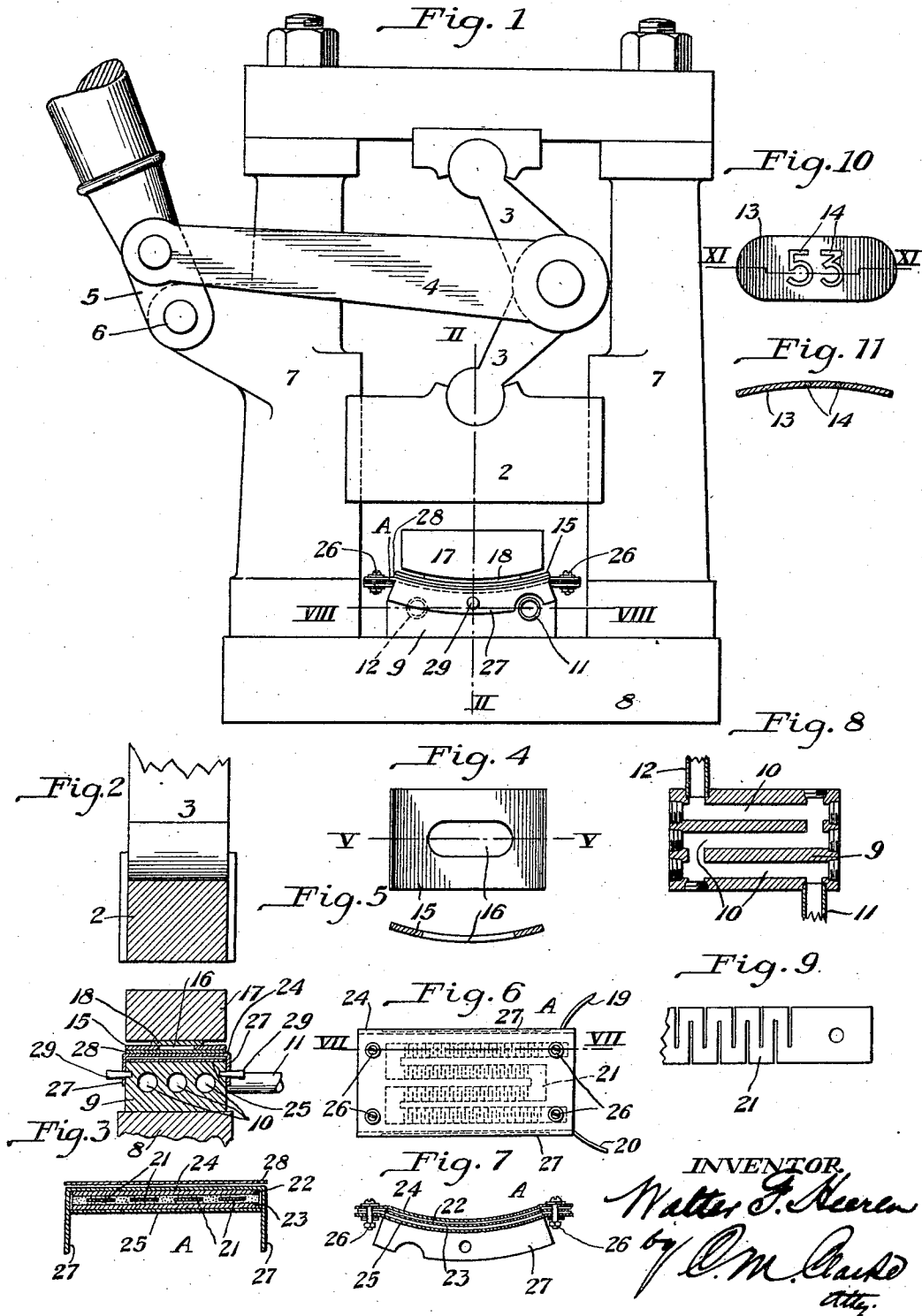


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PRESSING MECHANISM FOR SIGN UNITS.
APPLICATION FILED JULY 16, 1921.

