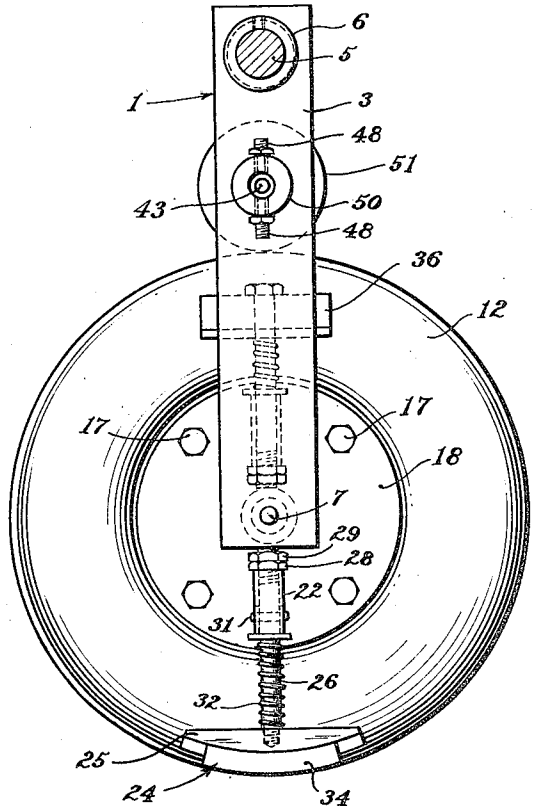
June 26, 1951 B. R. DAVIS 2,558,542

SHEET MARKING APPARATUS

Filed Aug. 25, 1947 2 Sheets-Sheet 1

Fig. I



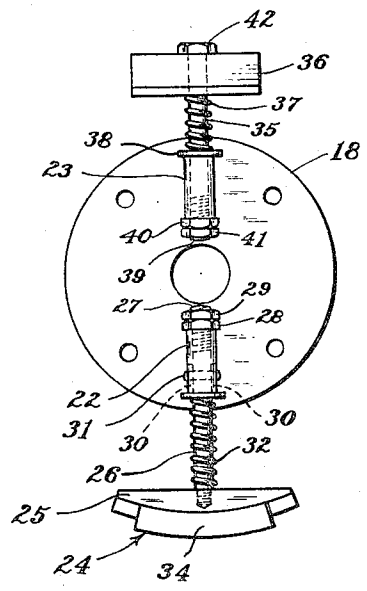


Fig. III

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SHEET MARKING APPARATUS

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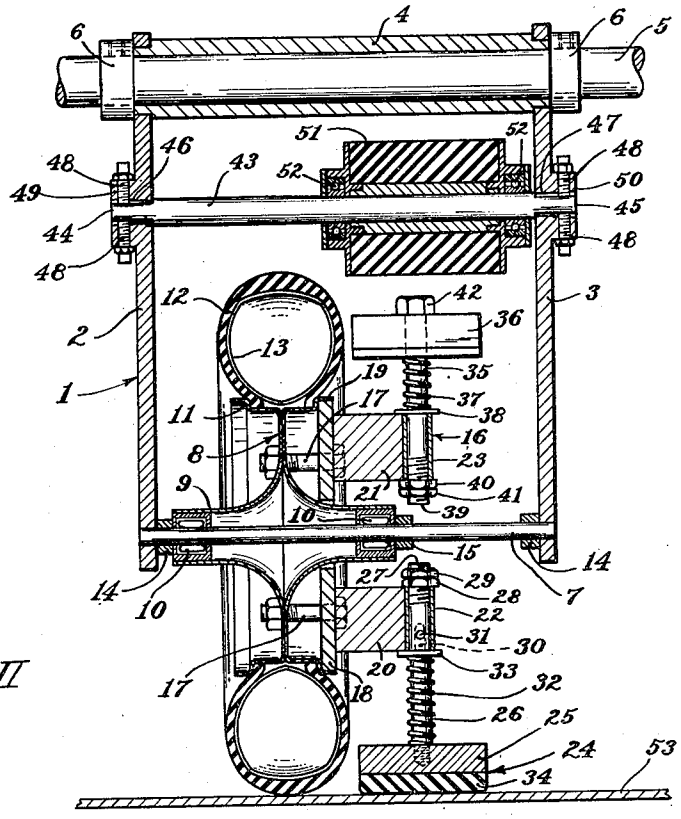


