

May 31, 1932.

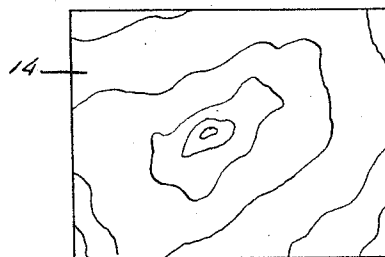
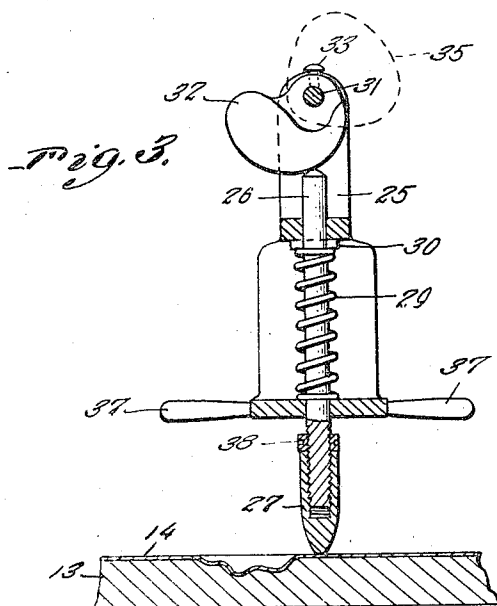
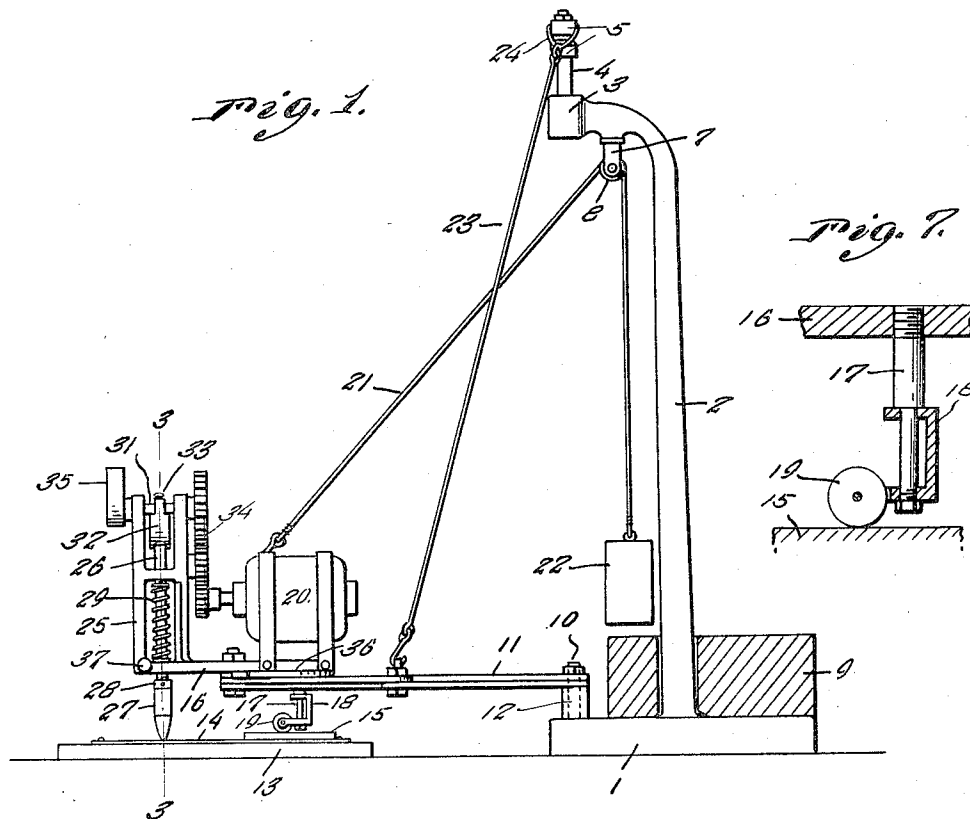
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1,860,729

