and with the use of very few tools. The cutter-operating cams upon the hammer-stock serve to spread the rear arms of the cutter-actuating lever upon the back-stroke of the hammer-stock, thereby forcing the forward arms of the levers and the cutters together to cut off the finished nails.

Other modes of applying the principle of our invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism herein set forth, provided the principles of construction respectively recited in the following claims are employed.

We therefore particularly point out and distinctly claim as our invention—

1. In a nail-machine, the combination, with a hammer-stock formed with longitudinal grooves in its sides, of cutter-operating cams removably secured with their feet in said grooves, substantially as set forth.

2. In a nail-machine, the combination of a hammer-stock formed in its sides with longitudinal grooves open at one end, cutter-operating cams formed with feet fitting into said grooves and sliding into the same at their open ends, and means for removably closing the open ends of the grooves and locking the cams in place, substantially as set forth.

3. In a nail-machine, the combination of a hammer-stock formed in its sides with longitudinal dovetailed grooves open at one end, cutter-operating cams formed with dovetailed feet fitting into said grooves and sliding into the same at their open ends, and means for removably closing the open ends of the grooves and locking the cams in place, substantially as set forth.

4. In a nail-machine, the combination of a hammer-stock formed with longitudinal dovetailed grooves in its sides, cutter-operating cams formed with dovetailed feet fitting in said grooves, and cheek-pieces upon the sides of the hammer-stock head and having their edges bearing against and locking said cams, substantially as set forth.

5. In a nail-machine, the combination of a hammer-stock formed with longitudinal dovetailed grooves in its sides terminating in wider straight-sided grooves in the hammer-stock head, cutter-operating cams formed with dovetailed feet adapted to enter said wide grooves and to fit and slide in said dovetailed grooves, and cheek-pieces secured upon the sides of the hammer-stock head and having their forward edges bearing against said cams and covering said wide grooves, substantially as set forth.

6. In a nail-machine, the combination of a hammer-stock having longitudinal dovetailed grooves in its sides terminating in wider straight-sided grooves in the sides of the hammer-stock head and having vertical grooves at the forward edges of said head, cutter-operating cams having dovetailed feet inserted through said wider grooves and secured in said dovetailed grooves, and cheek-pieces secured upon the sides of the hammer-stock head and having inwardly-projecting flanges upon their forward edges fitting in the vertical grooves and locking the cams in place, substantially as set forth.

7. In a nail-machine, the combination of a pitman having a cross-head at its forward end, a hammer-stock having a bearing for said cross-head in its rear end and a rearwardly-flaring mouth from said bearing, and cheek-pieces secured upon the sides of said hammer-stock and formed with holes for the ends of the cross-head and with enlargements upon their inner faces fitting in the flaring-mouth and closing the open sides of the cross-head bearing, substantially as set forth.

8. In a nail-machine, the combination of a pitman having a cross-head at its forward end, a hammer-stock having longitudinal dovetailed grooves terminating in wider straight-sided grooves and vertical grooves at the meeting ends of said grooves and formed with a transverse bearing in its head opening at the rear end in a flaring mouth, cams having dovetailed feet fitting in the dovetailed grooves, a segmental bushing for the pitman cross-head fitting in the bearing and having a slot corresponding to the flaring mouth of the hammer-stock head, bushing-sections in the ends of the slot in the bushing, cheek-pieces secured upon the sides of the hammer-stock head and having vertical flanges in the vertical grooves of the latter and formed with holes for the ends of the bushing and sections and with enlargements fitting in the flaring mouth of the hammer-stock head, and screw-bolts inserted through the ends of the cheek-pieces and bearing against the bushing-sections, substantially as set forth.

In testimony that we claim the foregoing to be our invention we have hereunto set our hands this 6th day of October, A. D. 1891.

J. M. E. BAACKES.
CHARLES RICHARDS.

Witnesses:
WM. SECTUR,
GEO. A. SNOW.