

(No Model.)

J. H. SMITH.
COPYING PRESS.

No. 512,668.

Patented Jan. 9, 1894.

Fig. I.

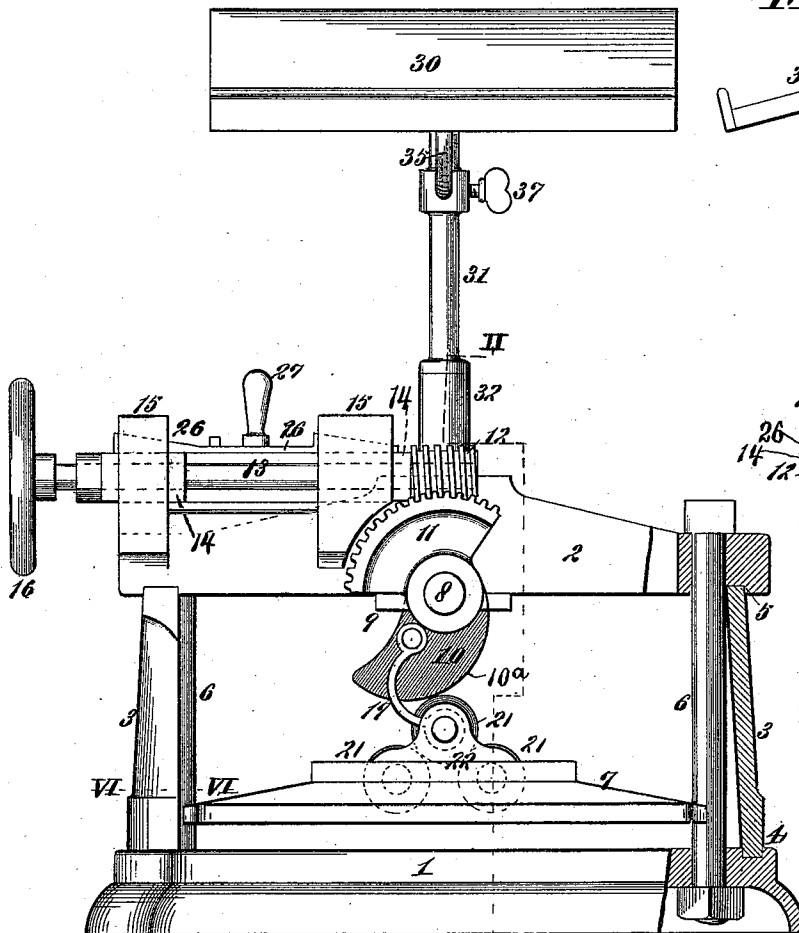


Fig. II.

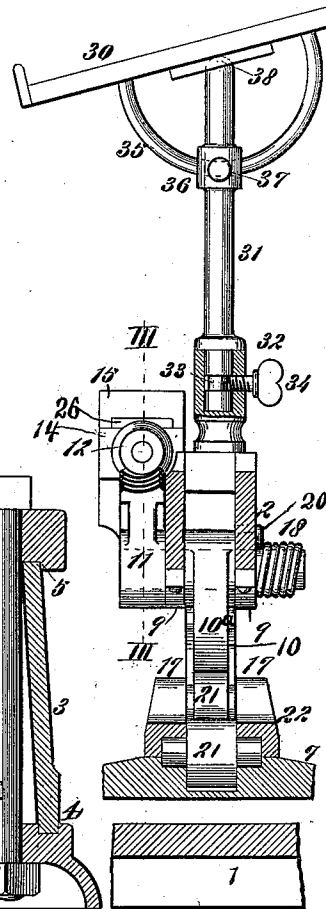


Fig. III.

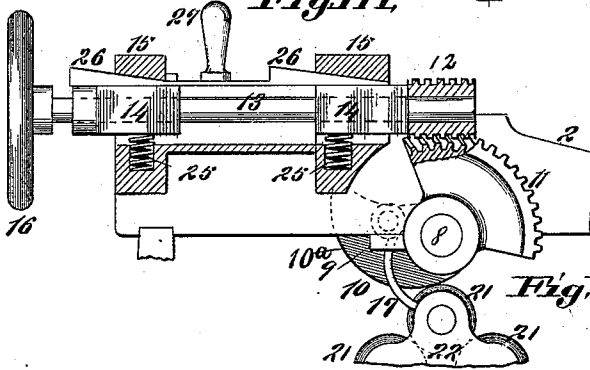


Fig. IV.

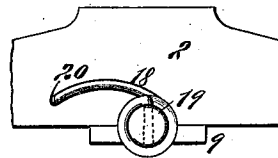


Fig. V.



Fig. VI.



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UNITED STATES PATENT OFFICE.

JAMES H. SMITH, OF BELLEVILLE, ILLINOIS.

COPYING-PRESS.

SPECIFICATION forming part of Letters Patent No. 512,668, dated January 9, 1894.

Application filed July 28, 1893. Serial No. 481,709. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. SMITH, of Belleville, in the county of St. Clair and State of Illinois, have invented a certain new and useful Improvement in Copying-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in copying presses; and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is an elevation of my improved press, part in vertical section. Fig. II is a vertical section, taken on line II—II, Fig. I. Fig. III is a detail, vertical section, taken on line III—III, Fig. II. Fig. IV is a detail side elevation. Fig. V is a top view of the roller retaining cap secured to the follower of the press. Fig. VI is a detail, horizontal section, taken on line IV—IV, Fig. I.