EMBOSSING MACHINE

Filed June 12, 1931

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

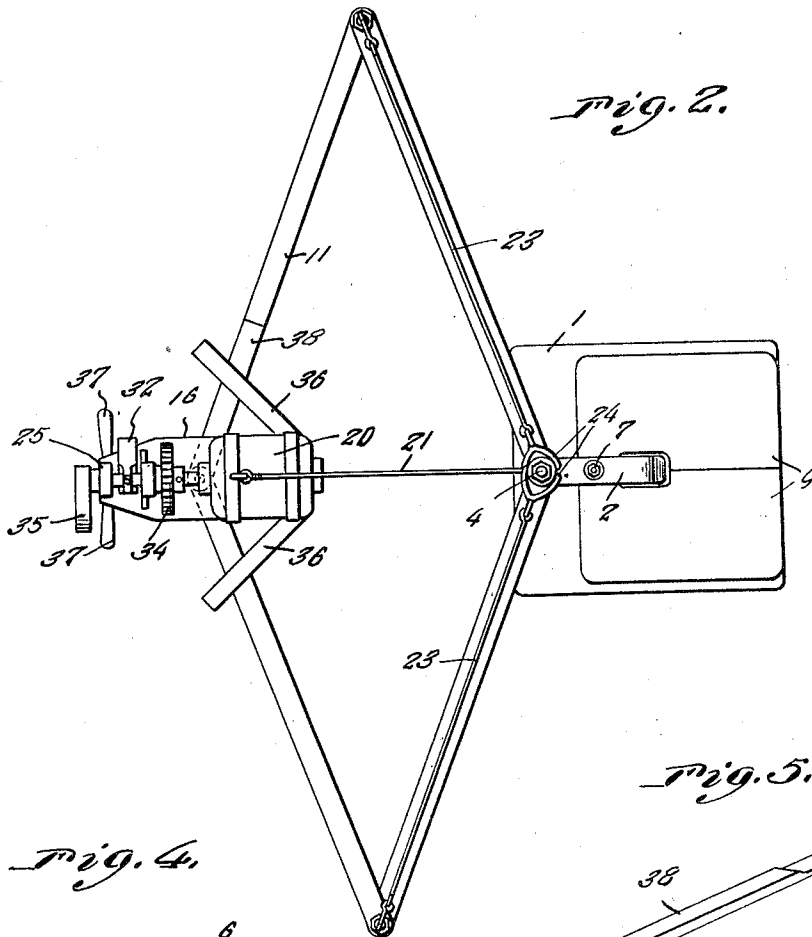


Fig. 4.

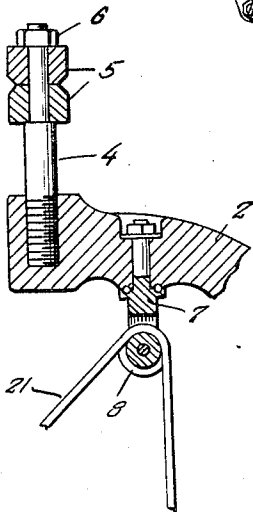
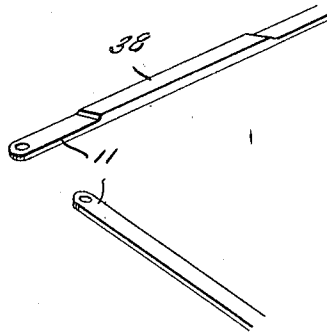


Fig. 5.



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EMBOSSING MACHINE

Application filed June 12, 1931. Serial No. 543,926.

The present invention relates to an embossing machine and more particularly to a device of this character which is especially designed for use in the art of making relief maps and has for its primary object to provide, in a manner as hereinafter set forth, a machine embodying a novel construction, combination and arrangement of parts whereby a sheet of ductile material, such as metal, may be worked or upset in a manner to rapidly form the desired reliefs thereon.

Another important object of the invention is to provide an embossing machine of the aforementioned character embodying a power driven reciprocating hammer having novel supporting means through the medium of which the hammer may be easily and accurately moved over the work as desired.

Other objects of the invention are to provide an embossing machine of the character described which will be simple in construction, strong, durable, efficient and reliable in operation and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in side elevation of a machine in accordance with this invention.

Figure 2 is a view in top plan thereof.

