(No Model.) 2 Sheets—Sheet 1.

H. A. SCHNEEKLOTH.

PUNCHING, SHEARING, AND FORGING MACHINE.

No. 490,401. Patented Jan. 24, 1893.

Fig. 1.

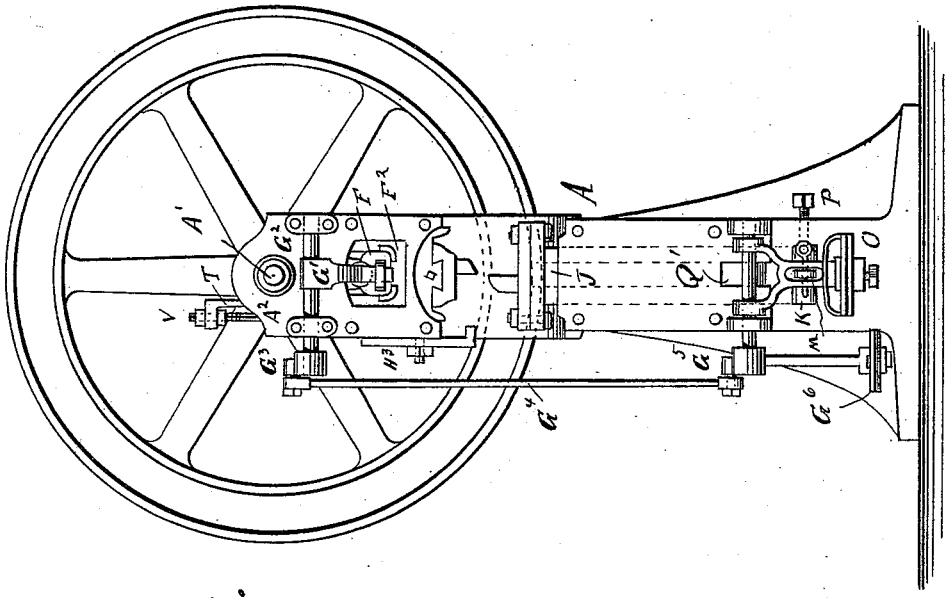


Fig. 5.

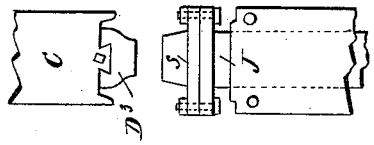


Fig. 2.

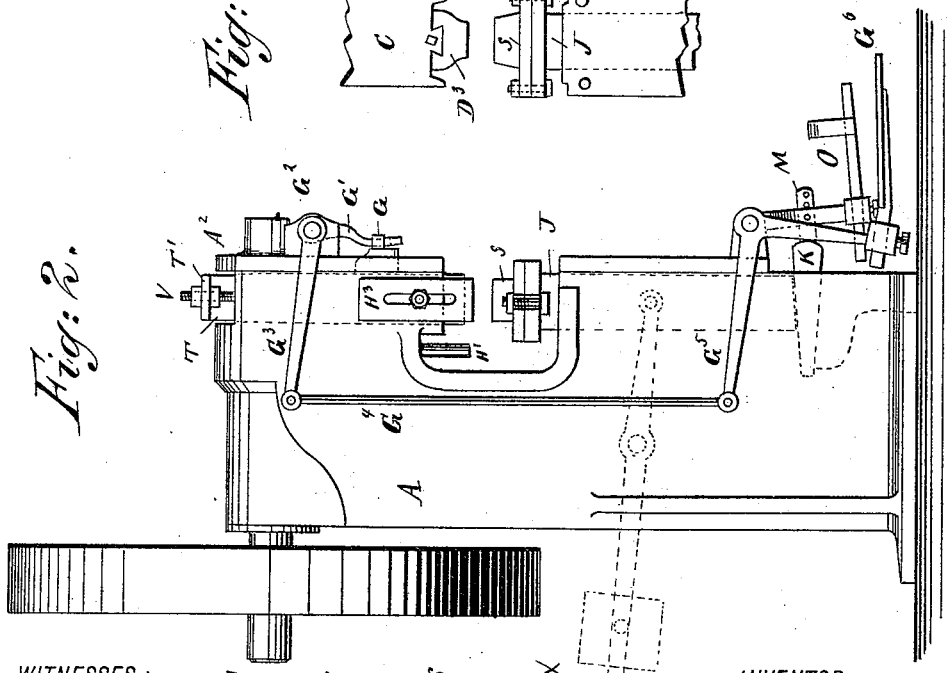
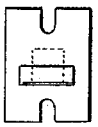