Fig. II

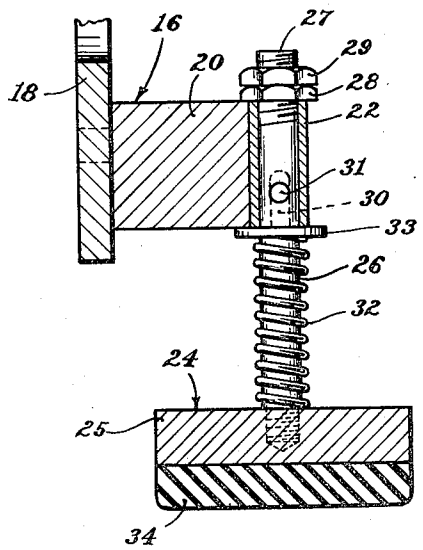


Fig. IV

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SHEET MARKING APPARATUS

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4 Claims. (Cl. 101—37)

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This invention relates to an apparatus for marking sheet material such as sheet steel, sheet metals generally, or other sheet material, and particularly for marking sheet material the surface of which has a relatively low coefficient of friction.

It has been known to provide a printing wheel for the continuous marking of continuous sheet material, such as rubber or other resilient materials having relatively high coefficients of friction whereupon printing pressure for satisfactory impression may vary considerably with no consequence, and whereupon the printing wheel may be driven by the sheet material itself without substantial smearing of the printing ink. However, insofar as I am aware, no one has previously provided a simple, inexpensive, and effective apparatus equally adaptable for the marking of materials the surfaces of which have relatively low coefficients of friction such as sheet metal, or the like, with ink, or similar materials, wherein the printing pressure is a definite and critical function of the quality of the impression transmitted from a rubber printing die, or the like, to the surface of such material, and it is a primary object of my invention to provide such an apparatus wherein a feather touch may be maintained at all times between the die and the surface to be marked in order to avoid smearing.

A further object of the invention is to provide a sheet marker of the above mentioned type in which independent means is provided for actuating the printing die.

Another object of the invention is to provide a sheet marker in which the die is adjustably and yieldingly mounted.

Another object of the invention is to provide a sheet marker comprising a marking die mounted on a carriage or driving wheel, whereby the driving wheel may contact the surface to be marked and therefore maintain the marking die in constant proper relative position with respect to the surface to be marked regardless of variations in the surface of the material being marked.

Still another object of the invention is to provide a sheet marker of the above mentioned type capable of providing spaced or intermittent markings on the sheet material.

Other and further objects of the invention will become apparent as the description proceeds, reference being made to the accompanying drawing forming a part of the present disclosure, wherein:

Fig. I is a side elevational view of a sheet marker

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constructed in accordance with the teaching of my invention;

Fig. II is a central, transverse, vertical sectional view of the sheet marker illustrated in Fig. I;

Fig. III is a side elevational view of the marking die and its supporting structure; and

Fig. IV is an enlarged, fragmentary sectional view illustrating details of the supporting structure for the marking die.

Referring in detail to the drawings, it will be seen that my sheet marker comprises a frame generally indicated by reference numeral 1, including side bars 2 and 3 rigidly connected adjacent one end to a sleeve 4, the ends of which extend through the side bars to provide a means for swingably mounting the frame.

The frame 1 may be swingably mounted upon a shaft 5 secured to any stationary framework and may be positioned along said shaft 5 at any desired point by means of collars 6 provided with set screws (not shown).