Figure 3 is a view in vertical section taken substantially on the line 3—3 of Figure 1.

Figure 4 is a fragmentary detail view in vertical section through the upper portion of the supporting structure.

Figure 5 is a fragmentary detail view in perspective showing, separated, the outer links of the lazytong.

Figure 6 is a plan view of a sheet having thereon an outline to be embossed.

Figure 7 is a detail view in vertical section through the supporting caster.

Referring now to the drawings in detail, it will be seen that the machine constituting the present invention comprises a base 1 from

which rises a standard 2 having a forwardly curved upper end portion terminating in a head 3 into which is threaded an upstanding pin 4 having a reduced, threaded free end portion upon which blocks 5 are rotatably mounted and retained thereon by a nut 6. A depending bracket 7 is swivelly mounted on the forwardly directed upper end portion of the standard 2 and has journaled in its lower end portion a pulley wheel 8. Suitable weights 9 are mounted on the base 1 and are disposed about the lower end portion of the standard 2.

A vertical pin 10 is rigidly mounted on the base 1 forwardly of the standard 2 and constitutes means for operatively connecting a lazytong 11 to the base, a spacing sleeve 12 being provided on the pin 10 for supporting that end of the lazytong in elevated position. The lazytong 11 is operable in a horizontal plane.

The reference numeral 13 designates a slab of suitable compressible material upon which the ductile work sheet 14 is mounted and temporarily secured by suitable means. The usual drain 15 is disposed on one of the marginal portions of the sheet 14.

An elongated, horizontally disposed metallic plate 16 is pivotally mounted, at an intermediate point, on the outer end of the lazytong 11 and anchored in the rear portion of said plate and depending therefrom is a supporting caster which comprises a pivot pin 17 having a reduced lower end portion upon which is rotatably mounted a substantially U-shaped bracket 18 which is horizontally disposed, the lower arm of said bracket 18 being comparatively long and bifurcated and having journaled thereon a roller 19 for travel on the element 15.

An electric motor 20 is mounted on the rear end portion of the plate 16. A cable 21 is trained over the pulley wheel 8 and has one end connected to the electric motor 20. A counterweight 22 is connected to the other end of the cable 21. Supporting cables 23 have their lower ends connected to the side joints of the links of the lazytong and their upper ends connected by yokes 24 to the rotatable blocks 5.

An upstanding bracket 25 is mounted on the forward end portion of the plate 16 and mounted for vertical reciprocation therein and extending slidably through an opening provided therefor in the plate 16 is a hammer which comprises a shank 26 having its lower end portion threaded for adjustably receiving a tapered, blunt head 27. A lock nut 28 is threaded on the shank 26 and engageable with the upper end of the head 27 for securing said head in adjusted position. If desired, the lower end portion of the shank 26 may be suitably scaled to facilitate adjusting the head 27 to a predetermined position. A coil spring 29 encircles the shank 26 and has one end engaged with a cross pin 30 which extends through the shank. The other end of the coil spring 29 is engaged with the plate 16. The coil spring 29 provides means, as will be apparent, for returning the hammer to its raised or inoperative position.

A shaft 31 is journaled in the upper end portion of the bracket 25 and mounted thereon for rotation therewith is a cam 32 which is operatively engageable with the upper end of the shank 26 in the manner illustrated to advantage in Figure 3 of the drawings for depressing the hammer against the tension of the coil spring 29. The cam 32 may be secured in position on the shaft 31 by suitable means, such as a set screw 33. The shaft 31 is operatively connected to the electric motor 20 for actuation thereby through the medium of a train of reduction gears 34. A counterweight 35 is fixed on one end portion of the shaft 31.

Arms 36 are fixed on the rear end portion of the plate 16 and extend diagonally therefrom over the adjacent links of the lazytong 11. Said arms rest on the lazytong links and are slidable thereon to permit the operation of the lazytong. The arms 36 provide means for supporting the rear end portion of the plate 16 upon which the electric motor 20 is disposed. Handles 37 project laterally from the forward end portion of the plate 16, said forward end portion being tapered, as seen in Figure 2 of the drawings. It may be well to here call attention to the fact that the lowermost of the lazytong links with which the arms 36 are slidably engaged is provided with a raised thickened portion 38 which is flush with the upper surface of the other of said lazytong links in order that both of the arms 36 will be supported in the same horizontal plane.