Fig. 6.



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(No Model.) 2 Sheets—Sheet 2.

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PUNCHING, SHEARING, AND FORGING MACHINE.

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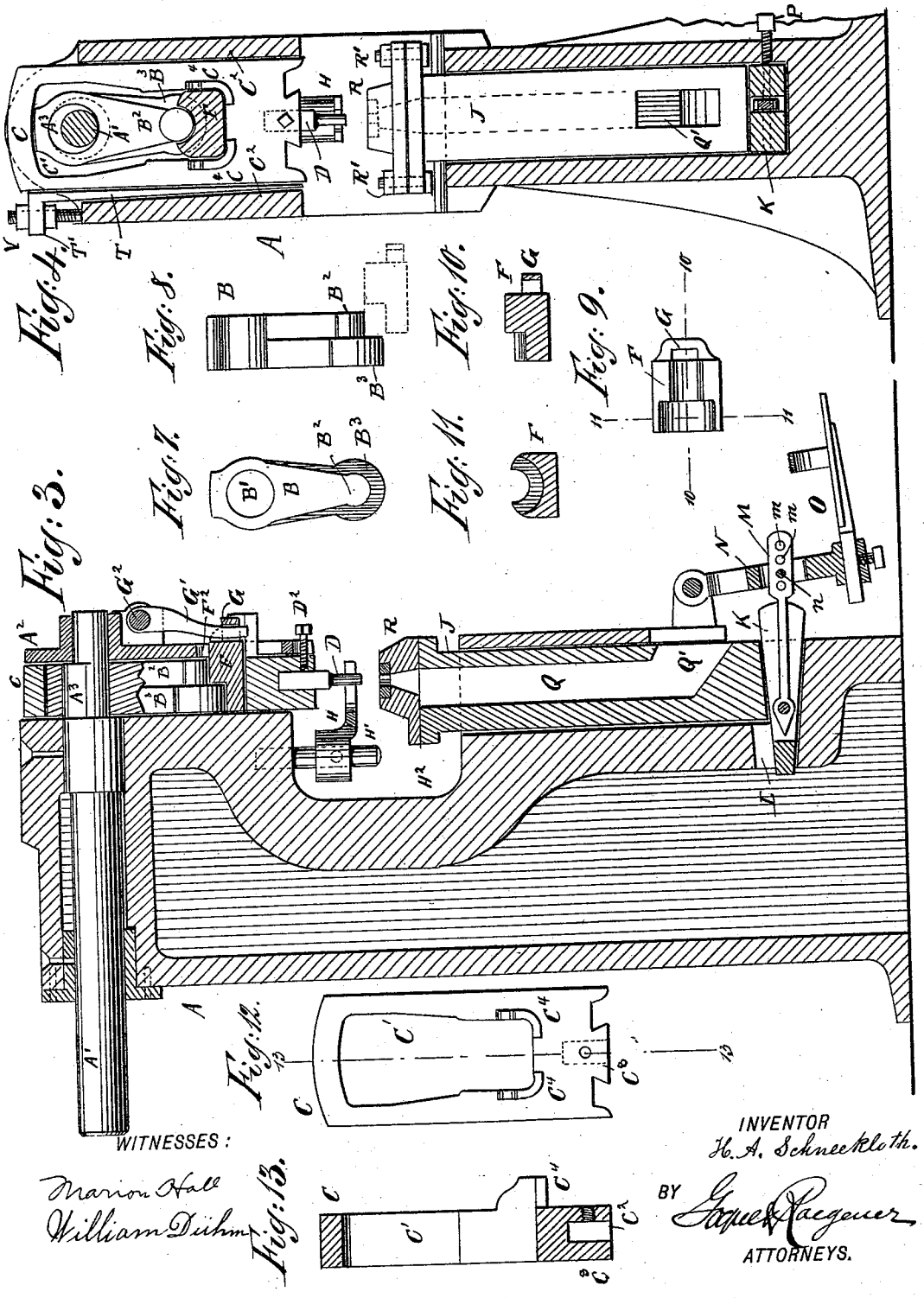

