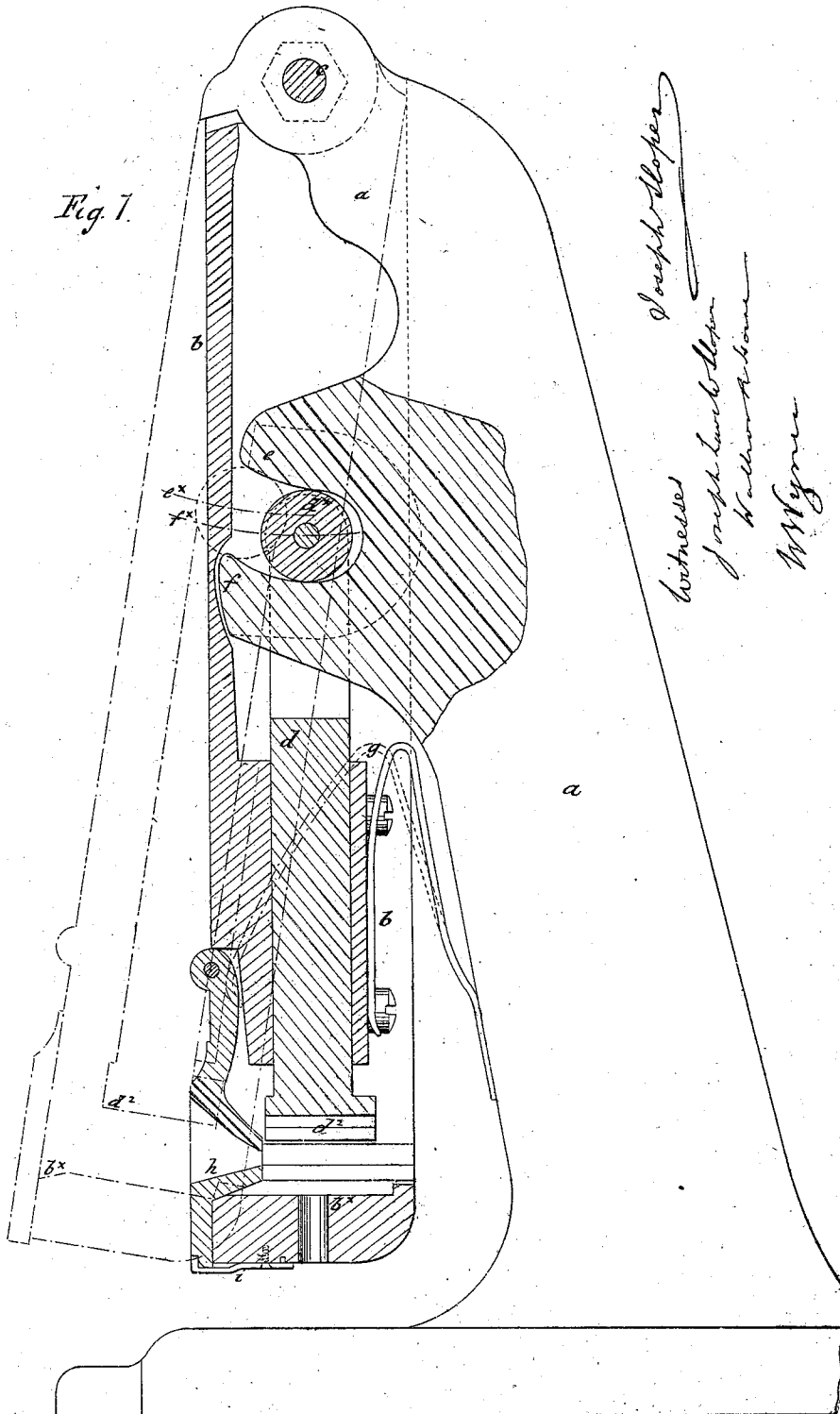


JOSEPH SLOPER.

Improvement in Hand Stamps.

No. 115,989.

Patented June 13, 1871.