1,417,993.

Patented May 30, 1922.



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PRESSING MECHANISM FOR SIGN UNITS.

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Application filed July 16, 1921. Serial No. 485,328.

To all whom it may concern:

Be it known that I, WALTER F. HEEREN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Pressing Mechanism for Sign Units, of which the following is a specification.

My invention consists of an improvement in pressing machines for the manufacture of signs or indicators in which parts of the sign are pressed into intimate smooth relationship with a holding base. The invention is particularly adapted to the bringing into co-operative relationship of the elements used in the making of cap or uniform signs for conductors, motormen, and the like, to produce a permanent, durable result in a sign of distinctive character and function.

Ordinarily, such signs are commonly made of a base of sheet celluloid or similar fibrous material having letters or figures inserted flush with its surface through previously cut out receiving openings, and it is of advantage to utilize heat in connection with great pressure so as to effect an intimate amalgamation of the parts, as well as a permanently durable smooth polished surface. The present invention has in view to provide a machine for such purpose and it is constructed and adapted to operate in the manner more fully hereinafter described.

In the drawings, showing one preferred construction,

Fig. 1 is a view of a press in elevation, provided with my improvement;

Fig. 2 is a vertical cross section on the line II—II of Fig. 1;

Fig. 3 is an enlarged sectional detail view through the heater;

Fig. 4 is a plan view of the sign holder;

Fig. 5 is a section thereof on the line V—V of Fig. 4;

Fig. 6 is a plan view of the heater, detached;

Fig. 7 is a section therethrough on the line VII—VII;

Fig. 8 is a horizontal section through the cooling block on the line VIII—VIII of Fig. 1;

Fig. 9 is a detail view of a portion of the resistance used in the heater;

Fig. 10 is a detached view of a sign as made on my improved machine;

Fig. 11 is a section therethrough on the line XI—XI.

The press itself is of well known construction in common use, having a pressing block or head 2 actuated by the toggle arms 3, 3, link 4 and lever 5 mounted at 6 on the side of the main frame 7 extending upwardly from base 8. Mounted on the base 8 is the water cooled anvil support 9 having circulation passages 10 therethrough in circulating connection with a supply and exhaust pipe 11, 12, respectively. The system being valve controlled for starting and stopping the circulation at will.

The support 9 may be cross cored, as shown, and plugged for economical manufacture, and to provide for ample exposure to the heat absorbing current of the circulating water.

In Figs. 10 and 11, I show a typical specimen of a sign as treated on my machine, consisting of a base 13 of celluloid, curved or flat, having flush inserted numerals or letters or other elements 14. These are previously cut out and interfitted by operatives, so that each base and its parts which are to be permanently fixed together constitute a unit ready for operation by the machine. A receiving plate 15, which may be curved or flat, is provided with an opening 16 adapted to receive the unit 13 and provide a mounting for it between a pressing die or block 17 which receives the pressure of the block or head 2. I preferably insert a piece of thin cardboard or the like 18 between block 17 and the plate 15 as a transmitting blanket or cushion to ensure even pressure throughout.

For the purpose of quickly imparting heat to the operating parts and the unit itself, I have designed the specially constructed electrical heating unit A. This is interposed between the anvil block 9 and the sign unit, and is adapted to quickly impart heat thereto, while under pressure, by the closing of a circuit through conductors 19, 20, by a suitable switch and source of current. The resistance element 21 of any suitable thin flat construction is enclosed between an upper and lower layer of mica 22, 23, with an intervening filling of the substance ordinarily called water glass, which entirely fills all interstices and provides a tightly close connection between the parts. The enclosing frame for the resistance member, as thus made, is an upper plate 24 and an under plate 25 of thin steel, the several plates and intervening layers being connected at

