

June 16, 1925.

1,541,966

H. KAPPELE

PRESS

Filed Oct. 6, 1924

2 Sheets-Sheet 1

FIG. 2.

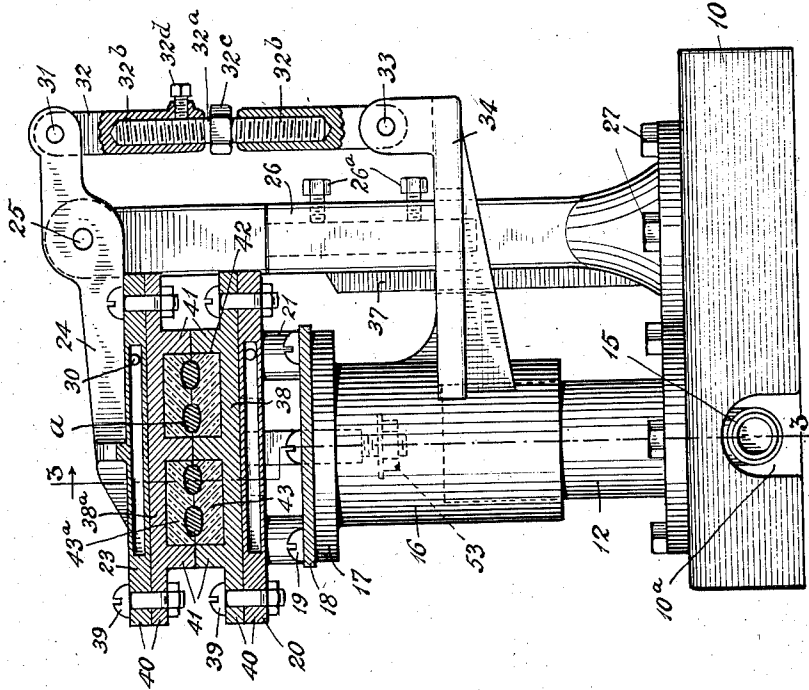
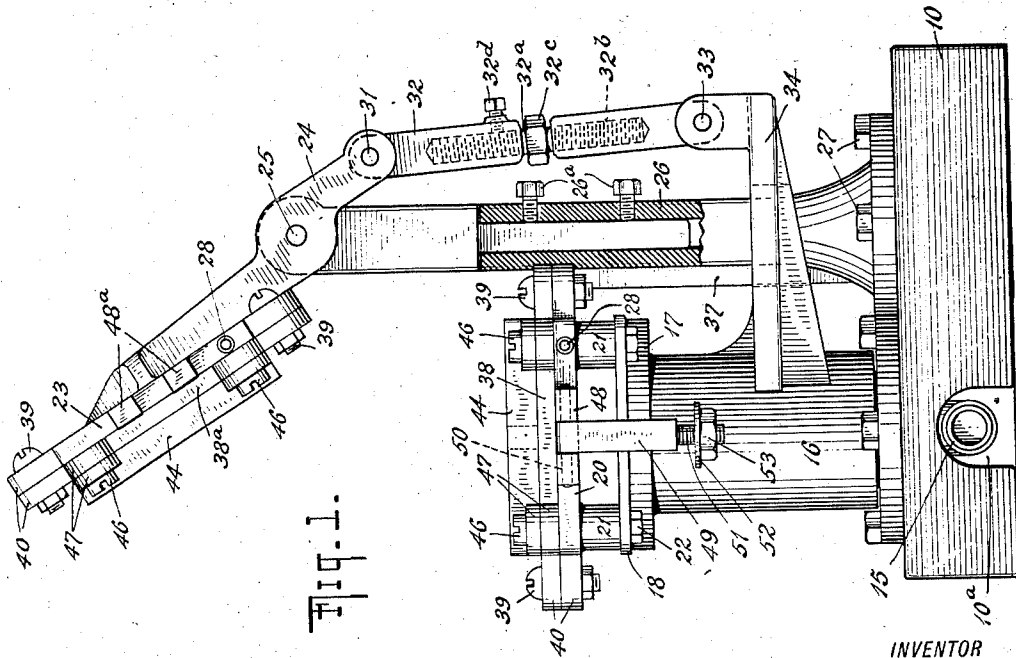


FIG. 1.