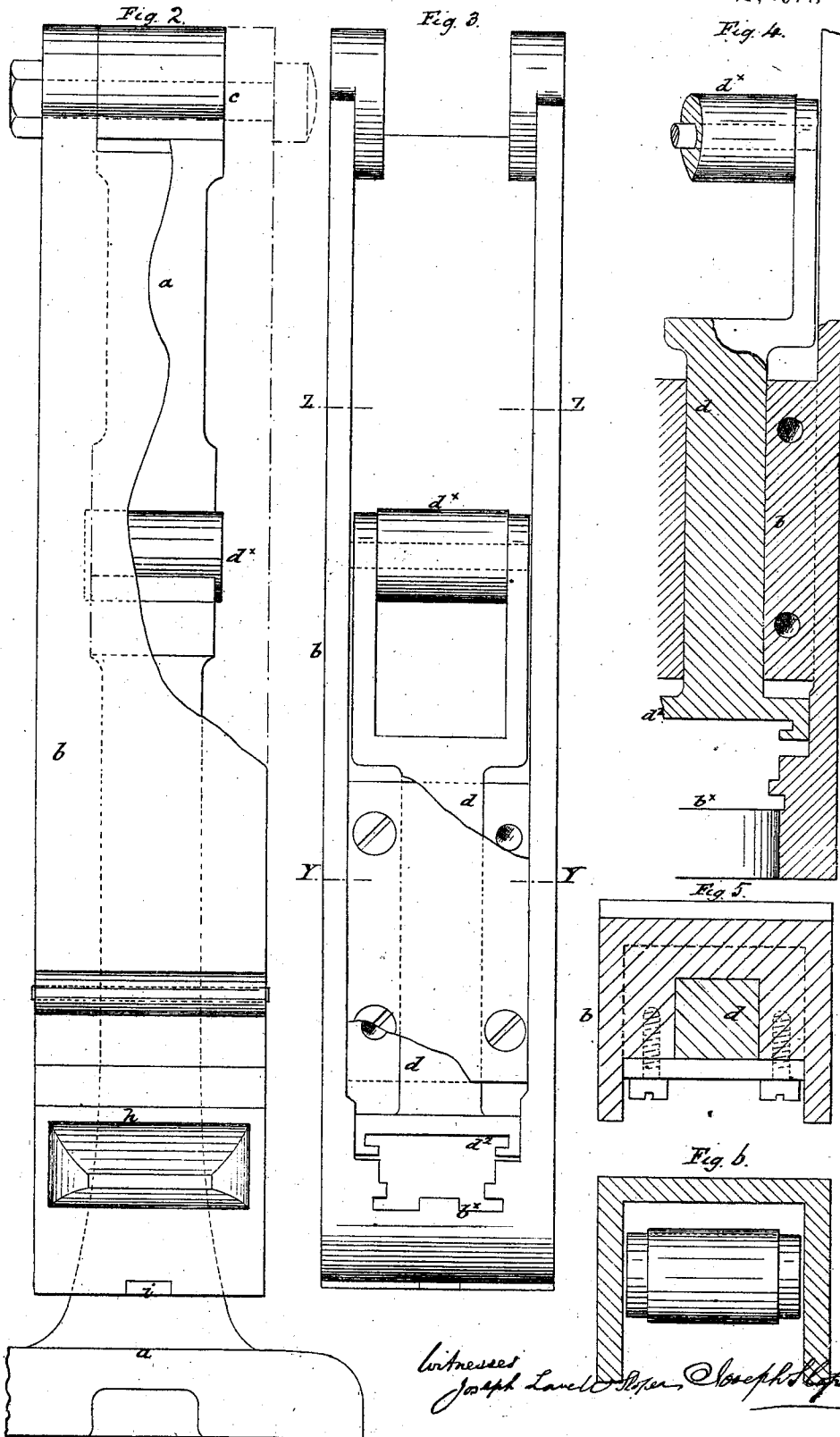


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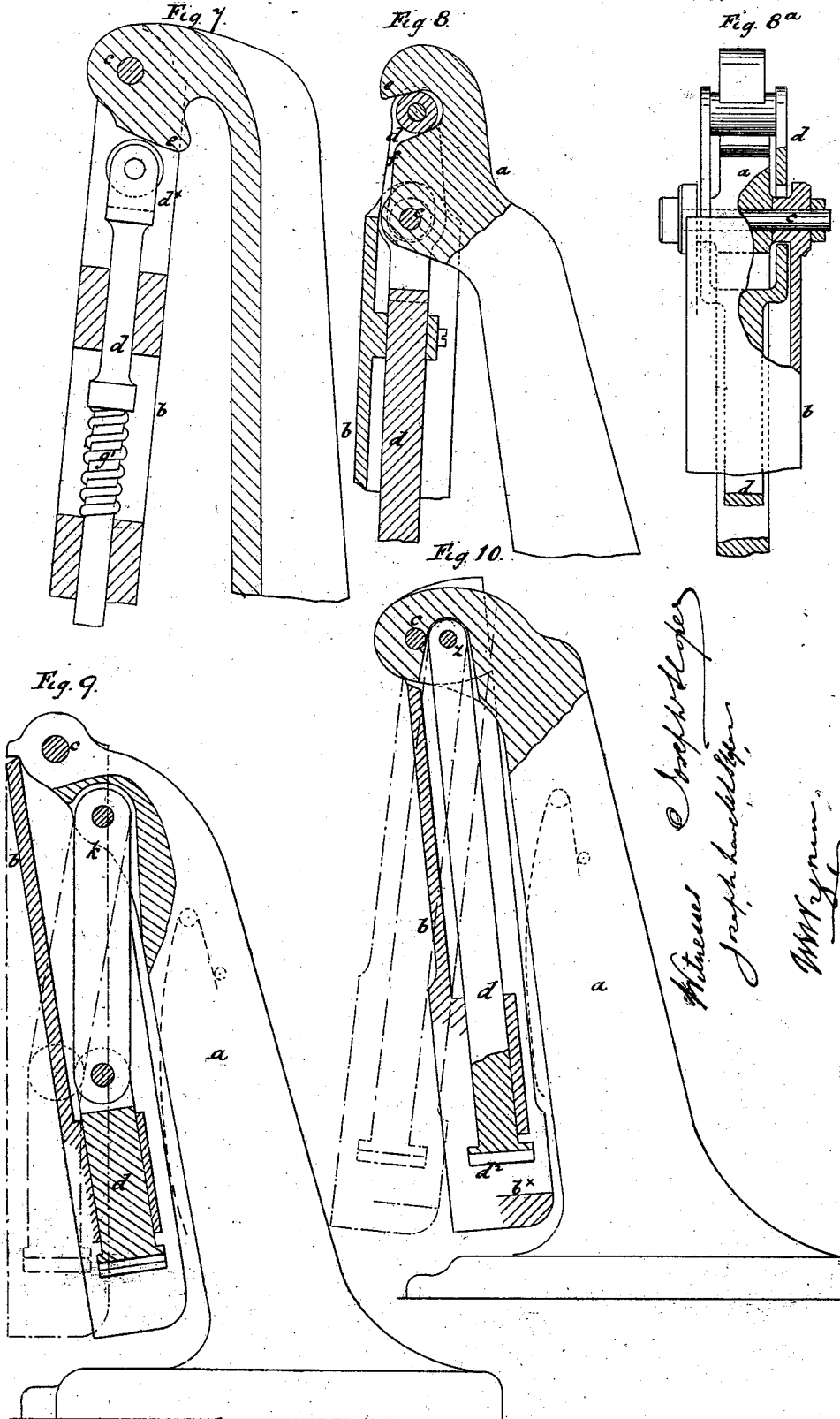


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Fig. 11.