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UNITED STATES PATENT OFFICE.

HANS A. SCHNEEKLOTH, OF NEW YORK, N. Y.

PUNCHING, SHEARING, AND FORGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,401, dated January 24, 1893.

Application filed April 19, 1892. Serial No. 429,756. (No model.)

To all whom it may concern.

Be it known that I, HANS A. SCHNEEKLOTH, a citizen of the United States, residing at the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Punching, Shearing, and Forging Machines, of which the following is a specification.

The object of my invention is to provide a new and improved machine for punching, shearing and forging operations, which machine can be easily adapted for its different uses by changing the dies or tools.

The invention consists in the construction and combination of parts and details which will be fully described hereinafter and finally pointed out in the claim.

In the accompanying drawings, Figure 1 is a front elevation of my improved punching, shearing and forging machine. Fig. 2 is a side-elevation of the same. Fig. 3 is an enlarged vertical longitudinal sectional view of the same. Fig. 4 is a vertical transverse sectional view of the same. Fig. 5 is a detail elevation of the forging tools. Fig. 6 is a plan-view of the forging anvil. Fig. 7 is a front view of the plunger operated by the eccentric. Fig. 8 is a side view of the same. Fig. 9 is a plan view of the movable power transmitting block. Fig. 10 is a longitudinal sectional view of the same, on the line 10 10, of Fig. 9. Fig. 11 is a transverse sectional view of the same, on the line 11, 11, Fig. 9. Fig. 12 is a front view of the reciprocating holding-frame, and Fig. 13 is a vertical transverse sectional view of the same, on the line 13 13, Fig. 12.

Similar letters of reference indicate corresponding parts.

In the top of the machine frame or standard A a shaft A′ is suitably journaled to extend from the front to the rear of said frame, and one end of said shaft is also journaled in a neck of the front plate A^2 on the upper part of the front of said standard. Said shaft is provided with an eccentric part A^3, which is passed through an aperture B′ in the upper end of a plunger B provided with the two shanks B^2 B^3 of different lengths and having rounded lower ends, the lower ends of said shanks forming an offset. Said plunger B is mounted to reciprocate between the front of the standard and the front plate A^2 as shown in Fig. 3.

A reciprocating frame C provided with an opening C′ for the plunger is mounted to reciprocate between the side guides C^2 of the frame A, and is provided at its lower end with an aperture C^3 for receiving the upper end of a punch D or other tool, which can be held in place by a screw D^2, and said frame C is also provided on its lower end with a dove-tailed projection C^8 for receiving a hammer D^3, as shown in Fig. 5, said aperture C^3 being formed in said dove tailed projection C^8. A block F rests upon the bottom of the opening C′ in the reciprocating frame C and upon two outwardly projecting curved wings C^4 of said frame, the top of said block being curved transversely and provided with an offset to receive the lower rounded ends of the shanks B^2 B^3 of the plunger B. Said block F is provided on its front end with a loop G adapted to receive the lower end of an arm G′ projecting from the shaft G^2 extended across the front plate A^2, in bearings of which it is journaled, said shaft being provided on one end with an arm G^3 connected by a rod G^4 with one end of an elbow lever G^5 pivoted on the front of the standard A and provided with an adjustable foot-plate or treadle G^6, so that by depressing said treadle the arm G′ is swung outward and pulls outward the block F, which block F slides through an opening F^2 in the front plate A^2. A collar or arm H is held adjustably on a downwardly-projecting rod H′ projecting from the top of a recess H^2 in the front of the standard A, said collar or arm serving to hold the object under operation when the punch or tool moves upward and to clear the punch from said object.