WITNESS

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FIG. 4.

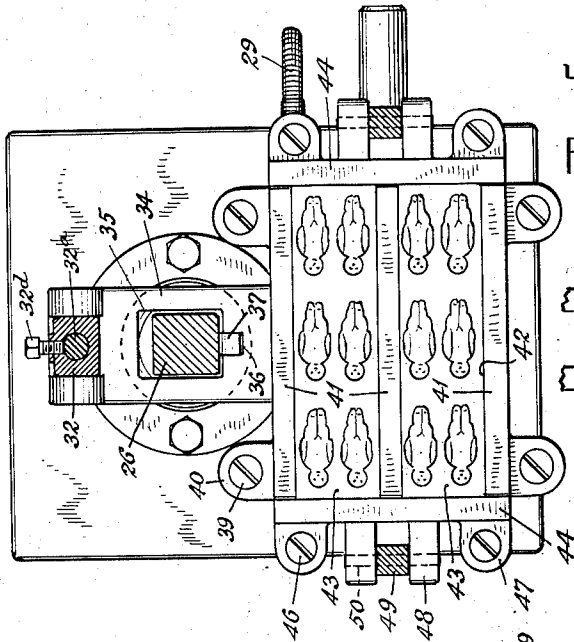


FIG. 5.

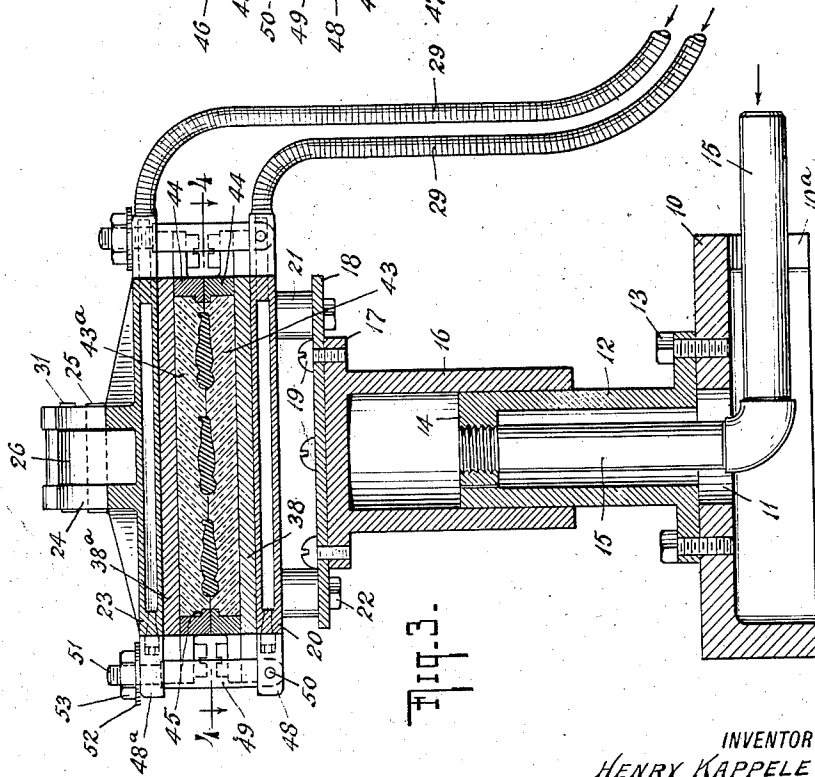
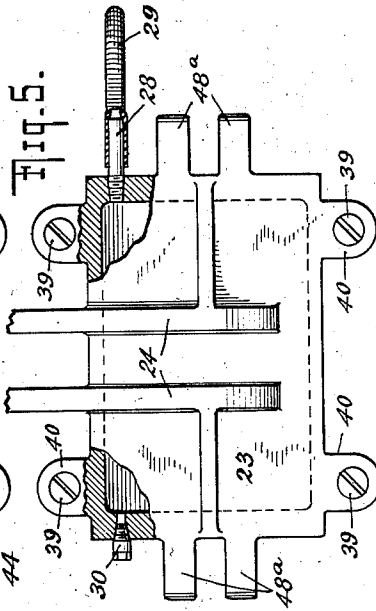


FIG. 3.