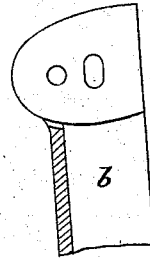


Fig. 12.

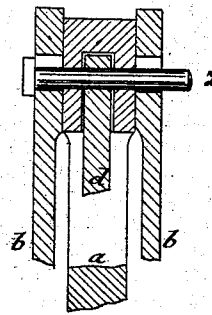


Fig. 14.

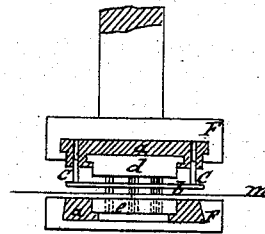
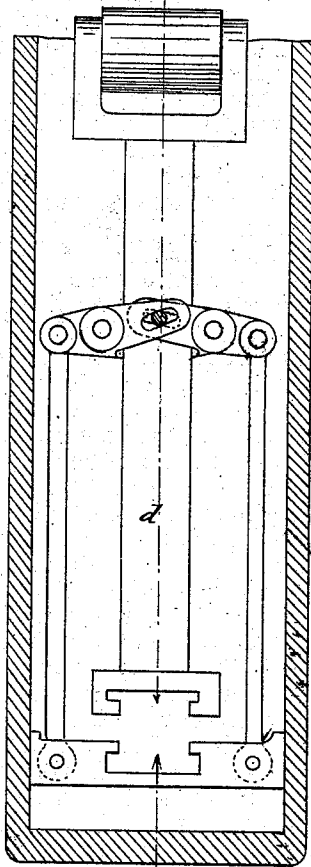


Fig. 13.