Referring to the drawings, 1 represents the base of the press.

2 is an arch supported on the base 1 by means of half round pillars 3. These pillars fit into notches 4 in the base and into notches 5 in the arch.

6 are bolts connecting the base and arch together. These bolts are received by the half round pillars 3, as shown in Figs. I and VI, and project beyond the pillars to form guides for the follower 7. The bolts clamp the pillars firmly between the base and arch. The arch is of skeleton form, with closed ends; that is to say, it is open in the center, and closed at the ends, thus embodying the greatest amount of strength with the least amount of metal.

8 is a short shaft secured to the under side of the arch 2, by means of suitable boxes 9. (See Fig. II.) Formed upon this shaft is a cam 10, which works or moves in the hollow arch as the follower is operated and is provided with a plain bearing face 10^a. On the shaft 8 is a worm segment 11, engaged by a worm 12 on the end of a shaft 13, journaled in boxes 14, fitting in ears or projections 15 on the arch 2.

The shaft 13 is provided with a hand wheel 16 by which it may be turned. The follower plate 7 is connected to the cam 10 by means

of curved arms or links 17. The shaft 8 is surrounded by a coil spring 18, one end of which is made fast to the shaft, as shown at 19, Fig. IV, and the other end of which is made fast to the arch, as shown at 20, Fig. IV.

21 represents a triangular set of anti-friction rollers, journaled in a cap 22, by which they are secured to the follower 7.

The operation is as follows:—When it is desired to lower the follower, the hand-wheel 16 is turned in the proper direction to cause the cam 10 to press against the upper roller 21, and the follower is forced downwardly in an even, uniform manner, and without being twisted, as is the tendency with the ordinary screw press. When the follower is to be raised, the hand wheel 16 is turned in the opposite direction, and the follower 7 being connected to the cam 10, by means of the links 17, is made to ascend as the cam 10 moves away from the rollers 21. For causing a quick ascent of the follower, I provide the spring 18, and arrange the worm wheel 12, so that it can be disengaged from the segment 11. This I do by allowing for vertical movement of the boxes 14, and locating springs 25 beneath the boxes and arranging wedges 26 above the boxes. (See Fig. III.) By forcing the wedges inwardly, for which purpose a handle 27 is provided, the boxes 14 are forced downwardly against the springs 25, and the worm 12 is forced into engagement with the segment 11. When it is desired to quickly return the follower 7 to its highest position, the wedges 26 are forced to their outer position, by applying pressure in the direction of the hand-wheel 16 upon the handle 27. This causes the worm 12 to be disengaged from the segment 11, and the spring 18 will quickly bring the cam 10 to its upper position, and the cam being connected to the follower 7, the latter is also quickly brought to its upper position. If the next article to be copied is thin, requiring a considerable descent of the follower, the follower can be forced down by placing one hand upon it, and then by forcing the wedges 26 inwardly by the use of the other hand, the worm 12 is brought into mesh with the segment 11, and the pressure is applied through the cam 10, being turned by the hand-wheel 16, and connecting parts.

30 represents a table mounted on a stem 31,

fitting in a socket 32, secured to the arch 2. The lower end of the stem has a groove 33, (see Fig. II,) receiving the inner end of a set screw 34, so that the table can be adjusted horizontally by turning the stem in the socket, and the table can be turned or adjusted vertically by being mounted on the stem 31, through means of a circle iron 35 connected at its ends to the under side of the table, and passing through the stem at 36. The table is held to any adjustment by a set screw 37 passing through the stem and jamming against the circle iron. The upper end of the stem is rounded, as shown at 38, to form a ball and socket joint with the bottom of the table.

It will be understood that the triangular arrangement of the rollers 21, transfers the single bearing point between the cam 10 and the upper roller, into a double and wide bearing point between the cam and the follower, so that the follower is pressed evenly down at both ends.

The press is a comparatively simple and a durable device; is capable of being rapidly operated, and the follower is moved in a true vertical direction, without twisting or lateral movement.

I claim as my invention—

1. In a copying press, the combination of

the base, an arch, a shaft journaled to the arch, a cam formed upon the shaft, means for operating the cam, a follower, arms connecting the follower to the cam, and a triangular set of rollers journaled to the follower; substantially as and for the purpose set forth.

2. In a copying press, the combination of a base, an arch, a shaft journaled to the arch, a cam formed upon the shaft, a segment, and a worm for moving the shaft in one direction, a spring tending to move the shaft in the other direction; means for disengaging the worm from the segment, a follower, and arms connecting the follower to the cam; substantially as and for the purpose set forth.

3. In a copying press, the combination of the base, an arch, a shaft journaled to the arch, a cam upon the shaft, a follower plate, arms connecting the follower plate to the cam, a segment on said shaft, a spring on said shaft, a worm for engaging said segment, and means for disengaging the worm from the segment, consisting of wedges 16, boxes 14, and springs 25; substantially as and for the purpose set forth.

JAS. H. SMITH.

In presence of—

P. W. BURKE,

FRED ROPIEQUET.