WITNESS

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UNITED STATES PATENT OFFICE.

HENRY KAPPELE, OF STAMFORD, CONNECTICUT.

PRESS.

Application filed October 6, 1924. Serial No. 742,082.

To all whom it may concern:

Be it known that I, HENRY KAPPELE, a citizen of the United States, and resident of Stamford, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Presses, of which the following is a specification.

My invention relates to presses and more particularly to die presses for stamping or forming articles of merchandise and is specially concerned with presses for making toys of rubber and also suitable material. The object of the invention is to provide a press of the indicated type which is of simple and novel construction and efficient in operation. Other more specific objects will appear from the description hereinafter and the features of novelty will be pointed out in the appended claims.

In the accompanying drawings, which illustrate an example of the invention without defining its limits, Fig. 1 is an elevation of the press in its normal inoperative position; Fig. 2 is a similar view partly in section, showing the press in its operative position; Fig. 3 is a sectional elevation on the line 3—3 of Fig. 2; Fig. 4 is a horizontal section on the line 4—4 of Fig. 3 and Fig. 5 is a detail plan view, partly in section of the upper press-member.

As shown in the illustrated example the press comprises a base 10 of any suitable construction and dimensions and provided for instance with an aperture 11 in registry with a hollow, upright standard 12 which projects upwardly from and is secured to the base 10 in any conventional manner as by means of bolts 13. The upper end of the standard is provided with a head 14 having an internally screw-threaded opening adapted to receive the one end of an inlet pipe 15 which extends through the aperture 11 and beneath and beyond the base 10, the latter being recessed at 10^a for the accommodation of the pipe 15 as shown in Figs. 1, 2 and 3. A suitably constructed sleeve 16 is slidably mounted upon the standard 12 so as to have a fluid tight fit thereon and is closed at its upper end by means of a head 17 upon which a supporting plate or the like 18 is secured in any well known manner as by means of screws 19. The plate 18 or the like in turn carries a press-member 20 mounted in spaced relation to said plate by means of lugs 21 and fixed in place for instance by means of bolts 22 or their equivalent; a

companion press-member 23 is carried by arms 24 pivoted at 25 upon an upright post 26 projecting upwardly from and secured to the base 10 by means of bolts 27 as shown in Figs. 1 and 2. Preferably the post 26 is constructed so as to be adjustable in the direction of its length, and accordingly, as shown, may comprise two sections adjustable relatively to each other; in such case one or more set screws 26^a may be provided for fixing the sections in an adjusted position, it being understood that this is only an example. Each of the press-members 20 and 23 is made hollow and is provided with a nipple 28 adapted to receive the end of a hose 29 whereby a heating medium such as steam or any other temperature changing medium may be conducted to the interior of said press-members 20 and 23; to guard against accidents each press-member may further be provided with a safety plug 30 arranged to be blown out when a predetermined pressure or its equivalent is reached within said press-members. The arms 24 extend beyond the post 26 and are pivotally connected at 31 with one end of a link-connection 32, the other end of which is pivoted at 33 to a bracket 34; the latter is secured to or comprises an integral part of the sleeve 16 and projects radially outward thereupon as illustrated in Figs. 1 and 2. The bracket 34 is provided with an opening 35 through which the post 26 extends and further is formed with a recess 36 arranged to co-operate with and slidably fit over a rib 37 extending lengthwise of the post 26 as shown in Figs. 1 and 2 for the purpose to be more fully set forth hereinafter. In the preferred arrangement the link-connection 32 is constructed in any conventional manner so as to be adjustable in the direction of its length, and as shown comprises an intermediate member 32^a screw-threaded in opposite directions and extending into pivot members 32^b; to facilitate the actuation of the member 32^a, it may be constructed with a centrally located polygonal head 32^c and a set screw 32^d may be provided for locking the member 32^a against unintentional adjustment relatively to the pivot members 32^b as shown in Fig. 2.