A shaft 7 extends between the side bars 2 and 3 of the frame adjacent the free ends thereof and the said shaft 7 provides a means for rotatably supporting a wheel or carriage structure generally indicated by reference numeral 8.

The wheel 8 comprises a hub structure 9 provided with suitable bearings 10 and a clincher rim 11 upon which a rubber tire 12 is mounted. The tire 12 is the ordinary pneumatic type and is provided with the usual inner tube 13. Collars 14 are provided on the shaft 7 adjacent the ends thereof to properly position the same relative to the frame, and the wheel 8 is positioned on the shaft 7 between one of the collars 14 and a similar collar 15.

Bracket structure generally indicated by reference numeral 16 is secured to the wheel 8 as by means of the bolts 17. The bracket structure comprises an annular plate 18 adapted to fit over the hub 9 and within the flanged portion 19 of the clincher rim whereby to provide a firm support for the bracket on the wheel 8.

Diametrically opposed arms 20 and 21 project laterally outward from the plate 18 and support at the ends thereof sleeves 22 and 23, respectively.

In the illustrated embodiment of the invention the sleeve 22 supports a marking die holder generally indicated by reference numeral 24. The holder 24 comprises a curved backing plate 25 and a radial post 26 rigidly connected therewith. The post 26 is positioned in the sleeve 22 and the inner end 27 thereof extending through the sleeve is threaded and provided with a nut 28 and a

locking nut 29. The sleeve 22 is provided with diametrically opposed elongated slots 30 which receive a pin 31 extending through the post 26 to thereby limit the movement of the post 26 and its connected marking die holder 24.

A coil spring 32 provided on the post 26 extends between the curved plate 25 and a washer 33 at the outer end of the cylinder 22. A rubber die 34, or the like, is suitably secured to the backing plate 25 and thus the marking die holder and die are adjustably and resiliently mounted upon the bracket means 16.

The sleeve 23 receives a post 35 extending through a counterweight element 36. A spring 37 is provided on the post 35 between the counterweight 36 and a washer 38 at the outer end of the sleeve 23 and the inner end 39 of the post 35 is threaded to receive a nut 40 and locking nut 41. A nut 42 is provided at the other end of the post to retain the counterweight thereon. The counterweight structure provides static and dynamic balance for the rotating wheel and marking die structure, and it will be obvious that if desired, a second die holder and die may be substituted for the counterweight structure.

A shaft 43 having flattened end portions 44 and 45 is mounted in elongated slots 46 and 47 provided in the members 2 and 3, respectively, above the carriage and die structure, and adjusting screws 48 are provided in bosses 49 and 50 extending outwardly from the members 2 and 3, respectively, to adjustably position the shaft 43.

A cylindrical inking pad or roller 51 is rotatably mounted on the shaft 43 in the path of movement of the marking die 34 by means of ball bearings 52, the inner races of which are rigidly secured to the shaft 43.

In operation, the rubber tire 12 of the carriage 8 rides upon a sheet of metal or other material 53 in frictional contact therewith, thereby causing rotation of the carriage and its associated die structure. In rotation of the carriage the die contacts the sheet of material once each revolution in the illustrated embodiment and provides a marking thereon. Obviously, of course, if two dies are provided as suggested above, two markings will appear on the sheet for each revolution of the wheel 8.

The nuts 28 and 29, the pin and slot connection 30 and 31, and the spring 32 provide means whereby a feather touch may be maintained at all times between the die 34 and the surface of the material 53 which is to be marked, thereby avoiding smearing. In addition, the driving wheel, in contact with the surface to be marked, maintains the marking die in constant proper relative position with respect to the surface to be marked regardless of variations in product surface. The yielding mounting of the die 34 aids in the latter in the event the surface of the sheet material varies transversely thereof.

The adjustment of the shaft 43 carrying the inking roller 51 provides a means whereby proper inking pad pressure can be maintained at all times between the die and the inking roller.