H^3 is a gage plate.

In a suitable guide in the front part of the standard or frame A the top opening of which guide is formed in the bottom of the recess H^2 the block J is mounted to slide vertically and its lower beveled end rests upon a wedge-shaped forked block K mounted to slide in an opening L extending inward from the front of the standard or frame A a short distance above the bottom, which forked block is connected by a link M with a lever N pivoted on the front of the standard, which lever N is provided at its lower end with the treadle or

foot plate O. The said foot plate is adjustable and its inner end can strike against the front of the standard A and acts as a stop to prevent raising the block J too high. The link M has a series of apertures *m*, through one of which a pin *n* is passed into the apertures in the lever N, to permit of adjusting said wedge K in different positions in relation to the lever N. A screw P passing through the side of the standard or frame A serves for locking said wedge in place. The block J is provided with a longitudinal channel Q terminating at its lower end in an opening Q′ in the front of said block, and through said channel and opening the chips, &c., cut off by the tool can drop.

On the top of the block J a die-holder R is held by bolts R′. Said die-holder can be replaced by an anvil S, as shown in Figs. 5 and 6.

As shown in Fig. 1, shearing tools can be held in the punch and die holders for the purpose of performing shearing operations. A long tapering key T is provided at its upper end with a bent part T′ through which a screw spindle V, projecting from the top of the standard passes, and by means of nuts on said spindle V the tapering part T can be adjusted higher or lower as may be necessary. As shown in dotted lines in Fig. 2, the lower tool support may be provided with a counter balancing weight X to facilitate raising said lower support in case the same has great weight.

The operation is as follows:—The suitable tools are placed in the tool holders and the article to be acted upon is placed upon the lower tool holder. The block J supporting the lower tool holder rests on the wedge K, and said wedge can be locked in fixed position in case the tool holder is to remain in fixed position, or said tool holder can be shifted upward during the progress of the work by forcing the wedge K inward by means of the treadle O. The rotating shaft A′ and its eccentric A^3 reciprocate the plunger B. When the block F is in the position shown in Fig. 3, said block is forced downward by the two shanks B^2 B^3 of the plunger, and as said block F rests on the bottom of the opening in the frame C, said frame and the tool holder on the same are also forced down. The top of said frame C rests on the top of the plunger B and is raised by said plunger when the plunger is raised. When the machine is to be stopped, the treadle G^6 is released and by the weight of the arms G^3 G^5 and rod G^4 the arm G′ is thrown outward whereby the block F is moved in the position in relation to the plunger B shown in Fig. 8, so that the shanks B^2 B^3 when they descend cannot strike the top of the block F and thus cannot impart any motion to the frame C which by the frictional contact between its sides and the tapering key is held in raised position. When the machine is to be started again the treadle G^6 is depressed whereby the block F is swung inward under the shanks B^2 B^3: that is, into the position shown in Fig. 3, and the plunger will now again force the frame C and the tool held in the same downward, so that its frame C will be reciprocated by the plunger.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

The combination with a reciprocating tool-holder and means for operating said holder, of a vertically-adjustable support for a tool, a laterally-movable wedge supporting said adjustable tool, a link pivoted within a recess of said wedge and having a series of apertures at its outer end, a frame in which the tool-holder is guided, a foot-lever pivoted at its upper end to said frame and pivotally connected with the outer end of said link by a pin passed through a part of the foot-lever and through one of the apertures in the outer end of said link, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

H. A. SCHNEEKLOTH.

Witnesses:

OSCAR F. GUNZ,

CHARLES SCHROEDER.