Upon the press-members 20 and 23 die-carriers 38 and 38^a are respectively mounted for instance by bolts 39 which pass through suitable registering lugs 40 located upon the press-members and die-carriers at con-

venient points. The die-carriers 38 and 38^a are provided with spaced flanges 41 which define chambers or recesses 42 for the reception of the dies 43 and 43^a respectively, the latter being of any conventional form and being constructed to perform the work for which the press is designed, whatever that may be; to hold the dies 43 and 43^a against displacement in their respective recesses end bars 44 extend across the opposite ends of the recesses 42 and are provided with flanges 45 which overlap the dies 43 and 43^a, the latter being recessed to accommodate said flanges as shown in Fig. 3.

The bars 44 are detachably fixed in place by means of bolts 46 which pass through registering lugs 47 provided respectively upon the ears and the press-members as shown in Fig. 2. For the purpose to be more fully described hereinafter the press-member 20 is constructed at opposite ends with ears 48 between which locking members 49 are pivoted at 50, said locking members being provided with screwthreaded ends 51 adapted to pass between corresponding ears 48^a located upon the press-member 23; washers 52 and nuts 53 arranged to be connected with said ends 51 serve to lock the members 49 between the ears 48^a and thereby rigidly fix the press-members 20 and 23 against separation for the purpose to be more fully set forth hereinafter.

In practice the proper dies 43 and 43^a are first fixed in place in the die-carriers 38 and 38^a respectively which are then mounted upon the press-members 20 and 23 and fixed therein by means of the bolts 39; in the normal, inoperative condition of the press the parts occupy the positions illustrated in Fig. 1 in which the material *a* such as plastic rubber or the like, to be used in the press is easily placed into the dies 43 to the required amount. Fluid under pressure, such as air, is then caused to flow through the inlet pipe 15 and by exerting its pressure from below upon the head 17 raises the sleeve 16 upon the standard 12 from the position shown in Fig. 1 to the position shown in Figs. 2 and 3. This actuation of the sleeve 16 correspondingly raises the supporting plate 18 and with it the press-member 20 and lower die 43 with co-related elements; at the same time the bracket 34 is carried along in an upward direction and by exerting a pressure upon the link connection 32 pivotally swings the arms 24 in a direction to cause the press-member 23 and with it the upper die 43^a and co-related elements to move toward the lower die 43. That is to say, the described lifting of the sleeve 16 causes the dies 43 and 43^a to approach each other, the die 43 moving upwardly in a linear direction or path while the die 43^a travels downwardly in a curved path. The operation set forth is continued

until the dies 43 and 43^a are in surface contact with each other whereupon if the nature of the material *a* is such as to require a prolonged pressure, for instance to permit it to harden in the form imparted to it by the dies, the latter are clamped together by bringing the ends 51 of the locking members 49 between the ears 48^a of the press member 23 and then screwing the nuts 53 and washers 52 firmly against the same. The fluid pressure within the sleeve 16 may now be relieved, if the dies are to remain clamped together in surface engagement for any length of time.

When the shaped articles *a* are ready to be removed from the dies, fluid under pressure is again permitted to pass into the sleeve 16 after which the locking members 49 are disconnected from the ears 48^a to release the dies 43 and 43^a. Thereupon the flow of pressure fluid to the sleeve 16 is discontinued so that the supporting plate 17 with the elements carried thereby including the lower die 43 gradually descends by gravity, the fluid within the sleeve 16 gradually escaping, for instance, through a suitable vent 14^a provided in the head 14 and retarding the descent of the parts to prevent shocks and injury thereto. As the sleeve 16 and with it the lower die 43 and its co-related parts, gradually moves downwardly, the bracket 34 is again carried along and by exerting a pull upon the link-connection 32 pivotally swings the arms 24 in a direction to move the press-member 23 and with it the upper die 43^a away from the lower die 43. It will be understood that the weight of the lower die 43 and its associated parts is greater than that of the upper die 43^a and its co-related elements so that the described operation of restoring the machine to its normal position illustrated in Fig. 1 is automatically carried out by gravity. If the nature of the material *a* is such as to require pressure only for an instant or so the separation of the dies in the manner set forth may be immediately brought about, in which case the use of the locking members 49 is unnecessary.