Witnesses
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W. W. Gunn
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UNITED STATES PATENT OFFICE.

JOSEPH SLOPER, OF WALBROOK HOUSE, LONDON, ENGLAND.

IMPROVEMENT IN HAND-STAMPS.

Specification forming part of Letters Patent No. 115,989, dated June 13, 1871.

To whom it may concern:

Be it known that I, JOSEPH SLOPER, of Walbrook House, in the city of London, England, civil engineer, have invented certain new and useful Improvements in Machines or Apparatus for Perforating, Punching, Cutting, or Stamping Card-Board, Metal, and other materials, which improvements I believe will be of great public utility; that I am the inventor thereof; and that the following is a full, true, and exact description thereof, reference being had to the drawing hereunto annexed—that is to say—

The nature of the said invention consists in constructing apparatus for the purposes set forth, in which are employed, in combination, a hanging or vibrating lever or frame, and a forcing rod or plunger carried and guided thereby and moving longitudinally with regard thereto, such motion of the rod or plunger being caused by its action against a cam or cams, or inclined surfaces, or other mechanical contrivances arranged to produce it as a result of or from the motion of the vibrating lever.

The figures 1 to 6 illustrate an improved machine in which the forcing-rod is guided and slides lengthwise within or with regard to the lever, the motion of the rod being induced by inclined surfaces, against which the vibration causes the rod (or a roller thereon) to bear.

Figures 1 and 2 are side and front elevations, both partly in section; Fig. 3, back elevation of lever and rod. Fig. 4 is part of Fig. 3 repeated, but in section, and showing varied position of rod. Figs. 5 and 6 are plans at Y Y and Z Z, respectively.

a is a pillar or standard, from which lever *b* depends and vibrates from the center at *c*. *d* is a forcing-rod, guided and sliding in the lever *b*, which has a hollow or box-like sectional form. *d*^{*} is a roller on top of *d*, and *e f* are inclined surfaces on horns projecting from the pillar, and against which the vibration of the lever (which may be moved by hand or otherwise) causes the roller to bear, and thus to depress and raise the rod accordingly as the vibration is toward or away from the pillar. *g* is a spring to cause the return action of the lever *b*. The lower end *d*² of the rod and the bottom *b*^{*} of the lever are intended for hold-

ing the perforating or other tools, and it is to be noted that the rod moves to vary the distance between these parts, the extent of variation being observable by comparing Figs. 3 and 4, and also by comparing the dotted and full lines, respectively, in Fig. 1; and also by comparing the dotted arcs *e*^{*} and *f*^{*} in the lastly-mentioned figure. The form of the tool-holding parts may be varied, as required, for holding-tools for perforating, punching, embossing, cutting, or other purpose; but as represented the said form is convenient for holding changeable dies, such as may be used for perforating small holes disposed to represent numeral figures or other devices applicable to dating or marking railway tickets. *h* is a mouth-piece, suitable for presenting the tickets to the action of the press. It works on a hinge, and in use is held in position by the spring-catch *i*, but may be made in any other convenient manner to afford facility for changing the dies, or may be made removable.

Figure 7 is a modification in which the form of the parts is varied, but the feature to be especially noted is that, though the rod is depressed by an inclined surface at *e*, its return action depends entirely upon a spiral spring, *g*¹, placed around it; or a spring or other suitable contrivance for this purpose may be otherwise applied. Figs. 8 and 8^a show another modification, in which the action of the inclined surfaces *e f* is obtained above instead of below the center of vibration *c*.

It is to be noted that the upper or forked end of rod *d* is perfectly free of the center *c*, for which purpose each arm of the fork has a slot or elongated opening therein to allow the sliding motion of the rod. (For placing together some of the individual members of this press they must, if requisite, be made in pieces, though not so represented in the drawing.)