It should be particularly noted that the present sheet marker does not depend upon friction between the printing die and the surface of the material for the actuation of the printing die. This is particularly important when materials having relatively smooth surfaces and low coefficients of friction are being marked. In surfaces such as provided by sheet metal, the presence of ink between such surface and a printing wheel will not provide sufficient friction that impressions may be made without smearing.

If for any reason it is desired to not have the driving wheel contact the material to be marked, the present structure provides means whereby the driving wheel may contact the conveyor for the material. In such a case it will be obvious from the foregoing that both the marking die and the inking roller may be adjusted to still maintain a feather touch between the die and the surface to be marked by means of the nuts 28 and 29 and the adjusting screws 48, respectively.

From the foregoing it will be obvious that I have provided a simple, inexpensive and effective apparatus for marking sheet metal and other materials wherein a feather touch may be maintained at all times between the die and the surface to be marked and wherein friction between the die itself and the material is not depended upon for actuation of the marking die, thereby avoiding smearing of the printing ink in a highly effective manner.

Although the foregoing specification has been more or less specifically directed to the marking of materials having relatively low coefficients of friction, it will be obvious that my device may be used with equal efficacy in the marking of materials having relatively high coefficients of friction, such as sheet rubber, wall paper. linoleum, brick, mastic tile, etc.

Having shown and described one specific embodiment of my invention, it is to be understood that such showings described and illustrated are exemplary of that invention and that changes may be made within the boundaries of the claims appended hereto.

I claim as my invention:

1. In a sheet marker, the combination comprising a frame, a sheet-contacting carriage rotatably mounted on said frame to be rotated by contact with and relative linear movement with respect to a sheet to be marked, bracket means secured to the said carriage for rotation therewith and extended laterally therefrom, a marking die, support means for said marking die extending from said bracket and secured thereto to rotate with said carriage, means yieldably mounting said marking die on said bracket comprising a spring urging the said die outwardly with respect to its center of rotation, means for adjusting the position of the die support on said bracket to position said die in marking relation with the sheet passing therebeneath to give a feather touch to said marking die, and cooperating means on said bracket and die support means permitting inward radial movement of said die support means against the action of said spring.

2. A marker for sheet material the surface of which has a low co-efficient of friction, comprising a frame, a carriage including a resilient tire rotatably mounted on said frame and adapted to be rotated upon contact with and relative linear movement with respect to the said material, bracket means secured to said carriage for rotation therewith and extended laterally therefrom, a marking die, support means for said marking die extending from said bracket and secured thereto to rotate with said carriage, means yieldably mounting said marking die on said bracket comprising a spring urging the said die outwardly with respect to its center of rotation, means for adjusting the position of the die support on said bracket to position said die in marking relation with the sheet passing therebeneath to give a feather touch to said marking die, and cooperating means on said bracket and

die support means permitting inward radial movement of said die support means against the action of said spring.

3. A marker for sheet material the surface of which has a low co-efficient of friction, comprising a frame, a carriage including a resilient tire rotatably mounted on said frame and adapted to be rotated upon contact with and relative linear movement with respect to the said material, bracket means secured to said carriage for rotation therewith, a marking die a post engaged with said marking die and mounted in said bracket by means providing radially inward movement of said post in said bracket with respect to the center of rotation of said bracket and said carriage, and yieldable means between said die and said bracket arranged to urge the said die radially outward with respect to the said center of rotation, in marking relation with the sheet by contact with which the said carriage is rotated.

4. A marker for sheet material the surface of which has a low coefficient of friction, comprising a frame, a carriage including a resilient tire mounted on said frame and adapted to be rotated upon contact with and relative linear movement with respect to the said material, bracket means secured to said carriage for rotation therewith, a

marking die, a post engaged with said marking die and mounted in said bracket by means providing radially inward movement of said post in said bracket with respect to the center of rotation of said bracket and said carriage, yieldable means between said die and said bracket arranged to urge the said die radially outward with respect to the said center of rotation, and means adjusting said post radially in said bracket.

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