In any case during the time the machine is in use a heating fluid such as steam or any other medium for securing predetermined temperature or other conditions at the dies may be passed into the press-members 20 and 23 through the hose 29.

The machine is simple in construction and efficient in operation and does away entirely with the necessity for any manual effort in manipulating the dies, which are brought together by fluid pressure and separated by gravity; the intimate and positive connection between the dies, whereby one is controlled by the other, insures a harmony of operation which is very economical in operation and maintenance costs.

The press is particularly adapted for making toys and the like from rubber and other plastic materials although it may be utilized with equal efficiency for other purposes.

By manipulating the head 32^c and the intermediate member 32^a the link connection 32 may be adjusted as to length to bring the dies into proper contact with each other; this arrangement permits the use of dies of different transverse dimensions without in any way affecting the efficiency of the press.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of the invention.

I claim:

1. A press of the kind described comprising cooperating dies, die carriers on which said dies are mounted and means whereby an application of power to one die carrier is transmitted to the other to move each die toward each other and whereby one die carrier operates to automatically adjust said dies away from each other when the application of power is discontinued.

2. A press of the kind described comprising a lower die movable vertically, a cooperating upper die movable toward and away from said lower die, the latter being power actuated in its upward movements, and a connection between said dies whereby both dies are coincidentally moved toward each other and automatically moved away from each other when said power is discontinued.

3. A press of the kind described comprising upright supporting means, a first carrying means vertically slidable on said supporting means and being power driven in its upward movements, a die mounted upon said first carrying means to move therein in a lineal path, a second carrying means pivotally mounted upon said supporting means, a cooperating die carried by said second carrying means and movable therewith in a curved path and a connection between said two carrying means whereby both dies are concurrently moved toward and away from each other in their respective paths, said first carrying means and its die being heavier than said second carrying

means and its die and serving to automatically move the dies and carrying means away from each other by gravity when the power is discontinued.

4. A press of the kind described comprising a base, an upright standard thereon, a sleeve slidably mounted on said standard to move in a vertical, lineal path, means for introducing a fluid under pressure into said sleeve to raise the same, a lower die carried by said sleeve and movable therewith in a lineal path, a device pivotally mounted upon said base, an upper die carried by said device and movable therewith in a curved path and a connection between said sleeve and device whereby both dies are coincidentally moved toward each other in their respective paths on the power stroke and automatically moved away from each other by the gravitative action of said sleeve and its die when the power is discontinued.

5. A press of the kind described comprising a base, an upright standard thereon, a sleeve slidably mounted on said standard to move in a vertical, lineal path, means for introducing a fluid under pressure into said sleeve to raise the same, a lower press-member connected with said sleeve a lower die carried by said lower press-member to move therewith in a vertical, lineal path, an upright post on said base, arms pivotally mounted on said post, an upper press-member on said arms, an upper die carried by said upper press-member to move therewith in a curved path and an adjustable link-connection between said sleeve and arms whereby said press-members and dies are concurrently moved toward and away from each other in their respective paths.

6. A press of the kind described comprising cooperating dies, die carriers on which said dies are mounted, a connection between said die carriers whereby power applied to one of said carriers is transmitted to the other to move both dies toward each other, one of said die carriers being heavier than the other whereby said dies are both automatically adjusted away from each other by gravity when the application of power is discontinued.

In testimony whereof, I have hereunto set my hand.

HENRY KAPPELE.