In use, the sheet 14 is positioned on the compressible slab 13 and disposed beneath the hammer of the machine. The head 27 extends adjusted to the desired position on the shank 26 and the hammer is then reciprocated by energizing the electric motor 20. As before stated, the work is previously outlined on the sheet 14 and the hammer

is then directed over the sheet as desired to form the reliefs designating the lowest elevations. The head 27 is then adjusted downwardly on the shank 26 to form the next lowest elevations on the sheet and this operation is repeated as many times as desired or as may be necessary. The supporting structure for the hammer is such that the same may be directed over the work with a minimum of effort. If desired, the supporting caster comprising the elements 17, 18 and 19 may be dispensed with and the reliefs designating different elevations formed in any desired order.

It is believed that the many advantages of a machine constructed in accordance with the present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. An embossing machine comprising a base, a lazytong connected to the base, a plate pivotally mounted on the lazytong, a motor mounted on the plate, a hammer mounted for vertical reciprocation on the plate, and means operatively connecting the hammer to the motor for actuation thereby.

2. An embossing machine comprising a base, a standard on the base, a lazytong connected to the base and capable of substantially horizontal expansion and contraction, a horizontally swingable plate pivotally mounted on the lazytong, a motor mounted on the plate, a hammer mounted for vertical reciprocation on the plate, means operatively connecting the hammer to the motor for actuation thereby, a pulley mounted for rotation on an upper portion of the standard, a cable trained over the pulley and having one end connected to the motor, and a counterweight suspended from the other end of the cable and operable to counterbalance the motor at varying distances from the base.

3. An embossing machine comprising a base, a standard on the base, a lazytong connected to the base and capable of substantially horizontal extension and contraction, a plate horizontally swingable pivotally mounted on the lazytong, a supporting caster mounted on the plate, a motor mounted on the plate, a hammer mounted for vertical reciprocation on the plate, means operatively connecting the hammer to the motor for actuation thereby, a pulley mounted on an upper portion of the standard, a cable trained over the pulley and having one end connected to the motor, a counterweight suspended from the other end of the cable and operable to counterbalance the motor at varying distances from the base, and supporting cables

having one end connected to an upper portion of the standard and their other ends connected to intermediate portions of the lazytong.

4. An embossing machine comprising a supporting structure, a hammer mounted for reciprocation on the supporting structure, said hammer including a shank having a threaded end portion, a work engaging head threaded for adjustment on said end portion of the shank, a lock nut threaded on the shank and engageable with the head for securing said head in adjusted position, and means operatively engageable with the shank for actuating the hammer.

5. In an embossing apparatus and in combination, a base, a substantially upright motor actuated hammer, means joining the base and hammer and capable of substantially horizontal movement to carry the motor actuated hammer away from and toward the base, and counterbalancing means for said motor actuated hammer operable irrespective of the distance of said hammer from the base.

6. In an embossing apparatus and in combination, a base, a substantially upright motor actuated hammer, and means joining the base and hammer and capable of substantially horizontal movement, said means comprising a horizontally movable part for increasing or diminishing the distance between the base and the hammer, and a swingable device by which the hammer is carried, mounted on said horizontally movable part.

7. In an embossing apparatus and in combination, a base, a substantially upright motor actuated hammer, means joining the base and hammer and capable of substantially horizontal movement, means for counterbalancing the hammer irrespective of its distance from the base, and means for adjusting the hammer vertically relative to the surface to be operated on.

8. In an embossing apparatus and in combination, a base, a substantially upright motor actuated hammer, means joining the base and hammer and capable of substantially horizontal movement, means spaced from the base for supporting said horizontally movable means, and means for balancing the motor actuated hammer operable to counterbalance said hammer at varying distances from the base.

9. In an embossing apparatus and in combination, a base, a substantially upright motor actuated hammer, means joining the base and hammer and capable of substantially horizontal movement, and means for counterbalancing the substantially upright motor actuated hammer without interfering with the horizontal adjustment thereof.

In testimony whereof I affix my signature.

JOHN J. BRAUND.