(No Model.)

J. S. PESSENGER.

HYDRAULIC STAMPING PRESS.

No. 330,730. Patented Nov. 17, 1885.

FIG. 1.

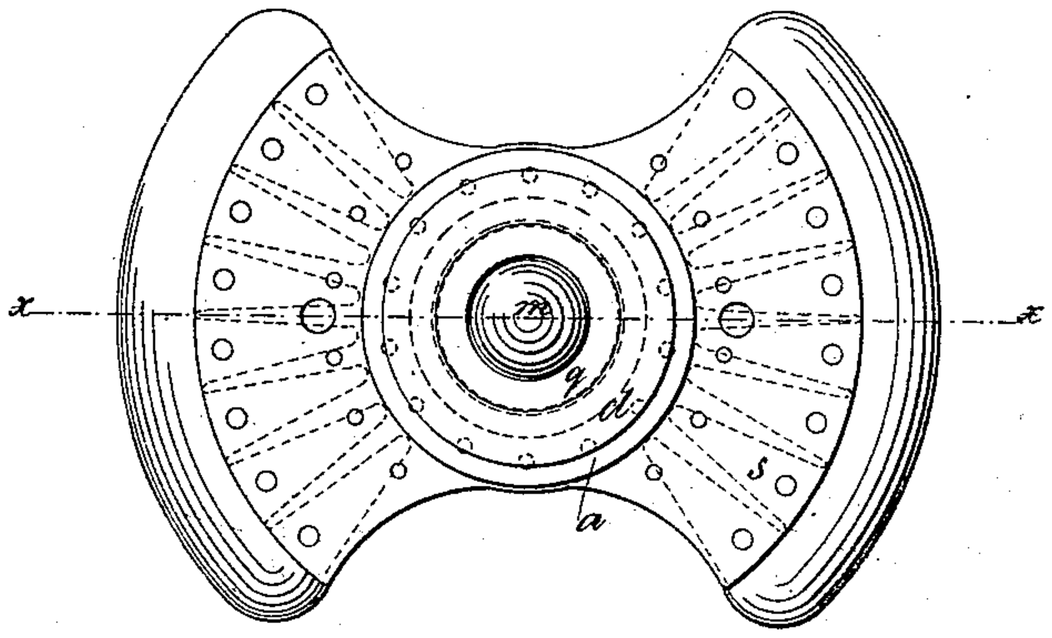
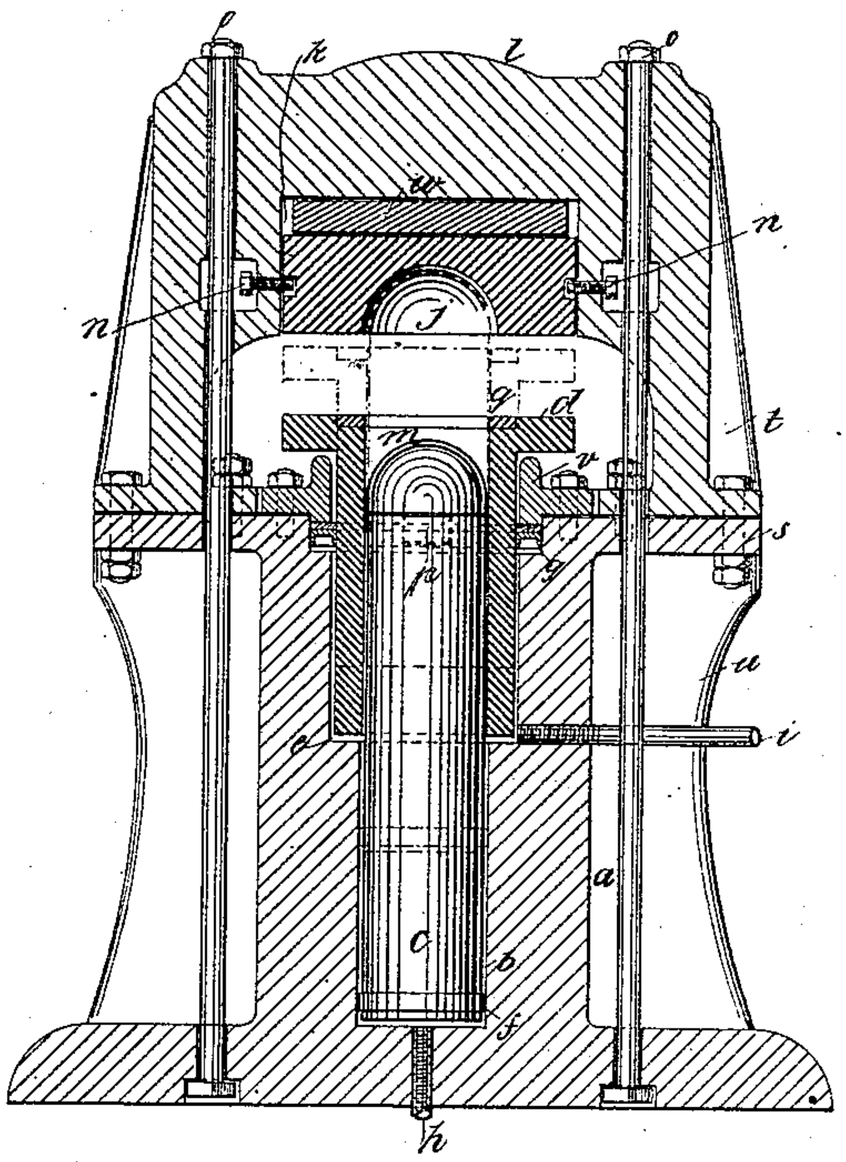


FIG. 2.