the ends by transverse rivets or bolts 26. These may be curved in the manner shown when it is desired to give a permanent curved set to the sign unit, as when used on the front of a cap, or may be flat if desired. For the purpose of forming a close contacting engagement with the water cooled base 9 and of amplifying the heat absorbing area for quick cooling, the upper plate 24 is bent down at each side by a flange 27 which closely embraces the front and back of block 9, with suitable clearance for the water pipes 11 and 12. A thin polished steel plate 28 is preferably laid loosely over the upper plate 24 and forms a supporting bearing for the under side of the sign unit 13. The heater is tightly secured to the water cooled anvil by pins 29 inserted through suitable openings in the flange 27 and in the front and back of the block, as shown.

As thus constructed, the machine is used by inserting the compound sign unit between the heater and the pressing block 17, the contacting faces being properly formed for close engagement. Block 2 is then lowered under the considerable pressure of the toggle mechanism and current is turned on and continued for a definite period, say one minute, the pressure being also maintained. The heat effects a permanent setting of the sign unit and a fusing of the parts, so that it becomes a practically integral or continuous sheet, with the inserted elements 14 thus permanently combined with the base 13. The current is then turned off and cold water is circulated through the anvil 9, by which the heat is quickly absorbed and the several parts and the sign unit are cooled. The effect of the sudden change in temperature is to complete the permanent setting of the unit and to impart an added polish to the surface.

The pressing head 2 is then raised, the unit is removed, and another is inserted and the operation just described is repeated.

The advantages of the invention will be readily understood and appreciated by all those familiar with the art involved. It is comparatively simple and economical in construction, ensures a high standard of quality to the sign units operated upon, and because of the minimum time involved, greatly increases the out-put over other methods now in use.

What I claim is:

1. A pressing machine having a water cooled anvil, a relatively thin separate casing mounted on the upper surface of said anvil, and including spaced apart upper and lower metal plates, a relatively thin electrical heating means interposed between the plates, the lower plate being in intimate contact with the top of the anvil and the upper

plate providing a pressing surface, and a pressing block having means for exerting pressure thereon.

2. A pressing machine provided with a water cooled anvil, an electrically heated support thereon having side members in embracing engagement with the anvil, a superimposed pressing block adapted to engage and press an intervening sign unit downwardly against the electrically heated support, and means for exerting and maintaining pressure upon the block.

3. A heating and cooling anvil support for a pressing machine of the class described comprising an anvil having a series of water circulation ports therethrough, means for establishing a water circulation therethrough, a superimposed heater consisting of an outer plate having downwardly extending flanges closely embracing the anvil, and electrical resistance members enclosed within said plate between it and the anvil.

4. A heating and cooling anvil support for a pressing machine of the class described comprising an anvil having a series of water circulation ports therethrough, means for establishing a water circulation therethrough, a superimposed heater consisting of an outer plate having downwardly extending flanges closely embracing the anvil, electrical resistance members enclosed within said plate between it and the anvil, and a superimposed thin supporting plate.

5. In combination with a water cooled anvil, a superimposed heating support consisting of an upper plate having downwardly extending flanges closely embracing the anvil, a lower plate, an intervening electrical resistance conductor, and an associated packing of water glass or the like.

6. In combination with a water cooled anvil, a superimposed heating support consisting of an upper plate having downwardly extending flanges closely embracing the anvil, a lower plate, an intervening electrical resistance conductor, an associated packing of water glass or the like, and outer sheets of mica between the resistance and the upper and lower plates respectively.

7. In combination with a water cooled anvil, a superimposed heating support consisting of an upper plate having downwardly extending flanges closely embracing the anvil, a lower plate, an intervening electrical resistance conductor, an associated packing of water glass or the like, and means connecting the upper and lower plates whereby to hold the intervening members in position.

In testimony whereof I hereunto affix my signature.

WALTER F. HEEREN.