Another modification consists in the use of a cam-roller carried by the forcing-rod, such roller having depressed or hollow surfaces and raised or projecting surfaces, which may, by the vibration of the lever, be brought to bear against a small roller on the pillar or frame, and the cam-roller may, by a ratchet motion, (acted upon by the said vibration,) be made to turn so as to depress the rod quickly when required, and the return action of the rod may be effected by a spring or in any convenient

manner when its release is permitted by the further turning of the cam-roller.

Fig. 9 is a modification, in which the depressing-and-raising action of the rod is obtained by a radius-link, *k*, hinged both to the rod and to the pillar *a*. *c* is the center, from which the lever *b* vibrates. Fig. 10 is another modification, in which the forcing-rod *d* is hinged or hung at its upper end to the pillar *a* by a pin, *z*, somewhat near to the center of vibration *c*. Fig. 11 is a detached view of upper part of lever *b*, and Fig. 12 is a cross-section through the pin *z*.

In order to get in this pin it passes across through the lever *b*, which has a slotted hole to allow the required amount of play. Some amount of play may also be allowed at the lower part, where the rod is guided in the lever; or the guide may be made by a fixed pin on the lower end of the rod, working through slot in the lever or otherwise.

Fig. 13 is a modification, illustrating an upward or an approaching movement of one tool-holder toward the forcing-rod, obtained by levers and rods from the movement in a downward or opposing direction of the forcing-rod itself, which is or carries the other tool-holder. The two approaching movements, which are simultaneous, are denoted by the opposing arrows in the figure, and similarly, the reverse movements would be simultaneous. The object of the two movements is to divide between them the amount of action required for the tools. The forcing-rod *d* may be put in action by or from that of the vibrating lever *b* in any of the ways herein specified, and the approaching and reversed action of the tool-holders may, if desired, be effected in any convenient manner other than that represented.

It is evident that various modifications other than those above enumerated may be made, and proportions of parts may be altered without departing from the spirit of the invention, of which the foregoing description and the drawing are to be understood as illustrative only. Especially it may be observed that the friction-roller may be placed on the pillar and an inclined surface or surfaces be provided on the rod *d* to produce the sliding action. Also, that the tool-holder at *b**, at the bottom of the lever, may sometimes (though perhaps not so conveniently) be replaced by one occupying a position apart from instead of in or upon the vibrating frame. Also, that the apparatus may be arranged with the center of vibration at the bottom instead of at the top, or to work horizontally instead of vertically, or in any direction; or may be arranged in duplicate "end-wise on," by which expression I intend an arrangement in which the forcing-rod in each

vibrating lever works in a direction approaching and receding from the other, the ends of the vibrating levers away from their centers being those presented toward each other. And further, in some cases it is intended to extend the vibrating lever, between pillars or supports, to any desired width, with any convenient number of forcing-rods sliding therein, having dies and matrices acting therewith; and for convenience of working such dies and matrices they may be specially constructed (in pieces, if desired) so as to work in a frame or carriage made somewhat similar to a printer's composing-stick, as shown in section at *a*, Fig. 14; such frame or carriage being furnished with a separating-plate, so adapted as to allow of the free passage of the material to be acted on under or between the separating-plate and the matrices, as shown in Fig. 14.

Sometimes I prefer to make the dies and separating-plate in one instead of suspending the separating-plate, when it is not necessary to pass the material wholly under or through the die, as in the case of dating railway tickets and such like, where the end only of such tickets is required to be inserted.

a a are the frames or carriages, shown in cross-section; *b*, the separating-plate; *c c*, the guide-pins attached thereto, and working in holes in the upper frame *a*, formed for the purpose; *d*, the die; *e*, the matrix; *f f*, the jaws of the press or apparatus for receiving the dies and matrices; *m*, the material to be acted on. The object of this arrangement is for operating upon the material when in the form of sheets or strips, which may be fed in by hand; or a feed-motion may be obtained in this case, and also with any of the machines herein specified by or from the vibrating action of the lever.

It is to be observed, generally that the several varieties of the machines may be made of any size convenient to the purpose of the particular work to be performed.

I claim—

The general construction of apparatus for perforating, cutting, or stamping paper, metal, or other material in which a hanging frame is combined with a descending plunger, substantially in the manner described and set forth.

In witness whereof, I, the said JOSEPH SLOPER, have hereunto set my hand this fourth day of March, one thousand eight hundred and seventy-one.

JOSEPH SLOPER.

Witnesses:

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