WITNESSES

Henry Hess

W. J. Morgan.

INVENTOR

John S. Pessenger.

By A. P. Thayer

atty

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN S. PESSENGER, OF BROOKLYN, NEW YORK.

HYDRAULIC STAMPING-PRESS.

SPECIFICATION forming part of Letters Patent No. 330,730, dated November 17, 1885.

Application filed June 27, 1885. Serial No. 169,955. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. PESSENGER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Hydraulic Stamping-Presses, of which the following is a specification.

My invention consists of an improved contrivance of hydraulic stamping mechanism for forming sheet-metal ware, the essential feature of which is a ram for presenting the blank to and holding it on the face of the intaglio-die governed by hydraulic pressure, adapted to hold and release the sheet for drawing into the die without buckling, in combination with the cameo-die attached to a ram governed by other hydraulic pressure independent of that which operates the holder, and adapted to effect the stamping without effect on or interference with the holder, and being arranged so as to dispense with special means for returning the rams.

My invention also comprises certain details of the apparatus, all as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of the base of the machine containing the cylinders and rams; and Fig. 2 is a sectional elevation of the complete machine, taken on the line *x x* of Fig. 1.

I make a substantial vertical cylinder, *a*, the bore of which is of smaller diameter in the lower part, *b*, and contains a ram, *c*, which works through the bore of the ram *d*, which ram works in the upper and larger part, *e*, of the bore of cylinder *a*, both being suitably packed for preventing the escape of the fluid, as at *f* and *g*, and each part of the cylinder having independent inlet-pipes *h i*, respectively connected with separate accumulators or other forcing apparatus of different tensions. Over the ram *d*, I mount the intaglio-die *j* in a recess, *k*, in the lower side of the head *l* of the press, against which the holding-ram *d*, having the blank to be stamped, is to be pressed, preparatory to being stamped, by the fluid admitted through pipe *i*, and forced by pressure predetermined in respect of its force for holding the blank with the requisite tension for allowing it to draw firmly when acted on by the cameo-die *m*. The die *m* is then forced up with greater pressure of liquid from another source through pipe *h* to effect the stamping. By these contrivances of separate motive liquids for the different rams it will be seen that the different forces required for the different rams can be gaged independently for them, and each can be varied separately, according as it may be required for sizes and kinds of articles to be made and as the dies are varied, the dies being interchangeable.

The die *j* is fitted detachably in the recess *k*, where it is held by the screws *n*, which screw into and out of the recesses in the sides of the die, as shown in Fig. 2, the screws being inserted in their places before the holding-down rods *o* are inserted.

The dies *m* are detachable from the head of the ram *c*, on which they rest and are retained by a center stud, *p*, of the die, and a corresponding socket in the top of the ram.

The ram *d* has an annular recess in the top, which is fitted with a plain ring, *q*, when the die *m* is the same size as the ram; but when smaller dies are substituted I put in other rings fitted to limit the bore out of which the die issues to the size of the die.

The cylinder is strongly flanged on opposite sides to provide the supporting-plates *s* for the foot-rests of the standards *t* of the head *l*, which are bolted to said flanges and also secured by the rods *o*, and the flanges are reenforced by the radial stay-ribs *u* of the cylinder. The packing *g* is secured by the gland *v*, of the usual form.

Above the die *j*, I provide a cork or other approved elastic cushion, *w*, for relieving the machine of the shocks that would otherwise be caused by admitting the fluid too quickly, which often occurs.

For allowing the rams to descend after each operation, the fluid is allowed to escape from the pipes by any approved contrivance of cocks or valves adapted to cut off the communication with the accumulators and open an escape-passage.

In this example I have represented the arrangement as for working the rams vertically upward to apply the power, so that when the water escapes the rams will descend by their gravity, which avoids the use of special means or contrivances for effecting the return of the rams and simplifies and cheapens the machine; but the press may be inverted or arranged at

any angle preferred, and it may be employed for forging, swaging, and other kinds of press-work, as desired.

It is to be noted that in my arrangement of the rams the power applied to the ram *c* does not react on the ram *d*, and thus interfere with its action, as would be the case if the cylinder for the ram *c* were formed wholly within the ram *d*, said ram having its lower end closed and having a pipe-connection through it for the water.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In a hydraulic stamping-press, the combination of the cylinder *a*, having the differential bore-sections *b e*, the annular holding-ram *d*, arranged in the enlarged section *e* of the cylinder, the forming-ram *c*, extending through the annular ram *d*, and arranged in the smaller bore-section *b* of said cylinder, packing-joints *f g*, and the separate inlet-pipes *h i*, constructed in the described arrangement, in which the power is applied to ram *c* independently of ram *d*, and so as to force the rams upward in taking effect and to enable them to descend by gravity when the water escapes.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN S. PESSENGER.

Witnesses:
W. J. MORGAN,
HOWARD D. BURT.